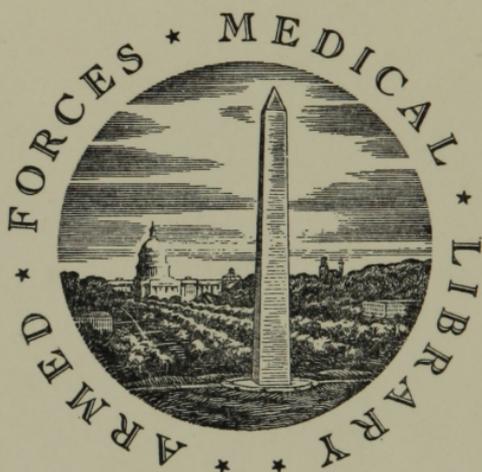




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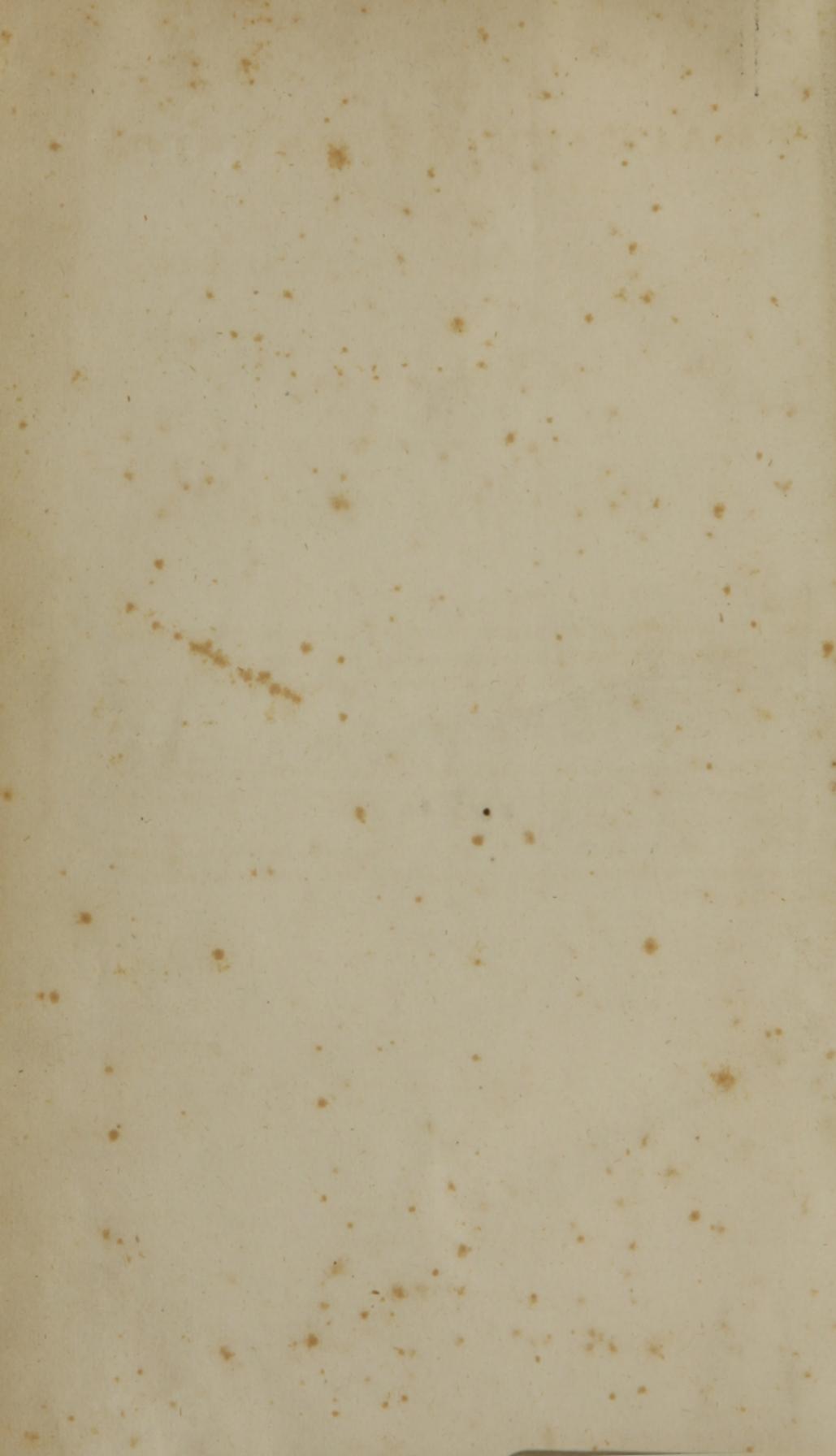
WASHINGTON, D.C.





Dr J. Steele  
Dayton  
Ohio

John Steele



A

# PRACTICE OF PHYSIC,

COMPRISING

MOST OF THE DISEASES NOT TREATED OF

IN

“DISEASES OF FEMALES,”

AND

“DISEASES OF CHILDREN.”

---

BY WILLIAM P. DEWEES, M. D.

ADJUNCT PROFESSOR OF MIDWIFERY IN THE UNIVERSITY OF PENNSYLVANIA;  
MEMBER OF THE AMERICAN PHILOSOPHICAL SOCIETY; MEMBER  
OF THE PHILADELPHIA MEDICAL SOCIETY, &c.

“We live in an age in which the fear of *debility*, causes a prodigal use of *stimulants*; and this too often, at the expense of the health, and the life of the patient.”—*Broussais, Phleg. Chron. Vol. II. p. 82.*

“Had I *dared* to bleed freely, and especially by means of leeches, the patient might have been saved; but I was afraid of *debility*. But, who is to blame!”  
—*Ib. p. 178.*

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IN TWO VOLUMES.

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VOL. I.

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PHILADELPHIA:  
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“A Practice of Physic, comprising most of the Diseases not Treated of in ‘Diseases of Females,’ and ‘Diseases of Children.’ By William P. Dewees, M. D. Adjunct Professor of Midwifery in the University of Pennsylvania; Member of the American Philosophical Society; Member of the Philadelphia Medical Society, &c.

“‘We live in an age in which the fear of *debility*, causes a prodigal use of *stimulants*; and this too often, at the expense of the health, and the life of the patient.’—*Broussais, Phleg. Chron. Vol. II. p. 82.*

“‘Had I *dared* to bleed freely, and especially by means of leeches, the patient might have been saved; but I was afraid of *debility*. But, who is to blame!’—*Ib. p. 178.*—In two volumes.”

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D. CALDWELL,  
Clerk of the Eastern District of Pennsylvania.

TO  
**SAMUEL JACKSON, M. D.**  
*&c. &c.*

THIS WORK IS INSCRIBED,  
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*BY HIS SINCERE FRIEND,*

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PHILADELPHIA, }  
Dec. 19, 1829. }

HARVEY J. HARRISON, M. D.

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BY HIS FRIENDS

WILLIAM J. BRYAN

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## ADVERTISEMENT.

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WOULD it be either sufficient, or satisfactory, were the question asked, "why has this work been given to the public?" to merely answer, because we were of opinion, that it was wanted? Will the necessity for such a work, insure its faithful, or best execution? Certainly it will not. It may therefore be proper to add, that we have brought to our aid in this compilation, (for what practical work can pretend to originality,) the experience of more than forty years; and if this has been important upon the other occasions on which we troubled the public, it must be no less useful now, as it has been no less extensive. We have therefore attempted by means of our own observations, together with those of others, as collected from pretty constant and extensive reading, to make this work useful and acceptable to the student, and the inexperienced practitioner. If this wish be ever realized, our object will be abundantly answered; and if it be not, we must derive comfort from the conviction, that we shall not have left the practical part of medicine, in a worse condition than we found it.

We have dwelt upon certain points, which we have thought important to successful practice, with more than necessary detail perhaps, to the experienced physician; but we are persuaded he will forgive this minuteness, when he reverts to that period of destitution of practical detail in his own life, which every physician must have felt once, and at which, he would so gladly have availed himself of the experience of another, could he have commanded it. We now allude to the chapters, which treat of the general management of diseases, and on the duties, importance,

and qualifications of the tenders upon the sick, whether they be "nurses" by profession, by accident, by necessity, or by courtesy.

We have attempted to elicit a more extensive and strict attention to the diseases of the chest, than has been generally bestowed upon them, by earnestly recommending the practice of its exploration by the stethoscope and percussion, agreeably to the rules laid down by Laennec in his inimitable, as well as invaluable work upon this subject. We would moreover recommend a faithful study of this truly authentic author, if the practitioner wish to arrive at accuracy of diagnosis in the diseases of the lungs, the heart, &c. We would also take the liberty at the same moment, of directing the attention of the young practitioner, to the study of the works of Forbes, Williams, Andral, Bayle, Louis, Broussais, &c. who have so rapidly and so successfully advanced our knowledge of diagnosis, as well as the pathology of the diseases of the several viscera of the thorax, and other portions of the body.

In treating the various diseases which we have at present subjected to our consideration, we have been particular, whenever practicable, to dwell upon their pathology as long and as minutely as was consistent with our present design; believing, most firmly ourselves, however incredulous or indifferent others may be upon this point, that it is the only true foundation to rest practical medicine upon.

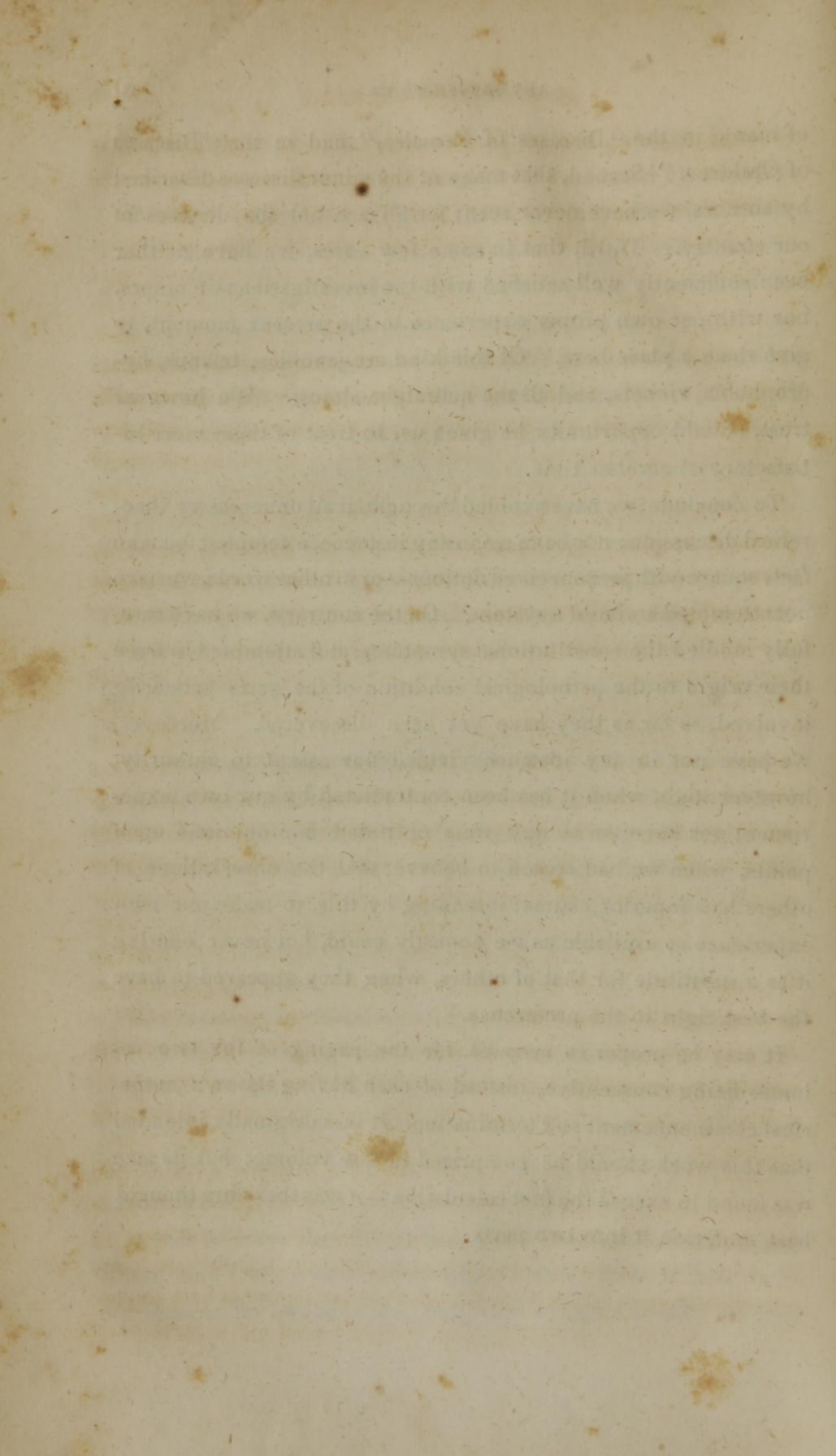
The diseases, or affections of the eyes, we felt too important to trust their pathology and mode of treatment, to our own experience; we are therefore indebted to our friend, Dr. Hays, for the chapter upon this subject—his long and attentive study of the subject, together with his experience in this branch of practical medicine, has amply fitted him for the task.

It will be seen, that the present work does not comprise the history and treatment of every disease that "flesh is heir to;" our reasons for omission are, first, that we have already treated

of many, in the "Diseases of Females," and in the "Diseases of Children." Second, that many of the minor diseases described by authors, we have never seen; for all are not the diseases of our country. Third, that in some few cases, we have neither been sufficiently well satisfied with the investigations of others, nor with our own proper experience to the present moment, to give them a place here. Of this kind are jaundice, tetanus, hydrophobia, rickets, and all the neuralgiæ almost. We however trust, should opportunity be given us, to treat of them more satisfactory at another time.

To conclude; we have avoided throughout all unnecessary theoretical discussion; nor have we in any instance, attempted to make facts square with preconceived notions—or in other words, we have not attempted to build a system. On the contrary, we have carefully studied the constitutional symptoms, and attempted to trace their origin to the pathological condition of the parts primarily involved, so far as they have yet been discovered. Moreover, we have not in any instance yielded our assent to authority, however high, when it has been contradicted by our own experience; nor have we at any time obtruded our opinions upon points, when we had reason to believe, that the observations of others had superior claims; intending by this, to make our own experience as available as we honestly could, but never offering it as a substitute for that of others, when they appeared to have the best right to the preference.

It may be proper to account, for the paging of the two volumes being consecutive, instead of each having its own numerical commencement and termination. It was originally intended that this work should be comprised in one volume; but its size was found to exceed the first calculation—it was therefore thought best to divide it into two parts.



## GENERAL OBSERVATIONS.

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1. THE great light which the French pathologists have shed upon the nature of fever, has enabled us in a very remarkable manner, to curtail its course, and to lessen its danger. The present work is not one, in which it would be either necessary or proper, to discuss the nature of this class of diseases—we shall therefore not attempt it. It will be every way sufficient for our purpose to state, that the variety of fevers formerly made by some nosologists, is now very much diminished; and the mode of treatment, founded upon examinations after death, has been very much simplified.

2. Nothing has retarded success in the treatment of fevers so much, as the almost endless variety, some nosologists have made; and each of which, agreeably to such distinctions, requiring a different mode of treatment. Thus Sauvages gives no less than one hundred and fifty varieties of fever; and almost all the nosologists since his time, though they have not gone to the same length, have nevertheless recognised so many, as to become every way dangerous in practice.

3. In many instances, a single symptom in fever, has been sufficient to establish a variety, and a consequent difference in treatment—thus, we hear of a *mucous fever*, because the tongue has happened to be very white; of a *bilious fever*, because it has chanced to be yellow; or a putrid, or typhus fever, because this organ had become black, dry, or brown, &c. Now, in all these instances, the state of the stomach was, most probably, positively the same; differing only in the degree, or in the activity of the inflammation, which was the original cause of the constitutional symptoms; and which has these various states of the tongue, very constantly, if not invariably, as attendants. If this be true, and we think it cannot well be disputed, is it not worse than idle, to make distinctions, where there are no important or essential differences? or to institute a variety in treatment,

where one plan, if the right one, and properly pursued, is every way sufficient for the end proposed!

4. It appears to be at this time settled, at least as far as unanimity can prevail upon a subject not susceptible of absolute or rigid demonstration, that, in all the supposed varieties of fever as recognised by some writers, (but which by very many of the best informed of the present day, are looked upon almost as gratuitous,) the lining membrane of the stomach is constantly found after death to be in a state of inflammation, (more or less;) and that all the constitutional symptoms, or the phenomena of fever, depend upon the altered condition of this organ; and consequently, that all the remedial means are such, and such only, as are calculated to diminish, or remove it. And farther, that every thing which has not this tendency, is not only useless, but is injurious.

5. We are aware, that every favourite theory, may be acted upon too exclusively, in a practical sense; and we are even willing to admit, that the celebrated author of the doctrine just glanced at, pushes his practical precepts beyond, what we at this moment believe, is warranted by general experience. Thus he confines his treatment, so exclusively to the reduction of the inflammation of the stomach by leeches, and absolute starvation; that he loses sight, in his plan of cure, of the necessity of removing the extraneous substances, which almost always occupy this organ, or the bowels; and which cannot fail by their presence, in our opinion, to become irritants, and every way able to perpetuate, if not to augment, the existing evil.

6. But on the other hand, we are ever disposed to exercise equal candour, and to acknowledge, that much mischief is constantly done, by the employment of means, altogether disproportionate to the mere removal of foreign substances from the alimentary canal, or from the stomach itself. And we farther admit, (but at the same time let us be understood to reprehend the mistake, while we deplore its consequences,) that the prevalent idea upon the subject of clearing the first passages in fever is, that it requires remedies, active in proportion, to the violence of the constitutional symptoms; the very reverse of which, is the fact, if the opinions we have adopted of the cause and for the cure of fever be true.

7. For it must be evident that if the cause of fever consist in an inflammation of the mucous coat of the stomach, it is every way certain that violent emetics, or very active purgatives, will not have a tendency to remove this cause, however successful or sure they may be, of carrying off from both stomach and bowels, the impurities that may have occupied them. In such cases then, no greater error can well be committed, than to employ them. We are convinced, that it is within the recollection of almost every observing physician, the surprise he felt when the more active forms of fever did not yield to the very powerful cathartics he employed to subdue it; and that he constantly attributed his want of success to the indomitable nature of the disease, rather than to the ineligible nature of the means he had had recourse to. He never dreamed that the stomach was in a state of high excitement; and that the stimulating remedies that he made use of, were better calculated to augment, than to sooth the condition of the organ on which they primarily acted.

8. It is to the French pathologists chiefly, but especially to Broussais, and his friends, that we are indebted for the late important discoveries in morbid or pathological anatomy; and for the great improvement in the mode of treating almost every febrile affection founded upon these researches. And though we admit without hesitation, that they have in some instances run into an ultra mode of treatment, yet we are in truth obliged to acknowledge the value of their discoveries.

9. The premises and deductions of Broussais, we are aware, are not universally admitted; but in this he shares but the fate of all who have made valuable contributions to medical science. Some pass over his suggestions even without notice; while others furiously dispute the condition of the organs on which they are based. The one, is a reprehensible indifference; the other, too often is an uncandid examination.

10. Upon this point Dr. Johnson makes the following judicious and emphatic remarks. "If it be true, and we believe it is as good as proved, that all the symptoms known to accompany European fevers at least, also accompany the disease we are treating of, (gastro-enteritis,) in its acute form—if it be true that in nine-tenths of these fevers there are signs of gastro-enteritic in-

flammation during life, and that unequivocal traces of its having existed are found after death—if it be true, that this connexion of fever with the phlogosed state of the digestive organs was not efficiently noticed before the time of Broussais, then must it be also true, that this pathologist has conferred an incalculable benefit on the healing art, by calling the attention of those that exercise it, to this important, and hitherto neglected coincidence.”\*

11. The discovery of the inflamed condition of the stomach in fever, leads to many highly important therapeutical observances in the choice, and in the administration of remedies; this both regards their qualities, and quantities; and will very emphatically account for the many failures in their cure, before this valuable pathological fact was thoroughly established. It also points out the value of local depletion, by either leeches or by cups; and satisfactorily accounts for the frequent success that follows the loss of a comparatively small quantity of blood, when abstracted by these means, from the region of the stomach.

12. We do not, however, yield entire faith to the French pathology upon the subject of fever; namely, that its seat is always in the stomach. For so far we have not had sufficient proof, that an inflamed condition of the mucous membrane of this organ is the true cause of adynamic, or typhus fever. So far as dissections can be relied on, this organ has very often been found in a normal state in patients who have died of this fever. The brain, the liver, the spleen, have all been observed to have borne marks of inflammation in the adynamic fevers; and in some other instances, dissection did not appear to reveal any thing that was conclusive upon this point. In all fevers that may have marsh miasma for their remote cause, the stomach we believe will almost always be found to be the seat of the affection.

13. It moreover directs the choice of both diet and drinks in cases of fever—for it at once admonishes us to the cautious use of all; and imperiously forbids the employment of any which may belong to the class of stimulants. The cautions suggested in the use of food and drinks, are perhaps more extensively va-

\* Med. Chir. Review, April, 1828.

luable, than those for the administration of remedies; for the use of the first appears to be more frequently delegated to the nurse or attendants upon the sick, than to form a part of the regular, and necessary prescription of the physician; while the latter forms the more direct province of the medical attendant, and is usually conformed to by those who have charge of the sick.\*

14. It is intended, by what we have just declared, to convey a direct, and severe censure, to every practitioner who neglects to prescribe, with rigorous care, every article of food or drink his patient may require. And at the same time, we recommend to him to jealously watch, that it has neither been altered in quality, nor exceeded in quantity. We regret that this all-important vigilance is not sufficiently often exerted by the medical attendant; and that so much latitude is given to those, who, from the very nature of things, can neither comprehend the nature of the disease, nor be acquainted with the best mode of treating it.

15. From what has been said, it would appear, that, in the cure of fevers, much will depend upon the choice, and the due administration of drinks and food; and, moreover, we hesitate not to say, that all well-regulated experience is in its favour. Thousands have been called to an untimely grave, by the officiousness of the nurse, and the overweening anxiety of friends; for both too often and too certainly conspire, against the best interests of the patient, by acting independently of the suggestions of the physician, or by running counter to his most positive directions.

16. The office of "*Nurse*"† is one of awful responsibility when its duties are properly considered; for on the faithful discharge of them, the life of a fellow being in very many instances

\* A physician cannot commit a greater mistake, than to leave the choice of drinks to the attendants upon the sick; this should be one of his unalienable rights, and one of his most positive duties; nor should he ever dispose of them. The directions for the drink of the patient, is oftentimes of more value than the prescription for medicine; and that practitioner is highly culpable, who neglects to specify both the kind of drink, and the nature of the aliment, before he leaves the sick room. And we are sorry to be obliged to acknowledge it as a fact, that we have known many instances where neither diet nor drinks were specified by the physician, though the patients were labouring under diseases of an acute form.

† Of this we shall speak more at large presently.

depends. How much intelligence, good sense, and fidelity are required, that the patient may profit by her attentions; or that he may not be injured by her self-willedness or neglect! Where there is a medical attendant, the duties of the nurse are reduced to two simple, but highly important rules; and the observance of which should be most rigidly insisted upon. First, to do every thing that the physician orders to be done, and this in the strict letter of his commands. Second, to do nothing herself, nor permit any one else to do that which he has not ordered; for it is fairly to be presumed, that the physician will direct, to the best of his knowledge, whatever he may think is essential to the welfare of his patient; therefore, for a nurse to put her judgment in opposition to that of the physician, is both arrogant and dangerous.

17. Unfortunately, for the welfare of the sick, it too often happens, that the nurse, when about to oppose the judgment, or disobey orders, enlists on her side, the immediate friends of the patient, by unnecessarily rousing their fears for his safety, or still more reprehensibly, by diminishing their confidence in the skill and experience of the medical attendant. When this happens, the suffering patient is left to the management of a disingenuous and ignorant nurse; while the physician is charged with the entire responsibility of his recovery. Could all the consequences of the backslidings of nurses be made to meet the public eye, they would exhibit one of the most appalling pictures, that could be imagined, where absolute turpitude was not concerned in its production.

18. But in making this charge against this very important class of people, we mean not too generally to impugn their intentions—we are convinced they act from an honest, though a dreadfully mistaken notion, even in their greatest deviations. For it unfortunately happens that most nurses have their own notions of the nature and cure of every disease they may be called upon to watch; and but too often act upon their own theories, to the subversion of the plans of the physician; and not unfrequently, to the destruction of the patient.

19. Now, can it be for a moment supposed, that an ignorant, uneducated woman, (be her experience what it may,) shall be as well qualified to judge of the condition of a patient, as the man

who has devoted the better portion of his life to the investigation of diseases? This, we are persuaded, will be answered by every thinking being, in the negative; yet, is there a physician living, who has not seen, in many instances, the opinion of a nurse preferred to his, during his attendance upon the sick! As a mere matter of calculation, and to which every school-boy is altogether competent, it will be found, that in no instance can the judgment of the nurse be equal to that of a well-instructed practitioner, of even moderate practice. For a nurse cannot for the most part, attend but to a single patient at a time; and the whole that may fall under her charge, amount to a very few; consequently, her observations, must from the very nature of things, be very limited; while the physician, in the same period, may see hundreds; and of the condition of which, from his education, habits of thinking, and talent for observation, is infinitely better qualified to decide upon the nature of the disease, and its mode of treatment.

20. Though the evils of which the physician has so much cause to complain, arise almost always from the direct agency of the nurse, yet they are less to blame in some other instances than the immediate relations and friends of the patient. For did not the latter consent to become faithless to their duty; a duty rendered sacred by every tie, and by every law, the nurse could not, perhaps would dare not, act contrary to the most absolute, and well-defined directions, of the physician. It is quite time that this grievance should be redressed—it is the bounden duty of every individual in society to aid in this all-important change; nor is the remedy difficult to find—for it consists simply, in each individual determining to become faithful to his own interests, and consequently disregarding the crude opinions of a nurse.

21. The injuries which the sick receive from improper nursing, are not always chargeable, as we have just hinted, to the nurse, properly so called—the near friends of the patient, from whom we have a right to expect better things, are equally, and sometimes solely culpable; for they, like the nurse, have their own notions to support; and unfortunately they do support them; and this, too often, at the sacrifice of the patient.

22. There are two consequences always dreaded by the ill-

instructed, in almost every case of acute disease—namely, *debility*, and *typhus*. These phantoms, haunt the imagination with such frightful constancy, as to dethrone reason and to annihilate judgment. They are the dreaded, and constantly-rung tocsins in the ears of the physician; and unfortunately, if he be not a man of marked moral courage, and have not proper confidence in himself, he becomes so appalled and overpowered by this din, as to yield up his judgment; and this, to the destruction perhaps of the life entrusted to his care.

23. The friends, with a view to destroy these bugbears of the imagination, (*debility* and *typhus*,) insist upon the use of improper remedies, but more especially upon improper diet, and drinks, which, if yielded to, is sure to injure, if not to destroy the patient. Inflammation, and its consequences, must, in the opinion of these alarmists, be suffered to run on, or to increase, because, the remedies most suitable to relieve them, are supposed only calculated to increase the dreaded *debility*, or to bring on horrid *typhus*. Hence, the destructive administration of bark, volatile alkali, wine, &c. or the almost equally destructive use of broths, chicken water, or animal food, in one form or other, during the continuance of fever. And we may here declare, once for all, that it is our most solemn and deliberate opinion, that the apprehension of *debility*, and of *typhus*, has caused more deaths, than the unrestrained Plague, or the much-feared yellow fever.

24. We have dwelt upon this subject, perhaps beyond the patience of the reader; but certainly not longer than the subject demands, or its importance merits; and especially by those, for whose more immediate use, this work was undertaken. The directions for the management of the various diseases, must be regarded as the opinions of the physician, by those not connected with the profession, and consequently, general rules, must not be deviated from, without great and well-weighed cause, if success is to follow the plans of treatment laid down in these pages. For due consideration has been given to every portion of the work; and every direction given for the management of the various diseases treated of, is the result of the experience of the most approved authorities, aided by that of the author.

25. We cannot, however, yet dismiss this subject; we feel it

important, again to recur to the vulgar errors on the hackneyed points of debility, and typhus.

26. Weakness, or debility, is the necessary consequence of disease, whether it be suffered to run its course without interference, or has been treated agreeably to the rules of art. The patient and the disease, therefore, must be looked upon as a unit; and consequently, whatever abates the one, must necessarily diminish the other; and in most instances of acute, and continued disease, there is no removing the one, but at the expense of the other. This fact should constantly be borne in mind; because, as a great practical truth, it may tend to diminish the apprehensions just named, as well as give the best possible chance for the patient's recovery.

27. It should also be recollected, that *debility* is not *disease*; it is only one of its insuperable attendants; and is never, or but very rarely, of itself, the cause of death; for we may from long experience very safely say, where one dies from pure debility, an hundred perish from over-stimulation, or from the remedies purporting to counteract weakness.

28. The proper plan then to remove debility, must be to cure the disease; but the contrary course is almost constantly pursued; the consequences, we shall not repeat. Let us for a moment, look at the means usually employed, to *support strength*, or to *prevent typhus*. They will be found to consist of all the more powerful stimulants in our possession; and whether they range under the head of medicines, or are regarded as articles of diet, they are for the most part, equally improper. Under the former, the bark, volatile alkali, opium, æther, phosphorus, and all the bitters, may be classed; and under the latter, brandy, wine, porter, ale, alcohol, animal food, broths, and jellies, may be ranked.

29. It is a fact generally admitted, that, the remedy which is not calculated to diminish or overcome a disease, is almost sure to increase it—now, fever for the most part has for its cause, a local inflammation; and that inflammation, seated in one of the most important organs of the body; namely, the stomach; if this be admitted, and admitted it is, by all the most enlightened of the profession, will not the common sense of mankind revolt at

the idea, that this formidable condition of the system, is to be overcome by means like those just enumerated?

30. Let it not, however, be imagined, that our treatment of acute diseases, excludes every kind of nourishment, or of stimulant, from its plan. On the contrary, it will be seen, that both one and the other are employed; and that we only insist upon the proper selection, quantities, and periods of exhibition. Our nourishments will be derived almost exclusively from vegetable substances; and our stimulants, will be mainly confined to external application. We must attempt to remove another vulgar error; one which has unfortunately an application as extensive, as it is mistaken, and mischievous; namely, that all stimulants, (whether durable or diffusible,) are tonic and bracing, and consequently calculated to prevent, or remove the monster *debility*, and thus secure the patient against the other dreaded consequence, *typhus*.

31. Hence, alcohol, whether in the form of brandy, wine, &c., is considered, and by too many, is emphatically called, *strengthening*—and hence, its almost universal employment, in the decline, and in some instances, at the very acmé of the disease, by those, whose imaginations teem with the fear of debility, and typhus; and hence, as we have too often witnessed, the too certain production of the very conditions, so much held in dread.

32. This last assertion is not a creature of the imagination; it is too truly founded in fact; and we pledge our best hopes upon its truth. Nay farther, we have many times seen, a simple intermittent, with well-marked intervals, converted into a highly dangerous remittent; and have more than once witnessed the latter, goaded into, what is usually termed typhus, by the too early or too powerful application, of stimuli. And we now insist once for all, that debility never was, nor never can be removed by diffusible stimuli, alone. As well might the unmerciful rider expect the renovation of the flagging strength of his sinking horse by the application of his spurs, as for us to attempt the restoration of strength to the human body, by the mere exhibition of alcohol, in any shape or form, whatever. Let it be remembered, that under the best circumstances it is rarely useful; and to be so, requires, that its exhibition should be most

nicely timed as well as regulated by the soundest judgment. Let it also be borne in mind, that where it is once fortunately employed, it is an hundred times improperly applied. Indeed, the same may be said of substances which are usually termed *very innocent*; namely, the solution of animal jellies, in the form of broths, as beef tea, chicken water, &c.

33. We feel it highly proper to be more explicit upon the subject of animal jellies; and in so many words declare, we know of no period in the continuance of any acute disease or fever, where they are admissible; or rather, where they will not do, positive harm. We are truly of opinion, that "*chicken water*," that *simple, innocent substance*, as it is usually called, has done more mischief in acute diseases, than even the ill-judged use of the lancet, or the too freely urged mercury. For the "*chicken water*" is every day, and even very often in the same day, producing its mischief; while that from bleeding and mercury, under the circumstances stated, is of comparatively rare occurrence—yet so common and inveterate are the prejudices in its favour, that we fear we shall be too rarely believed, and too seldom aided in its proscription.

34. We are seriously of the opinion, that a majority of the relapses in acute diseases, is owing to the injudicious employment of the "*innocent chicken water*." We well remember an instance, where only three table-spoonsful of this animal solution, created so much fever, and so severe a renewal of the pain of pleurisy, that seven bleedings were required to subdue them; though at the moment of its exhibition, the friends of the patient, and her physician, thought her in a state of convalescence.

35. It is in the unadvised and injudicious use of animal substances, either entire, or in solution, that nurses most frequently effect the mischief complained of above. They cannot comprehend, how a small piece of meat, a little broth, or a few spoonfuls of chicken water, shall do harm to a patient who is labouring under fever, and who is confessedly very weak; and though they quickly after its exhibition witness an aggravation of every symptom, they never charge the improper food with the mischief; and therefore they do not profit, even by experience.

36. In the same way, and with similar results, do they venture upon "seasoning the victuals with a little dash of wine or

brandy," contrary to the most positive prohibitions of the physician. Is it then surprising, that fever should have so many victims, when the force of the disease is aided by the covert conspiracies of the attendants upon the sick! It were devoutly to be wished, that the duties of the nurse could be fulfilled, but by the exercise of conscience. For were this the case, they would most probably pause, and possibly cease to act, upon their own responsibility.

37. Hitherto, we have only adverted to the errors committed by the attendants upon the sick; and exposed a few of the more prominent sources from which they arise. We shall now lay down a few rules for the government of the sick room, believing that a work strictly practical like the present, would be very defective without them.

38. It is universally admitted, that "good nursing is half the cure;" yet there are but few who understand, in what this really important art, consists. And were we to describe it by negative, we should almost be tempted to say, that it consists, in almost every thing, but that which is absolutely done. But as this brevity would not serve the purposes we aim at, we shall descend to some general principles, and the rules resulting from them.

39. In the first place, the physician has to acknowledge, that his attentions upon the sick, would be altogether unavailing, were his directions not obeyed by the nurse, and this, in the most faithful manner; the rule to be followed by the nurse must therefore be obvious; namely, to follow them, most implicitly. But the duties of the nurse are various as well as important; and consist of her qualifications for her office; the faithful administration of medicines; the giving of drinks and nourishment; attention to cleanliness; keeping the room quiet; procuring its proper ventilation; preserving a proper temperature of the air of the room; regulating the warmth of the patient; the examination and preservation of his excretions; her management of his sitting up; making of the bed; the proper use of the utensils for the evacuations; the mode of giving him drinks; the application and dressing of blisters; the administration of enemata; and management of the patient during convalescence.

*1. Of her Qualifications as a Nurse.*

40. In every department of life, however humble, or however dignified, it will be found, that certain qualities are essential to the best fulfilment of the duties belonging to each. To the one we are now considering, too little consequence has hitherto attached; it has been imagined, that any female was competent to this end, provided she had no absolute or physical incompatibility; than which, no greater error can well exist.

41. Both mental and physical powers are essential to a good nurse; without the first, she will lack a most important quality, namely, judgment; and without this she would be unable to profit even by experience. She may possibly be competent to follow a particular, or a strictly marked out routine; but will rarely be able to generalize her duties, so as to make them available to the best interests of her patient. She could not be trusted with safety to execute a general order, by which remedies are to be persevered in, or withheld, agreeably to the varying condition of the disease. She cannot make herself mistress of the import of symptoms; or become familiar with the several states of the pulse. In a word, she would want the happy faculty of combination, so often, all-important to the sick. The reverse of all this may rationally be expected from one who has cultivated, to a certain extent, a naturally good understanding, and who has made herself mistress of her duties.

42. She should be a woman of close observation, and of strict veracity; the first will enable her to detail to the medical attendant the various changes of the disease; or it will instruct her in the application, or the withholding of the different remedies, as may be pointed out by the physician, or by the books of instruction she may be obliged to follow. The second is eminently required, that no exaggerated statement, nor suppressed truth, may mislead the judgment of the medical attendant in forming his plan of treatment.

43. She should possess no small share of both moral and animal courage, that no condition of the patient may make her flee the bed side, or permit him to rise at an improper moment, or to commit acts of violence upon himself; and that she may be

able to withstand his solicitations for things that are improper, or that have been forbidden. Yet must she be all gentleness in manner; or soothing, or commanding in tone, as circumstances may require. She should possess feeling; that she may the more readily be prompted to her duties; but she must not be so far led astray by it as to betray alarm, where there is even just cause for it; but she should especially guard against it, when there is none.

44. She should possess moral honesty, that she may completely understand her situation as regards those, whose orders, from the nature of her office, she has voluntarily bound herself to obey. Her duty is passive obedience; and when she refuses this, she breaks a contract; and if she follows her own promptings in the management of the patient, she betrays a sacred trust, by which she may counteract the best devised plan of treatment; or may heedlessly destroy a fellow being, by a departure from her prescribed duty.

45. It is at once obvious she should possess sufficient physical powers, that she may not sink under the weight of her duties; and that she may be able to give every necessary aid to the patient, where his own strength is incompetent; or where it would be exhausted were it employed. And with a view to maintain her strength, she should be supported by a proper diet, and such occasional rest, as the exigences of the case may require. The comfort of the patient is very often dependant upon the physical powers of the nurse; the weariness arising from too long a continued position; or the restlessness consequent upon sickness, can only at times be relieved by changes of posture; and for these changes, he must be dependant upon the physical powers of the nurse.

46. To effect these changes, requires, on the part of the attendant, not only the physical powers insisted upon as essential to this character, but also an entire willingness to perform these duties in the best manner, and as often as may be demanded; amiability, and goodness of temper, are therefore also required. Every body that has been prostrated upon the bed of sickness, knows full well how eminently it is in the power of the nurse, to render it more supportable, by a kind, willing, and amiable deportment. And the obligations which an affectionate carriage

imposes upon the sick, is ever after acknowledged by a grateful recollection of it. So important, indeed, is the mild and attentive conduct of the nurse in some instances, that it contributes largely towards recovery. And so decidedly injurious, in some instances, is a contrary conduct, that it is sure to render sufferings more intense, if not, to augment danger; while in others, it has been too certainly destroyed.

47. Much depends upon the mode of exhibition, that medicines may be faithfully swallowed; or that they be not constantly rejected. A cheerful, persuasive manner on the part of the nurse, will often conquer a disgust that is almost consequent upon remedies being presented; and they are almost sure to be taken, even by children, if she administer them with delicacy, and chosés the proper moment for their exhibition. She should therefore possess so much prudence, as not to excite aversion, by talking of their ungrateful taste, or their forbidding effects; and she should have so much tact, as to seize upon the instant at which they will be taken. And upon the importance of the regular administration of medicine, every body is agreed.

48. Nature appears to have endowed the female in an especial manner, with a capacity to support fatigue, and to endure privations; hence, their peculiar fitness for the duties of nurses. And should one not possess these qualities, she is altogether disqualified for the important office of a “*good nurse.*” The sick, require the utmost vigilance of the nurse; she should therefore, not be a heavy sleeper; nor even be unusually prone to sleep, lest he may suffer from the want of her attentions. This is particularly the case, where the patient is much exhausted; for sometimes he is unable from weakness to rouse her, when he may much require her care.\*

49. But as no one can endure the loss, of but a certain portion

\* Some nurses not only sleep *profoundly*, but also snore *loudly*; serious, and double disadvantages. We visited a gentleman who had the misfortune to be attended by one of these unmusical nurses; on one occasion upon my inquiring of her how Mr. — had slept, she answered “delightfully; he did not wake once the whole night.” The gentleman on the other hand assured me, in a faint and exhausted voice, that he had not closed his eyes during the night; nor could he, for the loud snoring of the nurse. Nor could he rouse her, by any effort his feeble powers permitted him to make; in consequence of which, he suffered much for drink, &c. during the whole time.

of sleep, the nurse should be indulged to take a nap during the day, at a time she can be best spared from the sick room, that she may be able to resume her watch at night. To more effectually insure vigilance, the nurse should abstain from every species of liquor, unless it may be an occasional small quantity, if really exhausted by long watching, or over-exertion; sobriety is a sine qua non to a nurse.

50. Cleanliness in habits, is of immense consequence to a nurse; she should pay scrupulous attention to her clothes being frequently changed, and always clean. Her hands should be frequently washed; and she should not use *tobacco* in any shape whatever; if she snuff, her fingers, by which she is to prepare the nourishment of the patient, will be always begrimed with this disgusting article; if she chew, or smoke, her breath will be highly offensive. And, indeed it would always be a good practice for her to carefully rinse her mouth after each meal; as the stomach of the patient is often made to revolt, from the impression of disagreeable odours, upon the nose.

51. Let it be borne in mind however, that too much duty should not be imposed upon the nurse; for if this be done, she may fail at a moment, when of all others, her services may be required. To prevent such an accident, her strength of constitution should be consulted; that no more may be put upon it, than it is well able to bear. In cases of long-protracted illness, therefore, other assistance should be added, so as to afford her an opportunity for proper rest, or if much exhausted, for entire renovation. This is a matter of much consequence to the patient in many instances; for the one who has been long about his person becomes familiar with his habits, as well as those of the disease.

## 2. *Of the Faithful Administration of Medicine.*

52. If there be any power in medicine over disease, it must be owing to its proper selection, and its well-timed exhibition. It is left for the physician to make the choice of the remedy; but it depends too often upon the nurse, whether it be efficacious or otherwise. It is in vain that remedies are procured, or by whatever experience, or talent they may be prescribed, if they be not

applied, as directed. A nurse therefore, assumes an awful responsibility, when she departs from her absolute province, and undertakes to differ in opinion with the physician, or neglects his orders.

53. On the regular exhibition of medicine, the cure very often depends; this is so generally admitted, that it needs no illustration. In many cases, life itself is at the mercy of the nurse, as she may faithfully, or negligently perform her duty. How necessary is it then, that this important personage, should feel the responsibility attached to her situation; and be influenced by a conscientious regard, for the proper fulfilment of the duties, her undertaking has imposed upon her?

54. In insisting on the entire conformity of the nurse to the directions of the physician, we do not wish to be understood as declaring, there is no exception to the rule. On the contrary, the patient, as well as the physician, are occasionally indebted to the nurse, for a judicious suspension; or perseverance in remedies, beyond the strict letter of her orders; and especially, when such departures have proceeded, from a genuine exercise of judgment; and not from a wayward determination to disobey. Now, as there must necessarily exist every variety of constitution, as well as very many peculiarities, or idiosyncrasies, no one can be certain, that the remedy ordered, shall act precisely as desired; consequently the departures from such expectations may be great; and were the medicine not suspended, or sometimes urged, beyond the common direction, much injury might ensue. In such cases, the judicious interference of the nurse, may be highly valuable, and fortunate.

55. But these cases, rare in occurrence, are but the exceptions, and do not in the least interfere with the general rule; and to which, it is the bounden duty of the nurse, most scrupulously to adhere. She is therefore not only bound to do, most exactly, what she is ordered to do, but also, to do nothing, she is not ordered to do; for as much mischief may result from the one, as from the other.

### 3. *Of giving Drinks and Nourishment.*

56. Greater errors are generally committed in the use of drinks and nourishment, than in the neglect, or mal-administra-

tion of medicine. It is supposed, that thirst must be allayed whenever importunate; and that this can only be done, by pouring down fluids, without regard to either quantity or quality. This error is sometimes of serious moment, as it not only overloads the stomach, but also forces it to regurgitate the superabundant draughts, to the great inconvenience or injury of the patient. An over-quantity causes oppression and restlessness; an improper quality may seriously injure from its entire incompatibility. On these accounts, the nurse should never depart from the quality of the drink, nor ever exceed the due or prescribed quantity.

57. Upon these points, the nurse should never deviate from express directions; for should she, she cannot answer that immediate mischief may not ensue. Drinks have a more decided influence upon the system than is generally admitted; they should therefore be subject to the direction of the physician, as much as medicine and food.

58. From a vulgar belief, that all the "herb teas," as they are called, are perfectly innocent, we find nurses in the constant habit of employing them, without the sanction of the physician; by which the most serious evils oftentimes arise. It should be recollected, that whatever substance possesses a power to do good, may also have a power to do injury, if it be injudiciously administered; therefore, the whole class of these teas should be proscribed, unless expressly ordered by the medical attendant, as they are all, to a greater or less extent, heating or of a stimulating character.

59. Popular feeling is in favour of warm or hot drinks, with the generality of nurses; they are therefore almost constantly exhibited in this condition, especially in fever; because they promote perspiration, as they suppose. This error should be done away with; and a bare statement of a fact, namely, experience has proved, that as a general rule, they are hurtful. A nurse should therefore never be permitted to prescribe drinks, any more than a medicine; for we cannot but regard them as efficient, or injurious, as they may be properly or improperly ordered.

60. We may make similar objections to the manner of giving, as well as of the quality of the food offered to a patient. It is almost always given in too large quantities; too frequently re-

peated, and but too often of an improper quality. The physician alone should be the judge of these matters; and his orders should be obeyed, most strictly, and literally. The nurse should never for an instant depart from his directions upon this point; she should not upon this subject be permitted to think for herself. An error in quantity, it should be remembered, is almost equal to an error in quality; for every particle that remains unsubdued by the stomach, becomes offensive, because it remains unsubdued. Or if it be subdued, it may be extremely injurious, by affording too much nutriment to the system, at a moment when it requires absolute reduction. So important then is the due administration of nourishment, that the nurse should never be left to her own discretion.

#### 4. *Of Cleanliness in the Sick Room.*

61. No single agent is of more importance in a sick chamber, than pure air; therefore, to prevent its becoming foul, every source by which it may be deteriorated should be removed instantly, when practicable; and when not, it must be compensated for, in the best manner attainable. On the nurse, this task will almost exclusively devolve; she must therefore be mindful not to neglect this important part of her duty, whenever there is a necessity. To accomplish this, every thing that can emit an unpleasant smell, or shall evolve an injurious gas, must be taken away with all convenient speed. The evacuations should be removed instantly from the room; the body, and the bed-clothes, should be as frequently changed as circumstances will allow. Fresh air should be freely admitted into the room; no filth should be permitted to accumulate upon the floor, the tables, the bed, or the hearth.

62 All the vessels employed, either for medicine, drinks, or nourishment, should be cleaned the instant they are used; consequently, the same vessel or spoon should never be used twice without cleaning, unless the substance for which it has been used is not of a nature to become offensive to any one sense.

63. The patient's hands and face should be frequently cleansed; and especially when warm, by wiping them with a towel or napkin, wetted with cold water or vinegar and water, unless

there be chilliness present, or is easily excited by the application of any thing cold. In a word, every thing should be kept as clean and as sweet as the nature of things will permit. With the same view to comfort, the patient should have his mouth frequently cleansed; by himself, if his strength will permit; and by the nurse, when this fail. This attention is particularly grateful in the decline of such fevers as assume what is called the typhus type; that is, where the tongue becomes dry, and the teeth encrusted. For this purpose, yeast and water is very effectual; or a wash made of a tea-spoonful of the sweet spirit of nitre, and a table-spoonful of water. The latter is particularly acceptable to the mouth, in the beginning of active fevers; when the tongue becomes loaded with a white dense fur, or is coated with a tenacious slime. The patient, when able, finds both comfort and amusement, while performing this office himself, by means of a tooth-brush.

#### 5. *Of quiet in the Sick Room.*

64. There is scarcely any thing so distressing to the sick, as noise. It should therefore be the nurse's particular study to prevent disturbance from this cause. She should not only be of quiet habits herself, but she must make every body else conform to this regulation. A talkative nurse, is a great evil; indeed it is one, that can only be removed sometimes, by the removal of the nurse herself; and it were always better to do so than to have the patient exposed to the inconvenience of her loquacity.

65. A talkative nurse, is almost sure to be a superstitious one; and if so, she will deal out her forebodings so liberally as to do decided injury to the patient. In the sick room, no signs should be enumerated, but good ones; therefore all gossiping recitals of similar cases having had an unfortunate termination, should be most carefully prohibited. All unnecessary conversation should be avoided; therefore the sick room is not the place for idle colloquies. If conversation must be carried on, let its character be of the cheerful kind; and in a tone of sufficient elevation, that the patient may, if he become interested, thoroughly comprehend it. This should always be remembered. But as a general rule, the less conversation is indulged in, the better; especially, when the disease is of the acute kind.

66. In certain conditions of the nervous system, cheerful conversation is frequently highly beneficial—and in such cases, an agreeable, chatty, and well-instructed nurse, is of immense value. But even in such cases, the topics of conversation should be judiciously chosen, and their duration, properly regulated.

67. A nurse however, may be annoying to the patient if she be not over-talkative; for there are your bustling nurses, who are forever putting “things to rights,” without ever effecting the object; and who during the whole time make so much clatter, that the patient gets no sleep, however strong his desire; or else is as constantly disturbed, by the officious employment of shovel, tongs, or dusting brush.

68. We are aware that the use of these implements, cannot altogether be dispensed with; but their employment can certainly be properly timed.

69. It were better, that the hearth remained unswept; or the fire unrenewed, than that the patient should be prevented from taking his nap, or that he should be roused from a sleep, that might be highly instrumental to his recovery, in effecting either the one or the other.

70. Indeed, a judicious well-instructed nurse, knows how to take advantage of the times, that will be least annoying to her patient. There should therefore, be *no absolute or fixed time, for “clearing up the room;”* the moment that will create the least annoyance to the sick, should be the only one selected. We have seen your nurses of *absolute routine*, do much injury by the performance of this office, at ill-chosen periods. The condition, and comfort of the sick, are always to be taken into consideration; and the ringing the changes upon the unstable shovel, tongs, and andirons, should be postponed, until the instant, at which the patient would be the least annoyed by it.

71. There is another very fruitful source of noise, and annoyance in the sick room, and which is very rarely attended to; namely, the noise of a creaking shoe. A nurse during her attendance upon the sick, should not wear a shoe that will yield the slightest sound; for she can always command such as will not; or if she cannot, socks can constantly be procured; and with these her feet should be clothed.

72. We may enumerate several other sources of unnecessary

and vexatious noises in the sick room, either of which is capable of preventing or disturbing sleep; namely, the rattling of knives and forks, the jingling of glasses; and the clatter of spoons, and plates. Now, as these can never be necessary, they should always be eschewed. And “though last, not least,” in this ample enumeration, is the frequent opening and shutting of the door of the sick room. This common and certain annoyance, can always be avoided by the following observances.

73. 1st. Let the door be kept open, whenever it will not be desirable, or necessary to have it shut.

74. 2d. If unavoidably it must be kept shut, let its being opened be productive of as little noise as possible; 1st, by having the locks in good repair; and 2d, having them to open easily; and 3d, by having the hinges well oiled.

75. 3d. Let the door be opened, only when it is absolutely necessary for the comfort or necessities of the patient; to avoid unnecessary openings, permit no more to enter the room than is essential to the nursing of the patient; because you will have to let all go out that come in; and each, will be a fresh disturbance.

76. 4th. Never permit the door to be opened, while the patient is sleeping; to command this, we are told, that in London, they have a very simple mode of communicating the information, “that the patient is asleep,” by thrusting the feathered end of a quill through the key-hole. It would be highly useful to adopt this contrivance in this country.

77. 5th. Exclude all visitors from the sick room, however nearly they may be related by blood, or connected by friendship, whenever such prohibition shall be essential to the comfort or safety of the patient; for it is better to give *temporary* offence, than to produce *permanent* mischief,

#### 6. *Of the Ventilation of the Sick Chamber.*

78. One of the most important attentions a nurse can bestow upon the sick room, is, its proper ventilation. As regards this essential observance itself, it matters not, whether the season be hot or cold; for, in this instance, we merely, but distinctly mean, changing the air of the room—that is, the removal of that, which

has become impure, for that which is pure. This can only be done with certainty, by establishing a current of the external air through the sick room, by the doors or windows being opened to a sufficient extent, and for a sufficient length of time.

79. As this can always be effected by proper management without risk; and as it is of the first consequence to the patient, it should never be neglected. The frequency of this renovation, or rather this exchange of air, must be regulated, 1st, by the season of the year; 2d, by the state of the weather; and 3d, the nature of the disease.

80. 1st. The season of the year will influence the necessity of ventilation; thus, in cold weather, or in winter, the air of the room does not so soon become vitiated as in warm weather, or in summer. For the substances capable of deteriorating the air, do not so readily become decomposed; and the circulation of the air in the room is much more rapid in consequence of fire; and, consequently, more frequently changed. Whereas, in summer, the contrary constantly obtains; hence, the greater necessity of giving air entrance from without, by means of the windows and doors.

81. 2d. The state of the weather, as regards its moisture or dryness, will necessarily influence ventilation. If wet, whether it be hot or cold, it will never be proper to admit the external air immediately into the sick room suddenly, or in large quantities, at a time. The capacity to ventilate a room properly, under such circumstances, will necessarily be subject to many contingencies, as fortune, or poverty may prevail. The best mode of performing this, under every circumstance, cannot be laid down; much must be left to the discretion, and good sense of the attendants.

82. 3d. The disease under which the patient may be suffering, will also have its influence upon the air of his chamber; and as a general rule we may lay it down, that fever, and every other acute disease, will require more frequent ventilation, than in chronic affections. Unless the latter have as an attendant, profuse, or offensive discharges; in this case, it may be necessary to change the air more frequently than even in fevers, or other acute diseases.

83. Every body seems to be aware of the usefulness of changing, or purifying the air of a sick chamber; some arrive at

this desirable end by the shortest and most effectual road; namely, by the admission of fresh air from without; while others suppose they attain this change by chemical decomposition. Hence, we have open window and doors in the one instance; and suffocating vapours in the other.

84. We need not say more upon the first of these modes than we have already done; on the latter, it may be well to offer a few observations, as its effects are not well understood; or they certainly would not continue to be resorted to. Combustion of every kind necessarily destroys, in proportion to its extent and continuance, a quantity of oxygen, or the vital principle of the atmosphere; consequently, wherever this process is performed, the air in which it was carried on, is less pure, by all the oxygen, the combustion required, to carry it on. Now, when sweet herbs, as they are called, rosin, sugar, tar, frankincense, &c. are burnt in the sick room, the air of that room loses a certain part of its vital air; and is, from this cause alone, less pure than it was before the burning was performed. But this is not all—for the air now has in it, in exchange for the oxygen with which it parted, a quantity of that irrespirable air, called, by the chemists, carbonic acid gas, or fixed air, besides, a disagreeable odour, and other gases that are unfit for respiration. And nearly the same may be said of decomposing vinegar upon a hot shovel, or upon live coals. These methods of purifying the air of a sick room, should therefore be strictly prohibited.

### *7. Of the Temperature of the Sick Room.*

85. There is no fault in nursing more common than over-heating the room of the sick. The dread, that the patient will take cold, unless his chamber be heated almost to suffocation, is no less common than the fear of typhus, and the apprehension of debility. And like both these latter terrors, it has its own penalties. For in almost all acute diseases, it is erring on the wrong side; for very many more suffer from too much heat, than do from too little. Light should be constantly excluded; at least as much as is compatible, with proper temperature, and ventilation.

86. To fever patients, nothing is so grateful, as a reduced

temperature; nor can any thing be more proper. One of the great efforts of the physician in fever, is the reduction of the accumulated heat of the patient's body; and one of the best agents for this purpose, is the application of air to the surface of the skin, as well as that of the lungs, when it is of a lesser temperature than the body. The advantage of this application is quickly perceived, by its tranquillizing influence upon the restless and agitated patient; by his skin becoming cooler; his breathing less hurried, and his pulse less frequent; or, perhaps, by his quickly falling into a refreshing sleep, or breaking out in a universal perspiration.

87. But on the other hand, if the heat of the room be equal, or nearly equal to the temperature of his skin, the reverse of all this is sure to happen—an aggravation of every symptom will certainly follow. It therefore becomes the bounden duty of the nurse, to so regulate the heat of the room, as it shall be constantly below, by a number of degrees, that of the patient's skin. We look upon a thermometer to be a necessary appendage to a sick room—for by this instrument alone, can we be certain of either an increase, or decrease of temperature; our feelings are fallacious guides.

88. At a season when fires are not in requisition, an attempt is frequently made to warm the room upon any sudden reduction of atmospheric temperature, by burning of charcoal in the room. Let this never be practised; it is a plan replete with instant, and imminent danger.

### 8. *Regulating the Warmth of the Patient.*

89. At first sight it might be supposed, that this part of a nurse's duty would regulate itself—but it is not so. There is no one point in nursing, that has so little system, or that is directed with so little judgment as the warmth of the patient. Nurses upon this point, have no principles to direct them; or none at least, that are conformable to the proper treatment of the patient. It never becomes a subject of thought, that the patient can be benefited or injured by a particular quantity of bed-clothes, or by any particular temperature of his body, provided he does not complain of feeling cold.

90. If the patient declare he feels too cool, more covering is heaped upon him; and sometimes, without mercy. To relieve the sensation of cold by additional clothes, is always proper in acute diseases; and the nurse in her attempt to restore pleasurable sensation by this means, acts in strict conformity to principle, but without knowing it; and so far so good. But here her anxiety ceases, and her judgment is no longer exercised; for after reaction has taken place, and the heat upon the surface has become excessive, she never dreams, that it is as beneficial to lower the temperature, as it was proper and grateful to raise it, when it was too low!

91. She refuses to comply with the earnest prayer of the almost burnt up patient, to "remove some of his covering;" but on the contrary, insists it would be *his death were she to do so, or he would take cold*. He is therefore obliged to submit, until the heat becomes so intolerable, that he bids defiance to restraint, and removes the offending covering by main force; and he effects by this independence, such a reduction of temperature, as will perhaps now induce the skin to throw out a free perspiration.

92. It is true, that the poor nurse was anxious for this very result; and the very object of her refusal to remove the superfluous bed-clothes, was to induce the sweating, so quickly effected by the very opposite means. She is not aware, that there is a sweating temperature; and that when this is exceeded, perspiration will cease if it have been present; or that it will not take place during its continuance. The rule therefore upon this point is plain; that the patient should no more be allowed to complain of too much heat, without an attempt at its reduction, than he should be permitted to remain chilly, when it is possible to remove it. In a word, we should try to create the pleasurable sensation of healthy temperature; and this can very often be done by the proper adjustment of the covering; and this without incurring the smallest risk. Therefore, the quantity of covering, should always be made subservient to the sensations of the patient.

#### 9. *The Examination and Preservation of the Excretions.*

93. This duty is almost constantly neglected; not being ca-

pable herself of drawing conclusions from the varied appearances of the evacuations, the nurse very often does not even inspect them, much more preserve them for the physician.\* Or if she have seen them, her account of their appearance is expressed so vaguely, that no satisfaction can be obtained, by any extent or ingenuity of interrogation. They have for the most part, a set of terms to express the colours of the stools, and which may be every way satisfactory to themselves, but which are altogether unintelligible to the physician; such as “natural;” “very healthy;” “very heavy;” “very slimy;” “very black,” &c. &c. Now, we have frequently found by inspection, that their “natural” and “very healthy,” were highly bilious; their “very heavy,” to mean no more than very offensive; their “very slimy,” to be pure bile, without a particle of the mucus of the bowels, which you were from their description, prepared to meet; and their “very black,” is almost sure to prove brown, &c.

94. The same or similiar errors are constantly committed in their accounts of the appearance of the urine, when enquired for. It is “very white;” “very red;” “very black;” “very thick,” &c. The very white, means transparent, or of the colour of water; very red means that it has deposited a red sediment; “very black,” means, when it is highly charged with bile; and “very thick,” means, that after standing it has become turbid, though perfectly clear and thin, when it was evacuated.

95. On this account, we never depend upon their descriptions of the excretions; and we are in the constant habit of ordering them to be preserved that we may judge for ourselves; but we are constrained to say, that too little regard is paid to such orders, though the absolute duty of the nurse is to obey them, as the inspection of them is highly important.

#### 10. *Of the Patient's sitting up.*

96. An overweening anxiety on the part of the nurse to have the patient sit up, is often productive of serious consequences. It is imagined and declared, that “the patient can never gain

\* We almost constantly direct the keeping of the evacuations; but for this purpose they should not be retained in the sick room.

strength while he lies in bed"—hence, he is forced to this ill-timed exertion by the importunity of the nurse, or of his friends, at a time that may occasion him to faint, or to endanger a relapse. They seem to forget, that this change of position requires a certain quantum of strength to perform it; and that it cannot be done if that be absent. Now, in cases of long, or even of short, very enfeebling diseases, the strength is oftentimes so prostrated, as to require much care, to either husband, or improve, the remaining little. Yet the patient is often required to expend his little stock, to gratify a false theory of the nurse, or friends. In this, they are only directed by a popular and vulgar error; for it is evident, that if the patient's strength has been so prostrated at a certain period, that even the nurse would have deemed it imprudent to have attempted it, it would be madness, to insist upon its performance, if it had not improved; while on the other hand, it is equally clear, that if he be able to do this after a short interval by care, that he must have acquired some strength; consequently, it gives contradiction to the position, that "the patient cannot gather strength, while he lies in bed."

97. Sitting up after illness, is, to all intents and purposes, exercise. Now, during an approaching, or even during a confirmed convalescence, exercise to be useful, must be most carefully employed; lest its excess, and this even in a trifling degree, be productive of the most serious consequences. For exercise is a remedy; and a remedy of great power; consequently, if its *dose* be not properly, and opportunely prescribed, its effects may, like an over dose of any other active remedy, be followed by irremediable evils. We wish we could persuade the advocates for this hap hazard *sitting up*, to view it in this light; for did they, much mischief would be saved.

98. The rules for sitting up, are in strict conformity with those, which govern every other remedy; namely, that its *dose*, is to be regulated, by its necessity; the strength of the patient; and its effects. It must generally be looked upon as a stimulant of great power; and consequently, must be used as such. To prove this, it is only necessary to examine the patient's pulse under its influence, and it will be constantly found, when employed at the time of great vascular excitement, to be from ten

to twenty strokes in the minute more, in the sitting up, than in the supine position of the body; consequently, proving its stimulant power, and oftentimes, its unfriendly effects in fever.

99. And when resorted to in cases of great debility, the heart performs its functions with such rapidity, but with such speedy exhaustion, that fainting is often induced in a very few minutes.\* But this condition of the system may be produced, by the *dose* being ill-timed, or too long continued. Now in either case, mischief, and sometimes, very lasting mischief, ensues. It therefore follows, that much care is required, in getting the patient out of his bed; and that it should be considered as a great qualification in that nurse, who can prescribe this remedy advantageously, to her patient.

100. It is a very common error with nurses, to permit their patients to sit up too long at a time; indeed, in general they seem to have no other rule upon this point, than to let them remain as long as they can support the fatigue; consequently, all the good, that might have been derived from the change of position, is defeated in an instant, by a state of faintness being induced. The patient should therefore never remain sitting up one moment longer, than while his sensations continue to be agreeable; for if he be not instantly replaced in his bed when these pleasurable feelings cease, he will be sure to suffer from exhaustion, if not from fainting. It is therefore very much better that the patient sit up several times during the day, when he can support it, than that he should sit up one minute after he finds his strength flagging.

101. There is another error committed during the sitting up of the patient, which is every way calculated to destroy any good the getting out of bed promises; namely, surrounding him with bed-clothes in such quantities as to oppress him with their weight, as well as to exhaust him, by their heat. This practice should be carefully avoided, if any good is to result from his change of position. Again, the fear of his "catching cold," which induced the nurse to stifle him with bed-clothes, also leads her to the shutting out from the room every particle of fresh air, by block-

\* The fainting is also produced, by the blood retiring from the brain upon the patient being placed in an erect position; leaving too little in this organ for the purposes of due stimulation of the nervous system.

ing up every avenue to its admission. The patient, in consequence, is obliged to breathe both a heated and impure atmosphere, which quickly exhausts him, and he soon begs to be restored to his bed. There is no possible necessity for this overcaution; all that it is proper to guard against, is a current of cold air immediately upon the patient, and preventing chilliness.

### 11. *Of the Making of the Bed.*

102. This necessary arrangement, is almost always badly conducted. It is seldom performed with either comfort or advantage to the patient; for his condition, is too often lost sight of. He is frequently taken out of bed, and made to sit in a chair, while the bed is beating up, and the clothes are spreading. During this period, he either becomes much exhausted, or absolutely faints.\*

\* The following instance of this kind, was so extensive in mischief, that we think it proper to relate it, as it may perchance serve as a warning to the indiscreet nurse, or to the officious friend. In the summer of 1825, we attended a young gentleman with a high grade of bilious fever, and from which he was slowly but certainly recovering. He however was still extremely weak; though now permitted to use a more nourishing diet than he had been hitherto been allowed, and with the most marked advantage. Quiet and rest were still recommended, though allowed to be shifted to different portions of his mattress, whenever the part he was lying on, became unpleasantly warm, as the weather was very hot.

A friend called to see him; and finding him still weak, and very much reduced, declared that unless he were taken out of bed, and permitted to have the air circulate around him, he could never expect to gain strength; his nurse was of the same sentiment, and unitedly urged their opinions so strongly, that his mother yielded, though, very reluctantly, as it was contrary to the express commands we had given but a few hours before, and which she was every way willing to obey.

Accordingly arrangements were immediately made for the sitting up of the patient; he was lifted out of bed, and placed in an easy chair, where he had not been more than five minutes, before he fainted. His syncope was so extreme, and so long-continued, that he was considered as absolutely dead; for on our arrival to his assistance, we were informed before we went up stairs, that this was the case. We gave into the belief, ourselves for a moment, and looked upon the case as altogether hopeless. Yet we thought it proper to try means, though a full half hour had elapsed from the first moment of fainting. Accordingly, hot wrappers, bricks, jugs of warm water, volatile alkali to the Schneiderian membrane and lips, as well as to the rectum by an enema, &c.

103. It should therefore be a constant, and a never to be departed from, rule; that the patient should not be taken up, at the risk of fainting; more especially as this is never necessary. For if the patient is obliged to be moved for the purpose of refreshing his bed by a change of its linen, &c. he should be lifted carefully from it, and placed upon one adjusted by its side; or in cases of still greater debility, he should only be removed to the other side of the bed, while the one he has just left is undergoing the necessary change; but to which he may be soon restored, to enjoy the alteration just effected.

104. It would be a most profitable arrangement for the sick with fever, or other acute diseases, if a mattress could be substituted for the feather bed; than which there is nothing more unfriendly to the disease, or more destructive to the comfort of the patient. The advantages of the mattress over the bed, are as evident to those who will reflect upon the subject, as the inconveniences of the latter are notorious; but so inveterate is habit, that substituting one for the other, with the generality of the people in this country, is rarely to be accomplished. Besides the obvious advantages of the mattress to the patient, we may reckon the facilities it would afford to the nurse; to her, much trouble would be saved by its general adoption; yet strange to say, she almost always gives the preference to the feather bed. And it is one of our tests, of a well-instructed and reasoning nurse, when she decides in favour of the mattress.

105. The necessity of beating up the bed, or newly-spreading the mattress, must be regulated, by the nature of the disease, and by the strength of the patient. In fevers it should be done

were instantly resorted to; and after about twenty minutes of uninterrupted exertions had been employed, we had the pleasure to hear him make a deep inspiration and expiration. These were repeated, and soon followed by an evident pulsation of the heart. But not to dwell, he gradually gave evidences of returning animation; and eventually life was restored. He remained after this in a state of great feebleness for a long time; but eventually recovered entirely.

In this case I attributed much efficacy to the injection; consisting of two tea-spoonsful of the pure ammonia water, and a pint of warm water; as the favourable signs took place almost immediately after. My present impression is, that this use of the *aq. ammon. puræ*, has not heretofore been resorted to, in cases of extreme syncope, or of asphyxia, and it may deserve further trials.

twice a day, if the patient have sufficient strength to bear it without risk; more seldom as this may be upon the wane. But when unable to leave his bed for this purpose, he may be shifted from side to side, as directed above; (especially in warm or hot weather,) as often as his inclination may prompt, or his strength will permit; provided this be not performed while he is sweating.

## 12. *Of the Proper Using of the Utensils for Evacuations.*

106. On the proper employment of the several utensils essential to the sick room, much of the comfort of the patient will depend, if it be not also instrumental to his recovery. One of the cardinal points in the management of the sick, is, to avoid *all* unnecessary fatigue; and this should never be lost sight of, even in the smallest details of the art. One great source of fatigue, is the management of the patient during his evacuations. He is obliged to rise from his bed, for the performance of these necessities, at a time he can but ill support the expense of strength it will require; and sometimes it is completely exhausted, before it is completed.

107. To prevent as much as possible inconveniences so serious, and so constantly recurring, requires on the part of the nurse, an entire acquaintance with her duties, and the best mode of performing them; and more rests with her in this particular than is commonly imagined. Some of them require every exertion to come from the patient; while others manage the various operations with great dexterity, and at a small expense of his strength. The latter class possess feeling, knowledge, and experience; for it requires all to perform these offices, to the greatest advantage. Hence, the immense value of some nurses over others.

108. As a general rule, the patient when feeble should not be made to leave his bed, when he can without much inconvenience perform his offices in the bed. For this purpose, a bed-pan, and an urinal are very necessary appendages to the sick chamber; indeed it is not properly furnished without them. We are aware that the nurse will plead in extenuation, for the patient getting up, that he neither can nor will, use the pan in bed—indeed we

have witnessed this opposition in many instances; but at the same time we scarcely ever failed to find, that it was owing to the maladroitness of the nurse, rather than to a rebellious disposition on the part of the patient. With a little management and perseverance, this difficulty is almost always surmounted.

109. Before the pan is offered to the patient, a pillow should be placed under his back, so as to prevent its becoming hollow, and consequently unsupported. We have almost constantly found this want of support to be the ground of complaint against the pan; and it is as certainly remedied in this way.

110. For the purpose of passing urine, the patient, (male or female,) should never be permitted to rise, when strength is upon the wane, or when it is much exhausted, if the proper utensils can be procured. And this can almost always be done, if due attention be paid for this purpose.

111. Of apparently minor consequence, though of equal import, is the manner in which the patient is forced to receive his drinks; for though no single effort to receive drink, is equal to the exertion of using the pan, it is nevertheless oftentimes very distressing to the patient from the manner in which it is given; and as this is repeated very frequently in fever, and other acute diseases, the sum of exertion after a little while, will be found very considerable, and highly injurious to the patient.

112. A very large majority of nurses, oblige their patients to rise in the bed to receive their drinks; this is owing to the improper form of the vessel from which they receive it; for did they not raise themselves or suffer themselves to be raised, the clothes would receive as much of the fluid, as the patient. A tumbler, a wine-glass, a bowl, or a cup, are the common vehicles of drink; neither of which, should ever be employed in a well regulated sick room, while the patient is confined to his bed. The sick-cup, as it is called, should alone convey drink to him; by it all fatigue is spared; and he can receive it in any position of his body, without the slightest exertion. They can be procured from almost any china store.

### 13. *Of Skill in Applying and Dressing of Blisters.*

113. This is a most useful, and important part of a nurse's duty; and it is one, of which she should never be ignorant,

especially, as the efficacy and success of the application, as well as the comfort of the patient are all concerned in it. It is not the mere application of the plaster to the indicated spot, that ensures the best effects of this remedy—something more is required; and this something the nurse should be acquainted with. Thus, when the circulation is languid, and the sensibility much diminished in the part, it would be almost idle to bind the plaster to the part in the common way, or without preparation of the spot to which it is affixed, by first rubbing it well with some highly stimulating substance.

114. But this is not all that is required, to secure the best offices of blisters. Dr. Watt\* tells us “that when a blister is to be applied, it ought to be large and spread so thick as to rise in as short a period as possible. In this respect, practitioners themselves commit very great errors. If a blister rise at all, they think every purpose is served that a blister can accomplish; but this is by no means the case. A blister made too weak or spread too thin, soon dries, and merely raises the cuticle, and even to do this, requires a considerable length of time; whereas one thickly spread, with well made plaster, raises not only the cuticle, but also the rete mucosum, and does it too in a much shorter period.” “I am fully convinced, from long experience, that there is a very great difference in blisters according to the manner in which they are made up and applied. The practice of putting dry flies on the surface of the blister, is also a bad one. If the flies be good, and the plaster well prepared, it requires no such assistance. Besides, the loose particles of the flies are apt to insinuate themselves into the skin and adhere to the sore after the blister is removed, giving the patient very unnecessary uneasiness and often producing strangury.”

115. It must therefore be looked upon as rule, that this operation be always performed, under such circumstances; and that it is the province of every *nurse*, properly so called, to be acquainted with it, and to comply with it. If she be well instructed in her art, she will at once select, and apply, the proper substances. If she be not, she must be directed to the use of the spirit of turpentine; of hartshorn; or Cayenne pepper and brandy,

\* Treaties on Chincough, &c. p. 244.

&c. for this purpose; with either of these, the part on which it is designed to place the blister, should be well rubbed, for four or five minutes before it is bound on.

116. But on the other hand; an ignorant nurse will sometimes do mischief, by employing these substances, where the circulation is active, and where the sensibility is perhaps even exalted; merely, because she has seen them do good where they were necessary; and thus proving herself altogether unacquainted with the reason for their application—we have witnessed several mistakes of this kind, to the great annoyance of the patient.

117. An improvement of great consequence in the application of blisters, has lately been made, by substituting adhesive plaster for bandages. This mode, is particularly valuable, when the blister is to be applied to any other part, than the extremities. Thus, all the inconveniences, and the confinement which attach to bandages, is entirely avoided when the plaster is to be applied to the chest, abdomen, back, or between the shoulders. Simple as the method is, when sticking plaster is used, we have found its utility entirely defeated, by the mere *routine nurse*, not understanding its proper management. This has happened from the almost universal belief, that a blister will not draw without the part on which it is to be placed, is previously wetted with vinegar—this therefore is done; and the plaster is applied, and all is supposed to be right. But upon the examination of the blister, at the allotted time for its drawing, it is found any where, but where it was designed to have been placed; for the part being wet, the adhesive plaster would not stick; and the blister became at the merey of every motion of the patient. And time, perhaps precious time, has been lost; or a part not intended to be subjected to its operation, been made to endure the pain, but without the smallest advantage to the complaint for which it was designed to relieve.

118. It may be proper to remark, that with grown people, but especially with males, it would always be best to remove by shaving the hair from the part designed to be the seat of the blister, even when the common mode of applying it is adopted; but that it becomes absolutely necessary, when the sticking plaster is used, if the part be supplied with it.

119. As we consider the use of the adhesive plaster to have

great advantages over bandaging the part, to confine a blister, we will detail the two modes of employing it. The first, and most common, though not always the best, is to have the margin of the plaster spread from half to three-quarters of an inch, with the adhesive plaster. If the blister be small, half an inch, (as with children,) will generally be sufficient; if larger, three-quarters may be necessary; but if very large, it may require an inch of margin. When thus prepared, its edges are to be snipped by scissors in a number of places, to the depth of the sticking plaster, to secure its sitting better on the part. It must then be held over a few hot coals, until the adhesive plaster becomes sufficiently softened, to insure its sticking well to the skin.

120. The other plan is, to have strips of spread sticking plaster, of such lengths as shall extend two inches at least over each margin of the blister after it is applied to the part; the breadth may be three-quarters of an inch. In this case the blistering ointment covers the whole surface of the plaster. The mode of applying the adhesive strips, is by warming them well, and then making them cross the blister, either directly across each end, or in the direction of its two diagonals. If the plaster be very large, or the patient very restless, three, or even four strips, may be necessary. To secure the adhesion of the plaster, the skin upon which it is to be applied, should be perfectly dry; if it be moist with perspiration, a little common flour dusted upon it, and wiped off, will effectually serve the purpose proposed. Should the blistering part of the plaster be made of the dry flies, it is best to moisten its surface carefully with a little warm vinegar or brandy; taking care not to touch the margin with it, if it be spread with adhesive plaster, or you would prevent its sticking.

121. When blisters are applied to the legs, it is best, especially if the patient be restless, to draw stockings over them, which will effectually prevent their being disturbed.

122. The period commonly allowed for the drawing of a blister is twelve hours; and, as a general rule, it is sufficient. But as there are many deviations from this rule, it will be well to notice them. These departures from the general law, are found to consist in, 1st, the anticipation of the period of twelve hours; as in children, and with skins of peculiar susceptibilities. With the first, under common circumstances, the blister is frequently

found to have performed its duty in eight hours; and very often in six. It should, therefore, always be examined at these periods, and dressed, if sufficiently drawn; if not, it should be suffered to remain, until this take place. With the second, the same rule should be observed; and we are directed to this, in the adult, by the peculiar burning sensations he may complain of. It may be remarked, as a general rule, that children, (contrary to what we would suppose,) suffer much less than the adult, from the action of cantharides.

123. 2d. The period of twelve hours is sometimes exceeded; owing, first, to the plaster not being well applied; that is, to its being bound either too tightly, or too loosely. This is no unusual fault of a nurse, where the bandage is used instead of the sticking plaster. If it be bound negligently, it soon loses its contact with the skin; and, consequently, cannot act upon a part it does not touch; if bound too strictly, the effusion of serum between the true and false skin, cannot take place; for the latter cannot separate from the former, from the mechanical force exerted by the bandage being too great. A well-skilled nurse is aware of this; and will bind the plaster only tight enough to secure its contact with the surface over which it is placed.

124. Or it may proceed from the exhausted state of the skin itself, as intimated above. This is no uncommon condition of the skin in fevers, that often terminate speedily in death; as is witnessed in the yellow fever, or in high grades of bilious fevers. It also takes place in long-protracted fevers; especially, where the nervous energy is much exhausted. And it also happens from a rare, though not without example, indifference, or want of susceptibility, to the action of cantharides.\* In either of these cases, the cause should be sought for, and removed if possible. In the first case, the remedy is as easy, as it is obvious; in the second, an attempt should be made to restore, or to

\* We once attended a young lady, on whose skin we were very desirous of exciting vesication; we tried, for this purpose, every form of blistering ointment or plasters we could devise; we permitted them to remain upon the part forty-eight hours at a time; we excited redness and irritation, by the spirit of turpentine, and by mustard, and then applied cantharides, but all to no purpose; vesication could not be produced. This was not the result of a single trial; for we persevered in our endeavours, altering the combination of the cantharides, and the preparation of the skin, every day or two, for a fortnight.

create in the part, a brisker circulation, or an improved state of sensibility, by frictions, with the substances named above; in the third, there is no remedy that we know of; we can only substitute the pure ammoniated water, spirit of turpentine, mustard, or Cayenne pepper.

125. Many nurses are in the habit of placing a piece of gauze, or very fine muslin, between the blister and the skin. We have never perceived the advantage of this plan, though there is nothing objectionable in it, provided the interposing substance is sufficiently thin, and the surface of the plaster sufficiently moist, to permit the cantharides to come in contact with the skin. The reason assigned for this practice, is, that it prevents strangury; but this is certainly a mistake.

126. It will be well to remark, that in fevers, without any apparent local inflammation, that the good effects of blisters, arise more from their effect upon the nervous, than upon the sanguiferous system; consequently, that their peculiar irritation is more valuable than the discharge they produce. It will, therefore, happen, occasionally, that we desire only the inflammation they may excite; as in cases of great debility, or of periodical pain. To insure this, the blister is to be examined from time to time, and removed as soon as the skin is well reddened. In the first case, it should be tightly bandaged upon the part, when the part or parts are either the upper or lower extremities.

127. It may also be important to remark, that in cases where blisters excite so much local inflammation and irritation, before the usual period for their drawing, as to render it desirable to interrupt them, that the plaster can be removed as soon as this condition of the skin is well established; and that the effusion of serum be insured by dressing them with basilicon ointment, or even by the application of a soft bread and milk poultice.

128. When blistering is prescribed for the legs, it must be understood, that it is the calves of the legs that is meant; and the particular spots of them, are the insides of them. Blisters intended for any part of the extremities, should always be longer than broad; and the length of the blister, made to correspond with the length of the limb, when applied. When the thighs are named, the central portion of their inner surface is to be con-

sidered the spots. When the arms are designated, the inner part, extending from below the flexure of the joint, to a sufficient distance above the hand, to allow the pulse to be examined with ease, are the places intended to be blistered.

129. When ordered for the chest, the place will be indicated by the seat of pain, when local affections are present—when the chest generally is involved, the anterior portion of the thorax is the place. The extent of surface to be occupied by the blister, will depend upon the extent and force of the disease.

130. When a blister is designed for the neck, all that portion of its back part, from an inch, or little more sometimes below the hair, to nearly the lower extremities of the scapulæ or shoulder-blades, is the part intended. When for the ears, the hinder and inferior portion of them are to be understood. When for the region of the stomach, all the space below the extremity of the sternum or breast bone, (but inclining to the left side,) to near the umbilicus or navel is the part. When for the abdomen, nearly the whole of the surface, or in local affections, only a portion of it is to be understood. When for the temples, the space immediately posterior to the termination of the eye-brows are to be selected.

131. The shape of blisters, vary as much as their size; the latter will always be determined by the size and age of the patient; comparatively small in very young children; larger in those more advanced, and so on; the former must in some measure be determined by the part designed for their action.

132. As it is important that some general rule should be followed, we will lay down the following measurements as guides for the size of blisters; remarking, however, that a large blister gives scarcely any more pain than a small one, but is oftentimes more efficacious.

133. For the legs or thighs, from 7 to 8 inches long—from 3 to  $3\frac{1}{2}$  broad.

134. For the back, from 7 to 8 inches long—from 4 to  $4\frac{1}{2}$  broad.

135. For portions of the chest, from 7 to 8 inches long—from 6 to 7 broad.

136. For the thorax, from 8 to 9 inches long—from 7 to 8 broad.

137. For the stomach, from 8 to 9 inches long—from 6 to 7 broad. For the stomach, the greatest measurement must be placed from side to side.

138. For the abdomen, from 10 to 11 inches long—from 8 to 10 broad, if the whole is to be covered; of proportionably less dimensions if the application is to be partial.

139. For the ears, the size cannot well be defined, as their shape is peculiar.

140. For the temples, from an inch to an inch and an half in diameter; these are generally made circular.

141. These proportions, are the sizes for adults—they must be reduced for younger people, or small children. As the shapes of blisters differ, we shall give drawings of them, (see Plate I.) which will remove every difficulty.

142. Dressing of the blister after it has drawn, forms another of the duties of the nurse; much of the pain and inconvenience of this operation will depend upon the skill and dexterity of the dresser. But before this operation is proceeded upon, every thing necessary to the purpose should be in complete readiness. The plasters should be spread; the bandages ready; a pair of well-cutting, sharp-pointed scissors should be provided, as well as a quantity of soft linen rags at command.

143. Every vesicle upon the blistered surface should be carefully snipped with the points of the scissors, unless they are very small and numerous; if this be the case, let only the larger be opened, as the small ones will most probably increase in size by the next dressing, and will then give less trouble. The skin should never be removed from the surface of the blistered part in acute diseases, however desirable it may be to keep up a discharge for a short time; for the irritation and pain which this creates, is but ill compensated for, by the increase or continuance, of the discharge it may excite—it is much better to reapply the blister for this purpose immediately after the part has healed, than to remove the cuticle.

144. A blister should never, or extremely rarely, be washed, though a very frequent practice among nurses. It is very apt to produce chilliness; it exposes the denuded part to the air too long; it is fatiguing to the patient, as it is always a tedious process; and above all, it never does good. At the first dressings,

the professed object, is the removal of any particles of the flies that may adhere to the surface; but if there do remain some few, they are almost certain to be attached to the dead skin, to which they can do no harm, and will be removed at the subsequent dressings. If the blister has supplicated, the excuse is to remove the matter from it; than which there can be no worse practice; as by the operation of washing, the new and tender granulations which this matter was to protect, is removed, and the place kept an open sore much longer than is desirable.

145. The dressings for blisters, will consist of either stimulating or soothing applications, as it may be the object of the prescriber. If it be desirable to keep up a discharge, the surface may be dressed with the basilicon ointment—if this be not in view, simple cerate is to be used.\* Either of these is to be *thinly*† spread upon soft, fine linen rags, and repeated twice in the twenty-four hours; or only once if the discharge be small. It is always best to let plasters or dressings, be cut into several pieces, when the surface of the sore is considerable, as they will set much better than a single piece, and not get into folds; the plaster should very little exceed in size the surface of the wound.

146. Blisters now and then become extremely painful and inflamed; this condition is generally best subdued by a soft bread and milk poultice, in which is melted a small portion of fresh hog's lard, or newly-churned butter, before salt has been added. Or linseed oil and lime-water may be tried if the poultice fail. They also become extremely itchy, and thus prevent sleep—but this only takes place during the healing process; that which has succeeded best with me for this itching, is a strong infusion of the slippery elm bark, or flaxseed; or very fresh hog's lard in which some laudanum is incorporated. The part to be washed with either of the former when the itching is troublesome, and

\* Wilted cabbage leaves are the most common dressings out of large cities—but they should never be employed, as they become extremely offensive and annoy the patient very much—we have known fainting to be produced by a dressing of cabbage leaves.

† A great error is generally committed in spreading all plasters for sores; it is supposed the thicker the better. Much inconvenience is created by this, as a large proportion of the plaster is sure to adhere to the sore surface, from which it is detached with much difficulty.

to be covered with the last by having a rag well imbued with it. Strangury is another consequence of the action of a blister; in some constitutions, this almost always takes place. We shall treat of this affection in another place.

#### 14. *Of administering Injections, &c.*

147. The value of these remedies are only beginning to be properly appreciated in this country. They have had to contend against much prejudice to gain their present consideration. An injurious and fastidious delicacy has prevented their general employment, especially out of our cities; and it is only within a few years even in our cities, that they have been looked upon as prompt and efficient remedial applications. They have been regarded as extreme means; and by some, even more so than blisters; and others will not submit to them, however necessary, or however certain their utility might be.

148. For the good of the afflicted, we hope this prejudice will soon wear away; and that they will be looked upon as indispensable domestic remedies.

149. Much of the objection to injections has arisen from the incompleteness of the apparatus for their administration; from the mal-adroitness of the operator, and from the disgusting materials in many instances of which they have been composed.

150. The first of these objections is now entirely removed, by the improved method of constructing them; and though this improvement has in a small degree increased the price, they are nevertheless very much cheaper in the end than those of common fabric. We would therefore recommend in the most positive terms the purchase of the improved patent injection syringe. They are so well constructed in all their parts, as never to disappoint in their operation, or scarcely ever get out of repair—whereas with the common, the reverse is constantly taking place. It would be best to procure the two sizes, though this is not absolutely necessary in skilful hands; for we have seen an injection administered to a child from a large syringe, with as much address and certainty as if it were of the smaller size; for the piston and cylinder are fitted so exactly to each other, that

an injection of no greater volume than a table-spoonful can be as certainly administered, as one of larger size.\*

151. The second objection to injections should never exist, if a professed nurse is to be the operator; for it is as much a part of her business as any other belonging to her art; and she had as well be ignorant of any other important detail as this. Her want of cleverness in this particular, should have no other excuse, than a want of experience; and if she lack this, she is an improper nurse, and should only be employed as a dernier resource. Besides, there is no excuse for ignorance upon this point; for it is the simplest of all operations; and once having performed it, it can always be performed.

152. The third objection is fast wearing away; as enemata are now for the most part made to consist of but few, and oftentimes of but very simple materials. Soot, soft soap, fish brine, train oil, and other disgusting substances, are now yielding to plain water and salt, flaxseed tea, starch, &c. &c. It is now no longer considered necessary to make them very complicated, as was sometimes formerly done, and is even now, in some places. We were informed, and by good authority, that a European practitioner had an injection made of no less than two-and-thirty articles; an half day was nearly spent in collecting the ingredients, and it required a preparation of several hours before it could be administered.

153. The importance of injections is never more manifest than in cases where it is every way important that a sudden discharge from the bowels is necessary; where the stomach is too irritable to retain any thing; where it is desirable to make an impression upon the nervous system without disturbing the stomach; where a direct application is to be made to the affected part, as in dysentery and diarrhœa; or as near to the part as possible, as affections of the uterus, &c.

154. The purgative medicines are sometimes most successfully administered in this way; and the anodyne and antispasmodic,

\* These improved syringes can be procured at J. Rorer's, No. 26, north Sixth street, and at G. W. Carpenter's Drug Store, No. 221, Market street. There may be other places; if so, we do not know of them. We think the French syringes as sold by Carpenter, are rather better than those made at Bethlehem and sold by Rorer.

with great certainty. As a general rule, the two last must be used in triple quantities by injection. Besides the qualifications enumerated above, the professed nurse should also be well skilled in certain parts of cookery; especially such as are proper for the patient during the continuance of the disease. We shall in another part of this work give recipes for all the more important articles of food and drink; for on their proper manipulation much of the comfort of the patient will depend.

### 15. *Of the Management of Convalescence.*

155. The management of the patient after the cessation of fever, or the commencement of, and during convalescence, is one of the most important points in the treatment of disease; yet, unfortunately, it is one that is the most neglected; or to which, the least attention is given. A neglect of the proper observances at this time, has been but too often productive of the most serious injuries; either by producing a relapse; or the production of a new disease. And, first, of a

#### *Relapse.*

156. The highly excitable condition in which the system is always left after an attack of any acute disease, renders it extremely liable to its renewal from very slight provocations; it is, therefore, of the utmost consequence to become well acquainted with the causes that may be capable of this effect. These will be found to consist of the administration of either improper articles of food, and drinks; or in the too early, or improper exposure to the weather, &c.

157. The extreme anxiety to prevent, or to overcome "debility," (23) as we have observed before, has been, without the slightest exaggeration, the death of thousands—upon this point, we have no mental reservations; we mean, what we have declared upon this subject, should be understood in the most literal sense of our words; for nothing can exceed the sincerity of our belief, in what we have advanced. To the want of caution on the part of the nurse, or to the importunities and suggestions of friends, or by people out of the profession, we may look for

the cause of the solemn, and dreadful truth, we have just advanced.

158. It has ever struck us with surprise, that people who are altogether unacquainted with the structure of the human body, or with the laws which govern it, either in a state of health, and more especially, when labouring under disease, should take the awful responsibility upon themselves, to direct, what is supposed by them to be proper, during the existence of disease, or when the system has just struggled through it. They cannot have weighed the extent of injury, that might arise from their advice; or they would not thus voluntarily assume the responsibility, of either immediately, or remotely, causing death, or lingering disease. Yet, no one can offer opinions upon the state of a patient, or suggest means for benefiting it, without incurring this terrible risk. (16)

159. So nice a point is this sometimes, that the physician himself does not choose to act upon his own individual judgment; on the contrary, he solicits the aid of a brother practitioner, to aid it, and to divide responsibility. Yet, at this very moment of doubt and uncertainty; where the very life of the patient will depend upon correct views being taken of his situation, we find people flocking to the bed side, and fearlessly directing, that, which may cause death, if their instructions be followed. This is no false picture; it has been witnessed by thousands, though it has effected no beneficial change in the sick room.

160. But strange to tell, there is no one who does not deprecate this interference in the abstract; yet every body at the moment they have the opportunity to infringe it, flatter themselves that they become exceptions to the rule, and that, what they say or do, cannot be otherwise than right; or at least, that it cannot do harm. In no other concern of life, does the same docility occur—if the distribution of property, or the employment of money become the subject of advisement, much hesitation, and deliberation is exercised, before the sought for, or proffered advice, is followed. If a coat is to be cut, or a pair of shoes or boots are to be made, the qualifications of the recommended, are carefully scanned, before they are trusted; but the business of sickness, or health; or of life, or death; are dismissed, with the

most frigid indifference; and too often, the advice of one, totally incompetent to the task, is promptly adopted, to the neglect of that, given by one, who was every way able to direct.

161. We could wish that this subject should receive more attention than it has hitherto done; it every way merits the most profound attention; the public weal demands it; and it is the bounden duty of every individual to act up to the principles we are endeavouring to establish—namely, that all advice, and every departure from the directions of the physician, or the general rules established by him, is replete with mischief; and involves all who may advise, or who may depart, in a dangerous enterprise, or in an awful responsibility. How many orphans, widows, or desolated husbands, have to thank the officiousness of friends, for their sad condition—for to the advice, or the interference of those who had neither right, nor talent to direct, may they too justly look, for their misfortunes.

162. We are willing, however, to believe, that the interference complained of, does not arise from any evil intention, or any absolute design, to thwart the plans of the medical attendant; but at the same time we feel, that the plea, of “no harm being intended,” is not sufficient to prevent mischief from following the interference; and, that it is certainly altogether inadequate to the repair of it, after it has been done. In such cases, every body should feel, that injury may arise from their advice, or opinions.

163. But to return. We agree, with the most inveterate “feeders,” that the ravages of disease should be repaired as speedily as is consistent with the safety of the patient; and consequently, every way willing that strength should be restored. We only differ in a most essential point; namely, in the means. Those against whom we are contending, suppose the more promptly the restoration of strength is attempted, the better; to effect this, they imagine that the most nourishing animal substances and stimulating diet are required. While we on the other hand insist, that the blood-vessels cannot well be filled too slowly; and that the nervous system cannot well be treated too kindly; for neither will bear but very little stimulation with profit, after they have been deranged, and perhaps severely deranged, by disease, and its necessary treatment. Hence, the

necessity for some time, of the most bland or even vegetable diet.

164. With a view to illustrate this the better, we will very briefly describe the condition of the body after a severe attack of a febrile, or any other acute disease, that the application of stimulating food and drinks may be the better comprehended.

165. First, there must necessarily be, after illness, a great reduction of both the solids and fluids, of the body; and consequently, that the first must be left in a state of great weakness; and that the vessels containing the latter, must be comparatively empty, as well as weak. Now, strength cannot be imparted to the solids, but through the medium of the nervous system, and of the vessels conveying fluids; the nervous system and blood-vessels can only do this, when their actions are healthily performed; and their actions can only be healthily performed, when they are properly filled, and duly stimulated. Therefore, any excess of stimulation will, from the increase of irritability, (which is always consequent upon a sudden reduction of the force of the body,) urge them to inordinate action. It will therefore follow, that over-nutritious food, or too great a quantity of that which is less so, will always endanger a return of fever, if given too early in convalescence; hence, the frequency of relapses after a full meal.

166. If this be true, it will follow as a legitimate consequence, that strength cannot be imparted to the solids, while the blood-vessels and nervous system are goaded to inordinate action; or to that degree of action, which is beyond the healthy bound; this condition will necessarily be followed by a state of inertia, or weakness; and this in the precise ratio of the over-action; therefore, instead of strength being increased by this plan, it is constantly found to be diminished. But this is not all; it too frequently happens that fever is recalled, and a comple relapse is established.

167. Second. The stomach, like every other portion of the body, suffers a loss of vigour from illness; consequently, its digestive powers are diminished; therefore, when food of too nutritive a kind is offered to it, one of two evils must necessarily arise. First, that the stomach, from the reduction of its powers, may not be able to convert it into nourishment; and if it do not,

it remains an undigested mass within it, which sooner or later must, and will be disposed of, either by vomiting, or by diarrhœa; neither of which will contribute towards the strength of the patient. Or, what virtually amounts to the same thing, if too much of a substance less nutritive be given, the same consequences are sure to follow. On the other hand, if the stomach has been capable of mastering the whole of the mass offered to it, too much nourishment is formed; and which is introduced too suddenly into the weakened, irritable, and the too distensible blood-vessels; in consequence of which, fever is for the most part rekindled.

168. Equally, but more suddenly injurious, is the exhibition of stimulating drinks of every kind; they excite to inordinate action, both the nervous and sanguiferous systems; and too certainly reproduce the disease of which the system has just been freed. On account of the certainty and suddenness of their influence, they are more decidedly injurious than animal food; and therefore should be still more cautiously withheld.

169. Third. Illnesses of the acute kind, are constantly followed by a weakened tone of the whole circulating system; hence, we find a smaller, but a quicker pulse; the quickness appearing to be a constant attendant upon the diminution of power. Hence, one of the surest presages of returning power is, the diminution of the frequency of the pulse, and an increase of volume in the artery. From this it would appear, that an increase of the circulation is not favourable to the state of convalescence; for that strength is not acquired during its continuance. Animal food, or other stimulants, when improperly exhibited, increase the circulation; therefore animal food and other stimulants must be injurious; because, they increase the rapidity of the circulation.

170. It is true, that the too early use of animal substances, or of stimulating drinks, do not always occasion a relapse; but when they even do not this, they are very often far from being harmless; for effusions in various parts of the cellular membrane are very sure to follow, if a genuine dropsy be not the consequence.

171. This is not the proper place to explain at length, the cause of this swelling; we shall merely observe, that it is an almost constant law of the sanguiferous system, to unload itself when oppressed by too great a quantity of fluid, by pouring out a part,

into the interstices formed by the cellular membrane. This is witnessed in the drawing of blisters; in dropsy of the brain; dropsy of the chest, &c. &c. Now the same thing takes place, when the blood-vessels are suddenly over-charged by any cause; and it is perfectly familiar to every observing person, that it happens to those who have been too quickly put upon an over-nutritious or stimulating diet, when recovering from illness.

172. We are not ignorant, that it is altogether contrary to common opinion, that dropsy or dropsical swellings, can be produced by any other cause than weakness—hence, we hear of people being purged, dieted, or bled, into a dropsy; but never that they have been fed into one. Yet the latter is a solemn truth; as the following little history will clearly prove.

173. A most amiable and worthy young gentleman, a particular friend of the author's, had been most severely attacked with pleurisy, for the cure of which he had been pretty extensively bled, and was of course much reduced in strength. So soon as his fever had left him, he was permitted to sit up; and as soon as he was able, he was permitted to walk about his chamber; so far so good. His appetite was feeble; and he remained satisfied with the very moderate diet, that had been prescribed for him during the continuance of the disease. He was now rapidly recovering strength; and was thought by his medical attendant to be in a state of happy convalescence. At this time, his kind and attentive physician, was under the necessity of leaving the city for some days, and as he was gaining strength, and flesh, as fast as was, (rationally,) desirable, he was left to the care of his nurse, with directions that his diet should be *a little more generous*.

174. The nurse thought, that the patient now only required the cook, as the doctor had taken his leave; and to prove herself faithful to her own opinions, commenced forthwith, with a well-seasoned beef-steak, and a glass of porter. At this time the author called on his friend to offer him his congratulations; etiquette having forbid before, any thing but enquiries at the door. He found him in high spirits; as the visit was very soon after the meal of beef-steak, and porter; he declared himself never better, and asked of the author, if he did not think, he

would soon be perfectly restored—the only reply was, that he would do very well, if he took care not to eat himself into a dropsy; at which he laughed very heartily; at the same time declaring, it was for the first time in his life, that he had heard, that a man could eat himself into a dropsy. The caution was repeated; but it could not be enforced; for he was not our patient.

175. Soon after this he left the city for the benefit of country air; and in about three months returned to it, with confirmed dropsies of the abdomen, and chest, of which he soon after died. He informed us that he pursued the full diet, until he was brought to the state in which he was now found; and that after dropsy showed itself, it was thought proper to persevere in it; as dropsy only could arise from debility. To understand how great this error is, see Chapter on Dropsy

176. To those who are disposed to listen, this case speaks volumes; and if practically acted upon, will be most useful. It clearly shows the certain, and terrible consequences of improprieties in diet, after the system has been reduced by an acute disease, and the active treatment essential to its removal. With these preliminary observations in view, we will lay down a few rules in conformity with them, for the government of the nurse.

177. First. That no animal substance, in any shape or form, should be given during the continuance of fever; nor very immediately after its cessation; lest it be invited to return by the over-stimulating quality of this substance.

178. Secondly. That after the cessation of fever of any denomination, a sufficient time should be given, (before any alteration be made in the diet,) for the system to recover from the habit, if we may so express ourselves, of forming it. For if this be not heeded, fever will almost constantly be reproduced; even by a small change in the articles of food.

179. Thirdly. Such fevers as have manifested a periodical movement, should be particularly attended to; because, there is no certainty that there will not be a return upon the next paroxysmal day; though it may have passed one period. Thus with a quotidian, after the paroxysms has stopped, at least three consecutive days should be permitted to pass, lest it may return; either from the disease not having been subdued, or from the

alteration in the quality of the food. In the tertian, two paroxysmal days should be allowed to pass. In the quartan, one will be generally sufficient.

180. Fourthly. When a change in the food, agreeably to these rules, is decided upon, the choice at first should be of such articles as possess the least possible stimulus of their class—or in other words, the transition from a mild vegetable, to an animal diet, should be as slight as the nature of things will permit. Thus, weak chicken water; weaker beef, or veal tea; or the diluted juice of oysters, should first be resorted to.

181. Fifthly. That the above enumerated articles should be given in small quantities at a time, and repeated at stated intervals, both by day and night, if the patient be very feeble, provided, it will not too certainly interrupt important sleep. But care should be taken, in highly excitable systems, to withhold, for a few days, the animal sustenance, during the period the fever was wont to appear, in its greatest force.\*

182. Sixthly. That the patient should be confined, for at least three days, to the above prescribed articles, before the power of the food be increased; and when this is determined on, such substances should be selected, as will very little exceed in strength those already exhibited. These will consist of the soft ends of five or six oysters; a soft boiled egg; a small piece of boiled fish, or the cold custard. (See Art. Cold Custard.)

183. Seventhly. After this plan has been persisted in for three or four days, the patient may be indulged in a small piece of boiled mutton; the breast of partridge or pheasant; turkey, or chicken. And after as many more, he may be allowed, a small piece of rare done beef or venison steak; mutton chop, or sweet bread. At this latter period, a tumbler of ale, or porter and water, may be given at noon, with the meal intended for this hour;

\* By this we would wish to be understood, the time of day, at which the exacerbation was wont to take place. The reason for this caution is, that notwithstanding the fever has ceased to appear, yet there is a disposition in the system to be more readily affected by stimuli, at the time of day, at which the fever was accustomed to be the highest; and this condition will remain for several days sometimes. On this account, it is always best to give at these periods, the mild vegetable substances, the patient has been in the use of, during the existence of the disease, instead of the more stimulating articles, lately employed.

provided, no other circumstance exist to render this improper; such as, its causing head-ache; flatulency; or sourness of stomach. Many are of opinion, that Port wine is always admissible after fever; especially after those of an intermittent kind; this is one of the many vulgar errors that the physician has to contend against; and the sooner this prejudice is destroyed, the better. We have never seen the slightest good follow its use; though we have often known much mischief to be the consequence of its employment.\*

184. Eighthly. During the whole period of convalescence, the bowels should be most strictly attended to—one evacuation daily is absolutely necessary; if this does not take place spontaneously, it must be procured, by a simple rhubarb pill taken every night at bed time, (see Art. Rhubarb pills.) But purging must be avoided most carefully.

185. Ninthly. The quantity of exercise should also be very strictly regulated; for there is no opinion more general, than, that the patient should take as much at a time as he can possibly endure; than which, there cannot well be a more dangerous error. It is admitted, that a well-regulated plan of exercise will be highly serviceable, when the strength of the patient is such as to render it profitable; that is, when he can perform a certain quantity of motion, without producing fatigue. And the *effect* of motion, must always be the guide for both the repetition, and the degree to which it may be carried; for, if very little exhaust, that very little is too much. Therefore, when it is again attempted, it should be less than that, which had previously been followed by fatigue. This degree should be persisted in, until the muscles acquire sufficient tone to bear more; and when an additional quantity can be supported well, an increase should be ad-

\* By this declaration, we wish to convey the idea, that in our opinion, there is no particular virtue in Port wine, that would remove it from the ban under which we have put the whole class of diffusible stimuli at too early a period of convalescence. And that when it has been employed too early, under the impression that it possessed some specific quality favourable to that particular, and highly excitable condition of the system, that we have witnessed much injury to arise from its use. We do not wish to withhold this article from the invalid, at the time wine of any denomination might be proper; for if he prefer it, he should be indulged in his choice. It may not be amiss, however, to remark, that there is no wine that comes to this, or any other market, that is so uniformly adulterated, or so rarely found good.

mitted; and so on, until strength is established. By observing these rules, we are certain, that vigour, will be much more certainly, and speedily acquired, than if the contrary plan be followed. The exercise here alluded to, refers entirely to that, which can, and must be performed, within doors. For the invalid must commence with exercise in the house, before he can be eligible for exercise out of doors.

186. Tenthly. As it is every way important, that the patient should have the benefit of fresh air as early as possible, we will attempt to lay down a few rules for his indulging in it.

187. 1. The patient should never be allowed to exercise out of doors, before he is capable of walking about his floor for some minutes without any great fatigue; or in other words, until he has complied with the regulations of direction ninth. It is always well to destroy, as early and as effectually as possible, every unpleasant association connected with the suffering of the patient; therefore, as soon as he is able, it is proper to remove him during the day into another room; while the one he was confined in is refreshed by cleansing and the admission of fresh air. Even the vials, pill-boxes, &c. which have accumulated during illness, should be removed from the sick room, the moment there is no farther use for them; and the whole appearance of the room should be changed as much as practicable, that the patient may not have gloomy, or painful associations, connected with the things with which he had become so familiar during his illness.

188. 2. The weather should always regulate every attempt at exercise without doors; for if it be bad, that is, windy, cold, very hot, extremely wet, or very dusty, the invalid should not venture abroad during the continuance of either of these states of the atmosphere or roads.

189. 3. When strength will justify exercise abroad, it should always, when practicable, be first performed in a close carriage; regulating its closeness, by circumstances, that will at once present themselves.

190. 4. It should constantly be borne in mind, that when exercise is carried to fatigue, that injury, instead of benefit, is constantly the consequence—and this is almost sure to happen in the first attempts. This arises in most instances, from its not occurring to those who may have charge of the invalid, that he has to return over every inch of ground that he has already pass-

ed, which in the outward progress was not thought of. We have seen from this cause many instances of great suffering from exhaustion; and thus, every advantage which well-regulated exercise had promised, has been entirely defeated.

191. 5. The invalid should, upon every occasion of this kind, be carefully provided with additional covering; lest, in our fitful climate, a sudden transition, from a higher to a lower temperature take place during his absence, and thus be exposed to the risk of taking cold.

192. 6. As soon as renovated strength will permit, the patient should, in properly selected weather, use the best of all exercises—namely, walking. By this, every muscle of the body, is made to bear its proportion of expenditure; and at the same time receive, its proper quantum of benefit. This kind of exercise is particularly valuable to those, who have tardy bowels; (a condition by the by, common to almost all, who are recovering from acute diseases,) for the employment of the lower limbs, and of the abdominal muscles, gives the intestines a more certain, and uniform action, by their mechanical pressure upon them.

193. 7. The utmost vigilance should be exercised, that the invalid does not expose himself to currents of cold, or damp air; and that he be made to avoid sitting, or going into damp places, especially if his skin be disposed to moisture, from, either remaining weakness, or from its having been excited by exercise. He should not take a full draught, of the most grateful of all beverages, to the convalescent, namely, *cold* water.

194. 8. A convalescent should pay strict attention to the following important, though apparently insignificant rules of conduct during, and after eating; first, not to take but little fluid of any kind into his stomach during his meals, nor immediately after; second, occupy as much time as can reasonably be spent, in the mastication of his food; third, not to exercise too soon after any repast; but especially after dinner; and fourth, not to sleep either too soon or too long, after either dinner, or his afternoon meal; fifth, to eat no supper.

195. 9. If the patient is recovering from illness in the fall of the year, or in early spring, let him wear flannel next to his skin, if he has not already been in the habit of doing so; but especially, let him protect his lower extremities well, by warm stockings, and sufficiently thick boots or shoes—the former however, are

always to be considered preferable to the latter; as they more effectively protect from cold, a very sensitive part of the body; namely, the ankles.

196. 10. Let him avoid with the greatest care, the several substances, almost constantly presented to the invalid, because they are thought to be highly nourishing; and most easy of digestion; such as calve's feet, hartshorn, chicken and beef jellies. The nicety with which these articles are prepared; and the savoury nature of the ingredients which enter into their compositions, are sure to render them favourite articles with the sick; on whom, they are most indiscreetly *always*, and very often, most *injuriously* urged.

197. When the composition of these jellies, is examined, it becomes a matter of extreme surprise, that they can be presented to the sick, by any rational or thinking being, with the most remote prospect of their being useful. In the first place, the most insoluble portion of animal composition, forms the bases of these jellies; the smallest portion of which, in some cases is sufficient, as we have before declared, (177,) to recal fever and every other terrible consequence attendant upon it—this it will do from its mere animal nature. But what is superadded to this *glue*, for such it literally is? wine, and highly stimulating spices; besides, the more innocent sugar, and acid. Now, can any one with the slightest pretension to observation, believe, that this can be a proper compound for a patient labouring under fever, (be the reduction of strength what it may,) or for one, just recovering from it? we think there is no one.

198. But this is not all; we have only spoken of the highly stimulating qualities of the jellies—another very serious objection attaches to them; (one however, we shall not be able to persuade some to believe they deserve,) namely, their great indigestibility. We are aware in this assertion, we are running counter to all belief upon this point; but it is nevertheless no less true. We say and declare it, without the fear of contradiction from those, who are qualified to investigate the point, that the food in question is one of the most insoluble substances that can tax the powers of even a hale stomach; what then must be the difficulty to one, enfeebled by disease, and the operation of medicine? It were consummately to be wished, that these baneful articles, could be forever banished from the sick room.

## CHAPTER I.

### OF FEVER IN GENERAL.

199. HITHERTO no definition of fever has been given, which is free from all uncertainty, or ambiguity. It has always been so constructed as to make its essence consist of some one circumstance, or symptom, which rather betrays an hypothesis of the author, than an essential, on which we may implicitly rely. Strictly speaking, the term fever implies heat; but a mere increase of heat does not constitute fever; since, we may have a considerable augmentation of heat without the system labouring under this affection; and, on the other hand, we may have fever with a cool, nay, a partial cold skin; as sometimes happens in yellow fever.

200. Dr. Cullen says, in fever there is a sensation of chilliness, followed by an increase of heat; the pulse gives a greater number of strokes in a given time; while several functions of the body are more or less impaired, and the strength of the limbs, particularly, is diminished.

201. Many objections have been raised by various writers to this definition of fever; and especially, by Dr. Fordyce; but his cavillings have ended in a refinement, that rather perplexes, than elucidates. We are, therefore, rather disposed to adopt Dr. Cullen's definition, though confessedly imperfect. This disease presents itself under so varied a form, that we are obliged in many instances to abandon a great part of the best devised definition, and to rely upon the impression the bed-side examination makes upon certain of the senses, (as the sight and touch,) for a knowledge of its presence.

202. We may, however, in general remark in this class of diseases, that there are certain departures from what is termed the healthy standard; and that, though in fever there may not be an increase of heat over the whole body, we can rarely find a case in which there does not exist a partial augmentation; thus, we find certain derangements of the system, (which we believe the most fastidious stickler for definition, would consent to call

fever,) attended with cold hands and feet, nay, perhaps even cold legs and arms, while the head, the chest, and abdomen, may be preternaturally warm; or it may possibly happen that only one of these parts shall have this increase of heat. The same uncertainty may happen with the pulse; its frequency by no means establishes fever; we may have a very frequent pulse without fever, or an unusually slow one when it is confessedly present; and this may, or may not be, accompanied by an increase of temperature. The pulse may, therefore, be slow or frequent; strong or weak; hard or soft, with or without fever.

203. Lassitude, with more or less disturbance of the mind, almost invariably attend fever—and some evidences of debility almost always manifest themselves a short time before its regular formation; the last never fails to accompany fever; but its degree seems rather to depend upon the nature of the agent giving rise to fever, than upon the violence of the symptoms which may attend it. This can easily be illustrated, by comparing pleurisy with the typhus of Cullen, and other writers.

204. The order of the symptoms which attend fever, has given rise to the division of them into several kinds; and it is by observing the succession and continuance of their phenomena, that we are enabled to declare to what particular variety the fever in question may belong. Each of these varieties may require some difference of treatment, as shall be observed when treating of fevers individually.

205. But, notwithstanding the many kinds, or varieties of fever\* made by some, they all have a general, as well as a particular plan of treatment; we shall, therefore, point out several important directions which will apply to every species, or variety.

206. As there is for the most part an augmentation of heat, it becomes highly useful to preserve a proper temperature in the sick chamber. (See p. 32.) Artificial heat should not be added to the patient through the medium of the air; therefore the fire,

\* We have already remarked upon the absurdity of multiplying the varieties of fever to the extent which some have done; especially, as practical utility is not advanced by it; for in the cure of fevers, all have to be treated more or less upon the same general principles; though certain of them, may exact a specific management.

if in winter, or cool weather, should be so regulated, as not to raise the temperature of the chamber equal to that of the patient's body; by this means there will be a gradual subtraction of caloric; which will not only be very comforting to the sick, but very useful as a remedy. Artificial heat may frequently be very advantageously employed in such fevers, or periods of fevers, as are accompanied with a partial diminution of it—as in the feet, legs, hands, arms, &c. For, though we should deprecate its employment when a generally diffused increase of temperature existed, yet we shall find it very beneficial where the contrary obtains. For this purpose, warmed flannels, jugs or bottles filled with warm water, heated bricks, &c. may be used to the parts that are preternaturally cold, with decided advantage.

207. It is not only important to attend to the temperature of the room, so that the air be not over-heated, but also, that this air is frequently renewed. (See p. 30.) This in many situations requires considerable caution, that the patient may not be exposed to a direct current of it—this of course must be guarded against in the best manner circumstances will permit—a door, or a window, or both, may advantageously be left open with a view to refresh the room; and this may be done even in cold weather, provided the patient be protected from its direct influence. This ventillation is especially necessary in small and confined rooms; and in warm weather.

208. The air of the room should be so regulated as not to have its temperature too much increased; nor to become stagnant, and loaded with the emanations from the patient's body; to guard more effectually against the latter, there should be no curtains to the sick bed. Should the situation of the patient's bed be such, as unavoidably to be exposed to a current of air, when about to ventilate the chamber, a partial drapery may be given to the bedstead, by hanging up a sheet, so as to intercept the draught—and this will always be sufficient.\* And to preserve the air as

\* Great care should be taken, that the patient be not exposed to a draught of air, while he is sweating, or even when his skin is moist, or when the temperature of his body is below the natural standard, and these perhaps are the only reasons for being particular upon this point. For when the temperature of the patient's skin is very much exalted, we do not see that injury can arise from cool air passing over the body, more than shall follow the sponging of it with

much as possible from contamination, nothing that could do mischief to it, should be suffered to remain—therefore the evacuations of every kind should be removed as speedily as possible. No culinary operations should be performed in the room when it can be ordered otherwise—as all strong smells, especially those arising from cooking, are extremely offensive, as well as injurious, to the sick.

209. The floor of the room in warm weather should be kept clean and sweet, by passing a wet cloth over it once or twice a day—but the room is not to be flooded with water, for the purpose of scrubbing—the room may be much refreshed by having the floor frequently sprinkled with pure vinegar. Carpets,\* especially in hot weather, should be removed from the floor; and when practicable, may be replaced by mats—even in winter, the carpet should be removed occasionally, and exposed to the fresh air—this in certain fevers becomes highly important, nay indispensable; for we should be mindful to remove every thing from the room that may be injurious. This is particularly important in dysentery, or other affections of the bowels, as these articles retain the smell from the evacuations for a long time.

210. As there is in almost all cases of fever, a strong determination to the head, or head-ache, we should be careful to keep the patient as quiet as possible; and should delirium attend, we should guard with all possible care, against company, or any other circumstance, that might tend to augment it. To aid in this intention, the room should be kept as dark as proper ventilation will permit, and all objects should be removed, that particularly challenge the patient's attention. He must not see company; and as few new faces should present themselves, as is compatible with proper and careful nursing. No unnecessary conversation should be indulged in; and above all, low whisperings must be strictly forbidden. When conversation is necessary,

cold fluids. Yet it is well to suggest the caution; as it will perhaps prevent the application of cold air, when it might be injurious, from the moist condition of the skin; or when the surface of the skin is too low in temperature.

\* In cases, attended by delirium, or extreme head-aches, it may be useful to have the floor carpetted, as it diminishes the noise from walking. Indeed it is in all cases of fever, desirable, that the patient should be disturbed as little as possible by noise; that which might arise from walking, can always be obviated, by the attendants wearing socks, or very soft slippers.

it should be carried on in a tone of voice, that will enable the patient, if he chose to listen, to easily comprehend it—this will save him much exertion, and will prevent much solicitude. As the patient always imagines himself to be the subject of the conferences, that take place in the sick room, it will readily suggest itself that, all unpleasant anticipations of the event of the patient's disease, must be avoided in his presence. (See p. 28, par. 65.)

211. It is erroneously imagined, that people labouring under fever, are extremely liable to “catch cold,” as it is termed; to prevent this, bed-clothes are heaped upon him almost to suffocation—this mistake should be carefully guarded against; and the patient should have no more clothing than is absolutely necessary to prevent his feeling chilly—all covering beyond this is both useless and injurious. The bed-clothing therefore should be constantly regulated by the feelings of the patient. (See p. 33, par. 89.)

212. To patients, labouring under fever, nothing is more acceptable than cool drinks, nor is there any thing more proper. A vulgar error prevails on this head, that should be done away with as speedily as possible. It is imagined that all the drinks of a patient in fever should be warm; with a view, as they say, of disposing to, or provoking perspiration; by this reasoning, the patient is deprived of almost the only luxury he dare indulge in; and this without the smallest benefit. We would therefore recommend that all the drinks of the patient should be cool; nay, sometimes cold—and this is easily regulated; as the degree of external heat of the patient should be the uniform guide. Nor are we aware, that there is an exception to this, but where the skin is moist, or disposed to be so. Where perspiration has taken place, or is just about to take place, the liquids should not be *cold*, although they may be cool.

213. Indeed, we have very often seen a profuse perspiration immediately follow a drink of cold water; and we never hesitate to administer it, when the skin is hot and dry, and the thirst great; nor even to repeat it from time to time under like circumstances. It however very often happens in the higher grades of fever, that the thirst demands more drink than the stomach can well support—for if cold drinks be too much indulged in, the stomach revolts, and a vomiting ensues. To prevent this,

we are in the habit of giving small portions of *ice*\* from time to time. By this plan we secure to the patient, a more permanently cold application to the mouth; while the stomach enjoys all the advantages of cold water, without its oppressive weight and bulk. Or if ice cannot be commanded, cold water may be given by the spoonful, and repeated more frequently.

214. The drinks of fever patients should consist of such articles as are most palatable; but, at the same time they should be such, as are free from all stimulus, unless the latter comports with the particular situation of the patient; in this case it forms rather an exception, than a rule.† We should therefore say, that in all cases which do not require such stimulating articles, as wine, brandy, &c. to be added, (and these are almost all cases of fever,) the drink should consist of toast water, baum tea, lemonade, currant jelly and water, molasses and water with a little vinegar, the water off of dried cherries, very weak milk and water, barley water, flaxseed tea, either with or without lemon juice, sorrel water, &c. &c. We have purposely enumerated a variety of drinks, that the invalid may have a choice. But simple cold water, as just noticed, is almost always admissible; especially when there is great heat.

215. Food should be administered with the greatest caution; and this will refer not only to the quantity, but also to the quality—it should be of the lightest kind, especially in the inflammatory stages of the disease. Indeed, the patient frequently profits by the kind interference of nature, when she deprives him of all inclination to receive it. In this country, we are subject to many highly inflammatory diseases, in which, the more complete the abstinence, the more the patient profits. There can be no error more injurious, than the belief, that the sick are in constant need of nourishment. This prejudice has destroyed its thousands—and it is one of the first and most important rules to be learnt by those who have charge of the sick, that in the commencement of any acute disease, little or no food is required.

216. In no instance of fever, or any other disease of high

\* The ice should be broken into pieces of the size of a filbert, and placed at the command of the patient.

† It will be seen, by the sequel, how very few the exceptions are to this rule.

action, is animal food, in any possible shape or disguise, as broths, &c. admissible—during convalescence, it may be useful.

217. When it is proper to administer nourishment in fever, it should always be given in small quantities at a time—say three or four spoonfuls either large or small, as the patient may be either large or small. It should consist of weak milk and water; thin tapioca; sago or arrow root; gruel, either of Indian meal or oat meal; ripe fruits in moderate quantities, when in season, such as oranges, grapes, or roasted apples, may also be given. Gum Arabic water, is perhaps one of the least exceptionable articles of diet we can recommend. A cup of weak tea or coffee is frequently extremely grateful to the sick; and may almost always be permitted.

218. We can scarcely be too particular in the body-clothes of the patient; they should be daily changed when the patient is not too much exhausted to permit this—the bed-linen should also undergo a daily change whenever it is practicable; and especially in those fevers that end their paroxysms by sweat.

219. We have already intimated that much of the success in the cure of fevers will depend upon the promptitude with which remedies may be had recourse to; and upon the fidelity with which they may be administered; and these must be aided by the strictest attention to the proper regimen. Indeed, without the latter, the former would for the most part be entirely unavailing—much then depends upon the nursing as it is termed. (See p. 25, par. 56, &c.) The intervals at which medicine is directed to be exhibited, should be carefully attended to, as, a failure in this, has frequently defeated a well-devised plan of cure. A mistaken tenderness should not interfere with a prescribed or an imperious duty; nor should it interrupt the application of an important, though perhaps a painful remedy. There is a time or period in almost every disease, at which a remedy is the most important; but if this time be allowed to pass, from mistaken kindness, indecision, or neglect, it may perhaps never return. Therefore remedies, to be efficacious, must be promptly applied, and rigorously persevered in.

*General Plan of Cure.*

220. In fevers of almost every description, (as we have before declared,) that state of the system called inflammatory, prevails; and in the commencement of all, it would scarcely be too much to say that, a preternatural fulness exists; so that we rarely meet with a fever, on the outset of which, we do not find the blood-vessels more than naturally active. When the contrary obtains, it is almost always in some uncommon epidemic or southern endemic; and these only form exceptions to the rule. We have therefore almost always to contend in the early stage of fever with an augmented heat; increased pulse; perhaps with loaded stomach and bowels; our remedies must therefore be calculated to diminish the two first, and remove the latter.

221. These intentions are to be fulfilled by, 1st, cool or cold air; cool or cold drinks; and by such remedies, as are indirectly calculated to produce this end; 2d, bleeding; 3d, sweating; 4th, purging; 5th, blistering; 6th, tonics, &c.

*A. Of Cool Air and Drinks.\**

222. We have already noticed the importance of fresh and cool air to the body of a patient labouring under fever, and we now wish to be understood to consider this as not only highly refreshing to the patient, but as a valuable and active remedy. Whenever therefore the surface of the body is above the natural temperature, we should so employ this

\* As the terms hot and cold; warm and cool, are relative, it may be well to offer a more precise meaning to them in this place. When speaking of cold or cool air, we should wish to be understood, that degree of it which would excite these sensations in the patient; thus when the body is heated to  $108^{\circ}$  or  $110^{\circ}$ , diminution of  $15^{\circ}$  would appear cold—should it be at  $100^{\circ}$  it will bear a greater reduction, before the sensation would be called cold; it would follow then of course that, the intermediate degrees would be called cool—when speaking of cold or cool drinks, we must be understood to mean in general from  $40^{\circ}$  to  $57\frac{1}{2}^{\circ}$  for the first; and for the second from  $57^{\circ}$  to  $60^{\circ}$ .

And farther we would wish it to be understood, when we speak of the temperature of the air of a sick chamber, to mean that it should never exceed  $62^{\circ}$ , where practicable to keep it in this condition, during the hot stage of fever. If chill exist, there is no objection to a more exalted temperature for the time being.

remedy as to remove this superfluous heat. To do this in the safest and most efficacious manner, we should permit the constant introduction of fresh air into the chamber; and the patient should be so situated as to derive full advantage from it, but without incurring the risk of a full stream directed immediately upon him, if his skin be moist. In hot weather however, this will require but few precautions; as the external air in some of our hottest days, is perhaps but little below the heat of the patient; in this case, no risk is run, in having a current directed immediately over him. To obtain this advantage, his bed should be removed to the most open part of the room; and his covering be as thin as possible. Where the temperature of the external air is considerably lower than the heat of the patient, it must be applied in such a manner as not to induce a sudden chilliness—and this can always be effected by giving a proper direction to the air, and accommodating the bed-cloathing to the state of the atmosphere. The sensation this regulation produces in the patient when properly managed, is that of the most delightful cordial. The degree of cold therefore, must be commensurate with the degree of heat, the patient has to spare.

223. In situations where cold air cannot be commanded, the application of cool or cold water to the arms, head, and body of the patient, by means of a sponge passed over them, will be found highly refreshing, as well as useful. But in the employment of these remedies, it must be recollected, it is never to be had recourse to while the body is sweating, or when the temperature of the body has been reduced by cool applications, (as sometimes happens,) so as to induce perspiration. The sponging must be now desisted from, until the perspiration disappear, and until a re-accumulation of heat make it again necessary. Should cough, or other affections of the chest attend, the sponging must not be thought of.

224. Cool, or even cold drinks, we have said, are most grateful and most useful in fever. In very hot weather, their temperature can be speedily and advantageously reduced by ice. In this state, they may with great propriety be employed, if they be exhibited in small quantities at a time, as has already been observed; the quantity, however, may be frequently repeated. The kind of drink has already been pointed out. The same precautions

should be observed with cold drinks as with cold air, when the body is in a state of moisture from perspiration; but we need not withhold cold drinks if cough alone be present.

225. Fevers of every denomination, be their types what they may, frequently have sickness of stomach as an attendant. This nausea, or it may amount occasionally to vomiting, is always attributed by the attendants upon the sick, to "*a foul stomach,*" and in their opinions, decidedly calls for an emetic. This, nine times out of ten, is an error; for this sickness, &c. only points out a state of irritation of this organ; and so far from its being relieved by an emetic, is almost certainly aggravated by it. In such cases, cathartic medicines of a moderately active kind should first be given; and if these do not afford relief, try, 2d, the direct application of such remedies as are known for their efficacy in such cases; and 3d, if these fail, counter-irritants must be used.

226. The first will consist of small quantities of calomel, followed if necessary by magnesia. For much advantage is derived in this condition of the stomach from small portions of calomel, repeated at short intervals, viz.

R. Calom. ppt.	-	gr. viij.		Take Calomel	-	8 grains.
Sacch. alb.	-	gr. viij.		White sugar	-	8 grains.
M. div. in viij.				Mix, divide in 8 parts.		

One of these should be given every hour in a drop of syrup of any kind, or a little scraped apple, until they move the bowels.

227. But should this quantity not stir the bowels, and relieve the sickness, let two or three tea-spoonfuls of calcined magnesia in a little sweetened milk be given; or else, give an enema; indeed this may be profitably employed whenever the stomach is thus irritable, and the bowels tardy. It may consist simply of hot water and common salt, in the proportion of a pint of the former to a large table-spoonful of the latter. This may be repeated as necessity may require. Should this fail, it will be proper to employ the second set of remedies, and the milder of these should be tried first; these will consist, of small quantities at a time, of pretty rich gum arabic water, (cold,) milk and water, in small quantities—that is, a table-spoonful every fifteen or twenty minutes; or we may use with almost a certainty of

success the following more complicated, but very successful julep.

R.	Bis-carbon soda	-	℥iss.		Take super-saturated soda	1½	drachm.	
	Pulv. gum arab.	-	℥ij.			Powdered gum arabic	2	do.
	Ol. minthæ	-	gut. iv.			Oil of mint	-	4 drops.
	Sacch. alb.	-	℥ij.			White sugar	-	2 drachms.
	Aq. seltzer	-	℥iv.			Seltzer water	-	4 ounces.

Of this, a table-spoonful may be taken every half hour or hour, as the necessity may be more or less urgent. If the seltzer water cannot be commanded, simple water will answer.

228. Should neither of these answer, we must have recourse to the third set of remedies; and a few ounces of blood drawn from the region of the stomach, by leeches, will be found to be of decided use. This may, if necessary, be followed or preceded by a plaster of the flower of mustard and vinegar to the stomach until it tingles the skin smartly; or this may be followed by a blister after depletion, if the vomiting be obstinate.

### B. *Of Bleeding.*

229. The employment of this valuable remedy in the commencement of fevers, is now so universal, that it has almost become a domestic remedy; and the number of cases in which it is useful, nay, essential, is so great that we may look upon it as almost indispensable. The prejudices which were so long entertained against it, have given place to a compliance, which experience has shown, it merited; and it is now in such general acceptance, that it is very frequently the initiatory remedy. The cases of fever in which this mode of depletion is inadmissible, are so few, that we find almost a difficulty in pointing them out—at least in the commencement; and it is at this period, we are always presumed to refer, whenever we speak of remedies in general, unless the contrary is expressly declared. The cases for the proscription of the lancet are so few, as to constitute only rare exceptions.

230. Although blood-letting is almost universally prescribed for fevers in this country, it must, nevertheless, be looked upon as a remedy of great power; and of course must be judiciously directed. For, that it may be employed advantageously, it must

be used at proper times, in proper quantity, and under proper circumstances.

231. The proper time for bleeding, is for the most part at the period at which the hot stage of fever is completely formed—it should, therefore, never be used in the cold stage of fever;\* nor when the paroxysm has subdued, or is about to subside. As a general rule, it should not be used during the sweating stage; there are, however, exceptions to this—as in certain cases of yellow fever; and also in some instances of common remittents, where the sweating does not mitigate the symptoms, or lower the pulse.

232. The quantity to be drawn is of much importance—on this, almost every thing depends; for if too little be drawn, which is by far the more common error, very little advantage is derived; and if too much be taken, mischief must necessarily follow. The latter, however, as far as our experience goes, is an accident of rare occurrence; and when it does happen, is much more easily remedied, in very severe diseases, than where too little has been taken at an important period of the complaint. As a common practice, where this remedy is necessary, we should permit the blood to flow, until it produces a manifest change in the feel of the pulse—the pulse should become quicker, smaller, softer, and fluttering, as it were, under the finger. It is to be remarked here, however, that, in this direction, we have reference to the intense forms of disease.

233. In the milder forms of fever, where the pulse is not much excited, but yet requiring the loss of blood from local determination, and especially, when this is to the head, we may content ourselves with a quantity, which shall merely diminish the strength and fulness of the pulse. But in cases in which the head is very much affected, it is for the most part a good rule, to allow the blood to flow, until relief is experienced. From this it will be perceived, that it is very difficult to direct the precise quantity of blood to be subtracted, by any fixed number of ounces.

\* The contrary of this has lately been recommended in strong terms, by a physician in Great Britain; that our opposition is something diminished, yet it is not so much so, as to induce us to give it our concurrence. We are willing to acknowledge, that this may be prejudice; but until more experience shall establish its utility, we must abide by our present prepossessions.

234. As a general rule, the blood should be drawn from a large orifice; in many instances, by an observance of this, less blood is found to answer; as the effects upon the system are much more decided; this is especially important in the commencement of the disease; and where it is presumable from its force, that much blood will be required. With such as may be disposed to faint, from the mere operation of bleeding, the precaution should be taken to bleed in a recumbent posture. But when this is not the case, and it is desirable to make a considerable impression on the sanguiferous system, the contrary should be observed, as the tendency to faint, is at times highly useful; especially, in those fevers in which there is very strong arterial action, with great determination to the head.\*

235. The number of times a patient may be bled for the cure of fever, can never be pointed out in round numbers—the repetition must depend upon the force with which the disease manifests itself in the sanguiferous system—and this for the most part the pulse will indicate.

236. But the pulse is not always to be the guide, especially in fevers of regular paroxysms; for in these, the pulse might indicate in many instances the abstraction of more blood, when it might be safely dispensed with. But, if in these very fevers, there occurs strong local determination, and especially if this be to the head, as becomes evident by head-ache, or delirium, we should bleed again and again, if the force of the disease continue, or is but little abated; provided the pulse maintains a sufficient force and vigour, to justify the operation.

237. The circumstances under which we should not bleed, are those, in which the system is depressed by the cold stage of fever; or temporarily prostrated, by excessive evacuation. In the first case, the cold stage would be much protracted by bleed-

\* In general, in fevers, when either, from the peculiar nature of the disease, as an epidemic; or from the particular constitution of the patient, the determination of blood to the head is strongly marked by head-ache, or delirium, the position of the patient is no mean point to be observed. He should always have his head and shoulders so much elevated, as will bring the blood within the certain influence of gravitation. Indeed, this rule should always be observed in such affections of the brain, or its appendages, as betray an excess of blood in these parts.

ing; and the reaction of the system would be much delayed; or the powers of the system might so sink, by an ill-timed bleeding, as to be unable to react. In the second, the powers of life may be so reduced, that a fatal syncope might follow. Of so much consequence is it then, to attend to the circumstances under which we bleed. The accidents we have just noticed, might take place in cases, where bleeding might again and again be necessary, were the system allowed to react, or when not prevented from reacting, by the injudicious employment of this remedy.

### C. *Sweating.*

238. There is no remedy so decidedly popular for the cure of fever, as sweating; and none, perhaps, been more abused. As the healthy solution of almost all fevers has been effected by this process, when allowed uninterruptedly to run their course; and as almost all fevers of regular paroxysms terminate by this discharge—it naturally suggested itself that, if we could imitate this process, we should sooner, and more certainly cure this disease. Accordingly, from time immemorial, this mode of cure has been attempted, but not always with the same success. It has always been a popular belief that, in proportion to the quantity evacuated by the skin, would be the efficacy of the process; than which nothing can be farther from the truth.

239. This vulgar error has proceeded from not discriminating, between the insensible perspiration, and that collection of fluid upon the surface, called sweat. It is not our intention to enter minutely into these differences, by giving their history or by enquiring into their causes; but simply to state that, while in many instances, a pleasant, soft, silky feel of the skin, by having the insensible perspiration increased, shall relieve a patient in fever, a profuse and deluging sweat, shall totally fail of this end. In a number of instances we have known an overwhelming sweat to be followed by a hard, rigid skin, and without the smallest diminution of the force of the arterial system, or the least abatement of the distressing and threatening symptoms. On the other hand, we have seen the whole system tranquillized and relieved by a gentle moisture breaking out spontaneously, or when produced by the exhibition of some proper remedy for this end.

We may therefore lay it down as an invariable rule, as far as our experience justifies us in the assertion, that in no instance of fever, simply so called,\* does profuse sweating relieve, as much as gentle perspiration. It follows, then, that this evacuation has been in too many instances indiscreetly urged.

240. In employing remedies with a view to promote perspiration, (for this is all that should be attempted,) we must regard with attentive care, 1st, the period; 2d, the state of the body as regards temperature; and 3d, the agents, themselves.

241. 1st. The period of the febrile paroxysm at which we attempt its solution by this remedy, is a matter of great moment; we must, therefore, not commence our operation in the cold stage; nor should we be more successful at the formation of the hot stage, nor at its height, unless proper evacuations have so much reduced the vigour of the pulse, as to render the operation of the medicine probable; or unless the fever itself, is of so mild a grade, that an impression can be made upon it by the exhibition of diaphoretics. It therefore follows, that, we should not exhibit any one of this class of medicines, while the pulse is full, hard, and frequent—for were we to do so, we should not only be foiled in our attempts, but have the mortification to see every symptom aggravated; for there is a “sweating point” of the arterial system, as well as a “sweating point” of temperature.

242. 2d. The state of the body as regards temperature.—From the well-conducted and conclusive experiments of Dr. Alexander, it appears that the heat of the body can transcend the “sweating point;” and that, when this is the case, it requires a reduction of temperature, before the sweating process can commence. He fixes this point at  $108^{\circ}$ , but we have reason to believe this too high, say  $100^{\circ}$  or  $102^{\circ}$ . It therefore follows, that to procure perspiration, the heat of the body must not exceed this degree of temperature; and hence it is, that many have been defeated in their attempts by increasing the heat by stimulating drinks, and by additional bed-clothes, beyond the “sweating point.” And hence it is, that, a drink of cold water, has many times proved the best diaphoretic, by suddenly bringing

\* In acute rheumatism, sweating is sometimes highly useful, but not always; but this is a disease very different from fevers arising from marsh effluvia, or other causes capable of producing simple fever.

down, or reducing the heat of the body to the “sweating point;” and that, by sponging the body with cold water or vinegar, perspiration has been immediately excited. It may, therefore, be laid down as a rule, that, all attempts to procure perspiration will be unavailing, if the heat of the body exceed 102°.

243. 3d. As regards the agents, they must be accommodated to the state of the system itself—and this will refer both to arterial action, and temperature. We have already noticed that, there is a choice of period in the paroxysms; and also, that regard must be paid, to the condition of the pulse; and we will now add, that, whenever the hot stage is attended by a vigorous pulse, and strong local determination, especially to the head, every attempt to procure a diaphoresis will not only be unavailing, but injurious; and that the system must be properly prepared, (if we may so express ourselves,) by bleeding, purging, &c. before an attempt of this kind be made. As a general rule, then, when there is considerable vigour in the system, the antimonial preparations will be the most eligible; and if accompanied with much heat, nitre will sometimes be an useful addition.\*

244. If there be but a moderate degree of vigour in the pulse, or if it be soft, opium is a highly important drug. This medicine seems to merit a decided preference in all the more protracted forms of fever, or where the powers of the system have been pretty much expended; and in all those of weak action,

\* The combination of nitre and tartar emetic, is sometimes employed with great advantage in cases, where there is a hot dry skin; much thirst, and headache; and where the pulse is yet too high for the exhibition of opium, but not sufficiently so, as to render blood-letting necessary. And it is especially proper, when the bowels are tardy; as the addition of a little calomel, gives great efficacy to its power over the bowels; particularly, where it might be objectionable to give a cathartic expressly. The following formula is one in common use:—

R.	Sal. nitri	-	-	ʒiss.		Take Nitre or saltpetre	1½ drachm.	
	Emet. tart.	-	-	gr. j.			Tartar emetic	1 grain.
	Calom. ppt.	-	-	gr. viij.			Prepared calomel	8 grains.
	M. et div.	in viij.					Mix, and divide in	8 parts.

One of these powders to be given every two hours, mixed in a little roasted apple, or syrup of any kind. If they operate on the bowels too much, they must be suspended.

even in the commencement. The proper time for its exhibition is at the early part of the hot stage. It should be given in such quantities, and at such intervals as to make a decided impression; but nor so much as to have its narcotic effects predominate; nor should the frequency of exhibition be such, as to subject the system to this part of its influence. We therefore hold it wrong to give it, either in such a dose or doses, as will subject the brain to its anodyne powers; for whenever we induce this tendency to coma, we unnecessarily prostrate the system. The powers of opium, when administered with a view to produce perspiration, are decidedly augmented by the addition of some other substances; and perhaps one of the very best forms, is that of Dover's powder.\*

245. We have, however, seen cases, in which the internal exhibition of remedies have failed to procure perspiration, however eligible in kind, or however faithfully persevered in; yet it has been quickly excited, by external applications. One of the simplest, and at the same time, one to be most relied on is, the vinegar vapour. This appears to be particularly successful in those cases, where there is a dry, hard skin, without excessive external heat—for we have known it to be a powerful auxiliary to opium, when there has not been a sufficient or regular distribution of heat to the surface. It should never, however, be used when the temperature is above the “sweating point,” nor where the external heat is easily augmented, by any additional stimulus.

246. In conducting the sweating, no inconsiderable care is required, that its utility may not be defeated. We have already said, our aim should be, to produce a gentle transpiration, but not a profuse sweat. Therefore whenever we find it is transcending this condition, we should abate it, by the removal of some of the covering. And when we find this sweating is not produced, pretty soon after the exhibition of medicine; or by ex-

\* Recipe for Dover's powder:—

R.	Pulv. ipecac.,	Pulv. opii.,	āā.	ʒj.
	Sulph. potassa	-	-	ʒviiij. M.

Ten grains of this powder is considered a dose—it should be mixed in a little syrup or gruel, and the patient should not drink any thing for an hour after its exhibition.

ternal applications, we should carefully examine the state of heat of the patient's skin—if this be very hot, we can only induce perspiration by its reduction; this must be attempted, either by a removal of the bed-clothes; by the use of a large draught of cold water, or by sponging.

247. The length of time that sweating should be kept up, must depend very much upon its quantity; by its effect on the pulse; or the sensations of the patient. We have noticed that, a profuse sweat is not desirable, and therefore, when this happens, either from the bad manner in which it has been conducted, or from some peculiarity of the patient, we should endeavour to check it by a removal of some of the bed-clothes; by the admission of cooler air into the room; or by taking away the external means, if any should have been employed to excite it, and by abstaining from warm or hot drinks.

248. Should the pulse be much reduced in force and frequency by this means, even soon after the breaking out of the perspiration, we may prepare to check it by the plan already suggested. Or should the patient become very faint, exhausted, or extremely restless under its influence, we should not persist in its continuance.

249. After the patient has been subjected to the sweating process, all the clothes which surrounded him should be removed and replaced by fresh linen, &c. as soon as he is dry. This is a matter of considerable importance, and where practicable, it should always be complied with.

#### D. *Purging.*

250. In fevers of almost every description, purging is not only useful, but in many, is indispensable. There exists constantly a want of equilibrium in the circulatory system, whenever the body is attacked with fever—and the determination for the most part is, to the brain, the liver, the spleen, or to the lungs; and few remedies are found so effectual in restoring this want of balance, as well chosen, and properly adopted aperients. Besides the determinations just mentioned, fecal matter in the bowels, is constantly accumulating, which it is of much consequence to remove. Occasionally there will be a redundancy of

bile; at other times a deficiency; and we are obliged sometimes to remove the one, or to solicit the other; and both of these ends are answered by the proper choice, and exhibition of cathartics, of the aperient or laxative kind.\*

251. Purges, besides cleaning the bowels of offensive matters, cause to be discharged into the bowels, a considerable quantity of the fluids, natural to these parts; and thus serve the double purpose of removing their fecal contents, as well as evacuating from the general system. For effecting these purposes however, some cathartics are much more valuable than others; consequently there is a considerable choice. We shall not enter here more fully than we have into a detail of them; designing, in the treatment of each disease, as they may be necessary, to point out the proper ones.

252. The management of cathartics must be regulated, 1st, by the state of the system in general, and of the bowels in particular; they are indicated when the system maintains its general vigour, and where the bowels are still loaded, or not sufficiently cleansed—the pulse will direct in the one instance, and the appearance of the evacuations in the other. The regular inspection therefore, of these discharges is a matter of much moment; and should never be neglected by those who may have the care of the sick—for it is not sufficient for all valuable purposes, that the patient should frequently require the pan; for these calls may be for the discharge of thin, watery fluids, and not for the evacuations of the feces—and sometimes such is the effect of purgative medicines that they excite the bowels to frequent action, yet do not effectually remove the offensive matters contained in them. On this account we recommend the regular inspection of these discharges, that we may not be deceived in a matter of such moment. (See par. 93, &c.) There is a popular prejudice against purging, that we should be glad to remove, namely, that they are “very weakening.” Purgings, like every other evacuation, may be carried too far; and then with strict propriety it may be

\* Cathartics, signify such medicines as quicken the peristaltic motion, thereby inducing a more free evacuation of the bowels. But as this class of medicines differ very much in the capacity to provoke this increase of motion of the intestines, they have been very properly divided into laxatives or aperients, and purgatives. The former are such as act mildly upon the bowels, as castor

said, to be “very weakening”—but this is only the abuse, or mal-administration of a remedy. In many instances of fever, the patient is so far from being weakened by being purged, that he is *absolutely strengthened* by it.\* And again, it is frequently said, when these medicines are about to be administered, that they “cannot be necessary, for there is nothing inside of the patient to bring away;” and as a proof of this, they will declare “the patient has eaten nothing for a number of days.”

253. This popular language and feeling, must be disregarded, if we do not mean to injure the patient; especially, where attention has been paid to the quantity and nature of the discharges; and where we are convinced, from these inspections, that much remains to be removed. For we have frequently seen, after the purging process has been continued for a considerable time, and where the friends of the patient were convinced there was “nothing inside,” large, hard, and fetid evacuations have succeeded those “watery stools,” and the patient has been almost immediately restored to health. We could say much upon this important subject, but our limits will not permit us.

254. 2d. Attention should be paid to the time they are administered—they should not be given, (unless it would be the loss of precious time to procrastinate,) so as to interfere with the night’s rest of the patient; nor should they be used, so that they shall interfere with the “sweating period of fever;” nor without previous preparation by bleeding, in the more concentrated form of fever.

255. 3d. They should not be given in the decline of fevers, where the patient is rapidly convalescing, lest they produce a relapse—but this is not intended to prevent proper attention to the bowels at this time; for costiveness might be as injurious as purging. Nor must we use them when the patient is much ex-

oil, magnesia, rhubarb, neutral salts, as Epsom or Glauber, &c. The latter are such, as act with more violence upon the bowels, as calomel, jalap, senna, &c.

\* This has been repeatedly exemplified in yellow fever. We have known patients nearly faint, when labouring under this disease, upon being merely put in an upright position; yet after a free purging, and other evacuations, they have been able to get out of bed, and walk the floor. Now, were these remedies directly weakening, the contrary of this should have happened.

hausted by colliquative diarrhœa; nor near the decline of a febrile paroxysm.

256. 4th. The operation should be so managed, that the patient need not unnecessarily expend his strength in complying with its demands—he should, therefore, never be permitted to get out of bed for this purpose, when he is so weakened, as to be in danger of fainting, or of even being much exhausted. A bed pan should always be used; and although it may at first be a little awkward for the patient, a little practice would reconcile him to it. (See p. 40.)

257. 5th. The patient should be so protected by clothing, when obeying these calls, in cool or cold weather, that he may run no risk of taking cold, or provoking chill—on this account also, we should guard against his getting out of bed, when it is practicable to confine him—he should have his stockings drawn on, and a pair of warm slippers ready for him to step into—and he should also be carefully covered with a blanket, during the time he is sitting upon the pan.

### E. *Of Blisters.*

258. One of the most common resources in fevers of every description, is blistering; nor is any remedy more abused; because no one is so empirically prescribed. The employment of blisters, in the cure of fevers, must be governed by strict, and decided laws, or very certain injury will ensue. Therefore, in using them, reference must be had, 1st, to the period of the disease, or rather to the state of the arterial system; 2d, to the part to which they are applied; 3d, to the duration of their application; 4th, to the peculiarities of the patient, as regards the more remote effects of this remedy.

#### a. *Of the Period of the Disease, or State of the Arterial System.*

259. The discrepant accounts of the febrifuge effects of blisters, have arisen, we are disposed to believe, from the little regard paid to the state of the system, at the time of their application, by those who look upon such application as mischievous;

while they are recommended in terms of the strongest confidence by others, who have been more attentive to this great practical distinction. It is, therefore, justly inferable, that both parties were right as regarded effects; but only one was right as regarded the usefulness of blisters; as only one was directed by principles, in their use.

260. It is now well ascertained, that blisters have as decided, and as well characterized a period for application, as blood-letting, cathartics, or emetics; and when used at improper times, they will, like each of the remedies just named, do mischief. It is therefore important, that the pulse be in a proper condition; that is, of very moderate force, at the time of their application; for if it be not in this reduced state, blisters will, like wine and other stimuli, but increase the state of arterial action. The blistering point therefore always means, when the arterial force is rather below par, as it is termed. Or in other words, where the artery can be easily compressed, or is soft. When employed in this state of the system, we are very sure they will do no mischief; but, on the contrary, we have every reason to anticipate a favourable result, if the case has been a fair one for their application; for it must be recollected, that blistering will not relieve every state of disease, that may be attended by a soft or yielding pulse.

*b. Of the Part to which they are Applied.*

261. It is a matter of some moment to select the proper seat for the blister or blisters. Therefore, as a general rule, we may say, that in such fevers as are not marked by local affections, as in pleurisy, inflammation of the liver, or other partial inflammations, that the extremities are the best locations for them. On the calves of the legs, when the circulation in these parts is not too languid, as may be determined by their coldness and insensibility; and on the inside of the thighs, when this is the case. The application to the arms may be regulated, by the same state of the parts, to the forearm, when its sensibility is sufficient for the purpose; and above the elbow, when it is not.

262. It will not be necessary to extend the subject here, as we have already adverted to this subject before, at page 41; and

especially as we shall in each separate disease, point out the part to which they shall be applied, when these remedies are indicated.

263. In remittent and intermittent fevers, blisters are almost always applied to the extremities; and are indicated, whenever it is necessary to make a strong impression upon the system, for the purpose of procuring a more decided remission, or a more distinct intermission, after the force of the pulse has been abated, by antecedent remedies; or is already so, by the type of the fever itself.

*c. Of the Duration of their Application.*

264. In general, blisters are permitted to remain on twelve hours. If they have not produced their effect in that time, an hour or two more should be allowed them. But if the inquietude of the patient, or other signs, give evidence that they have drawn at an earlier period, they may be examined sooner, and dressed, if they have performed their office.

*d. Of the Peculiarities of the Patient as regards their remote effect.*

265. We have seen several instances of adults who could not bear the irritation of a blister, without the most exquisite pain, as well as the most manifest aggravation of existing symptoms. In such cases, we must yield to the idiosyncrasy, by removing these applications; for no possible good can result from a continuance. Others are so liable to severe stranguary upon every occasion of their application, that we should not insist upon their employment, but when compelled by the severest necessity.

*F. Tonics.*

266. There is no dread in fever so universal as that of weakness; nor is there a circumstance connected with disease, so sedulously attempted to be guarded against; nor one that has been so uniformly mischievous. Under the influence of this appre-

hension, proper remedies are withheld, and their places supplied by such as are injurious, because the patient is supposed to be "too weak" to bear the appropriate ones; and consequently, that he absolutely requires the others. Hence the too early and mischievous, or perhaps fatal use, of improper diet and drinks, and the injudicious administration of tonics. We are of opinion, that in our climate, this class of medicines should be exhibited with great caution; and that they have, in very many instances, contributed from their ill-timed use, to protract disease; created others, or have destroyed the patient. To the too early use of the bark, one of the best known and most celebrated tonics we have, we may but too often attribute the visceral obstructions which follow fevers; and from its too early employment, intermittents have often been rendered more intractable, or have been converted into other more obstinate or dangerous diseases. Let me therefore caution against all unnecessary fears for the strength of the patient; and the too early use of tonics.

267. Against the too early administration of bark, we can hardly recommend too much caution; nor do we know how, in adequate terms, to warn against a popular delusion that has been the death of thousands. We here allude to certain symptoms common to most fevers, (when a little protracted, or when in their early stage, bleeding and purging, have either been altogether neglected, or but inadequately performed,) such as a dry, brown tongue; flushed face; quick pulse; red and scanty urine; dark offensive stools; dry skin; black lips; high delirium; drowsiness or stupor; trembling or unsteady action of the arms when about to be used, &c. These, with many practitioners, are looked upon as signs of typhus; and for the relief of which, bark, wine, nay, the whole list of stimulants, are put into immediate and fatal requisition. Under such circumstances, with even a pretty decided remission, neither the bark nor any other stimulant is proper. When we treat of typhus, we shall have occasion to advert to this bad and dangerous practice.\*

268. Of tonics, there is a great variety, some decidedly preferable to others; but the choice of them in each individual case where indicated, cannot be pointed out here. We shall, there-

\* See Chapter on Continued Fever and Typhus.

fore, as we proceed in the history and cure of diseases, direct the substances of this class the most proper to be employed, in the individual case that may require them.

269. Having thus spoken of fever, and its cure in general, we shall proceed to consider fevers in particular; and first of



## CHAPTER II.

### INTERMITTENT FEVER.

270. An intermittent fever is a disease in which there are distinct paroxysms, with a state of apyrexia, or intervals which are perfectly free from fever. This fever receives a name from the different periods at which its paroxysms or its febrile states return. As, *quotidian*, if the renewal of the paroxysm be every day; a *tertian*, if every other day; a *quartan*, if every fourth day, or after the lapse of seventy-two hours, &c. &c.

271. This fever is supposed for the most part to arise from marsh miasma,\* and is most frequent in the spring, (then termed vernal,) and in the fall, (then called autumnal,) intermittents. The latter is the more common and the severer of the two.

272. They commence by a chill of greater or less severity, which lasts a longer or shorter time, according to circumstances. The chill is followed by heat of more or less intensity; and is occasioned by what is called the “reaction of the system;” this reaction, or hot stage, terminates after a certain duration, by a sweat—and when this last symptom subsides, the patient is left

\* Of this agent, Dr. Johnson, (*Influence of Tropical Climates, &c.*) very properly observes, “the term *marsh*, is not so proper as *vegeto-animal effluvium* or *miasma*; since experience and observation have proved, that these febrile exhalations arise from the summits of mountains as well as from the surface of swamps. The mountains of Ceylon, covered with woods and jungle, and the vast ghauts themselves, give origin to miasmata, that occasion precisely the same fever as we witness on the marshy plains of Bengal.”

apparently free from disease, until the period of twenty-four hours from the commencement of the chill, again comes round; and then the attack is renewed, if it be of the quotidian type. In this form, the interval is short; sometimes not exceeding four hours. In the other forms, the intervals are proportionably longer.

273. The paroxysm of an intermittent is divided, therefore, into three stages; 1st, the cold; 2d, the hot; 3d, the sweating stages.

274. Before the first stage takes place, the patient for the most part feels languid and weak; is indisposed to motion; is prone to stretch and yawn, and generally has a complete aversion from food. The whole body becomes pale, and evidently diminished in bulk, especially the extremities; for rings will oftentimes fall from the fingers. Sometimes the cold sensation is intense, and the patient will shake severely; at other times, the coldness is more moderate, and some trifling trembling is all that is experienced.

275. After this sense of coldness has been endured for some time, its intensity begins to abate gradually, and is succeeded by a glow, that spreads itself successively over the whole body; and after a small interval, is converted into a heat of greater or less intensity; the face and other parts of the body redden; the skin becomes dry; the thirst intense; the head-ache, anxiety, and restlessness excessive; the tongue is furred; the pulse frequent, and for the most part hard and full. This stage is sometimes attended with stupor, delirium, convulsions, coma, or apoplexy.

276. After the hot stage has continued its period, a moisture is discoverable upon the forehead, which gradually spreads itself over the whole surface of the body, and eventually is converted into a sweat—when this takes place, there is almost always an abatement of the most distressing symptoms; and after a while, most of the functions are restored to their natural state, and little inconvenience is experienced, except debility. In this stage it is well to remark, the urine deposits a sediment, whereas in the former stage, it is almost always colourless. The entire series of symptoms just enumerated, is again and again repeated; and the interval between each, depends upon the specific type of the intermittent.

277. The chance of recovery is in proportion to the mildness of the symptoms; the shortness of the paroxysms; and the freedom from complaint in the intervals. Agues rarely destroy by true inflammatory determinations to the head or the chest. When they are fatal, it is for the most part by inducing disease in other parts of the body, as in the liver or spleen; or by a dropsical affection of the abdomen. They are more fatal in hot, than in cold climates.

278. In the cure of intermittents there are three principal objects to be attempted; 1st, to shorten the fit; 2d, to interrupt the return of it; 3d, to prevent the recurrence of the disease, after it has ceased a certain time.

279. To fulfil the first object, the application of warm things to the whole body; but to the feet, legs, and pit of the stomach, in particular, is of primary consequence—this may be aided by draughts of warm baum tea, lemonade, or common tea. A jug of warm water to the pit of the stomach is not only very grateful, but very efficient in shortening the cold fit. Dr. Trotter found thirty drops of laudanum of great use in shortening the cold stage of intermittents—it was given as soon as the patient could discover any sign of its approach, and if in fifteen minutes after its exhibition, a sensation of warmth was not felt, the dose was repeated. This plan was pursued for several periods consecutively at the time of expected attack; this being regulated by the type of the ague—if a quotidian, every day; if a tertian, every other day, and so on.

280. After the hot stage commences, we should endeavour to abridge its duration as much as possible—for this purpose the warm applications must be removed—the bed-clothing diminished—cool air admitted—cool or cold drinks administered—and should much head-ache be present, the pulse active and firm, much relief is experienced by the loss of a few ounces of blood. In prescribing blood-letting in ague, we do not offer it as a remedy that will of itself cure the disease; but we can from considerable experience recommend it as one, that affords very immediate relief in most cases; and in all, where its use is justified by the pulse, shortens the hot, and hastens the sweating stage; and moreover it prepares in a very certain manner, the system, for the exhibition of tonics. The importance of the last effect, is of

much moment, but we fear not sufficiently appreciated—had this remedy been more frequently resorted to, we are of opinion that the duration of agues with their melancholy suite, would have been much more rare.

281. Opium during the hot stage is highly extolled, and boldly recommended by several high authorities; especially Dr. Lind. In this particular district of country we are of opinion, it should be given with caution, where bleeding, purging, and other depleting remedies, have not preceded its use. We have seen the most decided good effects of this remedy after a sufficient bleeding, and would never hesitate to exhibit it, where this evacuation had diminished the force of the pulse; and where there was no marked determination to the head. In the warmer parts of our country, we need not perhaps be so cautious—as there, the disposition to inflammatory diathesis is less; and opium can be given both earlier, and with greater freedom. Besides, they resemble more the climates in which Dr. Lind found opium so useful.

282. If then the pulse be moderately soft, either from the disease not being much disposed to inflammation; or from previous depletion, a grain of opium with a quarter of a grain of the tartrate of antimony, may be given at the commencement of the hot fit; and if it act favourably, it will procure a free perspiration over the whole body—but if instead of this, we find the hot stage protracted, or all the symptoms aggravated, it should not be again given, until the activity of the blood-vessels is more effectually subdued.

283. It may not be amiss to say, that the epidemic character of intermittents, should always be consulted when we propose to use opium in any shape, for it is one of those remedies which has a very decided agency upon the nervous system; and when exhibited in any acute disease, without immediate benefit, it rarely fails to do harm—therefore, the influence of the epidemic upon the force, and vigour of the pulse, must always be taken into consideration. And as a general rule we may with safety, declare, that the usefulness of opium in arresting the paroxysms of intermittents, will be almost in proportion to the reduction of the pulse.

284. Should pain in the side, or any other local affection ac-

company this disease, much relief will be found from cupping, or blistering; and should cough attend, fifteen or twenty drops of laudanum at bed-time will be found very useful.\*

285. When sweat breaks out, it should be gently encouraged by mild warm drinks; but it is never necessary to force a profuse sweat.

286. Secondly, to prevent the return of the fit. This is a most important object; and is attempted in two ways; first by the exhibition of some remedy, which shall by its immediate action, prevent the febrile one taking place. Very many articles have been proposed to fulfil this intention; but it would be useless to repeat them. They may now be considered as confined to emetics, and opium. 1st, if an emetic be exhibited about an hour before the expected chill, it will sometimes prevent its occurrence—when then, there is no peculiarity in the constitution of the patient, that would prevent the employment of the emetic; as when there is no great determination to the head, as is evidenced by considerable head-ache, and red eyes, this remedy may be used with a prospect of success, especially if much nausea, and bilious throwing up, attend the disease.† And should it fail

\* Intermittents, within the last few years, have been more extensively epidemic than formerly; and each, seems to be marked by its own peculiarities. Sometimes it is accompanied by pleuretic, and others with pneumonic symptoms; and these almost constantly oblige us to vary the treatment; for the local affections, are pretty sure to interrupt the regular, and common routine of treatment of the fever. Thus, if pleuretic symptoms show themselves, we are necessitated to bleed from the arm, or to cup, leech, or blister the affected side, before bark, or other tonics can be given. If cough accompany, it also interferes with the use of tonics, especially bark; unless the cough should be purely paroxysmal, like the chill itself; as happened in very many of our intermittents this fall, (1828.) In these cases the quinine, or Wetherill's extract of bark, was as certain to stop the cough, as it was the febrile paroxysm itself.

† It is commonly supposed, if sickness or a disposition to vomit attend the course of the paroxysm, that it is caused by bile, or some other crude substance in the stomach; and that this, clearly indicates the necessity of an emetic; but as this may lead to great error in practice, it is well to observe, that mere nausea, even with a discharge of some fluid from the stomach, does not prove the propriety of an emetic; but on the contrary, it may be, and is very often injurious. If what is discharged from the stomach be really bile; that is, a pure bitter, yellow substance, a few grains of ipecacuhana may be useful. But if the substance be thin, watery, and nearly tasteless, it will be injurious. We

in this intention, it will be at least useful as an evacuant. We could therefore recommend its employment in the commencement of the disease, if its form be a very mild one, but not otherwise; for if the chill be of long duration, and the reaction or the hot stage violent, an emetic should not be used; particularly if head-ache, or delirium attend; or if a complete solution of the fever does not take place, by the hot stage terminating in a general, and sufficiently copious perspiration. 2d, opium, when given in a proper quantity, and under proper circumstances, is likewise very powerful in preventing the accession of an intermittent; but of this we have already spoken.

287. The second mode, is by the use of such remedies as make an impression, during the interval. These are classed under the general head of tonics. The most noted of these, is the Peruvian bark. This medicine is given in a great variety of forms, and in very different doses, but it is now very well ascertained, that there is too much fancy in the varied form; and very little advantage in the excessive dose. When given in drachm doses, it has been more successful, than when extended to two, three, or four.

288. We mention the bark, and its dose, because some prefer it in substance, to the sulphate of quinine, which has almost altogether superceded it. We do not, however, cherish this predilection for the bark in substance—on the contrary, we could wish it were entirely abandoned, as the quinine, (*cæteris paribus,*) is equally certain, to say the least; and is, unquestionably, much more acceptable to the palate, and to the stomach. One grain of the quinine is equal to one drachm of the bark in substance. It is best administered in solution; and may be prepared as follows:—Sixteen grains of the quinine; four drops of sulphuric acid; two drachms of powdered gum Arabic; and three drachms of sugar, are to be dissolved in two ounces of water—of this, a tea-spoonful is to be given every hour, while free from

would therefore lay it down as a general rule, that the antimonial emetic is rarely so safe, even where there is strong evidences of bile, as the ipecacuhana in fevers of high action, or of strong paroxysms. The reason of this is at once obvious, (if the most modern, and approved pathology of fevers be admitted, or if any reliance can be placed upon experience,) namely, that they are caused by an irritation or inflammation of the mucous membrane of the stomach.

fever.\* We have been much in the habit of late of employing Wetherill's extract of bark. This preparation contains the quinine in the state of a super-sulphate, combined with the whole of the extractive matter of the cinchona. It is more certain in arresting the paroxysms than the sulphate of quinine, if our observations have not grossly deceived us; and the disposition to the recurrence of them, seems to be much lessened.

289. It is usually prescribed in doses of one grain in the form of a pill; one is given every hour, while free from fever; for, like the quinine, this is the time for its exhibition.

290. After suitable evacuations, by purgatives, and bleeding, (or an emetic if it has been thought advisable,) and where there is distinct, and decided intermissions, we should commence with the bark or quinine, as soon as the paroxysm has completely subsided; or in other words, when there is no longer any fever remaining. It is too common to order the bark, as soon as the sweating declines; and mischief many times has resulted from obeying it; for very often there is still remaining a vestige of fever, even after the perspiration has gone off. The pulse should therefore be examined; and if it be found still active, the use of

\* It will be perceived that, a drachm of the solution, or one grain of the quinine itself is intended to be given at a dose by this formula, as a tea-spoon is supposed to hold one drachm. In the *Annali Universali di Medicina*, for November and December, 1828, Dr. Speranza gives an account of a successful mode of treating tertian fever, by the endermic method of applying the sulphate of quinine. In fifteen cases, the fever had appeared some days before he prescribed for them. With the exception of two there was no very manifest local irritation; and in these the symptoms were gastric. Without giving purgative medicines to any of them, he had a blister applied immediately, and in most instance on the day of the febrile paroxysm; the sulphate of quinia was put on at the end of the fit, or the beginning of the apyrexia. The arm was selected for the application of the blister, as the most convenient for dressing. Concentrated vinegar was first rubbed strongly on the part to hasten the production of a vesicle by the blister. After removing the epidermis, eight or ten grains of the sulphate mixed with a small portion of ointment, was placed upon it. The wound was dressed on the second day, and every thing that remained upon its surface was removed. From appearances one-half of the sulphate was absorbed. In most cases the fever did not return even after the first application; nor was it necessary to repeat it. Not only primitive tertians were treated in this manner, but also those that were at first continued. No case of relapse was known. But in some cases, the inflammation of the arm required topical remedies.

the bark should be suspended until this subside. A want of attention to this circumstance, has frequently defeated the best powers of this medicine. But when the system is in a proper condition to profit by its exhibition, we should give a drachm, every hour in milk, or thin molasses; or a grain of quinine, until within an hour of the time of the expected return of the fit, if it be a quotidian; but if a tertian, or quartan, it may be given every two hours—but this must be done with persevering fidelity during the day and night. We object to excessive doses being taken immediately before the returning fit; we have never seen it decidedly useful in any one instance; and we believe we have seen it unequivocally mischievous, many times.

291. There is a great variety of substances purporting to be substitutes for the bark; but as far as our experience, or information goes, there are none of equal value. The one of the vegetable class that approaches nearest to it, in our estimation, is the cascarilla bark, (cortex eleutheria,) treated pretty much after the same manner as the bark itself; or what perhaps is a more eligible form for this drug, is that of a decoction. In some cases, as in those which may be accompanied by cough, or purulent expectoration from the lungs, it has a decided advantage over bark in any form.

292. Neither the bark nor quinine can be used without injury in intermittents, that are accompanied by cough; (see note to par. 284) or any congestion of the lungs; nor has it ever been useful, when this disease has been complicated with extensive visceral obstructions.

293. Both the bark, and the quinine, run off by stool sometimes, where its exhibition would otherwise be most proper; to prevent this, eight or ten drops of laudanum should be occasionally added to the dose—or the patient may drink now and then a wine-glassful of tea made from the ground allspice—this to be useful must be strong—at other times the bark produces obstinate costiveness—to obviate this, the patient should take a few pills made of rhubarb and soap, or aloes and soap, at bed time.\*

294. There is another remedy which is much, and justly ex-

\* The following pills answer this purpose admirably well; and when it becomes necessary to persevere in any laxative, to overcome costiveness, for a

tolled, for the cure of intermittents; namely, arsenic—as far as our experience enables us to institute a comparison between it and the bark, we should say, it is fully as certain, and without some of its inconveniences. The only objection that we believe can be urged against it, is, that it is a medicine of most deadly power when improperly used. But when properly exhibited, it is as safe as opium, or any other medicine in daily use. We have never seen the least injury result from it—it sometimes sickens the stomach, and occasionally, even to vomiting—but of what medicine of any power may not the same be said.\*

295. The arsenical solution has a decided advantage over any preparation of bark, when children are the subjects for its exhibition—to them it can be administered with the fullest effect, without their being aware they have taken any thing. It may be given when the system cannot receive the bark, or even when the pulse is too full to bear its use.† It must be given in doses of six or eight drops every three, four, or six hours, to adults. Should this quantity sicken too much, or be rejected, smaller doses must be tried; and this will very rarely fail to sit well. To children from one to two years old, one drop or a drop and a half may be given every four or six hours—to those of two or six, two drops; from six to twelve, three drops; and from twelve

long time they have the advantage over every other that we are acquainted with:—

R.	Gum. aloes suc.	-	ʒj.		Take of Socotorine aloes	1 drachm.	
	Pulv. rhæi	-	ʒij.			Powdered rhubarb	2 drachms.
	Ol. caryoph.	-	gut. vj.			Oil of cloves	- 6 drops.
	Sapo venet.	-	gr. viij.			Castile soap	- 8 grains.
	Syr. rhæi	-	q. s.			Syrup of rhubarb	sufficient.
	M. f. pil. lx.					Make 60 pills.	

One, two, or three, of these may be taken at bed time when necessary, as the constitutional condition of the bowels may require, a small or large dose.

\* When we have witnessed the most decided good effects from this medicine, it has always been in recent, or at least, not in very long-standing cases—and we think it more successful in young, than in old subjects.

† The arsenic, like every other tonic or stimulant, employed for the cure of fever, must have the system prepared for its reception; but we think it can be given earlier, and with less depletion, than the bark. Nor is it a matter of any consequence, so far as we have observed, if the fever be not absolutely subdued at the time of its commencement. Indeed, some are of opinion, that this medicine can be given during the whole march of the disease. As regards our own experience, we confess it to be at variance with this declaration.

to adult age, four drops may be used. Should it prove unpleasant to the stomach, let it be given with a drop or two of the essence of peppermint and water, which will almost always correct this tendency to sickness. The only obvious effect we have witnessed from this drug beside sickness, is a swelling of the eyelids; especially in the morning; but this soon goes off, if the medicine be intermitted for two or three days; nor is it of any consequence if it continue a short time; for it appears only as an evidence that, the medicine has had a constitutional effect. We have never known it but once to affect the bowels; and then, only very temporarily. After it has been used for a few days, and has not affected the stomach, the dose if necessary, can be increased very safely two or three drops for a grown person, and proportionably for children.

296. The third great object in the treatment of intermittents, is to prevent a relapse after the fits have ceased a certain time. There is no disease to which the human body is obnoxious, that is so easily provoked to return, or so difficult to prevent from reappearing, as agues. It therefore becomes a matter of great consideration with the patient to know how he shall be protected against its renewal. The seventh, ninth, and thirteenth days, appear to be the most frequent periods of return; but agreeable to our own observation, the thirteenth is the most common. Therefore, to prevent this, the patient should be particularly guarded against exposure, on the days designated above—he should two days before each of these periods take a few doses of his medicine; either the bark, quinine, or arsenic, whichever he may have employed—he should avoid all exposure to damp, cold, or heated air—he should preserve his bowels in a soluble state; but they must not be purged; and most carefully avoid fatigue of body, or emotions of mind. But above all, when practicable, he should remove from the place where it originated, and remain from it, until his health be firmly established.

297. As this disease is generally supposed to arise from an excess of bile, purgatives are too often employed during convalescence, with a view to its removal; than which a greater error can hardly be committed. We are certain that we have seen relapses produced by the administration of a brisk cathartic, though given with a prophylactic view. We would therefore earnestly caution against this plan of treatment.

298. We have admitted it to be every way proper, to keep the bowels soluble; but they must be purged with great caution, during convalescence. And it may be useful farther to suggest, that much care is required, that purging shall not be carried too far, even when there may be a renewal of the paroxysms, especially, if the interval has not been very long; or if the returns have been previously pretty frequent. Nor, is it a matter of indifference which of the cathartics we employ. Calomel in divided doses, say a grain every hour, until five or six grains are taken, is the best; and should not this operate in two hours after the last portion has been taken, it should be carried through the bowels by a dose of castor oil, or magnesia. But even this cautious use of purgative medicines, has its rules; and against which it would not be safe to sin. Calomel, as above directed, should be given only during the appearance of unhealthy, bilious discharges; for as soon as the feces assume their natural looks, it should be desisted from. The neutral salts are always improper, under the circumstances just stated.

299. Should the ague be of long standing, and the stomach much affected; and especially with people advanced in life, it becomes very important, that some aromatic should be joined with the remedies just recommended. The Virginia snake-root in form of a strong tea, where sickness attends, is of great value—but where the stomach is merely feeble, and flatulent, cloves becomes an important addition to the bark. Indeed, in many obstinate cases which we have witnessed, the addition of cloves, was found to be essential to the cure. We have oftentimes succeeded with this remedy joined to the bark, in form of an electuary, when every other we had employed; even the quinine, had proved unavailing. We can therefore recommend this mode of exhibiting the bark, with great confidence.\*

300. Blisters are very often powerful auxiliaries in the cure

\* The following formula is the one we are in the habit of using:—

R.	Pulv. C. Peruv. opt.	-	ʒij.		Take Best powdered bark	2 ounces.	
	Pulv. caryoph.	-	ʒj.			Powdered cloves	1 drachm.
	Syr. commun.	-	q. s.			And as much molasses or any	
	M. f. elect.					other syrup as will make it	
						into a pretty stiff paste.	

Of this the size of a nutmeg must be taken every two hours, when free from fever.

of intermittents—but they should not be employed too early—the pulse should have lost considerably of its vigour, before they be had recourse to. In protracted cases, and especially in aged people, they may be used with great advantage, applied to the inner side of the calves of the legs, or above the wrists, on the arms. They should be of as large a size as the place on which they are to be applied will admit of; for it must be recollected, that a large blister gives no more pain while drawing than a small one. (See par. 114.) They should be applied at such a period as to secure their drawing at about the time the fit is expected.

301. Should the stomach be much affected, a blister can be applied over its region with much advantage—this should be in size at least eight inches by nine. Should the head particularly suffer, the blister should be applied between the shoulders, and of such dimensions as will pretty nearly occupy the space of half each shoulder blade, both in depth and breadth, up to the nape of the neck.

302. In our account of fevers in general, we have said enough to direct the diet and drinks in these particular fevers. Should our rules on this subject be adhered to, we believe it will be of advantage to the patient, although we differ in some respects on this subject, from authors of great experience and celebrity; and especially the European writers. We find in most of them a disposition to alter the diet on the days of interval, by permitting an indulgence in more generous food, than we have directed. This may be right in their climate, and in the diseases of them; but in this country, and especially in the middle and north-eastern states, the plan we have laid down we are persuaded is right; and we must insist, it should be persevered in, until the paroxysms cease to return, or until such a state of debility supervenes as will call for this charge.

303. After the fits have been interrupted for several days, the patient may be permitted to eat of light but nourishing food; and in indulging in this, he should be cautious not to go too far at once. He may now be permitted to eat moderately of oysters, soft boiled eggs, chicken broth, beef tea, or thin chocolate. In a few days more, he may indulge in beef-steak or mutton chop; and these may be accompanied by a tumbler of good ale and water, or porter and water—and after a few days more of exemp-

tion, he may return to his usual habits of eating, except upon the days pointed out for his guarding against a relapse.

304. The anxiety to arrest the returns of ague is sometimes so strong, as to lead to the most disastrous means of effecting it. Thus, we have frequently known people in common life, (and occasionally, indeed, people who should have known better,) take large quantities of ardent spirits; and this sometimes rendered more stimulating by the addition of pepper, just before the expected period of a fit, or at its commencement, with the most baneful result. We once knew death to ensue very shortly after this vile potation had been swallowed; and we have witnessed a number of instances of intermittents being converted into continued fevers by the same means. But candour obliges us to confess, we have also known it to succeed sometimes; but not oftener, nor perhaps so often, as by the use of the remedies we have proposed for this end, and from which no mischief can result. We should be glad, could we but induce those who may be affected with this, but too often tedious and obstinate disease, to give to milder, and more rational means, a fair trial, before they proceed to use remedies rarely successful, very often decidedly injurious, and sometimes dangerous.

305. As intermittents for the most part have marsh miasma, for their remote cause, we cannot be surprised that they should be protracted to almost an indefinite period, so long as the patient continues to have these causes operating in him. Accordingly, many are doomed to be victims to these distressing complaints for many consecutive months, notwithstanding all the "appliances and means, to boot," have been industriously employed. It is therefore in many instances a chronic affection, and is perpetuated to "immeasurable length," by the force of habit. Patients so situated, drag on a miserable existence, until some fortunate application may break the spell, and restore them to tolerable health.

306. It is a desideratum of great magnitude, to find a remedy which shall destroy the morbid associations which give rise to these repeated and long-protracted paroxysms. So far we are not in possession of such a remedy, although we have several which scarcely fail. The treatment of agues in the southern states, is different from that of the middle and eastern states; this arises

almost exclusively from certain localities, and the influence of climate. In the southern portions of our union, there is much more extensive, as well as much longer application of the causes which produce them; this gives to the disease a force and a fixedness, that is rarely known, in other parts of the United States.

307. From constant exposure to the remote causes, the patient has but small chance of a speedy *cure*; accordingly, he is rarely benefited until frost has destroyed the effluvia that gave rise to the complaint. By the time spring returns, he is but barely relieved from the effects of his summer disease; and before his constitution has recovered from the previous shock, he is again visited by his ague. Weakened by former indispositions, the noxious causes continue to operate on him with as much certainty, if not with equal force as before; while the remedies, which had formerly been employed with success, have now lost in great measure their power, and the disease can no longer be held in check; consequently he is subject to it, the greater part of the year—visceral obstructions form; and these are succeeded by dropsy—he crawls a living spectre, until he is relieved by the kind stroke of death.

308. This is but too frequently the melancholy progress and termination of intermittents in certain districts of our country; to arrest them early, and permanently keep them at bay, is more to be coveted than expected; at least so long as the patient remain on the spot from whence the cause proceeds. To remove him then is a matter of primary importance when practicable; and where not, we are of opinion that much of the obstinacy of the disease might be subdued, if proper and efficient means were employed in the commencement of the attack. By efficient means we wish to be understood, the proper exhibition of cathartics; blood-letting; and occasionally emetics when the liver is goaded to excessive action.

309. By the constant operation of the remote causes in such locations, there will be frequently, an unusual secretion of bile; and although we are by no means of the opinion, that bile is the cause of intermittents, yet we are fully persuaded, nay certain, that it may aggravate the disease when existing in excess, in the stomach and duodenum. It is therefore far from unusual

that the patient discharges large quantities of this fluid during the whole continuance of the disease; which, if it do no other injury, will very frequently prevent the employment of the bark, and other medicine given with the view to interrupt the paroxysms.

310. It has therefore been found an excellent practice in such cases, to repeat the exhibition of emetics; and occasionally during the paroxysm, to have the bowels unloaded by mercurial cathartics. In the southern states, where they are much experienced in this disease, the use of emetics is had much recourse to, and it is said with decided advantage; but we fear they err in not using laxatives as freely as they should; and almost entirely withholding the lancet, even where there is unequivocal evidence of a phlogistic diathesis present. The fear of inducing weakness, has led to this reserved use of the lancet; and thus a contingent debility, is compounded for, by the certain induction, of obstructed abdominal viscera.

311. The bark in almost all its forms as a remedy in intermittents, is admitted by every body to be of extraordinary efficacy; but it is equally true, that it requires a *certain condition* of the system to ensure its success; and that condition, is, an entire freedom from inflammatory action. Therefore, when this state of the system has been overlooked, or not sufficiently attended to, we find intermittents very often converted into remittents; or the force of the disease falls upon the abdominal viscera, to the ultimate destruction of the patient—hence, as we have already observed, it is one of the most common causes of obstructed liver, or spleen, or both.

312. So soon then as there is a determination to these parts, we cease to find much good from the bark—the practitioner is surprised at his want of success; and attributes his failures to the niggardly doses in which he has given the medicines; to remedy which, he doubles, nay, sometimes trebles the quantity, with no better, or perhaps, with even worse effects. The disease now becomes habitual; and will no longer yield to common remedies—an empirical practice is now adopted; which may either succeed, or destroy, as chance may have it.

313. One of the most deplorable circumstances, connected with the history of intermittents, as we have already observed,

is, their liability to return, after the paroxysms have been suspended for days, weeks, nay, months; even when the patient has been removed from the place, and where the remote causes have ceased to act. There is something peculiar in the nature of this form of fever; since it creates a liability to return, which no other form of fever does. A remittent passes off without leaving this disposition behind it; provided it has not terminated in the intermittent form: when this happens, there is certainly a risk, that the paroxysms of the intermittent may be repeated; but the danger is less than when the fever presented itself originally as an intermittent.

314. To protect the system against this liability, or to destroy the disposition to it, has long been a desideratum, as we observed above; and many substances have been recommended, and various plans proposed for this purpose; but on none of them, so far as we know, can implicit reliance be placed. The plan which often succeeded with us, within the last few years, is, the persevering use of the black pepper corns. Six or eight are to be swallowed, three times a day, about fifteen minutes before each meal, and continued for twenty days; the taking of them should be commenced as soon as the febrile paroxysms have been suspended.

315. We have lately adopted an easier method of exhibiting this substance, and with equal success; which is in pills made of the *piperine*.\* A grain of this substance, in a pill, is to be taken as directed for the pepper corns. It can now be procured in this city without difficulty. The dose of the pepper corns, or of the piperine, is for an adult—so far we have only witnessed the efficacy of this remedy, with them; we are yet to learn its powers with children.

316. If the patient, who may be labouring under the protracted form of ague, can be removed from the spot on which the disease originated, he may speedily recover, by the use of the very remedies, which before his removal had altogether failed. But if a change of place be impracticable, we are obliged to combat the complaint in the best manner we can, though this be at fearful odds.

\* The piperine is the proximate principle of the black pepper; and bears the same relation to it, as the quinine does to the bark.

317. Sometimes by new combinations the same remedies will prove successful, that had before failed even in large doses; thus bark in combination with certain aromatics will stop an ague, (as we have noticed above,) that would not yield to any quantity administered alone. The prescriptions in the margin, beside the one just mentioned, are of this kind;\* and from repeated experience of their efficacy, we can safely, and confidently recommend them. My friend, Dr. Chapman, speaks highly of the blue vitriol, (sulphate of copper,) and opium, in the protracted form of this complaint; and his authority for its usefulness is sufficient to inspire confidence. His formula is noticed below. It is also extolled by several European writers.†

318. When visceral obstructions exist, mercury must be had recourse to. In advising this, we are not to be understood, that it should be exclusively employed; we mean it as a powerful auxiliary to the tonics which must now be substituted for the bark—such as Fowler's solution; sulphate of zinc; sulphate of copper; the decoction of cascarilla, (cortex eleutheria,) &c. for we must suspend the bark, as we are persuaded it is an improper

* R. Pulv. cort. Peruv. opt.	ʒvj.		Take Best powdered bark	6 drachms.
Theriaca androm. -	ʒiij.		Venice treacle -	3 drachms.
Pulv. crem. tart. -	ʒij.		Cremor tartar -	2 drachms.
Aq. font. - - -	ʒvj.		Water - - -	6 ounces.
M.			Mix.	

Of this, when practicable, a table-spoonful is to be taken for twelve consecutive hours before the chill is expected. Or,

R. Pulv. cort. Peruv. opt.	ʒj.		Take Best powdered bark	1 ounce.
Rad. serp. virg. -	ʒss.		Virginia snake-root	½ ounce.
Cort. aurant. - -	ʒij.		Orange peel -	2 drachms.
Pulv. caryoph. - -	ʒj.		Powdered cloves	1 drachm.
Carbon. sodæ - -	ʒj.		Potash or soda -	1 drachm.
M.		Mix.		

This powder is to be put in a clean earthen vessel, with three half pints of boiling water—and simmered gently until it is reduced to a pint—allow it to settle; pour off from the sediment, a wine-glassful every hour, for eight hours, before the chill is expected.

† R. Sulph. cupri. -	gr. ij.		Take Sulphate of copper	2 grains.
Gum. opii - -	gr. iv.		Opium - - -	4 grains.
Conserv. rosar. -	q. s.		Conserve of roses, enough to	
M. f. pil. xvj.			make in sixteen pills.	

One every morning, noon, and evening.

remedy under such circumstances. The best modes of introducing mercury, is either by friction, or by the blue pill—two drachms of the former may be rubbed in, morning and evening, over the region of the liver, spleen, or the inside of the thighs, until two ounces are expended; unless a lesser quantity has given evidence of its constitutional action. Should the mouth not become affected after a lapse of four or five days, another ounce, in drachm quantities, may be rubbed, as before. We believe these quantities will be every way sufficient for the object, for which they are prescribed; that is, rather as an alterative, than as a syllagogue. When this plan is inconvenient, or is objected to, the blue pill, (*pil. hydragr.*) may be given, in three or four grain doses, morning and evening, until the mouth becomes slightly affected. Should they run off by stool, each dose must be guarded by a quarter or half a grain of opium.

319. A patient subject to frequent returns of this fitful disease, should be careful about his clothing, especially on sudden changes of the weather from hot to cold, and from dry to wet. To ward off the ill effects of these transitions, he should never be without flannel next his skin; and this should frequently be changed; much depends upon an attention to this point; and no one perhaps is more neglected. It is too commonly believed, that there is very little if any necessity, for changing of the flannel; and it is worn by some, for months together, without this being done; whereas, it should be renewed, when practicable, frequently, (that is, at least twice a week,) especially by those who perspire much.

320. Another precaution should be taken by invalids of this description, (as well as of every other indeed,) which is, never to go out in the morning without having taken food previously. We may with propriety in this place suggest another caution; never to take any liquor with a view of "fortifying the stomach." If such a habit has been indulged in, the sooner it is broken the better; and this may be done both successfully, and advantageously, by substituting a gill of strong ginger, or calamus tea, for the usual spirituous potation.

321. The system is very liable to lose its susceptibility to medicine, and stimuli of every kind when long continued; it is therefore of consequence not to persevere too long with any one

remedy; and this is especially the case with bark;\* therefore when it is not successful in arresting the paroxysms by a fortnight's perseverance, it should be discontinued, and some other remedy tried; or else alter its form, which sometimes proves highly efficacious.

322. But we should, in making our estimate of the power of the bark, be certain that its failure is owing to the system losing its susceptibility to its action; or we may confound it with the phlogistic condition of the body—this is particularly to be attended to in the earlier stages of the disease; and especially with such patients as have it for the first time. It is sometimes surprising to see how much the powers of the bark are augmented by certain combinations; and at times truly astonishing how speedily an inveterate ague will yield to them; thus we have seen the forms mentioned above relieve like magic, after the patient had for weeks, most industriously swallowed large doses of this medicine, in its simple form.

323. In dismissing this subject we cannot refrain from repeating, how truly essential a proper and effectual preparation of the system, is, for the best effects of the bark. We are persuaded this has not been attended to with the care its usefulness demands. We again declare, that in our opinion, that most of the failures with the bark, have arisen from this cause. It may not however, be amiss to remark that, much also will depend upon the quality of this drug. For in no one article perhaps of the materia medica, are we so likely to be imposed upon, as with this—it is either weakened by improper mixture, or a kind is substituted, that is entirely inert. The same almost, may now be said of the quinine.

324. Within the last few years, the bark in substance, has been almost altogether superceded by the quinine, and Wetherill's extract; which when pure, are the most valuable acquisitions, presented to us by modern chemistry; and are truly, two of the most certain of the preparations, of this extraordinary medicine. We have already glanced at some of their advantages over the

\* With the bark, we mean to include the quinine and Wetherill's extract, of course; as all have been found to lose their powers in about the same period. And whenever we name bark, its preparations are also to be supposed included, unless otherways expressed.

bark in substance, and we shall now add, that their exhibition is more generally certain, than the substance from which they are derived. They are much less offensive to the taste, though intensely bitter; they sit better upon the stomach; and they are not so much disposed to run off by the bowels. Besides, their bulk may be reduced to almost nothing; the grain pills, make very little bulk; and the quinine in solution need not exceed a tea-spoonful at a dose.

325. Many are in the habit of exhibiting the quinine in pills; but we are persuaded from repeated experience, that it often fails when given in this form; this arises perhaps from its great insolubility; indeed on this account much care is required to prepare it in a liquid form. The best formula is recorded at par. 288.

326. The quinine is a costly medicine at first sight; but from all the estimates we can make, we are persuaded, that in the main, it is cheaper than the bark itself. Its high price, and the great demand for it, has unfortunately led to its adulteration. The genuine quinine is a little yellowish.

327. A medicine of great efficacy, if we believe Dr. Jackson, (and perhaps no one is better entitled to credence,) is found in the cob-web; which he assures us "is more effectual in preventing the return of febrile paroxysms, than any other remedy, of which he had knowledge," he farther adds, "I think I may venture to say that it prevents the recurrence of febrile paroxysms more abruptly, and more effectually than the bark or arsenic, or any other remedy employed for that purpose with which I am acquainted; that, like all other remedies of the kind, it is only effectual as applied under a certain condition of habit; but that the condition of susceptibility for cob-web is, at the same time of more latitude than for any other of the known remedies. The cob-web was rarely given until the subject was prepared by bleeding, emetic, or purgative, and, given to a subject so prepared, has seldom failed to effect a cure comparatively permanent; relapse or conversion into another form of disease, being upon the whole a rare occurrence, where the disease had been suspended by this remedy. If the cob-web was given in the time of perfect intermission, the return of the paroxysm was prevented; if given under the first symptoms of a commencing paroxysm, the symptoms were suppressed, and the course of pa-

roxysm was so much interrupted, that the disease for the most part lost its characteristic symptoms. If it was not given until the paroxysm was advanced in progress, the symptoms of irritation, viz. tremors, startings, spasms, and delirium—if such existed in forms of febrile action, were usually reduced in violence, sometimes entirely removed. In this case sleep—calm and refreshing, usually followed the sudden and perfect removal of pain and irritation. Vomiting, spasms, and twisting in the bowels, appearing as modes of febrile irritation, were also usually allayed by it; there was no effect from it where the vomiting or pain were connected with real inflammation, or progress to disorganization.”

328. The Dr. farther adds, “the cob-web may perhaps be thought to belong to the class of poisons; but it is somewhat singular that I have never been able to discover much difference of effect from a dose of ten grains and from a dose of twenty. The changes induced on the existing state of the system, as the effects of its operation, characterize a powerful stimulant. 1. Where the pulses of the arteries are quick, frequent, irregular and irritated; they become calm, regular and slow. Almost instantaneously after the cob-web has passed into the stomach, the effect is moreover accompanied, for the most part, with perspiration, and a perfect relaxation of the surface. 2. Where the pulses are slow, regular, and nearly natural, they usually become frequent, small, irregular—sometimes intermitting. 3. Where languor and depression characterize the disease, sensations of warmth and comfort are diffused about the stomach, and increased animation is conspicuous in the appearance of the eye and countenance.” Dr. Jackson then specifies the particular spider from which the web should be procured, by saying, “the cob-web here recommended is a product of the black spider, which inhabits cellars, barns, and stables; that which is found upon the hedges in autumn, does not possess the same power, if it be actually of the same nature.”

329. The high encomiums thus bestowed upon this curious substance, should tempt us to fair and unprejudiced trials of it—and as far as our own experience goes, it is much in favour of this medicine, and is very analogous to that of Dr. Jackson’s—we however confess, that our experience is limited.

## CHAPTER III.

## REMITTENT FEVER.

330. WHEN a fever consists of repeated paroxysms, (that is, regular exacerbations and declines,) but without a distinct intermission between the paroxysms, it is called a remittent fever. In these cases, it is observed that, though the hot and sweating stages\* do not entirely cease before the twenty-four hours have expired from the beginning of the paroxysm, the fever is found to have suffered considerable abatement, or a remission of their violence; but at the return of the quotidian period, the paroxysm is again renewed, and runs the same course as before. This form has therefore no absolute apyrexia, nor is it necessarily preceded in its onset, by chill, nor the succeeding exacerbations anticipated by a sense of cold.

331. This fever commences very much like an intermittent; it is preceded by languor and anxiety, listlessness, yawning, and sometimes by alternate fits of heat and cold; pain in the head or back, of greater or less intensity; the heat over the whole body is much augmented;† thirst; more or less difficulty of breathing;

\* A sweating stage does not always belong to this form of fever—we have seen many instances to the contrary of this; and never more frequently, perhaps, than in the fevers of this fall, (1828,) when they assumed the remittent form. In almost all these cases, there were two exacerbations in twenty-four hours, at about twelve hours interval. The first, at seven or eight o'clock in the morning, and the other about the same hour in the evening. These conditions would continue for three or four days, before any marked solution of the fever would take place by sweating. A partial moisture was sometimes, however, observed, upon the decline of the heat of the body.

† This is not universally the case; this form of fever has its characters to vary like all others, and by causes altogether inscrutable; and especially when it becomes epidemic. In many instances of this fever this fall, (1828,) the extremities would remain cold, and especially the lower, for many hours together; while the other parts of the body, and the head particularly, would be excessively hot. Indeed, the feet and legs were difficult to warm, even by the repeated application of hot things; as heated bricks, or bottles of hot water. When this disposition to become cold prevails, we should never fail to attempt its removal, by the means just named. In some cases we were obliged to have recourse to hot brandy and Cayenne pepper for this purpose.

tongue for the most part white; spirits dejected; and frequently, the skin and eyes have a tinge of yellow; sometimes nausea, and vomiting of bilious matter; pulse frequent, full or small, tense or soft, as the constitution may be affected by the remote causes. After these symptoms have continued for some time, the fever is found to abate considerably; or there is an attempt at perfect solution by partial sweats breaking out, but it is rarely completed; for after a lapse of a few hours, the same routine of symptoms are again observed. After a continuance for some time of alternate remissions and exacerbations, a crisis takes place; or if the disease has been neglected, or improperly treated, it may be converted into a fever of the continued type.

332. There is no inconsiderable difference in the grades of this fever, as constitution, seasons of the year, and climate, may modify the force of the remote causes, &c. In the milder forms of this disease, delirium for the most part is absent; but in the more exalted, it comes on with the first symptoms, and pertinaciously continues through the whole course of the complaint. When this obtains, we may remark an aggravation of all the other symptoms; but these, like the former, suffer a small abatement at the period of remission; but for the most part, the patient profits very little by this partial truce, as the succeeding exacerbations are attended by aggravated symptoms, and sometimes even death ensues. When about to terminate favourably, the contrary, to what has just been mentioned takes place; the remission is of longer continuance, and the state of the disease during this reduction is milder; the exacerbation which follows is of less intensity than the former; the sweat, before partial, now becomes general; the delirium less ferocious; the pulse softer and more tranquil; the breathing less oppressive; and eventually a crisis take place on the tenth or twelfth day, or in hot climates, on the fifth, perhaps.

333. We should not ever persuade ourselves, that this disease is not, or may not be dangerous; for it sometimes has a fatal termination, even under the best treatment. This, however, more certainly happens, when the remedies have been either injudiciously, or feebly administered; or where they have not been applied, until the patient was already in jeopardy. As a general rule, we may say of it, that, in proportion to the distinctness

of the remission; or, in other words, the nearer it approaches to the intermittent form, will be the exemption from danger; while on the other hand, the shorter and more obscure the remission, the greater will be the danger.

334. Dissections prove that, (at least in almost all the fatal cases which have been noticed,) there are strong local determinations of blood especially to the stomach, head, and liver; and that very often there is an inflammation of these parts. In this country this obtains with almost as much certainty, as within the tropics;\* and the disease very frequently runs its course with the same appalling rapidity. We should therefore attend to this disease with a watchful eye, and rejoice, when it does not elude our vigilance. The treatment of it must be both prompt, and decisive; half-way measures will rarely succeed, unless it be in its very mildest form.

335. The treatment of this disease differs very much from that of an intermittent. We rarely dare commence with an emetic; indeed only, when this complaint assumes its very mildest appearance; and when the stomach is evidently irritated by bile.† We mention this, and we wish to be understood as laying some stress upon it, because it is a prevailing error, that “all fevers are accompanied by a copious secretion of bile; there-

\* We have already acknowledged our obligations to the French pathologists, for the extent, and precision of their remarks upon the dead, fever subjects—indeed, they seem to have done almost every thing which is required upon this point; and the truth of their observations, as regard the condition of the stomach; as well as the practical conclusions deduced from them, are now almost as universally as well as profitably admitted. Yet it is due to Dr. Physick to say, that he made like discoveries as early as 1793, when the yellow fever, was epidemic in this city. And we may add, with a view to show how slowly new truths are received, when such truths are calculated to destroy old prejudices, that his skill as a physician, as well as that of an anatomist, were called in question, the instant he published his discoveries to the world.

† It now and then happens, that a fever of a remittent form, is, in its onset, accompanied by a vomiting of a bilious matter. The stomach in this case is extremely irritable, and refuses to retain any thing offered it—neither food nor medicine, will lie upon it an instant when this happens; occasionally, advantage is found from emptying this viscus, by the exhibition of ipecacuanha. We rarely venture upon the antimonial preparations; as we are of opinion, that much mischief has followed their operation. This is, perhaps, not of difficult explanation, if the pathology we have adopted of this disease, be correct.

fore, the attempts at cure should be premised by an emetic." We are persuaded that in several instances within our own observation, an emetic had a decidedly mischievous, if not a fatal tendency. From the force of arterial action, arising from the phlogosed state of the stomach, and the constant tendency to local determinations, bleeding\* must be had recourse to as early as possible; and the quantity to be drawn must be regulated by the intensity of the symptoms. The regulations we have already laid down for this remedy must be strictly complied with; especially the one which refers to the change which must be induced on the pulse. Without changing the force or nature of the action of the circulatory system, we do little, perhaps nothing, nay, sometimes mischief. Therefore, where pain in the back and head are severe, we should not stop the flow of blood, until they are relieved, or much mitigated; and this rarely ever will be the case, before the pulse is reduced in a very evident manner. We are to decide upon the quantity to be drawn, entirely by the effects it produces upon the pulse; and not by either weight or measure. In some cases a very few ounces will afford instant relief, while others may require the loss of many. We have frequently seen a large bleeding, immediately followed by a profuse perspiration, much to the relief of the patient, and we were persuaded, at the moment, that a small one would not have produced such an effect.

336. We have several times declared, that dissections have proved that the stomach is in a state of greater or less inflammation, in perhaps every form of fever; and this is so readily detected in most instances by pressure made over its region, that we may almost constantly satisfy ourselves of the fact. In making this examination, and it should never be omitted, we must take care not to apply a force, that would of itself create pain, independently of the diseased condition of the stomach, just spoken of. The part most sensitive in general, is the hollow space at the lower extremity of the sternum, or breast bone. If two or three fingers be made to press gently and gradually upon this part, and the patient evince or acknowledge that he expe-

\* We would wish to be understood here, to mean local bleeding, if necessary, as well as general. The general bleeding, as a common rule, should first be had recourse to.

riences pain from the trial, we are assured almost beyond a doubt, that the stomach is labouring under a greater or lesser degree of inflammation. Hence the propriety and oftentimes the absolute necessity, of having recourse to topical bleeding, either by the means of leeches or cups; especially after a bleeding, or bleedings from the arm, have been performed. In a number of instances, we have seen a complete intermission instantly procured by the loss of five or six ounces of blood by leeches from the region of the stomach. Nor do we always require the presence of tenderness from pressure, to induce us to have recourse to leeches. On the contrary, we have known this to be absent; yet the most decided benefit to follow their use. Therefore whenever the fever is obstinate, they should be employed without farther loss of time.

337. After having bled the patient, we should attend to the state of the bowels—they should be promptly and freely evacuated; for this purpose, a small dose of calomel, say six grains, should be given, and this followed in two hours by an ounce of castor oil; which must be repeated, if it does not act sufficiently in two or three hours. We rarely repeat the calomel the same day. Or we may use with much advantage, the Epsom salts and calcined magnesia; or castor oil alone. The salts and magnesia are given in the following proportions.

R. Sulph. magnes.	} Take Epsom salts,	
Magnes. alb. ust., āā. - ʒij.		Calcined magnesia,
M. et div. in ij.		each, - - 3 drachms.
		Mix and divide in 3 parts.

One to be taken every hour, mixed in sweetened water or lemonade, until they operate freely.

338. The castor oil should be given in ounce doses, every two or three hours until it operate. It is always best to make the oil very thin, by warming it.

339. Generally it is best to give these medicines in divided doses, and repeat them until a full effect be produced—the intervals at which they shall be given are indicated by the prescription. If a copious perspiration ensue, we may be assured we have lessened the force of the exacerbation; and that the succeeding one will be milder; but we must not be lulled into the belief that it will require no farther care—on the contrary, it should be

watched with attention, and made to undergo a discipline precisely similar to the one just mentioned; provided, the force of the pulse, head-ache, &c. make it proper to lose more blood—the quantity now to be drawn may be less; but the lancet must not be withheld, if pain attend, and the pulse be still active. The bowels must again be opened by the same means as before; but not to the same extent, unless the evacuations are decidedly bilious, very dark coloured, and offensive. Should perspiration ensue, and terminate the paroxysm, we may perhaps, gain a complete intermission, and the disease change its type to that of *intermittent*; in this event, it must be treated as already directed for that fever.

340. It is not a matter of indifference, at what part of the paroxysm we abstract blood, either from the arm, or from the skin over the stomach by leeches, or cups. We are of opinion, and think we are not mistaken when we say mischief has followed the loss of blood, when it has been abstracted near the end of the paroxysm; especially, when the habit of the fever is, to terminate by sweat. We are therefore constantly careful to direct this operation some time before the exacerbation is about to decline.

341. If the paroxysm does not terminate by perspiration; and the patient continue restless, hot, and thirsty, with very little or no abatement of fever, we may be pretty certain, that the remedies have not diminished the force of the disease; and especially, if delirium should now attend, or become augmented. In this case, we must disregard what has already been done for the patient; and industriously apply ourselves to ward off the threatening mischief—with a view to this, we must carefully consult the pulse, and the attending symptoms, as to the propriety of the farther abstraction of blood—should the pulse be still active, the head-ache severe, or other pain continue, we should again tie up the arm, and allow more blood to escape—the quantity must be regulated by existing circumstances, that is, by the reduction of the pulse, or by the alleviation of symptoms. Should the pulse not be so active, (which by the by, will rarely happen at this period of this disease,) as to justify farther depletion from the arm; if head-ache, and other evidences of local determination exist, or the tenderness in the epigastric region be undiminished, or augmented, we may take away blood by leeching, or cupping,

and may again deplete from the bowels. In this state of things, the latter object is admirably obtained very often by the use of the nitro-antimonial powders.\* Or should the disease suffer some mitigation, that is, the abatement of the symptoms just enumerated, we may employ the same powders, with great advantage, or simply the neutral mixture.† It may be well to remark here that, in remittents of very active stages, the utmost advantage is derived from carefully watching the exacerbations, and by never suffering a paroxysm to pass without the abstraction of blood so long as the pulse is active, the face much flushed, the skin very hot, and the head-ache severe. Some years ago, in some of our autumnal remittents, so mischievous was the neglect of this rule, that with a number of practitioners it became an aphorism that, “to lose a paroxysm was to lose a patient.”

342. As our remittents are very much influenced by causes which we neither see nor have controul over, we shall find their force very different, in different years. In our directions for their treatment, which necessarily must be general, we must constantly be understood to mean, that the remedies are to be adapted to the force with which the disease attacks; the period

\* The following is the formula for these powders.

<p>R. Nitrate of potash, - - ʒiiss.          Tartrate of antimony, - gr. j.          Calom. ppt. - - gr. iv.          M. div. in viij.</p>		<p>Take Nitre, - - 1½ drachm.          Tartar emetic, - 1 grain.          Calomel, - - 4 grains.          Mix and divide in 8 parts.</p>
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One of these to be given every two hours mixed in a little syrup of any kind. The number to be given must be determined by their effects upon the bowels. If they purge too freely they must be suspended, until farther necessity.

† Formula for the neutral mixture.

<p>R. Mixt. neutral,          Aqua font. āā. - - ʒiij.          Tart. antim., - - gr. j.          M. f. sol.</p>		<p>Take Carbonate of soda          or potash, - 2 drachms.          Lemon juice, - 3 ounces.          Tartar emetic, - 1 grain.          Water, - - 3 ounces.          M. and dissolve. a</p>
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A table spoonful to be given every hour or two, during the active state of the fever.

a When making this mixture, care should be taken to first strain the lemon juice, then add it very gradually to the soda or potash until the effervescence ceases. Let the tartar emetic be dissolved in the water before it is mixed with the neutral mixture. Sugar may be added to the taste if required.

to which they run, and the particular character they may assume. Thus we find, in some years they are mild, tractable, and of considerable duration; in others they are fierce, rapid, and quickly terminate in health or death. The remedies must therefore be regulated by these modifications.

343. If, after due depletion, we find a disposition to crisis by perspiration, we should endeavour to encourage it by such mild diaphoretics as will create no disturbance in the system, if they fail to procure sweat. For this purpose we may exhibit small doses of tartar emetic, as directed above in the neutral mixture; warm lemonade, or baum tea, with forty or fifty drops of the sweet spirit of nitre; or apply the vapour of vinegar, by means of heated bricks, saturated with this substance. Should the external application fail to produce perspiration in half an hour, it should be desisted from; for farther perseverance will not only be unavailing, but even injurious. This indisposition to moisture is almost always owing to too active a state of the pulse, or too high a temperature of the skin—if the first, we must deplete more; if the latter, we must reduce the excess of heat by cool drinks, cool air, and by sponging the body with cool water, or vinegar—but should there be a disposition at this time to chilliness, warm vinegar or warm whiskey may be employed; for notwithstanding this high temperature, the skin when exposed, is sometimes very sensible to the application of any substance below its own heat. We need not, however, always wait for an appearance of moisture on the skin, before we employ diaphoretic remedies; we may have recourse to them when the violence of the disease is so much subdued, as to present a soft and yielding pulse.

344. The nights of fever patients are, for the most part, those of great restlessness and disquietude; and the practitioner is much importuned by the nurse or friends of the patient, for “something to make him sleep.” But beware how you yield to this request; for an ill-timed exhibition of opium in certain states of the remittent form of fever, is almost always mischievous; and we are sorry to add, has been too often fatal. We have seen, without the smallest doubt, several instances of heavy stupor and apoplexy, produced by even a moderate dose of laudanum.

345. On this account we are extremely reluctant to give it,

at almost any period of a remittent; and more especially to a yellow fever patient, whatever may be the degree of sleeplessness, or agitation. Under such circumstances, we have found, almost constantly, that there was either a general or partial accumulation of heat, especially of the head, a dry skin, bowels rather tardy, or very offensive evacuations, to be the cause. Or it has been found owing to a dull but pretty constant pain in the head, attended sometimes by slight delirium; and other times with a slight stupor, alternating with distressing watchfulness. Pulse either too quick or lagging.

346. In these cases, we are certain that opium would be injurious, if not fatal. Instead, therefore, of it, in such cases, cold applications to the heated parts of the body and extremities, by sponging; to the head by wetted cloths, or a bladder of cold water; a few leeches should be applied to the temples; a mild purge should be exhibited, as castor oil; a free ventilation of the room should be made, together with a decided reduction of the bed-clothes. This mode of treatment is almost sure to procure sleep. Or if, as has occasionally happened, especially in our late epidemic remittent, (1828,) the feet and legs be cold, to have them well warmed, by a foot bath, or the application of dry heat.

347. Affusions of cold water are spoken of with high encomiums by writers of great practical eminence, in this species of fever—but we hesitate to recommend them in this place, as their usefulness is entirely governed by a particular state of the system, which it is difficult to procure or to seize. It is agreed on all hands, that cold water applied to the body, is an agent of great power; and that it is only useful where the condition just alluded to, but which we shall not repeat, exists, and where all the requisites for its exhibition, can be complied with. But these conditions are so numerous, and so difficult to designate, that few would be tempted to employ this remedy, after having heard them detailed. But independently of these considerations, great inconveniences attach to this remedy in private practice; in hospitals alone it can be used with advantage, for in them every contrivance for its application is at hand, and ready at a moment's warning.

348. Blisters are very often advantageously employed in these

fevers; but there are few remedies, in the use of which so much discrimination is required. They should never be used in the early part of the disease; that is, never before the pulse is sufficiently reduced. Should we use them too early, they do harm instead of affording relief—for there is truly a “blistering point.” But when the system is properly prepared, few remedies are of more decided efficacy.

349. Blisters are employed with two views. 1. To relieve pain, by being applied immediately over, or as near as possible to the part pained—thus, when head-ache is severe, or delirium is present, they are most successfully applied to the nape of the neck, and shoulders; if the pain be in the chest, stomach, or side, they should be applied to these parts respectively. 2. They are used with a view of making a counter-impression, or revulsion. When used for this purpose, they are generally fixed upon the inside of the calves of the legs, or above the wrists upon the arms, or upon both. We may here remark upon the use of blisters, that, to be useful, they must be of sufficient size; for we have before observed, that a large blister gives little or no more pain than a smaller one, but is much more useful. (See par. 132.)

350. It sometimes happens, that remittents do not require, or will not bear large evacuations, especially by bleeding, even in this portion of our country, but more especially in the south—this is occasioned by several causes; but over which, we have no controul. We have already noticed this diversity, but this will occasion very little embarrassment in practice, as the character of the disease will readily be learnt; 1st, by the state of pulse; 2d, by the greater or less violence of the symptoms; 3d, by the effects of remedies; 4th, by the peculiarities of constitution of the patient; 5th, by the general character of the other prevailing diseases.

#### 1. *By the State of Pulse.*

351. The pulse in fevers is a more certain guide than in almost any other form of disease—it must therefore be strictly attended to, and all its different varieties, should if possible be understood. We shall endeavour to convey an idea of the states

of the pulse; but are thoroughly sensible of the difficulty which attends the subject—for experience must do much towards its being well comprehended. We shall therefore merely state here the conditions of pulse which require and justify the abstraction of blood in fevers. *a.* Where it is hard and full. *b.* Where it is preternaturally slow or sluggish, with tension and firmness. *c.* Where it is frequent and tense. *d.* Where it is quick and corded. *e.* Where it is oppressed and labouring.\* Where either of

\* The hardness of the pulse, is to be ascertained, by the sensation it conveys to the mind when felt by the finger. Hard and soft, are merely relative terms; and are simple ideas. But an inference is instantly drawn, when the finger touches a body; and when the mind is directed to determine its qualities, it concludes, that it is either hard or soft. But the degree of either, is only ascertained, by a comparison with other bodies; or with the same body, under different circumstances; thus heat and a variety of other causes, may affect a body, so as to render it comparatively, harder or softer, when compared with itself. So with the artery; for causes may render it, capable of resisting the pressure of the finger, to a greater or lesser degree. To become acquainted with the relative conditions of the pulse, it is very useful to examine carefully and frequently, the degree of pressure the young, and adult artery will bear, in a state of acknowledged health; and when it is altered by disease, to endeavour to detect the difference, by comparing the present, or deranged condition, with the sensation it formerly excited, when it possessed its healthy tone. If it convey the idea of greater firmness, it is to be concluded that it is harder than natural; but if on the contrary, it give the sensation of bearing less pressure, it is to be considered as softer, than the natural standard. You have then presented to you, a hard or a soft pulse. But it may be well to remark, there are even degrees of these two qualities of the pulse, but which can only be learnt by experience. A full pulse conveys the sensation of the vessel being distended, or filled with a fluid, to as great an extent as it will bear; and to such nicety of discrimination does the experienced finger arrive sometimes, that in the full or contracted pulse, it can determine the thickness of the arterial parietes.

The preternaturally *slow* or *sluggish* pulse must be determined by the beats being fewer than the natural standard; and giving the idea of an unwillingness to perform its assigned duty. This pulse is more common with such patients, as have great cerebral determination; amounting even to coma sometimes. The *tension* of the pulse is ascertained, by imagining the artery to be stretched by two contrary powers; and the degree of force that would be required, to make it depart from a straight line; this state of the artery, we believe, is always hard; the mode of determining its firmness, we have just explained; and it may be considered as synonymus with the “hard pulse.” The *frequency* of the pulse, is determined by the excess of strokes beyond the natural standard, in a given time, this pulse may be attended by tension; if so, it is always hard. The

these state of pulse obtains, we are justified, (if other symptoms, such as pain, oppression, delirium, &c. be present,) to abstract blood; and repeat it, so long as these marks of disease continue. But on the contrary, we are not warranted to draw blood where the pulses are in an opposite condition to those we have just stated. It, however, frequently happens, that we may safely and advantageously employ local blood-letting, by cups or leeches, when we should not dare to abstract blood from the arm.

### 2. *By the Greater or Less Violence of Symptoms.*

352. It obtains in many instances of remittents, that very few distressing symptoms accompany it—the fever, not excessive, and the remissions strongly marked; head-ache, or other pains, very moderate; and no delirium. In these cases it is not necessary to bleed largely.

### 3. *By the Effects of Remedies.*

353. This should always be kept in view; for the loss of a few ounces of blood, or other evacuations, will have a much greater effect at one time, than at another, and upon different individuals. We should, therefore, apportion our remedies to their effects.

### 4. *By the Peculiarities of Constitution.*

354. Almost every individual has his peculiarities, as regards remedies—some requiring large, and others, smaller doses, of

*quickness* of the pulse is determined by the time it employs in performing its strokes, and has no relation to the period which elapses, between the several strokes; consequently, is not synonymus with the "*frequent pulse*." This pulse may be tense, hard, or corded; for the tense, hard, or corded pulse, may be looked upon as the same. The *oppressed*, or *labouring* pulse; or as it is frequently termed, the "*depressed pulse*," conveys the idea, that the artery is raising a weight in distending itself, (that is, while it is performing its beat,) almost equal to its powers.

In attempting to convey an idea of the different states of pulse, we are fully aware of its extreme difficulty and of the inadequacy of words to effect this: we thought it right however to attempt it—and if we have been able to make an approach towards explaining of them, we shall think we have gained by it.

even the same medicine. We should, therefore, always be attentive to this peculiarity, and act as this will point out. It is highly important to study the habits of patients, that it may be known how they may be effected by particular agents; for many times mischief would ensue without this information, from the exhibition of very common remedies. Some cannot bear the loss of even a very few ounces of blood without fainting; while others can bear their vessels almost drained, without such an effect ensuing. But in deciding how we are to act in the first case, it is important to know, that this circumstance does not always justify withholding the lancet; but in this case, much less blood will suffice, than if this did not obtain. Others cannot be affected by certain remedies, at least in a degree to be any way useful, without much difficulty—thus we have seen some patients take, without effect, three or four times the quantity that would answer for others; while, on the other hand, we have known some, so extremely susceptible to the action of certain articles, that it would really be unsafe to exhibit them in almost any quantity. These deviations should always be kept in view, lest we should attribute to the disease, that which properly belongs, to idiosyncrasy.

##### 5. *The Character of the other Prevailing Diseases.*

355. If it should be at a season of the year when other diseases be rife, we may learn much by attending to their general character—if this should be inflammatory, the remittents will partake, to a greater or less extent, of this character—on the other hand, should the contrary be their disposition, we must employ less bleeding, or none, and more moderate purging: in a word, a modified treatment will then be required; which we trust can be learned by paying attention to the general doctrine of fever.

356. That occult cause, which determines the character of every epidemic, operates by laws, of which we are entirely ignorant; its power is only made known to us by the peculiarities it imposes upon the prevailing disease. These peculiarities are never to be lost sight of. They are of the greatest practical importance; since, the neglect or observance of them, will render

the treatment either successful, or otherwise. And the fact cannot be too early suggested, or too strongly enforced, that there are shades of difference in every disease of an epidemic character, however frequently or seldom, it may renew its visitations. This has been well demonstrated in the various returns of the "yellow fever" in this city; and has been no less evident in the recurrences of the intermittent and remittent fevers, in the neighbourhood of Philadelphia, for the last six, or seven years. The last, that is, the one of this fall, (1828,) has in several very important particulars, differed from every preceding one; and, consequently, required a difference in the mode of treatment.

357. When the disease was of the remittent form, it was frequently ushered in by a sense of cold, pretty long in duration, rather than by a manifest chill. The reaction was generally excessive, and constantly attended by severe head-ache, and oftentimes with delirium. The hot stage decreased very slowly, and sometimes the period of its remission was marked by a partial sweat. It observed almost constantly the tertian type; and the third day was sure to be marked by an increased severity of the exacerbation. It sometimes required ample depletion; both by general and local means; purging by the milder cathartics; blistering, &c.

358. Should the investigations just recommended lead to the persuasion that the character of the disease is one of but moderate, or feeble excitement, we must be regulated in the use of remedies by this impression. But we should not let ill-grounded fears so pervert our judgment, as to make us plunge ourselves into the opposite extreme. The dread of a low, or typhus state, has too frequently suspended the use of the only remedies which could have prevented it, or saved the patient; and thus, depletion, to a proper extent, has been neglected, or feared, and stimulants made to usurp its place. Against an error of this kind, we cannot guard too carefully; for even typhus, (as it is called,) as we shall hereafter say, can only be cured by premised bleeding and purging. We should, therefore, never neglect these remedies when indicated in the commencement of a disease, because this disease may eventuate in the condition called typhus. It, however, behoves us to watch carefully the tendency of the fever. If it be disposed to run into one of feeble action, after

a few days continuance, we should take care not to push depletion beyond its proper bound; the pulse, and other symptoms, will direct us when to withhold it, if properly studied. But it must be recollected, that, when fever does not require depletion, it does not necessarily require stimulation—that there is a period in such fevers as are disposed to run into a low state, at which we must withhold evacuants, we grant; but we must insist, that it requires much judgment when to exchange them for tonics, or stimulants, should these ever be necessary.

359. There is no term in medical nomenclature, that is so ill-defined, or understood, as typhus; according to our observations, it is almost constantly made to consist in a set of symptoms that have two opposite conditions of the system for their origin, yet both treated as if they were one and the same. We shall attempt to prove this by and by.

360. During the whole continuation of fever, too much regard cannot be paid to the articles of diet and drink; we have dwelt upon this in our general observations on fever; and a long experience convinces us, that the rules laid down, cannot be dispensed with, without incurring a risk of mischief to the patient.

361. It will be observed, that we have hitherto not prescribed that supposed innocent cordial and beverage, “wine whey,” in any one instance; not even in such cases as are too generally supposed to require it—namely, where the tongue is black or brown, &c., we have done this, from a conviction, that these symptoms do not require such a remedy; and which in itself would do mischief, were it employed, since, these very symptoms are almost sure to be removed, (especially, when they appear after the few first days of the disease,) by a contrary plan; and when they show themselves in long-protracted fevers, it is totally inefficient. But more of this by and by.

## CHAPTER IV.

## YELLOW FEVER.

362. By yellow fever we mean a disease of specific character, one that differs from the endemic remittents of tropical climates, and from those of the southern portions of our continent. This disease, by some, has been considered as only an exalted form of the bilious remittent; but there are peculiarities in its history that show it to be a distinct disease. We shall therefore enumerate the several remarkable circumstances connected with it, which have led us to adopt the opinion of Jackson and some others on this subject, and which in our opinion are conclusive.

363. 1. It has been remarked by many of the physicians and inhabitants of the West Indies, that the negroes immediately from the coast of Africa are never attacked with this disease, and the native West Indian, or Creole, is likewise exempt from it, provided he uninterruptedly remain in the place of his nativity; but should he or the negro pass a year or two in Europe, or in the higher latitudes of America, they would be liable to this complaint.

364. 2. Strangers are particularly liable to this disease on their arrival in the West Indies, or on certain portions of our continent. But should they escape it for the first or second year, they will most probably be exempt from its attack; and more certainly, if they had suffered from the endemical fever of these climates. This is what is familiarly termed "the seasoning."

365. 3. It has been very rarely found to attack the same person a second time, while the endemial fever may be repeated several times.

366. Some of these facts are well established, and seem decidedly to mark a difference between the bilious remittent and yellow fever. Nor are we entirely indebted to the writers on tropical diseases for these marked peculiarities of the yellow fever; for the same has been observed, and recorded in part, if not entirely, in our own country.

367. The first visit this formidable disease paid us, which is still fresh in our memories, was in 1793; and it was then frequently observed, that the Creole population, which was at that time considerable, was almost entirely exempt from its attacks;\* and more especially the coloured part of it. It must be remarked that there was at this period a large influx of West India inhabitants into our city, and chiefly French. But after they had remained here a few years, they seemed to lose in a degree their immunity from attack; accordingly, instances of this disease occurred among them, as well as among the native inhabitants.

368. It was also remarked at this and at subsequent periods, that the transient visitors from the surrounding country, were more obnoxious to this disease than those who permanently resided in this city, provided they visited certain portions of the town. And if we can trust to observation, the fact of a person "not being liable to a second attack," was confirmed by the subsequent visitation of this terrible scourge, and which we think put the circumstance to as fair an issue as negative proof could do.

369. From these considerations, we think we are warranted in the conclusion, that "the yellow fever, and an exalted form of bilious-remittent, are not one and the same disease." How far a distinction between them may lead to any practical utility, we are not at present prepared to say; but that it may at some future time, we do not hesitate to believe. At present we treat the two diseases pretty much after the same manner; differing more in the rigour of application than in the routine and nature of the agents employed.

370. This disease either attacks variously, insidiously, openly, or ferociously. In this particular it differs perhaps from almost every other febrile disease—for in these, the danger is generally in proportion to the intensity of the symptoms; but yellow fever when masked under an apparently mild form, is dangerous in the extreme. In general we have remarked more instances of

\* We say "almost entirely exempt from its attacks." We choose to employ this cautious language, because we could not say there was no such exception to the rule; but we can very confidently declare that we did not hear of an exception; for at this period, they had been but a very short time from St. Domingo.

recovery where the disease assumed an open, severe, but tangible form, than where neither the pulse nor other symptoms betrayed the ravages the disease was making. The whole system appeared to be prostrated beyond the power of reaction; and death was frequently at hand, when the patient was perhaps walking the floor, or but occasionally indulging himself in his bed. We have known more than once a patient declare himself entirely free from disease, at a moment when he was without pulse\* and within a very short period of dissolution. In these cases the foundation of the healthy play of every organ of the body seems to be silently undermined; and though slowly, it is not the less certain or extensive; indeed every function appears to be gradually but eventually diminished to an extent, that cannot be recalled, as the bane has silently stolen to the very fountain of life, and so polluted its streams, as to render them no longer fit for the purposes of the system; and before the enemy is suspected, the citadel is on the point of a surrender. This peculiarity, for such it is, may also serve to distinguish this formidable disease, from the highly bilious endemic fever of the West Indies, or of America.

371. Three distinct modes of attack may be observed in the yellow fever, as we have just observed; each of which has something peculiar to itself; this variety must arise from 1. The greater or less degree of concentration of the remote cause, or marsh miasma. 2. To the peculiarity of constitution. 3. Or to the nature and degree of the exciting cause. Each of these circumstances will necessarily modify to a certain extent, the form, or force of the disease; accordingly we find it presenting itself, 1. Where the disease rapidly runs on to dissolution, and is accompanied by black vomit—this form has often terminated its career within three days, and never exceeding the fifth day. 2.

\* In no disease with which we are acquainted, does this circumstance obtain to the same extent as in yellow fever—we have in a number of cases known this state of things to exist for many hours before death. During this period it was not unusual for the patient to be in full possession of his senses; sometimes even without pain, or the smallest anxiety for his situation—nay, when interrogated as to his feelings, he would declare, “he was very well, much better, or expected he would soon be well, as only a little weakness remained.” If we are correct in our observations, this more especially happened, where this disease killed without the intervention of black vomit.

Where the disease was without remissions, or when they were so indistinct, as scarcely to be observed. In this form of the disease, the course is not run with so much rapidity as the first; but for the most part the sufferings of the patient are greater—there is no perceptible attempt at crisis, and where it terminates fatally, it is for the most part from the fifth to the seventh day, and is not necessarily attended with black vomit.\* 3. Where the paroxysms can be pretty regularly traced, or where the periods of exacerbation are not so entirely uncertain; but where there is stronger evidences of an inflammatory diathesis, than in either of the former; but which may rapidly change if not arrested by proper remedies, into an opposite state, and terminate either in the black, or the coffee-ground vomit—this form may terminate within five days, or if checked, may run on to the seventh, ninth, or eleventh day.

372. The first form observes no regular period of attack, though the evening is the most common. It invades by an unusual degree of languor and debility; head-ache more or less intense; a most distressing and indisable sensation about the region of the stomach. It is rarely preceded by severe rigour, but it is oftentimes of long continuance; it is not followed by great reaction; the heat of the body is rarely great, but is of a peculiar kind, giving the idea of acridity or pungency to the hand that feels it. The pulse is apparently weak,† confined, and giving the sensation of creeping. The face assumes a character and expression that belongs exclusively we believe, to this disease; the eyes are inflamed, or rather severely blood-shotten, as it is called; and have a look of peculiar sadness, anxiety, and anguish; a flushing of the face of a truly characteristic hue, and of a singular tone—a reddish-brown not unlike the colour of mahogany, mixed with a lividity, especially its own. It is difficult, if not impossible, to

\* This form of the disease has been known to terminate without black vomit; but dissection has shown that this fluid has been formed, though not rejected. It was also observed in these cases, that the inflammation of the stomach was more decided and extensive, than where black vomit had been thrown off. Was the stomach prostrated beyond the power of vomiting?

† This state of pulse has led to great error in perscriptions—for this “*apparently* weak pulse,” has been mistaken for an *absolutely* weak pulse; whereas it is only the “*depressed* pulse,” and requires a diametrically opposite treatment. This fact should be kept in mind.

convey an accurate idea of this appearance of the face; but so impressive are its characters that they are never forgotten, after having once been seen. So truly does it indicate yellow fever of a high grade that, we believe with people familiar with it, it would be sufficient to designate the disease. The tongue for the most part is moist, but foul; the thirst in the beginning not great, at least rarely severe. As the disease advances, the breathing is oftentimes disturbed; becomes hurried, and appears to be performed with a distress about the precordia. No remission takes place, although a trifling abatement of symptoms is observed, sometimes about ten or twelve hours from the commencement of the disease; but this is transient; and seems only a prelude to an increased severity of symptoms; for an aggravation of all that we have enumerated, immediately succeed this attempt at remission. The eye increases in sadness of expression—it is the eye of complete hopelessness—a burning sensation is now felt about the stomach, and the patient suddenly flinches from the slightest pressure being made upon it, which emphatically, locates the seat of mischief; headache is augmented, sometimes to an intense degree; the countenance becomes haggard, and of most sad expression—marks of inflammation are now more decided; the gums begin to swell and to become engorged with blood, and easily *provoked* to bleed. The condition of the tongue now is variable; sometimes moist, sometimes dry, but always, or with very few exceptions, foul or very red. Thirst either moderate or intense. Nausea, which perhaps may have existed from the beginning, is now increased; but there is rarely a steady vomiting for the first day or two, or even perhaps sometimes longer. The discharges from the stomach, when vomiting occurs, are rarely bilious; though sometimes porracious.\*

373. The fluids discharged are for the most part clear, or partake simply of the colour of the liquids drank; but a change is soon perceived as the disease advances; they become thick and

\* In some few instances of the mild form of this disease, bilious vomitings occurred—they for the most part afforded relief, and always decidedly marked a disease of a milder and more tractable kind, than where this did not occur—in some rare instances, a vomiting of very dark or black coloured bile accompanied the first symptoms of the disease; almost all of these recovered.

ropy, and have mixed with them, a dark-coloured flaky substance, which gives the first intimation, that the stomach is about to yield to the force of the disease; for these flakes are part of the villous coat of this organ.\* The patient now becomes restless and anxious in the extreme; he throws himself incessantly about, as if in the hope that a change of place would procure a temporary suspension of misery. He is watchful—sleep seems to have forsaken him; or should he chance to slumber, he is suddenly disturbed by internal disquietudes, and awakes to renewed and increased sufferings. His respiration is deep, hurried, and to appearance painful. He sighs deeply and frequently,† and is disposed to faint upon the smallest disturbance, or the slightest elevation of his head. A clammy sweat breaks out sometimes about the head and neck; which neither affords relief, nor becomes a favourable prognosis.

374. The heat of the body is rarely increased; and the pulse even abates in frequency; in the commencement of the attack, the bowels are usually confined; the urine high-coloured, turbid, and in small quantity—indeed, in many instances, it seems gradually to diminish as the disease advances; so much so sometimes, as to be entirely wanting at last—where this has obtained, we do not recollect a single instance of recovery.

375. Delirium is by no means an usual symptom of yellow fever; it however occasionally presents itself; sometimes in a very mild, at other times in a most ferocious degree—when it does occur, it is rarely before the third day, and it may then be transient.

376. About this period, (that is, of three days,) the patients' sufferings appear to diminish, and the system to undergo an insidious change—a change, which has but too often imposed upon

\* We have seen these dark spots diffused, immediately after vomiting, in a large quantity of almost transparent fluids; but when suffered for a time to be at rest, they would rise and float upon the surface.

† Dr. Physick has observed that the following symptoms in yellow fever were always fatal: 1st, those patients who sighed deeply immediately after waking, and before they had recovered the power of speech; 2d, those, who complained of soreness and pain, without this part having any morbid appearance; 3d, those, whose arms became rigid; and 4th, those, who had an entire suppression of urine.

the inexperienced in this disease—the eye now nearly regains its accustomed brightness, and the countenance assumes its usual cheerfulness and serenity; but the practised observer is but too well acquainted with the treachery of these appearances; he observes a yellowness spread itself over the body and neck, which too emphatically bespeaks a fatal issue to the disease. The fever and external heat now subside; the pulse even becomes fuller, and slower; and were the wrist presented for the examination of one unacquainted with the other circumstances connected with the case, he would most probably declare it to be in a natural state.

377. The skin is dry, and of a peculiar feel; a roughness or harshness possesses it, that would seem to declare that sweating was not one of its functions—the gums increase in intensity of colour, become spongy, and occasionally bleed—the vomiting is more troublesome, and continues to show still more decidedly, that the villous coat is separating; the distress at stomach is renewed with augmented force; and the patient discovers the utmost misery and wretchedness. This state of things may remain for one, two, or even three days, without much alleviation or change—but at the end of this time, without a favourable alteration take place, the heat of the body, and especially that of the extremities, is found to be dissipated; the pulse is either almost, strictly speaking, natural, or is slow and regular—the yellowness increases—the anxiety becomes extreme and inexpressible—the vomiting is now indomitable; and the long looked for, and terrible black vomit, at last appears.

378. There are shades of colour in this black discharge, depending chiefly, we believe, on the speed with which this disease runs its course—when its progress is rapid, the matter of the vomit will be very black, and resemble a strong mixture of soot and water; when less so, it will appear like the grounds of coffee; and when still slower, the black will be less intense, or consist sometimes of merely dark-coloured mucous flakes. When these flakes appear early in the disease, it always presages a severe one; and they always increase when the disease is making a fatal, or even a highly dangerous progress. Blood is sometimes found with the fluids thrown from the stomach, which may proceed either from the stomach itself, or from the throat or gums.

At times, the quantity of fluid vomit is truly surprising, and would appear much to exceed that taken down; and towards the close of the disease it seems to be ejected almost without effort. This discharge for a moment seems to bring some relief; but it is very transitory; for the stomach is obliged again to empty itself, so soon as it is again distended. The stomach appears at this time too much prostrated to experience the sensation of nausea—at least we have known patients declare they were not *sick at stomach*, the moment before they would vomit. There is almost always a “*vomiting of wind*,”\* before black vomit makes its appearance—this we believe to be owing to the extrication or secretion of gas within the stomach, which by distending it, causes an effort similar to vomiting. We have almost invariably observed the disease to terminate in black vomit, or fatally, where this symptom was present. It is a most distressing condition of the stomach, and evidences a severe inflammation of this organ.

379. At this stage of the disease, that is, at the time when black vomit is about to appear, the bowels almost always become loose; the evacuations are tenacious, and much resemble tar, both in colour and consistence. In our early acquaintance with this disease, in our city, this appearance of the stools was by some considered favourable, as it looked like getting rid of a highly irritating and offensive matter; purging was immediately instituted, and the patient sometimes expired under the operation.

380. The gums are now extremely soft, and discharge, or rather there oozes from them blood, which has lost the power of coagulation; this oozing, however, is not always confined to the gums; the nose, ears, arms, and various other parts of the body, sometimes participate in it. Sordes now encrust the teeth; the pulse may either cease altogether, or become so frequent and feeble, as scarcely to be counted; a low muttering delirium, coma, or convulsion, may close the scene.

\* This may appear an awkward expression, but it is truly characteristic, and exist as a fact; for the stomach discharges at this time a considerable quantity of gas, (the nature of which we believe has never been ascertained,) by the same mechanism it does fluids or solids upon other occasions.

381. We have endeavoured in the history of the symptoms of yellow fever, to give a detail of its ordinary march to a fatal issue, where the disease was allowed to run its own course. We do not pretend to enumerate all the symptoms which may occur, as they will necessarily be modified by contingencies. We trust we have kept pretty faithfully to the order of progress; though we are sensible they do not invariably observe the same succession—for instance, we have known the black vomit precede the *general* diffusion of yellowness—but we have just observed such cases are rare; and even when they do occur, a tinge of yellow about the corners of the mouth and neck may be observed, before the vomiting of black matter comes on, if they be carefully observed in a strong light; and as far as our observations have extended, they mark the approach of the event as decidedly, as when the diffusion is more general—especially, if the skin of the forehead be tinged; is drawn tightly over the frontal bone; and is shining. Again we have seen an increase of restlessness after black vomit has commenced, though it is generally the reverse, &c.

382. It may not be amiss to remark here, that fatal as the symptom of black vomit is, it is not invariably so—for we have seen more than one instance of recovery after this had taken place; this has been more frequently witnessed in children than in adults. Bleeding from various parts of the body is also a terrible symptom; but instances of recovery from this have much more frequently occurred than from black vomit—indeed, in several instances, in 1798, it appeared useful; at least there was from the moment of its taking place an evident amendment, and finally recovery. The recoveries after the black vomit are both rare, and slow—the abatement of the puking is gradual; the black matter ceases to be thrown up, but the stomach continues to dislodge other matters from it for some time; and a long period before this organ recovers its tone—in one instance which we witnessed, more than three months elapsed before it could bear the ordinary food of the table. The patient being many hours without pulse, is not necessarily a fatal symptom; we have seen instances of recovery where this had obtained.

*Treatment.*

383. Having thus given as condensed a history of yellow fever as we were capable of, we shall proceed to consider the method of cure. In doing so we must remark, that this disease in a most especial manner calls, not only for appropriate remedies, but also for the most prompt application of them. And we have authority to say, that where the patient does not delay too long before he seeks advice, that it is a manageable disease, in more instances than is generally supposed. But to render it so no time must be lost—it must be instantly subjected to a rigorous discipline; or it soon becomes so intractable as to bid defiance to every attempt at subjugation. We have noticed three different forms under which this disease presents itself; this however will not embarrass the method of cure; as each of these is virtually the same disease, and require almost the same remedies—the difference consisting chiefly in the extent to which the remedies must be carried, rather than a difference in the remedy. In the first form there is more likelihood of error than in the other two; and which if committed, will at once seal the patient's doom.

384. In our description of this form, we noticed two circumstances, which we here repeat, that they may not be lost sight of: 1st, the appearance of weakness in the pulse;\* 2d, the disease not being ushered in by a regular chill; but rather a coldness of long continuance sometimes, and which is not followed by violent reaction. From the two circumstances just stated obtaining in this form, a wrong conclusion has been drawn as to

\* We have before remarked, that the pulse of this form of yellow fever is what we have termed upon good authority, the oppressed or depressed pulse; a condition of the artery which requires depletion even more certainly than the strong full pulse. It requires however to be understood; we have attempted some explanation of it at par. 351. This pulse is sure to be converted by depletion, into the strong, full pulse, in a few minutes; hence we have directed, that after this ensues, the abstraction of blood must be continued, until the force of the artery is *positively* weak; for it was only *relatively* so before. This kind of pulse is felt in apoplexy, and in phlogosis of the lungs; or sometimes even in violent fits of asthma.

the state of the system; and stimulants have been employed; or if not, proper depletion had not been resorted to, to the certain destruction of the patient. We must not therefore be deceived as to the proper remedies, for they must consist of bleeding and purging, and powerfully exciting the skin, when its temperature is below the natural standard—this is best done by the application of external warmth in the usual various ways—as bottles of hot water, hot bricks, warm blankets, &c.

385. The patient should be supported during the chilly state, by artificial heat, applied to his body by means of heated blankets, &c. as just stated, until the system begins to react; the warm bath, when practicable, and when it will not occasion too much delay, may be advantageously employed—a vein should then be opened, and as much blood should be taken as the patient can well spare at the moment—the quantity should be very much regulated by the effects—that is, where a few ounces have been lost, and the pulse is found to rise, and become more active, we should permit the blood to flow until a decided reduction is made of its lately acquired force—that is, until it becomes really feeble; or there is a regular abatement of symptoms. If the pain attending the disease, especially head-ache, be very severe, we shall find it relieved in proportion sometimes, to the flowing of the blood. But if we have an obscure head-ache with very red eyes; with this depressed state of the pulse, it is very possible, we shall convert a dull obtuse pain into a very acute one. This change was far from being unusual in the yellow fevers which visited Philadelphia in the various years in which it made its appearance. And in 1793, especially, it had an unfavourable effect upon the public mind; for it made it hostile to depleting remedies—this prejudice was however but transitory; it yielded as soon as the cause was understood.

386. We have noticed, that the bleeding would very often procure an abatement of the most distressing symptoms, when early resorted to, and sufficiently employed; nor was this all; it also disposed the disease to assume a greater regularity of paroxysm; or in other words, procured a disposition to remission; and although there was not much regularity in the accessions, still they were sufficiently marked, as to lead to the hope, of

converting this disease into one of more regular type, and of milder grade—and this sometimes very early took place. It was therefore, always looked upon as favourable, where there was strong exacerbations, with decided remissions, after the depressed state with which it commenced. In this form the disease was more palpable, and open; and although it would require the use of the lancet many times, before it could be subdued, yet it was in a form that was much more manageable, than where the bleeding and other remedies failed to give the disease this new character.

387. Where bleeding failed to give immediate, though temporary relief, or to unload the system so that it could pretty freely react, the disease scarcely ever failed to run its course in a short time in spite of every other attempt at opposition. The stomach would soon give way; and be ushered in by black vomit. Some of the West India practitioners, especially Jackson, carried bleeding to a much greater extent than has been ventured upon in this country—he almost always bled to fainting, when he saw the patient after the first, six or eight hours after the attack, and he declares, with the most happy and decided advantage. In directing bleeding in the form of the disease under consideration, we must be understood as having in view, its commencement—as for the most part, if the patient had been ill with it for twenty-four, or thirty hours, it was truly a forlorn hope to attack it. For after this period the debility and disorganization become so decided, and irreclaimable, that every effort to arrest their farther progress was totally unavailing. It is vain we give tonics, or urge stimulants; they both, indeed appear to hasten the catastrophe.

388. After taking as much blood as the state of the system will justify, or the exigency of the existing symptoms require, we are strictly to put in use all the rules we have laid down for the general management of fever; in no kind are they more necessary or decidedly useful than in this. We must next pay attention to the state of the bowels; we have said that for the most part they are costive or tardy in this disease—we should select for exhibition the most certain of the purgatives; and they should be exhibited in divided doses, rather than in large ones. In this

way they are not only more certain, but also less offensive. Calomel\* in form of pills is perhaps the least exceptionable, and of the most decided efficacy—should they fail after a few hours, of procuring copious evacuations, they may be followed by castor oil, or calcined magnesia, drinking after it lemonade; or magnesia, and Epsom salts, until the effect be produced; and these may very often be advantageously aided by stimulating injections.† It must be remarked, we are not to be deterred from giving purgatives because a moderate sickness of stomach may accompany the disease; for should we yield even for a few hours to this symptom, we should have the mortification of seeing it augment without the advantage of having the purgative in possession of the bowels—we have rarely found the nausea of this disease increased by these medicines. The only difference we would advise, is, the use of the calomel alone in grain doses, aided by repeated injections.

389. When the bowels are freely purged, we may desist from large doses of medicine; but we must be careful to maintain the operation by occasional exhibitions of it—for this purpose a pill of calomel may be given once in four or six hours; or small doses of castor oil, with great benefit. Upon bleeding, and a lax condition of the bowels, we must place our chief reliance; and they must be employed whenever the system either reacts in form of regular paroxysms, or in occasional exacerbations. We must not limit the time of repetition of this remedy by its use in ordinary diseases; we must be governed by violence of symptoms, and by the period in which the fever runs its course—the procrastination of a single hour may have important consequences attached to it. We, therefore, bleed whenever the symptoms increase in violence, (other things being equal,) if that be every few hours—we well remember a case where twenty-three bleed-

* R. Calomel ppt.	-	-	gr. x.		Take Calomel,	-	-	10 grains.
Conserv. rosar.	-	-	q. s.		Conserve of roses,	sufficient to		
M. f. pil. iij.					make three pills.			

One of these to be taken every hour.

† One of the simplest and best we believe at this time, is, a pint of lukewarm water, and a large table-spoonful of common salt. Should this fail in operating for twenty minutes, it may be repeated.

ings were performed in five days with the happiest effect. And we have witnessed where the blood first drawn was dissolved,\* yet the subsequent bleedings showed decided marks of inflammation. One instance is still fresh in our memory, where six ounces of dissolved blood were drawn at the first bleeding, on the first day of the disease; yet after this the system reacted so powerfully, as to require twelve more bleedings to tranquillize it; the patient recovered rapidly.

390. We must not be deterred from the employment of depleting remedies by the semblance of weakness—it is a most fallacious sign; and when respected in the commencement of the disease, has, and will be the death of thousands. There is great debility in yellow fever; the patient is wont to faint early in the attack, when disturbed, or placed in an erect position; but this, instead of forbidding bleeding, calls loudly for it—we have very many times witnessed the patient strengthened by the loss of a large quantity of blood, and free purging. So long then as the pulse is either depressed and tense, preternaturally firm and slow, or very active and chorded, we are imperiously called upon to deplete. In the first instance, the pulse will rise, and be invigorated; in the second, it will increase in frequency, and become softer; and in the third, it will become less quick, and more open. There is something remarkable in the strong tendency which this disease has to disorganization when permitted to run its course, which we have said was from three to five days—it marks the highest grade of inflammatory action; and which, if not subdued by prompt and appropriate remedies, will end most speedily in death. The employment of proper eva-

\* Dissolved blood, is that condition of this fluid, in which no separation of its constituent parts take place; and where the coagulated lymph has lost its power of coagulation. The whole mass after standing for some hours can be poured from one vessel into another, like thick molasses. This state of the blood was looked upon by Dr. Rush as a mark of the highest inflammation to which the system could go, without being in a state of gangrene. If this observation be confined to the early part of this disease, we have reason to believe his observation correct, as the case alluded to in the text, seems to confirm it. But it must not always be regarded as a sign, that blood-letting is the proper remedy in the disease in which it may appear; for in the last stages of yellow fever, the blood will exhibit the same phenomenon; and also in scurvy.

cautions will almost always protract the hour of dissolution; by which means we are sometimes enabled to gain a victory over the disease—for if it moderates in violence, we have a greater opportunity afforded us, to yield needed succour. While, on the contrary, if the patient has been entirely neglected, or what is worse, if he has been treated with cordial or stimulating remedies, he has rarely lived to see the fifth day, and very often has expired on the third.

391. If it has so happened that a day, or two at farthest, has been lost to the application of remedies, we very rarely, (in this form of the disease,) have it in our power to retrieve them—but, although the chance of success is very slender, the patient must not be abandoned. We are, however, persuaded, that even here the same kind of remedies are necessary, though in a much less active, or extensive degree; very small bleedings, with gentle purging, have succeeded sometimes when the system seemed fast hurrying to dissolution. We should, therefore, employ them as long as there is the least vigour in the arterial system, only proportioning the quantity of the bleeding, and the extent of the purging to the existing state of the system. Sometimes two or three ounces of blood have been drawn with evident advantage; and this has several times been repeated at two, three, or four hours interval, until the system has reacted with renewed force, and the patient has escaped from death, by these small, and well-timed bleedings—what led to this practice was observing recoveries, after hæmorrhages from various parts of the body had taken place.

392. Although the pathology of this disease, was in part understood in 1793, and clearly in 1798, yet it did not lead to the free use of leeches. The numerous post mortem examinations made by Dr. Physick in the Yellow Fever Hospital, at Bush-hill in 1793, and at the City Hospital in 1798, convinced almost every body, that a high grade of inflammation of the mucous membrane of the stomach, was the true cause of the disease. Hence the almost universal employment of the lancet, and of purging in this complaint. Notwithstanding the importance of these facts, and the general truth of the indications they led to, we had yet to learn, that many of the remedies employed to fulfil them, tended rather to aggravate, than to abate the inflamma-

tion of the stomach; such for instance, as all the very active, or rather drastic purgatives, so liberally employed. But more especially, the directly stimulating articles resorted to by some, under the impression it was a form of typhus, and required bark, wine, ammonia, &c. &c.

393. But we may here ask if this practice be not adopted, to what shall we have recourse? There are but two other choices, either to do nothing, or what is still more decidedly mischievous, to stimulate with wine, brandy, or volatile alkali. External stimuli may be advantageously used, however, at this period; one of the best of these is heat—this may be applied in various ways—by warmed articles of covering, heated bricks, jugs or bottles of warm water, &c.—sinapisms to the feet and ankles,\* legs wrapped in flannels wetted with warm spirit of turpentine, &c.

394. We are of opinion, (which however we confess to have derived only from analogy,) that the occasional loss of a few ounces of blood from the region of the stomach by leeches, would be of the most prompt, and extensive benefit. The almost certainty in cutting short the paroxysms of the remittent form of fever by leeching over the stomach, lead to the persuasion that it would be as useful in yellow fever; especially when as large draughts have been made from the general system as it would well bear; or where the disease had been neglected, and the abstraction of blood from the arm might be thought ineligible; or where it presented itself in a milder form. After this we might blister over the stomach, or what is as effectual, and more prompt, a plaster composed of ground mustard and spirit of turpentine; this must be permitted to remain, until the patient complain of the intensity of its action. The bowels must be evacuated by mild purgatives, as castor oil, weak solution of Epsom salt, or magnesia in milk—these to be aided by injections.

395. As the stomach is very frequently sick in the early part of the disease, care should be taken not to increase it by the exhibition of improper articles, with a view to relieve it—all sti-

\* In the use of these articles great care should be taken, that they do not remain on the part longer than to exert a rubefacient effect. For if permitted to stay too long, a gangrene of the part may ensue.

mulating teas should be avoided; such as the mint, ginger, or chamomile; the surest relief obtained in general is not allowing the patient to fill his stomach with any fluid—cold water, one of the best drinks, is rejected very often with great violence, when given in a large quantity; it should therefore be given by the spoonful—indeed, any very cold drink seems to disagree with the patient, if given too freely, or in too great quantities; while tepid or lukewarm, will be retained. We found nothing so uniformly agree with the stomach as a pretty strong solution of gum Arabic in water in small quantities at a time; small quantities of milk and water, frequently repeated; rich toast tea; or lime water and milk.

396. When head-ache is severe, cold applications have been found very serviceable; they may be frequently renewed, or permanently maintained on the head.\* The best mode of conducting this is by filling a large bladder two-thirds full with cold water, to which, if necessary, a lump of ice may be added—the bladder is then tied and placed on the head—should the hair be thick, it may be well to thin it. Should there be great heat of skin, which is sometimes the case even in this form of the disease, especially after depletion has been freely employed; and the fever assuming a more regular form, great comfort as well as advantage is found from sponging the body and arms with cold water, or should there be great sensibility of skin, with tepid water. And we have seen in this state of the system much benefit, from having the hands of the patient kept in basons of cold water, until their temperature has been well reduced by it—this can be repeated as the occasion may require—by this process, indeed, the heat of the whole body appears to be reduced.

397. In the other two forms of the disease which we have noticed, the plan of cure is so conformable to the first, that we need not enter into a detailed account of it—we must, however, observe, that like the former, almost every thing depends upon the promptitude with which the remedies are em-

\* The benefit of this valuable application is oftentimes destroyed, by not having it properly employed. It is almost always kept too long at a time upon the head; whereas, it should be removed as soon as the head becomes cold; and only renewed when the head becomes again hot, or the pain severe.

ployed. In the second form the alleviation of the symptoms is more manifest, than in the first, that is, it is easier to procure remissions—the heat of the skin is in general more intense, and the patient bears bleeding and other depleting remedies better than in the first; and when an impression is made upon the disease it is more easily maintained—the disease may be protracted until the seventh, ninth, or eleventh day, or even longer, and may at these advanced periods terminate by a regular crisis, or in death. In this form the good effects of cool air, sponging, and the application of cold water to the hands and head, are more evident than in the former. The stomach does not yield so soon; and the issue by black vomit, is either longer protracted, or does not take place, though death may ensue. This form also requires more extensive purging; and the evacuations are frequently bilious. Hæmorrhages are not so frequent.

398. In the third form we have said, the inflammatory symptoms are evident; that is, there is considerable heat of skin, strong, firm, full pulse, flushed face, red eyes, tongue white and furred, and great soreness over the region of the stomach when pressed; more certainty in the periods of exacerbation, or more distinct remissions. This form seems more open and of easier management than the two former, and resembles more the high grade of a regular bilious remittent. But if the first two or three paroxysms be allowed to pass without opposition, the system may be prostrated—the pulse becomes slower, softer, and weaker—the blood seems to retire from the surface—the body becomes cool and pale; the face assumes a leaden hue; the eyes remain injected, with also a strong tinge of yellow; the tongue dry and brown; the stomach sick and disposed to vomit; the matters thrown up have the dark mucous flakes mixed with them; hic-cough, cold extremities, and black vomit—the bowels become loose, and the evacuations are sometimes passed involuntarily—coma, and slight delirium. Notwithstanding this terrible train of symptoms, the disease runs a longer course than the two former—and although the tendency to disorganization is equally certain, it is not equally rapid—the inflammation which attends is not so excessive though more evident and palpable; and the system seems to lose its powers more from excessive action, than

from a higher degree of inflammation suddenly ending in gangrene.

399. When proper depletion is employed early in this form, it is sometimes changed into a regular remittent, and sometimes ends in an intermittent.\* The same remedies must be employed in this, as in the other forms; but with difference; bleeding and purging not to be carried to the same extent, though indispensably necessary—a much smaller quantity of blood will diminish the force of the circulation; but the reaction after it, is more prompt and certain. Emetics and sweating have been sometimes advantageously employed after due depletion about the third or fourth day, where the stomach would reject its contents mixed with bile; and blisters have a decidedly good effect in removing the disposition to coma, and relieving delirium; they should be applied first to the legs, and then a large one to the nape of the neck, and extend down between the shoulders.

400. Should the inflammatory stage pass over without an attempt to moderate it, the system becomes so prostrated that nothing can again invigorate it—it must be left like a wreck, pretty much to the mercy of the wind and waves that have overwhelmed it—it may float to shore, but it cannot be navigated there.

401. We may, however, in this, as well as the two other forms, alleviate certain symptoms; or so controul them, that they shall be less mischievous—the nausea may sometimes be relieved by the seltzer or soda-water, or by the effervescing mixture—by lime-water and milk, and in the last stage, even where black vomit is present, the spirit of turpentine has been successfully employed—a strong infusion of cloves has also been used with advantage in the severe vomitings that take place in the decline of the system—a blister over the stomach may also be useful. A distressing hiccough sometimes attends; this has been found to

\* This last change only takes place in the later part of the season, after the weather becomes cooler. That is, it has happened pretty late in the fall, to see this change; but whether these cases were genuine cases of yellow fever may be doubted. For when this disease is epidemic, every fever in the vicinity of its visitation is thought to be yellow fever; yet the circumstance is noted by most modern writers upon tropical diseases.

yield best to large doses of camphor. Should a weakening diarrhoea supervene, the chalk julep should be given until it be sufficiently restrained, or very strong allspice tea.

402. Porter and water after the inflammatory symptoms have yielded to remedies or passed away, has almost always been found a most grateful beverage, as well as being very often successful in quieting nausea or arresting vomiting.

403. We may here remark that, as the season advances this disease bears more bleeding than in the very hot weather.

## CHAPTER V.

### CONTINUED FEVER.

404. THIS form of fever, allows us but little to say in particular; as it is one that rarely appears among us, unmixed with symptoms, that belong to the remittent of this climate. We have of late years paid some attention to this form of fever; because it is recognised by almost all the writers upon this subject, and made by some to be essentially different from the remittent. We have however, never satisfied ourselves, that there is good grounds for such a distinction; at least so far as it is just to consider similar remote causes.

405. The continued fever runs its course, without intermissions, and with but very slight remissions. Good makes this fever, consist of "one series of increase, and decrease; with a tendency to exacerbation and remission, for the most part appearing twice every twenty-four hours."—Study of Med. Vol. II. p. 116. Amer. edit.\* He divides it into three species; 1, inflammatory fever; 2, typhous fever; 3, synochal fever.

406. For the purpose of practice, this division into species is

\* In what does this definition of continued fever differ from that of our ordinary remittent? in the mere circumstance of the latter being "strikingly exacerbating and remitting." Good, vol. 2d, p. 21. Does this mark any essential difference between the two, except what may be purely accidental, or derived from the previous state of the system? for we have seen remittents, pro-

not essential; for the duration and force, of the inflammatory symptoms, are altogether uncertain; for the continuance, and perhaps existence of this condition of the system, will depend upon the power of the remote cause or causes; constitution of the patient; location; and the mode of treatment. If the inflammatory symptoms are high, we have the first species, or the inflammatory fever; but if they be not high, yet will bear moderate depletion, the synochal fever may be considered as present; and if the reduction of the phlogistic state be still more evident, typhus according to some writers and practitioners, will be formed. So that the three species of Good; may consist only of modifications of his continued fever; and these forms be dependant upon the contingencies above named.

407. Thus it would appear, that the same remote cause or causes, may produce the three species of continued fever of Good, in different individuals; or they may follow each other in the same person, from the same remote, and exciting causes.

408. This form of fever, commences like most other fevers; that is, with languor, or a feeling of weakness; indisposition to motion; yawning and stretching; paleness, or shrinking of the extremities; rarely a well-defined chill; but at first, a sensation is felt down the back, as if cold water were poured upon it, which sometimes extends to the whole body; head-ache; red eyes; disagreeable taste in the mouth; loss of appetite; pain in the back and loins, with a short breathing.

409. These symptoms, after a shorter or longer time, are followed by a glow or heat over the whole body; flushed face; anxious expression of the eye; restlessness; increased head-ache, perhaps delirium; oppression about the precordia; nausea, and sometimes vomiting of pure bilious matter; red eyes; and very dry skin; bowels almost always constipated; deficiency of urine, &c.

perly so called, have "one series of increase," and with very little tendency to marked exacerbation or remission. Indeed, in a practical point of view, but little is, or can be gained by distinctions, without essential differences. For our curative intentions are derived from, (or always should be,) the state of the circulatory and nervous systems; and not from the period of exacerbation, or the time of remission, or the one being more intense, and the other a little more perfect. The remote causes appear to be the same.

410. The pulse, not extremely frequent; rarely amounting to a hundred in the beginning of the disease; but may rise to one hundred and twenty as it progresses; always hard and full, resisting a considerable compressing force.

411. The causes of this fever, are bodily fatigue; great mental exertion; anxiety; long watching; passions and emotions of the mind; cold long applied to the body; checked perspiration; &c. &c.\* (marsh miasma?) Some of the British writers look upon this fever as contagious; but there is not the slightest ground for this belief; at least not in this country. Marsh miasma and excessive heat however, may be looked upon as the most frequent causes in autumn.

412. The exacerbations of this fever are almost always in the evening; in the morning an abatement of the frequency of the pulse; a diminished temperature of the skin, and a partial or general attempt at a solution of the paroxysm by sweat may be observed. But this, when not complete, is of short duration; for the fever becomes again very quickly, and sometimes, greatly augmented.

413. If this fever continue beyond the fifth or sixth day, without a tendency to amendment or crisis, we for the most part find the strength of the patient to fail with considerable rapidity; the pulse to increase in frequency; but is weaker, smaller, and perhaps irregular. The mind becomes more certainly unsettled; the tongue may now be dry; or brown, with a tenacious moisture; the heat of the body irregularly diffused; some portions more than ordinarily hot, as the head, chest, abdomen, and back; while the hands and arms; and the legs and feet, are preternaturally cold. Now and then, a cold sweat bedews the whole body; or it stands in detached portions, upon the marble-cold skin.

414. The urine for the most part, is scantily secreted, and is of a very high colour; or it may be unusually abundant, and of watery transparency, without a deposition. This fever, as no-

\* These are the common causes assigned for the production of continued fever—we should regard them in general as but the exciting causes. Marsh miasma may, we know, remain dormant in the system for a long time—so long indeed in some instances as to be lost sight of, though it was the veritable cause of the disease.

ticed above, may degenerate into what is commonly called typhus; and it may pass off in an intermittent form. From this it appears, that it differs but little in essentials, from the common remittent; and this variation may be looked upon, as rather accidental than necessary or constant. Location perhaps may have considerable influence in modifying the type of this form of continued fever; as it is found most frequently in marshy and wet situations. It was very frequently met with in the epidemic of this fall, 1828.

415. This fever differs from the ordinary form of the remittent common to our country, principally in, 1st, the exacerbations being less regular; 2d, the remissions more obscure, or less tendency to useful, or critical perspiration; 3d, greater discharges of pure bile; 4th, less equality in the general temperature of the body; 5th, more decided tendency in the extremities to become cold; 6th, cold colliquative sweats, stronger disposition to delirium, and a dry state of the tongue. But all of these variations are merely modifications of force in the disease.

416. The favourable signs in this fever, are a more equal diffusion of heat; a tendency to a general, warm perspiration; diminished frequency of pulse; less restlessness of body; more clearness, and steadiness of mind; tongue changing its dark, to a light, moist coat; diminished thirst; the free secretion of a urine that will yield a deposit of a brick-dust colour; and sometimes a diarrhœa.

417. The unfavourable signs are irreclaimably cold extremities; a profuse cold sweat, either general, or partial; increased frequency of the pulse, with an abatement of its strength; great jactitation; muttering low delirium; picking of the bed-clothes; twitching of the nerves; increase of dryness of the tongue, and blackness of the teeth; hiccup; a suppression of urine; and above all, the patient not feeling the necessity, or possessing the ability, to retract the tongue, after it has been thrust beyond the teeth,\* for the purpose of examination; involuntary stools; apoplexy; convulsions; death.

418. The mode of treatment of this fever is very analogous to that of the remittent, of which we have already spoken. The

\* We have been very attentive to this symptom for the last few years; and so far, we have not seen a recovery, where it had existed.

nature and extent of the remedies will in great measure depend upon the force, and period of the disease. If in the commencement, while the pulse manifests vigour and activity in the vascular system; and especially, if much head-ache be present, bleeding should be resorted to, to an extent that *will insure an abatement of the head-ache, and a decided reduction of the pulse.* We cannot determine by figures, the number of ounces that should be taken; the effects above stated, as necessary to take place from the bleeding, should alone be the guide, as regards the quantity, and for the repetition of the operation. If the loss of ten ounces, or even less, produce the changes insisted on, the blood may be stopped; but if several ounces more are required for this end, they must be drawn.

419. If there be less vigour of pulse, or so little as not to justify the drawing of blood from the arm, either, after having been reduced by a previous bleeding, or from any other cause, it may be abstracted by leeches, or cupping, from the head, when this part is acknowledged to be a seat of pain; or if there be delirium, or stupor, a flushed face, and loud breathing, it should also be done. If there be much heat in the head, cold applications must not be omitted.

420. Should there be pain, or even considerable tenderness upon pressing the region of the stomach after depleting as above directed, or where there is no great embarrassment in the head, four or five ounces of blood should be drawn from this part, by the same means.

421. The alimentary canal must now be evacuated, after the same manner as has been directed, at page 81; and should these means produce a tendency to perspiration, it should be encouraged by drinking of warm, weak lemonade, baum tea, or weak common tea. Should these means have been faithfully followed in the beginning, it will rarely be necessary to repeat them. But should the symptoms continue, and the pulse still be full and active, the lancet, and other evacuations must again be resorted to.

422. If the feet become cold, they should not be permitted to remain so a moment longer than proper applications can be made to them. These applications may be warm vinegar and mustard, or heated bricks; jugs of warm water, or the feet placed in a pail

of warm water, in which salt, or mustard, is mingled. The first is to be preferred when the system appears rather prostrated; and they should be suffered to remain on until they produce redness, and pain. The second where the coldness is temporary, and where the action of the skin is easily excited: and the third, when there is head-ache, delirium, and great restlessness.

423. During the continuance of the fever, the bowels are to be kept free after the first or second day, by the more mild purgatives; such as the castor oil, magnesia and salts; rhubarb and magnesia; Rochelle salts, and the Seidlitz powders. Should the evacuations, however, become very dark-coloured without odour, or very offensive, with a frequent inclination to use the pan without much passing from the bowels at a time,\* small doses of calomel should be given, and continued, until they procure a change in the appearance, odour, and quantity of the feces.†

424. Should the bowels not be speedily or sufficiently obedient to the medicines exhibited, but become painful and tumid, they should be excited to discharge themselves by means of a simple injection.‡ If the stomach become very sick, and throw up *bile*, twenty grains of ipecacuanha should be given in a table-spoonful of lukewarm water; and its operation encouraged by draughts of warm water. But if the stomach be merely sick, or rejects a colourless, or a pea-green fluid, the emetic should not be given; especially, if there be a tendency to dryness of the tongue, or much tenderness at the pit of the stomach.

\* Great mischief is sometimes done, when this state of bowels exists, by the exhibition of laudanum, or other astringents, with a view to arrest their motions; nothing can be more ill-judged than this. For it is every way certain, that this condition of the bowels arises from putrid bile, or other offensive matters, which have been thrown into the alimentary canal, and which require to be carried off by calomel and other purgatives.

† A grain of calomel should be given every hour, until five or six grains are taken; if these do not operate freely, let an half ounce of castor oil be given; and should this not produce the desired effect in two hours, let it be repeated. Or should the oil be offensive to the stomach, two or three tea-spoonfuls of calcined magnesia may be given. Under the circumstances above described, the purging should be continued until this dark and offensive matter be removed; this will be known by a change of appearance in the evacuations.

‡ For this purpose, one of the best is a pint of warm water, and a table-spoonful of table salt.

425. Blisters are highly useful in a certain stage of this fever; that is, after the more active and inflammatory stage has passed. At this period, if there be a disposition in the feet and legs to become cold; if the remissions continue to be obscure; if there be no disposition in the skin to furnish a warm, gentle, and general perspiration; a tendency of the tongue to become dark and dry; blisters should be applied to the calves of the legs, and suffered to remain until they irritate the skin in a decided manner. This will be ascertained by the patient complaining of pain; and by the inspection of the parts to which the blisters were applied. Should they neither have drawn, nor have reddened the skin, they should be kept on until either of these changes take place; we say either, for if they have blistered, nothing more can be expected; or if they have well reddened the surface on which they have been applied, vesication will be sure to follow, if the part be dressed with basilicon ointment. (See Art. Basilicon Ointment.)

426. These applications may be repeated if the disease still persists in its course, or if the system appears reluctant to produce a crisis, either by the skin, or by the bowels. If a crisis take place by the skin, the transpiration will be general; more or less profuse; the skin will become cooler, but still a little warm; that is, rather above the natural temperature; thirst will diminish; the head will be relieved; delirium, if it had been present, will abate; and the pulse become less frequent, more full, and softer. If by the bowels, the same reduction of the unpleasant symptoms will take place, with the exception of the state of the skin; this will not transmit so much fluid, though it will be inclined to moisture; and the reduction of its heat will not be so rapid.

427. But if neither of these events happen, a pair of blisters to the arms may be of great importance. Or, if the tenderness remain at the pit of the stomach, abstracting three or four ounces of blood by leeches, will sometimes produce the desirable changes above stated, in a very short time after the operation.

428. We do not think that Dr. Good has followed the most natural arrangement for his three species of continued fever. The typhus and the synochus should have changed places—at

least it would be so in this country. We shall, therefore, follow the latter arrangement.

*Synochus Form.*

429. The synochus fever does not differ from the one just described, in either its causes, or its general phenomena. The only essential difference that can be detected, perhaps, is a lesser degree of inflammation. With this in view, the treatment will be as easily conducted as the one just noticed. It will be proper, however, to bear in mind the following modifications of the practice detailed above.

430. First. That, as there is less inflammatory action in this form of the disease, a lesser quantity of blood will be required to be drawn.

431. Second. That the want of vigour of the arterial system may be such, as to render bleeding from the arm altogether unnecessary.

432. Third. Though this may be true in some instances as regards general bleeding, still, it hardly ever occurs, that the topical abstraction of blood is not absolutely necessary—for, where there is head-ache, red eyes, flushed cheeks, a hot skin, and perhaps delirium, blood taken from the temples, by leeches, or cupping, forms an essential part of the treatment.

433. Fourth. If, under such circumstances, there be tenderness at the pit of the stomach, nausea, and vomiting of thin fluids, or glairy mucus, the blood should be abstracted from the tender part, by either leeches, or cups.

434. Fifth. Though the system may permit only a moderate expenditure of blood, yet the bowels will almost constantly require to be free; the extent, however, to which this action must be carried, will very much depend upon the appearances of the evacuations themselves; recollecting, that while the stools are dark, offensive, and bilious, the bowels should be kept constantly open by the milder purgatives,\* and the occasional employment of calomel, after the manner already directed.

\* There is no practical error greater, than the one, that supposes, there is a necessity of employing the most active purgatives, in the treatment of fevers. As the bowels are sometimes tardy, and as the relief, when this reluctance is

435. Sixth. That the purging must be withheld, for a time, if the stools are very sparing, watery, and mixed with the *white mucus* of the bowels, or blood; or urged less freely, if bile of a healthy bright yellow colour appear.

436. Seventh. Should the skin continue to be dry, and hot; if the pulse be frequent, and even but moderately tense, the neutral mixture, with tartar emetic, should be given every two hours; (see p. 341) provided the stomach is not nauseated, or too irritable, to bear the tartar emetic. In this case, the neutral mixture alone should be administered. The application of blisters will be regulated by the rules laid down above.

437. In this, as well as in every other form of continued fever, much benefit is derived from sponging the body with cool, or cold water, whenever the skin is hot; provided there be no moisture upon the surface at the time, or no cough, or other pneumonic symptoms attend, as has already been directed under the head of "Remittent Fever," page 109.

438. During the whole course of the disease, the diet should be strictly antiphlogistic; and the drinks the same as before recommended. (See par. 214.)

overcome, is both striking and salutary, it has been imagined, that the more certainly, and speedily, this could be effected, the better for the patient; hence the almost universal use of the drastic purgatives, as calomel and jalap; senna; scammony; gamboge, &c. &c. Now, let it be again repeated, that in all fevers there is a constant liability, (if it does not always exist,) of the mucous membrane of the stomach and bowels to become inflamed; and, consequently, that all irritating substances must be highly prejudicial to this condition of this very important surface. This is not a refinement in doctrine; nor an instance of pathological theorizing; it is a constant, and valuable practical fact, and must never be lost sight of. The evidence of the mischievous effects of the drastic purgatives might be constantly observed, were practitioners as attentive to the phenomena presented by an inflamed, or highly-irritated mucous membrane, as they should be. They might see the mucus of the intestines coming away in quantities, with little or no fecal matter, when the mucous membrane was only severely irritated; this may be either marked with streaks, or accompanied by a greater or less quantity of blood; or when this coat is inflamed, they might witness profuse, watery discharges—let either of these signs be a warning, not to employ such active medicines, or to withhold every kind, for a while.

*Typhus Form.\**

439. The typhus species, of continued fever, seems to be altogether misplaced, if it be looked upon as a consequence of inflammatory fever. For a typhus fever, properly so called, may be regarded, as a distinct and peculiar form of fever; for it has not the same general causes for its production; it does not exhibit the same phenomena; nor does it yield exactly to the same mode of treatment.

440. The form of fever which we are now to consider, depends for its existence upon a state of previous high excitement, and is always a consequence of that condition. And though it shows a number of symptoms, extremely analogous to an original typhus, yet it does not bear with success the same kind of treatment, if we are to credit the cases of many of the European writers. (See Chap. on Typhus.)

441. We consider the typhus tendency after an inflammatory or even the synochus fever, to be altogether contingent; at least we have never seen an instance in which we thought it was absolutely and essentially consequent. We have been called upon to witness this state of the system, where the disease had been either neglected or badly treated; but we can with the most perfect truth declare, that this condition has never happened in our hands, where the patient was under our care in the early stage of his disease, or where our plan of treatment has not been interrupted, by the improper interference of friends—that is, we never have seen in our practice, that state of fever called typhus by many, and which agreeably to them, requires stimulation for its cure, but under the circumstances just named.

442. We are perfectly persuaded from long, and carefully made observation, that the fever almost universally called ty-

\* We are perfectly aware of the impropriety of this term in this place; (see Chap. on Typhus,) but we make use of it because it is familiarly employed in this country to denote the state of the system now to be described. And were we to reject it for a more appropriate term, we fear the condition of the system about to be noticed, would be less vividly conveyed to the mind of the reader, who had become familiar with the appearances in question, and who had been in the habit of regarding this state of fever, as a real, or genuine typhus.

phus, for the most part is of artificial origin;\* and farther, that it is constantly in the power of improper management to convert the most inflammatory fever into this much-dreaded state of the system; and this by the most simple and easy process imaginable. To effect this terrible change, for such it really is, it is only necessary to deplete insufficiently; or to over-stimulate, during the phlogistic state of the system.

443. What we have just advanced, we believe to be most strictly true; and this convertibility being observed in this disease, though it had an artificial, or contingent cause, it has been mistaken for an inevitable consequence; to guard against which, means are employed, which only hastens, and makes sure, the evil. A dry, dark tongue; a hot skin; a flushed face; a tendency to delirium; and an irritated pulse, are sure to be called typhus, and is too constantly treated as a disease of absolute weakness. Stimulating and tonic remedies are resorted to, and the system is goaded into gangrene, and the patient into the grave, in the course of a short time.

444. Now, we are of opinion, that the above-named train of symptoms do not constitute a *typhus* fever, in its true meaning, though typhus, has all of them as attendant symptoms; for they will seldom, or never yield to the stimulant plan of treatment; while we are told, and perhaps bound to believe, by the greater part of the writers, that *typhus* is sometimes cured by bark, wine, volatile alkali, &c. (See Chap. on Typhus.)

445. Our experience is decidedly against this mode of practice; for we have not unfrequently, when called upon to prescribe for this artificial disease, witnessed that it would yield, with pretty constant certainty, to a perseverance in the anti-phlogistic and temporizing plan of treatment. We have often abstracted blood, both from the general system, as well as topically, when all the symptoms enumerated, and which are supposed to constitute typhus, were present; and we have witnessed them to change their aspects immediately. For by these means, the dry dark tongue, we have had, (sometimes in the course of

\* We may with much propriety call the cases, now under consideration, that is, such as have been neglected in the early stage of the disease, "accidental typhus," since we have agreed to retain the term typhus, for the reasons just stated.

an hour,) a moist, whitish one; for the dry, hot skin, we have had a cool, moist one; for the flushed face, we have had a pale one; delirium has been arrested; and the irritated pulse, has been converted into one of a mild, and open character.

446. One of the most dangerous errors in the practice of medicine, is prescribing for the name of the disease, instead of attending to the state of the system—that is, paying a strict attention to the state of the pulse; the degree, and seat of pain; and the state of skin. For if the pulse be tense and active; pain acute; especially, if in the head, chest, or region of the stomach; the skin hot, and dry; the tongue dry; the teeth encrusted, and the mouth black; the fingers employed in picking the bed-clothes, or the arms twitching with subsultus tendinum, we would not hesitate to abstract blood in one way or other, be the period of the disease what it may.

447. Nor would this be all; we would purge as just directed, (page 81,) and observe a rigid antiphlogistic regimen throughout. We would do this, because we could appeal to our experience for the comparative success of the two methods; for the time was, when we went with the current; stimulated as fearlessly as any one; and lost patients as certainly as any other practitioner. But for the last ten years we have abandoned this mode of treatment; and by doing so, if we do not deceive ourselves, we have carried patients through, that would, we sincerely believe, have succumbed under the other plan.

448. If then, we have the misfortune to meet with this artificial disease, we treat it, as if there were still a lurking inflammation present in some one of the viscera; or as if the morbid irritation of the pulse could only be subdued by a sedative, or tranquillizing mode of treatment. That is, by aperient medicine; the (perhaps) loss of blood; a mild regimen, and the total abstraction of all stimuli, either in the form of food, or medicine, if we except the occasional employment of blisters; or now and then, perhaps the use of laudanum. To be successful therefore in this state of fever, only requires, that the evacuations should be suited to the condition of the system, for evacuants must be employed.

449. But let us not, however, be understood to insinuate, that no recoveries take place under the stimulant plan of treat-

ment; for certainly there are instances of this kind; so there have been escapes from shipwreck, or the carnage of battle; or from the deadly plague itself, under the most preposterous treatment possible, or under no treatment whatever. But can any one flatter himself, that the recovery of a patient from typhus, after the use of stimulants, is an instance of the triumph of remedies? Have not the natural energies of the system done most in effecting the cure?

450. Let us now consider the state of the system; while labouring under a fever so commonly, though so wrongly, called typhus; and in doing so, let us fairly and without prejudice, endeavour to ascertain the precise state of the arterial, and nervous systems, at this time; and from this examination, see whether, a stimulating plan of treatment, is fairly deducible.

451. In all the cases we have witnessed of this disease, symptoms, decidedly marking, an inflammatory state of the system, had been present, to a greater or less extent; or for a shorter or a longer period—that is, there had existed, a hot dry skin; a pulse full and hard; head-ache, of more or less severity; high-coloured, or very pale, crude urine; a white slimy tongue, and sometimes local determinations, manifested by acute pain, &c. Now if these symptoms do not betray a phlogosed condition of some one of the viscera, we should be at a loss to determine, an inflammatory state of the system under any circumstance, and if they do not call for the employment of the lancet, or other depletory means, we do not understand in any case whatever, where they are indicated.

452. But should these means be neglected, inadequately urged, or too soon withheld; we shall find, a change in several of the phenomena; but none in the general character, or type of the fever. There will as certainly be present, an inflammatory condition of the system, as there was before the change took place, either by neglect, timidity, or improper views. And though the system will not bear depletion to the extent, it would have done before the vessels had in part destroyed their own powers by excessive previous action, it nevertheless requires it to an extent, that must be regulated by the apparent force of the symptoms at the moment—at all events, tonics and stimulants, will be destructive.

453. The pulse, and the local determinations, will be never-failing guides upon such occasions to the attentive observer; especially, when combined, with several other of the phenomena above enumerated; as the flushed face, hot skin, delirium, &c. &c.

454. The pulse in such cases, will constantly declare its irritation; that is, it will be both quick, and frequent; (see p. 351,) with a marked degree of incompressibility, though small in point of volume; and these are never-failing marks, that the system is labouring under phlogosis, in some one part or other; and from which, it cannot be relieved, but by adequate, and well-directed evacuations.

455. Now, the great error in practice lies, in mistaking this state of pulse, for a pulse of debility; because, it is accompanied by certain changes in the febrile phenomena, which have been too constantly and wrongly associated, with a state of debility, and which it is supposed, requires for its removal, tonics and stimulants. The other symptoms accompanying the state of pulse just described, unfortunately, from mere association, lead to the same conclusion. Such are the dry, and loaded, or the dry, and polished tongue; a circumscribed red, or hectic check; confusion of intellect; a hot, parched skin, and more or less of *subtulus tendinum*. We would now ask, is there any thing within the range of pathological research, or practical observation, that countenances the belief, or that establishes the fact, that the symptoms above enumerated, are proofs of an over-prevailing debility, which can only be removed by tonics and stimulants?

456. We hesitate not, to say, there is no observations, either pathological, or practical, that can lead to such conclusions. On the contrary, we can with the utmost confidence declare, that we have seen all these symptoms vanish, by general or topical bleeding; by purging; by a strict antiphlogistic regimen; by sponging the body; by cold local applications, and by sudorifics. And farther, that we have almost invariably seen them aggravated, by the tonic, and stimulating modes of treatment.

457. There seems to be a species of infatuation upon the subject of typhus, that is no less surprising, than mischievous. Surprising, because, no adequate cause can be assigned for it; and mischievous, because, it leads to the employment of remedies

which are decidedly destructive of human life; for the apprehension of an event, which in itself, is altogether contingent, leads to a practice, that seems the absolute production, of this artificial species of typhus. Thus, the fear of debility, and its supposed inseparable attendant, (typhus,) are attempted to be guarded against, by the administration of remedies, altogether unsuited to the nature of the disease; or rather, to the condition of the system. The nervous and vascular system, have now to contend with the force of the remote cause, as well as to bear with the stimulation, which a narrow pathological view, has called into requisition.

458. The disease in question, has an anatomical character without doubt; and though, we do not consent either to Broussais, or Clutterbuck's exclusive locations, for this character, (as both are certainly right at times,) yet we are persuaded, that in every instance of this disease, *some one portion of the system, has been acted upon in an especial manner by the remote cause;* which will have the effect perhaps, of modifying the force, and perhaps the succession of phenomena attendant upon the disease when about to be developed, or after this has fully taken place.

459. We cannot well be certain that there is not a phlogistic state of some one portion of the system; and which may be the cause of the irritated pulse, and the other symptoms attendant upon this state of fever; for sometimes we have no other evidence of its existence than the pulse; as there may be no local pain to detect the lurking mischief. In this situation of things, that is, of local inflammation, stimulants would be highly injurious; for they would with the utmost certainty increase the mischief they were intended to remove.

460. It is therefore always safest to trust to the mildest, and most temporising plan of treatment; by this we give the recuperative powers of the system a chance of doing something in favour of the patient. On this account we pay attention, first to the state of the alimentary canal; and if this be affected by loose, black, fetid stools, we give mild aperients until their character change; for it is in vain to attempt the relief of the system, while these stimulating substances occupy the intestines. Second; we pay a great regard to the condition of the skin; if this be dry and hot, we cause it to be sponged with cold water,

and give the neutral mixture, or the sweet spirit of nitre;\* if partially cold, we endeavour to establish an equality of temperature, by warm applications. Third, to the state of the lower extremities, and the degree of intellectual sensibility. If the legs are disposed to become cold; and there be delirium or stupor, we apply blisters to the calves of the legs. If there be no unusual tendency to coldness in the limbs, and if the mind be much affected, we have the blister applied between the shoulders and down the spine. Fourth; we attentively watch for the appearance of local inflammations, or determinations. The existence of these, are sometimes, it must be confessed, sufficiently obscure, if no other symptom than pain is to be regarded as evidence of them; but in this we must not be misled; since pain is not the constant attendant upon these conditions; the pulse must be attentively examined. It will be well to bear in mind, that both inflammation, and congestion or engorgement, may happen at any period of the disease; and when extensive, will very much influence the treatment. For though inflammation may really exist during the whole progress of the disease, or supervene at any period of it, yet its character will in great measure be determined, as it may be initial, or secondary. In the first

\* There are few articles which are so decidedly refreshing to the over-heated system, and the parched mouth, as the sweet spirit of nitre; it may be given in forty-drop doses in a little sugar and water, or combined in a smaller proportion with the neutral mixture, or Mindererus' spirit, (see Art. Spirit of Mindererus. We may here however make a few observations upon the sweet spirit of nitre, that are of great practical import. This medicine is by most practitioners looked upon as possessing very few positive powers, or active properties—it has therefore been most negligently prescribed, and has in consequence often disappointed expectation, for which it has been as loudly as unjustly condemned. This discrepancy has arisen, from improper doses having been given; for it is commonly received as a mere placebo; this is a mistake. This medicine when given in small doses, (that is, doses not exceeding forty drops once in two hours for an adult, and in proportion for children,) has a most tranquillizing influence upon the system when it is labouring under fever of feeble action, and dry skin. It also disposes with considerable certainty to the surface; especially, when combined with the neutral mixtures, and antimony. And it contributes very happily to diminish the unpleasant after effects of laudanum; we have known patients most pleasantly influenced by this combination, that would have suffered, (if they could trust their former experience,) very much, had they taken the laudanum alone.

instance, it will bear a greater loss of blood, than in the second; and the loss of blood, either directly or indirectly, is absolutely necessary. In the first case, especially in the early part of it, bleeding from the arm may be essential, and which will be clearly indicated by a full, tense pulse; in the second, leeching or cupping the part, which is the seat of the local aberration, will be all that may be required; or that the system will bear.

461. We have said that pain does not always betray the exact seat of the inflammation, or engorgement; this is strictly true; but the spot or viscera, may be known with considerable accuracy, by certain embarrassments in the functions of such viscera as may be affected. Thus by delirium, we may declare with almost a certainty, that the seat of the local affection, is in the brain or its appendages; a hurried, very slow, or a laborious breathing, may detect its seat in the lungs, or pleura; by a soreness, fulness, and a desire to lie upon the right side, we may have a just suspicion that the liver is its location; by a very scanty supply of a very high-coloured urine, or an entire suppression of it, we may declare the kidneys to be involved.

462. This being determined with as much certainty as the nature of the case will permit; the proper remedies immediately present themselves; namely, bleeding, followed in many instances by blistering. In the first case, blood may be abstracted from the forehead, by leeching, cupping, or by the division of the temporal artery. The quantity to be drawn must always be determined by the violence of the symptoms, and the state of the pulse. In the second, cupping or leeching should be performed from the lower part of the neck, and from between the upper portions of the shoulder blades. In the third, from immediately over the region of the liver, and by the same means. In either of these cases, the loss of blood may be followed by a blister; *a*, when the head is affected, upon the neck over the parts pointed out for the cupping or leeching; *b*, when the chest is affected, to the same part; *c*, over the region of the liver, when that organ is the seat; *d*, by leeching or cupping, from immediately over the kidneys. (See pars. 418, 419, 420.)

463. We order as drinks barley water, gum Arabic water, tamarind water, toast water, or weak lemonade, to be given cold; in small quantities; but to be frequently repeated; and the thin

jellies of tapioca, rice, or sago sweetened, and rendered pleasant by lemon juice, to be given from time to time, in very moderate quantities, as nourishment. We prohibit in the strongest, and most unequivocal language, the use of any animal juice, or jelly, in any shape or form whatever; as well as every stimulating drink, or liquor, either fermented or distilled. The free ventilation of the room, by the constant admission of fresh air, is an indispensable attention in this form; therefore all the means and cautions suggested in page 30, must be faithfully attended to. Also changing the body, and bed-clothes, as often as circumstances will permit; especially, if the weather be warm. We must never listen to the idle prejudice of many, that "changing the clothes often, is weakening."

464. Let us now enquire into the state of the nervous system, in this fever. In doing this it will be well to consider, first, the remote, or morbid agents; second, the part of the system on which they exert their influence; and third, the phenomena resulting from their application. In pursuing these enquiries, it may be well to suggest, that the nature of the present work, will only permit us to glance at each of these subjects.

465. First. The remote, or morbid agents, capable of causing fever, may be, *a*, marsh miasmata; of these effluvia, we know nothing; either chemically, or physically. They have eluded every attempt at examination hitherto made; nor is it probable, that either chemical tests, or analysis, will ever instruct us in their absolute nature. The spots from whence they emanate, are well known; but the causes necessary or accessory to their formation, as poisons, are at present altogether inscrutable. It is true, we are acquainted with certain physical agents that are essential to their existence; as heat, moisture, and vegetable productions; but more is required than these, for the formation of the remote cause of fevers; as we see these three agents united frequently without the production of malaria. As regards the mere physical properties of the air, it is not necessary to the production of malaria, that they should be in the slightest degree deteriorated, if we can place any reliance upon the experiments performed with a view to determine this point. For the causes of malaria exist without the possibility of detection in an atmosphere, that offers to the tests of the philosopher, proofs of the

most entire salubrity. We therefore shall lose nothing by confessing our most entire ignorance as to the nature of such miasms, as are capable of causing fever; with their effects only are we familiar.

466. These remote agents may exist however, in different degrees of concentration, or dilution; and on these degrees, will the nature of the fever, or rather will the different phenomena and type of fever depend; making at the same time allowance for individual susceptibilities.

467. *b.* These agents may be a product, *sui generis* perhaps; arising from the combination of bad ventilation; effluvia from human bodies when too closely confined, or too closely crowded together; with a deficiency of wholesome food and drinks.

468. *c.* They may arise from a diseased body; and thus propagate themselves by sending forth noxious emanations, which when received in the healthy body, are capable of exciting in it the same kind of action, by which they themselves were produced—that is, by contagion.

469. Second. The part of the system on which these morbid agents act, must necessarily be the nervous system, as we know of no other that gives susceptibility. Their action upon this system will be in different degrees, as the poison may be more or less concentrated, as the dose may be larger or smaller, or as the susceptibility may be more or less exalted. The particular part of the body to which these remote causes are applied, so as to act upon the nervous system, is not so settled by physicians as to be beyond the power of controversy—the greater number of pathologists, however, incline to fixing the seat in the stomach.

470. Third. If the remote causes be susceptible of the modifications above named, and the nervous system liable to the different degrees of susceptibility just spoken of, it will follow, that the influence of the remote cause will be in strict obedience to these conditions; and hence the different character or type of fever. It will, therefore, happen, that a certain dose of the poison, with a given degree of nervous susceptibility, will in one instance produce fever, the character of which shall be highly phlogistic; another as strictly inflammatory, but not as highly so; another with still less of the inflammatory type; and with a

fourth, the nervous power may be so prostrated by the strength, or concentration, or peculiarity of the poison, or the remote cause, that no febrile reaction will take place.

471. It will then be evident, if this be true, that all fevers may be comprised under two general heads, namely; 1st, those in which there is a greater or lesser degree of inflammation; 2d, those in which inflammation does not exist; as in the worst forms of *pure typhus*. (See Chapter on Typhus.)

472. The first effect of the remote cause we have observed, is upon the nervous system; to which, however, it is but a short time confined; for such is the nature of the arrangement, and of the mutual relation between it and the circulating system, that the latter is soon called into action; and the quality of this sympathetic action will be determined altogether perhaps by the degree of impression made upon the former. So intimate and inseparable are the relations between these two systems, that the one cannot be acted upon with any force by the remote causes just named, without exciting the other to inordinate action, or prostrating it below the power of action.

473. The circulatory system, however, is evidently dependent upon the nervous, for the various modifications of its action; while on the other hand, the nervous system is reciprocally dependent upon the circulatory.

474. Thus, the circulatory system could not have its action maintained without the aid of the nervous; nor could the latter perform its functions longer than the former continued to circulate a healthy blood. For the instant that venous or unoxygenated blood is made to circulate in any part or portion of the nervous system, that instant that part or portion has its actions to abate materially, or altogether to cease. If this should be in the brain, or the medulla oblongata, respiration would be very imperfectly performed, or death would ensue, from this process being stopped. If there be only a small deficiency of oxygen in the blood, the circulatory system will feel the loss of this abstraction; but the change will be less marked. If the blood be more than ordinarily charged with oxygen, the circulatory system will present phenomena that mark that form of fever called inflammatory; and the nervous will be exalted to great sensibility, or extreme mobility.

475. It will therefore follow from what has been said, that the character of febrile phenomena will almost exclusively depend upon the impression made by the remote cause upon the nervous system, be the nature of that remote cause what it may—hence the variety of types in fever.

476. The blood itself, while circulating, is also subject to changes in its structure, if we may so term it; and from these changes, some of which are made evident to our senses, much is inferred in the treatment of diseases of the febrile kind. To be acquainted with the more evident sensible properties of the blood, is very satisfactory, but not always so important as is generally imagined. For from the appearance of the blood alone, we should not deduce, either the necessity for its farther abstraction, or for our withholding the lancet. If we did so always, we should sometimes abstain, when its loss would be all-important—for instance, when it is in the condition called *dissolved*; as is the case sometimes in the commencement of violent onsets of yellow fever; (see par. 389,) or, we should continue to draw it, when each loss would be but to hasten the death of the patient; as in hectic and in rheumatic fevers; for here we have seen it cupped or sisy, but a short time before death.

477. Now all the varied appearances of the blood are caused by the particular actions of the heart and arteries; and the heart and arteries must necessarily depend upon the state of the nervous system, for their peculiar mode of action. Changes are therefore effected upon the whole mass of circulating fluids in the course of a very short time. And these changes are not less remarkable than sudden sometimes; thus death, from a blow upon the stomach, or from lightning, are said to prevent the coagulation of the blood.

478. From this view of the subject, the nature or quality of the remote cause is not a matter of indifference, at least as regards the phenomena and type of fever. Those arising from marsh miasma, in otherwise a healthy or a duly oxygenated atmosphere, are generally fevers of the sthenic or inflammatory kind, provided the poison be not too much concentrated, or the dose too large; for the mere presence of oxygen does not destroy the cause of malaria. But the absence of this important principle renders, (perhaps miasmata,) but certainly the combinations of

the various exhalations arising from filth, and from human bodies in crowded places, much more active or virulent.

479. Of this, however, we have few opportunities to witness, in this country, though some of our public institutions, when unusually crowded, bear testimony to the truth of the statements of the European writers upon this subject. It seems to be agreed that the character of a fever generated in an impure atmosphere, will be quickly altered, by a change to a more pure situation. By this change, two very important circumstances take place, both of which doubtless contribute to the alteration in the character of the fever generated in the impure atmosphere—namely, a due and healthy supply of oxygen, and the removal from the impurities to which the location was liable.

480. So marked, indeed, is the influence of this change sometimes, that we are informed by Dr. Burne, that “patients in whom, in their own habitations, the powers of life were very low, and indicating cordials, became so altered after the removal, as to have a vigorous circulation, and signs of inflammation, which call for the abstraction of blood.”\*

481. In these cases, and in all others of the same character, the inflammatory nature of the disease was only masked by the impression made upon the nervous system by the remote cause or causes; giving to the system a fallacious appearance of prostration and feebleness, which would be as certainly augmented by stimulants, as it would be diminished by well proportioned depletion. How depletion acts in such cases to remove or diminish the force of the remote causes, our limits will not permit us to enquire. All that is necessary to understand is, that it is a practical truth, or else all the latest and best writers upon the subject are greatly deceived. And this simulated or indirect weakness, must not be mistaken for an absolute exhaustion, and be supposed to require for its removal, cordial and stimulating remedies.

482. The disposition which certain continued fevers discover, sometimes even in the early part of their course, to take on, or simulate the typhus type, has too frequently led to the most destructive practices for its cure. We have inculcated this belief

\* Burne on Typhus or Adynamic Fever, p. 43.

on our part, again, and again; in the hope, that those who may have the management of fevers under their care, may at least pause, before they decide against a plan of treatment, opposite to their usual routine, but which we most sincerely think has both reason and experience on its side. The best, and latest European writers upon the subject in question agree, without a dissentient voice, upon the following general principles.

483. First. That in all adynamic fevers, there is more or less inflammation almost constantly present, either general, or local.

484. Second. That even during this more or less inflammatory condition of the system in general, or in portions of it, that the most unequivocal evidence exists, that, a certain combination of symptoms will present themselves; such as a dry parched tongue, and lips; flushed cheeks; low, muttering delirium; a dry, rough, unrelenting skin; lying upon the back, with the legs drawn up; high-coloured, scanty urine; subsultus tendinum, picking of the bed-clothes; and which symptoms, have constantly, or with very few exceptions, been called typhus, or typhoid symptoms.

485. Third. That the symptoms just enumerated, do not give evidence, that all inflammation is at an end, when they make their appearance, as is generally supposed.

486. Fourth. And that when the treatment is made to conform to such opinion, by the employment of tonics, and stimulants, that the most serious consequences have followed the practice.

487. Fifth. That though the symptoms mark a less active state of inflammatory action, yet that the action present, nevertheless is of the phlogistic kind; and cannot be relieved by a stimulating plan of treatment.

488. Sixth. That nothing in practice, is more decidedly wrong, or more actively mischievous, than the belief, that, when the system will not bear active depletion, that it necessarily calls for the opposite mode of treatment.

489. Seventh. That it is now agreeable to the best experience, that, the employment of stimulants, is sure to be followed by a marked increase of every bad symptom; and that when recoveries have taken place under the stimulating plan of cure, they

have only marked the strength of the recuperative powers of the system, and not the eligibility of the plan adopted.

490. Eighth. That when the system is in that forlorn condition, in which we dare not deplete; and that we *must not stimulate*, it is the best, and most successful practice, to remove all the physical causes in our power, that may have a tendency to depress the oppressed system; such as impure air; offensive smells; soiled clothes; too much heat; too low a temperature; too great a weight of bed-clothes; and too much company. To administer such kind, and quantity of nourishment, from time to time, as will offer the least trouble to the feeble digestive powers; (such as has already been specified at par. 217,) and such drinks, as will make an agreeable impression upon the gustatory nerves; but which shall not convey to the stomach, any decided stimulating agency. To promote to the last, the alvine discharges; either by injections, or by the mildest aperients;\* to effect, (and if necessary by even artificial means,) the flow of urine.

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## CHAPTER VI.

### TYPHUS.

491. THE disease, strictly called typhus, we have never witnessed, though we have strong ground for the belief, that it has occasionally appeared in the alms-house of this city. The disease bearing this name, has several very important, and remarkable peculiarities, which serve to distinguish it from every other form of fever; and which has induced Dr. Bancroft to say—

\* In the last stage of the fever under consideration, it is a matter of great consequence to secure a regular daily discharge from the bowels; for this purpose we have proposed the mildest aperients, and injections. Of the former, the simple syrup of rhubarb is one of the best—a tea-spoonful of this may be given once in an hour or two, until the effect is produced; or simply a solution of manna in the drinks of the patient, will often be sufficient. The injections at this period, may be simply, warm molasses and water. If diarrhoea (but not if it be of the critical kind,) attend, it should be moderated by the chalk julep; or by small doses of laudanum. (See Chalk Julep.)

492. "I believe in the existence of a fever, *sui generis*, strictly contagious, (unconnected with any of the exanthematous diseases,) and, therefore according to my view of the subject, derived exclusively from its own *specific cause*, or contagion. In this, which I consider as the *only* contagious fever, there are I think, some varieties; but without any differences sufficient to form more than one species."\*

493. The opinions of Dr. Bancroft, upon this subject, are very valuable, as every reliance may be placed upon his facts. They are for the most part derived from his own observations, for which he had frequent opportunities, as well as large sources to collect from; we shall therefore, cite in his own words the reasons for the opinions, just stated.

494. He says, p. 89, et seq. "Every thing which I have been able to discover, or ascertain, respecting the nature and properties of contagion, induces me to consider each of its several species as a peculiar morbid quality or power, imparted to certain animal secretions, in consequence of some particular, though unknown, actions excited in the living body, when actually disordered, by the very same species of contagion previously, and in like manner, elaborated in another body whilst labouring under a similar disorder from a similar cause; and therefore, though we are unacquainted with the origin of any one species of contagion, yet, considering the properties manifested by all, ever since they have been known to exist, we may conclude, that being thus produced, exclusively by, and within the living body, each is capable of exciting, in other bodies, the same morbid action, or disease, which occasioned its own production, and of thus maintaining and propagating itself, indefinitely; and consequently, that though contagion be a morbid and morbidic secretion or production, it is also, a natural one, wholly, *inimitable*, either by *accident* or art. If this be true, it must follow that, though noxious vapours should result from those fortuitous, and ever-varying, collections of unclean or putrifying matters commonly denominated filth, which as in the instance of marsh effluvia, may produce diseases, including fever, yet the diseases so produced will be incapable of exciting similar diseases in other

\* Bancroft on Yellow Fever, &c. Davidge's Ed. p. 337.

persons, and will therefore be destitute of the most essential property of contagion.”

495. From these facts, the following important conclusions may be drawn; first, that typhus fever is a contagious fever; that is, it is capable of propagating itself; second, that it is the only fever that possesses this quality, if the exanthemata be excepted; third, that the contagion or poison of typhus, is *sui generis*; and bears no analogy to the emanations from fevers, which have confessedly other causes, than the contagion, or poison of typhus for their production; fourth, that exhalations, from any putrifying masses, whether animal or vegetable, are incapable of producing typhus.

496. We learn also from the same source, that typhus is very much confined to Great Britain; and that when it has become prevalent in other places, it was constantly introduced into such places from Great Britain, if we except Holstein and Denmark, where typhus is a frequent disease; and such an introduction took place in the year 1809, by the Spanish army under the Marquis de Romana.

497. Dr. Bancroft has proved beyond all controversy, that neither moisture alone; putrifying animal or vegetable matter, nor both; nor crowding the sick in ill-aired hospitals; or the well, in a confined space, as the black hole of Calcutta, has ever in a single instance produced typhus. The proofs offered by this candid, and enlightened writer, are so numerous, that our limits, will not even permit an analysis of them; we must therefore refer the curious, to the work itself.

498. We have already in several places, borne testimony against confounding a certain condition of the system, in the yellow, the continued, and the remittent fevers, with typhus; because they bear no analogy to it, as they all want the power of propagating themselves, by contagion. This confusion in terms, has necessarily led to injurious practice; and when mischief results from this want of discrimination, it becomes the duty of every physician to oppose such an amalgamation. But Dr. Bancroft does not stand alone in what he has advanced on the subject of typhus; he is supported by several other writers of eminence, and especially, by Armstrong, who has professedly treated of this subject. He says, “it strikes me, that to call any spe-

cies of fever, typhus, which has not the contagious *essence*, capable of producing an unequivocal typhus, is equally incorrect in logic as in language." He therefore informs us in his valuable essay upon this subject, that "the word typhus shall be limited to the peculiar disease, which is allowed to originate from a specific contagion, and which doubtless, has the power of producing an affection of its own nature, in individuals exposed to its influence." p. 7.

499. Dr. Davidge says, "the typhus is not, so far as my observations have extended, a disease of Maryland, perhaps not of America; at any rate, not south of the New England states. And since, as Armstrong and Bancroft, and most other enlightened physicians, admit contagion as essential to typhus, (I here refer to the typhus of Britain and Ireland,) it must be highly absurd to speak of the typhoid condition of diseases, in regard to those diseases that are not admitted to be contagious in any stage. For surely, no disease can be said to be like another, that is deficient in an essential quality. Hence, it appears, how unphilosophic the language is, that states the low and collapsed condition of the body, in remittent bilious fever, synocha of the winter, or pneumonia, to be typhoid. These diseases are wholly distinct from typhus, in all their stages, cause, and sensible phenomena."\*

500. Typhus is a disease of cold weather exclusively; and its progress is as certainly as constantly arrested by hot, or even by warm weather, as yellow fever is by cold weather, or frost. This is a remarkable and an important circumstance in the history of this disease; and there is perhaps no one fact in medical history more cordially and generally acknowledged by all writers upon fevers. Dr. Bancroft says, that "typhus is properly a disease of cold climates." p. 342.

501. Dr. John Hunter says, "I have never seen the fever earlier than the month of November, and I believe it seldom appears so soon. It becomes frequent about Christmas, and increases during the months of January and February; but if they are cold, it continues nearly as common as in the preceding

\* Davidge's Edition of Bancroft, p. 518.

months." He adds, "the heat proves a prevention to the disease, as much as cold forwards its production."\*

502. Drs. Trotter, Blane, Lind, &c. all confirm, by their observations, the same thing. With these facts before us, how can typhus be talked of as a disease of warm weather, nay, of summer!

503. Another very remarkable circumstance attends the history of typhus; namely, that it never becomes epidemic, like fevers arising from miasmata; and that when simple, it is always of the continued form. Should the patient, however, have been exposed to miasm, it may cause typhus to assume a disposition to remit, but not without. This disease, therefore, must not be confounded with fevers that may have marsh miasmata for their remote causes, nor with those which may arise "from fatigue, damp habitations, unwholesome or insufficient food, anxiety, grief, fear, and other depressing passions and debilitating causes, which have *no connection with contagion, nor any power of producing a contagious disease.*"

504. We trust we have said enough on the authority of those who have had the best opportunities to observe the origin, habits, and phenomena of typhus to prove, that it is not a disease of the American climate, or but very partially so; and that when it has appeared in our city, if it ever have appeared, it has always been confined to our poor-house. Yet we hear constantly of typhus; and our bills of mortality never fail to record deaths from this fever. We have already confessed we have never had an opportunity of seeing a single case of this disease; nor do we believe it can exist, if its history be truly given by the highly respectable gentleman above named, in our more southern states.

505. It certainly never prevails within the tropics, if reliance can be placed upon the writers on tropical diseases. Dr. John Hunter assures us, "that during more than two years that he remained in Jamaica, he never saw one instance of the hospital fever, though the military hospitals were as much crowded as in Europe." *loc. cit.* These places owe their exemption from typhus, to the heat of the atmosphere; as heat and typhus toge-

\* Med. Trans. Vol. III. p. 348, &c.

ther are incompatibilities. Dr. Bancroft says, that “the influence of heat in mitigating, and finally extinguishing contagious fever, was very fully manifested in regard to the troops which sailed from Cork, under the command of Major-General White, for St. Domingo, in February, 1796. Two hospital ships, in which I had embarked, and sailed from England with the army, under Sir Ralph Abererombie, having by storms been rendered unable to continue the voyage, and the last of them having landed me on the south-west coast of Ire, I embarked on board a very large hospital ship, the Bridgewater, (formerly an Indiaman,) destined to receive the sick of General White’s division, among which a severe typhus fever had prevailed to a great extent, and with great mortality, previous to our sailing from Cork, where most of the sick were left at our departure; but many of the soldiers, apparently well, being exposed to the contagion which existed in many of the transports, or having imbibed it previously, while detained at Cork, fell sick on the passage, and were from time to time removed into the Bridgewater, which soon became full of patients, under typhus fever, which was communicated to several of the orderly men, and nurses, to some of which it proved fatal. It became evident, however, that as we reached, and proceeded in the warmer latitudes, the cases of fever gradually diminished in number, and became much milder; though from the shortness of our passage, and the cool season in which it was made, the *full* effect of heat in extinguishing contagious fever could not have been produced; and, therefore, it was not surprising that a few patients with the same fever, in a milder form, and apparently divested of its contagious power, were sent on shore to the hospitals, immediately after our arrival at Barbadoes. These had probably imbibed the contagion before our arrival within the tropics, and its effects, though moderated, were not wholly prevented by a change of temperature.” p. 343.

506. Similar facts could be easily added, were it necessary to, or compatible with, our plan—enough has been shown to prove, that typhus fever has its own peculiar laws, and phenomena; but none of which belong to any of the fevers of our seasons; consequently, none of such fevers can be typhus.

507. As we have never had an opportunity of seeing a case of typhus, as we have already declared, we shall be indebted to

others for a description of this fever. The latest, and perhaps the most approved account we have of typhus as it exists, in Great Britain in general, and London in particular, is that of Dr. Burne, in his *Treatise on the Typhus or Adynamic Fever*.

508. He says there are two modes of attack. "The adynamic fever frequently attacks young persons in the vigour of youth, between the age of eighteen and twenty-five, having robust constitutions, and who had enjoyed good health up to the invasion of the disease. These peculiarities are remarkable. In order to the production of the adynamic fever, it is necessary that there be a certain state of system; which state depends, in most instances, on a continued exposure to a poisoned, or contaminated atmosphere. This state then existing, it will be found that the adynamic fever attacks in two ways; and it is of great importance that these should be clearly understood, because they account for the presence, or supervention of inflammation in some cases, and the absence of it in others." p. 13.

509. "In one instance it acts by the intervention of an accidental cause; the other without. When without the intervention of an accidental cause, the condition of the body itself is sufficient to give rise to the phenomena of adynamic fever. When with an accidental cause, the condition of the body, though not sufficient of itself to produce the fever, is yet sufficient to give the fever thus accidentally produced, the peculiar adynamic type. In the one case, the development is slow and progressive, requiring many days, or even weeks; in the other, it is fully formed in a few hours." p. 14.

*"Of the Way of Attack without an Accidental Cause."*

510. The signs of this mode, are disinclination to food, lassitude, weakness; to these are added slight head-ache, and chilliness. In a day or two these symptoms increase; together with pain in the back and limbs; shivering, followed by heat and sweating; "so that a febrile paroxysm is established," p. 15. These recur daily; especially about noon. Others experience the exacerbation in the evening; others again, will be laid up from the very invasion—in these the symptoms run high. While some will complain for several days, and then be attacked suddenly;

and this frequently after a meal. This attack is not commonly attended "by any organic inflammation." p. 17.

*"Of the Way of Attack with an Accidental Cause."*

511. "That cause is generally a severe cold, from exposure to rain, wind, &c." The initial symptoms much the same, only perhaps more pronounced, and the chilliness, &c. will continue for two, three, or more hours; "when a violent reaction takes place, and the skin becomes hot and dry, the face suffused, with an increase of action of the heart and arteries." "When this fever attacks in this way, organic inflammations are apt to accompany it from the beginning." p. 18.

512. "The adynamic fever being produced in one of the two ways just described, it will be found to differ very much in severity: for which reason, and for practical purposes, it is expedient to divide it into degrees; and these may with great propriety be limited to four." p. 19.

*"Of the First Degree."*

513. This is mild; merely slight head-ache; sometimes none; some reaction. Appetite poor; tongue covered with a dirty white covering, except the end, which is red, with prominent papillæ, and moist. Cheeks flushed, eyes rather suffused; senses dull; great prostration for the existing symptoms. Urine scanty and high-coloured; bowels sluggish; seldom delirium; refreshing sleep during the night. p. 19.

*"Of the Second Degree."*

514. Considerable head-ache; sight and hearing less acute; noise and light unpleasant. Suffusion and fullness of face; bluish blush on the cheek. Considerable reaction; pulse frequent, rather full and strong, but compressible by moderate force; pulse deceptive; is open from want of tonicity, and may be mistaken for great fulness. Tongue the same, except that the coating is thicker and more dirty. Skin hot and somewhat tight; dusky suffusion on the skin. Bowels disposed to consti-

pation; belly distended. Urine high-coloured, and scanty; strength greatly prostrated. The patient on the side sometimes, and sometimes on the back. During the day drowsy; during the night delirious. p. 20.

“*Of the Third Degree.*”

515. Third degree severe; great prostration; patient lies on his back; breathes slowly and deeply, as one in a lethargic sleep. Unable to turn, and averse from motion. Can speak only in broken sentences. Tremors and twitchings of the muscles. Cannot stand if taken out of bed. Dullness and torpor of all the senses; obliged to repeat questions before an answer is obtained; complains of a dull pain in the head; great thirst.

516. Face void of expression;\* every feature relaxed; skin dusky; purplish, circumscribed flush on the cheek; eyes suffused and glassy, with shreds of mucous matter floating in them. Lips blue; teeth dry and shining; viscid mucus in the corners of the mouth, which is drawn into filaments when the tongue is protruded; this mucus dries, and covers the teeth and lips with blackish sordes. Breath peculiarly offensive. Tongue thickly coated; brown and dry in the middle; red and dry at the tip; whitish and moist at the sides. The pulse seldom exceeding 90; sometimes not above the natural standard; fullish, sometimes rather firm, but always more or less compressible. The skin dry and rather harsh; temperature variable; at one moment high, at another not much increased. Urine always scanty and high-coloured, and becomes turbid on standing. Belly full; tender on heavy pressure. Bowels generally sluggish; sometimes relaxed; dejections dark and offensive; restlessness; constant delirium through the night; frequent attempts to get out of bed; delirium sometimes in the day.

517. These symptoms change in a few days, for the better or worse. If for the better, prostration, lethargy, and dullness,

\* “Many of the characters of typhoid fever are unsusceptible of accurate description; and of these the most remarkable is the *expression of countenance*, so uniform as to make all typhoid patients, in a great degree, resemble each other.”—*Gregory’s Elements of the Theory and Practice of Physic*, 2d Am. Ed. p. 66.

diminish; patient turns upon his side; less viscosity about the mouth; tongue moistens, and commences cleaning; spontaneous diarrhœa of ochre-coloured stools; pulse natural; skin soft and moist; eyes brighten; skin clean; countenance more animated; delirium ceases; sleep refreshing; convalescence. If an unfavourable change takes place; there will be constant delirium; great jactitation; violent and frequent screaming, which only subsides with the powers of life—drowsiness increases; skin becomes purple; temperature sinks; extremities cold—death. p. 21, &c.

*“Of the Fourth Degree.”*

518. Soon as fever begins, the symptoms become grave. Patient lies upon his back, in nervous agitation, picking the bed-clothes; countenance haggard, and visage sharp; carotids vibrate; respiration quick; breath strong with the odour peculiar to this fever. The eyes suffused and sometimes convulsed, moving from side to side; eyelids depend, and there is a ghastly stare. Mouth parched; sooty coating on tongue, dry, hard; lips and teeth covered with black sordes. Skin hot, dry, harsh; frequently spotted with petechiæ. The pulse from 100, to 120; stroke unsteady, open; very compressible. Bowels relaxed; belly tender on pressure, and full; stools black and highly offensive, and passed with the urine involuntarily. Voice husky; articulation muttering; emaciation rapid.

519. Under these circumstances the disease frequently runs a rapid and fatal course. If the patient survive, recovery is slow. A favourable change is announced by the countenance improving; abatement of the violence of all the symptoms; and by a return of sleep and consciousness. Secretions return; tongue clears; ochre-coloured frothy stools. Urine more abundant; deposits a lateritious or brick-dust coloured sediment. Pulse less frequent, and gradually convalescence.

520. “When the secretions are re-established, and the tongue has cast off its fuliginous coat, the lips and tongue are left red, tender, and sore, and as it were raw. And this condition extends throughout the mucous lining of the intestinal canal, causing great soreness of the belly, keeping up the diarrhœa, and

rendering the stomach and bowels highly sensible to the operation of medicines, or the presence of undigested food; which makes it important to pay strict attention to this condition in the treatment of persons recovering from the adynamic fever." p. 26.

521. When it terminates fatally, all the symptoms are aggravated, strength diminishes; the patient continues supine, and motionless; the arms stretched out, or cross the chest; visage sharper; face sweaty and cadaverous; eyes fixed; eyelids nearly closed; belly tympanitic, temperature diminished, extremities cold; pulse rapid, small, and weak, faltering; life gradually extinguished. p. 27.

*"Treatment of the First Degree."*

522. "The character of this degree of the adynamic fever is so mild as to require very little medical aid."

523. "It is only necessary to supply the patient with good air and fresh linen; to keep the bowels rather freely open by any aperients; (as castor oil, rhubarb, magnesia, and senna and manna, but Dr. B. prefers rhubarb,) and to give a simple saline, as the liq. ammon. acet. in the dose of three drachms three times a day."

524. "No other food than gruel to be allowed till the headache and flushing of the face have subsided, and the tongue has become clean; when a nutritious diet may be gradually resumed."\* p. 206.

*"Of the treatment in the Second Degree."*

525. "The object is to moderate the symptoms, and to protect the various organs against an undue momentum of blood, which may lead to inflammation in any organ so disposed."

526. "This end will be effected by the abstraction of six or eight ounces of blood from a vein, which may be repeated in forty-eight hours, if the first bleeding has been beneficial, and circumstances call for a second; but if the general febrile excite-

\* It may be useful to solicit the attention of the reader, to this mild mode of treating typhus—here no stimulants are prescribed—no wine whey; no bark; no volatile alkali, are ordered.

ment has been moderate, and the head-ache is still severe, two or three ounces may be taken from behind the ear, with the cupping-glass, with great advantage."

527. "The bowels are sluggish, and the belly often flatulent; which must be counteracted by aperients given every or every second day, so as to keep them freely open; and the more dark and offensive the dejections, the more are aperients to be persevered in."

528. Calomel in two grain doses with six or eight of rhubarb may also be given as an aperient, "but as the belly is flatulent, which shows a disposition to the irritation and organic affection of the intestinal canal peculiar to this disease, it is prudent to use mercury sparingly, and towards the decline of the disease, discontinue its use altogether." p. 208.

529. A three drachm dose of the liq. ammon. acet. should also be given, every four hours. The night delirium requires no particular treatment. The hair should be cut close; and the head frequently sponged. p. 209.

*"Of the treatment of the Third Degree."*

530. Blood is not to be taken from the arm; but much relief is afforded by taking three or four ounces from behind the ear, by cupping, and this may be repeated, in a day or two if the stupor continue. A blister of not a large size should be applied to the crown of the head, in preference to between the shoulders. p. 211.

531. "It is in this degree of adynamic fever that the external use of mercury is so eminently serviceable; because of its unrivalled power to bring about, speedily, a re-establishment of the secretions; the mercury is to be rubbed in on any convenient surface of the body, as the inside of the thigh, in the quantity of about half a drachm of the ung. hydrarg. fort. every night and morning, till it effects the desired purpose." p. 211.

532. The bowels are to be daily moved by aperients, though the bowels be relaxed, and continued until as long as the stools are dark and offensive—rhubarb is particularly appropriate in six or eight grain doses. After the bowels have been well opened, and blood abstracted, a grain of opium, or hyosciamus may be given if the delirium and restlessness continue.

533. If the ochre-coloured diarrhœa supervene, it must be treated by “demulcent drinks, as barley water, rice water, gum water, and the like”—“as regards the diarrhœa no other treatment is called for, unless it be protracted and evidently affects the patient’s strength; in which case the irritation of the bowels must be allayed by small and repeated doses of opium, as three drops of the tinct. opii.”

534. “Sometimes at the commencement of this diarrhœa, the belly will continue flatulent and the dejections offensive; in which case the tongue, though nearly clean, will be dry and of a light-brown, and the cheeks will be flushed.” p. 234.

535. Aperients must here be used; but they must be given in very small doses. Rhubarb is to be preferred; and five grains is a sufficient dose, and repeated every six hours, until the dejections lose their offensive smell, and the tongue becomes clean. p. 235.

“*Treatment of the Fourth Degree.*”

536. “The treatment should be directed particularly to the intestinal canal, as the nervous excitement and debility are kept up and augmented by any loitering or lodgment of the black offensive fœces. Rhubarb, is unquestionably the best aperient.” Eight or ten grains of rhubarb with as much of the confect. opii. and one drachm of syr. zinzeb. in cinnamon water;\* and be repeated every four or six hours until the bowels are satisfactorily emptied. Castor oil if preferred may be given in two or three drachm doses in a glass of Sherry wine. The hair to be clipped; the head sponged with cold water; and tepid or warm ablution of any part of the body where the skin is dry and harsh is very refreshing. p. 215.

537. Mercury, as before advised, should be had recourse to, a saline effervescing draught of half its usual strength; as ten grains of the carbonate of potassa with two drachms of fresh lemon juice. As soon as the bowels are well cleansed, opium may be given as just directed, also a decoction of the bark, in

* Take of Rhubarb,	-	-	8 or 10 grains.
Confection of opium,	-	-	10 grains.
Syrup of ginger,	-	-	1 drachm.
Cinnamon water,	-	-	Enough to make into a draught.
			Mix together.

the dose of one ounce and an half;\* or the sulphate of quinine, in the dose of one grain, with one minim of the diluted sulphuric acid, and a drachm of the tincture of orange peel. The bark and effervescing mixture† to be given alternately. p. 216.

538. If the prostration be very great, and the bowels relieved, it must be supported by porter, or brandy and water; beginning with them very sparingly, and increasing according to necessity. p. 216.

539. We have thus given the general outline of Dr. Burne's account and treatment of typhus fever; it will be quickly perceived, that his plan is very different from that, which is generally pursued in this country by many practitioners for this supposed disease as supervening upon our miasmatic fevers, and as we have had occasion to remark at p. 152 et seq. With those who dread the onset of typhus in every species of fever; this practice will not be altogether approved of—"what," say they, "bleed, cup, and purge, when typhus is impending!! No, no, give bark, wine, volatile alkali, brandy, ether, phosphorus, &c. &c. if you mean to cure the disease."

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## CHAPTER VII.

### RUBEOLA, OR MEASLES.

540. **THIS** disease occurs for the most part in winter, and in the spring; at least its appearance is much more frequent at these periods, than at other portions of the year. It may, however, prove epidemic in the summer.

541. This disease is evidently influenced by the state of the weather; it is more moderate in mild, than in severe weather.

\* Decoction of bark.

Take one ounce of bark in powder.

One pint of water.

Mix, and let them simmer slowly for twenty minutes; permit it to settle, and give a wine-glassful every two hours.

† For effervescing mixture, see Appendix, Art. Effervescing Mixture.

542. It is the opinion of some, that measles is regular in its recurrence as an epidemic; the interval is said to be seven years. Whether this is rigidly the case, we are not prepared from present data to decide; it is, however, rendered probable, that there is either a regular return at this period, or at least, an approximation to it. It is said to be contagious; but this may be pretty fairly disputed, notwithstanding the imposing experiments of Dr. Home, who declared he propagated the disease by inoculation. An Italian physician, (Speranza,) declares he has succeeded in an attempt at inoculation by puncturing a full measles with a lancet, and inserting the blood that was yielded by the puncture; he declares he was successful in six cases. On the other hand, Dr. Chapman, (MS. Lectures,) says, upon this point, that "experiments of this nature were instituted in the practice of our Dispensary in 1801; in which the blood, the tears, the mucus of the nostrils, and bronchia, the eruptive matter in the cuticle, properly moistened, were all tried, and without success in any one instance."

543. Neither is it settled whether the constitution can be made to suffer the rubeolus action a second time; evidence is so entirely contradictory on this point, that it would not be safe to draw a positive conclusion, either in favour, or against it. One thing we may however safely declare, that if it be taken a second time, it is contrary to the ordinary character of this disease;\* or in other words, it is but an exception to the general rule, as regards several of the diseases which propagate themselves by specific contagion, as small-pox, cow-pox, hooping-cough, chicken-pox, &c. For it is now well ascertained, that exceptions do occur; we have ourselves known each of the diseases just enumerated, repeated and seemingly so unequivocally, as to leave no doubts in our minds upon the subject.

544. The measles are ushered in like other febrile affections,

\* There is a variety of this disease, however, which affords no protection against the genuine measles; this is called the French measles, or the rubeola sine catarrho. Dr. Gregory says this is "a very rare variety, and only interesting in a pathological point of view." We have had several opportunities to see this form of measles. Dr. Hosack witnessed it in 1813 in New York. It has never required any active treatment as far as we have observed.

by chilliness, languor, oppression, heat, and thirst, especially the first day; these terminate in a perfectly well-formed fever. Sometimes sickness, and even vomiting attend. The fever is pretty high from its first assault, but not regularly so; as it occasionally seems to augment for two or three days; and becomes very considerable at the time the eruption makes its appearance upon the skin, which usually is not before the fourth day. We have seen the eruption take place with but very little fever. Cough, a little hoarseness, slight sore throat, pain in the chest, and difficulty of breathing, are the usual attendants upon this disease. The eyes are particularly affected; they are always slightly inflamed, and the lids a little swelled; and these symptoms are attended by a plentiful secretion of scalding tears. Sydenham looks upon these symptoms as the most certain of the approach of the measles. The discharge from the nostrils is also abundant, as well as acrid, sometimes. Sneezing is almost a never-failing attendant upon this complaint.

545. The eruption almost always occupies the face and neck before it is observed elsewhere; it, however, for the most part spreads itself successively over the whole body. But should this not occur strictly, and the eruption show itself in "large red spots, not rising above the surface;" it may, nevertheless, be a genuine measles.\*

546. This eruption is mostly very florid; and it retains this colour for the first three or four days; after this time it becomes brownish, and then gradually vanishes, and is followed by a desquamation of the cuticle. "These red spots are composed," agreeably to the same author, "of small red pimples seated near each other, and rising a little higher than the surface of the skin, so that they may be felt upon pressing them lightly with the finger, though they can scarcely be seen."†

547. The eruption does not much abate the severity of the fever; at least the heat of the skin remains equally great; especially that of the head and neck, both of which have a look of greater fulness than natural. Sometimes, however, an abatement of fever may be observed after the completion of the eruption; but for the most part does not entirely cease until the cuticle is

\* Sydenham, Vol. I. p. 257.

† Ibid.

cast off. The vomiting which usually accompanies, or ushers in the disease, almost always ceases at this period; but the fever and cough seem rather to augment, and is very frequently accompanied with drowsiness.

548. We have said cough was an attendant upon this complaint; indeed it may be said to be of never-failing occurrence. It is in the commencement dry, frequent, and sometimes painful; but as the fever declines, it becomes more open, and oftentimes the expectoration is even great. Pneumonic symptoms very frequently attend measles; and sometimes this disease, when epidemic, is characterised by this tendency. We remember it to have been epidemic early in the spring of 1785 or 1786, at which time almost every case was marked by pneumonic symptoms of greater or less violence. This disease was of difficult management; it ran its course with unusual rapidity, and not unfrequently terminated in death; and in all instances almost, the cough was severe, obstinate, and of very long duration. Indeed, in many cases it yielded but to the genial heat of advancing spring, or to that of summer.

549. The only disease with which measles can well be confounded, is scarlatina; yet it is pretty easily distinguished from it by attending to the characters of each. The sneezing, the watery eyes, the severe cough, the pneumonic tendencies, all serve to distinguish the measles from scarlatina. Besides, in measles there is less swelling in the skin; the redness is not so uniform, nor is the tone of colour precisely the same. For in scarlatina, the tone of colour on the skin is much more vivid than in measles, and seems to lay beneath the cuticle—it is truly a scarlet colour. In measles the eruption has a mixture of the modena with the scarlet; that is, it has a shade of purple. Besides, in measles there is a little roughness to be perceived if the hand be slowly passed over the skin that is occupied by eruption; which is not the case generally, indeed very rarely, with scarlatina.

550. In measles, the eyes are much more sensible to light, and are very much more tearful than in scarlatina; nor are the fauces so much affected in the former as in the latter disease. Indeed, we have seen many cases of genuine measles, without the throat being at all affected, which rarely happens with scar-

latina. In measles, there is less certainty of a desquamation of the skin; indeed, in the former, it is more a branny scurf than a true desquamation.

551. As regards the prognosis, it may be observed, that this disease is dangerous in proportion as the head, the lungs, and the stomach may be affected. And in habits disposed to consumption, it is always bad, at least it is always to be feared.

552. Much fever without a corresponding quantity of eruption, or the latter making its appearance reluctantly, or of a pale or livid colour, is always a bad sign; and is usually attributed to a want of vigour in the constitution; but this is not so without exception, or perhaps it is very rarely the case. We shall again advert to this condition presently.

553. The abrupt disappearance of the eruption, or its becoming pale, is unfavourable, especially on the first day or two of the eruption; or if it be attended by severe vomiting, a great tenderness of the epigastrium, or a diarrhoea. Should none of these untoward symptoms take place, the case will most probably terminate propitiously. But we must be upon our guard not to mistake the ordinary progress of the disease for a retrocession of the eruption. For, as the disease usually runs its course in eight or nine days, the eruption is observed to disappear pretty generally at this time; and by the ignorant, is supposed to have taken place much too soon, and with a view of maintaining it upon the skin, stimulating drinks and medicine are freely exhibited, the patient is covered warm from head to foot, and every avenue for air is carefully shut up. In consequence of such treatment, the patient is thrown suddenly into imminent danger; fever is rekindled, cough and other pneumonic symptoms increase, and the eruption assumes a livid or black hue, and if not relieved soon by proper treatment, the patient quickly dies.

554. Death, when it happens, however, takes place in measles at different periods in the progress of the disease, which produces a difference in the phenomena observable in examinations; thus it has been known to prove fatal as early as the fourth day. When this event takes place so early, it is generally attributed to the "striking in" of the eruption; but this is not the case, were we to adopt even the popular language upon this subject;

for when a disease leaves the skin, or more properly speaking, when it is no longer maintained there, it is not because it has changed its seat, but because some portion of the mucous membrane may be too powerfully affected by an efflorescence similar in its nature to that which occupied the skin.

555. In this case, the peculiar action, or inflammation constituting measles, so far transcends its ordinary degree, as to destroy its peculiarity of action in either the mucous membrane of the bronchia, or of the stomach, or intestines; and consequently the peculiar sympathy of the skin which gave rise to the eruption upon its surface, could no longer be maintained, because the specific action on other parts, and from which the sympathy arose, no longer existed, in consequence of the inordinate or altered action in the original seat of irritation. The same thing occurs in variola.

556. In these cases, when pneumonic symptoms are severe, it would seem that the mucous membrane of the trachea, bronchia, and air cells, are found highly inflamed, and not unfrequently filled with mucous and bloody serum; this is especially the case when the patient dies in the early stage of the disease. In the later stages, ulcerations of the parts have been observed. In measles, the inflammation of the bronchial membrane has a strong resemblance to the efflorescence on the skin; that is, it exists in detached semicircles.

557. Measles seems to be more decidedly attended by that condition of the system called inflammatory, than almost any other of the eruptive diseases; or, in other words, its epidemic character is more frequently inflammatory than otherwise. There are exceptions of course, imposed by constitution, and season of the year; but above all by the epidemic peculiarity of the atmosphere; hence it is sometimes highly inflammatory, requiring the most active evacuations and extensive depletion by blood-letting, &c. to keep it in controul. While again it may have a highly malignant character, and for the relief of which we must have recourse to the opposite means.

558. Sydenham, however, did not order bleeding in the beginning, nor even at the height of the disease, though so fond of this remedy, under almost every circumstance at other periods of the disease.

559. This, in our opinion, shows how discriminating this great man was—for he would not prescribe for the name of the disease; the epidemic of 1670 does not appear to have been highly inflammatory; as a strict antiphlogistic regimen with demulcents, he informs us, “seldom failed to cure the disease.”

560. Therefore, regard must be had to the character the measles assumes; and they must be treated accordingly—if fever be high, cough and oppression severe, blood should be drawn immediately, though these symptoms occur at rather an uncommon period of the disease, namely, in its forming stage; for such changes may be imposed upon the character of measles by some constitutions of the air, or other cause, as render this at times absolutely necessary.

561. From this view of the constitutional differences of measles, it will at once appear, that its treatment must vary according to its specific character; or its form may be so mild as to require no medical treatment. We have not been under the necessity of bleeding but twice this season for this disease, though we have prescribed for more than one hundred up to this time, (April, 1829,) so mild has the character of the measles been.

562. In attacks of severity, especially where much cough, oppression, or pain in the chest attend; the first remedy we can probably use with advantage, is blood-letting; the quantity must be regulated by the age of the child, the force of disease, and the immediate effect of the remedy. It must however, be remarked, that in measles, though we are obliged to repeat this operation; it rarely requires large quantities to be drawn at a time; and the repetition must be governed by the state of the pulse, and continuance of the violent symptoms.

563. Much objection is made to bleeding in the measles by some; this fear is without foundation in most cases of this complaint; for as a general rule we may declare, there are few diseases which more decidedly require this remedy; for there are few in which the lungs are so seriously implicated. Under the best management, it is but too apt to leave a troublesome and obstinate cough behind; but this is sure to be augmented if blood-letting have been neglected where the case required it; and we

may most safely add, that this but too frequently happens; since this operation is but too often proscribed. It is true, if we are to believe authors, that now and then, the character of this epidemic is such as to *forbid* in almost every case, blood-letting; but this is only the exception to the rule. And we are disposed to believe, that these exceptions in many instances were imaginary, or rather that the true mode of treatment has been ill understood. Sydenham appears to be authority for this belief; for we are of opinion, that few would have bled under the circumstances, which he declares he found the maid servant of "lady Anne Barrington, who had the measles, joined with fever, difficulty of breathing, *purple spots over the whole body* and many other dangerous symptoms, all of which" says he "I ascribed to the hot regimen and medicines which had been too freely used. I directed bleeding in the arm, and prescribed a cooling pectoral ptisan to be taken often, by means of which, and a more cooling regimen, the purple spots and all the other symptoms went off by degrees." p. 264. Vol. I.

564. We had an opportunity in our present epidemic, (March, 1828,) of witnessing the advantage of this mode of treatment in a young woman of eighteen. She was attacked with measles, which made their appearance with great reluctance; on the day before they began to show themselves, she had been taken with her menstrual discharge—but the moment the measles began to appear her catamenia ceased. She now became very much oppressed; breathing laborious; coughed almost incessantly; complained much of her head; was slightly delirious; tongue loaded and very white; breath offensive; could not lie down, without a sense of suffocation; measles not abundant, but very dark-coloured, with a frequent, rapid pulse. She was bled fourteen ounces, and purged with salts and magnesia; directed to drink very freely of barley water, and to be allowed nothing besides. On our visit the following morning, we found her relieved of all her unpleasant symptoms, and the measles in plentiful quantity, and of a healthy appearance; cough nearly gone; free from all pain, and a plentiful flow of the catamenia. She recovered rapidly.

565. There are few diseases which put on a menacing appear-

ance, that are worse treated than measles; especially when the eruption is about to take place. Should this fail to be as rapid in its evolution, or as extensive in its diffusion as meets the views of some old women, or ignorant nurse, the disease is almost sure to be converted by stimulating applications into one of danger, however simple it might have proved, had its course and tendency, been undisturbed. With a view to promote an eruption, heating teas of various kinds, and even liquors are given, to the certain injury, if not to the absolute destruction of the patient—this conduct cannot be too strongly reprobated, or too peremptorily forbidden.

566. The same error is committed almost always, where the eruption seems tardy, or reluctant in its appearance: for it is wrongly imagined, that this can only proceed from a want of force in the system; and that the efforts of nature must be seconded by heating teas of various kinds, wine whey, milk punch, &c. when nothing could have relieved the oppressed system, but blood-letting, and other evacuating remedies. And hence we are disposed to believe, this disease so frequently proves fatal. For if the pathology of the measles, now so generally assumed be true, the cause of the eruption not appearing upon the skin may be owing to the intensity of gastric irritation, or inflammation, as we have already attempted to explain, which requires the loss of blood from the system at large, or from over the region of the stomach, by leeching or cupping.

567. In aid of the bleeding we should employ calomel, so as to freely discharge the bowels, without urging them to brisk purging. And also to prescribe a strict antiphlogistic regimen;\* together with demulcent drinks, as flaxseed tea, barley water, bran tea, gum Arabic water, &c. It may also become necessary, where the pneumonic symptoms continue after bleeding, to draw blood from near the seat of the local affection by cupping; and this to be followed by a blister.

568. When the system is sufficiently reduced to bear opium in some form or other, it should be administered, so as to ap-

\* We have already defined what we wish to be understood when we prescribe a strict antiphlogistic regimen. See pars. 207 to 217.

pease the cough, which but too often is very distressing;\* or we may give the denarcotized laudanum, the "black drop" or the acetated tincture of opium. Either of these should be administered at night, in combination with antimonial wine, in suitable doses—for instance; a child from two to four years of age may take three or four drops of the black drop, with ten of antimonial wine at bed time, or double this quantity of the laudanum; and should this not relieve the cough, and appease the inquietude in two hours, it may be repeated—for children more advanced, we must increase the dose a little. But a few trials of rather an under-dose will soon lead to the knowledge of the required quantity. For children under two years old, we have found the syrup of poppies to answer admirably. This may not only be given at night, but also in the day, and may most advantageously be repeated, as the necessity arises; from a small tea, to a pap-spoonful will be sufficient for a child from six months to two years old.

569. Should the character of this disease be typhoid,† the lancet must be sparingly used, and perhaps not at all, except in the beginning; but when there is great oppression, or pain in the chest, with much cough, cupping will be found both necessary and advantageous—this must for the most part be followed by blistering.

\* We have found the following mixture answer admirably well:—

R. Sperm. ceti	- - -	ʒij.	Take of spermaceti	-	2 drachms.
Vitel ovi	- - -	j.	Yelk of an egg	-	1
Pulv. g. Arab.	- - -	ʒij.	Powdered gum Ara-		
Elix. paregor.	- - -	ʒvj.	bic	- - -	2 drachms.
Vin. antim.	- - -	ʒss.	Paregoric elixir	-	6 drachms.
Sacch. alb.	- - -	ʒij.	Antimonial wine	-	4 drachms.
Aqua font.	- - -	ʒvj.	White sugar	-	3 drachms.
M.			Water	- - -	6 ounces.
			Mix.		

Of this a table-spoonful is to be given every two or three hours, until the cough is relieved. This dose is calculated for an adult—for children the quantity must be proportional. *Note.*—To make this mixture, the spermaceti and the yelk of the egg must be first rubbed together until well incorporated—add then the gum Arabic and the other ingredients in succession; when these are well mixed together, let the water be added gradually—keep it in a cool place.

† We are of opinion that too much care cannot be taken, not to confound what is termed a typhoid condition, with an existing inflammatory state of the system; witness the case related by Sydenham, p. 474, and also p. 564.

570. Emetics are also useful in this species of measles, and should be employed where there is great accumulation of phlegm, and the expectoration but inconsiderable. Mercurial purges are also to be given, even to plentiful purging. It is occasionally useful to employ the *warm* but not a hot bath; especially where the character of the eruption is not sufficiently healthy; looking either too pale or livid, provided the pulse is not so active as to require bleeding.

571. Should the appearance of exhaustion supervene, we must have recourse to the diffusible stimuli, as wine whey, and the volatile alkali; and these may be aided by blisters to the extremities, or by sinapisms to the soles of the feet.

572. It is of much consequence, throughout the whole course of this disease, that the temperature of the air of the patient's chamber should be regulated, and not made to exceed sixty-four or five; sixty perhaps would be the best standard. This temperature would be warmer than would be useful for small-pox; measles however requires this; but it is never proper to keep the patient hot, either by a heated atmosphere or bed-clothes. The constant disposition to cough will readily explain, why measles requires a higher temperature than small-pox. Dr. Gregory observes that "it is well ascertained, that these, (the symptoms of thoracic inflammation,) are often aggravated by a free exposure of the body to cold, either during or previous to the eruption; and some have remarked, that this aggravation of the catarrhal symptoms, is occasionally attended by a *recession* of the eruption; moderate warmth therefore, is on all accounts advisable in measles."

573. Measles but too frequently leave disagreeable consequences behind them; especially cough. This secondary or supervening cough, is too often neglected, owing to the belief that more or less must necessarily follow this disease. This affection takes place after the patient has gone through the eruptive stage; and dissection reveals, that it is owing to an inflammation having attacked the mucous membrane of the bronchia. This complaint comes on sometimes so insidiously, that it makes a fatal progress before danger is apprehended; we should therefore never trust to nature and time a patient, in whom a considerable difficulty of breathing exists, accompanied by a wheez-

ing; nor must we be deceived, because the cough is not severe; for in some of the worst cases, the cough is not always violent.

574. The cough for the most part is dry and fatiguing; and comes on by paroxysms. The pulse is hard for the most part, and always frequent; great thirst, tongue loaded, bowels constipated and a hot skin. This is a state of great danger; the bronchia are soon filled with mucus, and the patient dies from the failure of the due oxygenation of the blood. This complaint must be treated as an acute bronchitis.

575. A deranged state of the bowels may also follow, particularly if the disease has been ill-managed, by over-stimulation, exposure, or improper diet, too soon after the fever has passed away. On this account a patient recovering from this disease, must never be exposed to cold, or damp; should be confined for some time to a milk and vegetable diet; and made to wear in cold, or cool weather, flannel next the skin.

576. Sydenham informs us, that the diarrhœa following measles, has always been best relieved, by blood-letting.

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## CHAPTER VIII.

### APOPLEXY.

577. THIS formidable disease early attracted the attention of medical writers; hence, we find it mentioned by almost every one of them from the time of Hippocrates to the present day. And in no other disease, perhaps, have descriptions been so accurate, or so uniform. But notwithstanding this harmony in the history of the symptoms of this disease, its pathology has not been ascertained until within (comparatively) a very short time. Morgagni, and his cotemporaries, were among the first cultivators of pathological anatomy; and the diseases of the head, from their severity and frequency, particularly attracted their attention; especially Morgagni. In his great work, he has left us the dissections of a considerable number of apoplectics, agreeing in detail pretty

much with those of later observers, but without being arranged in such order as to enable us to draw any important practical distinctions from the varieties of appearance he discovered in the brain. Extravasations were met with in a great majority of instances, but without his coming to a conclusion that there was any coincidence between the part of the brain occupied by them and the symptoms that had preceded death.

578. Indeed, the presence of a foreign body within the cavity of the cranium, was held sufficient to account for all the phenomena of apoplexy; and here enquiry appeared to cease, until within a very short period. And it is to Serres that the honour is due, of having first suggested and traced the connection between the accompanying symptoms of this disease, and the various lesions of the brain and its appendages, which gave rise to them; but of this, more by and by.

579. Several definitions have been given of apoplexy, all of which agree in its principal phenomena, yet no one demonstrating its absolute character, as will be seen as we proceed. Apoplexy is said by Dr. Good to consist of "mental and corporeal torpitude, with oppressive, mostly stertorous sleep."\* This definition is concise, but fails perhaps in rigid accuracy. Dr. Cooke's is rather more comprehensive, and less objectionable. He very modestly says, "perhaps apoplexy may be thus defined—it is a disease in which the animal functions are suspended, while the vital and natural functions continue, respiration being generally laborious, and frequently attended with stertor."†

580. This disease sometimes takes place so suddenly, as to preclude all cognizable premonition; at others, there may be a short warning; while again, it may advertise its approach by a number of well marked and decided symptoms. These different onsets of apoplexy appear to be governed altogether by the condition of the brain itself, or of its meninges, at the moment of attack, or a short time previous to it.

581. When warning is given, the following circumstances generally obtain. A sense of heaviness, or weight, attended by pain in the head of less or greater intensity; vertigo, or only a

\* Study of Medicine, Am. Ed. Vol. III. p. 394.

† Dr. Cooke on Nervous Diseases, Vol. I. p. 166.

slight dizziness; disposition to sleep; disturbed, and oppressed sleep, or nightmare; involuntary contractions of the muscles of the face, especially during sleep; spasmodic affections in various parts of the body; redness, and fulness of the face; injected eyes; inspiration more deep than natural; indistinctness of vision; ringing in the ears; bleeding from the nose; faltering of the speech, or employing inappropriate words; failure of memory, and diminished sensibility of both body and mind.

582. After these symptoms have continued a longer or shorter time, or without any discoverable previous intimation, the patient falls prostrate, and lies as if in a profound sleep, but from which he cannot be roused by any excitation. So analogous in appearance is apoplexy to profound sleep, that at first sight it might be difficult to distinguish them, and which led Boerhaave to declare it to be its true image.

583. Stertor is not a necessary attendant upon apoplexy, though it is of frequent occurrence; nor is the patient entirely deprived of all capacity of action, if it be admitted that he is of all sensation—for the application of powerful stimuli will produce contractions of the muscles, though this may not be attended by consciousness. Dr. Cooke says, “in the strong paroxysm, persons are said to be entirely deprived of sensation and motion; but the power of moving is occasionally apparent, and we cannot be certain that the power of feeling in these cases is wholly abolished. I have seen patients in this disease shrink on being cupped, and move their hands towards the head, as if feeling uneasiness there.” p. 168. We have repeatedly witnessed the same thing, which has constantly led us to believe that all sensation was not destroyed, as the hand directed to the spot on which the stimulus was applied, cannot be regarded as a mere automatic motion.

584. Dr. Wilson Philip thinks, that the power of the voluntary muscles remains; as he declares he had repeatedly examined the state of these muscles in apoplexy, both in warm and in cold blooded animals, and found their excitability unimpaired. He therefore is of opinion, that it is not their power, but the stimulus which excites them, that is lost in apoplexy.

585. Respiration, for the most part, is much affected in this disease, and seems to be laborious in proportion to the extent of

the proximate cause. It is not, however, suddenly embarrassed, as it gradually augments as the disease continues—thus, it is frequently slow and regular in the commencement, though it may be laborious; while towards its close, it may become extremely slow, or very frequent, and irregular. It is said that the danger is in proportion to the derangement of this faculty; and that which is very laborious and irregular may be looked upon as one of the most unfavourable symptoms. It is observed by Dr. Cheyne, that “immediately before death, the respiration is irregular, and is performed not oftener perhaps than three or four times in a minute.”

586. This slow and laborious breathing is generally accompanied by stertor. And when the disease is attended by this symptom, both Boerhaave and Portal, consider it in its most aggravated form. There is also a quantity of saliva blown from the mouth in the form of foam, which also marks the intensity of the disease.

587. The pulse is constantly affected; in the beginning it is for the most part slow, regular, full, and hard; but in a few hours, M. Serres informs us, both it and the respiration become much affected. He says, “in a few hours after the invasion (if the brain have not already suffered laceration on some point of its various surfaces,) the respiration becomes considerably slower than natural. The venous blood thus experiences a mechanical obstruction to its return to the heart, and the latter organ begins to react in proportion; the pulse accordingly becomes hard, and frequent; the artery vibrates as it were under the finger; in short, the action of the heart is quickened in proportion as the respiratory process is retarded. And agreeably to Dr. Cheyne, the irritability of the heart survives the respiration. “Sitting, with my finger over the artery of a person who died of apoplexy, I distinctly felt the pulse beat after the last expiration.” (p. 14.) The pulse in the beginning of the attack, rarely exceeds fifty strokes in a minute.

588. Indeed, in one case, and that slight, as the patient recovered his senses in a short time, the pulse was not more than thirty-four strokes in the minute; full, tense, and equal. We cannot say what was the state of the respiration, as we did not see him until he was able to give an account of himself. The attack

was sudden and without warning, according to his own statement—he was suddenly seized while walking in the garden at his country seat, and fell upon the ground. How long he remained in this situation he cannot tell; but it was a considerable time he thinks, by the apparent waste of the day. No one saw him in this situation; after this his head remained giddy and rather painful, especially on the left side.\* We saw him for the first time, the day after these events had taken place; he was much weakened; head always slightly painful, and occasionally, considerably so; his breathing pretty free, though the expiration was performed rather suddenly, especially after talking a little. The pulse was at thirty-four at most, occasionally as low as twenty-eight, indeed, a number of times not more than twenty-six strokes in a minute;† there was nothing like paralysis in any portion of the body. Depletion was as frequently employed during the period of three months, and in as liberal a manner, as was consistent with safety for one, who had exceeded seventy-three years, and who was naturally of a feeble constitution.

589. He gradually recovered nearly his usual state of health; and remained so until a few days over a year from the attack just spoken of. At this period he began to experience a heaviness and occasional pain in the head; his pulse keeping about thirty-two, tense, and full—he lost a few ounces of blood, was purged and kept upon a very abstemious diet for some time, by which means these symptoms disappeared. He remained in this situation for two months, when pretty soon after dinner, he fell suddenly from his chair upon the floor. We were instantly sent

\* This gentleman had for three or four weeks, five or six times a day, what he called “shocks,” through the brain, especially upon the whole half of the left side. These “shocks” would be both painful and astounding for some minutes together.

† This patient was a remarkably close observer—he very frequently examined his pulse by an accurate stop-watch with a quarter second movement—he recorded all the sensations he experienced, and marked each varying change—he was learned, and very studious, and consequently very sedentary—a very moderate feeder, and never drank any thing stronger than a weak mixture of claret and water, and not much even of that, and this only at his dinner. His bowels always, very regular in their motions; indulged but little in bed, and habitually an early riser—not given to any sudden gusts of passion, and of a cheerful disposition. He had been subject many years however, to a catarrh of the bladder, and slight irregularities in his urinary discharges.

for; but living at a considerable distance from him, three-quarters of an hour had elapsed before we saw him. He was still lying on the floor, with his head elevated; but pale; his mouth drawn to one side, and senseless. It was stated, that he was slightly convulsed; frothed at the mouth, and snored; his fæces and urine were discharged during the paroxysm.

590. His pulse was twenty-six strokes in the minute, and scarcely perceptible; his breathing not much affected; the skin bedewed with a cold clammy sweat; but little more of the eyes could be seen than the whites; strabismus; and a considerable quantity of a tenaceous saliva running from the mouth.

591. We caused his legs to be rubbed with hot brandy and mustard; spirit of turpentine was applied to the region of the stomach, and a number of hot bricks were placed at different parts of the body. Reaction soon after took place; the skin became warmer; the pulse more expanded, but not more frequent; the countenance more composed and less ghastly; the mouth however remained contracted; though the squinting was removed. He became gradually sensible of things around him, though he could not articulate when he attempted to answer any question. He now lost eight ounces of blood from the arm, with marked advantage, as his speech returned while the bleeding was performing. He gradually mended, and went to the country, and while there, was again assailed by similar apoplectic symptoms; these were not of long continuance, or of great severity, but they were followed by a paralysis of the right side. He was cupped, and purged; and in a few days after, was put upon the use of the white mustard-seed, under the use of which, he is gradually acquiring the use of his arm and leg. His pulse, during the whole progress of this affection, never exceeded thirty-four strokes in a minute, but has been occasionally, as low as twenty-six.

592. This case is remarkable in several of its particulars; first, the mildness of the original attack—the second, being attended, with several threatening symptoms, such as the partial paralysis of the face; the distortion of the eyes, and the loss of speech, all of which disappearing, and the patient regaining, nearly his ordinary health—the third, being followed by a paralysis of one side, without the loss of speech or drawing of the

mouth, but above all, the long-continued (nearly two years,) and uniform slowness, of the pulse.

593. The temperature of the skin is sometimes higher than natural; at other times, it is cold and sweaty—the latter sometimes, even to profuseness; in other instances, a well-marked febrile condition of the system may be observed. Dr. Cooke says that “fever however is not generally mentioned in the history of apoplexy and I believe seldom accompanies it.” (p. 173.) We do not ourselves think, that fever necessarily belongs to the history of this disease, but nevertheless we have seen it well marked in several instances.

594. The eyes in this disease, are generally injected, and rather prominent, sometimes they are only half closed, at other times completely shut. The pupil for the most part is dilated, and others greatly and permanently contracted. Dr. Cooke says, “in some instances I have seen the pupils contracted to a point, and a physician of eminence of my acquaintance has likewise observed this appearance of the eyes in apoplexy; yet although all writers on the subject mention the dilatation of the pupils, I do not find any one, (Aretæus among the ancients, and Dr. Cheyne among the moderns, excepted,) who has noticed the contracted pupil in these cases.” p. 174.

595. The teeth are frequently clenched very firmly together; so much so sometimes as to render it extremely difficult, to get any liquid into the mouth; nor is it unusual in an attempt of this kind, to find it returned by the nostrils.

596. As this disease approaches to a fatal termination, the symptoms become more and more intense—the abolition of sense and motion becomes complete; the pulse becomes weak, very frequent, and indistinct, and these symptoms are sometimes followed by convulsions, which close the scene; at other times, the extinction of life is so gradual, and so tranquil as scarcely to be observed when it takes place. The duration of this disease, will be very much influenced by the force and number of the remote causes; and the extent and location of the lesion they may produce—thus, it may happen in a few minutes or within an hour, or it may persist for days. We agree with a number, who believe that many of those sudden deaths attributed to this disease, depend upon some disease of the heart, or of the large blood-vessels.

*Predisposing Causes.*

597. Various causes have been assigned as predisposing to this disease; as hereditary transmission by conformation; this by some has been considered as well grounded; Forestus in confirmation of this opinion, mentions a father and three sons dying of apoplexy;\* old age is also said to be predisponent to this disease; Rochoux is of this opinion. The translation of gout; the suppression of accustomed evacuations; and the repelling of certain eruptive affections, have always been considered with great propriety, as belonging to these causes.

598. But this must certainly be contingent, since we find no age exempt from it. Serres says, "it is an established fact that apoplexies may attack all ages—I have observed them in all the periods of life, from the age of three years, up to decrepid old age."† And Rochoux gives a statement of sixty-three cases, in the following order:—

Age.	Number of cases.
From 20 to 30 years	2
30 to 40	8
40 to 50	7
50 to 60	10
60 to 70	23
70 to 80	12
80 to 90	1

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Total, 63‡

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599. This table goes far to prove the accuracy of Hippocrates' statement, that apoplexies chiefly take place between the fortieth and sixtieth years; though not altogether confirmed by the observations of Serres. Rochoux remarks upon these cases, that there are more people living of the age of sixty than of seventy;

\* Dr. Cooke on Nervous Diseases, Vol. I. p. 199.

† Philadelphia Journal of the Medical and Physical Sciences, Vol. VIII. p. 294.

‡ Recherches sur Apoplexie, p. 212.

but that he can hardly believe that the number is double, yet it is seen, that the age of sixty has furnished almost double the number of apoplectic subjects. Besides, if it be admitted, that there are more of the age of sixty than the age of seventy, there are also more of fifty, than of sixty, yet the latter age gives more than double the number of patients. By this it may be perceived, that the predisposition to apoplexy increases towards sixty, and diminishes towards seventy. That this disposition is but little, before thirty, and that the number is extremely small before twenty; and the influence of temperament, is very far from furnishing the same results; the sanguine, sanguino-bilious, and the sanguino-lymphatic, furnish nearly an equal number of cases of this disease.”\*

600. Serres has declared that apoplexy may take place at any period of life; if this be so, dentition in children must be looked upon as a predisposing cause, with them. The sudden alterations in atmospheric temperature, as well as moisture have ever been looked upon as predisponents. Large heads and short necks; and, agreeably to Ponsart,† a small head equally disposes to apoplexy. Obesity, gluttony, drunkenness, &c. Temperament, agreeably to Rochoux, seems to have no very marked influence.

#### *Exciting Causes.*

601. Among the exciting causes, an over-charged stomach, is considered by many as the most common; excessive venery, especially in aged people; passions and emotions of the mind; labour in females, especially with the first child; sudden application of cold, &c. The mode of action of these causes, is, by increasing the force and rapidity of the circulation, as well as an especial determination to the head; yet it is evident, that there must be causes which constantly produce these effects, even in a more violent degree, yet they do not produce apoplexy. Rochoux directs our attention to tumblers and montebanks, who stand long upon their heads; who will place an anvil upon their belly,

\* Recherches sur Apoplexie, p. 213.

† Traite de l'Apoplexie et de la Paralyisie, p. 14, as quoted by Rochoux.

which they allow to be forcibly struck with a hammer, &c. If then apoplexy has taken place from apparently slight causes, we must attribute it to some alteration in the vessels of the head; their having become too weak to prevent the escape of the blood with which they are filled. Of this it might be easy to convince ourselves, by taking at random, a twentieth part of the histories of apoplexy; the three-fourths of which would be found to have had a paroxysm, without being able to suspect the cause. And is it not probable, that the other fourth, may assign causes for this disease, which were altogether fortuitous, and have had but a trifling agency in the production of it?" p. 218. The too frequent and long-continued use of the warm bath. We once witnessed this affection in a young lady, after having her feet and legs placed in very warm water; she fell suddenly from her chair, with all the usual marks of apoplexy attending—she was largely bled; and other means were liberally employed, before she recovered—she suffered with head-ache many months after this attack.\*

### *Pathology of Apoplexy.*

602. "A man falls down with all the symptoms of apoplexy, but by bleeding, purging, and other means, he perfectly recovers. Another dies under apparently similar circumstances and treatment, and, on dissection, extravasation of blood is found within the head. A third dies of apoplexy, and only serum is effused. A fourth presents after death only a turgescency of the vascular system of the brain; while a fifth, who dies with every symptom of perfect apoplexy, presents on dissection, no cognizable trace of lesion in the brain, or any other organ of the body. These various and contradictory appearances, post mortem, would seem to offer an insuperable objection to any fixed pathology of apoplexy; or at least, might apparently sanction a division of the disease into different species. Nevertheless, we will endeavour to maintain an identity of morbid state, or in other words, of

\* Fourcroy relates the case of a person, who immersed himself in a bath of 66° of Reaumer, equal to 180° of Fahrenheit, and who fell down an hour afterwards apoplectic. And Buchan gives an account of another who was seized with paralysis after having subjected himself to a very warm bath.

pathology in apoplexy, whatever may be the appearances after death. We consider *pressure*\* on the cerebral mass, or its appendages, as the real *efficient* cause of the apoplectic phenomena in every case.”†

*Proximate Cause.*

603. This opinion of the proximate cause of apoplexy has been almost universally adopted within the last few years; and the result of very many post mortem examinations would seem to confirm it. Its truth has, however, been lately called in question by M. Serres. He endeavours to prove that pressure is not the cause of apoplexy, and commences by asking, “are effusions the cause or the effect of apoplexies?” He determines this question in the negative, from the result of the following experiments. ‡ They are first conducted on animals, and secondly upon the human subject.

604. *Experiment I.*—An old dog was trepanned immediately over the superior longitudinal sinus—the sinus was opened by a bistoury its whole length, and the external wound was closed, that a sanguineous effusion might take place. In three hours its natural state was so little changed, it was doubted that effusion had taken place.

605. “On opening the cranium, we found a very considerable clot of blood between the lobes, and a second extended to the left hemisphere.”

606. This experiment was repeated upon a young dog, lest it might be thought that in the old dog the sinking down of the brain might leave a void between it and the cranium. The result was the same. In neither instance was there the slightest appearance of apoplexy. Rabbits and birds were subjected to similar trials with like results—“no somnolency, none of the symptoms which accompany apoplexies.”

\* We have taken for granted, that the word *pressure*, as employed in this quotation, referred to this mechanical act, from extravasations within the cranium—in this we may be wrong; and if so, we beg its author’s pardon, for having mistaken his meaning.

‡ *Medico-Chirurg. Review*, p. 7. Vol. I. for 1820.

† We have even abridged the short histories of M. Serres’ experiments, by only retaining such parts as bear upon the points at issue.

607. "There was already strong presumption against the generally received opinion; for I could compare this effusion to those which occur in the course of apoplexies between the dura mater and the arachnoid coat, or between this and the pia mater—apoplexies in which the substance of the brain is not involved."

608. "*Artificial Effusions in the Ventricles.*"—To determine the effects of this, a number of experiments were ingeniously made, by penetrating them with a sharp instrument. The corpus callosum of a grown dog was pierced, and the point of the instrument made to enter the left ventricle. The instrument was withdrawn, and the wound closed.

609. "The animal had a vertigo of a minute's duration—it was uncomfortable the whole day—had a little agitation in the pulse, and violent thirst, but there was no somnolency; his sleep in the night was troubled. In the morning, he walked about the laboratory. In three hours the cranium was opened; the effused blood had filled the great fissure between the lobes, and penetrated the left ventricle, which contained an ounce and an half of it—a small cavity was found in the anterior part of the corpus callosum, (middle lobe.)" This experiment was repeated upon a rabbit with a similar result.

610. "*Artificial Excavations formed in the Cerebral Substance.*"—An old dog was chosen for the experiment. Two drachms of the left hemisphere of the brain was removed by a bistoury; no sleepiness or impeded respiration followed its removal. An excavation containing a coagulum of the size of a nut was situated in the middle of this lobe. On another animal, a cavity was made in each lobe of the brain with like result—no apoplectic symptoms. The same was performed on a pigeon—no somnolency.

611. *Experiment Sixth.*—"I made an artificial opening into the middle part of one of the hemispheres; I took away a certain quantity of the cerebral substance—I thrust a cork into the aperture in the manner of a plug, so as to augment the pressure. There was a complete hemiplegia, but no apoplexy, no somnolency." These experiments were repeated upon rabbits, birds, oxen, and horses, with like results. From these the following important deductions are made.

612. "Thus sanguineous effusions do not produce apoplexies,

whether they be lodged between the cranium and the dura mater, or between this membrane and the brain—whether they occupy the grand interlobular fissure, and in this manner rest upon the corpus callosum—whether we have formed a cavity in the hemispheres, before, behind, or in the middle, or pierced it from one side to the other—whether in fine, in traversing the corpus callosum, (middle lobe,) we had penetrated into the ventricles, and filled these cavities. The same result with rabbits, the same with birds, the same result upon dogs. The apoplexy of man, therefore, cannot be attributed to the presence of the effused blood, whatever place it may occupy; whether it be found out of the brain, or in the cavities of that organ, or lodged in its proper substance.”

613. “*Experiments relative to man.*”—“Do the facts of pathological anatomy relative to the brain of apoplectic persons contradict my experiments?” He refers for the answer to this question “to the annals of our science.” He cites a case from Vesalius, of a child of two years old, having nearly nine pounds of “serosity” in the circumvolutions, and ventricles of the brain, yet there was neither “somnolency, convulsions, or paralysis.” Another from Wepfer, of a man of seventy, who died of consumption, and who “had spoken to the moment of his death,” in whose “ventricles and between the meninges a great quantity of limpid serosity” was found. Another witnessed by himself, in which there was delirium to the moment of death; the brain was a little softened, and “an enormous quantity of serosity occupying its infractuositities, the four ventricles, and the canal of the spine.” In an old man of seventy, who died of dropsy, and who preserved his senses to the last moment, was found a sanguineous serosity in the left ventricle of the brain, and clotted blood in the right.

614. His seventh “observation,” relates to a person who had been three weeks recovered from an apoplexy, but who died of a pleurisy on the seventeenth day of his new disease. “On opening the cranium, a clot of blood of the size of a small egg, was found lodged in the cortical substance of the great left lobe.” The eighth, was a patient who sunk “into an adynamic state the eighth day after his entry into the hospital.” “The apoplectic attack which had produced hemiplegia, had taken place

six weeks before his death. Since that time no symptom of apoplexy—on opening the head, a sanguineous effusion was found in the middle of the great lobe. The ninth, was a woman who died of puerperal fever. “A hard coagulum was lodged in the certical substance of the right lobe—this woman had a “*coup de sang*,” two years before. His tenth, eleventh, and twelfth, are in the main of a similar character and go to prove the same position, that extravasated fluids may remain harmlessly in the brain after the symptoms of apoplexy have been removed, and consequently, that neither effusions in the ventricles, or on, or in the substance of the brain, nor excavations of its medulla, are the causes of apoplexy.”

615. Mr. Serres informs us, that the above observations were selected from twenty-two analogous cases, which he had collected in the hospital of “La Pitié.” From these facts he decidedly infers, “if compression by fluids be the cause of apoplexy a direct consequence is, that—*no apoplexy can exist without effusion*. Now I am only embarrassed” he says, “in the choice of authorities and facts to prove the contrary.” And eventually declares from these premises, that there are apoplexies without effusions; and effusions without apoplexies; and that he is “led to a belief that the effusions are the *effects*, and not the *cause* of apoplexies.”

616. He next attempts to ascertain, whether apoplexies offer any appreciable differences during their developement and continuance; and whether these, have any constant relation to the seat of the disease, and whether this is supported by dissection; and lastly, whether the seat of apoplexies can be determined by the presence or absence of these certain symptoms, and thus establish a mode of treatment. During his endeavours to distinguish sanguineous, from serous apoplexies, he discovered, that this disease presented two different forms—one simple, and the other always complicated with paralysis.

617. He now asks, “was this remarkable circumstance the effect of accident, or did it depend upon discoverable causes?” The answer he says “was given to me by the histories of an hundred apoplexies.”

618. “Of this number, twenty-one were simple; seventy-nine were complicated with paralysis. Of the first, dissection gave

the following results—sixteen had collections of serum either in the ventricles and cerebral convolutions, or in the ventricles, or in the convolutions separately; one had a sero-sanguineous collection in the left ventricle; two had similar collections between the arachnoides and pia mater in both hemispheres; and two were without any collection.” In all these cases the *brain* was sound; but the *membranes* were affected in various degrees; the vessels were injected, thickened, opaque, and sprinkled with miliary granulations.

619. From the constant correspondence between the alterations of the membranes, and the effusion, he was led to suppose there was some connection between them; he was therefore led to the conclusion, that in the meningeal apoplexy, the *membranes* are *primarily* and *principally* affected, and that the *various effusions* which are met with are nothing but the *effects* of these alterations.

620. Whereas, in apoplexies complicated with paralysis, there were no effusions, either serous or sanguineous in the natural cavities of the brain, nor in the space between duplicatures; no alteration in the texture of the membranes—but the *brain* was materially altered in structure—excavations were dug in its substance; the whole surrounding texture bore marks of irritation. The blood which was extravasated, was found to proceed from a rupture of a vessel, which was proved by filling the carotids with fine injection, and observing that it penetrated the cavities.

621. He now enquires, why all the cerebral apoplexies, (that is, apoplexies attended by lesions of the brain,) should be accompanied by paralysis, while the meningeal, should not be attended by a loss of motion. He answers these questions by saying that apoplexies followed by paralysis, is the necessary effect of an organic alteration of the proper substance of the brain, while in meningeal, or simple apoplexies, the brain being sound the capacity for motion would remain unimpaired.

622. From these important, and interesting facts, he arrives at the following novel deductions:—1st. That, when apoplexy is not complicated by paralysis, the disease is seated in the membranes of the brain. 2d. That when attended by palsy, the brain is the seat of the irritation. 3d. That serous, or sero-sanguineous, bloody, or purulent collections, are effects of irrita-

tion of the membranes, or the brain, or of arterial, or venous rupture.

623. He thinks, from these considerations, apoplexies should be designated as follows:—1st. *Meningeal apoplexy*—is apoplexy without palsy. 2d. *Cerebral apoplexy*—apoplexy with palsy. Thus he thinks we are enabled to determine the nature of the disease we have to contend with during the life of the patient. If it be simple, the patient can move his limbs; the disease is then in the membranes. If he cannot move his limbs, and the mouth distorted, it is a cerebral apoplexy, that we have to encounter.

624. “The meningeal apoplexy principally attacks youths from the age of fifteen, and old men past sixty—it generally affects females before the last named period.” “Of forty meningeal apoplexies, there were thirty-two in females, and eight in males.

625. *Attack.*—“Physicians have differed greatly in the mode of attack in apoplexies. One party has said that they always come on suddenly—the other, that the attack is preceded by precursory symptoms, which manifest themselves many days previous. Both sides have been right, and both in a certain degree wrong, as the cases may have been meningeal or cerebral.”

626. The meningeal apoplexy is almost always slow; has precursory symptoms, as torpor; difficulty in exercising the mind, and its becoming easily fatigued; perception blunted; drowsiness; respiration slower than ordinary—tardy circulation; less warmth than usual; secretions diminished; impaired digestion, and sometimes vomiting.

627. Mr. Serres asks, “what distinguishes apoplexy from sleep?” He answers the question by the following important observations. “In sleep the respiration is slow, and the circulation is in a relative proportion—in apoplexy the natural relation is destroyed.”

628. Whatever difference age and strength may make, in the number of pulses in a given time, the discordance between them and respiration never fails to show itself; and when this is at its maximum, the stupor is also. Thus Mr. S. relates a case in which the following extreme of disparity between the pulse and respiration existed—pulse, eighty-three strokes to eleven inspi-

rations. And, that the abolition of the natural and mental functions, are in the precise ratio to the loss of the healthy proportions, between the motions of the heart, and the lungs; and that these functions are restored, exactly in the degree, that the pulse and the breathing, approach the natural standard.

629. He also states this curious, and to diagnosis, valuable fact; that in meningeal apoplexy, respiration is always equal on both sides; that is, the thorax is equally dilated on the right and left sides, which is not the case in cerebral apoplexies. The mouth is not distorted; the body lies in a straight line; and if the patient be not in a state of stupor, he will present both hands—if he be somnolent, irritating the limbs will produce the same motions. The nervous and muscular systems preserve their powers on both sides. Though meningeal apoplexies present important varieties in the fluids effused, Mr. S. acknowledges, he has never been able to indicate them individually from the accompanying symptoms.

630. The varieties of meningeal apoplexies, are deduced from the nature of the fluid effused; by the absence of effusion, and the rupture of arteries or veins in the brain. Hence, there is, 1st, *meningeal apoplexy* without effusion; 2d, with effusion of simple serosity; 3d, with sero-sanguineous effusion; 4th, with arterial rupture, or aneurismal dilatation; 5th, with venous rupture.

631. *Dissections*.—In meningeal apoplexy without effusion, the pia mater is thickened, dry, and the vessels slightly distended.

632. In var. 2d, the arteries and veins are distended, and all the pia mater is covered with a net-work of small vessels—the arachnoides opaque, thickened, and in places covered with a whitish exudation. The choroid plexus is generally injured; distended.

633. In var. 3d, the alteration very similar to those in var. 2d; but the arachnoides manifestly red and inflamed. It is principally in the lateral ventricles this irritation is observed.

634. In var. 4th, all the arteries are distended; a rupture is found either in one of the trunks, or one of the branches. A part of an artery may be aneurismal.

635. In var. 5th, the veins are more frequently ruptured.

636. Whenever coagulated blood is found between the membranes and the ventricles, and the cerebral substance sound, we may be certain that the hæmorrhage has been caused by the rupture of an artery, or a vein. Venous rupture frequently occurs in the choroid plexus. The meningeal apoplexy with serous effusion is the most frequent—they are as seven, to two.

637. *Cerebral apoplexies and their varieties.*—In describing these, Mr. S. proposes to solve the following question:—“an apoplexy being given, to determine its seat by its symptoms.”

638. *Attack.*—The attack is often instantaneous, especially in men of plethoric habits, short necks, corpulent, and addicted to wine and women. Some moments before the attack, the mind is more than usually active. Sometimes a numbness of one side, one side of the face, or a fixed pain in the head, precedes the attack; the tongue is sometimes embarrassed; a difficulty in pronouncing certain letters, or words—rarely stut-tering.

639. “But whether the fit has been preceded by these symptoms or not, at the moment of attack, the face is coloured in an unusual manner; the cervical and facial veins swell; the tongue becomes embarrassed; the sight is imperfect; the hearing impaired; the sensibility and the faculties of the mind lost—and if the patient be erect, *he falls upon the side which afterwards will be struck with apoplexy*—this circumstance is of much importance to the physician when called to the patient.”

640. “Some hours after the attack, if the brain has not already been destroyed at some part of its surface, respiration becomes slower, the venous blood suffers a mechanical obstruction, and requires an appropriate reaction of the breast. The pulse is strong, hard, and frequent—the action of the heart increases in proportion to the difficulty of respiration. The force and hardness of the pulse continue until the moment a vessel gives way in the brain—it then becomes suddenly small, concentrated, and frequent.”

641. “Respiration is equal on both sides in the beginning of the attack, but the thorax and lungs are unequally dilated—one side of the chest becomes motionless, while the other seems to redouble its activity; on the side in which the action is diminish-

ed, the ribs are flattened, but on the opposite side they are elevated; the two sides thus offering a very obvious contrast. This happens previously to the occurrence of the hemiplegia; and it is important to attend to this symptom, as it points out the side that will be paralyzed."

642. Coma and stupor extreme—sensibility diminished on both sides; sometimes remarkably so on the side about to be injured—at other times, sensibility remains, though paralysis is about to take place. The paralyzed member sometimes preserves its sensibility; but when it loses it, it is before the loss of the power of motion.

643. *Varieties of Cerebral Apoplexy.*—Observation has not furnished us in cerebral apoplexy with any decided marks or symptoms of each variety, any more than in the meningeal. Dissections have revealed the following forms of cerebral apoplexies: 1st, *cerebral apoplexy* with hemiplegia; 2d, with paralysis of one arm; 3d, with paralysis of one leg; 4th, with double hemiplegia; 5th, with complete paralysis from a single attack.

644. "These apoplexies have distinct and different seats in the brain, as will be seen by the following analysis of my dissections." Mr. S. then says,

645. "I have opened and attentively dissected one hundred and seventy-one subjects, dead of *cerebral apoplexy*, with hemiplegia of the arm and leg at the same time; and I have found, in one hundred and seventy-one, the hemisphere of the brain on the opposite side materially affected in its structure. I have dissected the brains of forty-seven hemiplegics dead at the Hospital of Pity, and forty-seven times I found disorganization opposite to the palsied side. I have received, from the hospitals of the Bicêtre and Salpêtrière and the Hôtel Dieu, about one hundred and fifty brains of hemiplegic patients, and always without exception, the alteration of the brain was in the opposite lobe to the paralyzed side. May we not, after these facts, and by the aid of two or three thousand cases contained in the annals of science, establish it as a principle, that the cerebral disorganization constantly occupies the lobe opposite to the palsied side, or the side that has remained hemiplegic, during the cerebral apoplexy."

646. Double hemiplegies may come on suddenly, or by two

distinct attacks. In this species, the mouth is not paralyzed, as is the case of single hemiplegia. In both, the seat is the same as in single apoplexy, with paralysis on one side; the two sides are successively affected. A single stroke may paralyze the whole body; neither of the limbs can be excited to motion by any stimulation. In this case the extravasation will be in the pons varolii or tuber annulare. Death always follows with frightful quickness. The patient dies of asphyxia, or like animals which have had both pneumo-gastric nerves cut. Such are the principal varieties of cerebral apoplexies, and if "I mistake not, we may prognosticate the seat of the disease from the symptoms."

647. In all instances of apoplexy without paralysis, the brain itself is uninjured—but in these cases, the membranes are altered in different degrees; but that each of these degrees has its peculiar character of effusion. Had the irritation been intense, sudden, and of short duration; were the membranes inflamed partially or universally, the fluid effused within the ventricles, between the convolutions, or in the commencement of the spinal canal, was always found to be either sanguineous or sero-sanguineous. This effect was so uniform, that the effusion was only found where the irritation had existed previously—if this irritation happened to the ventricles alone, the effusion was limited to them; if upon the exterior of the encephalon, the sanguineous fluid was only found there, for the ventricles in such a case would be found either empty, or contain nothing but simple serosity.

648. In apoplexies with paralysis, the disorganization of the encephalon was constant, as has been observed before. If there was nothing fortuitous in these coincidences, Mr. S. says it is easy "to assign to apoplexies their characters, place, and name." The apoplexies without palsy having their seat in the membranes, he thinks are properly designated by the term *meningeal apoplexies*; while those complicated with paralysis, are called *cerebral apoplexies*.

649. Our author denies the existence of serous and sanguineous as separate species; and insists that all apoplexies are seated in the brain and its appendages. And those recorded, purporting to be apoplexy of the stomach or intestinal canal in apoplectic subjects were accidental, and derived their supposed

existence from the irritation or inflammation excited by the emetics and cathartics administered for their relief.

*Of the Treatment of Apoplexy.*

650. The treatment of apoplexy, will very properly divide itself into that which is prophylactic, and into that which is necessary during the paroxysm.

1. *Of the Prophylactic Treatment.*

651. By glancing our eye upon the predisposing causes of this disease, it will be perceived, that bodily conformation, habits, period of life, and temperament, may one or all contribute to the production of apoplexy. That each of these conditions have some modifying influence upon either the formation or distribution of the blood, in such manner as to determine it in an unequal or in undue manner to the brain; consequently, to be useful to a constitution prone, from either or all of these causes, to apoplexy, their agency must be counteracted in the best manner in our power. We have a full belief in the existence of an *apoplectic constitution*; and of course, an entire conviction of the tendency, of certain causes to effect the transportation of an undue quantity of blood to the vessels of the brain, and thus indirectly produce the disease in question.

652. If this be true, it will follow, that all our means must be directed to the prevention of the too great formation of blood, or divesting it from an unequal distribution. These means will necessarily consist in a proper observance of diet, in the judicious employment of exercise, and the proper administration of remedies.

653. The first plan must be carried into execution, by recommending a diminished quantity of, or an entire abstinence from, animal food, at least so far as will be compatible with the safety of the stomach, and the general strength of the body. A diet consisting chiefly, if not altogether, of vegetables, should be rigorously adopted. Nothing but plain water should be used for drink—all distilled or fermented liquors being absolutely and

directly injurious. But care should be taken, in the selection of the quality, as well as caution exercised, in the use of the quantity—for error may be committed in either.

654. The quality should be that of easy digestion; or of such substances as experience had proved to be acceptable to the stomach; for in this particular individual differences will constantly present themselves. Rice, sago, arrow-root, tapioca, barley, oatmeal, potatoes, turnips, tomatoes, salsafee, parsnips, beets, ochres, and spinage, may be looked upon as the most digestible; the ripe fruits of the season may also be indulged in. Cabbage, beans, sallads, raddishes, onions, and cucumbers, are decidedly improper, from the difficulty almost constantly found in their assimilation. If animal food in any quantity be indulged in, it should be of the most digestible kind; or such as has been found by experiment to be speedily and easily digestible. Suppers of no kind should ever be indulged in. The quantity should be no more than the stomach can with facility and certainty digest.

655. Exercise should be regularly, and steadily pursued; but it should never consist of such exertions as have a tendency to force the blood into the head; such as are proscribed will easily present themselves to the mind, and should be carefully avoided. Exercise must never be performed in a hot or even a warm sun; nor should it be indulged in extremely cold weather or in damp places. Serres recommends exercise, even to fatigue, for those disposed to apoplexy.

656. As it is every way desirable, that the circulation should not be hurried while the body is passive, the subject should avoid all crowded places, heated air, and too much warmth at night from sleeping upon a feather bed, or indulging in too much bed-covering. He should sleep in a well-ventilated room; should wear nothing tight round his neck, or waist. Dr. Donald Monro says he has known soldiers carried off by apoplexy, in consequence of the stricture of the veins of the neck; from being obliged to wear their cravats too tight. Winslow has also mentioned the same thing.\* Dr. Fothergill mentions the case of a gentleman who was predisposed to apoplexy being seized with a fit, by turning his head too far round to look at an object

\* Cooke on Nervous Disorders, Vol. I. p. 227.

rather behind him.\* Now this position of the head could only have been mischievous by interrupting the descent of the blood from the head; acting as a partial ligature.

657. The utmost care should be taken against the suppression of any habitual evacuation; and if it happen, we should attempt its restoration as quickly as possible, and by the best means in our power. The menstrual evacuation, if arrested, should be recalled by the appropriate remedies; the hæmorrhoidal flux, if interrupted, should be compensated for by the application of leeches to the anus; issues, or setons if they dry up, should be renewed, &c.

658. Bathing the head with cold water daily, would be a very good practice with persons of apoplectic tendencies—the hair should be kept cut short; the direct rays of the sun should be reflected by a white hat; and the feet kept warm constantly. If the feet be habitually cold, the partial warm bath with the flower of mustard in it, should be used, whenever they feel uncomfortably so, on going to bed.

659. It may, in addition to the means just suggested, be important to employ remedies, for the immediate diminution of blood, and for the proper regulation of the bowels. For the first, the occasional loss of a few ounces of blood will be highly serviceable—this may be done by bleeding from the arm, or by abstracting blood from the head by cups or leeches; or according to Serres, from the anus, by the latter means.

660. Costiveness should be very carefully guarded against, either by diet, or medicine; or if necessary by both. For the first means, the bran bread should be used freely instead of other bread; ripe fruits, prunes, figs, &c. For the second, the aloetic and rhubarb pill will answer admirably, (see p. 96.) It may be proper also to purge occasionally, especially if there be slight head-ache, unquiet nights, and confined bowels. The patient when in bed, should not fail to sleep with his head high, and uncovered by night-cap or handkerchief.

## 2. *Treatment during the Paroxysm.*

661. As it is agreed on all hands, that in apoplexy, there is an excess of blood occupying the vessels of the brain, or a quan-

\* Works, p. 214. Vol. III.

tity extravasated in either its cavities or substance, it would seem to follow as a necessary consequence, that nothing can take off the pressure caused by the distended vessels, or remove the distention from them, but a reduction of the quantity of this fluid; and consequently, that our main dependence for this effect, must be by blood-letting. By this it will be perceived, that we renounce the distinction made by systematic writers, of "sanguineous" and "serous apoplexy," though "educated" in its belief. We think indeed that no one will retain the distinction after a careful and dispassionate perusal of Serres's memoir upon this subject. Indeed the learned editor of the Medico-Chirurgical Review, calls it an ignis fatuus, though he does not feel himself authorized "to treat all cases of apoplexy in the same manner."

662. Notwithstanding our conviction of the absolute necessity of blood-letting in this disease, we are convinced, that both *time* and *quantity* must be regarded. *With regard to time.* It sometimes happens immediately after the apoplectic stroke, that the powers of the system are very much prostrated, from the sudden violence committed on the nervous system; the face is pale; the skin and extremities cold; the respiration slow and difficult; the pulse feeble and frequent, while both fæces and urine may be discharged involuntarily. Now, it must be evident, that if we prescribe for the *name of the disease*, to the total disregard of the state of the circulatory system, we should do much mischief, by the abstraction of blood.

663. It may be said, that this appearance is fallacious; and that the system is merely depressed, (see note to par. 351,) and that it will rise, if we take blood from it—this may be the case sometimes for aught we know; but we have never seen a case attended by the symptoms above detailed, especially in subjects advanced in life, in which the pulse was in a state of *depression* agreeably to the notions we have of that state of the arterial system. In cases of the kind under consideration, we have never ventured to abstract blood until we have enabled the system to react, by the use of external stimuli. We therefore direct the legs and feet to be placed if possible in warm water, in which there is a considerable quantity of the flower of mustard mingled. These parts are to be well rubbed with the hand while in the water for ten or fifteen minutes; they are then to be well

dried and wrapped in a warm blanket. Dr. Abercrombie speaks highly of strong frictions applied to the body.

664. Should it not be practicable to place the feet and legs in water as directed, these parts should be bathed with brandy and mustard or Cayenne pepper, until a rubefacient effect is produced. At the same time mustard and vinegar or brandy, should be applied warm, to each forearm until they redden the skin; and the whole body should be warmed by heated blankets, bricks, or jugs of water. And if by these means reaction is established, then, and not until then, should we open a vein. But as soon as this has taken place, blood should be abstracted, with a freedom and to an extent commensurate with the powers of the system and the urgency of the paroxysm. It is impossible to give a definite direction as regards the quantity of blood that should be drawn at any one time, or during the course of the disease,\* as this must depend upon the effects of that which is abstracting, or has been abstracted, upon the force of the symptoms, and the power of the pulse; remembering always, that bleeding is performed to no valuable purpose, if it be not carried to an extent that will diminish the vigour of the arterial system.

665. In order however to ensure this desirable end, at the least possible expenditure of blood, it should be abstracted from a large vessel, and from a large orifice, and in as short a time as may be practicable. For this purpose the jugular vein or veins may be opened, sometimes, with great advantage—we say, sometimes; because this cannot always be done. If this vein be selected, it must be opened without the use of a ligature; as this would be mischievous, by retarding the departure of blood from the head. We have never found it necessary to do more, than to compress the vein, by the extremity of a finger.

666. If the jugular, cannot be commanded, we should bleed from the arm or arms, making large orifices, as just recommended. To aid the bleeding, we should have the bowels opened as speedily, and as copiously, as possible; this should be attempted by an injection made of two ounces of senna and a pint of boiling water; and dissolving in it, after straining it, a table-spoonful of common

\* Dr. Cheyne says, “it ought to be known that from six to eight pounds of blood have been taken from a person by no means robust, before the disease, which ended favourably, began to yield.”

salt. This must be repeated, from time to time, until the bowels are freely purged. If the patient be capable of swallowing, which is often the case, an infusion of senna like that just recommended for the injection, should be given him frequently by spoonfuls until the object for which it is given is accomplished. We prefer the senna to any other of the cathartic remedies; as it is always certain and prompt if the sensibility of the alimentary canal be not too much diminished, as is the case, sometimes. Indeed the griping effect of the senna appears to be useful in all the affections of the brain, that depend upon its repletion.

667. Cold applications should be made from time to time, under the precautions suggested, (par. 396,) for their employment in fever.\* The feet and legs should never be permitted to remain cold an instant, provided they can be made warm by artificial means. The patient should be placed in as an erect a position as possible, as every advantage should be taken of the benefit gravitation affords us.

668. As respects the propriety of repeating the bleeding, much must be left to the discretion of the medical attendant—for he must determine whether the state of the pulse and other symptoms will justify the farther abstraction of blood. Should it not be thought justifiable to bleed from the arm, yet the symptoms persist, much advantage may be derived from local depletion; especially by cups—six, eight, or ten ounces may be readily abstracted by these means from the temples, forehead, or behind the ears and neck. Cupping, is preferable to leeches, though we could abstract an equal quantity of blood by their application. Why this is so, is perhaps difficult to explain—but all experience seems to confirm it as a truth. Dr. Abercrombie seems to attach but little importance to local bleeding; at this we are not a little surprised; while Dr. Gregory, we are informed by Dr. Johnstone, used to declare in his lectures, he had seen the cupping-glasses rouse the patient, *when general bleeding had produced no effect.*

669. Of this fact we do not entertain a doubt; yet if it be re-

\* Cold water in a full stream upon the crown of the head, and received in a basin held under the chin, is recommended by Dr. Abercrombie in apoplexy. He gives an instance of a girl, who was quickly restored by this means, from a state, he believed to be, perfect apoplexy.

ceived as it stands, as a practical lesson, it might grossly mislead the inexperienced practitioner; for it appears to imply, what we presume Dr. Gregory did not mean should be understood by the observation,—namely, that cupping was preferable in apoplexy to general bleeding; and that it would succeed, where this had failed. The fact therefore should only be thus interpreted, that by the general bleeding, a sufficient quantity to relieve the patient had not been drawn; but the additional abstraction of a few ounces by cupping, effected, just what was left undone, by the previous bleedings. For we will persist in the belief, that had not just so much blood been drawn by the general bleeding, that the local bleeding would not have been of the slightest avail. Indeed, topical bleeding should never be had recourse to, but after it was no longer proper to bleed, generally.

670. Of emetics in apoplexy, we can say nothing from our own experience, never having had courage, (from a pre-conceived notion we grant,) to employ them. Nor have we been seduced by all that has been said in their favour, by an ingenious writer in the 6th, and 7th vols. of the Medical and Physical Journal. To us there appears to be but one possible case in which they can be employed with the *probability* of advantage, and that is in crapulous apoplexy; and even here, we would not venture upon giving them, but after pretty ample depletion.

671. Every thing that can act round the neck like a ligature, should be instantly removed; nor should they be suffered to be reapplied while the disease continues. The patient should be placed in as airy a situation as circumstances will permit; and constantly kept in as moderate a temperature of atmosphere as can be commanded.

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## CHAPTER IX.

### OF SCARLATINA, OR SCARLET FEVER.

672. This is so denominated, on account of the peculiarly florid appearance of the skin, by which it is accompanied. In some one of the several forms, which we shall presently see it

puts on, this complaint has, from an early period, occupied no inconsiderable share of attention. It is frequent in its occurrence, extensive in its prevalence, and, at times, exceedingly fatal in its terminations. The complaint prevails more in winter and spring, than in summer or autumn; attacking children, in preference to those who are more advanced in years.\* By the nosological writers, it is divided into three forms; which are to be regarded, however, as nothing more than the same disease, marked by different degrees of violence:—the *scarlatina simplex*—*scarlatina anginosa*—and *scarlatina maligna*. To many, the latter is more familiar under the name of the *malignant*, or *putrid sore throat*.

673. By *scarlatina simplex*, is to be understood, the simple constitutional disease, without any morbid affection of the throat. By *scarlatina anginosa*, a higher degree of the same complaint—the throat being at the same time inflamed and swollen. By *scarlatina maligna*, the same disease, in still greater violence—the throat being affected, or otherwise, and the symptoms malignant.

674. It is unnecessary to enter into an elaborate discussion, to establish the identity of the diseases.

675. Like most other fevers, scarlatina commences with chilliness, fulness of the head, and lassitude; to which succeed, prostration of strength, which at times is very great; and nausea, or vomiting. The surface soon becomes florid, and hot; and on examining the throat, it will sometimes be found inflamed; and the same red appearance extends to the tongue.† There is often at this time, more or less catarrhal affection; the head suffers severe pain, particularly about the frontal sinuses; and with which is sometimes associated, a disturbance of the intellectual faculties. The degree of these symptoms, indicates with sufficient exactness, the strength and character of the forming disease. Being very slight, the complaint will be *simplex*; if less

\* Sir Gilbert Blane says, that he never saw a person turned of forty, affected by it.

† This last presents a very peculiar aspect. Through the fur with which it is covered, the elongated papillæ project their points, and are of intensely deep scarlet hue.

so, the *anginosa*; and where they are severe and threatening, the *maligna*.

676. In the worst variety of scarlatina maligna, the commencing symptoms are alarmingly violent. The attack is, for the most part sudden; the patient becomes pale, sick, and faint; the head is giddy, heavy, and confused, rather than severely pained; the oppression about the præcordia, is extreme; the heart palpitates, and the stomach suffers great uneasiness, though there is no vomiting—this organ being probably prostrated below the power of reaction. The face is pale, or livid; the eyes exhibit a glairy appearance, and are marked by a fatuitous or inebriated expression. “A remarkable tumefaction of the fingers sometimes takes place, which, with the erysipelatous tinge they soon acquire, is often of itself sufficient to characterize the disease.” Gregory.

677. On the second or third day from the commencement of the disease, the febrile symptoms are considerable; the skin becomes morbidly sensible to the touch, and begins to be covered with an efflorescence, or florid eruption.\* About the same time, a degree of redness and swelling appears in the fauces. The skin becomes excessively hot; more so perhaps than in any other form of febrile disease. The pulse is also very frequent, rarely being under one hundred and twenty strokes in a minute.

678. The reaction of the system being now completely developed, the pulse exhibits the character which belongs to the existing form of the disease—preternaturally frequent, quick, and active, though still moderate, if the disease be *simple*—more frequent, irritated, and tense, if it be *anginose*—of greater frequency still, but not so full, resisting, and firm, if it be *malignant*. The temperature of the body, the thirst, the scurf on the tongue, are also graduated in the same way; each symptom increasing in intensity, according to the augmented violence of the case.

679. The eruption assumes, at times, the form of red points, though generally, that of red patches, which spread and unite, so as to cover the whole surface. It appears first on the face and

\* The tone of colour is said to be that of a boiled lobster.

neck; and in the course of a short time, spreads gradually to the lower extremities. The redness is often considerable about the loins, and the bendings of the joints, and on the hands, and ends of the fingers, which feel stiff and swollen. The eruption is not very regular, either as to the time of its appearance, its steadiness, or its duration. It usually continues about four days, and goes off with desquamation of the cuticle. As the disease proceeds, the neck and lower jaw grow stiff, the tonsils swell, and become marked with specks, which degenerate into ulcers, covered with superficial, ash-coloured sloughs. These sloughs, in favourable cases, separate and come off, about the eighth or tenth day, when the ulcers underneath are fresh, and florid, and heal kindly. The fever, at the same time, gradually abates, and a great amendment becomes apparent.

680. But, in the more malignant cases, the course of the disease is very different. The sloughs on the tonsils grow fouler; and the discharge from them, and the nostrils becomes exceedingly acrid. The mouth assumes a dark colour, and is often encrusted with a black or brown fur. The breath is extremely offensive, a tenacious mucous secretion infests the fauces. The eyes and nostrils furnish an acrid serum. Hæmorrhagies sometimes take place from these parts, as also from the bowels; diarrhœa of a severe kind is often found present; so also delirium or coma. If the throat be examined, it will be found studded with more or less sloughs, with dark or livid bases. The parotids are swelled and tender to the touch. Painful induration of the glands of the neck, which sometimes terminate in large suppurating abscesses; tenesmus, and diarrhœa; which sometimes speedily sink the patient, if not early removed.

681. This is reputed to be a contagious disease. On this point, however, the evidence, to say the least, is equivocal. The facts connected with the spreading of scarlatina, seem to be perfectly explicable, on the ground of its being epidemic, and not contagious.\* In this country the belief that it is a contagious disease,

\* The weight of European authority is perhaps against us; and in actual practice, it will be safest to act under such a conviction. We are indeed told, that the power of infecting endures for a very considerable time—certainly for a week or two after the cessation of the efflorescence, and probably as long as the desquamation of the cuticle lasts. Persons who have been exposed to the contagion, have the disease, it is said, to break out on the fifth or sixth day.

is by no means so general as it is in Europe, and especially as it is in Great Britain. I have never seen so far, any decided proof, that it has communicated itself in any one instance. On the contrary, I am strongly disposed to doubt its contagious quality. I attended a child with scarlatina anginosa, in a family of eight children; the child that was ill was constantly surrounded by the well children, yet not one of these sickened afterwards with this disease. The same thing precisely occurred in my own family; besides many less remarkable instances. Gregory says "the slowness of its diffusion is one of the most remarkable circumstances in its history." Vol. I. p. 237.

682. As regards the prognosis, it is unfavourable in proportion to the malignant character of the disease. Thus great prostration of strength; delirium; or coma; extreme restlessness; a distillation of very acrid sanies from the nose; a purple or livid appearance of the fauces, without tumefaction, interspersed with white specks, or dark sloughs, attended by diarrhœa of acrid matter; and above all, a change of the efflorescence to a mahogany colour, are mortal, or extremely alarming symptoms. The termination of this disease is sometimes exceedingly abrupt, and unexpected. We have known death to take place, in several instances, and this most suddenly, where every hope was entertained of recovery,\* but a short time before. The favourable signs in scarlet fever are, the patient surviving the ninth day, without any decided mortal symptoms; the intensity of the colour of the skin abating gradually; desquamation of the cuticle, and the departure of the swelling from every portion of the body to which it had extended; the separation of the sloughs, with a healthy appearance of the parts from which they separated; pulse becoming slower and less irritated; heat abating; urine depositing a lateritious sediment, refreshing sleep, and return of appetite.

683. In its simple form, scarlet fever calls for very little medical aid. An emetic of ipecacuanha or antimony; purging with calomel, and afterwards with some one of the neutral salts; vene-

\* When the disease is very malignant, death sometimes takes place on the third or fourth day; while in its milder forms, it will linger on to the second, or even third week. Generally, however, the patient is safe after the ninth day, under either form of the disease.

section, in case of fulness and pain in the head; the mild diaphoretics, aided by diluting drinks; and a regulated diet,\* are all we need prescribe. But in the anginose state of the disease, more is required—the treatment, here, must be circumspect and vigorous; and much reliance is to be placed on the thorough evacuation of the alimentary canal. Unless, as is sometimes the case, the violence of the symptoms calls for the immediate use of the lancet, let the treatment commence by puking with ipecacuanha. Emetics are of the highest importance; and may sometimes be repeated during the course of the disease, should the symptoms be persevering.

684. The emetic should be followed by laxatives. Calomel would seem to be the most suitable, on account of its tendency to prevent, and remove congestions of the abdominal viscera, which are much to be dreaded, and vigilantly guarded against, in this disease. This is a disease in which congestions of the great viscera, are very apt to occur; and requires mercurial purging to unload the vessels, and restore the balance, which is thus destroyed in the circulation. In the more advanced stages of the disease, however, provided the bowels have been already fully evacuated, some of the milder purgatives may be employed. The best mode of exhibiting calomel is in divided doses—say six or eight grains divided into six parts; one part to be given every hour, until the whole is taken; unless the previous quantity may have answered. Should this quantity however fail to move the bowels, it must be followed by two or three tea-spoonfuls of calcined magnesia, mixed in a little sweetened milk, and drinking after it, some lemonade.

685. In case the pulse be full, tense, or hard, immediate recourse is to be had to venesection. The quantity of blood drawn, and the repetitions of the operation, are to be directed of course, by the judgment and experience of the practitioner. The relief felt by the patient, the appearance of the blood, and the effect on the pulse, must determine, whether it shall be repeated—the bleeding must be followed by purging. In the early or inflam-

\* By a regulated diet, we mean, a strict antiphlogistic one; that is, an entire forbearance from animal food; from every kind of liquor, whether fermented or distilled; and from spices of every species.

matory condition of scarlatina, however, when there is considerable arterial action, and vast augmentation of heat on the surface, cold ablution, or sponging, gives great relief to the symptoms, and is a most comfortable process. We prefer, however, sponging to ablutions. Some however are afraid of these cold applications, because the throat is sore; but this forms no exception; for it is not accompanied by cough or other pneumonic symptoms like measles; and the sponging, or even affusion has checked the sore throat most evidently. We would however make an exception to the employment of cold water, &c. when they produce chilliness; in this case tepid water may be substituted.

686. We are told the warm bath is exceedingly efficacious, when the eruption imperfectly takes place, owing to general languor; and especially when attended by coldness of the surface—or having appeared suddenly recedes, inducing great gastric distress, and other very unpleasant symptoms—to cleanse the foul ulcers of the throat, emetics are found most effectual—the emetic may be followed by the use of detergent gargles; the best of which are composed of Peruvian bark, with a portion of the tincture of myrrh—or, barley water, acidulated with the sulphuric or muriatic acid, with the addition of honey. An infusion of Cayenne pepper, alone, or mixed with barley water, or the decoction of bark, is much, and we have reason to believe not too much, praised as a gargle,\* as far as we can rely on our own observations.

687. In the malignant shape of this disease, the general practice is nearly the same as in the preceding or anginose state. We rely mainly, on evacuations of the primæ viæ—first, by emetics, and next with the mercurial purges.

688. Whatever may have been the primary form of the disease, in the advanced stages, when appearances of great depression supervene, we have recourse to nearly similar measures. The object is to support the enfeebled system, and which is best accomplished by the carbonate of ammonia, camphor, turpentine,

\* We are in the habit of using the Cayenne pepper gargle in the incipient stages of anginose affections, with the most decided advantage; and in the disease under consideration, it seems to us to be the only remedy that affords relief, if ulceration has not taken place.

bark, and wine—aided by the ordinary external irritant applications.

689. Long after the cessation of the active symptoms, there are certain consequences show themselves, to which our attention should be immediately called. Deafness is one of these; this proceeds from inflammation having invaded the Eustachian tube, and leaving it in a state of obstruction. It is an unpleasant affection, though we have never known any permanent mischief to result from it; it requires no treatment.\* Œdematous swellings of the lower extremities, are a common, as well as a more serious inconvenience. The best treatment is to purge moderately, and afterwards exhibit the digitalis. It is here, that it sometimes proves pre-eminently beneficial. But in the removal of the effusion, it may be aided by frictions and bandages, if the swelling be large, and by exercise duly regulated, and persevering in a milk and vegetable diet. We have known the inflamed parotids run on to extensive suppuration, and require much time for healing. When this takes place during the continuance of considerable fever, and the parts exposed by sloughing look as if they had been carefully and beautifully dissected, death has constantly followed, as far as our observations have extended.

690. Dropsical affections frequently succeed to scarlet fever; this takes place after the mild, as well as after the severer form of this disease. We are inclined to believe, that this affection arises from the accompanying inflammation, not having been properly subdued by early depleting remedies. In consequence of this, the inflammation acquires a chronic, or a sub-acute form, which is only relieved by purging, even by blood-letting, and diuretics of the saline kind; as nitre, or nitre and squills. For children under seven years, and above three, we would give eight grains of nitre and one-fourth of a grain of squills three or four times a day. For those above seven to fifteen, twelve grains of nitre, and half a grain of squills may be given; from fifteen to adult age, from fifteen to twenty grains of nitre, and a grain of squills may be administered.

\* Dr. Gregory however states, that “not unfrequently permanent deafness is left by it.” Vol. I. p. 240. Of this however we have never seen an example.

691. Much has been said of the preventive powers of belladonna in scarlet fever, in various parts of Europe, especially in Germany; and as every thing that can possibly diminish the frequency or abate the danger of this oftentimes formidable disease is eagerly sought after, we have thought it proper to introduce in this place a summary of what has been urged in favour of the prophylactic powers of this active drug; and at the same time to contrast these newly raised expectations with what appears to be a fair and candid, and at the same time a sufficiently extensive experience upon this point—at the same time declaring our entire want of confidence in this medicine, or perhaps any other, to prevent the accession of scarlet fever; especially when epidemic; a time of all others at which it would be useful. In matters of so much moment as the one under consideration, negative proofs of the efficacy of any means are not always to be relied upon; we should always endeavour, in making propositions in which the lives and happiness of our fellow creatures are involved, to arrive at absolute certainty, as far as this is practicable, before they are confidently promulgated to the public to be acted upon. Had this plan been adopted as regards the preservative powers of the belladonna, we believe we should have heard of no positive testimony in its favour.

*“Belladonna a Preventive of Scarlet Fever.”*

692. “It has been long known that Dr. Hahnemann, of Leipsic, has asserted the above fact—but, since the year 1818, several practitioners in the north of Europe have repeated these experiments, and they find them founded on truth. The first of these, Dr. Brendt, of Custrin, affirms that all who employed this remedy escaped the infection—and his account is corroborated by Dr. Mushbeck, of Demmin, in Western Pomerania, who says he has used it for seven years, and with equal success—and he administered it to all those who dwelt in the houses where scarlet fever prevailed, continuing its use until desquamation of the cuticle had taken place in those attacked. Dr. Dusterbourg, of Warbourg, has also published an account of a series of experiments, confirming those statements—and several subsequent memoirs have appeared, all equally corroborative of this virtue in

the belladonna. The formula generally recommended, is a solution of two grains of the extract in an ounce of some distilled water—and to children from one to ten years of age, from one to five drops of this solution is given four times in the day—from ten years of age and upwards, from six to ten drops is given, also four times in the twenty-four hours.”\*

“*Belladonna in Scarlatina.*”

693. “In the last volume of the Philadelphia Journal of the Medical and Physical Sciences, will be found some observations which are highly favourable to the efficacy of the belladonna as a preservative against scarlatina. Dr. Lehman has published, in the twenty-second volume of Rust’s Magazine, a memoir, in which he observes that an epidemic scarlatina prevailed at Torgan, in 1825, of so violent a character, that one in eight of those afflicted with it died, and that thirty patients, all of tender age, fell victims to it. The belladonna was administered, with confidence, in many families in which the disease appeared, and there could be no doubt of the good quality of the extract employed; nevertheless it did not act either as a preservative, nor did it mitigate the violence of the disease. Dr. L. did not perceive any difference either in the violence of the disease, or its results, when it attacked those who had taken the belladonna, even for a long time and in large doses, and those who had never taken the medicine.”

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## CHAPTER X.

### URTICARIA, OR NETTLE RASH.

694. THIS very troublesome, and sometimes obstinate complaint, is wont to attack children who are teething, or who indulge much in ascescent food, or fruits, in the summer season especially.

\* Philada. Med. & Phys. Journ. from the Revue Medicale, Juin.

695. Dr. Good defines the idiopathic species to be—"rash in florid, itching, nettle sting weals, appearing about the second day; irregularly fading and reviving, or wandering from part to part: fever a mild remittent." Vol. II. p. 384. This definition may be correct in what Dr. Good calls the idiopathic form of urticaria; but there are some remarkable deviations from it. We have seen many instances of this complaint come on very suddenly, when certain articles had been taken into the stomach, and which was only relieved, by these substances being again discharged from it. We knew a gentleman in whom this complaint has been several times produced by eating of very young *boiled* chickens; when roasted or broiled they would not affect him; by boiled young cabbage in the spring of the year; by a draft of cold lemonade when his body was over-heated. After either of these substances had been received into the stomach a few minutes, he would become violently sick; would vomit, and in a moment be covered with weals, which would remain until he would effectually cleanse his stomach from the offending matter.

696. Dr. Hewson mentions several cases of eruptions which arose from taking of balsam copaiba; some resembled the weals of urticaria, others erythema, or roseola. Strawberries sometimes gives rise to urticaria; we knew a lady who never fails to have it after eating this fruit.

697. This is a very troublesome complaint in consequence of the excessive itching which always attends it. It is almost always accompanied by sickness of stomach, head-ache, giddiness, and great disposition to become chilly, upon the slightest exposure of any portion of the body. The fever which attends, may be of greater or less violence; but it almost always observes an evening exacerbation, at which time, all the symptoms are increased, and especially the itching. The weals which appear upon the skin are sometimes very extensively spread over the body; and at other, confined to certain portions of it, especially upon the inner surface of the forearms, and inside of the thighs.

698. From the surface of the weals there issues an acrid serum, or lymph, which serves to perpetuate, or renew the troublesome itching; and such is the disposition of the skin, while labouring under this affection, that you may at pleasure, if the fever be considerable, produce a continued eruption, by drawing the nail

forcibly over the skin, at almost any portion of it. This eruption sometimes disappears as suddenly as it had showed itself; and when this is the case, serious consequences have sometimes resulted, though the disease is very rarely fatal. We but once have witnessed danger from the retrocession of this eruption. In this case the patient had previously several attacks of an intermittent, from which she had been relieved each time by the sulphate of quinine. Her health appeared to be rapidly mending for some time, and she had nearly acquired her wonted strength; when very early one morning she was attacked with urticaria to which she had been occasionally liable.

699. Soon after it made its appearance she became extremely sick, and vomited very freely; she complained of a severe pain in the head, which was quickly followed by delirium. At this time we saw her; besides the symptoms just named, we found her extremely restless, throwing herself into a variety of positions, as if unable to keep quiet for a moment.

700. The face was cadaverous, and evinced much uneasiness. Her intellect was not sufficiently collected to give any rational answer to our questions.

701. The extremities were cold, the pulse nearly extinct, and the breathing very laborious; in a word, her situation was truly alarming. Hot applications were made to the feet and legs; a very large warm sinapism was applied to the region of the stomach; and ten grains of the carbonate of ammonia were ordered every hour, together with a spoonful of hot brandy toddy every few minutes.

702. The parts of the body from which the eruption had disappeared exhibited a mottled, livid hue; other portions of the skin were "goose-fleshed" to a great degree. The bowels were spontaneously opened, at the time the puking took place; and she passed a large quantity of urine. We saw our patient after an interval of two hours, and found her in rather a more favourable situation, but very far from being relieved.

703. The legs and feet were a little warmer, but the mustard had scarcely acted upon the skin. The volatile alkali, and brandy toddy sat well upon her stomach; the delirium somewhat abated, and the whole skin looked more natural. The remedies were ordered to be continued.

704. At the end of two more hours, we again visited our patient, and found her much amended—that is, the warmth of the body greater, and more natural; the delirium and jactitation less; the pulse more open; the countenance more natural, and less distressed; but no return of the eruption. Remedies were ordered to be continued.

705. In the evening, upon our return, we found a pretty plentiful crop of the eruptive weals, attended by much itching. The warmth of the skin rather above the natural standard; the delirium was gone; the inquietude over. The volatile alkali and brandy were suspended; a liberal dose of magnesia ordered, and a little chicken water, from time to time, was allowed. On our visit on the following morning we found our patient feeble, but relieved from the eruption, and free from fever. She was soon after restored to health.

706. It would be difficult to say what may be the cause of idiopathic urticaria; be this what it may, the force of the disease is chiefly spent upon the cutaneous system; but with which the stomach is sure to sympathize: or the stomach may be the seat of the affection, and the skin sympathize with it. It sometimes becomes chronic, and we have known several young people liable several times in the year to returns of it, without any evident exciting cause.

707. This disease, however, is much more frequently a sympathetic affection, arising sometimes from difficult dentition, and at others from some offensive substance taken into the stomach; this is especially the case with children until the age of puberty. Acids of every kind seem capable of producing it—hence the frequency of its appearance after crude fruit, cucumbers, young cabbage, lemonade, when the body is heated, &c. The plan of treating this complaint is in conformity to the condition of the stomach; for whether this disease be idiopathic or symptomatic, the stomach is sure to possess great acidity—to destroy this is essential, both to its alleviation and cure.

708. Magnesia should, therefore, be freely prescribed; lime-water and milk should also be given, particularly where the eruption has continued several days. A milk diet should be adhered to; and if no fever be present, chicken water and beef tea may be indulged in.

709. It is common in this disease to give saline purges; but this is decidedly injurious—there is no purgative so certain or proper, as magnesia, or magnesia and rhubarb. It is also common to permit the patient to take lemonade; but this is still worse—plain water or toast water, not too cold, are the best drinks. Solid food should be avoided; as should damp places, or streams of cold air.

710. To relieve the excessive itching, the patient may be liberally dusted with well-toasted rye or wheat flour, from which much relief will be experienced. In the chronic form of this complaint, we have found a persevering use of small doses of Fowler's mineral solution to have succeeded in every case in which we have hitherto tried it.

711. A very interesting case of chronic urticaria is related by Cazenave. "In the Hospital of St. Louis, in a patient of Mr. Biett's wards," says Mr. C., "we have seen it, (urticaria,) accompanying a quotidian intermitting fever, and after having lasted for four years, finally induce swellings and great distention, ecchymoses, ruptures, and ulcerations. In many paroxysms it was accompanied with a general tumefaction; sometimes to such a degree, that the patient was nearly suffocated; his respiration was hurried, the movement of the thorax very slight, the neck swelled, the face puffed up, and of a violet colour, the pulsations of the heart intermitting, and at times scarce perceptible, and death, which appeared imminent, only prevented by large bleedings."

712. "This patient, who had passed through several hospitals, and in which every means of cure had failed, was at last restored to health by the use of Fowler's solution."\*

713. We believe we were the first to recommend Fowler's solution, for the cure of chronic urticaria.

714. Children of from seven to fourteen years old, may take four drops every morning, noon, and evening, in sugar and water; or should this sicken, give but three.

\* *Prac. Syn. of Cut. Dis. trans. p. 65.*

## CHAPTER XI.

## PHRENITIS.

715. By this we understand an inflammation of the brain or of its appendages. So far as we are at present acquainted with this disease, and its symptoms, we are not able to say which portion of the cerebral system is particularly affected, though post mortem examination, declares that either the substance of the brain, or its coverings, or both may be involved. Much pains has been taken by late pathologists to distinguish the one affection from the other; and some have thought they have been able to do so, and have enumerated a number of symptoms, which purport to point out the particular structure that is affected; but there is much doubt upon this point; but fortunately in a practical point of view, it is of very little importance, since the knowledge of the existence of either, would not influence our therapeutical views.

716. Thus Dr. Fordyce says, "if the meninges are affected, the pain is acute; if the substance only, obtuse, and sometimes but just sensible." Practice of Medicine. Dr. Cullen observes, "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 parenchyma, or substance of viscera exhibits, at least commonly, a more chronic inflammation." There is much reason to challenge the truth of these opinions; they certainly fail in pneumonia, and we believe we could prove they do not hold good in either the brain or its appendages, as we shall have occasion to say in its proper place.

717. We shall therefore comprehend under the term phrenitis the inflammation of the substance of the brain, or that of its appendages, or both; as it is extremely doubtful whether we are in possession of any pathognomonic sign for either. Mr. Pinel\*

\* Nosographie, Vol. II. p. 180.

censures Sauvages, for the confident manner in which he details the symptoms belonging to each membrane of the brain, and the brain itself when labouring under inflammation. He declares this decision altogether premature; and thinks from our present state of knowledge, we have no right to make a distinction between the one part and the other when in a state of phlogosis. We are decidedly of this belief; for we have never been satisfied, that any peculiar cognizable circumstance marked the seat of the inflammation.

718. As to the marks laid down by some authors, we are certain they cannot be relied upon—more especially those which consist in the distinction of the quality, if we may so term it, of the attending pain. Acute and obtuse pain, the chief distinctions, are easily confounded, and we are certain they cannot be relied upon; for what, in a person with even a moderately clear intellect, would be called acute, might by another receive the epithet, obtuse; and it becomes still more uncertain, when the operations of the mind are disturbed, by an overwhelming inflammation.

719. In treating this subject, we shall at this time confine the consideration to the idiopathic form of this disease; at least as far as circumstances will permit us to distinguish it from the symptomatic. At the bed-side this is not so easy as it might at first appear to be. Acute diseases of other viscera are very frequently attended with intellectual derangement—delirium is common to most fevers; the stomach, the intestines, the liver, the lungs, when inflamed, may, produce severe or mild mental aberrations. In one of the most furious cases of delirium, I ever witnessed, and which bore the most unequivocal marks of cerebral inflammation, Dr. Physick and myself found the brain upon examination to be healthy, while the stomach exhibited the highest grade of inflammation; while on the other hand, Willis, Bonetus, Sarcone, &c. have observed inflammations of the brain, without delirium having preceded death.\* Stoll† has seen the brain and its membranes, inflamed, gangrenous, together with abscesses, in idiopathic phrenitis. Morgagni‡ has seen a true

\* Pinel. Nosographic, Vol. II. p. 183.

† Ibid.

‡ Letter VII. Art. VI.

phrenitis, without leaving any marks of inflammation in either the brain or its appendages.

720. These are curious as well as important facts; and should teach us caution in deciding upon the *seat* of a disease, especially where the body may be inspected after death; and also should convince us, that there are no absolutely certain signs by which the condition of the brain or of its appendages can be recognised; for however advantageous a distinction might prove, yet it can rarely be made, but by opening the head.

721. The predisposing causes of phrenitis are pretty generally the same as those which give rise to the other phlegmasiæ. The exciting causes may be insolation; immoderate mental excitement, as anger; the too free use of ardent spirits; errors in diet; metastases, as of gout, rheumatism, erysipelas; cuticular affections, &c.\*

722. The premonitory signs of phrenitis, will vary both in intensity and duration, as the susceptibility of the body may be greater or less, or as the force of the exciting cause may be stronger or weaker, or perhaps as it may be one or other portion of the brain, or its appendages that may receive the shock, and perpetuate the impression. For the most part there is headache, and its seat may be general, or confined; a sense of fulness, particularly if the head be placed a little depending, or suddenly moved; a throbbing within the cranium, communicating the idea that the pulses within the cranium can be heard. Disturbed sleep; startings; grinding of the teeth; frightful dreams; irascibility; unusual gaiety; redness of the eyes; face tumid and flushed; easily shedding tears, or perhaps they flow involuntarily; sensation of cold; extreme sensibility to light or to noise; bleeding at the nose; agitation; limpid urine; costiveness, &c.

723. In the idiopathic form of phrenitis, the pulse betrays less disturbance than really exists; and this circumstance may serve with others to point out the independent nature of the affection. For when this disease is symptomatic, the pulse always partakes of the character it assumes, in the individual inflammation which

\* We do not enumerate among the causes of phrenitis, certain mechanical impressions or forces, such as blows, falls, or wounds of various kind, as the disease arising from such accidents, properly belongs to the care of the surgeon.

preceded the affection of the brain, and with which it is sympathizing. Dr. Wilson Philip says, and in this we fully agree, that "the hardness of the pulse is more remarkable, (in phrenitis,) than in synocha; sometimes it is both small and hard, and sometimes irregular; the pulse in synocha is always strong, full, and regular."\*

724. In no acute disease of the system, is there less evidence in some cases of local disturbance, than in inflammation of the appendages of the brain, or of even the substance of the brain itself. We have lately witnessed very remarkable derangements of this in two children, who died unquestionably from these affections, though in one the disease followed a mild case of measles, and the other a violent case of pneumonia. In neither instance was there the slightest delirium; in one there was a slight strabismus; yet in both there were marks of high previous inflammation. In one at least three ounces of serum escaped from between the dura mater and the surface of the brain; the vessels of the brain itself were much enlarged; and its substance somewhat softened. In the other there was less serum, but a purulent substance spread itself over the whole of the superior surface of the brain, dipped between its hemispheres, and was even found at its base. The whole mass of brain, was of uncommon softness. In both instances, the dura mater adhered so firmly, as not to be separated without tearing. One case terminated by convulsions; the other with much apparent agony, but perfect consciousness.

725. Pinel says, "that coma may attend a true inflammation of the brain, without being preceded by phrenitis; in proof of which I will relate two instances in two children, one aged seven years the other eleven. On examining the first, the tunica arachnoides was found thickened in several places, and spread over with granulations; it was red, and adhered to the dura mater, and to a certain extent, a layer of albuminous matter was to be seen. In the other child, the inflamed condition of the tunica arachnoides was equally remarkable; it also adhered to the dura mater, and was occupied by a similar coat of albuminous matter. The right lateral ventricle was distended by a great quantity of serum."†

\* Symptomatic Fevers, p. 81.

† Nosographie, Vol. II. p. 189.

726. M. Harpin has run a long parallel between the symptoms of phrenitis and cephalitis; to which the author of the article "Phrenitis," in the *Dict. des Scien. Med.* M. Vaidy, makes the following judicious remarks: "After reading this parallel, nothing appears to be easier than to distinguish cephalitis from phrenitis; but unfortunately it is not so at the bed side: for there is no characteristic symptom to distinguish these affections from each other, and they may be so entirely attended with the same signs, that experienced practitioners have mistaken one for the other."

727. The progress of this affection is no less constant than rapid; augmenting in intensity, until it is about to terminate favourably or fatally. It has however its moments of remission and of exacerbation, like any other phlegmasia; and these may be more or less regular. A treacherous calm sometimes takes place, only to be followed, by highly exasperated symptoms—even furious delirium. And such is the severity of the inflammation, and the importance of the parts involved in it, that it runs its course in a few days, if not arrested by prompt, and properly adapted treatment.

728. It has always been looked upon as very difficult, to establish the diagnosis of phrenitis; especially from that grade of fever called synocha or inflammatory fever. This difficulty consists chiefly in the want of pathognomonic signs for phrenitis; and from synocha almost always being attended by delirium. This however would not create much embarrassment, were the views taken of fever by Dr. Clutterbuck thoroughly established, or were they susceptible of it; as agreeably to him, phrenitis or inflammation of the brain, is the cause of fever, and consequently it, with all its phenomena, has a phlogosed state of the brain or its appendages for its origin.

729. "Sometimes nausea and a painful sense of weight in the stomach are among the earliest symptoms. In other cases the patient is attacked with vomiting, or complains of heart burn, and griping pains in the bowels. When the reader reflects on the intimate connection which subsists between the brain and every part of the system, he will not be surprised to find the symptoms attending the commencement of phrenitis so various, and that the stomach should in particular suffer, which so re-

markably sympathizes with the brain. These symptoms assist in forming the diagnosis between phrenitis and synocha.”\*

730. The symptoms just enumerated we think are more common to children or very young subjects, than to adults and elderly people. We have seen in several very strongly marked cases of this kind, in each of which the disease was supposed to be in the stomach, and to which all the remedies were unavailingly addressed; the post mortem examination proved the seat of the disease to be the brain. Perhaps the most certain diagnostic symptom in this disease, is the terrifying intolerance to light, when this symptom occurs, for it is not always present. We have seen the approach of a candle throw a child nearly into convulsions, and draw from it the most importunate supplications to have it immediately removed. Dr. Philip justly observes, “if in phrenitis we succeed in removing the delirium and other local symptoms, the febrile symptoms in general soon abate; whereas, in synocha, though the delirium and head-ache be removed, the pulse continues frequent, and other marks of indisposition remain for a much longer time, and this serves to distinguish the two diseases.”†

731. “The eyes are incapable of bearing the light; and false vision, particularly that termed *muscæ volitantes*, and the appearance of false flashes of light passing before the eyes, are frequent symptoms. The hearing is often so acute, that the least noise is intolerable; sometimes, on the other hand, the patient becomes deaf; and the deafness Saalman observes, and morbid acuteness, now and then alternate.”‡

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

733. The prognostic in this disease must always be uncertain, if not always unfavourable; for when we consider the importance of the parts involved in inflammation, the delicacy of their structure, the great quantity of blood circulating through them, and the quantity required to be abstracted from the system in general before much impression can be made upon the contents of

\* Philip on Symptomatic fever, p. 79.

‡ Ib. p. 80.

† Ib. p. 83.

§ Ib. p. 81.

the cranium, and the changes effected in the remaining portion of blood, by the capillaries yielding their contents to the larger vessels after very large quantities have been abstracted, we shall cease to be surprised that phrenitis is constantly a disease of difficult management, and of great danger. Yet these cases are not altogether hopeless. When this disease supervenes to other affections of an acute kind, as gastritis, enteritis, &c. the prognostic is almost always unfavourable, as we have two seats of inflammation now to contend with; and this at a period when the recuperative powers of the system are on the wane, if not very much exhausted. In general, the risk is in proportion to the violence of the symptoms; but this is far from always being the case, as the apparently milder forms have terminated fatally, though not equally rapidly. We have already declared, that this inflammation terminates sometimes in suppuration, effusion, and gangrene; in either of these, the case must be hopeless, though we have no absolutely certain signs that determine either has taken place, though either may be suspected, when coma, paralysis, squinting, or convulsions follow the more acute and violent symptoms. Also when the skin becomes cold, clammy, or rigid; the pulse creeping, very quick, small and feeble; respiration hurried; preternaturally slow, laborious, or stertorous, we may look upon death being near at hand.

734. As regards the alvine excretions, Dr. Philip says, that "instead of a superabundance of bile, there is sometimes a deficiency of it,\* which seems to afford a still worse prognosis. The fæces being of a white colour, and a black cloud in the urine, are regarded by Lobb as fatal symptoms. The black cloud in the urine is owing to an admixture of blood." "There is often a remarkable tendency to the worst species of hæmorrhagy towards the fatal termination of phrenitis." p. 82.

735. On the other hand, we may regard the following marks as constituting the favourable signs; a generally diffused warmth, without rising to a preternatural heat; warm and extended perspiration; urine depositing a sediment; hæmorrhage from the uterus, the nose, or the hæmorrhoidal vessels in the more advanced period of the disease; eruptions upon the skin, especially

\* Desault makes a bilious species of phrenitis.

of the inflammatory kind; the pulse becoming more voluminous, quicker, or less frequent; diminution of delirium and coma, &c.

736. The mode of treating this disease can almost be deduced from its history—it is essentially an inflammation of a highly sensible and vascular part, the organization of which is quickly liable to lesion, from causes that would scarcely disturb some other of the viscera. It must be evident that our chief reliance must be placed upon the abstraction of blood; and this will embrace both general and local blood-letting.

737. The nearer to the head we can abstract blood, the better; but the most proper place cannot always be commanded, for this would be the jugular vein. There is much difficulty sometimes in drawing blood from the neck—the patient, unless it be a child, will not always submit to it, if he be even in his senses; and if he be delirious, it is almost impracticable. Hoffman and Cullen were both aware of the advantages that would result from drawing blood so directly, and at the same time so suddenly from the diseased part; and it is to be lamented, that their directions to this effect can so seldom be complied with. When, however, this can be done, it is certainly proper in violent cases, to give the jugular the preference. It nevertheless excites much alarm, when proposed, though there is neither disadvantage nor danger, from the operation—we have repeatedly performed it on children for convulsions, with the happiest results; nor have we ever witnessed any inconvenience from after-bleeding, as might reasonably enough be expected.

738. But whether we select the jugular vein, or take the arm, sufficient quantity of blood should be drawn to produce a most decided impression on the pulse; nay, even to syncope would be desirable in some instances. These effects are best secured by placing the patient in an erect position, and drawing the blood from a large orifice. And this operation must be repeated as often as the symptoms and state of the pulse demand it. In this respect, and indeed in almost all, the treatment must be such as has been directed for fever of a high grade. And it must be borne in mind, that we have other resources in this disease, when the diminished force of the pulse might not justify the abstraction of blood from the arm. The application of leeches behind the ears, and angle of the jaw, or to the temples and forehead, will

be found highly useful in the idiopathic form of phrenitis; and if sympathetic, to the part nearest to the affected viscera. If it be gastritis, over the region of the stomach, &c.

739. Cupping may also be had recourse to, where leeches cannot be commanded; and the spots selected for their application, should be the same as directed for the leeches. And if neither cupping nor leeching can be done, much advantage may be derived by dividing the temporal artery, by the shoulder of a lancet, or by a scalpel. No difficulty attends this operation; nor is any thing to be apprehended from an artery being cut—a slight compression arrests the bleeding, nor is there the least risk that the bleeding will renew itself.

740. The head of the patient should always be elevated; and water of a low temperature, in a large bladder should be applied to it; but this must be under restrictions similar to those laid down for its use in fever. (See p. 396.) The hair must be shaved off, or cut very close, that the cold may be quickly perceived.

741. It may however be proper to observe, that the propriety of applying ice to the head in cerebral inflammations is questioned by Mr. Costa, in a memoir he read before the French “Academie Royale de Medicine” on this subject. He says, “would we found this treatment, (the application of ice to the head,) on the idea that the inflammation of organs contained within the brain is of a peculiar nature? But MM. Tomasin and Broussais, have sufficiently proved that inflammation wherever situated, and whatsoever its causes, is always the same. Now, then, if cerebral inflammations are the same as phlegmasiæ of other organs, why treat them differently from the others? can we expect to oppose the flow of blood by the intensity of the cold?”

742. The author is of opinion, that by constringing the vessels of the scalp, we force the blood they contain to flow back on the brain. Under this impression, he proposes in idiopathic cerebral inflammations to shave the head, and to cover it with leeches in the course of the sagittal suture, and especially at its posterior extremity. He afterwards covers it with emollient poultices, which are to be renewed when necessary; and if required he also has recourse to general bleedings. On the other hand, if the inflammation be sympathetic with gastro-enteritis,

which is frequently the case, especially in children, he directs his treatment to the state of the intestinal tube; unless the affection of the brain greatly predominates; in which case he proceeds as just mentioned.

743. He prefers the sinciput for the application of leeches, because the inflammation of the arachnoid, or encephalitis, usually occupies the anterior regions of the head, and by applying leeches to the sinciput, he unloads the inflamed parts more directly, by acting on the longitudinal sinus, or rather on the veins which discharge themselves into it; and because there exists a sympathy between the skin which covers the splanchnic cavities and this part.

744. In aid of this, the stimulus of heat, light, and noise, must be removed as far as is practicable and proper for the season, and for the purposes of nursing. All conversation, or communications whether of an agreeable kind or otherwise, must carefully be avoided—in a word, all the directions given for the management of fever in general, must be here put in practice.

745. Purging in idiopathic phrenitis is of much consequence; this should be performed by calomel, in doses suited to the age and situation of the patient; rendered active by an after-dose of the sulphate of magnesia or Epsom salts, or by magnesia, drinking lemonade after it. A free discharge must be maintained, by castor oil, magnesia, salts, either alone, or united. In the symptomatic affection, the purging must be regulated by the nature of the original affection.\* The strictest antiphlogistic regimen must be insisted on. (See p. 214, 215, 216.) If the bowels are tardy, as they are wont to be, the operation of the medicines just named may be promoted by enemata of warm salt and water.

\* We would direct the attention of the practitioner when he determines on producing catharsis, that it is only in the idiopathic form of phrenitis that this operation can be valuable or sometimes perhaps even safe. For while he may derive prompt and decided advantage from purging in the idiopathic, he may do much mischief in symptomatic phrenitis; especially, when the original seat of disease is either in the stomach or intestines; or if he give in these cases, even the more active or drastic purgatives. In the latter form of phrenitis the milder laxatives should be employed; as castor oil, or weak solutions of the neutral salts; but in the former, from the direct communication of the vessels of the head and the abdomen, we may expect much advantage from the more active cathartics.

746. Blisters as revulsives are highly useful when the system is reduced to the blistering point. (See p. 260.) They should be applied to the calves of the legs, to the inside of the thighs, or to the forearms. We have strong doubts of the propriety of blistering the head—indeed, we are of opinion that it is injurious; to the shoulders, is less objectionable, though not a decidedly eligible spot.

747. Rubefaciens may be also advantageously employed, after the circulation has been moderated, and especially when there is a tendency to congestion, as declares itself by an inequality of heat upon the surface, and especially when the feet and legs become cold. Mustard, Cayenne pepper, or the spirit of turpentine may be employed for this purpose; and these may be aided by jugs of warm water, or heated bricks placed near the parts. Pediluvium may also be resorted to; provided the legs of the patient can be made to hang over the edge of the bed, without disturbing him too much, or obliging him to assume a horizontal position. His drinks should be the same as those directed for fever in general. (See p. 214.)

748. When phrenitis succeeds to the sudden suppression of any accustomed evacuation, as the menses, hæmorrhoids, &c. though it must be looked upon as symptomatic, it will nevertheless require almost always, active treatment. Bleeding, leeching, purging, &c. as already directed for the idiopathic species; and early attempts must be made to recall the habitual discharge.

749. After the disease has disappeared, the utmost caution should be exercised in returning to the ordinary mode of living—a moderate diet should be persevered in for some time after all febrile irritation has ceased, lest the disease be recalled.

## CHAPTER XII.

## HYDROCEPHALUS INTERNUS.

750. It does not appear to be of much consequence in a practical point of view, the place we give hydrocephalus internus; nor do we look upon as a matter of moment as a nosological arrangement; for two places perhaps may with equal propriety be assigned it—first, either immediately following the acute affections of the brain; or second, ranking it strictly with dropsy. And as we do not profess to be attentive to any strict nosological classification, we give it the place it is now found in; and more especially as it is not only an inflammatory affection, but one exclusively confined to the head, some of the diseases of which, we have been considering, and particularly phrenitis, to which it is occasionally without doubt, a sequel.

751. It would be altogether time ill-spent, in a work like the present, to enquire into the medical history of this disease; we refer those who are curious upon this point, to the works that treat professedly upon this subject. We shall only observe, that however familiar the ancients may be supposed to have been with hydrocephalus internus, it is every way certain, that its pathology was altogether perhaps unknown to them; for it is only within a very few years, that it has been well understood even by the moderns.

752. By *hydrocephalus internus*, is to be understood a preternatural turgescency of the vessels of the brain; a collection of serum, or serosity, within the ventricles, or upon the surface of the brain, or all; for dissection has discovered to us, that each of these circumstances may obtain at one and the same time.

753. Mr. Itard\* with much propriety, and we think pathological truth, makes four species of this disease. 1st. *Acute idiopathic* hydrocephalus. 2d. *Acute symptomatic* hydrocephalus. 3d. *Chronic idiopathic* hydrocephalus. 4th. *Chronic symptomatic* hydrocephalus.

\* Dict. des Sciences Med. Art. Hydrocephale.

754. The first species, is made to consist of serum suddenly effused by the tunica archnoides, in consequence of an idiopathic affection, within the ventricles, and upon the surface of the brain itself. It may be occasioned by external violence, as falls, and blows; or by sudden passions or emotions of the mind, as anger, fear, frights, &c. by the sudden arrest of habitual evacuations, as bleeding from the nose, the discharge from crusta lactea, sore ears; or the drying up of issues. It is most common with children; and particularly between the periods of the first and second dentition, among those of a robust constitution, and of florid complexions—at other times, it appears to be constitutional, and to run in families. We are at this moment attending a little girl of nine months old, with this species of complaint, who has lost, we are informed by the parents, five brothers and sisters of the same disease; and Cheyne mentions a much more numerous loss of this kind. In adults it is rare; yet with them, we have seen it in several instances prove fatal. Agreeably to Itard, epidemic peculiarity has an influence upon its prevalence. In one instance, an epidemic scarlatina; and in another, an ataxic fever, were followed by many cases of hydrocephalus.

755. The proximate cause of this disease appears to consist of an irritation or inflammation of the tunica arachnoides, which eventuates in an effusion of serum from such portions of this membrane, as may be subject to this irritation or inflammation; and which consequently may be, any portion of surface of the encephalon which this membrane covers. If this be true, it must be evident, that we must have at least three periods in the disease; each of which, during its continuance, must necessarily have its own characters.

756. Dr. Whytt, many years ago, divided this disease into three stages; but certainly without understanding its pathology. He has however notwithstanding this, proved himself to be a very accurate observer, and a faithful recorder of symptoms; for we very much doubt, whether a more accurate, general history could be given, especially of chronic hydrocephalus than he has left us. He certainly was unacquainted with the two states of inflammation now so generally acknowledged, as well, as so commonly acted upon; though he has given evidence, that hydrocephalus may be symptomatic; for in enumerating the causes, he

mentions, "ischuria," as giving rise to this complaint; and that "in tedious chronic diseases, water is often collected in the ventricles of the brain."\*

757. The first period of the acute hydrocephalus, is generally marked by a more than usual reluctance in the child to talk; seeking the darker places of the room; peevish much beyond its usual want; loss of appetite, or voraciousness; pretty sudden loss of strength; an unnatural heat of the skin, especially the head, though the exposed hands may be even cooler than natural; a contraction of the forehead and eyebrows; an intolerance of noise; a frequent pulse, especially towards evening; a flushed face, or only one cheek; heaviness of the eyes, and sometimes a discharge of water from them. If the child be old enough to be interrogated, it will declare its head to be the seat of its sufferings; if it be not, it will manifest this, by vague, and ill-directed attempts to place its hand upon it. These actions, especially in children under two years of age, are very often mistaken in what they mean—thus with some, attempts are made to put their fingers in the mouth, especially if they have not passed the first year; with others, beyond this period, the nose is frequently rubbed; with others, rather more advanced, the nostrils are picked, even to bleeding; while others, still younger, will roll their heads from side to side with fatiguing perseverance. The former of these symptoms are almost always attributed to worms; while the latter always produces an apprehension, that "the head is affected."

758. The child for the most part is rather drowsy; that is, it lies with its eyes closed, and appears to sleep—but this is either merely an instinctive act, or the sensibility of the child is inordinately increased; for the least noise, suddenly made, or the slightest touch, will excite an alarm, that is manifested, by sudden startings. Or it will utter, during sound sleep, apparently piercing and fearful cries, without being able to state, that they were either alarmed, or in pain. Sometimes we have observed the head during several days together, carried first on one side and then on the other; and complaint is made with those sufficiently old, of a pain in the back of the neck. The secretion of

\* Works, p. 740.

the nostrils is almost always stopped altogether; and a dry, characteristic cough, is almost certain to be present, and almost always continues through the whole course of the disease. We do not recollect an instance of idiopathic acute hydrocephalus, without this cough being present.

759. As the disease advances, and is about to form the second period, we find an aggravation of almost all the symptoms; the child now inclines to lie constantly, and may be observed to press its hind head forcibly against the pillow that supports it; or is much inclined to lie with it low. If it be raised, the head hangs motionless down, and the child betrays much uneasiness at the change of position; and if it can speak, desires to be laid down with an importunity and impatience that loudly proclaims its sufferings. When it is returned to its pillow, it is oftentimes pale, and apparently much exhausted by the effort it has made; it will sigh deeply, or scream violently. The face becomes more flushed, or there may be a deep-red spot only on one cheek, which will perhaps in the course of a few minutes shift itself to the other cheek. The lips are dry and parched; the tongue for the most part is clean; and there is either great thirst, or no demands are made for drink. The pulse now becomes slower and more contracted; the pupils widen, and an occasional obliquity in the eye may be observed; the forehead becomes permanently corrugated and the eyebrows contracted.

760. The mouth is kept in almost constant motion; the tongue is frequently thrust beyond the lips, and again suddenly retracted; the eyes are now kept almost constantly open, if the room be dark; but if a strong light be suddenly admitted to them, the pain becomes so intense, that a violent scream is instantly given, accompanied by an earnest desire "to take the frightful thing away." We have seen this repeated a number of times in the same individual; indeed, for a time, whenever a sudden light was admitted, and especially the light of a candle, when it was necessary to approach one, to give its medicines, or for other purposes. Indeed, the eye may almost be said to obtrude itself upon our notice; not only from the extreme sensibility it manifests to light for some time, but from the varying and prophetic changes it undergoes to the last moment of life. It is either steadfastly fixed, or constantly moving; now shrinking

from the light, from exquisite torture, or gazing upon the broad day, with the most perfect insensibility. Now convulsively drawn upwards under the eyelid, that nothing but the whites can be seen, even by separating the palpebræ; or their coloured portions sunk deep in the inner angles of the orbits—no visible part of the frame appears to undergo such decided changes as these little organs; nor from the condition of which can so much be learnt by the attentive observer. It is said, that a convulsive oscillation of the pupil may be observed upon the approach of light, which appearance is declared to be peculiar to the acute hydrocephalus. Now were this constant, which it is not, as M. Itard declares, it might be highly useful in diagnosis, as it would form a pathognomonic sign.

761. The bowels are for the most part constipated, and difficult to move; the epigastrium more or less tender, and the abdomen sunk; the urine scarce, and generally high-coloured, depositing a white mucilaginous substance, sometimes with shining particles floating in it; the hands and feet inclined to become cold, while sweat may be observed upon the forehead and about the neck. This state of things continue for an uncertain period, when the third period may be ushered in by convulsion or by a manifest squinting, with decided coma. Paralysis may now be added to the new symptoms, or a pretty constant twitching of the leg and arm of the same side, or a regular and constant motion of them may be now kept up; the pulse is very frequent, small, and wiry—the face disfigured by a livid suffusion; a cold sweat bedews the whole body; the breathing becomes slow, and stertorous, until death closes the scene; or this event may be sadly hastened by convulsions. The bowels during this period reluctantly yield a dark, rue-coloured bile; and the urine oftentimes is entirely suppressed. This period is uncertain in its duration; it may continue several days, or it may terminate in a few hours. Indeed, we have seen a number of instances, where convulsion has not ceased, for a moment, for seven or eight hours together. We do not recollect having seen a single instance of convulsions that were not preceded by strabismus, though we have often seen strabismus without convulsions.

762. The duration of an acute hydrocephalus is very uncertain, and dependent upon circumstances of cause, constitution,

extent of effect, and the period of life. Nor is the succession of symptoms less variable, each individual case showing its own peculiarities. Its progress will therefore be sometimes sufficiently rapid and severe to destroy in a very few days; and other times it may occupy weeks before it shall terminate. The cases in which head-ache has been severe, and where squinting takes place early, are those that terminate the soonest. Again, if after the third or fourth day, the child loses its flesh rapidly, becomes very pale, and its features suddenly sink, it is pretty certain that the disease will run its course rapidly. At other times, the progress is slow, and without much violence of symptoms; and thus runs into a chronic form.

763. There is a peculiarity in the character of this disease, that is truly distressing, and ever to be dreaded; because, so far as we have observed, it is always deceitful—what we allude to is, the promise of restoration, by apparently a real amendment. We have seen a number of cases, where almost every threatening symptom had removed itself; and where the little patient, seemingly, was suddenly placed in a state of convalescence, and hope entertained that the danger was past—but in another instant every thing was reversed, and the child quickly destroyed, by a cruel convulsion. This calm was probably owing to the relief the vessels experienced from the act of effusion, and the subsequent and suddenly bad symptoms from the pressure the effused fluid caused.

764. The prognostic in hydrocephalus must, from the very nature of things, be unfavourable, whether it be idiopathic or symptomatic, under any hitherto proposed plan of treatment. This appears to be the uniform opinion of all the writers we have met with upon this subject. Whytt says, he never cured one that had the characteristic symptoms of this disease; while others, as Fothergill, Percival, &c. declare they have succeeded in curing the disease. Brichteau says he has succeeded to cure one in six; while Odier states his success to have been one in five. M. Itard says he has not been any thing like so fortunate, though he employed every known remedy, besides obtaining the advice of the best practitioners in Paris. But he adds, that within three years, after he had dared to introduce the vapour baths in the treatment of this complaint, that he had obtained much more

flattering results; that he had been able to save two out of three children he treated by this method. We will not pretend to fix the proportion of our success to our failures; but if we do not deceive ourselves, we may say, we have seen hydrocephalus cured in many instances—and some we have at least *seen get well*, under the most unpromising appearances. The symptomatic form of this disease is certainly more manageable than the idiopathic, as the disease from which it proceeds may be “medicable,” and thus giving greater chance for the cure of the other.

765. The signs which announce a favourable change taking place, are first, an abatement of vascular and cerebral excitement, together with a diminution of the squinting; 2d, the relaxation of the forehead and eyebrows; 3d, the stomach retaining its drinks, and the bowels discharging a newly-secreted and yellow bile; 4th, the urine depositing a lateritious or a heavy sediment; and less intensity of colour; 5th, a soft skin, from gentle transpiration; 6th, “though last not least,” in its favourable import, is the renewal of the secretions from the nostrils.

766. Hydrocephalus, it is said, may be simulated by a variety of other diseases, as phrenitis, ataxic fever, serous apoplexy, &c. Why need we say of the first of these, that it simulates dropsy of the brain? May we not declare, that inflammation or irritation is the absolute cause of both or either? And that the others can be the cause of symptomatic hydrocephalus, there can be but little doubt, if dissections prove any thing.

#### *Dissection.*

767. Let us then enquire what the knife reveals to us, in those who have died of the acute hydrocephalus. 1st. “An extreme engorgement of the sinus of the dura mater, and of the blood-vessels spread upon the brain itself. 2d. The substance of the brain altered, and sometimes softened in its natural consistence, but most commonly firm, and very elastic, (rénitent) often smeared with a transparent exudation, or an absolute layer of pus. 3d. Effusion of serum to a greater or less extent in the ventricles, or upon the surface of the encephalon. 4th. The brain imbued with a serosity, that only becomes evident by cutting into the brain, and permitting the fluid to fill up the gashes. 5th.

Sometimes, however, no part of the brain appears to be moistened by any unusual portion of serum." Itard.

768. M. Itard asks, "shall we from this condition of the brain, conclude that a hydrocephalus did not exist, though the disease was strongly marked by its appropriate symptoms? I think not" he answers, "*for the effusion is not the disease; it is only the consequence;* and even by opening the body we may not find an effusion, either because it may have been absorbed after death, or what is more likely, that the irritation of the tunica arachnoides may have been so intense, or sufficiently deleterious, to cause death before the formation of the effusion. Now, we know that similar appearances, have followed from the other diseases just enumerated."

769. In the abdomen, lesions are also to be found; they are the result of a sympathetic influence, between the brain and stomach, &c. This viscus in an especial manner suffers from this cause, hence in hydrocephalus, it is found engorged, inflamed, or suppurating; its membrane softened, and easily destroyed by the finger. We may also observe the intestines, to be much disordered, by inflammation, invagination, softened, or even, in a state of incipient gangrene; and almost always containing more or less worms. The liver also bears marks of recent engorgement.

#### *Acute Symptomatic Hydrocephalus.*

770. This is only to be distinguished from the species just considered, by always being preceded or accompanied by some other acute idiopathic affection. This species is doubtless we believe very much more common, than the idiopathic species, as it appears to be the termination of many other diseases.

771. That fever may eventuate in hydrocephalus, we have no doubt, be its type what it may. The eruptive fevers, however, appear to be more special causes of this affection; scarlatina, when epidemic in Europe, we are informed is very prone to this termination. Cholera infantum, gastrites, and verminous fever,\* are frequent causes of this sympathetic disease. Whytt

\* When worms infest the alimentary canal, a chronic fever or febricula is sometimes induced; this fever is almost always accompanied by drowsiness; flushed cheek or cheeks; hot head; paleness of face except when flushed;

says, "a scirrhus tumour of the glandula pituitaria," may produce hydrocephalus internus."\*

### *Chronic Idiopathic Hydrocephalus.*

772. We have already observed, that this may be the sequel to an acute hydrocephalus; or it may proceed from an hydropic diathesis without requiring any especial condition of the brain itself. This form of the disease has been subdivided, 1st, into idiopathic chronic hydrocephalus, properly so called. This disease is said not to be very rare; and indeed if we take for granted, that every enlargement of the head which takes place after two years, and perhaps up to seven, it might seem to be proved. If this be so, certainly this complaint is not necessarily mortal; as we see children with heads of this kind, grow up to manhood; or we must suppose that the water is absorbed and the cure effected by the recuperative powers of the system alone; or that *mere pressure* from effused serum, is not necessarily productive of death. Sometimes however, this complaint extends itself, so as to render the head enormous, and at the same time truly hideous; eighteen pounds of water it is said have been found in heads of this kind. This complaint gives rise to various disturbances of the system, the cause of which is easily perceived, but it is not to be removed, with any thing like certainty in any case whatever. The other disease to which we now refer, is, 2d, one that is not unfrequently seen among children of an early

emaciation; cold feet; enlarged abdomen; grinding of the teeth during sleep; startings; frequent application of the hands to the head; picking or rubbing the nose; and squinting more or less confirmed. In this account we see a very close resemblance to the more prominent symptoms of hydrocephalus, and with which it is of course often confounded. We remember a remarkable case of squinting from worms in a little girl of five or six years old. The parents were much alarmed at this occurrence, especially as it had made its appearance suddenly, and the child apparently but little indisposed. After enquiring into the history of the case, we were satisfied that all the symptoms justified the belief that they were occasioned by the presence of worms in the intestines—we ordered her the pink root, (*spigelia*), in appropriate doses, (see Chapter on Worms,) which brought away many lumbrici, and the squinting, and other symptoms, disappeared immediately.

\* Works, p. 736.

age; commencing generally pretty soon after birth, and continuing to an indefinite period.

773. This form of hydrocephalus indeed, was for a long time the only one that bore the name of chronic dropsy of the brain. Children are sometimes born with this complaint, though we have never ourselves witnessed an instance of it, in more than ten thousand cases of births, that we have attended; on two occasions, we were obliged to open hydroptic heads, &c. before delivery could be effected. We have seen this complaint show itself a few weeks after birth, and have known it to proceed to a considerable length; but never to the extent recorded by several writers.

774. This disease, we believe rarely admits of a cure; it is almost always mortal, for death takes place sooner or later perhaps in all cases. A variety of means have been proposed for its cure; piercing the cranium with a trocar; salivation; and bandaging. The first plan has nothing but its hardihood to recommend it; the second, it is said, has succeeded; this was first recommended by the British writers; Brichteau, by this means restored the general health of a child of four years old, but without diminishing in the slightest degree the size of the head. And the late Dr. Jenner spoke favourably of bandaging the head. We tried this plan in one case for a long time, but without the smallest advantage. The history of these two affections, will instantly suggest their own prognostics.

#### *Chronic Symptomatic Hydrocephalus.*

775. This species of hydrocephalus is far from being rare; for independently of the affections which are proper to the brain itself, there are many chronic affections of other portions of the body, that call this mass into action, especially, when about to terminate unfavourably. Thus hooping cough, asthma, chronic catarrh, polypus of the heart, aneurisms of the great vessels, may cause a serous effusion within the ventricles of the brain, or upon its surface. Drying up old sores suddenly, especially in aged people; and the sudden disappearance of a scrofulous tumour has been followed by a similar consequence. In addition to the remote causes of chronic hydrocephalus, many derangements

were it important to our subject, of the brain itself, might be mentioned.

### *Of the Treatment.*

776. There are two principal indications to be fulfilled, in the treatment of the acute forms of hydrocephalus—namely, to overcome the irritation or inflammation which has attacked the brain, so as to prevent effusion; and to endeavour to remove the serum, if effusion has taken place.

777. The first is to be answered by all the antiphlogistic means in our power; as bleeding, general and local; purging; sweating; topical applications; blistering, and mercury.

#### 1. *Bleeding.*

778. We must have recourse to this remedy, so soon as the disease is sufficiently developed, to present us with an active and quickened pulse; or where, from the confession of the patient, when able to make the acknowledgment, that there is head-ache; where we see a corrugated forehead; observe an aversion to light, fretfulness, &c. We are aware that many practitioners are reluctant to bleed in the beginning of this disease, because they have seen all these symptoms disappear upon the child being liberally purged, kept quiet, and upon a strict regimen, without having had recourse to blood-letting. This we admit to have happened—but has it not also happened, that the contrary of this has taken place? where the disease ran a rapid and fatal course; and gave the attendant cause to repent his having neglected this important remedy in the beginning—we at least acknowledge this to have happened with ourselves, and therefore suppose it may have taken place with others.

779. On this account we now rarely omit to have blood abstracted, either by the lancet, or by leeches. From the arm, whenever there is much arterial action, with manifest cerebral irritation; by leeches when the symptoms are less palpable, or more moderate; and governed by the same rules, we repeat it, *pro re nata*. Much importance is now attached, to the part on which leeches are to be placed; more perhaps sometimes, than the case really demands. On this point, our selection is usually

made, by the opinion we have formed, whether the symptoms arise from an idiopathic cause, or a sympathetic influence. If we believe it to be the first, we order them to the temples and behind the ears; if the second, we suppose them to arise from some irritation in the chylopoietic viscera, and direct them to be placed upon the epigastrium. Itard insists upon their superior usefulness when applied to the lower extremities; this may be so—but we fear there is more theory in this, than practical confirmation.

780. In our employment of blood-letting in hydrocephalus, we are always governed by the actual state of the system; and never prescribe for the name of the disease. If the system be prostrated before any cerebral affection manifest itself, we never bleed from the arm; and we only use leeches, where we judge there is a farther reduction of arterial action absolutely necessary to the safety of the system. But at the same time, we are in the habit of using other remedies in conjunction with the bleeding; especially to the lower extremities—these remedies may be, warm water and mustard, sinapisms, or blisters. As regards the quantity of blood to be drawn, we can lay down but one fixed rule—namely, to accommodate the quantity by the exigency of the case, and the age and strength of the patient.

## 2. *Purging.*

781. This remedy cannot be dispensed with, in either form of hydrocephalus—in the acute, it is essential, as no other remedy with which we are acquainted relieves the head of its superfluous blood like purging—this effect is not difficult to understand if we call to mind the direct communication of the blood-vessels of the abdomen and the head. Some indeed are of opinion that purging is more to be relied upon than the abstraction of blood—we are also of this opinion *quo ad hoc*; namely, where a morbid condition of any of the abdominal viscera give rise to the cerebral irritation; but where the affection of the brain is really idiopathic, we believe this is not the case. The case related by Cheyne where, “two chamber-potsful of the most extraordinary *fæces*,” were brought away is a case in point. But notwithstanding our conviction of the efficacy of purging in

hydrocephalus, yet it must be understood, that it is only certainly, and extensively useful, in the idiopathic acute hydrocephalus, and after the system has been lowered by a previous bleeding, or bleedings. Not so, perhaps in the symptomatic species—in this variety, purging may be of paramount benefit to bleeding, as the case just cited appears to prove.

782. But in either case we purge—whether bleeding has been premised or not. For this purpose we prefer a few grains of calomel, followed in two or three hours by castor oil or magnesia, should the calomel not have operated sufficiently. We persist in this plan daily; unless we see some evidence, that this remedy has been carried far enough, by only very small, green, and frequent stools succeeding to their exhibition; or if the evacuations become watery, or accompanied by some of the mucus from the bowels. After a free purging has been instituted, and we think it no longer desirable to persevere in it, we maintain a sufficient action of the bowels by very minute doses of calomel, that is, from a quarter to half a grain every two or three hours, or by small doses of castor oil. It may be proper however, to suggest a caution to the young practitioner here, not to persist too long in cathartic medicines, by reminding him, that in most instances, the stools will appear of a dark-green colour, purge as we may; therefore that farther purging is not called for from the mere appearance of the evacuations.

### 3. *Sweating.*

783. By sweating, in this place, we would only wish to be understood, the exhibition of such medicine as have a tendency to produce diaphoresis, without expecting a profuse discharge like that, which take place upon the solution of fever of regular type. For though fever is an almost constant attendant on the disease in question, yet it has no uniform termination; but notwithstanding this, we think we have seen advantage follow the exhibition of the tartrate of antimony in minute doses; that is, from the tenth to the twentieth part of a grain, exhibited every two or three hours—or the eighth or tenth of a grain of ipecacuhana at the same intervals.

#### 4. *Topical Applications, and Blistering.*

784. The topical applications besides blisters, are cold to the head; pediluvium; and sinapisms. For the first to be successful, the hair should be cut off, or the head shaved—the best mode of applying the water, is by a bladder of large size partially filled with cold water, or ice and water. These applications should not be continued too long at a time; therefore, when the temperature of the head is well reduced, they should be removed, and not again applied until the head again becomes warm.

785. Sinapisms are only proper where there is a reduced pulse, and a tendency in the extremities to become cold—they may then be applied to these parts with advantage, until the skin becomes red, *but no longer*. They may be renewed however, as occasion may require; or when the redness goes off.

786. Pediluvium may be had recourse to from time to time, especially if the determination to the head be strong, and the legs and feet rather cold; in the latter case, a little flour of mustard should be mingled with the water.

787. Blisters are to be applied to the legs and thighs alternately if necessary, as soon as the first stage threatens a conversion into the second; and they may be repeated to the end of the disease. Many prefer the head; but this is certainly an inconvenient part to blister, if it be not an improper one; and if we can place reliance upon our own experience, we have thought it injurious in many instances. To the nape of the neck, is much better as regards effects; but the position is certainly a most fatiguing one to the patient—we have therefore for the last thirty years, rarely applied them to this part; believing most firmly that more advantage is derived from their employment upon the extremities.

788. After effusion has certainly taken place, we have little to hope for, or to rely upon—absorption we have reason to believe, can rarely take place, from even the anatomical arrangement of the brain itself; and our means to aid this, with our present limited knowledge, is almost confined to one article; namely, *mercury*, freely urged by the mouth, and by the skin. This

remedy in such cases, certainly deserves a trial, for as far as the facts can be proved by our senses, and belief, a number have recovered under its use, since it was first recommended in 1775, by Dr. Dobson, of Liverpool.

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## CHAPTER XIII.

### DISEASES OF THE EYES.

#### *General Observations.*

789. THE diseases of the eyes and their appendages, the brows, lids, and lachrymal organs and passages—form a class of affections so numerous, diversified and important, as to constitute in many parts of Europe, a separate branch of study and practice; and in the principal universities, their consideration is the province of an appropriate professorship. It will not, therefore, be expected in a treatise on the practice of physic, that we should enter into a particular investigation of these complaints; for even if they be not considered as belonging to a distinct division of our art, at least many of them appertain rather to the province of surgery than to that of physic; and moreover, to treat of them in detail would require more space than we can with any propriety allot for that purpose. All that we shall attempt, will be, to give a general and cursory sketch of the more prevalent and important derangements, or those which the medical practitioner is most frequently called upon to treat; referring those who desire more particular information to the professed works on the subject.

790. Several distinct structures enter into the formation of the eyes, some of which are entirely different from any of the other tissues of the body. The conjunctiva, or the membrane which lines the eyelids, and covers the anterior half of the globe of the eye, though villi cannot be seen on its free surface, may be considered as a mucous membrane, except that portion covering the cornea, which exhibits a nearer approach to the character of serous

than to that of mucous tissues. The sclerotica is a fibrous tissue, except its anterior transparent portion, the cornea, which cannot with propriety be arranged in this class.\* The membrane lining the chambers of the eye, and covering of the iris—called the membrane of the aqueous humour—the choroid and hyaloid membranes, may perhaps without any great error be considered as serous tissues. The retina is a nervous, and the iris an erectile tissue. The cornea and crystalline lens† differ from any other portions of the body in their structure.

791. These tissues are all liable to inflammation, which not only varies in violence, but presents a peculiar character in each class, and which even in the same class is modified by peculiarities of constitution in the patient. These variations have afforded to the nosologists an opportunity for the manufacture of species, and the construction of a nomenclature, of which they have not been neglectful; and accordingly we have a host of names, a repetition of which we will spare the reader.

#### SECT. I. CONJUNCTIVITIS.—INFLAMMATION OF THE CONJUNCTIVA.

##### *Anatomical Characters of the Conjunctiva.*

792. The conjunctiva is the most delicate of all the mucous membranes; it is exceedingly thin, transparent, devoid of papillæ, colourless upon the globe, and of a rose colour upon the eyelids. That portion which covers the cornea is united to its subjacent coat so closely, that it is difficult to separate them. To the sclerotica and eyelids, it is loosely connected by a fine, cellular tissue; within which, between the conjunctiva and the cartilages of the palpebræ, are a number of small whitish or yellowish glands, consisting of minute, very elongated, narrow,

\* Professor Mayer, of Bonn, in his classification of the organic tissues, places the cornea, crystalline lens, epidermis, hair, nails, teeth, &c. in a class to which he has given the name of Lamellar. It may be objected to this arrangement, that the structures he has thus grouped together differ as much from one another as they do from those with which they were formerly arranged.

† The aqueous and vitreous humours, though important parts of the organ of vision, cannot be considered as organic tissues—when they become morbid, it is the result of disease in the vessels by which they are secreted.

tortuous sacs, which pour out their secretions through small openings, disposed in a regular arcuated line, just within the edge of the eyelids.

*Physiological Characters.*

793. The conjunctiva, in a healthy state, secretes a mucous fluid, which is liable to be increased, altered, or suppressed by inflammation. It possesses a high degree of sensibility.

*Pathological Characters.*

794. The susceptibility of parts to inflammation, the continuance and violence of the affection, and the facility with which restoration takes place, appear to be in direct proportion to the facility with which their vessels can be distended. From the looseness with which the conjunctiva is connected with the palpebræ and sclerotica, their vessels readily expand so as to admit red blood, and when the exciting cause is removed, unless the disease has been of very long duration, as speedily recover their tone, and contract to their original dimensions. Very different, however, is the case with respect to the corneal conjunctiva; it is united to the cornea by such a dense connecting texture, that its vessels are prevented enlarging themselves even during high degrees of inflammation, and red blood is only admitted into them when the inflammation is long-continued; but when once distended, their restoration is very difficult, and seldom effected without some derangement in structure and loss of transparency in the part.

795. Inflammation of the conjunctiva commences by dilatation of its white capillaries or serous vessels, which in a healthy state are not visible, but may now be seen conveying red blood, and as the disease advances, the number of these red vessels increases; the sensibility of this membrane is exalted, and villi usually become apparent. The natural secretion is increased, afterwards altered, and finally pus is poured out, often very profusely. In some rare instances coagulable lymph is secreted, completely agglutinating the ocular and palpebral conjunctiva; one case of this we have seen. A serous fluid and sometimes blood is effused in the cellular tissue beneath the conjunctiva. In the progress of the disease, coagulable lymph is effused in the

substance of the conjunctiva; this membrane becomes thickened, hardened, and sometimes on the globe assumes the appearance of tendon; fungous excrescences are at other times formed, especially near the edge of the tarsi, which are sometimes of a fleshy appearance, at others of a hard cartilaginous nature resembling warts, and not unfrequently of a soft spongy texture and dark colour, resembling clots of blood.

796. Inflammation does not readily extend to the corneal conjunctiva, but in severe inflammation of the eye it becomes eventually affected. This is first manifested by a slight haze or dimness produced by a fulness of its serous vessels; these in the progress of the disease become so dilated as to convey red blood; coagulable lymph is thrown out, thickening this membrane, and rendering it opaque. The conjunctiva has little disposition to ulcerate; when ulceration occurs, it is usually the consequence of pustules or small abscesses beneath it.

797. When inflammation is kept up for a length of time, in the sclerotic conjunctiva, its blood-vessels become permanently enlarged, coagulable lymph is secreted around them, and a membrane is formed, which sometimes appears of a fleshy consistence,\* at others like a delicate tissue of vessels.† Baron Larrey says that pterygium was one of the most frequent sequelæ of Egyptian ophthalmia.

798. A nodule of fatty matter is sometimes formed under the conjunctiva, either in consequence of chronic inflammation or some derangement in the nutrition of the part. We have seen small hard bodies, perfectly transparent, in or upon the sclerotic conjunctiva, and which were probably the effect of a similar cause.

799. Sometimes tumours form on the conjunctiva, composed of a group of varicose veins; we have observed these only at the inner canthus.

#### *Causes.*

800. Inflammation of the conjunctiva, may be excited by a variety of internal as well as external causes; among the former

\* Pannus of authors.

† Pterygium.

may be mentioned, the abuse of stimulating liquors or food, prolonged irritation of the stomach or alimentary canal, the suppression of perspiration, of the menstrual or hæmorrhoidal discharge, of a periodical or chronic hæmorrhage, or of an habitual sweat, metastasis of gonorrhœa, the retrocession of an exanthematous eruption, &c. To the latter may be referred foreign bodies introduced into the eye, and these may excite irritation either by their mechanical operation, as sand, spiculæ of iron, &c. or by their corrosive or stimulating properties as lime, and different chemical agents, smoke, irritating vapours, &c.

801. In children it is sometimes produced by the irritation of teething; and Mr. Ware says that he has seen it produced in old persons, by a decayed tooth.

802. It may also be produced by any cause which determines an unusual quantity of blood to the conjunctiva; or by tight ligatures around the neck interrupting the flow of venous blood from the head, as tight cravats; the tight inelastic stocks worn by soldiers was one of the causes of the conjunctivitis that prevailed so extensively in the army of the low countries a few years since.\* Light, also, either direct or reflected from white or polished substances, produces a determination of blood to the eye, and thus excites inflammation of the conjunctiva. In the different towns upon the coast of Barbary, subject to the Emperor of Morocco, where it is the practice to whitewash the walls of the houses externally, the inhabitants suffer greatly from this disease, while on the opposite shores, where this practice does not prevail, the inhabitants are exempt from it.

803. Heat, by its direct stimulus, excites inflammation. Blacksmiths, and those engaged in furnaces, suffer from the disease from this cause.

804. Cold acting either directly on the eye, or through the medium of the constitution, is a very frequent cause of the disease, but it is sudden transitions from heat to cold, that is the most prolific source of the complaint. Soldiers on duty, in high latitudes, alternately exposed to the heat of the day and bright light of the sun, and to the cold and dews of the night are often

\* Vlemingx and Van Mons. Essai sur l'ophthalmie de l'armée des Pays. Bas. p. 41.

seized with it. In the commencement of August, 1812, great numbers of the French army, in its march upon Smolensk, were affected with ophthalmia, produced by these causes; and the Prussian *corps d'armée*, in 1813, and many regiments of the British army in 1815, suffered from the disease, arising from similar causes. The effects of cold are also very severe when combined with a current of wind. Dr. Smith states that of two detachments of invalids sent from the Mediterranean, most of them were attacked with inflammation of the eyes upon reaching the windy latitudes of England. Mr. Reilly,\* surgeon to the British ship *Saturn*, states that when off Brest, in October, 1797, when the weather was damp and the wind east, ophthalmia broke out among the crew, three hundred of whom were attacked with it, and he remarks that the sick list varied with the weather. Soldiers on guard, during a stormy night, and individuals lying opposite to open doors or windows, are exceedingly liable to become affected with the disease under consideration. In France, during the conscription, it was not uncommon for the young men to procure an habitual ophthalmia by exposing their eyes to a current of air from a key-hole or crack, and thus obtain a discharge, for which they often paid with the loss of an eye.†

805. Moisture exercises a very baneful influence over this affection. Dr. Vetch states that there was not a single case of the disease, in the 54th regiment, (in which it prevailed,) of a violent form until the 24th of September, when after a very heavy fall of rain during the night, to which the men affected with the ophthalmia were more particularly exposed, by being at the time under canvass, the whole number of patients, thirty-four, were found in the morning with their eyes completely closed by the swelling of the palpebræ, attended with the excruciating pain, the purulency, and other symptoms of the disease in its most alarming and inveterate form. He farther remarks, that the changes in the state of the disease were uniformly influenced by those of the weather, and afforded the most unequivocal proofs of the deleterious consequences which result from an increased humidity of the atmosphere. He adds, "the disease is so fre-

\* Trotter's *Medicina Nautica*.

† *Dictionnaire des Sciences Médicales*.

quently aggravated in wet or foggy weather as to attract the attention of every person connected with it.”\*

806. In Egypt, where the days are generally hot, and the nights cold and damp, the disease prevails to an enormous extent; and we can readily understand why inflammation of the conjunctiva is produced more frequently than gastro-enteritis, since the former membrane is kept in a constant state of irritability by the excessive heat of the days, by the bright light reflected from the sands of the desert, and by the dust with which the atmosphere is constantly loaded.

807. Whenever a great number of persons are crowded together for any length of time in close, ill-ventilated apartments, disease is almost invariably generated; in some instances we have inflammation of the conjunctiva; in others, inflammation of the other mucous membranes, dysentery, fevers, &c. In what precise manner the impure air of these situations acts, we are not prepared to show; that, especially where the eye is previously in a state of excitability, the disease is often excited by the difference of temperature experienced in removing from the air of these places, heated during the night, to the cool air of the morning, we think no doubt can exist; but the *impurity* of the air seems also to affect the conjunctiva, and certainly when this organ is inflamed, it aggravates the disease. When the eyes are predisposed to inflammation, remaining long in a crowded room, is exceedingly prejudicial. In several divisions of the British army, in which puriform inflammation of the conjunctiva prevailed, the disease disappeared on their being sent to the Peninsula and employed in active service. On their return they were placed in barracks, and in six months the disease again became prevalent, and was again arrested on the troops being sent into service.†

808. Soldiers in barracks suffer much from ophthalmia. The eyes of this class of persons are generally kept in a state of irritation by the light of the sun, the dust to which they are exposed during their long and frequent drills, and the conjunctiva is often

\* Edinburgh Medical and Surgical Journal.

† Vetch. A Practical Treatise on the Diseases of the Eye, p. 188.

injected with an undue portion of blood in consequence of the return of that fluid from the head being retarded by their stiff collars and tight dress. With their eyes in this state they are crowded together at night in barracks, the atmosphere of which becomes impure and heated, and at sunrise they are obliged to leave their heated quarters and expose themselves to the cold air of the morning, and are thus exposed to a difference of temperature equal to that between the day and night of tropical climates.

809. Inflammation of the conjunctiva is likewise of frequent occurrence in ships, and children's asylums. In 1782, a violent form of the disease broke out on board the English ship of war *Albemarle*, and in 1797, in one of the ships of the squadron off Brest. In one instance it appeared on board a French slave ship, where it deprived many of these unfortunate people of vision, and spread so extensively among the crew, that only one of them was left with sight to bring the ship to Guadalupe.

810. In the Hospital for Children at Paris, this affection prevails almost constantly; it is also of frequent occurrence in the Foundling Hospital of Bruxelles. In 1804, it made its appearance in the Royal Military Asylum, near London, for the children of soldiers, and spread with such rapidity, that from April to the end of the year, three hundred and ninety-two children were attacked with it; it also appeared in the spring and autumn of several succeeding years. In the Children's Asylum of Philadelphia, under the care of the guardians of the poor, the disease has prevailed ever since its establishment, and often to a distressing extent.

811. New-born children are very subject to purulent ophthalmia. This is sometimes produced by vicissitudes of temperature, exposure of the head to cold, and perhaps soon after to the heat and light of large fires, the use of dirty sponges to the face and eyes, and by the vitiated air of lying-in hospitals; but by far the most frequent cause of the disease is the matter of leucorrhœa or of gonorrhœa, which probably is applied to the eye while the head is in the vagina. If the mother has either of these diseases, or indeed any morbid secretion from her vagina, the child, unless its eyes be carefully washed immediately after

birth, will in a large majority of cases, be afflicted with the disease.

812. Ophthalmia is also produced in adults, by the gonorrhœal matter being, through carelessness, applied to the eye. Sometimes, upon the suppression of a discharge from the urethra, inflammation of the conjunctiva makes its appearance, caused as it has been supposed by a metastasis; but we suspect that such an occurrence is by no means so common as is believed.

813. The purulent secretion from the inflamed conjunctiva, like all other morbid secretions, when applied to the eye, will excite inflammation. Many surgeons have disbelieved this, and M. Hupsch, a surgeon attached to the army of the Netherlands, was so incredulous, that he submitted to be inoculated with this secretion, and in twenty-four hours he was attacked with an inflammation so violent as to endanger his sight. M. Kirkhoff inoculated different individuals with matter flowing from patients afflicted with ophthalmia, and although, in so doing, he scarcely touched the edges of the eyelids, and in such a manner that it could not act as a foreign body, ophthalmia followed in one, two, or three days. M. Guillé also introduced, under the eyelids of four boys, born blind, some mucus taken from the eye of a person labouring under purulent ophthalmia, and they were removed from all other infection supposed to have a prejudicial influence, and inhabited an airy, healthy situation, yet they each had an attack of purulent ophthalmia. We have seen the disease in some instances communicated to several in a family, from wiping on the same towel with one who was suffering from the complaint.

814. By many surgeons, inflammation of the conjunctiva, attended with puriform discharge, is supposed to be propagated by a specific contagion. So eminently contagious does Mr. Edmonston consider the disease, that he believes, "the simple inspection of the eye of a person labouring under the disease, to be sufficient to produce it in another;" and in proof of the correctness of this belief he relates the following circumstance with becoming gravity:—"Two serjeants came one day to the hospital together, complaining of sore eyes; one of them had been affected three hours before he made any application; and one

hour before presenting himself at the hospital, he requested his friend to look at his eye. The other complied, and declared to me that while looking at the eye of his comrade he felt a pain in his own. Although only one hour had elapsed from the time of the first uneasy sensation, the tunica adnata was covered with blood, and the watery effusion had taken place." The question of the contagious nature of this disease has been amply examined in the thirteenth volume of the Philadelphia Journal of the Medical and Physical Sciences; and we think it has there been shown that there is not a particle of evidence of this disease having ever been propagated by *specific* contagion.

815. Inflammation of the conjunctiva sometimes prevails epidemically. At the commencement of the present century it is said to have spread over France, Holland, and almost the whole of the north of Europe. During the months of February and March, 1803, this disease prevailed very generally over Paris. It commenced about the 26th of February, and before the 20th of March nine-tenths of the inhabitants of every class had been affected with it. The complaint was so common, that it was denominated *maladie à la mode*. Strangers arriving in Paris in perfect health, were often attacked the day after their arrival. The disease was often connected and alternated with the influenza, which had raged in that city for a considerable time, and was then beginning to abate.\* It occurred frequently with the influenza that prevailed in Philadelphia during the winter of 1826-7.

816. Such, as I have enumerated them, are the usual causes of inflammation of the conjunctiva; and according to the activity of these causes will be the violence and extent of the inflammation, while its character will be modified in some degree by the peculiarities of the constitution of the individual in which it occurs.

817. Inflammation of the conjunctiva may be divided into acute and chronic, though the latter is often only an imperfectly cured state of the former; it nevertheless sometimes exists without any well-marked preceding acute stage.

\* Edmonston, Treatise on Ophthalmia, p. 49.

*Symptoms of Acute Inflammation.*

818. Acute inflammation usually commences in the palpebral conjunctiva, the vessels of which first become engorged, and may be often seen running in fasciculi, and sometimes slightly elevated; the natural secretion of the part seems suppressed, and its sensibility exalted. The engorgement of the vessels, with suppression of their secretions, produces a sensation of fulness and dryness, sometimes an itching, with a disposition to rub the eye; as the eyelid passes over the ball, the elevated vessels rubbing upon the sclerotic conjunctiva, a sensation as if a grain of sand or some foreign body were in the eye is produced, and it is frequently almost impossible to convince the patient that this sensation is deceptive. From the accumulation of blood in the conjunctival vessels there is increased redness, and the blood also being the great source of animal heat, the temperature of the eye is augmented, and as the sensibility of the part is exalted, a sensation of burning is often experienced. This constitutes the *first stage*, or that of simple engorgement.

819. In the *second stage* the vessels relieve themselves by an increased secretion; the meibomian glands are usually implicated, and their secretion which in the first stage is often suppressed, now becomes increased, after a while vitiated in quality, and during the night its more fluid parts being absorbed, the lids are glued together and are with difficulty opened in the morning. The excretory ducts of these glands are often blocked up by an incrustation of this secretion, and if care be not taken to remove it, ulceration will be produced. The lachrymal gland, soon sympathises in the disease, its secretion is sometimes lessened, at others suppressed, most frequently it is increased in quantity, and from the exalted sensibility of the parts, produces a sensation of scalding; after a time it becomes vitiated in quality and produces an excoriation of the cheek over which it passes. The redness, which at first was confined to the palpebral conjunctiva, now spreads over the sclerotic portion.

820. In the *third stage* the redness becomes more uniform and intense, and the conjunctiva assumes a villous appearance.

Effusion takes place in and beneath the conjunctiva, usually commencing in the palpebral portion. This effusion consists of a serous fluid, sometimes when the inflammation is violent, of blood. In proportion to the quantity of this effusion, the conjunctiva becomes thickened, and as the palpebral portion swells it everts the lids, producing what is called *entropion*. The sclerotic portion also becomes thickened, elevated, often protrudes between the lids; while the cornea appears deeply sunk in the globe, the conjunctiva covering the cornea, being so intimately connected with that part, as not to admit of effusion beneath it. This condition of the sclerotic conjunctiva is called *chemosis*. The secretion from the free surface of the conjunctiva is increased, and assumes a puriform character; the quantity of purulent fluid secreted from this part is often surprisingly great, greater perhaps than from any other mucous membrane of equal extent; we have frequently seen pus run from the eye in a continuous stream. The retina now often sympathises with the conjunctiva, and there is intolerance of light; which is frequently so great, especially in children, that it is extremely difficult and sometimes impossible, to open the lids so as to examine the globe of the eye. Even when we succeed in separating the lids, the orbicularis, in consequence of the photophobia and irritation of the disease, contract with such power, as to produce an eversion of the lids and the protrusion of the swelled conjunctiva still impedes the view. When the lids are everted in the effort to examine the eye, great care should always be taken to restore it to its proper condition, or serious consequences may result. Their restoration may be accomplished by pulling gently at the conjunctiva, and if it does not succeed, by pressing at the same time upon the protruded conjunctiva.

821. Coagulable lymph is next effused into the conjunctiva, which becoming organized that membrane assumes a fleshy appearance. At this period or even earlier, the cornea, sclerotic and the internal parts of the eye become implicated, and there is then in addition to the symptoms of inflammation of the conjunctiva, all the effects of inflammation of the whole globe.

822. As long as the inflammation is confined to the conjunctiva, the pain is trifling; we have seen the conjunctiva of an uniform red

colour, elevated all round the cornea, the eyelids swelled, and the discharge of pus profuse, and yet the patient not complain of pain. But when the other membranes of the eye become affected, the pain is excruciating. There is an increased secretion of aqueous humour, the eye-ball feels distended, with an occasional sensation as if needles were thrust into the eye, accompanied with fullness and throbbing of the temples and deep-seated pain in the globe of the eye. This pain is often intermittent; at one moment it will be very violent, at the next it will disappear, and sometimes it shifts instantly from one eye to the other.

823. At this period the cornea sometimes ulcerates, and its internal lamina is projected forward by the pressure of the aqueous humour; at other times the cornea ruptures, the iris is forced through the opening, and occasionally closes it—not unfrequently rapid sloughing of the cornea takes place, the whole contents of the globe are discharged, and sight irrevocably lost. It occasionally happens that the cornea sloughs extensively, the aqueous humour is evacuated, and the lens covered only by its capsule, advances against the opening; under these circumstances, the patient who has long been deprived of vision, sees very distinctly, and enjoys the most pleasing anticipations of an entire recovery of sight, but the capsule soon busts, and the disappointed victim is plunged into utter and perpetual darkness.

824. The violence of the disease being thus expended, the redness generally subsides; absorption of the effused lymph and serum commences, lessening the tumefaction of the lids, and with it the inversion of the tarsi. But if the inflammation has continued for any length of time, the conjunctiva has become thickened, indurated, and near the edges of the tarsi especially, granulated; and when the œdema of the lids disappears, the edges of the eyelids are more or less inverted, according to the greater or less degree of the diseased or granulated state of the palpebral conjunctiva. If the inversion is considerable, the sclerotic conjunctiva, from exposure, or in other instances from the irritation produced by a granulated palpebral conjunctiva, is kept in a constant state of irritability or chronic inflammation, and by the slightest causes, acute disease is frequently and readily excited. If relief is not now speedily afforded, the cornea becomes per-

manently disorganized, thickened, often ulcerated, and staphyloma or prolapsus iridis results, or the contents of the globe are lost.

825. Such is the course of inflammation of the conjunctiva, but the progress of the disease cannot always be distinctly traced, nor does it always run the regular course we have described. Sometimes it proceeds with such rapidity as to arrive at its utmost violence in a few hours, at others its progress is very slow. In many instances the disease continues in its first stage for days, weeks, and even months, or only advances to the second stage, and then subsides entirely; in others, some exciting cause rouses the disease into activity, and then it may run its course with amazing rapidity.

#### *Symptoms of Chronic Inflammation.*

826. The progress of chronic inflammation of the conjunctiva is very irregular. It usually commences, like the acute, in the palpebral conjunctiva, and is often confined principally to that part. The conjunctiva becomes of a uniform redness, and a little livid, it is thickened by an effusion of lymph, and converted into a dense reddish tissue of a fleshy appearance. There is lachrymation, with a slight puriform discharge, and an increase of the secretion from the meibomian glands, by which the eyelids are glued together at night.

827. Little pustules sometimes form, which burst and discharge an ichorous fluid, leaving small ulcers; these extend over the whole edge of the tarsus, especially the lower, and if not cured, involve and destroy the ciliary follicles; the ciliæ of course fall out, and the fine cuticle of the lid becomes excoriated. This form of the disease is very common in children, and sometimes lasts the principal part of their lives. When this happens, it is, we believe, the fault either of the patient or the practitioner, as we have never seen a case with the requisite attention, resist proper treatment for one month; and we have cured cases of eighteen and twenty years duration in less time.

828. We have mentioned among the sequelæ of acute inflammation, a granular state of the palpebral conjunctiva. This state

is also frequently produced by chronic inflammation of a very slight character. Granulations are small round bodies, sometimes of a fleshy appearance and consistence; at others pale, and of a hard cartilaginous nature; and not unfrequently of a soft texture and dark colour, like clots of coagulated blood, and discharge that fluid copiously upon being slightly touched, even in some cases by the mere motion of the lids. They are generally dispersed over the whole of the inner surface of the lids, sometimes they appear confined to particular parts, and are always most luxuriant at the edges of the tarsi. The irritation caused by these granulations, keep up a constant chronic inflammation of the sclerotic conjunctiva and cornea; and where the inflammation of these parts appear to be the only affection, on examination it will often be found to be entirely dependent upon the state of the palpebral conjunctiva we have described.

829. We pass over the other effects of chronic inflammation as of minor importance, or as appertaining more particularly to the province of surgery.

#### *Inflammation of the Conjunctiva in Irritable Constitutions.*

830. This form usually occurs in children of irritable habits, with swelled abdomens, disposition to enlarged lymphatic glands, and that state of constitution usually designated by the vague term *scrofulous*. It is remarkable for the great intolerance of light which attends it, and which is entirely disproportionate to the amount of inflammatory action. In these cases, from peculiarity of constitution, the retina promptly sympathizes with the conjunctival inflammation, and hence the photophobia.

831. In the description of persons we are now speaking of, the disease, as in the other forms, commences in the palpebral conjunctiva; there is often some pain at first, which generally afterwards disappears; profuse lachrymation, the tears being hot and acrid, and irritating the cheek over which they pass. From the great intolerance of light, the child usually has its hands to its eyes, and its head constantly buried in its nurse's lap, or in its pillow. Extreme difficulty is always experienced in examining the little patient's eyes, even the ordinary light of day being intolerable.

832. The meibomian glands are always implicated, their secretion is vitiated, and ulceration of the tarsi often occurs, also chronic thickening of the palpebral conjunctiva; the cornea becomes generally affected, as is shown by the effusion of lymph, producing opaque spots. This opacity is rarely general.

833. The form of inflammation we are now considering, also frequently appears with cuticular disease, and alternates, or is concomitant with sore eyes, sore head, or eruptions on the head and face, and similar marks of deranged constitution.

### *Pustular Conjunctival Inflammation.*

834. The conjunctiva, like other mucous membranes, is liable to the formation of pustules, they usually occur on the cornea or near its margin. We shall describe them in treating of inflammation of the cornea.

### *Treatment.*

835. The treatment of inflammation of the conjunctiva consists in the reduction of the inflammatory action, and this may be effected by the use of general or local remedies, either alone or conjoined, as may be required. Among the former may be mentioned general blood-letting, emetics, nauseating doses of antimonials, purgatives, diaphoretics, &c.; the latter consists of local bleeding, blisters, and various astringent and stimulating applications.

#### 1. *Blood-letting.*

836. This is unquestionably one of the most important means for subduing inflammation; but to be of utility it must be properly employed, and we shall therefore enter into a full consideration of this remedy.

837. In the forming stage, when this stage is distinctly marked, the inflammation is usually mild, and venesection is rarely demanded.

838. In the second stage, a moderate bleeding from the arm will frequently be required; and it will be often necessary, afterwards, to detract blood locally by cups or leeches to the temples

or behind the ears. In some cases, topical depletion will be sufficient. The quantity of blood to be detracted in all cases must be determined by the urgency and violence of the inflammation, and the constitution of the patient. No precise rules can be laid down on this subject; and it is here that the physician will find it necessary to employ all his discernment and experience. When, however, the symptoms of this stage are violent, and the disease threatens to run speedily into the next stage, depletion must be carried to the same extent as will be advised for the treatment of the third stage.

839. In the third stage the safety of the eye depends upon the boldness with which blood is drawn. When the inflammation is very violent, it runs through the first and second stages, with such rapidity, that when the patient is first seen, there is usually, already chemosis, purulent discharge, lachrymation, &c. No time is here to be lost; moderate depletion is worse than useless, weakening the patient without lessening the inflammatory action. A vein should be opened in the arm and the blood allowed to flow till a decided impression is made upon the system. The first to recommend blood-letting to such an extent, was Mr. Peach. He advises blood to be detracted *ad deliquium animi*, without regard to the quantity; he once at a single bleeding took  $77\frac{1}{2}$  ounces, which completely overcame the disease; nor had it any pernicious, or even the slightest ill effect on the general health of the patient. We suspect however, that it will rarely be necessary to draw blood to such an extent, fainting being usually produced if the patient be bled in an upright position before twenty ounces are detracted. In cases, says Mr. Vetch,\* “where the patient is capable of losing a very large quantity of blood, as soon as the countenance is observed to change, in the full assurance that a state of *deliquium* will succeed, the arm may be bound up. I found experience of great use in informing me whether this event would take place or not, saving by this means the necessity of suffering the blood to flow until syncope actually came on; but the unexperienced must be cautious, and not trust to this issue, for if it does not succeed, and the orifice be again to be opened, the system having had time

\* Opera Citata, p. 221, &c.

to rally, more blood will be abstracted than if no interruption had taken place. The erect posture is well known to be favourable to the success of the operation, in inducing syncope. Opening a vein in both arms is also recommended, but so harsh a practice need seldom be employed. The fear of the operation, it is well known, will often occasion both nausea and syncope, but I never found that the latter produced in this way was to be relied upon as a substitute for the farther evacuation of blood. It was observed, that at a second blood-letting, though repeated in a short time after the first, the quantity necessary to produce syncope was generally larger than was lost by the first operation. Before the principle on which the success of this remedy chiefly depends was properly understood, when large blood-lettings were more frequently repeated, and when, on the whole, much more blood was abstracted than by the practice I recommend, the sensible change produced on the appearance of the blood itself, was a diminution of the relative quantity of crassamentum to the serum, and of the specific gravity of the mass. The serum seemed also to hold a greater quantity either of gelatine, or albumen in solution, as it sometimes became white and turbid. The average quantity of blood abstracted before the approach of syncope appeared to be from twenty-four to thirty-four ounces."

840. With the exception of symptoms of ephemeral fever, and the temporary debility which must of course follow the loss of blood and a spare diet, Mr. Vetch says, that he never could trace any constitutional disease, weakness, or derangement to be connected with this treatment. He adds however, "there are two descriptions of habit and temperament in which the system is longer in recovering from large blood-letting than in others," "the first is that of corpulency, and the other where the powers of the mind have been more developed than those of the body, and attended with irritability of both. Men of a spare thin muscular frame universally lost a greater quantity of blood, without exhibiting any alteration of countenance or disposition to syncope.

841. "Fat people, or those who have a tendency to the formation of fat, faint by the loss of a small quantity of blood. Although such people may be liable to disease, arising from the

obstructed passage of the blood in particular parts of organs, I believe there are none in whom the existence of real plethora is more rare. The deposition of fat withdraws something from the quantity of blood made by the system, while, by enlarging the surface of the body, a greater quantity of that fluid is required to maintain the vigorous action of the extreme vessels."

842. In drunkards and those of broken or extremely delicate constitution, in whom the power of reaction is very feeble, blood must be drawn more cautiously: the chance of a cure in such persons is of course less. The practitioner must not however be deterred from active depletion, because the pulse does not indicate blood-letting. No greater error can be committed in practice, than that of omitting to detract blood in cases where we have evidence of local inflammation, because the pulse does not indicate it. Inflammation may go on to the destruction of a part, without the heart sympathising or being at all excited. The absence of pain must not mislead either. This symptom is often absent in inflammation, especially of mucous membranes, and if a favourable termination is anticipated from the absence of this symptom, and mild measures adopted, the most melancholy consequences will result. We have lately seen a case of purulent inflammation of the conjunctiva commencing in one eye, in which the physician was deterred from general depletion by the state of the patient's pulse. Topical depletion by cups was several times resorted to, but without arresting the disease, and as the patient bore the local depletion well, and as the other eye was becoming affected, venesection was cautiously resorted to, and afterwards vigorously pursued. The time lost in the first instance, was however, fatal to the eye first attacked; the other eye was saved by the copious blood-letting afterwards employed.

843. If the acute symptoms return after the first bleeding, the operation must be repeated to a greater or less extent according to the violence of the disease.

844. Opening the temporal artery or jugular vein, has been recommended as more effectual than venesection, but we consider it to be obnoxious to many objections.

845. After general depletion has been carried as far as prudence will justify, if the disease be not subdued, we must have recourse to topical. This may be effected by cups or leeches,

and the best place to apply them is to the temples or to the back of the neck. Some practitioners apply leeches to the lids, to the eyeball, and to the palpebral conjunctiva, first inverting the lid: we have never seen them applied to these situations in acute inflammation, that they were not productive of injury.

846. Scarifications of the conjunctiva have been extolled as extremely useful. When there is chemosis and after the violence of the inflammation has been subdued by other measures, scarifications may be useful; they should be made freely and bleeding encouraged by warm fomentations. In acute inflammation, where there is no chemosis, we have found them invariably detrimental; adding greatly to the irritation. There is another mode of topical depletion, which has been long practised, and particularly recommended by the late Mr. Ware. This consists in the excision of a portion of the conjunctiva including the turgid vessels on its surface. Mr. Ware considers this as preferable to a simple division of the vessels, as in the latter case, reunion of the vessels often takes place almost immediately.\* In the first or second stages of the disease, I should consider this altogether inadmissible, from the pain and irritation it would excite; but when there is chemosis, or when the inflammation has subsided and left the vessels in a varicose state, it will no doubt be often useful. The operation may be performed by raising the part or vessels to be excised by a small hook and dividing them with scissors.

## 2. *Purgatives.*

847. As co-operating with the depletory measures already recommended and as producing a determination from the head, purgatives should never be neglected. Of these perhaps the Epsom salt is the best, it may be given alone or combined with emetic tartar, as follows; sal. Epsom, ℥j. and tart. emet. gr. j. in solution. This will be found a very useful combination, it evacuates the bowels, produces a determination from the head, and by the slight nausea it induces, lessens arterial action; it may be repeated every day, or every other day, according to circumstances.

\* *Chirurgical Observations, &c.* p. 40, 41.

848. Where there are signs of gastric disorder, calomel, or calomel and rhubarb may be premised.

### 3. *Emetics.*

849. In many cases where the constitutional excitement is but slight, where there is a dull aching pain in the head and unpleasant taste in the mouth with other symptoms of gastric disorder, an emetic will often prove highly serviceable. No fact is better established than that inflammation of the conjunctiva may be produced by a deranged state of the stomach, an emetic by relieving this will often cut short the disease when all applications made to the eye will fail to produce any abatement of the inflammation. These remedies have been objected to as occasioning by the exertion of vomiting an unusual flow of blood to the head and an increase of the vascularity of the eye. That this does take place is unquestionable, and of course cases occur where the remedy is objectionable. Where the inflammation runs high, and where there is considerable danger from a momentary increase of action, or where we have any reason to suspect inflammation of the stomach, emetics ought not to be employed; but in the cases we have pointed out, they will not fail to afford relief. The increased vascularity caused by the action of vomiting, merely lasts during its operation, and the nausea, languor, perspiration and equalization of excitement, &c. which result, is a state of things most favourable to the resolution of the inflammation.

850. Dr. Kirkhoff says, that he has often used emetics with success immediately at the commencement of the disease, even when no gastric derangement existed. But when the disease had advanced to that stage, in which pus is secreted and chemosis is present, he thinks them injurious; we should indeed hardly expect advantage from them at this period.

### 4. *Nauseating Doses of Antimonials.*

851. After the system has been reduced by general depletion, tartar emetic given in small doses, so as to produce nausea, will be found eminently serviceable. Nauseants will not answer as

substitutes for more vigorous measures, but they are highly useful as adjuvants, in keeping down arterial action. They may be used with advantage where there is a great *tendency* to inflammation, and where the symptoms show a disposition to become aggravated as soon as the system recovers from the state produced by previous evacuants.

852. We commonly combine the emetic tartar with *nitre*, and sometimes calomel, in the form of the nitrous powders, and we think with great advantage. Sal. nitre, ʒjss.; tart. emet. gr. j.; calomel, gr. vj.; div. in chart. vj.; one to be given every one, two, or three hours.

#### 5. *Diaphoretics.*

853. In violent conjunctivitis, diaphoretics are rarely indicated, but in the early stages of mild inflammation, and when the affection is combined with catarrhal symptoms, they may be used with advantage. The best is probably the Dover's powder; of this ten grains may be given at night, and perspiration promoted by draughts of hot lemonade. Dr. Kirkhoff says, that he has several times found, that if the warm bath was frequently used the moment the earliest symptoms appeared, the disease might be at once arrested; but if inflammation was already established, this application served only to increase it.

#### 6. *Tonics.*

854. In patients of weak and irritable habits, or those whose constitution is destroyed by the excessive use of ardent spirits, &c. the inflammation early spreads to the cornea, producing ulceration and sloughing of this part. The edges of the wound appear ragged and unhealthy, and the strength of the patient is mostly prostrate. In such cases tonics will be demanded; the best are the cinchona, sulphate of quinine, and sulphuric acid.

#### 7. *Diet.*

855. During the existence of acute inflammation, the diet should be of the strictest antiphlogistic nature. In some cases it will be necessary not only to restrict the patient to bread and water, but even to limit the quantity of the former. Toast-water alone is sometimes sufficient. Barley-water or rice-water acidu-

lated with lemon-juice, or lemonade may at other times be allowed. As the inflammation abates, rice, sago, oatmeal gruel, and panada, may be taken; also the acid fruits, grapes, peaches, &c. and the scale of diet gradually increased as the inflammation ceases. In those cases in which we have recommended tonics, (see par. 854,) a generous diet must be allowed; this may consist of sago, or tapioca, with a little wine or spices, light and digestible meats, &c.

#### 8. *Blisters.*

856. As in other inflammations, blisters have been highly recommended in that of the conjunctiva. However useful they may be in other inflammations, and though in some varieties of ophthalmia the advantages derived from them are decided and unequivocal, yet in the affection under consideration their utility is by no means unequivocal. When applied near the seat of the disease, particularly in the early stages, we have never seen them fail to aggravate the inflammation. The excitement which they produce extends to the eyes, and their application is found to be injurious rather than beneficial. But in the latter stages of the disease, where there is a good deal of local action, and after depletory measures had been used, blisters applied behind the ears or to the nape of the neck may be found serviceable. Some practitioners recommend the blisters to be put over the eye, and assure us that they are, when thus applied, productive of much benefit; we have only to regret that in our experience such has not been the result.

#### 9. *Local Applications to the Eye.*

857. We confess ourselves to be at a loss how to convey to our readers instructions for the employment of this class of remedies. When judiciously used, they save the patient a great amount of suffering, and the physician an infinity of trouble; when improperly employed, they not only aggravate and lengthen the disease, but often prove even destructive of vision. We have known patients in whom all acute inflammation had been subdued, and the vessels continuing to convey red blood from mere weakness or inability to contract to their natural dimensions, restricted to the lowest diet, repeatedly bled, and daily purged;

the disease all the time remaining stationary, while the patient's strength was becoming exhausted, and a most distressing nervous state produced. In this condition, losing all patience, they have sometimes dismissed their medical attendant, and applied to another practitioner, who has cured them at once by the employment of a stimulating ointment. It much more frequently, however, happens, that irreparable mischief is produced from the use of these remedies at an improper stage of the disease. Those afflicted with ophthalmia often lose their patience before the inflammation has been subdued, or neglect to take proper advice, and apply to their eyes at the recommendation of some *kind friend* or *busy gossip*, a stimulating ointment or wash, whence often results so violent an aggravation of the inflammation as to prove entirely destructive of sight. Dr. Rowley, in his Treatise on the Diseases of the Eyes, says, "I can speak from an experience which few have ever enjoyed, that scarce *one instance of blindness* amongst hundreds has happened, in which I could not trace the misfortune to be principally owing to *poultices* or some ignorant *outward application*, while the eyes were inflamed. The phrase of 'the eyes are not to be tampered with,' is almost proverbial; yet ignorance dares, no doubt with the best and most humane intentions, to prescribe injurious remedies in the most difficult and dangerous diseases." A favourite remedy with many "old women" of this city, is molasses, probably in consequence of their having seen it useful in removing opacities of the cornea; for when applied to the eye after all inflammation has disappeared, it is sometimes successful in stimulating the absorbents to the removal of the coagulable lymph effused during inflammation. Having observed it useful under such circumstances, with that want of discrimination which always characterizes ignorance, they apply it indiscriminately in all the stages of inflammation; and no sooner does one of these officious gossips see a child with an inflamed eye, than she forthwith thrusts her finger into the molasses bowl, and separating the eyelids of her unfortunate victim, she wipes her finger over the eyeball; as may be supposed, the inflammation is always aggravated, and often to such a degree as speedily and irrecoverably to destroy the sight. We are afraid to mention the number of victims, we have seen, to this practice.

858. The careful and observant practitioner soon acquires a tact in the use of these remedies, which it is impossible to convey by language; we shall lay down, however, some general directions, which will, we think, prevent any great error in the employment of local applications.

859. Local applications may be divided into those which act principally by their temperature, and those which are stimulating or astringent. Cold effusions have been employed from the earliest periods. Bartolinus states that a physician, his colleague, cured himself of an ophthalmia by the application of a snow-ball. M. Beaupré is of opinion, perhaps justly, that when the disease is produced by an internal cause or cold, that cold applications are improper; but when it is excited by the introduction of irritants into the eye, cold may be had recourse to with great advantage. The irritant being first removed, these applications usually relieve the pain, dissipate the redness, and prevent the progress of inflammation. The best cold applications are cold water, solutions of acetate of ammonia, or sugar of lead.

860. In the acute stage of conjunctivitis, produced by general causes, especially when attended with pain, as is always the case where the sclerotica becomes involved, cold often aggravates this symptom, and in that case tepid or warm applications always afford relief. The best of these are fomentations with warm water, or a decoction of the leaves or heads of the poppy; they should be applied till relief is afforded, and then discontinued. Warm poultices sometimes relieve the pain; but we cannot recommend their use. If the inflammation has a tendency to extend to the cornea, the disposition of this part to take on inflammation is promoted by these applications, and we fully concur with Dr. Vetch, that the relief they afford is in the highest possible degree treacherous; and that so obvious is their tendency to afford relief, by accelerating the destruction of the cornea, that a patient should be entitled to recover damages in whom the disease had terminated unfavourably, whenever it has done so under the application of a poultice.\*

861. There are periods in inflammation of the conjunctiva in which stimulants have been used with advantage. The first is

\* Op. Cit. p. 40.

in the forming stage, or where there is only simple engorgement of the vessels. The Hindoos apply lime-juice and powerful astringents; and in other warm latitudes, where the disease prevails, the natives generally squeeze some pungent vegetable juice into the eye on the first attack. Mr. Vetch acknowledges that these remedies are hazardous, and recommends the liquor plumbi acetatis, in its undiluted state, as an application, "the most efficacious, and at the same time incapable of doing harm in this and every stage of purulent ophthalmia. The sensation it occasions is that of some sand or dust having got into the eye, which lasts from ten to twenty minutes; there is generally a copious lachrymation, and the eye afterwards feels cool, and the sight clear."\* Some practitioners highly extol the solution of nitrate of silver, which they use very strong, (ten grains to the ounce,) and they say with the most decided advantage. We cannot, however, but esteem all these remedies as hazardous at the commencement of acute conjunctivitis, because it is extremely difficult often to decide the limits between simple engorgement and inflammation; and if the latter be mistaken for the former, the progress of the disease will be accelerated, and its violence greatly augmented. Hence, though when timely applied, these remedies are useful, when there can be any doubts on the subject they should never be employed.

862. After the violence of inflammation has been subdued, the utility of these remedies are undoubted. One of the best is the nitrate of silver, and we have found the solution of one or two grains to the ounce of sufficient strength; some practitioners however, recommend a solution of ten grains to the ounce, but we have never ventured upon so strong a solution.

863. Dr. Varlez, of the Military Hospital of Brussels recommends the chloruret of the oxide of calcium, in solution, from one scruple to four drachms, to an ounce of distilled water. Mr. Guthrie has also used it in several cases treated at the Royal Westminster Infirmary for Diseases of the Eye, with advantage.† We have had only one opportunity of trying it, in the Pennsylvania Infirmary for Diseases of the Eye, but in that one we were much pleased with its effects.

\* Op. Cit. p. 205.

† American Journal of the Medical Sciences, Vol. I. p. 459.

864. The solutions of the sulphate of zinc, the acetate of zinc, the sulphate of copper, the acetate of lead, &c. have been recommended, and we have sometimes employed them with advantage. The best mode of applying all these solutions, is to separate the lids, and to inject them into the eye by means of a small syringe.

865. The vinous tincture of opium has been highly extolled by the late distinguished ophthalmic surgeon, Mr. Ware,\* we have not however been satisfied with its effects. The ordinary tincture and the watery solution have also been recommended, we cannot speak of their value from experience.

866. Mr. Vetch, highly extols the infusion of tobacco; he says "it possesses the valuable properties of acting as a powerful astringent, restraining the purulent discharge, and diminishing the œdema or external swelling of the palpebræ; at the same time that its narcotic qualities often relieve the pain and the perpetual watchfulness which the largest doses of opium cannot subdue. The infusion of two drachms of the leaves to eight ounces of water is so powerfully astringent as to corrugate the skin of the fingers when they have been for some time immersed in it. The proper time for the remedy is at night." We shall not attempt however to specify all the stimulants that have been recommended, their number being almost infinite; the preceding will perhaps be sufficient.

#### *Treatment of Chronic Conjunctivitis.*

867. When the inflammation of the conjunctiva is mild from the commencement, or assumes a chronic character on the subsidence of the acute stage, a treatment somewhat different from that which we have just recommended will be required. Venesection here will seldom be demanded and never to the extent advised in the acute stage. Topical depletion by cups or leeches, will be found much more serviceable, but even this remedy will not always be necessary. Purgatives, blisters behind the ears, to the back of the neck, to the arm or leg, and kept discharging; or a seaton to the neck; pediluvæ, and light diet, should constitute the general remedies.

868. The stimulating applications, as the solution of nitrate

\* Remarks on the Ophthalmy, &c. 2d. edition, p. 47.

of silver, sulphate of copper or zinc, alum curd, &c. will be found here eminently serviceable. Dr. Physick, some years ago was induced to try the tar water, in a case which resisted the usual remedies, and with the most complete success. The vapour of the spirit of turpentine has been recommended; in one case we believe it to have been serviceable; the mode of applying it is to hold the eyes over a saucer or plate containing some of this fluid. Care will however, be required, both in the use and selection of local remedies. When they seem to aggravate the inflammation, they must be abandoned and antiphlogistics exclusively used. When one of these local applications, however, is of no service another will often succeed, and it is also useful to change the remedy when it seems to lose its power; and it may after a time be again recurred to.

*Treatment of Conjunctivitis in New-born Children.*

869. In new-born children venesection is not demanded; depletion may be effected by means of two or three leeches to each temple. The bowels must be kept freely open by magnesia alone or combined with rhubarb; cold applications must be used externally, and the eye frequently washed with tepid milk and water. After the violence of the inflammation has been thus subdued, a solution of nitrate of silver or sulphate of zinc, or of alum, should be injected frequently between the lids, by means of a small syringe, and the lids prevented from adhering and confining the secretion by frequently washing them. It is of great importance to attend to this direction, as when the lids become adherent great irritation is caused by the force however small, used to separate them, as well as by the distention caused by the accumulation of the secretion. The eye should therefore be cleaned every half hour or oftener, and this direction is equally important to be attended to in adults.

870. When sloughing of the cornea takes place, the sulphate of quinine must be given, but if the early stage is properly treated, this will rarely if ever happen.

871. When the disease subsides more or less opacity of the cornea is generally left, which must be treated in the manner we shall point out in the section on diseases of that coat.

*Treatment of Irritable Conjunctivitis.*

872. In the acute stage the inflammation must be subdued by topical depletion and mild purges. Venesection is generally injurious. The best purge is in the first instance, cream of tartar and sulphur, and afterwards rhubarb and prepared chalk in equal parts, given daily or twice a day, so as to produce two evacuations in the twenty-four hours. It will be proper to continue the latter purgative with occasional intermissions during the principal course of the disease. Blisters behind the ears, to the back of the neck, or to the arm or leg will also be required. When there is much pain or spasms of the orbicular muscles, fomentations of decoction of poppy-heads, or of boiling water, with a little laudanum in it, will usually afford relief, in other cases, local applications in this stage are of little or no service.

873. After the acute inflammation has been subdued stimulants are proper, and we have found most advantage from the red precipitate ointment, which should be prepared fresh and the precipitate very finely powdered; if the ointment be not well made the practitioner will be often disappointed in its effects. This ointment should be softened by being held near a candle or fire, and a small portion rubbed upon the edges of the eyelids every night. The *vinum opii*, and a watery solution of opium, have been recommended, but we have never resorted to them, having been always satisfied with the effects of the ointment.

874. The child should be kept in a large airy apartment, moderately lighted; and only the lightest and most easily digestible food allowed. We cannot speak in terms of reprobation too strong, of bandages to the eyes, or even of shades; they add to the irritation, and instead of relieving the intolerance of light, render it more permanent.

875. Advantage it is said will sometimes be derived from the tonics, the best of which are the mineral acids. We have never had occasion to resort to them.

876. The disease is usually obstinate and relapses frequent. Often the patient is nearly well, when from some neglect of the nurse, or imprudence of the child, acute inflammation is re-excited and the whole course of treatment is to be gone through again.

*Treatment of Pustular Conjunctivitis.*

877. If we are fortunate enough to see the patient at the commencement of his complaint, we may often, by touching the pustule with the solid nitrate of silver or a strong solution of this substance, and by the administration of a smart purgative, arrest its formation. If however, considerable inflammation exist, topical depletion by leeches, and the administration of purgatives must be premised, and when the inflammation has been subdued by these means, the nitrate of silver may be applied. Advantage will also be derived from the application of a dilute ointment of the nitrate or super-nitrate of mercury, every night to the pustules, as recommended by Mr. Ryall.\*

*Foreign Bodies in the Eye.*

878. We have mentioned these as among the causes of inflammation of the conjunctiva; and in all cases they should be carefully searched for, and removed; since so long as they continue in the eye will the inflammation be kept up. Not unfrequently the disease continues for months, resisting every remedy, when a careful examination has detected some foreign body, which being removed, the complaint has been promptly relieved.

879. As some difficulty is often experienced in removing these bodies, the following observations on the subject may be interesting in this place.

880. Foreign bodies entangled in the eye, occasion great pain, inflammation, and inability to move the lids. They excite an additional secretion of tears; the flow of which frequently removes them. If this fail, the lids should be held open by the fingers, the patient desired to look towards the side opposite to that wherein the extraneous body lies, and the foreign substance may be readily removed with a probe or a small roll of fine linen. If one of the ciliæ fall into the eye, it may be removed in the above manner.

\* Transactions of the King and Queen's College of Physicians in Ireland, Vol. V.

881. Small round bodies, such as beads, usually lie beneath the upper eyelid, and are got out by laying hold of that eyelid by its ciliæ and margin, drawing it outwards, and then making the patients look down, or while the eyelid is held thus, a small curette is to be introduced under its temporal angle, and carried gently on towards the nose.

882. If the bodies be very small, or consist of dust or sand, they should be washed out by introducing the pipe of a small syringe beneath the eyelid at its outer angle, and then directing the stream of fluid, which should be tepid water, or milk and water, over the eye, towards the nose.

883. Extraneous particles are sometimes insinuated under the upper lid, and adhere to it. In these cases, it is necessary to turn the inside of the lid outward, and this may be done without difficulty by the following means. The eyelashes should be taken hold of with the forefinger and thumb of the left hand, a slight pressure being at the same time made on the outside of the lid a little above the upper margin of the tarsus, with the end of a probe, (or some similar instrument,) held in the right hand. The part being thus kept down by the instrument, the lid may be gently raised and then turned. In this everted position of the lid, the foreign particle is immediately brought into sight, and, as before directed, may be removed with a probe or roll of fine linen, &c. When the particle is within the lower lid, this may be readily drawn down so as to bring the foreign substance into view, and it may be removed as above directed.

884. Small bodies, such as particles of metal, the hard wings of insects, &c. are sometimes indented in the conjunctiva; a piece of fine silver wire, beat thin and fixed in a handle, will be found very convenient to remove them with. When splinters of metal get beneath the conjunctiva, they should be seized with a pair of forceps, and cut out with a pair of fine scissors.

885. Workmen in filing or turning of iron, are liable to have particles from it to fly into their eyes. These particles are often imbedded in the cornea. They should be removed with the point of a cataract needle, or a common thumb lancet, which is to be introduced close to the body, and the point then pressed outwards. If these substances are allowed to remain, suppuration will take

place, and they will thus be separated and will drop out. But we should not trust to the operation of nature in these cases, for the continuance of these foreign substances in the eye will generally produce violent inflammation, and add greatly to the patient's sufferings.

886. Particles of cantharides, pieces of mortar, and unslacked lime should be removed by means of a camel's hair pencil dipped in oil or butter.

## SECT. II.—SCLEROTISIS.—INFLAMMATION OF THE SCLEROTICA.

### *Anatomical Characters of the Sclerotica.*

887. The sclerotica is a strong membrane, composed of firm, white, tendinous fibres, intimately interlaced, and consists of a single lamina, though in the fœtus it may be divided into two, these however subsequently coalesce so firmly as not to admit of separation. Externally it is covered with a fine cellular tissue, which connects it with the conjunctiva; its internal surface is smooth having no connexion with the choroid except by vessels and nerves. The sclerotica does not form a complete sphere, it is deficient at its anterior part, where its place is supplied by a peculiar transparent membrane called the cornea. This was considered by the older anatomists as a continuation of the former membrane, and the name of opaque cornea was given it, and of transparent cornea to the latter. We shall not enter into the discussion waged in relation to this opinion, and which has been carried on with all that warmth usually characteristic of disputes, where the difference is more about words than realities; we will merely remark that the structure, functions, and pathological changes effected by disease in the two, are essentially different, and that therefore in a pathological view, they must be considered as distinct. The optic nerve enters the sclerotica at its posterior part; the posterior ciliary arteries penetrate it around the entrance of the optic nerve; the anterior ciliary arteries and some branches from the vessels of the conjunctiva, pass through foramina, a little behind the cornea; and the veins which form the vassa vorticiosa of the choroid, penetrate it obliquely about

its middle. It is of importance to bear in mind this distribution, inasmuch as the appearance of these different sets of vessels in inflammation, enables us to distinguish the tissue affected.

### *Physiological Characters.*

888. The sclerotica is exceedingly tough and firm, but is capable of considerable extension, as is shown in hydrophthalmia, staphyloma scleroticæ, and fungus hæmatodes, and it appears also to possess contractility, as it collapses when the water in hydrophthalmia is evacuated, and in atrophy of the eye.

### *Pathological Characters.*

889. In its diseases as well as in its structure, the sclerotica closely resembles the other fibrous membranes, the fibrous capsules, the tendinous sheaths and aponeuroses. It does not take on inflammatory action very readily, though inflammation may be excited in it, and when once produced, is obstinate and attended with great pain. The violence and duration of inflammation, we have already remarked, appears to be, *cæteris paribus*, in direct proportion to the resistance opposed to the distention of the vessels affected by the inflammatory action. This resistance may be owing to the tone of the vessels themselves, the tension of the surrounding parts, or the dense nature of the tissue.\*

890. Of the truth of the law we have mentioned, a beautiful illustration is afforded, by the difference in the symptoms and progress of inflammation, according as it attacks the sclerotica or conjunctiva. The latter is capable of great distention in consequence of its lax texture and the looseness of its cellular tissue; little resistance is therefore given to the enlargement of its vessels, they soon become distended with red blood, and this is accompanied with little pain, their tone is readily exhausted, and if the exciting cause does not continue to act, they quickly fall into a varicose state, or again contract to their original dimensions.

891. The sclerotica on the other hand, is, as we have observed, a dense membrane, but little elastic, and offers considerable re-

\* Vetch. A Practical Treatise on the Diseases of the Eye, p. 9.

sistance to the distention of its vessels; this opposition to their rapid and easy dilatation prevents their tone from being speedily exhausted, they remain long in a state of active inflammation, and this is always attended with a high degree of pain and irritation. The inflammation of parts tightly bound down by tendinous fascia, exhibits the same phenomena.

892. Of the pathological changes which take place in the sclerotica when inflamed, we have no very accurate or precise information. Like the other fibrous membranes, it seldom, perhaps, never suppurates, and coagulable lymph is rarely poured out by its vessels. Its substance sometimes becomes softer and flaccid, at others it assumes a firmer or harder texture, and instances have occurred of its becoming, in part, ossified.\* It occasionally becomes thinner by intestinal absorption, and bulges out, forming a staphyloma scleroticæ,† and in some instances it is thickened.

#### *Causes.*

893. Inflammation of the sclerotica is said to be excited by various mechanical and chemical stimuli‡ such as blows, punctures, the lodgment of extraneous irritants on the surface or imbedded in the conjunctiva, and more especially when applied to the cornea; acrid fumes, excessive application of the eye, or its exposure to great heat or reflected light, the irritation from a granular state of the palpebral conjunctiva, &c. these are, however, we believe, far from being very frequent causes of the disease; on the contrary, primary scleratitis is rarely produced by them. Extension of inflammation from the conjunctiva, which is supposed to be the most common cause of inflammation of the sclerotica, is, we suspect an occurrence by no means frequent. In violent conjunctivitis, especially after it has existed some time, the ciliary vessels which pass over the surface of the sclerotica to the anterior part of the globe, may often be perceived enlarged, and can be seen beneath the conjunctiva, advancing towards the cornea in distinct trunks, seldom anastomosing until they arrive

\* Wardrop, *Morbid Anatomy of the Human Eye*, Vol. II. p. 240.

† Travers, *Synopsis of the Diseases of the Eye*, p. 130.

‡ Vetch, *o. c.* p. 23.

near the cornea, around the margin of which they ramify and anastomose, and form a peculiar red zone. We are persuaded that this has led to the hasty inference that the inflammation has extended to the sclerotica.

894. Inflammation of the conjunctiva is more frequently propagated to the iris and internal tissues, than to the sclerotica; this last membrane, as we have already remarked, does not readily take on inflammatory action; its vessels, moreover, have less frequent and direct communication with those of the conjunctiva than the vessels of the latter have with those of the internal tissues. Inflammation is not, however, propagated with facility, from the conjunctiva to the iris or choroid. The dense and unyielding nature of the sclerotica, prevents the vessels which pass through it to these membranes from readily enlarging, and hence the anterior ciliaries may be distended without the inflammatory action being transmitted to the internal tissues. In fact, the structure of the sclerotica is such as to enable it to perform the offices for which it was destined in the most perfect manner; dense and firm in its structure, it maintains the globular figure of the ball, preserves and supports its delicate internal tissues, it prevents the vessels passing through it from dilating when acted on by slight or transient irritations, and itself not readily taking on inflammation, remains uninjured, often when in contact with a highly inflamed and suppurating membrane.

895. Another opinion, which we believe to be equally erroneous, is almost universally entertained; it is, that inflammation or ulceration cannot take place in the cornea, until inflammatory action has first been excited in the sclerotic coat, and that therefore irritation or wounds of the cornea always produce scleratitis. Inflammation may however exist in the cornea, and proceed to the effusion of coagulable lymph, and even small ulcers occur without any red vessels being visible either in this coat or in the sclerotic; and when they do present themselves, they appear to belong to a more superficial series than those of the sclerotica. The existence of ulcers, previous to any red vessels being apparent, no doubt led to the opinion entertained by Scarpa, that the inflammation was produced by the ulcers, instead of the latter by the former, as is more generally and correctly believed.

896. Inflammation of the sclerotica is generally accompanied with inflammation of the fibrous capsules and aponeuroses, commonly called rheumatism, and is usually produced either by metastasis of the affection of these parts, or is excited by the same causes that produce inflammation in them, among which cold is the most common. It most frequently occurs in the spring or fall, particularly during the former, and may be often traced to exposure to cold or sudden vicissitudes of temperature.

897. From the great resemblance between gout and rheumatism, it might be supposed that the former disease will also produce sclerotitis, and we have no doubt that such is the case, though we have never met with such an occurrence.

898. We have stated gonorrhœa to be one of the causes of inflammation of the conjunctiva; it is a very curious fact, if true, that it is also, and perhaps more frequently, a cause of inflammation in the sclerotica. The credit of being the first to notice this circumstance, appears due to Dr. Vetch, whose excellent treatise on the diseases of the eye I have often had occasion to quote.

899. We are, however, inclined to the belief, and the cases given by Dr. Vetch would fully warrant such a conclusion, that they are rather concomitant affections, both produced by the same cause, than that the sclerotitis is the consequence of the metastasis of the inflammation of the urethra.\* In all the cases narrated by Dr. Vetch, the discharge from the latter membrane, instead of being suppressed when the former became affected, became more violent as the disease progressed in it; the two inflammations advancing *pari passu*, and when the one abated the other decreased also.†

900. The existence of a catarrhal inflammation of the urethra, as it has been called, is now generally admitted; and its existence is more frequent than is usually supposed. We have repeatedly seen it follow connection, when there was every reason to believe the woman entirely free from disease; and, in most instances, the patients acknowledged that they had over-exerted their seminal and muscular systems; they were generally aware

\* Dr. Vetch expresses his suspicions of this being the case, Op. Cit. p. 248.

† Op. Cit. p. 248.

of having subsequently exposed themselves to cold, and were also sometimes affected with other catarrhal or rheumatic affections. Now, these are the very cases, as is stated by Dr. Vetch, in which the inflammation of the sclerotica occurs. In Dr. Vetch's cases, there was also inflammation of the conjunctiva, with puriform discharge, and this combination is perhaps frequent.

901. Inflammation of the sclerotica also occurs conjointly with that form of rheumatism which is denominated syphilitic, and is the effect either of a metastasis, or it is generated by the same cause which produces the latter affection.

902. When conjoined with the different affections we have noticed, these are considered as the cause of, and are supposed to impress upon the inflammation of the sclerotica their own distinctive characters. Mr. Wardrop, in his excellent paper on "Rheumatic Ophthalmia,"\* remarks, "there are other kinds of inflammation which derive their character, not from the peculiarity of the texture inflamed, but from being produced from specific virus. Hence, the gonorrhœal, the syphilitic, the scrofulous, the gouty, and the rheumatic inflammations of the eye; all of which are accompanied with symptoms different from those of simple inflammation of any of the textures which compose that organ."

903. In what this "*specific virus*" consists, or where or how it is generated, we confess that we have never been able to discover. The attempts, made to indicate the peculiar appearances which each virus is supposed to stamp upon the inflammation it produces, have wholly failed, and the candid must acknowledge that they know of no phenomena by which they can be distinguished. What benefit, then, is to be derived from this separation and multiplication of species—this barren parade of names? The real difference between the inflammations of the eye depends upon the tissue affected, and the modifications of the inflammation of each tissue is dependent upon the diathesis or constitution of the patient.

904. Cold is the most common cause of inflammation of the sclerotica, and the variations which the disease may display in

\* Medico-Chirurgical Transactions, Vol. X. p. 2.

different individuals results from the dissimilarities of their constitutions or diatheses. If the affection is produced by other causes, as extension of inflammation from contiguous parts, or by mechanical injuries, &c. the same phenomena result. The activity of the causes or the extent to which it is applied, may *cæteris paribus*, influence the violence of the inflammation, but the peculiarities of the patient exercise a marked and evident control over the effect of all exciting causes.\* Thus, the most violent local inflammation may be excited in an individual by a certain cause, and the same cause acting upon another under precisely similar circumstances, and in a similar manner, may excite in him a slight inflammation, or perhaps produce no prejudicial consequences; or, if the cause has acted upon the system generally, disease in another and quite dissimilar tissue.

### *Symptoms.*

905. Inflammation of the sclerotica is very variable in its mode of attack, and irregular in its progress. Sometimes it comes on suddenly, is of a very violent character, and attains its height in a short time; at others, it is of a more insidious nature, slow in its progress, involving the internal tissues in its disease, and producing considerable mischief, while the practitioner is thrown off his guard by its indolent and shifting character.

906. When it assumes an acute form, it usually attacks suddenly, and commences with pain and redness of the eye, accompanied with some degree of pyrexia. The pain, as regards its violence, is exceedingly variable; sometimes it is excruciating. We have been told by patients, "if you do not afford us speedy relief, we shall go crazy;" at others, it is moderate; occasionally it intermits, but generally it is unceasing, though undergoing exacerbations, which are usually most severe at night. The pain is generally seated in the eyeball, but extends itself also to the temple, the brow, the cheek-bone, the teeth, or even the whole head; sometimes it is confined to one side of the head; occasion-

\* Mr. Wardrop says that "rheumatic ophthalmia," (sclerotitis,) "not unfrequently follows the operations for cataract, particularly in patients who have had rheumatism in other parts of the body. Rheumatism may frequently be observed to attack a joint or part that has been injured."

ally there is severe pain in the ear or cavity of the nose; and it is often accompanied with rheumatic pains in other parts of the body.

907. The sclerotica is more or less reddened, occasioned by the ramifications of minute vessels, which present a peculiar carmine or rose-red colour.\* They are equally numerous on its posterior and anterior portion, and run in nearly straight lines to the very verge of the cornea.

908. There is generally very profuse lachrymation, though occasionally, especially at the commencement of the disease, the secretion of tears is suppressed.

909. The pupil is often contracted, but preserves its circular form and thin flowing edge; its colour, especially that of its inner circle, is in this case rather lighter than natural; this affection of the iris we believe to be entirely sympathetic.

910. There is often intolerance of light, but this symptom does not always occur, as is supposed by many writers.

911. The tongue is frequently furred, and the gastric and biliary organs deranged.

912. If the disease is very violent, or continues for any great length of time, the inflammation may extend itself to the internal tissues; this is manifested by a red zone round the cornea, by the iris becoming irregular, the pupil filled by portions of coagulable lymph and the other symptoms of iritis; sometimes the choroid, retina, and hyaloid membranes suffer; the vitreous humour becomes more or less opaque, and vision is impaired or even destroyed; if the disease is not arrested, hydrophthalmia may be superadded.† The conjunctiva, particularly that portion which covers the cornea, not unfrequently participates in the inflammation; it loses its transparency; small watery vesicles form, which burst, leaving small ulcers; these seldom extend deep into the cornea, and rarely leave cicatrices behind, but generally little pits or irregularities only, which soon fill up in

\* We believe, however, that inflammation of this membrane, as well as of the cornea, may exist without any red vessels being visible.

† Mr. Wardrop says, that in two instances he "observed a quantity of thick, puriform fluid had formed in the posterior chamber, and burst through the sclerotic coat."

healthy people;\* occasionally, however, the ulcers penetrate the cornea, staphyloma or prolapsus iridis is formed, or the contents of the globe are discharged.

### *Diagnosis.*

913. Inflammation of the sclerotica may be distinguished from iritis by the following marks:—The blood-vessels are equally numerous over the whole sclerotica, while in iritis they are most numerous on its anterior part, where they anastomose very frequently, and form a peculiar red zone. In the former disease they advance to the very verge of the cornea, while in the latter, they terminate abruptly about a line behind it, leaving a distinct pale circle, which is not seen in the former disease, or but rarely, and then it is not very evident. In the former, too, the redness will on close examination, be found to be produced more by minute ramifications than by large trunks, as is the case in the latter. This iris, though contracted in the former disease, does not lose its circular form, or its thin flowing edge, and become puckered and thickened as in the latter, nor does it exhibit any other change in its appearance, except becoming a little paler. When examined, the eye will be found more steady in the former, and will not roll incessantly as in the latter affection.

914. Sclerotitis may be distinguished from conjunctivitis, by the absence of puriform discharge, and by the eyelids not being affected: by the vessels being of a rose-red or cramine colour, running in nearly straight lines, and being deep-seated; while in the latter disease they are darker, very tortuous and superficial.

### *Treatment.*

915. Blood-letting, as may be supposed, is a very important remedy in this complaint. Mr. Wardrop, however, is of opinion that patients affected with rheumatic ophthalmia cannot bear bleeding to a great extent, that the remedy should therefore be employed with moderation, and that the little relief afforded by it in this disease, may be regarded as one of its diagnostic charac-

\* A Manual of the Diseases of the Human Eye, &c. by Dr. C. H. Weller. Translated by G. C. Monteith, M. D. Glasgow, 1821. Vol. II. p. 217.

ters.\* Our experience has led us to very opposite conclusions; we believe that patients in this complaint bear depletion very well, that it should be employed freely, and that the relief afforded by it is striking; blood-letting in fact, is usually one of the first remedies demanded. The quantity to be drawn must of course be determined by circumstances; we usually detract blood as long as the pain continues violent, unless the pulse should counterindicate it. The most convenient way is to take blood from the arm, we believe that opening the temporal artery has no advantage over venesection. Even after we have taken as much blood as we think we safely can in this way, topical depletion by cups may be practised with great advantage; it may be used even earlier than this with benefit, but until the activity of the pulse has been reduced by general depletion, topical bleeding has no advantages over general. We prefer cups to leeches, the irritation produced by the latter to the delicate organ of vision, often causing more injury than the depletion does good; we have seen especially in conjunctivitis, the inflammation exceedingly aggravated by them; if there are any cases in which they are preferable to cups, it is where the violence of the inflammation has abated, or where there is a chronic distention of the vessels; perhaps under these circumstances they unload the vessels more promptly.

#### *Purgatives.*

916. As co-operating to the same end, namely, the lessening the quantity of the circulating fluid, purgatives, particularly the neutral salts, will be found highly useful. When the disease under consideration, is accompanied with disorder of the biliary organs, calomel alone, or combined with rhubarb, and its operation promoted by senna and manna; or the Epsom salt, and calcined magnesia; or the blue pill at night, with magnesia the next morning, should be preferred.

#### *Emetics.*

917. The stomach is often disordered, and the disease is said sometimes to be the effect of this derangement; in this case an emetic, early administered, may cut short the complaint. For

\* Medico-Chirurgical Transactions, Vol. X. p. 13.

this purpose the tartar emetic will answer very well, or the ipecacuanha may be joined with it, in the proportion of ten or fifteen grains of the latter to one of the former.

### *Diaphoretics.*

918. The nature of the exciting cause would at once suggest the propriety of diaphoretics in this complaint. In the early stages, where the skin is hot and dry, and the pulse not sufficiently reduced, the nitrous powders, (calomel, nitre, and tartar emetic,) see p. 115, will be found most useful. As fulfilling two indications, evacuating the bowels, and determining to the surface, advantage will be derived from the saline mixture, see p. 115, or from the combination of one grain of tartar emetic, to an ounce of the Epsom salt.

919. Later in the disease, or where it has *ab origine* assumed a less febrile character, and in chronic cases, the Dover's powder given at night, will be found highly useful.

920. In the latter cases, also, we have found the most striking benefit from the sarsaparilla; it may be given in decoction or extract, the former we usually employ. The corrosive sublimate may be given at the same time in doses of from one-tenth to one-eighth of a grain; the mode in which we administer it, is to dissolve two grains in one drachm of alcohol, and then add eight ounces of distilled water; a table-spoonful of this to be added to a wine-glassful of the decoction of sarsaparilla, and to be taken three or four times a day; the decoction alone to be drunk very freely during the intervals. The tartar emetic may sometimes be substituted for the corrosive sublimate, and in similar doses.

921. We direct the decoction of sarsaparilla to be made in the following manner; one ounce and a half of the root of sarsaparilla, bruised, two drachms of the bark of the root of sassafras, and we sometimes add two drachms of the wild cherry-tree bark, and occasionally the same quantity of the shavings of guaiacum wood, to be put into a quart of water, and boiled down to three half pints.\*

922. We have used this also, in some exceedingly obstinate

\* The compound syrup of sarsaparilla, manufactured by Mr. G. W. Carpenter, of this city, is an excellent preparation, and has the advantage of keeping for a length of time.

cases of chronic rheumatism, affecting the fibrous tissues generally, with the most pleasing results.

923. A very striking instance of the benefit derived from this remedy, is furnished in the case of Henry Johnson, a coloured man, aged thirty-five, who applied at the Infirmary, March 8, 1824; he informed me that he had been attacked about two years before, in consequence of taking cold, that he had been under the care of several physicians, and had taken various remedies, with little or no advantage; he had become exceedingly emaciated, was incapacitated for labour, and had not, he assured me, enjoyed one night's uninterrupted or quiet sleep for eighteen months. There was but slight redness of the sclerotica, the pain not very violent during the day, but severe at night, and accompanied with great restlessness; the pulse was quickened, but with little tenseness, and rather smaller than natural. We purged him for a few days with cremor tartar and sulphur, and then put him upon the decoction of sarsaparilla and corrosive sublimate: in about three weeks he was discharged perfectly cured.

924. Notwithstanding the fact that the state of the system produced by the action of mercury, predisposes the fibrous membranes to inflammation, it will be found when administered with due caution to be productive of the most beneficial effects in this complaint; its usefulness is however less striking than in iritis, but its administration is often not less indispensable. One of the most remarkable characters of this complaint, is its strong tendency to relapse; we have found this considerably controlled by the proper use of the remedy under consideration. Its profuse and unguarded exhibition aggravates the violence, and hastens the progress of the disease; we, however, give it only with a view to its alterative effect, or at most, till the mouth is slightly touched, and then immediately discontinue it, and allow the system to recover; when, if required, it may be again given in the same manner.

925. The blue pill in doses of one grain, three or four times a day, the Plummer's pills, or the hydr. cum creta, in doses of from five to ten grains, two or three times a day, or the corrosive sublimate, as before directed, are the best forms in which it can be administered. As auxiliaries, and to allay irritation, the Dover's powder, the decoction of sarsaparilla, or the cicuta, may be often used with advantage.

*Tonics.*

926. The mineral acids have been recommended. We have never tried them in this complaint, but from the beneficial effects we had derived from them in disorders of the liver, and in some analogous diseases, we should expect that they would be useful. Mr. Wardrop prefers the sulphuric; if without any direct experience in the case, we might be allowed to differ from so high an authority, we would say that we should expect more from the nitric or nitro-muriatic acids.

927. Mr. Wardrop highly recommends the cinchona; "it seems," he says "to possess as specific effect in this disease as in ague;" we have not seen any cases in which it appeared admissible. It is well known that intermittent fever sometimes attacks the eye; we have seen a few instances of it, in one case it appeared in the form of sclerotitis, accompanied with considerable redness of the sclerotica, a febrile paroxysm every morning at ten or twelve o'clock, at which period the pain was exceedingly violent. In this case there was too much febrile excitement constantly present, to admit of the use of bark, but in similar cases, attended with a complete intermission, the quinine would no doubt be useful.

928. We found great advantage in the above case, and in some others exhibiting a paroxysmal type, from Fowler's solution; it may be given in the usual dose, and should be combined with a little laudanum and compound spirit of lavender; in this form it does not disagree with the stomach.

929. My friend, Dr. Thomas Harris, of the United States' navy, informs me that at the suggestion of Dr. Physick, he used in one case, the tincture of guaiacum with decided advantage, and the same patient has on several subsequent occasions received prompt relief from the remedy; he however prefers the guaiacum with nitre and antimony, which he has often used with advantage.

*Local Applications.*

930. We have derived the most striking benefits in this disease from fomentations of a decoction of poppy heads; they are

used in the early stages of the diseases with most advantage, alleviating the pain in the eye and brow. A piece of flannel should be immersed in the hot decoction, wrung as dry as possible, and then applied over the eye and brow; when it becomes cool, it should be again immersed in the decoction and reapplied.

931. When all febrile symptoms are subdued, Mr. Wardrop says that he has found the vinous tincture of opium, applied within the eyelids twice a day, decidedly beneficial; we cannot speak of its utility from our own experience.

932. Blisters applied behind the ears, or to the back of the neck, will often be found beneficial in the latter stages of the complaint; when applied earlier, while considerable febrile excitement exists, they will generally aggravate the inflammation.

933. Mr. Wardrop has strongly recommended\* the evacuation of the aqueous humour, particularly in those cases where proper remedies have not been employed at an earlier period of the disease, where there is much pain in the brow or any other part of the head, where the cornea has become dim and clouded, and where vision is impaired. The effects of the operation in these cases, is, he says, instantaneous, the pain in the head is removed and seldom returns, and the transparency of the cornea is restored. After the operation, he thinks no applications necessary, except fomentations to the parts around the eye. We are not able to speak from experience of the use of this remedy; we should not have expected any permanent or perhaps great benefits from it, but it would be wrong to object to its use purely on theoretical grounds; if it produces only half the good effects ascribed to it by Mr. Wardrop, it is a valuable remedy, and it comes recommended to us by such high authority, that we should be justified in trying it.

#### *Regimen.*

934. The remedies we have noticed, will be of but little avail, unless the patient is put upon a properly regulated diet. No part of the treatment requires more the attention of the physician than this, and it is truly surprising how little it is generally at-

\* Medico-Chirurgical Transactions, Vol. X. p. 11.

tended to; the patient being permitted to take food which counteracts and renders abortive every thing that is done for him.

935. In the early stages, when the disease is attended with much pain and high fever, rigid abstinence must be enforced. Toast and water, apple water, currant jelly and water, tamarind water, lemonade, or rice water with tartar emetic dissolved in it, should be the only nourishment allowed—the latter we have found very useful, keeping the bowels open, especially if a purgative has been premised, and also acting as a mild diaphoretic, and keeping down arterial action. Two grains of tartar emetic may be dissolved in a quart of rice water, and the patient allowed to drink of it freely.

936. When the activity of the pulse has been reduced, the patient may be permitted to have a little soft boiled rice, sago, and the farinaceous articles of food generally, in moderate quantities.

937. As the disease disappears, the quantity of these articles should be increased first, and then the patient may gradually return to the use of animal food, beginning with weak broths, and avoiding all seasoning except a little salt; as long, however, as the acute stage lasts, animal food, in any shape, is inadmissible.

938. It is more difficult to give special direction for regimen in chronic cases, but it is not less necessary that it should be particularly attended to. The patient must avoid all stimulating substances, and confine himself to light and easily digestible food, taken in small quantities. Physicians generally think they have done enough, when they restrict their patients to certain articles; but, when bread and water only is allowed, injury is often produced by eating too much of the former.

939. Such are the remedies usually employed in the treatment of inflammation of the sclerotica. It is impossible to give particular directions for their application in all cases; much must be trusted to the judgment of the practitioner, and that tact which an attentive observer acquires from experience. The violence of the disease, the peculiar constitution of the individual, and many other circumstances, must determine the extent to which remedies should be employed, and decide the practitioner in the choice of them.

940. It may be stated generally, that where there is violent pain and great febrile excitement, they should be reduced by general blood-letting, saline purgatives, fomentations to the eyes, small doses of tartar emetic, the saline diaphoretics, rigid diet, &c. topical depletion may now be employed, blisters behind the ears, sedatives, diaphoretics, &c.; after the acute stage of the disease has been subdued, or where it is attended with little febrile excitement at the commencement, the mercury in some form, with sedatives, sarsaparilla, &c.; where it puts on an intermittent form, the Fowler's solution; and when attended with gastric disorder, or derangement of the biliary apparatus, mercurial purgatives or antimonial emetics.

941. Treated in the way we have recommended, the disease under consideration, may, in almost all cases, be conducted to a fortunate termination; but it will always be found to have a strong tendency to relapse, and this must be guarded against, by avoiding all exposure to cold, or other exciting causes, and a strict adherence to a properly regulated diet.

### SECT. III.—CORNEITIS.—INFLAMMATION OF THE CORNEA.

#### *Anatomical Structure, and Physiological Characters.*

942. The cornea consists of three distinct tissues; an external covering which is a continuation of the conjunctiva; its proper substance; and an internal lining membrane.

943. The conjunctival coat of the cornea is a mucous membrane, extremely delicate, transparent, colourless, devoid of epithelium, and, in a healthy state at least exhibits no villi or follicles. It is abundantly supplied with blood-vessels, and is united to the subjacent cornea by cellular tissue, which is too short to be demonstrated. From no villi or follicles being perceptible in it, and its acute inflammation usually terminating in effusion of lymph, as in serous tissues, it is regarded by some pathologists as belonging to this class, while others consider it a sero-mucous membrane. It certainly is more closely connected with its subjacent tissue than any other of its class, and suffers considerable modification of character; but we are inclined to consider it still as essentially a mucous membrane, lymph never being poured

out from its free surface as in serous tissues, but always in its substance, or into the subjacent cellular tissue.\*

944. The second coat, or the proper substance of the cornea is a transparent, insensible, elastic, fibro-cartilaginous tissue, and consists of two portions. The external portion is composed of a number of concentric or parallel laminae, connected by a cellular tissue, the cells of which are filled with an unctuous fluid, having all the characters of the imperfectly coagulated, diaphanous mucous, which occurs in the centre of the inter-vertebral fibro-cartilages. This cellular tissue is abundantly supplied with absorbents. By boiling the cornea, we obtain gelatine similar to that obtained from the other fibro-cartilages. M. Gendrin,† in his admirable work, informs us, that when we tear the cornea after macerating it for a long time in a mineral acid, it ruptures parallel to its circumference, as if by the separation of concentric fibres; it is, however, impossible to render these fibres visible, but M. G. thinks that the above experiments, and several pathological considerations prove their existence. The internal portion is very dense, and is united to the other by cellular tissue. It is very important to bear in mind these two divisions, as the pathological phenomena which they exhibit are somewhat different, and in consequence of the greater density of the internal lamina, it is much more difficult to penetrate with cutting instruments than the exterior ones, and in operating for cataract by extraction, the knife is apt to be turned by the former portion, and the instrument, instead of passing through the anterior chamber is inserted between the two portions of the cornea we have described. The blood-vessels of this coat are derived from the sclerotica, and in a healthy state, like the vessels of the other parts of the cornea, they carry a colourless fluid.

945. The third tissue is an extremely delicate serous membrane, which lines the internal surface of the cornea, and is intimately attached to it. The existence of this membrane has been denied by some anatomists, and it must be confessed that no one

\* At least we have never seen filaments of lymph formed in its free surface as occurs in serous membranes, and if it ever happen, it cannot be of more frequent occurrence than in other mucous membranes, as in the laryngeal mucous membrane in croup, &c.

† *Histoire Anatomique des inflammations*, Vol. I. p. 331.

has succeeded in demonstrating it by dissection,\* but its existence is rendered highly probable from analogy, and is we think, proved by several pathological phenomena which we shall indicate hereafter.

## § I. INFLAMMATION OF THE MUCOUS COVERING MEMBRANE.

### 1. *Acute Inflammation.*

946. The first change produced in the mucous membrane of the cornea by acute inflammation, is a slight loss of transparency, arising from a too great fullness of its serous vessels. This being the effect of simple congestion, is immediately removed on the restoration of the circulation. If the irritation, however, be continued, the colourless vessels become so distended as to admit red blood, and they can then be readily distinguished. Around these vessels there is an effusion of coagulable lymph, producing at first a slight cloudiness; but as the inflammation advances more lymph is poured out, the conjunctiva becomes of considerable thickness, opaque, loses its smoothness and polish, and finally the vessels become varicose, transmit red blood, the lymph is organized, and the natural appearance of the conjunctiva is entirely destroyed.

947. The inflammation may be arrested at various periods of its progress, the absorbents take up the effused lymph, and the transparency of the conjunctiva be entirely restored. The degree of opacity removed by these vessels is often surprising, especially in children. We have seen in infants in whom the whole conjunctiva of the cornea was thickened and opaque, in consequence of puriform inflammation immediately after birth, the lymph entirely absorbed, and the transparency of the cornea perfectly restored.

### *Treatment.*

948. The indications of cure are first to arrest the inflammation, and then to promote absorption. The first is to be accom-

\* Charles Bell, however, says in his *Anatomy*, Vol. III. p. 249, London, 1803, "after maceration, I have found raised in the fluid a very delicate and transparent membrane from the internal surface of the cornea."

plished by general and local depletion, revulsives, and diet. In healthy individuals, general depletion is to be preferred to local; when the patient will not, however, bear the former, or after it has been employed to sufficient extent, topical depletion may be had recourse to, and for this purpose we usually prefer cups, which may be applied to the temples or behind the ears and back of the neck; the former situation is usually the best: or leeches may be placed behind the ears, but not to the eyelids as usually recommended; we have never seen them applied there in the early stages of acute inflammation of the conjunctiva, that they did not aggravate the mischief.

949. The bowels are to be kept open by saline purgatives, and the most rigid diet enjoined.

950. After the violence of the inflammation has been subdued by these measures, blisters will be found serviceable; earlier than this, however, they invariably do mischief. They may be applied behind the ears, to the back of the neck, to the temples, or to the arms or legs; the two first situations are usually to be preferred; after the inflammation has been entirely subdued, and we wish to institute a permanent drain, they may be applied to the arms or the legs, especially the former, with advantage. A seton will answer this last purpose exceedingly well. As revulsives in the earlier stages, pediluvia will be found useful.

951. When the inflammation is dissipated, stimulants must be applied to the cornea to promote the absorption of the effused lymph; for this purpose an immense number of remedies have been recommended; the best are the nitrate of silver, the red precipitate ointment, the corrosive sublimate, and sulphate of copper. I prefer of these the nitrate of silver, which should be employed in solution, one to four grains to the ounce of *distilled* water, dropped into the eye several times a day. This solution soon decomposes unless kept from the air and light; as soon, therefore, as it assumes a reddish colour, and small particles are seen floating in it when shaken, fresh should be prepared. The corrosive sublimate is used in solution, one or two grains to the ounce of distilled water. Much difficulty is often experienced in applying these solutions to the eye; it may be accomplished with great ease by means of a small quill or glass tube about two inches long, which should be introduced half way into the solu-

tion, and the upper orifice then closed with a finger; the eyelids are to be separated, and the lower end of the quill or tube placed near the cornea; the finger being now removed from the orifice, the fluid will flow out. Great care should be taken not to employ these remedies too early, that too much action be not excited by them, and that it be only temporary; otherwise, instead of absorption being promoted, there will be an increased deposition of lymph.

952. Dupuytren, we learn, is extremely successful in the treatment of opacities of the cornea. He removes the inflammation by the usual remedies, and then orders to be blown into the eye equal parts of prepared tutty, sugar candy, and calomel mixed together and reduced to an impalpable powder. This he continues for several weeks, and it is said he seldom fails to effect a cure. If the opacity is very old and large, he introduces a seton into the back of the neck, and the powder is blown into the eye some minutes at a time.

953. In several cases of extensive opacities of the corneal conjunctiva, of long standing, we have employed with great advantage finely powdered loaf-sugar and calomel, applied to the spot with a camel's hair brush.

954. Local stimulants will not, however, always succeed in effecting absorption; when this is the case, mercury should be resorted to, but not to the extent of producing salivation. We usually prefer the calomel in combination with tartrite of antimony and nitre; the proportion of nitre should be larger than in the common nitrous powders. Few cases, except in very depraved constitutions, will resist the judicious employment of this combination, with a solution of nitrate of silver, to the eye, or the calomel and loaf-sugar, together with a drain established by a seton in the neck, or a perpetual blister to the arms. It is, however, often necessary to continue these remedies for a considerable time.

## 2. *Chronic Inflammation.*

955. In chronic inflammation the blood-vessels soon become varicose, convey red blood, and anastomose. The effusion of lymph is usually more general than in acute inflammation, frequently pro-

ducing a general opacity and thickening of the conjunctiva; this membrane seems to lose its close attachment to its subjacent tissue, and the cornea frequently “resembles in appearance the green colour which is presented by the fracture of common gun-flint; sufficiently diaphanous to admit the perception of light, yet too opaque to render external objects visible to the patient, excepting by their shadows, rendering it impossible to ascertain the colour of the iris, or distinguish the limits of the pupil.”\*

#### *Treatment.*

956. In the treatment of this inflammation, general blood-letting will be found of little service; topical depletion is much more useful. The solution of nitrate of silver should early be resorted to, and afterwards the solution of corrosive sublimate or the red precipitate ointment may be substituted, if the first does not succeed in effecting a cure. Blisters are useful, and in some cases we have seen them applied with advantage over the eyelids. The varicose vessels should be divided with a knife, or elevated with a small hook and a portion cut out with scissors.

957. This inflammation is often excited and kept up by a granular state of the eyelids, in others by the eversion of the lids, in such cases we need not expect a cure until the cause producing it is removed.

958. *Preternatural Growths produced by Chronic Inflammation.*—Circumscribed tumours, of a dense and firm texture, are sometimes formed upon the conjunctiva of the cornea, and attain a considerable magnitude, but such cases are rare. Mr. Travers says that he has “excised the anterior hemisphere of the eyeball in an elderly lady, in whom the cornea was concealed by a tumour of a dark purple colour, protruding to such an extent between the eyelids, as to occasion great inconvenience and deformity. It had the appearance of being disposed in lobes, somewhat resembling a bunch of currants of unequal size. On dissection, the cornea and sclerotica proved to be entire, and the morbid growth lying upon and adhering to the corneal and a small portion of the sclerotic surface, had acquired the lobulated

\* Vetch. A Practical Treatise on the Diseases of the Eye, p. 68.

appearance, as if by degeneration of the covering conjunctiva; for delicate white bands, the only vestiges of this membrane, were seen intersecting the lobules at irregular distances, in the form of sceptæ. The substance, on section, was firm, of a dark colour, here and there mottled with white, and measured a quarter of an inch in thickness, from the external surface of the cornea."\*

### 3. *Vesicular Inflammation.*

959. In certain cases of mild inflammation, the serous vessels pour out a fluid either in the substance of the conjunctiva, or in its subjacent cellular tissue. This secretion is very circumscribed, and forms small diaphanous vesicles, which usually burst, discharge their contents, and leave an ulcer.† This may extend to the proper coat of the cornea, or the breach may be repaired. This reparation may be effected by the lymphatic vessels, and without any red vessels being visible; most frequently, however, blood-vessels may be seen running to the ulcer; these deposit a yellowish lymph, which is sometimes removed by the absorbents, at others remains, forming an opaque cicatrix.

#### *Treatment.*

960. This inflammation is to be treated by topical depletion, revulsives, and astringent washes, the best of which are the nitrate of silver and sulphate of copper.

### 4. *Pustular Inflammation.*

961. Pustules are not unfrequently formed in the conjunctiva of the cornea, and as in other mucous membranes, they are the result of inflammation of mucous follicles, we are inclined to consider them here as the consequence of follicular inflammation, though follicles have not been as yet demonstrated in this part. It may be supposed by some that these pustules are mere abscesses; we cannot, however, consider them as such, since they

\* Synopsis of the Diseases of the Eye, p. 102, ed. 3d. London, 1824.

† This affection has been described by Gendrin. Op. cit. Vol. I. p. 523.

do not exhibit the common appearances, nor follow the usual course of abscesses, and they often occur as concomitants of unquestionably follicular inflammations, as small-pox, aphthæ, &c. These pustules are usually situated near the margin of the cornea. At the very commencement of this inflammation, minute fasciculi of vessels presenting a triangular form, may be perceived running upon the cornea, and at the point of each plexus a pustule forms. At first, this pustule generally appears like a dusky, yellow, or reddish spot, a little elevated above the surface of the cornea, and in a short time it becomes a conical tumour. Coagulable lymph is secreted around the fasciculi of vessels, and the cornea in the vicinity of the pustule becomes more or less dense. The vessels always run in fasciculi, pointing towards the pustule, and the redness is never diffused, as in common, acute, or chronic inflammation. This disease is attended from the commencement with pain, usually very acute, and lachrymation; these subside as the disease advances. If the inflammation be not now arrested, a straw-coloured purulent fluid is secreted in the pustule; its apex ulcerates; it discharges its contents, and an ulcer is left, the edges of which are opaque. The ulceration may extend to the cornea, or restoration take place; this latter is effected by the effusion of coagulable lymph, which becomes organized, and the excess is either absorbed, or an opaque cicatrix is left.

962. The inflammation in this disease is very apt to return on any slight irritation. In some cases where it returns frequently, the pustule seldom ulcerates, but disappears gradually, after having remained a few days.

963. This disease sometimes occurs simultaneously with, and appears to be connected with small-pox, aphthæ, and similar affections; at others, it appears to be produced by some circumscribed local irritation, or to be dependant upon a peculiar diathesis or state of the constitution. It usually occurs in children, and sometimes spreads through schools and large families; it is met with, however, in persons of all ages. These pustules bear some analogy to the aphthæ observed in the cavity of the mouth, on the tongue, lips, and on the internal surface of the intestinal canal; and Professor Himly says, that at a time when aphthæ of the throat were very frequent at Brunswick, he also found many small vesicles beginning with an inflammation of the sclerotic

coat, and also sometimes, but more rarely of the cornea. Once he saw a whole family affected with this disease, one after another. "It was," he says, "a true catarrhal affection, and in some cases these vesicles disappear by diaphoretic medicines, in some by blisters, camphor, and antimony, without any local application, except mucilaginous ones. I think that it is just the same disease as aphthæ of the intestinal canal, of the corona of the glans penis, and other fine continuations of the external skin. Those on the cornea become worse if they are opened, and if they open themselves and form ulcers, they generally dry up by means of borax and white vitriol, but if they are neglected, they cause sometimes considerable ulcers which are very obstinate and hurtful to the cornea."\*

#### *Treatment.*

964. In the treatment of this inflammation, general blood-letting is not often demanded; topical depletion, however, is almost always useful, and this may be effected either by cups or leeches. The bowels should be kept open, and for this purpose we prefer in the first instance calomel, and then a mixture of pulv. rhei and creta pp. Blisters are also useful, and they should be applied to the back of the neck, behind the ears, or to the arm, and kept open. If the pain be very violent, fomentations will sometimes afford considerable relief. After the inflammation is reduced by these measures, the astringent collyria should be employed; the best is the solution of nitrate of silver. In the very onset of the disease it is also useful, and should the patient be seen early enough, by touching the plexus of vessels with the argent. nit. and administering at the same time a smart purgative, the disease may occasionally be arrested. In the latter stages of this

\* We have made this quotation, for which we are indebted to Wardrop's valuable essays on the morbid anatomy of the human eye, never having seen the original, with some hesitation, as the disease is termed vesicular. Whether the affection consisted of true pustules, or really vesicles, or whether an error has been committed by the author or the translator, we are unable to determine: but as the swellings are said to resemble aphthæ, which are true pustules, i. e. inflammations of cryptæ, we are inclined to believe that there is a mistake somewhere, and that the disease consisted of pustules.

disease the vinum opii has been strongly recommended. We cannot say any thing respecting its value from our own observation, as we have little experience with the remedy in ophthalmic inflammation. In a few instances in which we employed it, we derived little or no advantage from it, and therefore have not persevered in its use, but it has been so highly extolled by respectable writers, that its utility in some cases can scarcely be doubted. When the pustule is evidently filled with pus, and there is no prospect of its being absorbed, it is better to open it at once carefully with a sharp cataract needle. The ulcer that is left may be cured, and the absorption of the lymph promoted by the judicious use of the nitrate of silver and revulsives.

##### 5. *Ulcerative Inflammation.*

965. The conjunctiva bears the same relation to the cornea that the synovial membrane does to cartilage, and periosteum to bone, and like these membranes, it is much less disposed to ulcerate than the part it covers. Ulcers, however, do form in it, and they are described by M. Gendrin,\* as commencing always by the formation of a very small tubercle, at first red, very little prominent, and soon of a cindry white. This small tubercle, which is produced by inflammatory effusion into the conjunctiva, has been often mistaken for abscess beneath or in the thickness of the conjunctiva. As soon as the ulceration has destroyed this tumour, we see a solution of continuity having elevated edges, livid red, irregular, and at the base gray and cindry. It remains in this state during the existence of the inflammation, but when cicatrization is about commencing, the edges of the ulcer become less prominent, the redness less livid, the base of the ulcer assumes a reddish appearance, the size of the ulcer diminishes, and if it has not extended beyond the thickness of the cornea, it appears like a slight excoriation. This may be the usual appearance and progress of ulcers of the cornea, but they certainly do not always commence in this manner. They often succeed vesicular and pustular inflammation; and we have seen them apparently produced by a real ulcerative absorption, the cornea exhibiting no apparent loss of transparency, and no coloured vessels or lymph being visible.

\* Op. Cit. Vol. I. p. 683.

966. Eliza Davis, ætat thirty, servant, applied to the Pennsylvania Eye Infirmary, January 30th, 1824. She had slight inflammation of the conjunctiva of one eye, and an indistinctness of vision, for which there was no visible cause. By the loss of a little blood, purging, and low diet, the inflammation abated in a few days, but the indistinctness of vision increased. At this period the cornea, though transparent, did not present a perfectly natural appearance, and on carefully examining it in certain positions, a very minute, irregular depression was perceived by the irregular reflection of the light. On examination with a microscope, at least fifty ulcers were seen on the cornea, all so minute that they could not be perceived by the naked eye; the one at first seen was evidently formed by the union of three or four. These ulcers remained for several weeks, but ultimately entirely healed. At no period was there any effused lymph or red vessels to be seen on the corneal conjunctiva.

967. Mr. Ryall is, we believe, the only writer who has noticed these minute ulcers.\*

#### *Treatment.*

968. The first object to be attained in the treatment is the reduction of the inflammation, and next to promote cicatrization. The first is to be accomplished by the usual antiphlogistic measures, and for the second, the best remedy is the solution of nitrate of silver. Mr. Ryall says† that he has “not unfrequently known patients of weakly, strumous habits to have been condemned to long confinement in darkened apartments, to a strict antiphlogistic regimen, and even to the influence of mercury, whose miseries might have been in a great measure curtailed, had the precise nature of their complaint been timely discovered, and the nitrate of silver applied.” These measures will usually effect a cure; should they fail, and the ulceration involve the proper lamina of the cornea, we shall point out the treatment when we come to consider the ulcerative inflammation of this part.

\* Transactions of the Association of Fellows and Licentiates of the King and Queen’s College of Physicians in Ireland, Vol. V. p. 2.

† Op. Cit. p. 3.

## § II. INFLAMMATION OF THE PROPER TISSUE OF THE CORNEA.

1. *Acute Inflammation.*

969. The first step of acute inflammation is evinced by engorgement of the vessels of the part, and in the cornea it becomes visible by a slight haziness or loss of transparency. At this stage resolution may take place by the contraction of the lymphatic vessels to their original diameters; but if the disease progresses, the vessels become distended, and first admit a dense coagulable lymph, and then the red globules of the blood and deep-seated vessels may be seen in the substance of the cornea, always running from the circumference towards the centre of the part. These vessels are usually most visible at the junction of the sclerotic coat with the cornea, and on close observation they may be seen forming at this part a beautiful red zone of rectilinear vessels, which zone is very different from that occurring in iritis; the latter being formed by anastomosing vessels, and situated a short distance from the cornea, leaving a whitish zone within it. The inflammation may terminate in effusion of coagulable lymph, or a puriform lymph, usually succeeded by ulceration, or the action may be so violent as to produce gangrene or sloughing; in some few cases blood has been effused between the laminae of the cornea. The lymph is generally deposited in the cellular tissue connecting the laminae; and the extent of this effusion varies, sometimes being confined to a small space, at others occupying the whole of the cornea. If the inflammation has not been very violent, or is early arrested, the lymph may be removed by the absorbents, and the transparency of the cornea in great part, or even entirely restored; sometimes, however, the lymph becomes organized, and red vessels may be seen ramifying through it. If the inflammation is severe, and continues for any length of time, considerable disorganization is produced, the cornea swells, its vessels become varicose, and transmit red blood; its laminae are separated, coagulable lymph is effused in their substance and between their laminae, and the whole cornea becomes thickened, opaque, and spongy. The pain that attends this disease is very various, and seems to depend upon the ex-

tent to which the sclerotica and the internal tissues are involved.

970. Inflammation of the cornea may be produced by extension from the sclerotica or conjunctiva, and by the usual causes of inflammation elsewhere. Persons with a scrofulous constitution are peculiarly liable to it, and in them, it is very difficult of cure, the disease often assuming a chronic character, and relapses taking place on the slightest exposure to the exciting causes.

#### *Treatment.*

971. In the management of acute inflammation of the cornea, the importance of the organ affected, and the rapidity with which disorganization may take place, must be kept constantly in mind. The treatment must of course be regulated by the violence of the inflammation and the habit of the patient, but prompt and efficient measures should always be adopted. In the commencement, general blood-letting is almost always demanded, and for this purpose opening the temporal artery has been highly recommended by some writers. We are not aware of any advantages that it possesses over venesection, and a bandage around the head being usually necessary to arrest the flow of blood, the circulation of the head is impeded, and its vessels become engorged; and even if no bandage be required, the wound generally proves a very injurious source of irritation; venesection should therefore always be preferred where it can be accomplished. After general depletion has been carried as far as the violence of the disease may demand, or the constitution of the patient justify, topical depletion will generally be required. It is impossible to lay down any very accurate rules by which it may be known, at what period, and under what circumstances, topical is to be substituted for general depletion. In inflammation of organs not essential to life, occurring in healthy individuals, and where none of the vital organs are implicated, general depletion may be pushed to a greater extent than is usually supposed, and with much advantage; and the usual error we suspect is in not depleting sufficiently. But in diseases of vital organs,

or where these have become deeply implicated, and where the inflammation has been of long continuance, and become established, and especially in broken down or depraved constitutions—topical must be early substituted for general depletion, and often entirely depended on; as the latter, in these cases, debilitate the healthy organs more than it relieves the affected ones, and the restorative powers are thus weakened or destroyed. When a good deal of pain attends the disease, much relief is often afforded by fomentations, especially by means of flannel wrung out of a hot decoction of poppy-heads; but these applications should not be too long continued, and warm poultices should be invariably avoided as eminently injurious, promoting suppuration and disorganization of the cornea.

972. Purgatives and revulsives will be found highly useful; their employment must be regulated by the rules laid down in inflammation of the conjunctiva. (See pp. 276 & 277.) A proper diet must also be enjoined. (See p. 300.)

973. The inflammation being reduced by the above measures, if opacity remain from the effusion of lymph, its absorption must be promoted by keeping down the inflammatory action by occasional local depletion, by low diet, by stimulating applications, such as the solutions of nitrate of silver and corrosive sublimate, red precipitate ointment, &c. When other means fail, mercury urged to salivation in combination with the above measures, will sometimes succeed; but we prefer the combination already noticed of calomel, nitre, and tartar emetic, and think we have derived most advantage from its alterative action than when urged to salivation. In scrofulous persons salivation is much to be deprecated; we have seen such kept under the long-continued influence of mercury for opacities of the cornea, to the great injury of their constitutions and the evident aggravation of the disease, relapses of inflammation occurring on every variation of temperature, from the increased susceptibilities thus created, and the vessels of the cornea becoming, from the frequent attacks of disease, permanently enlarged. In such cases the alterative effect attained by the use of the combination just noticed, will often be found useful, but should be administered with caution, and frequently intermitted for fear of salivation, and during these

intervals the bowels should be kept free by the daily administration of rhubarb and prepared chalk.

974. When the varicose vessels belong to the conjunctiva, it has been recommended to take up a fold of this membrane, and excise a small portion so as to divide them, or when they are somewhat deeper to divide them with a knife, but our own experience would not lead us to say much in favour of this practice.

975. By the judicious employment of the means indicated, very extensive opacities of the cornea may be removed; indeed, unless the lymph has become organized, great benefit, or even a cure is mostly effected, especially in young patients, and even where the lymph has become in a degree organized, and varicose vessels are seen running to the part, something is often gained. When both corneæ are affected, and only a small portion transparent, if this be not over the natural pupil, an artificial one may be made opposite the transparent spot, and a useful degree of vision restored.

## 2. *Chronic Inflammation.*

976. This produces a slow change in the texture of the cornea, rendering it opaque, indurated, condensed, and more easily torn than in health. Such disorganization is not produced in the cornea, without the inflammation extending to the conjunctiva, and often to the sclerotica; lymph is deposited in both these tunics, especially the former, which loses its transparency, and the blue colour of the latter is destroyed. The globe of the eye appears as if covered with a fibrous fascia, the fibres of which converge towards the centre of the cornea, and presents a yellow, pearly appearance, not unaptly compared to that of the inside of an oyster-shell, over which varicose vessels sometimes ramify.

977. These cases are usually beyond the resources of art, the effusion of lymph having usually been so profuse as to agglutinate the cells of the interlamellar tissue, and the absorbents are no longer capable of effecting its removal.

978. A deposit of lymph, formed perhaps by a slow, chronic inflammation, is often seen in old men; the lymph is deposited

in a regular circle around the cornea, forming what has been denominated the arcus senilis. Mr. Wardrop\* says that he has seen it at all periods of life, even in very young subjects.

### 3. *Suppurative Inflammation.*

979. Inflammation of the cornea rarely, if ever, terminates by the effusion of true pus; but instead of this fluid, a tenacious, yellowish substance, partaking more of the nature and properties of lymph, is secreted in the cellular tissue connecting the laminæ of the cornea. This termination is like abscess in common cellular tissue. When the deposit is small, it is frequently removed by the absorbents, and often without any vestige being left. Sometimes coagulable lymph is effused around the deposit, or in its place, and a permanent cloudiness is left. When the deposit of pus is large, the superficial laminæ are usually removed by absorption, the contents of the abscess are thrown off in the same manner as sloughs, and an ulcer is left. This may heal by the usual process, and the transparency of the cornea be restored, even when a considerable portion of it has been affected. Mr. Vetch† says that he has seen the cornea not only recover its transparency after two-thirds of its extent had been destroyed in this way, but that he has frequently procured a transparent cicatrization after the second, and even third attack of inflammation, followed by ulcer and slough.

### *Treatment.*

980. The treatment must be commenced by reducing the inflammation, which is to be accomplished by the measures already noticed; principally topical depletion and purgatives, and blisters; the latter should early be resorted to; by these means the effusion will generally be absorbed. When the abscess is very superficial, and the external laminæ are bulged out, it is well to open it with a cataract needle, and evacuate its contents by entangling them with the point of the needle, and drawing them out. In abscess deeply seated, no ad-

\* Op. Cit. Vol. I.

† Op. Cit.

vantage is obtained from this practice. When the effusion is very large, and there is a disposition to slough, as usually occurs in depraved constitutions, the system must be supported by tonics, such as the nitric acid, bark, &c. and a nourishing diet.

#### 4. *Ulcerative Inflammation.*

981. The cornea, like the other fibro-cartilages, very frequently ulcerates. The conjunctiva bears the same relation to the cornea, as we have already observed, that periosteum does to bone, and perichondrium to cartilage; and when the former is removed, either by abrasion, the rupture of pustules, or destroyed by chemical agents, a portion of the cornea being exposed, sometimes dies, and is removed by absorption, leaving an ulcer. Ulcers are also produced by mechanical injuries; but wounds of the cornea often heal without ulceration, the healing process being at once established. The shape and appearance of ulcers are very various, sometimes appearing like little excavations, with little or no surrounding opacity; most generally, however, lymph is effused around them, and at their base. Mr. Vetch\* says that they have a disposition rather to spread than to deepen; while Mr. Wardrop† asserts that they are more apt to increase in depth than in breadth. The fact seems to us to be, that when the sides of the ulcer are not limited by coagulable lymph, they spread more readily than they penetrate, but when lymph is deposited on the sides, it seems to arrest their spreading, and they deepen most readily until they arrive at the inner lamina of the cornea, which being less disposed to ulcerate than the others, the progress of the ulcer is now for a time arrested, but if the disposition to disease is not removed, this check is but temporary, and the ulceration may spread or deepen, or both, the internal membrane not affording any effectual barrier to the ulcerative process.

982. As soon as the internal lamina is sufficiently thin and weakened by the ulceration, which, when the ulcer is broad, soon happens, it is pushed forwards by the pressure of the aqueous humour, or when the ulcer is narrow, this lamina may ulcerate

\* Op. Cit.

† Op. Cit. Vol. I.

through, and the serous internal membrane is protruded in the form of a transparent vesicle, which soon ruptures, and the aqueous humour is discharged. If the ulcer be within the limits of the iris, this part floats forward, and partially or completely closes the rupture; coagulable lymph is secreted, uniting the iris with the edge of the ulcer, and closing the opening. The aqueous humour, however, being rapidly regenerated, before the breach is repaired or sufficiently strengthened to resist pressure, a rupture again takes place, and the humour is evacuated; and this is frequently repeated before a sufficient quantity of lymph is effused to render the breach strong enough to support the pressure of the aqueous humour. When the ulcer is near the centre, the rupture takes place more frequently, as the iris cannot assist in closing the breach. After the protruded membrane is sufficiently strengthened by the lymph to sustain the pressure, it is then pushed forward, and with it the iris, when the two has become adherent. A complete hernia is thus formed, the pressure of this upon the sides of the ulcer causes their absorption, and the tumour thus gradually enlarges till it sometimes occupies nearly the whole cornea. The tumour at its commencement, when the iris is connected with it, is black; when not, it is transparent and colourless; as it advances it becomes opaque, whitish if the iris be not connected with it, while under opposite circumstances it has a beautiful bluish appearance; the cause of this colour, so different from that of either the cornea or iris, has never been explained.

983. When inflammation of the cornea occurs in persons of depraved constitutions—in those who have recently lost much blood, as for the cure of acute inflammation—or in children imperfectly nourished, the power of the arteries often appears to be extremely diminished, they do not perform their natural office of deposition with their wonted vigour, whilst the action of the absorbents continues as usual, or is even increased. In such cases more being removed by the absorbents than is deposited by the arteries, *interstitial ulcers from pure ulcerative* absorption occur, and the cornea remains transparent, but indented or pitted, according as the ulcers are diffused or circumscribed. When the arteries are restored to their healthy action lymph is deposited, which fills up the breach, and the ulcer is healed.

984. If the inflammation in such individuals be very intense, the arteries lose their powers entirely; the vitality of portions of the cornea are lost—and the contiguous parts are removed by the absorbents—the dead portion is cast off as a slough, and lamina after lamina thus slough away. This occurs, besides under the circumstances noticed, in those in whom the parts have been weakened by previous repeated attacks of inflammation, and very frequently after the sloughing of the conjunctiva, which sometimes succeeds purulent inflammation of that membrane, and the cornea then presents that peculiar appearance designated by Mr. Saunders, by the terms “cindry, ragged, flocculent.” When restoration occurs, it takes place, as in common ulcer, by the deposition of lymph, the excess of which is absorbed, and the transparency of the cornea is sometimes restored, even where a considerable portion of it has been destroyed. Mr. Travers\* says, that if the inflammation be arrested even on the verge of gangrene, the cornea is susceptible of restoration by absorption. “This fact,” he adds, “I had lately an opportunity of establishing in the case of a lady who was rendered blind by acute suppurative inflammation of the conjunctiva; so inevitable to all appearance was the destruction of the cornea, which had sloughed in a deep sulcus at its junction with the sclerotic above, that the most experienced practitioner of my acquaintance in this branch of surgery, pronounced the case hopeless and irremediable, and took his leave. The highest tonic regimen, bark, wine, and opium, followed close upon a very active and bold depletion, and the anterior chamber was fortunately and unexpectedly preserved. No sooner was a sign of the arrest of sloughing ulceration obtained than I commenced a mercurial course; in three days the system was affected; the recovery of the figure, and transparency of the cornea was rapid and complete beyond all expectation, and an equally perfect state of vision was restored and established.”

985. The gangrenous opacities of the cornea, says Mr. Travers,† produced by lime or other substances destroying its texture, are sometimes superficial and defined in extent, and a process resembling exfoliation ensues. More frequently this disorganization is integral and complete. The cornea, disorganized

\* Op. Cit. p. 119.

† Op. Cit. p. 170.

by acids is rendered instantly opaque, shrivelled, and of a yellow colour, almost resembling a piece of wash leather.

### *Treatment.*

986. Ulceration of the cornea being the effect of inflammation, where this condition is still present, the first indication is of course to remove it, and this is to be accomplished by the means already pointed out in speaking of the inflammation of this part. Acute pain, lachrymation, and photophobia, often accompany ulcers of the cornea, and where these are not removed by the ordinary remedies, temporary benefit will be obtained from fomentations, but the greatest relief will be experienced from touching the ulcer with a fine-pointed pencil of nitrate of silver, so as to produce an eschar. After the inflammation is subdued in ordinary cases, the disposition to ulceration ceases, granulations form, and the process of restoration takes place; should this flag, stimulants ought to be applied, and the best of these is the nitrate of silver. Where the inflammation has been very intense, and it is found difficult entirely to overcome it, the combination of nitre, calomel, and tartar emetic should be administered; or if this state be accompanied with much pain, the blue pill and opium may be given. When the ulcer penetrates deeply into the cornea, and the internal lamina, or its internal lining membrane are protruded by the pressure of the aqueous humour; this protrusion should be touched with the fine pencil of lunar caustic, by which means, together with active antiphlogistic measures, especially topical depletion and purgatives, and blisters to the back of the neck, the farther extension of the ulceration, and the evacuation of the aqueous humour may be prevented. Should, however, these means fail, and the ulcer penetrate the cornea, if the opening be small, and opposed to the iris, the farther escape of the aqueous humour will be prevented; and by the farther employment of antiphlogistics, the progress of ulceration may be arrested, and restoration take place. The iris is however adherent to the cornea by the lymph effused during the healing process, and its actions deranged. This may be often restored by promoting the absorption of the lymph, by putting the system under the mercurial

influence and by applying belladonna to the lids and brow. When the aperture made by the ulceration is large, a portion of the pupil is usually prolapsed, and a true hernia of the iris takes place, generally attended with extreme pain from the stricture. This is to be relieved by the free application of the pencil of nitrate of silver so as to destroy the vitality of the part. When the slough separates, a fresh portion of the iris will be protruded, and this is to be treated in the same way, and the operation repeated till the pain ceases and restoration takes place. The iris in this case is permanently injured, and the pupil usually closed. If the prolapsed iris has been neglected in the first instance, it may increase in growth and assume a malignant action; it should then be removed by scissors, and the cut surface and margin of the ulcer freely touched with the nitrate of silver. When the cornea becomes disorganized and prominent, no attempt at effecting restoration will be successful. If the prominence is not very considerable, and no irritation results from it, it had better be left undisturbed; but when it is so great as to prevent the closure of the eyelids, occasion great deformity, or be productive of habitual irritation of the edges of the eyelids, it should be excised, after which the humours will usually escape and the globe collapse. The excision may be most conveniently performed by passing a needle with a ligature across the cornea to steady the eye; the protrusion may then be divided with a large cornea knife, and if the whole be not divided, the remaining portion may be cut with a pair of scissors. A compress of soft linen should then be applied to the eye and retained by a roller.

987. In interstitial ulcers the indication is to excite the action of the arteries, which is to be fulfilled by the use of topical stimulants, as a solution of nit. argent., sulph. of copper, or vinum opii, and nutritive diet and tonics, as the sulphuric or nitric acid, and bark. As soon as the restorative action commences, it will be perceived by a whiteness of the ulcer and slight cloudiness of the surrounding parts, denoting the adhesive process.

988. In the treatment of sloughing ulceration of the cornea, a discriminating judgment and close observation will constantly be required. In healthy constitutions the most prompt and vi-

gorous antiphlogistic measures will be demanded in the commencement, and at the same time the ulcer should be touched with the pencil of nitrate of silver; it will subsequently be often necessary to allow nourishing diet and tonics. When the sloughing process is arrested by these means, mercury will in many cases complete the cure. In debilitated and depraved constitutions, nourishing diet and tonics will often be demanded from the very commencement; but at the same time, when there is much local inflammation, topical depletion should be employed, and afterwards the ulcer should be touched with the solid nitrate of silver, and when the healing process commences, the solution should be applied several times a day. When the ulcer penetrates the cornea, the local applications already recommended are to be employed, but instead of antiphlogistics, tonics and nourishing diet are to be prescribed.

#### 5. *Conical Cornea.*

989. This affection of the cornea was not described until within a few years past, and as we have never met with an instance of it, we shall transcribe the account given of it by Mr. Travers.\* “The cornea is occasionally subject to a process of thinning or absorption of its interlamellar texture, and in consequence loses its natural tonic resistance to the pressure of the contents of the globe. It usually assumes a conoidal figure, but this is not always the case; the projection of the corneas is sometimes uniform, describing the segment of a larger sphere. The apex of the cone corresponding to the centre of the cornea, when this figure is assumed, exhibits a degree of tenuity and brilliancy which gives it the appearance of a pellucid fluid, like a dew-drop suspended. The patient’s vision becomes so inconveniently short, as to render objects confused at a very moderate distance; the change is sometimes slow, occupying months and even years, and on the contrary I have seen it produced in its greatest extent in the short space of eight weeks; both eyes are generally affected, though not always in the same degree. The

\* Op. Cit. p. 124.

disease is not produced by inflammation or any obvious assignable cause; it is more frequent in women than in men, and in my experience affects the periods of youth and middle life; I have never seen it commencing in infancy or old age. It is as much the disease of the robust, as of the weakly constitution and frame of body."

990. A variety of remedies have been tried for the cure of this affection, such as frequent cupping, issues, evacuating the aqueous humour, all however without success. A pupillary aperture, set in a black ring frame, about a quarter of an inch or more in depth, when the convexity is not very much increased, by confining the rays of light to the central portion of the cornea, and preventing the confusion from the unnatural refraction of the lateral rays, will sometimes considerably assist vision.

#### 6. *Encysted Tumours in the Lamellæ of the Cornea.*

991. These were first observed by Dupuytren in the case of a child who had been struck on the eye some weeks before by a stone. At first view he conceived it to be an opacity of the cornea, but a more minute inspection showed it to be a serous encysted tumour existing between the lamellæ of that coat. He introduced a cataract needle into the small cyst, and moved the instrument up and down in order to irritate its inner surface. The fluid in the tumour was evacuated, but in fourteen days it formed again. The operation was repeated, and adhesion of its sides took place, but opacity of the cornea resulted. No other surgeon has, we believe, noticed these tumours, and little is known respecting them.

#### 7. *Ossification of the Cornea.*

992. The vessels of the cornea, like those of the other fibro-cartilages, in some few instances secrete osseous matter. Mr. Wardrop\* has met with it on one occasion; in this the form of the whole eye was changed, the cornea had become opaque, and

\* Op. Cit. p. 72.

on macerating, a piece of bone weighing two grains, oval-shaped, hard, and with a smooth surface, was found between its lamellæ. It is mentioned in the *Nouvelle Bibliothèque Medicale*, for May, 1817, that the eye of an old man had been recently presented to the Société Anatomique by M. Monot, in which the cornea was ossified throughout.

### § III. INFAMMATION OF THE SEROUS LINING MEMBRANE OF THE CORNEA.

993. Inflammation of this tunic, independent of that of the cornea, is of too unfrequent occurrence to enable us to ascertain very minutely its progress and terminations, but as far as our observation goes, they are similar to those of other serous tissues. In the following case we were enabled to observe this affection with great advantage, as it was uncomplicated with inflammation of the cornea.

994. Eliza Williams, a coloured woman, aged twenty, applied to the Pennsylvania Eye Infirmary, April 6th, 1826. Her sight had been growing dim for several days, and she suffered slight pain in her eye. On the most minute examination, no change from a healthy state could be perceived, except perhaps an extremely faint dullness, almost imperceptible, situated at the posterior part of the cornea, the cornea itself being evidently unaffected. After some days a small spot became visible, and was shortly followed by two others, differing both in situation and appearance from the opacities produced from inflammation of the cornea. They were deep-seated, and evidently produced by the effusion of lymph on the inner surface of the cornea, giving it the appearance of being mottled with white. The margins of these spots were well defined, and the lamina of lymph so thin as not to produce perfect opacity.

#### *Treatment.*

995. The treatment we employed in this, and which we would recommend in similar instances, was the employment of antiphlogistics, to prevent effusion, and to put the system under

the mercurial influence, to promote absorption after this had taken place. In the case we have described, owing to peculiarity of constitution, this latter could not be persevered in to a sufficient extent, and the spots have remained permanent.

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## CHAPTER XIV.

### OF CATARRH.

996. THIS common affection, or “a cold” as it is commonly called, in its simple, or uncomplicated condition, is one of more inconvenience, than of danger. It is of such frequent occurrence, and so rarely attended with danger, or even pain, that the physician for the most part, is not called upon for his prescription. Indeed the plan of treatment for its cure, is by most people looked upon worse than the disease itself; and thence, its tedious protraction in some cases. It is usually more severe with children than with adults; owing to the greater susceptibility of the mucous membrane of the lungs to take on inflammation. With children, it often becomes a disease of great severity, and sometimes one of much danger; hence, we are called more frequently to their aid, than to the adult.

997. This complaint almost always begins by a sensation of fulness or thickening of the membrane that lines the nose; an increase of secretion of the common mucus of the part takes place, though somewhat changed in its character—that is, it is not only thinner, but also rather acrid, as the increased vascular condition of the Schneiderian membrane, together with slight excoriations of the most depending part of the nostrils, and upper portion of the upper lip testify.

998. This condition of the nostrils continues to an uncertain period, according to the force of the remote causes, the state of disposition, or the care or neglect, with which the complaint may be treated. But be the period longer or shorter, it is almost always found, that the character of the mucus is a little altered; becoming thicker, and tinged slightly with a yellowish hue, be-

fore the inflammation ceases, altogether, or proceeds farther in the course of the mucous membrane. If it travel upwards, the membrane lining the frontal sinuses becomes implicated; and then is experienced a painful fulness in the frontal bone, which is sometimes severely augmented, by every attempt to dislodge the frequent accumulations of mucus from these parts by the blowing of the nose.

999. When the change just spoken of in the quality of the mucus (par. 998,) takes place in the nose, we find the patient experiences a relief from the more distressing sensations in this part; and the disease may soon take its departure; or it may be protracted by the inflammation descending into the trachea, and bronchia.

1000. Then an unpleasant irritation is felt in the larynx, almost amounting in some instances, to an itching—and cough is now excited. If the mucous membrane is much affected, we may have, either a hoarseness, or a loss of voice. The former may be the forerunner of croup; but the latter seldom or never.

1001. If the disease enters the bronchia, a soreness and a sense of stiffness, is experienced in the chest; especially on its anterior portion, along the internal course of the sternum. This may be more or less violent, as the inflammation may have pervaded the bronchia to a greater or less extent. This pain is sure to be much augmented by coughing; and if this be strongly provoked, it extends over the whole of the chest, and even sometimes appears to affect the diaphragm itself, if we can rely upon the seat of pain, for this assertion.

1002. This extension of pain through the thorax, seems to declare the extent of the bronchial inflammation, and is for a time very distressing to the patient; especially, as a sense of painful dryness is felt, until the vessels begin to relieve themselves, by pouring out mucus. This secretion, is at first very thin, or serous; and occasionally has a slight saltish taste; and in appearance differs but little from the saliva, with which it may be mixed. In children this mucus is sometimes so suddenly and abundantly secreted, as to threaten suffocation, and perhaps this would really happen, had not nature made a provision to counteract this tendency, by possessing the larynx and stomach with an important sympathy between each other, to supply the place of expectora-

tion. Hence, we find in young children, that an effort to vomit is almost always excited, whenever this surplus mucus is forced into the larynx; which effort, kindly relieves this part from its embarrassment, and prevents suffocation.

1003. In the adult, this risk is never incurred; as voluntary expectoration is constantly exercised, whenever the sense of the necessity for this act is excited, by a peculiar sensation taking place in the lungs, or in the course of the trachea. In children the appearance of the mucus does not vary so much as in the adult; in the former it may be very abundant; but it almost always retains its transparency, to a greater or less degree, however tenacious it may be in consistency. While in the adult, this substance is sometimes found to include a dense, inspissated phlegm, of a peculiar whiteness, or even a true pearl colour; and this is sometimes accompanied with a dark, fuliginous matter, or even by slight streaks of blood. And after a while, the sputa become tenacious, yellow, or greenish.

1004. Early morning, generally speaking, is the period at which the cough is the most troublesome; it is sometimes augmented after meals, especially if these have consisted of animal substances. When the expectoration is very abundant and frequent; and particularly if much effort has been employed to dislodge the mucus from the bronchia, a sense of rawness or tenderness is felt, indicating the denuded condition of the bronchial ramifications.

1005. In general, in adults, the sanguineous system is not severely affected, in the commencement of catarrh; though slight fever may be observed, during its course; but this is more particularly obvious in children. This febrile condition, is most evident in the evening; and it sometimes terminates like a genuine paroxysm of fever, in a slight perspiration towards morning, and with a lateritious deposit, in the urine.

1006. In the severer forms of this complaint, fever, during its whole course, is obviously present; a difficulty of breathing rarely attends this form of bronchial disease, unless temporarily, as in children; and then only when the secretion of mucus is very abundant. If it accompany catarrh in the adult, it is only under its severest form, or where there exists some organic lesion. In such cases, the fever may be severe; and the disease

may assume a menacing appearance, from other important structures, as the brain, or stomach, being made to participate with the catarrhal fever.

1007. This complaint is caused by the sudden application of cold when the body is hot, by the long continued exposure to cold and moisture when the body is not heated; by the sudden transition from a cold to a heated atmosphere; or from a partial draught of air upon some part of the body, but especially upon the head. But one of the most fruitful sources of it is exposure to cold, while the skin is wet or moist with perspiration, as after dancing, or other exercise. With children it is most frequently produced by keeping them standing in a cold atmosphere; as at the door or window; by being suddenly placed there soon after they have risen from sleep; or by being kept too long under the operation of washing, &c.

1008. Before we detail the mode of cure it may be well to consider the pathology of this disease—this may be the more necessary, as much popular error exists on the subject of colds.

1009. Laennec informs us that, “a redness more or less marked, and at most a slight thickening of the internal membrane of the bronchia, are the only traces which this disease leaves in the affected organs; if we except a certain quantity of phlegm in the bronchia, resembling that expectorated by the patient. The redness and swelling very rarely occupy the whole bronchial membrane, even of one lung. When the contrary is the case, the disease is very severe, and accompanied by a violent fever. Most commonly there is congestion only in certain parts of the membrane, in one or both lungs, even when there is much fever and expectoration. The portions which are red and swollen, are usually more consistent than natural; sometimes they are somewhat softer, particularly in the catarrhs which accompany severe fevers; and occasionally, the degree of the softening is equal to that which occurs in the mucous membrane of the stomach and intestines in certain cases. The extent and intensity of the redness are not always in proportion to the violence of the inflammation, the quantity of expectoration, or the acuteness of the case. Thus, in the catarrh, whether latent or not, which complicates fevers, we find the membrane swollen, and of a livid red over almost its whole extent, and also softened here and there;

while in the idiopathic disease, even when very acute, it exhibits marks of inflammation in certain points only." Laennec, however, observes, "that the redness and softening of the bronchial membrane are always the more marked according as the examination is remote from the period of death, and the decomposition of the body more advanced."\*

1010. Notwithstanding that catarrh obviously consists of an inflammation of the mucous membrane of the bronchia, Laennec declares, "that bleeding is rarely useful in it, except in very robust constitutions, or where the symptoms are so severe as to threaten peripneumony, or where there is blood in the expectoration." p. 69. How far this may be true in the comparatively mild climate of France, we cannot pretend to determine; but in this and in climates similar to our own, it would be a dangerous doctrine to inculcate, especially when the disease attacks children. It is true, we may give so extensive a latitude to his exceptions, as to make them meet all the necessary exigences of the disease; but it is obviously not his intention that this should be done. For he very emphatically declares, that "this measure, with the exceptions just named, has always been rejected by good practitioners, as rendering the disease of longer duration, as diminishing and sometimes checking the expectoration." *Ib.*

1011. The remarks of Laennec we believe, cannot apply with much truth to the catarrh of this country; for here, we are very often under the necessity of employing the lancet, if the inflammation has taken possession of the bronchial surface. But if it confine itself to the Schneiderian membrane or to the frontal sinuses, bleeding we grant, will rarely be necessary; but if it invade the trachea and lungs, the cough will very often require the loss of blood for its relief; especially if this be attended by pain and soreness in the chest, and by a riving pain in the head. Indeed the latter symptom alone, has frequently led us to the employment of the lancet for its relief; and so far we think, it has always been useful.

1012. We have never witnessed the ill effects of bleeding mentioned by Laennec; namely, its having "rendered the disease of

\* Diseases of the Chest, Forbes's Trans. p. 62.

longer duration, and as diminishing and sometimes checking expectoration." On the contrary, we have very often been under the necessity of abstracting blood, with a view of promoting the bronchial secretion; and farther, we can very confidently declare, we have rarely failed to have our intention fulfilled.

1013. We are every way confident that in children did we not sometimes employ bleeding in this disease, we should withhold one of the most efficient remedies for its cure, if we did not pretty suddenly convey them to an unnecessarily early tomb; or the disease would spin itself out to a very great length, and eventually perhaps terminate in incurable effusions within the bronchial ramifications, or leave chronic congestion within the substance of the lungs.

1014. We therefore never fail to recommend the abstraction of blood, when fever and pain attend, or if dyspnœa be present. We abstract blood from either the arm, or from between the shoulders by leeches, when children are the subjects—from the arm at first, preferably, if there be much heat of skin, oppression, and crying after each spell of coughing. Children are more liable, as we have already observed, to a more exalted degree of bronchial inflammation than adults; but as many find it difficult to ascertain its presence in catarrh, and withhold the lancet from this cause, it may be well to remark, that the following simple signs, have never failed to point out to us this condition of the mucous membrane of the bronchia, if it existed.

1015. First. The child is disposed to lie on its back, with its head thrown back, even lower than its chest; and when an attempt is made to raise it, it resists the change as much as it can, by stiffening its neck, and suffering itself to be elevated in this condition, by the hand being placed upon the hind-head.

1016. Second. When this attempt is made, the child shows that the effort is attended by pain, by its complaining or crying at the moment.

1017. Third. The child is sure to cry after each spell of coughing, with more or less violence; and if it be old enough, it may be observed to make efforts to prevent coughing from taking place.

1018. When these signs combine, or even when they exist singly, we never fail to abstract blood, and this almost always

with marked advantage; nor do we stop here, if these symptoms continue; for we bleed or leech again and again if necessary. Laennec's opinion of leeching, however, is not more favourable than it is of bleeding from the general system; for he says, that "leeching has the advantages and disadvantages of venesection, only in a less degree." *Ib.*

1019. He however says, that "cupping is in general more useful. By using many glasses, and yet taking away only a small quantity of blood at one time, and more particularly by keeping the glasses applied for a considerable time, so that the tumefaction be produced by them does not too speedily subside, we frequently obtain, in the severer cases, marked relief of the oppression and other symptoms." p. 69. He could not well have demonstrated the necessity of losing blood better than by this last direction—for though he directs that but a small quantity of blood should be taken at one time, he nevertheless directs the application of "many cups," and attaches a value to them in proportion to the continuance of "the tumefaction produced by them."

1020. Now, we would ask, on what does the continuance of the "tumefaction" depend? Certainly upon nothing, but the degree of extravasation that the cups produce; and the quantity of blood that is poured into the cellular substance, is as much and as certainly withdrawn from the circulating mass, as if it had been drawn by opening a vein; therefore the system is deprived of so much blood. We however admit that the effects are sometimes more important and less debilitating than if so much had been abstracted suddenly by opening a vein. This arises from the very slow manner in which the blood is drawn from the circulation; and also by the capillaries furnishing a certain proportion of it, and which quantity might almost be said to be already out of the common circulation, and would not be so certainly missed by the heart and larger blood-vessels.

1021. Leeches produce a very extraordinary effect upon the system; one altogether different from that produced by the opening of a vein. For the faintness which takes place after leeching, bears very little analogy to that which follows venesection; for the quantity of blood abstracted by them, will by no means always account for the peculiar state of exhaustion the patient exhibits from their application. The state alluded to seems to be

produced by some unknown action upon the nervous, rather than upon any loss of balance in the sanguiferous system. It has been attempted to be accounted for, by calling in the aid of the imagination, or the horror which some feel at the sight of the animal itself—but this can only obtain where such aversion exists, but will not account for the effects, when this power is not exercised, as in children, &c. Be this as it may, as regards the immediate cause of this state of faintness, the effects are sometimes highly valuable; for when it takes place it saves, almost always, a considerable expenditure of blood; for we have constantly remarked, that arterial action has been more certainly and permanently abated, than when a state of exhaustion has been produced by the direct abstraction of blood by venesection; for after this, a reaction almost always follows, which is not the case with leeching.

1022. It is true that leeches may produce faintness, from the over-quantity of blood they may abstract; when this happens, the faintness is precisely like that produced by venesection; but it does not resemble the state in question. Cupping, which certainly bears a strong resemblance in its mode of accumulating and abstracting blood, to leeching, yet it never, so far as we have seen, produces an effect similar to that induced by leeches.

1023. We are therefore very partial to their employment, especially in children; and particularly after the force of the arterial system has been abated in urgent cases, by a bleeding from the arm. We are persuaded, that no remedy meets the exigencies of the disease so well as leeches where a farther reduction of the system by the loss of blood is required. And we are in the constant habit of using these little animals, whenever there is fever with a confined breathing, together with the marks, which we have just declared, betray a lurking inflammation in some part of the pulmonary system; for it may be remarked, that an exalted, acute mucous catarrh may be complicated with inflammation of some other portion of the lungs, than the bronchia. Leeches in such cases should be applied between the superior portions of the scapulæ or shoulder blades.

1024. The bowels should be well opened; first by calomel, followed by castor oil or magnesia; that is, a few grains, say eight or ten, for an adult, or three or four for a child, should

be given at once; and if it do not operate in three or four hours, it must be followed by either of the medicines just named, in a suitable quantity so as to secure three or four evacuations.

1025. With children, the calomel oftentimes answers an admirable purpose, by exciting the stomach to vomiting, whenever there is any thing crude or offensive in it, and it very rarely fails afterwards, to affect the bowels. The belly should be kept open during the course of the acute stage of the disease; but it is seldom necessary to purge briskly. Indeed this is sometimes injurious, especially when there is a tendency to diarrhœa, as sometimes happens when the first stage has been neglected or improperly treated, as but too frequently happens, in conformity to an old, but ill-understood adage; namely, "feed a cold, but starve a fever." Unfortunately, this proverb is obeyed literally in too many instances; and this sometimes to the destruction of the patient. The true interpretation of this "old saw," is, that you are to starve a cold, because there is always more or less fever with it.

1026. Indeed, Laennec himself may be justly charged with having perpetuated an indifference to a "cold," by the employment of a similar saying; "a cold well nursed lasts forty days, and a cold not nursed lasts six weeks; (p. 70,) for it directly implies that it will run a certain course in spite of opposition; and that it will last no longer, if it be indulged in its course. This doctrine is particularly dangerous, when sanctioned by such high authority, especially, as the statement has no foundation in fact; at least, not in this country. For we are as certain as we can be of any fact, not mathematically demonstrable, that a catarrh can very often be cut short, if it be taken at a certain period; and that its duration and force can be very much diminished by a proper mode of treatment; of this we shall speak presently.

1027. In the treatment of catarrh, we have directed the loss of blood, and moderate purging; in addition to these, when the case has required them, we direct occasional puking with children, and the pretty steady use of expectorants. Children are liable in this complaint, to oppressive accumulations of phlegm; owing very often to the entire want of the voluntary power to expectorate. It therefore becomes important, that the bronchia should be relieved from this surcharge of mucus; and in

most instances, this can only be done by exciting the action of the stomach.

1028. It sometimes happens however, in the more acute stage of this complaint, that the secretion of mucus is either not sufficiently abundant, or that it is too tenacious to be readily delivered from the bronchial ramifications; in each of these cases, expectorants are highly valuable; and should always be had recourse to, after bleeding and purging, if the case have required these latter remedies; or immediately, if the state of the system should not require them.

1029. For these purposes, as well as to excite occasional vomiting, we know of nothing equal to the compound syrup of squills, or as it is more familiarly called, Coxe's hive syrup.\* This medicine can be employed so as to satisfy each of these intentions. Thus, to a child that it may be proper to puke, the appropriate dose, must be repeated every fifteen or twenty minutes until the stomach revolts. When the secretion is not sufficiently abundant or is too tenacious, the proper dose may be repeated every two hours. A solution of the tartrate of antimony is also a valuable expectorant, and febrifuge with children; the adult, will rarely require either the syrup of squills, or the preparation of antimony. The dose of the tartrate of antimony must be minute; the twentieth of a grain every two hours, will be sufficient for children from a year to two years old; a thirtieth, for children from six months to a year; a sixteenth, for children from two years to three or even four years old; unless you wish to excite vomiting. In this case it may have double the strength specified above. Either of these articles becomes highly important, if the cough be very troublesome. For we cannot give any preparation of opium in the commencement of catarrh, if the symptoms be at all urgent, though it becomes highly important in its decline, or when it is in its forming state. It may however be proper to observe, that we would prefer the solution of tartar emetic, to the hive syrup, if the fever was high in the commencement, or remained unsubdued.

1030. Much mischief is done by the indiscriminate exhibition of opium in some form or other, in this complaint; because cough

\* See Chapter on Hooping Cough, for the composition of this article.

is present, it is considered as a matter of course, that laudanum should be given; but opium in any shape whatever, must not be used when the pulse is active, the skin hot, the expectoration sparing or very thin, or the oppression considerable. It can only be given with advantage when the contrary of all these obtain; it then is not only safe, but absolutely proper. The best forms for its exhibition, is that of the brown, or the spermaceti mixture.\*

1031. During the whole treatment of acute catarrh, the strictest antiphlogistic regimen should be observed; we have elsewhere, (pars. 214, 215, 216,) explained our meaning of this term. The most plentiful dilution should be indulged in; the air of the room should never exceed 60°, if possible to prevent it. All sudden transitions of temperature should be avoided with much care; and the body should not be overheated by clothes, nor the temperature of the skin be too much reduced for want of a sufficient quantity of them. By the first, the skin is stimulated beyond the sweating point; and by the second, it is prevented from rising to it.

1032. Blisters are sometimes highly useful in catarrh; but they are very frequently much abused, by applying them when

\* The brown and spermaceti mixtures are made as follows:—

R. Elix. paregor.	- - -	℥j.		Take Paregoric elixir,	-	1 ounce.
Vin. Antim.	- - -	℥ss.		Antimonial wine,	-	½ ounce.
Pulv. g. Arab.	- - -	ʒiij.		Powdered gum Ara-		
Succ. glycerh.	- - -	ʒiij.		bic - - -	-	3 drachms.
Aq. fervent.	- - -	℥vj.		Liquorice extract,		3 drachms.
M.				Hot water,	- -	6 ounces.
				M.		

An adult may take a table-spoonful every three or four hours until cough is relieved. A child of six months to a year, a common-sized tea-spoonful; above this age, from a large tea-spoonful to a dessert-spoonful.

Or the spermaceti mixture:—

R. Sperm ceti,	- - -	ʒij.		Take Spermaceti,	-	2 drachms.
Vitel ovi,	- - -	j.		Yolk of egg,	-	1
Pulv. g. Arab.	- - -	ʒij.		Powdered gum Ara-		
Elix. paregor.	- - -	℥j.		bic, - - -	-	2 drachms.
Vin. antim.	- - -	℥ss.		Paregoric elixir,	-	1 ounce.
Sacch. alb.	- - -	ʒiij.		Antimonial wine,	-	½ ounce.
Aq. font.	- - -	℥vj.		White sugar,	-	3 drachms.
M.				Mix.		

This is to be used as directed above.

they may not be absolutely required, or at too early a period of the disease. When the latter happens, they are sure to augment fever, and thus increase the congestion of the bronchia. But when properly resorted to, they act as very important revulsives. We think the best place for their application is between the shoulders; the same spot to which we have directed the leeches to be applied. They are rarely proper to the thorax in simple catarrh, however acute; but when complicated with inflammation in some other structure of the lungs besides the bronchia, they may render very important aid to the other remedies. Much care however, should be taken, that the pulse, and heat of skin, be sufficiently reduced, to bear their stimulation, before they are made use of.

1033. It would seem, that a cold lasts much longer in France than in this country, if the proverb quoted from Laennec has any foundation; but not necessarily so we imagine, unless the mode of treatment be very faulty indeed. In this country, even when the severity of a long winter has to be contended against, a catarrh with proper management will almost always yield in two weeks; and sometimes even sooner. We are therefore no ways disposed to yield to the opinion of Laennec upon this point; especially as we have abundant experience even in our own person to enable us to declare, that this affection can, not only be much abridged in duration, but in many instances, cut short.

1034. In order however, to accomplish either of these very desirable ends, this disease must be attacked either in its forming state, or very soon after it is formed.

1035. If attended to in its forming state, it can very frequently be put a stop to, by bathing the feet for a few minutes in warm salt water at bed time, and taking twenty-five drops of laudanum and as much sweet spirit of nitre, (*spiritus ætheris nitrosi*,) in a little sugar and water, drinking after it a glass of hot lemonade. This simple plan has very frequently prevented a "cold" from fixing itself upon the chest. During however, any appearance of catarrh, the diet should be strictly antiphlogistic, until it ceases to trouble.

1036. Laennec proposes a plan for the same purpose, but which we cannot feel safe to recommend, however successful it may occasionally be. He says, "my plan is to give to the patient at

bed time, an ounce or an ounce and a half of good brandy in double the quantity of an infusion of violets, made very hot and sweetened with syrup of marsh mallows. This dose is usually followed by a copious perspiration towards morning; but frequently the disorder is cured the same day without any perspiration. If this is not the case, the same plan is followed several nights successively." p. 70.

1037. Dr. Forbes, in a note to this plan of Laennec, makes the following judicious and highly valuable practical remarks. "A catarrh, or *common* cold, as it is called, is of such every day occurrence, and in general of such moderate severity, as seldom to come within the pale of formal medical treatment. The very tolerable amount of its evils, and the confident expectation of being speedily freed from these by the simple process of nature, no doubt render it frequently of long duration, when it might be removed very speedily, and occasion many remedial measures of well known efficacy to fall into neglect. Of this kind is the inhalation of the steam of warm water, conjoined with the internal use of diaphoretics and the application of steam to the surface of the body, formerly recommended by Mr. Mudge, and described in his excellent Essay entitled, "A Radical and Expeditious Cure for Recent Catarrhus Cough." Whoever will be at the expense of procuring his "*Inhaler*," and will take the trouble to use his process at the exact period of the disease, (i. e. at the very onset,) and precisely in the manner recommended by him, will I do not doubt, find therein a remedy at least as efficacious and speedy, and certainly more safe, than the spirituous treatment of our author. But perhaps after all, for those who have leisure for such luxurious medication, and who do not consider such a restrictive mode of cure, as worse than the disease, the safest and surest remedy is to lie in bed and live on slops for a day or two." p. 71.

1038. From the common belief, that a cold will run its course do as you may; and its not incapacitating such as may be attacked with it, from attending to their usual occupations; but above all, from the aversion which very many have to reduce the quantity, or to change the quality of their food, very few are tempted, to abridge the career of a cold, however certainly this may be in their power. Yet we feel it a duty, as well as its being a part of our plan, to give our opinion upon this subject.

1039. When catarrh has acquired so much force, that the plan above suggested to arrest its progress, would be either unavailing or injurious, still much can be done to abate its severity, or to shorten its duration. This must be attempted by the observance of a strict antiphlogistic regimen; guarding against exposures of every kind, and by drinking very freely of either of the following demulcent and diluent drinks; flaxseed, or slippery elm bark, or bran tea, barley water, rice water, molasses and water, or even toast water. This plan should be persevered in, until all arterial irritation cease, which will happen, when the disease is of a mild grade, in about five or six days; after this period the patient may gradually return to his ordinary diet. But if he be in the habit of taking other drinks than water, he should abstain from every species of liquor until cough has entirely ceased. If this do not succeed, the disease will then be of a more acute character, and must be treated as already directed for the active stage of "acute mucous catarrh."

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## CHAPTER XV.

### CYNANCHE TONSILLARIS.

1040. THIS disease comes with huskiness, and next with pain and inflammation of the throat, attended with some difficulty of deglutition, and sometimes with fever. In a short time these are increased; and from the swelling of one, or both tonsils, there is a great inability to swallow. If the throat be examined at this time, we find the uvula, the pharynx, and the neighbouring parts, extremely red, and excessively tender. It however, in some instances, and especially where the individual has had many preceding attacks, it shows itself as a mere local affection, without fever, or any general constitutional disturbance.

1041. In this form of the disease, we have phlegmonous inflammation, which terminates, usually, either by resolution or suppuration, and sometimes by induration of the glands. But in other cases, it puts on the appearance of erysipelas; and here, instead of red vivid inflammation, with much swelling, the aspect

is dark, or purple; with superficial vesicles, or ulcers, of a white or gray colour, resembling ordinary aphthæ.

1042. Commonly, no species of this disease is dangerous, whatever may be the degree of the immediate suffering; and only becomes so, when the inflammation extends to more important structures, as the larynx, and trachea.

1043. The symptoms, however, sometimes run very high; then great suffering is endured. For the tonsils become so enlarged and engorged that they nearly fill up the posterior fauces.

1044. Deglutition is now extremely difficult, and sometimes altogether impossible, without a repetition of the greatest, and most painful efforts. Under such circumstances it is not unusual for cough to be excited, and drive whatever is attempted to be swallowed through the nostrils. The faucial extremities of the Eustachian tubes, are very apt to be involved in this inflammation; when this is the case, each attempt to swallow is followed by an acute darting pain through the course of the tubes, which seems to terminate in the external ear.

1045. One of the most troublesome symptoms against which the patient has to contend, is the free secretion of a very tenacious mucus; this quickly accumulates in sufficient quantity to force the patient to swallow it, in which attempt, the pain becomes so excessive as to produce a convulsive action of almost every muscle in the body. This secretion is particularly troublesome when the patient attempts to sleep—so much so indeed sometimes, as almost to preclude the possibility. To obviate this as much as possible, the patient should make his mouth so depending, that it may flow out before it accumulates in such quantities as will oblige him to swallow. The whole of the muscles of the fauces and tongue, partake so much of the inflammation, that it is impossible sometimes to protrude it; the effort is always attended with pain.

1046. The tongue is quickly incrustated with a thick, very white coat. The fever which accompanies the cynanche tonsillar is sometimes very high; at others very much less than we should suppose would attend an inflammation of such extent and apparent violence. With those who are liable to attacks of sore throat, the fever for the most part is moderate; indeed in some

instances it seems to decline in proportion to the frequency of the occurrence, as if the system had lost some portion of its sympathizing powers. We however know of but few diseases which leaves so much debility in the same time behind it. This may perhaps in part be accounted for, from the entire impossibility there is sometimes, of taking down nourishment.

1047. This disease is sometimes very obstinate; the inflammation not advancing to suppuration nor receding by resolution—this is especially the case with those who may have cynanche to supervene upon enlarged tonsils; or in those, who have the lymphatic temperament strongly marked.

1048. Cynanche tonsillaris is almost exclusively produced by exposure to cold. There are many persons, peculiarly liable to it; and a predisposition seems to be especially given, by former attacks; and hence, caution is required, in the avoidance of the exciting cause.

1049. The practice of washing the throat every morning with cold water, is said to be an excellent preventive; and we know that much advantage has been derived from gargling the throat every morning and evening with a solution of alum, for the same purpose.

1050. The treatment of this disease, divides itself into that which is proper in its forming state; and into that proper for the subsequent stages.

1051. If we are called very early, and before diseased action is completely established, we may frequently check the attack, by a stimulating gargle, such as an infusion of Cayenne pepper;\* and by rubefacients, such as the spirit of turpentine, or mustard and vinegar applied to the external surface of the throat, until the skin becomes inflamed; or even by warmth, when the attack is very recent and mild, as a piece of flannel or worsted stocking, tied around the neck. But should these fail, we must change the practice, and endeavour to reduce the inflammation by evacuations. An emetic is here exceedingly efficacious; generally

\* Take a tea-spoonful of Cayenne pepper, pour on it a gill of boiling water; stir, for a couple of minutes, and then let it settle clear—let the throat be gargled with a portion of it every four hours.

resolving the swelling and suppressing the fever, if such exist; this should be succeeded by a mercurial purge, to be worked off and the bowels kept open by the saline laxatives.

1052. If necessary, we must next resort to blood-letting, and especially, leeching the throat; but the state of the pulse must always govern the use of these remedies, especially the lancet, as leeches may be used with advantage, when the pulse may not require bleeding from the arm. In many cases it is not at all demanded; particularly, general bleeding, as it is rarely productive of as much utility as might be expected. Yet, where there is great vascular action it must be employed, and repeated according to the emergency. The topical bleeding, by cups, or leeches, is generally more effectual; and especially where the affection is local or the system somewhat reduced. In violent cases, or even in cases threatening to be violent, blisters should be employed; and this as early after the leeching and other depletion as possible.

1053. Gargles, in this state of the disease, are always detrimental; as they aggravate the inflammation, by the violent and inverted action which they induce. As a palliative, a mixture of equal parts of nitre and loaf sugar finely powdered, occasionally put on the tongue, and as it melts, allowed to trickle over the inflamed surfaces, is sometimes highly serviceable; as is also the steam of water, or vinegar and water, applied by Mudge's inhaler, or as a substitute, a common tea-pot.

1054. But should the disease obstinately run its course to supuration, (which may be known by the surface becoming of a yellowish hue, and by the throbbing and a disposition to rigour,) they may in urgent cases be opened. With this view, emetics were formerly employed. But the practice is painful and unnecessary; as it may be readily done by puncture. Having discharged the matter, mild detergent gargles, as sage tea, honey, and vinegar, should be directed to cleanse the parts, and to dispose them to heal kindly.

1055. As regards the erysipelatous species of the disease, the treatment is somewhat different. We rely more on topical bleeding, and the vesicatory applications; and where aphthæ or sloughs appear, on stimulating gargles; and, in the event of extreme debility supervening, the system is to be supported by

bark, wine, the carbonate of ammonia, and whatever else enters into the treatment of putrid sore throat.

1056. If due attention, however, be paid to the forming stage of this disease, it can very frequently be arrested in limine; for this purpose stimulating external applications are for the most part efficient. The spirit of ammonia, of turpentine, or a mixture of the flower of mustard and vinegar, are the best. They should be applied immediately over the throat, and should be permitted to remain, until they produce decided irritation; they may be repeated when this effect disappears.

1057. To such children as are subject to this affection, the above directions are highly important; and subsequent returns may often be prevented in those that can gargle, by a persevering use of alum water, or an infusion of nut galls, in the proportion of half an ounce of the powder to a pint of boiling water; and then simmered for a few minutes. This must be strained off, and used early in the morning and on going to bed. We have found the following better, in warm weather, than the one just suggested. Pour half a pint of brandy or whiskey, and as much water, upon an ounce of powdered Aleppo galls, and shake them several times a day, for a few days—let it then settle, and pour off the infusion for use. With a quantity of this the throat should be gargled the first thing in the morning, and the last at night.

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## CHAPTER XVI.

### CYNANCHE PAROTIDÆA, OR MUMPS.

1058. THIS disease consists in an inflammation of the parotid glands, and is of the phlegmonous kind. It is often confined to one side, though more generally to both; sometimes, the maxillary glands are also implicated, and hence the swelling of the jaws.

1059. For the most part, this is a disease of little moment; especially if it occur in the warmer seasons of the year. But at

other times, there is much constitutional disturbance. Rigours followed by much fever, sometimes happen, especially during the variable weather of early spring, or late fall. The first sensation of inconvenience, is about the angle of the lower jaw; this part presently becomes painful upon moving the head; tumour is now perceived at this part, which goes on to increase until the fourth or fifth day; after which it gradually subsides, if not maintained by fever. It is not unusual for one side to be first affected; and after this has nearly run its course, the gland upon the opposite takes on inflammation, and also runs its course. When this happens, the disease becomes more protracted and painful.

1060 We have occasionally seen severe suffering from this complaint; this is in consequence of a high degree of inflammation and an excessive enlargement of the gland. The jaws become closed, and deglutition is performed with much difficulty. The ears are now and then much pained, as in common ear-ache. The stomach is sometimes annoyed by nausea, or is disturbed by vomiting; and in some few instances, we have witnessed excessive fever, and even delirium.

1061. When this complaint is unattended by much fever, its progress is regular, and its termination favourable—in such case, it is scarcely an object of medical discipline; at most it requires but lenient purging, a low diet, and some mild topical applications, as warm sweet oil, or hog's lard, and the pained parts kept warm by flannel. Care however should always be taken, even in the mildest forms of this disease, that the patient be not exposed to the risk of taking cold; as a remarkable peculiarity attends this complaint; which is its disposition to metastasis or translation; to the testes, in males; and to the breasts, in females, especially in adults.

1062. In the severer forms however of this complaint, active measures are sometimes indispensable; bleeding to a considerable extent, we have occasionally found necessary; brisk purging, and the strict observance of an antiphlogistic regimen.

1063. Occasionally we have been obliged to have recourse to topical depletion by leeches; and this followed by warm cataplasms of bread and milk, to promote the farther discharge from the bites of these animals. The mercurial purges appear to an-

swer best in this disease; especially if their operations are promoted by either of the neutral salts.

1064. Should a translation take place, it may be accompanied by many distressing symptoms. In the male, we once saw the testes prodigiously enlarged; much suffering was endured, and great hazard was incurred by the change. Violent fever and delirium accompanied this metastasis; and it required a perseverance in very active remedies, to subdue them.

1065. In the female, the breasts are the seats of the metastasis; they sometimes enlarge very much, and become extremely tender and painful; but we believe they never run on to suppuration.

1066. In the treatment of this complaint under a change of seat, regard should always be paid to the part originally affected. With this view we have always blistered the parts immediately over the parotids, and we think with decided advantage. If the change has taken place in the male, we also exhibit an emetic, and apply warm vinegar by means of flannel to the scrotum, and this to be repeated from time to time. A brisk purging should also be instantly instituted, after the operation of the emetic is entirely over; provided neither the blistering nor the vomiting has been successful in recalling the morbid action to the original seat of the disease.

1067. In females, besides blistering and purging, (for with them it is doubtful whether emetics are useful in this condition,) we apply warm vinegar by means of flannels to the inflamed breasts, as directed above. We have never seen any permanent evil follow these translations, though several such are recorded by authors.

1068. This disease, like several others, affects the system but once; it is supposed to be contagious; but whether this be well founded we are not prepared to say—it is almost always epidemic, at least in this country; which may with much propriety call in question its contagious nature.

## CHAPTER XVII.

## CYNANCHE TRACHEALIS, OR CROUP.

1069. It is not essential to our purpose to enquire whether this disease was known to the ancients, or is one of comparatively modern origin. It is now sufficiently ascertained, that it is one of too common occurrence in this as well as many other countries; and also that it is one of too frequent danger.

1070. This complaint is almost altogether confined to the period of childhood, and is most frequent in infancy, or before the fifth or sixth year. It is affirmed, particularly by Cullen, that this disease rarely attacks infants till they are weaned; and that there is no instance of its occurring in children above twelve years of age. As a general rule, this may be correct; but our experience has furnished us with a number of exceptions. We have seen it in its most formidable shape, in children at the breast; and we have witnessed death from it in the adult.\*

1071. Children of a florid complexion, and enjoying high health, and especially those inclined to be fat before two years, are more obnoxious to it than those of an opposite temperament. It is a disease of more frequent occurrence in some situations than in others; and those which are near waters of great extent are more obnoxious to it than children in inland situations; in a word, where a cold and moist air unite; and especially when it suddenly alternates with a dry warm air.

\* "The croup chiefly prevails in children from a short time after birth until puberty, attaching itself to particular families." Cheyne, p. 15. To the truth of these observations, we have frequently borne witness. But we have seen this complaint after puberty, and in adult age, though Dr. Cheyne says "I have heard of no example of this disease after the fifteenth year." He says farther, "I have imagined this to depend on the change which happens in the constitution at puberty, and perhaps in a more peculiar manner in the change which the upper part of the windpipe undergoes." This is ingenious, and probable; and it may be owing to this circumstance, that it is a rare disease in adult age; but that it occurs even at late periods of life is certain. We have attended a lady within the last six years, who is now upwards of forty, several times, (certainly five,) with threatening attacks.

1072. Nothing perhaps can be more satisfactorily proved, than the agency of cold, moist air, in the production of this complaint, especially in the spring and fall. So much so, indeed, is this the case in certain situations, that the mothers of such children as may be disposed to this disease, dread the prevalence of that wind which shall bring with it, both. Thus in this city, a north-east wind in early spring or fall, is almost sure to produce or reproduce this complaint in those who are disposed to it. But with such, almost any sudden transition, which too suddenly arrests perspiration, will be attended by the same consequences.

1073. Mechanical causes have produced a disease having all the characters of croup from other causes; thus Mr. Balfour informed Dr. Home, that he had "attended a child in a disease, which from the similarity of voice appeared to him to be croup. The child died. When opened, a piece of shell which the child had sucked in with its breath was lying across the trachea, about an inch below the glottis, and the membrane was inflamed and dry." "Here," continues Dr. Home, "was an artificial croup raised, from which we may evidently perceive how the voice is altered in the natural disease."\*

1074. This disease attacks in one of two ways; 1st, by a hoarseness, which is perceived upon coughing, and which may continue without increase, for even several days, or until perhaps the sudden application of some exciting cause; such as a change in the temperature of the air.

1075. For exposure to cold and damp, or to check of perspiration, calls forth some of its more formidable symptoms; as more or less difficulty of breathing; an increase of cough without expectoration and fever; this form is longer running its course, than the one about to be mentioned, but is less obedient to the powers of medicine.

1076. Or secondly, it may attack with the most alarming suddenness where no such onset was suspected. When it is thus prompt in its appearance, it menaces life from the moment of its invasion; and if its terrible march be not very speedily arrested, it but too frequently triumphs, in death.

1077. But whether the croup insidiously steals upon its vic-

\* Enquiry into the Nature and Cure of Croup, p. 49.

tim, or suddenly threatens it; the latter part of the evening after a short, but rather disturbed sleep, and about two or three o'clock in the morning, are the most certain periods for it to declare itself—hence, the frequency of our first attendance during the night.\*

1078. With the exception of hoarseness, we have never observed any premonitory symptoms to this disease; for we cannot, with propriety, consider a slight catarrhal affection, as properly belonging to this complaint, though it may occasionally precede the croupy symptoms. Cheyne's account is rather poetical for ordinary occurrence; or at least we cannot acknowledge we have ever witnessed, (and our own family has furnished us unfortunately with but too many examples,) that the patient "shuns his play-fellows, and sits apart from them, dull, and, as it were, foreseeing his danger." p. 16. On the contrary, we have seen many instances, where this disease has attacked children, and that with great violence, after their having spent their evenings in high mirth, and merriment.

1079. It must, however, be confessed, that we have known children indisposed, and dull, from catarrh, previously to the attack of croup; but, in these instances, the latter was not anticipated from any of the then existing symptoms; consequently, this previous condition did not necessarily belong to, nor properly forerun, the latter. We believe it to be familiar to almost every practitioner, that croup may supervene upon catarrh; not perhaps, as a consequence, ever, but as a coincidence: for catarrh is owing to a peculiar condition of the mucous membrane of the nose, and windpipe; and for croup to form, or grow, out of this affection, it will at least require an alteration of that condition, and not a mere increase of its force; for the severest catarrhs we

\* Dr. Cheyne says, "The disease generally comes on in the evening after the little patient has been much exposed to the weather during the day, and often after a slight catarrh of some days standing." p. 15.

The evening is the most frequent period for an attack of this complaint; but for this purpose, it is not necessary, that the "little patient" shall have been "much exposed to the weather;" for we have often witnessed this disease from the mere prevalence of a north-east wind, and where, in consequence of this wind, every precaution has been taken to guard against its influence, by confining the child, and keeping it warm. We have elsewhere declared, that catarrh is not a necessary forerunner of this complaint.

witness—catarrhs, which require not only prompt, but extremely active treatment, croupy symptoms do not make their appearance as a necessary consequence.

1080. In this opinion we are happy to find ourselves confirmed by an observation of the celebrated and accurate Laennec, whose work upon the diseases of the chest has been lately most ably translated by Dr. Forbes. He says, p. 120, “the false membrane which so frequently forms on blisters, is, of itself, sufficient to prove that it is much less to the degree, than the nature of the inflammation, that we are to attribute this concretion or coagulation of pus in certain cases. Indeed, the cause of it is much more probably to be attributed to some peculiar disposition of the fluids, than to any affection of the solids.”

1081. From this it would appear, that it is not sufficient for the production of croup, that the mucous membrane of the wind-pipe be merely inflamed, but that it requires a modification of inflammation to induce it.

1082. It may be farther observed, that during the prevalence of catarrhal affections, croup is more rife than at other periods; not that the one produces the other, but because during such periods as the spring and fall, or the very moist and open weather of winter, there is a stronger disposition created to these diseases; and that they have, at one, and the same time, the same exciting causes.

1083. We have uniformly observed the insidious approach of this complaint, to be less under the control of remedies, if its first stage be neglected, than when the attack is sudden, however violent that attack may be. This is doubtless owing to its first symptom, hoarseness, being neglected. For this reason we would wish to put parents upon their guard, whenever this symptom takes place; by assuring them from long experience, that it is one, of a most dangerous, and threatening character. So attentive are we to this forewarning in our own family, (and we have taught others to be equally vigilant,) that it is attended to immediately, and opposed by most active remedies; and we have every reason to believe, that, by the means we shall recommend for this purpose, we have stopped this formidable complaint in limine, in very many instances. It is true, a hoarseness passes off sometimes, without much mischief; but this is not the hoarse-

ness of croup; for this, we believe, never takes its leave spontaneously.

1084. The hoarseness which disappears spontaneously, is very distinct from that of croup; the difference, however, cannot well be conveyed by words, unfortunately, sometimes, for those who may be assailed by it.\* It may, however, be observed, that there is a certain clearness and distinctness in the croupy sound, that does not attend the other; the one, (the croupy,) seems as if it issued from a metallic instrument; and the other from one of a less vibrating material. The ear, however, by long habit, may learn to distinguish between them, and when once instructed in this discrimination, never loses its tact.

1085. We may also observe that the evanescent hoarseness is almost always accompanied by a little soreness of throat; while that of croup, we believe, is never. Again, the first is perceived in common speaking; whereas that of croup is only discoverable in the commencement by coughing. Lastly, some little pain and soreness are observed about the posterior fauces after coughing, which never happens in that of the croup. It may not however be amiss to observe, that a mere loss of voice must not be mistaken for croupy hoarseness, as we have known it to be on several occasions, to the great terror of an anxious parent.

1086. In this, and perhaps every other country where croup is of frequent occurrence, every sudden difficulty of breathing, accompanied with cough, in children, is mistaken for it. Thus the acute pituitous catarrh is often mistaken for it. Laennec says "this disease is characterized by an extreme oppression attended by a copious pituitous expectoration. It sometimes begins as a common cold, but after a few hours, or even minutes,

\* Dr. Ferriar observes, (Med. Hist. Vol. 3, p. 137,) "children who are subject to croup, are sometimes seized with the deep, barking cough, which will increase to such a degree as to create much alarm, about the usual time of the dangerous exacerbation; yet it will decrease again, and at length go entirely off, without any other remedies than common demulcents. Cases of this kind, I suspect, have been described as genuine paroxysms of croup, and very trifling methods of cure have been recommended, in consequence of their apparent efficacy in the spurious croup, which always cures itself."

its severe character is soon declared, by the violence of the cough, the intensity of the dyspnœa, and oppression, the lividity of the face, marks of cerebral congestion, disordered circulation, and coldness of the extremities. In children it is sometimes mistaken for croup.”\*

1087. But it may be proper to advise, whenever hoarseness takes place, not to trust too much to the discriminating powers of the ear, for its nature; but instantly to proceed upon the supposition that it may be of a dangerous kind, especially as the remedies employed for the one will most certainly relieve the other. It is therefore erring on the safer side to treat it as if it were of a mischievous character, though it might have passed away without such treatment.

1088. It would seem necessary to the well understanding of the progress of croup, and its mode of treatment, that it be divided into three stages;† 1st, the forming stage; 2d, the completely formed stage; and 3d, the congestive stage.

#### *Of the First Stage.*

1089. We have already remarked, that one of the first and most certain signs of this complaint being about to take place, is a peculiar sonorous hoarseness, when the patient coughs, but which at this period does not affect the speaking voice; this peculiarity exists for a longer or shorter time, without much increase, even for several days in some instances, while in others the interval, or stage of formation is very short, but very decidedly marked. This hoarseness may in some instances be ac-

\* Laennec on the Chest, Forbes's Translation, p. 80.

† Dr. Cheyne divides this disease into but two stages; 1st, “the incomplete or inflammatory;” 2d, “the complete or purulent.” In the first, “the membrane is not yet formed; in the second it is fully formed.” This division does not comprehend the whole history of the disease; for the forming stage is one of the greatest importance in the treatment of the complaint, and therefore merits, we conceive, the distinction we have given it. Besides, we cannot regard Dr. Cheyne's second stage as representing this disease in its complete form; since the whole of the phenomena of that stage are but consequences of the previous, or his “incomplete or inflammatory.” And he himself admits this, in several places of his lucid and excellent essay.

accompanied or preceded by catarrhal symptoms; but not necessarily.\* In this stage when not attended by catarrh, we find for the most part the circulatory system undisturbed, and the respiratory not confined, nor even hurried. The child in general is as cheerful as usual; and its appetite and digestive powers are undiminished. In a number of instances where the disease was making an insidious attack, we have seen children exert themselves even pretty violently, without creating any uncommon hurry in the breathing, or occasioning the slightest embarrassment in it; yet these very children, in the course of a few hours, were reduced to the last extremity; and some of them did not escape with life.

1090. We think we have observed, however, in this forming stage, especially in the insidious attacks, the hands to be more than usually cool; the face to be rather unnaturally pale; and the skin to resemble in a small degree, the cold stage of an intermittent, but not attended by a sense of cold: this state of collapse remains for several hours in some instances, before the system is roused to reaction. But where the attack is sudden, we are by no means, certain, that this condition always precedes the febrile state, which so frequently is awakened, and made to accompany this complaint.

1091. During this period however, the mucous membrane of the nose is observed to be affected; since, the secretion in the nostrils is either arrested altogether, or very much diminished; and continues to be so during the whole course of the disease,

\* "The inflammatory affection of the larynx is doubtless sufficient to account for the alteration which takes place in the sound of the voice and cough." Cheyne, p. 22.

We believe there is in most instances an intermediate condition of the larynx, in the commencement of this disease; which is a degree of excitement in the part, accompanied by a little thickening of the mucous membrane, but which does not absolutely amount to inflammation; for could not hoarseness be produced by any thing short of inflammation, there could not be that species of croup, which Dr. Ferriar and Dr. Cheyne himself admit the existence of, namely, the "spurious croup," (see note to par. 1084.) We are farther disposed to believe in this condition of the trachea, or larynx, in consequence of the very speedy removal, in many instances, of this symptom, when sufficiently and promptly attended to, by the remedies recommended for the first stage of this complaint.

unless it terminate favourably. The cough is short, dry, and sonorous; or if any thing be expectorated, it is thin and whitish, and in very small quantities.

1092. If the throat, or fauces be inspected, nothing unusual, (at least as far as we have observed,) shows itself. The back part of the tongue, is perhaps more loaded than is natural, but it is far from being remarkable.\*

1093. After the continuance of the above symptoms for a longer or shorter time, a change takes place, by an aggravation of all of them; and at the same time, others are added; and these will constitute the

*Second stage, or that, in which the Disease is completely formed.*

1094. At this time we observe the hoarseness to be increased, and to affect the speaking voice;† that is, the tone of hoarseness is evidently deeper, more ringing, and betrays itself in every attempt to speak; the cough is more frequent and the spells longer: a degree of exhaustion, attended by an increase of the difficulty of breathing, follows each effort; the face becomes flushed during the coughing; but generally subsides as the circulation becomes more equal, after the exertion, but leaves the cheeks, or perhaps only one redder than natural.‡ The circula-

\* "When in the urgency of the attack, the fauces and neck are examined with a view to investigate the cause of the symptoms, (hoarseness, &c.) even when a sense of heat is complained of in the throat, the tonsils are not swelled, and but little inflamed." Cheyne, p. 18.

† It may be remarked as a general rule, that where the voice becomes suddenly affected by hoarseness, which discovers itself in speaking, and without being so in coughing, that it is not the hoarseness of croup. This kind of hoarseness, however, is more common to adults than children.

‡ There cannot we believe, exist a doubt, of the condition of the mucous membrane of the trachea at this time—every thing would seem to declare it to be in a state of active inflammation. The formation of a deciduous membrane, which is sometimes thrown up, or after death proved by dissection to exist, and even the remains of turgid vessels in this part, all announce inflammation of an active kind to constitute the proximate cause of this disease.

The following is Laennec's "Anatomical Characters" of croup. "Croup is an inflammation of the mucous membrane of the air passages, with exudation of plastic pus, (coagulable lymph,) which becoming concrete at the very mo-

tion is now much hurried in most cases; at other times it is very little disturbed; when this latter is the case, the face is seldom flushed, and the hands and skin of the extremities are rather below the natural standard of heat. The child is drowsy, and falls into frequent, but disturbed slumbers, from which it is generally roused, by the most heart-rending cough, and an increase of oppression. The child raises itself up, if sufficiently old to do so; or if not, elevates its head, with a desire more freely to gain air. This state of things does not last long; for if the progress of the disease be not arrested here, it marches with rapid haste to the

*Third or Congestive Stage.*

1095. At this period, the cough is attended with some expectoration of a thin frothy mucus, which affords no relief; it is more frequent in its recurrence, and more permanent in its duration; sometimes so much so as to threaten strangulation—the child becomes much exhausted by these efforts, and throws itself back as if in despair, but from which it instantly springs, from the feeling or dread of instant suffocation. It cannot now lie down; and it either throws its head much in advance, as in asthma, or bends itself very much backward; or it finds no relief but in a supine position, and that apparently the most unfavourable to easy breathing. It is restless in the extreme; and alternately tries every position, without finding relief from any.

1096. The face is no longer flushed; a dark lividity takes its place, which sometimes spreads itself, even to the neck; the lips partake of this change; and the gums become pale and white, while the tongue is not unfrequently blackish, as if the blood was retained in it by a ligature. The forehead becomes shining, and the skin looks as if it were tightly stretched over it—it is wet with cold perspiration, as is now indeed almost every part of the body; the hands death-cold, and black blood is settled at the extremities of the fingers and nails.

ment of its formation, lines the (inner?) surface of this membrane to a greater or less extent; when this false membrane is removed, the subjacent tunic is found of a deep vivid red colour occasionally livid, and somewhat thickened."

p. 119.

1097. The pulse is small, frequent, fluttering, and contracted. The heart beats with violence, nay sometimes audibly. The auxiliary muscles of respiration, are now called into requisition, and this process seems only maintained by their aid; a deep hollow is made immediately below the xiphoid cartilage, most probably by the severe contraction, or efforts of the diaphragm; and the action of the heart is distinctly seen, even at a distance from its seat.

1098. Though the cough is now more frequent, and the oppression much increased, the hoarseness is neither so great nor so sonorous. It is now almost a loss of voice, and the child when it speaks, seems to employ for this purpose a loud whisper. Even when it coughs, the voice is less harsh; or rather it has lost in a degree, that appalling, brazen, vibratory sound, with which the two first stages are attended. This change of tone has but too often misled the inexperienced ear, to a belief that the disease was yielding; and thus have given rise to hopes, that were but too soon to be forever blasted.

1099. This cessation of the croupy sound, is no less remarkable than delusive; and suggests to the inexperienced, the hope of improvement just mentioned; we confess we were once betrayed into a similar belief, only to be more severely disappointed—but we are never imposed upon now—we mention this, because it is a block over which all young practitioners stumble. Dr. Watt we think accounts for this change satisfactorily; he says, “it has been remarked by some of the writers on croup, that in various cases, the disease proves fatal without having any thing of the croupy voice, and yet the adventitious membrane is found in a more or less perfect state. In others, where the croupy voice was completely formed, it has gone off some time before death, and yet the membrane was found entire.”

1100. “In the first instance, the air cells and bronchiæ were probably affected as soon or sooner than the trachea; hence the difficulty of producing a vacuum increased with the difficulty of admitting air; and thus the one always being in proportion to the other, the patient might appear in danger of suffocation, but the symptoms of strangulation never could be the consequence. In the last instance, we have only to suppose the inflammation began at the top of the windpipe, and gradually extended down-

wards. At the commencement of such a case, signs of strangulation would appear; because the cells could take in more air in a given time, than the glottis could admit; hence the stridulous croupy sound in inspiration. But by and by, as the disease extended downwards, and the accumulation of mucus took place, the difficulty of producing a vacuum came to equal or exceed the difficulty of admitting air, and then the croupy stridulous noise ceased, as the noise ceases, on admitting air into the vacuum of an air pump, when the equilibrium is nearly restored." p. 136.

1101. Thirst oftentimes becomes so intolerable, as to render the demands for drink both frequent and clamorous, though every attempt to gratify it, is apparently at the risk of suffocation. The countenance is now anxious beyond expression; the eyes become most piercingly brilliant, and beseeching—they eloquently implore a relief, which neither affection, nor science, can afford; and the poor sufferer expires, with a look, full of supplication and anguish.\*

1102. This disease runs its course variously; sometimes it lingers for days, while at others, its career is finished in a few hours. This variety in termination will depend upon the constitution; upon the period at which remedies were applied; upon the nature of the remedies, and their power or influence upon the system.

1103. Dissection proves this disease to kill in many instances by suffocation, from a mechanical cause; at other times, no such obstruction can be found—therefore pathologists declare spasm to be the cause, where the mechanical one is not present. This by some has been extended, even to the formation of a distinct species of croup; namely, the spasmodic; a kind we have never witnessed. By others, this has been modified, and the pathology of croup made to consist in inflammation and spasm united. We do not believe in the presence of spasm, in either of the two first stages of this complaint; it may take place, and probably does, sometimes in the last.

\* We have sometimes seen, a short time before death, the little patient lie on its back apparently resigning itself to a fate, against which it could no longer struggle, and eventually expire, and this with a complacency that would create the belief, that its sufferings had terminated, before death had relieved them.

1104. "Dr. Marcus, of Bamberg, in Bavaria, looks upon all fevers as inflammation of some one organ or other, and as entirely seated in the arterial system, regards croup as a local inflammation alone, utterly independent of spasm, which neither exists here nor in fever of any kind."\*

1105. Some have disputed the formation of a membrane within the trachea; but it can only be by those who are not in the habit of investigating diseases by dissection. We have seen it more than once, and of course we are convinced of its existence. Others who will not venture to deny the presence of a foreign body within the trachea, deny it to be a membrane; they declare it to be nothing but inspissated mucus, and not a membranous product. At this day, there can be nothing new in the declaration, that if lymph be poured out from vessels in a certain state of action, upon either exposed surfaces or within cavities, that it will form membrane; the pleuræ and the peritoneum furnish almost daily examples of this kind.† This membrane extends from below the larynx to the bronchial ramifications; and we once saw it within them.

1106. Laennec, p. 120, says "the false membrane of croup corresponds exactly with the form of the canals which it covers. Its thickness is usually somewhat greater in the larynx and trachea than in the bronchia, and varies from less than half a line to a line. Its consistence is that of boiled white of egg, but this usually diminishes towards its extremities, so that it becomes sometimes in this situation scarcely more solid than the thick phlegm of catarrh. It is of a white colour with sometimes a shade of yellow, and is almost entirely opaque."

1107. Dr. Watt has given us an account of the result of his observations on the condition of the parts both directly and in-

\* Good's Study of Medicine, Am. Ed. Vol. II. p. 235.

† When this substance is chemically examined, "the secretion appears to consist chiefly, if not entirely of the gluten or coagulable lymph of the blood, diluted with its serosity and copiously combined with that peculiar substance of the blood which has received the name of fibrin."—Good's Study of Medicine, Am. Ed. Vol. II. p. 234.

"It is a little singular that children should be chiefly subject to its attack, at whose age fibrin is not peculiarly abundant, and whose blood contains comparatively but a small portion of azote, which in fibrin is so large a constituent."—Ib.

directly involved in this disease. He says, "in dissections that have been made in croup, it is always mentioned, that besides the adventitious membrane at the top of the windpipe, there was found a great quantity of semi-purulent fluid in the under part of the trachea, or in its more minute ramifications. Now I presume," the Dr. continues, "that the accumulation of this fluid is *oftener*, the immediate cause of death, than the membrane itself; and that it is *always* so, when the symptoms of strangulation and crowing disappear before the fatal event," p. 139.

1108. Connected with this subject, the Dr. mentions another curious, and to us, novel fact. "In both of the two cases I have related, it is mentioned, that the surface of the lungs were irregularly covered with whitish spots, slightly elevated. On speaking of this circumstance to Mr. Allan Burns, he mentioned, that it was not a very uncommon appearance; he had met with it often." "It seemed," he remarked, "to be always connected with an inflamed state of the lungs themselves, or of the passages leading to them. It was commonly, if not always, to be found in subjects who had died of croup." p. 140.

1109. From what has been said, it will be evident, that nothing but the use of very active remedies can arrest the progress of this disease; and for them to be availing, they must be employed sufficiently early, to prevent the inflamed lining of the trachea from relieving itself by effusion. For when this happens, the case for the most part, is hopeless; though some few instances have occurred, where recovery took place after its formation—but their rarity, only shows the little we have to hope at this stage, and the importance of early attention to this disease.

1110. It is now so generally admitted that this is a local disease, and one consisting in an active inflammation of a highly important part, that there is scarcely any dispute as to the general mode of treating it, though there may be some variety in the detail, and the agents intended to fulfil the same obvious indications. Therefore, with a view to the better illustrating the particular mode of treatment, we shall follow the stages we have made this disease to consist of, and shall begin with the mode of treating the

*First Stage.*

1111. If due attention were paid to the timely application of appropriate remedies, in the forming stage of croup, we have every reason to believe that this complaint could be stopped in limine, in nineteen cases out of twenty. It is to the ignorance of what a hoarseness may lead to, that this obvious and almost certain symptom is neglected, when it first shows itself; and to this neglect, must be attributed, the often fatal termination of croup.

1112. A sufficient experience justifies us in the declaration just made; and the same experience will, we trust, screen us from the imputation of becoming alarmists, when we declare, that no hoarseness in children can be neglected, but at the risk of life.

1113. We can call to mind but too many instances of fatal issue where this friendly warning was unheeded, because its tendency was not understood. Our anxiety to abridge the ravages of this terrible disease, has led us to dwell upon this point longer than would be necessary for the mere medical reader; but we hope he will excuse us for cautions, which though not necessary to him, may be very important to others, who may honour this work with a perusal.

1114. It has been our misfortune to have witnessed but too much of this disease; and unhappily too much in our own immediate family. We were early instructed in all its phenomena; and but too sorely taught its deadly tendency. Our misfortunes made us vigilant—made us tremblingly apprehensive to every thing connected with this disease, especially its formation.\*

\* The ear of one who has lost a child with this complaint, becomes so extremely sensitive, that it instantly gives the alarm, so soon as hoarseness is perceived; and sometimes leads to an interference that would perhaps not be justified upon any other occasion. To illustrate this, and to show how the feelings may be impelled under such circumstances, we will relate an anecdote which befel ourselves. Passing a house, towards evening, in one of our streets, our ears were assailed by a hoarse cough, which proceeded from a shivering little boy of about three years old, who was at the door, but which was shut against him.

He appeared very cold; it was a drizzly evening, and the month was No-

1115. But perhaps, we have derived advantages from our losses; and most happy shall we be, if they can be made subservient to the general good.

1116. For many years nothing could exceed our horror, when called to attend a case of croup—for our too faithful ears could not forget, the appalling sound of its breathing; alas! they were instructed, by instances of such endearment, that memory was almost a curse.

1117. We were thus forced to a knowledge of the rise, progress, and issue of the croup—would we could add, we were equally well instructed in its management—to this however we make no particular pretensions; though we think we have arrived at some certainty in arresting its march. Our particular horror of croupy hoarseness, led us necessarily after a time, to the very early application of remedies for its removal—hence for the last twenty years we have never suffered it in our own family, to exist a single hour, without an attempt to stop it.

1118. As this disease most commonly attacks in the night, we have ever at hand, the remedies about to be mentioned, that a moment may not be lost in their application. It is therefore our constant habit, the instant we observe the croupy sound, to inflame the external throat by the application of the spirit of turpentine, hartshorne, or mustard and vinegar. This we repeat if the first has not subdued the hoarseness, so soon as the rubefacient effect has subsided; for it may be proper to observe, we do not carry the stimulation to blistering. In aid of the external

vember. At this time our loss of an only child with croup was recent; and we were labouring under all the wretchedness such a loss could inflict, and of course, were peculiarly sensitive to any thing which reminded us of a disease which had created for us so much misery. We knocked at the door, and begged to see the mother of the child; the person before us proved to be the one we wished to see. We represented to her the dangerous situation her little boy appeared to be in, and begged she would immediately send for her family physician, to visit the child, and advised what we judged proper to be done, until he should arrive. The mother laughed at our fears; said it was nothing but “a little cold the child had taken,” and declared “he would be well enough in a day or two, without any doctor stuff.”

We took our leave; but feeling interested for the child, we went next day to enquire for him; and was told by a next door neighbour, that he had died early that morning of “hives;” our feelings can be better imagined, than described.

applications, we administer, in doses suitable to the age of the child, "the compound syrup of squills," or "Coxe's hive syrup," as an expectorant, or if necessary, as an emetic.

1119. If the hoarseness does not yield to the turpentine or to the expectorant doses of the syrup, we urge the latter by quickly repeating the dose, to an emetic effect; but this is rarely necessary, if the complaint has been taken early; or if the throat has been well inflamed. For we can most truly declare, we have very often seen this disease subdued in an hour or two. But should the hoarseness not disappear, though much diminished, we continue the use of the syrup, until it does. Should the bowels be confined, we give a dose of castor oil, in aid of the general intention.

1120. With the same intention, we regulate the diet, or rather, make it consist of barley water, or flaxseed tea; we confine the patient to an atmosphere of moderate temperature, and most sedulously guard him against exposure, or a draught of air. The throat must be protected by a piece of flannel, or some other warm covering, after the turpentine or mustard has been removed.

1121. It is truly astonishing, with what certainty this plan arrests this disease, in by far the greater number of cases. An experience of many instances fully justifies our commendation of it. We therefore earnestly advise every mother, and especially those who may have children subject to this complaint, to have immediately at command, the articles just mentioned, and to employ them, as just directed, the instant hoarseness may appear. If this be faithfully attended to, we shall rarely have an opportunity to prescribe for

### *The Second Stage.*

1122. It may however happen, that the plan just suggested may not be availing; that the proper time for their application has been lost; or that we have not seen the patient until the second stage has been completely formed; in either of these events, we are obliged to prescribe for the case as it presents itself. We shall find the system in the second stage, in one of two conditions; namely, 1st, where the disease is completely formed as regards the state of the trachea, but without the arterial system

being much affected; or, 2d, where the action of the arterial system is much exalted, in consequence of the inflammation of the trachea.

1123. These two conditions, in our opinion, require some difference in the mode of treatment; and first of that condition, where the blood-vessels of the system at large, are not much affected.

1124. In this case, the force of the disease is mainly spent upon the organs immediately concerned in respiration; hence the cough is more frequent, nay sometimes almost incessant; the hoarseness less deep, but more sonorous, and vibrating; no expectoration, or in a very trifling degree, and that of unconcocted serum, the discharge of which affords no relief. The face for the most part, rather pale, or partially flushed; the nostrils very dry; the temperature of the hands and skin, generally rather below the natural standard; the eyes somewhat blood-shotten; the pulse frequent, and small; the respiration laborious, and every hour becoming more and more so.

1125. In this situation, we have thought, the remedy so exclusively relied upon by many, namely, blood-letting, always to be injurious, or certainly never beneficial—we therefore cannot, agreeably to our present impressions, recommend it; since under such circumstances, we never now employ it, either generally or topically.

1126. We always commence the treatment, with stimulating applications to the throat; and quickly administer a brisk emetic of the tartrate of antimony; or should it be immediately desirable to procure evacuations from the bowels, we combine with it liberal doses of calomel, according to the following formula, for a child of two years old or rather more.

R.	Tartrate of antimony	-	-	gr. ij.
	Calomel prepared	-	-	gr. xij.

These to be intimately mixed and divided into eight parts—one of these to be given every twenty minutes, or half hour, mixed in a little thin syrup, until an emetic, and cathartic effect be produced. Should it prove pretty powerfully emetic, we make the intervals longer; that is, once an hour; and more seldom in proportion to the effect, until the bowels are freely moved, or even purged.

1127. After the medicine has operated freely, we order the hive syrup in suitable doses, every half hour, or hour, or more seldom, as the effect may be more or less ample. Should the disease not have yielded to this discipline, we give calomel in pretty large quantities, every two hours, as long as the bowels will bear it, without being too much purged; always recollecting that the expectorant doses of the hive syrup are not to be discontinued, without there is much nausea.

1128. If the above remedies make an adequate impression upon the disease, an abatement of all the unpleasant symptoms will take place, and give us some assurance of a favourable issue. In the condition of the system now under consideration, we must not neglect to observe, that we reckon upon the favourable signs, a greater warmth of skin, with a slight disposition to perspiration, and an increase of force, and vigour in the circulating system; for when these take place there is less risk of its running on to the congestive stage, or at least this period is delayed. Besides, this change is an evidence of the disease being now less concentrated, and that the system can now bear farther depletion, with advantage, should it be judged necessary. This is so decidedly the case sometimes, that we can with much profit to our patient, abstract blood, either from the system generally, or from near the parts, by cupping. In a word, the disease is now converted into the second condition; or where the arterial action is much exalted.

1129. In this second state of the disease, the symptoms are rarely so appalling, as in the first, though of the same general character. The disease is less marked, and we consequently, have a more open enemy to deal with. In this condition we almost exclusively rely upon blood-letting to make a first and favourable impression; and there are few who have not witnessed with what promptitude, and success, this is sometimes effected. The bleeding to be successful, must be carried to a sufficient extent; that is, until it makes a decided impression upon the pulse; or until it flutter under the finger, or a disposition to syncope discover itself.

1130. Some have advised that the blood should be drawn from the jugular vein; there may be an advantage in this, that our present experience does not recognise; certain it is, we should

not hesitate to select this part, were we left entirely to ourselves, since its nearness to the diseased parts, would lead to the belief, that they might more certainly and speedily be relieved by it. But to make choice of this vein as a general rule to bleed from, we should have much prejudice to contend with; more perhaps than the selection is really worth—but at the same time we would recommend, that this part should not be lost sight of, in certain ferocious cases, where life may depend upon the difference of influence, that the bleeding from one part rather than from another may produce.

1131. The repetition of the bleeding, must be governed by circumstances; for bleed we must in some cases, again and again, if the system reacts with force, and the pulse be found of difficult reduction. But here we would wish to caution the inexperienced practitioner, against making the *difficulty of breathing* the only indication for more blood-letting; this should constitute but one of the considerations; for of itself, it is not always sufficient, especially in rapid cases, or in one, in which the first stage of the disease was altogether neglected, and the commencement of the second but feebly treated.

1132. To make a second bleeding proper, there must be a continuation of the same symptoms, though perhaps with a lesser degree of force, which made us determine upon this operation in the first instance; that is, the pulse must be firm, the skin warm, the face flushed and the oppression considerable.

1133. If these conditions obtain, we should not hesitate a moment to draw more blood; and that to an extent that shall produce an evident alteration in the force of the pulse; but two bleedings are not to follow each other, without the interval being employed in the exhibition of other remedies; and among the first of these, are the emetics; and the expectorants, as has been already advised, together with the use of calomel. In this state of the disease, as in the one just considered, the emetic should be followed by the hive syrup, so as to maintain a nauseating influence, as well as occasionally to provoke the stomach to puking.

1134. The rubefacient remedies should now succeed the operation of the emetic; and such a quantity of calomel should be administered, either with the tartrate of antimony, or alone, as already suggested as to procure a free discharge from the bowels.

1135. The greater the disposition the disease has to run a rapid course, or in other words, the more sudden and violent the attack, the greater as a general rule, will be the chance of success, from the use of proper remedies, and especially, that of blood-letting; for it almost always happens, that the slower cases are attended by an indolent inflammation, or an engorgement, that will not so well bear the loss of blood; or will certainly profit less by the loss of it.

1136. When the practitioner may be reluctant to draw more blood from the general system, and yet believes the inflammation cannot be subdued without farther depletion, he generally has recourse to local bleeding—hence the frequency of leeching, and cupping, in croup.

1137. This practice is recommended by almost every practitioner; and by some of very high authority; it may therefore not only excite surprise, but perhaps draw upon us reprehension, when we enter our protest against it; and especially against leeching.

1138. We are free to admit, it appears every way plausible, that drawing blood from near the inflamed part, should be attended with more success, than when it shall be taken from a part more remote; yet in the particular instance we are considering, our experience give a uniform contradiction to the hope of benefit from the practice, though it does not impair perhaps the truth of the general position. But this failure of benefit from local bleeding, in the case under consideration, must not be considered, however, even as an exception to the general rules, just mentioned, but as depending in a great measure, or perhaps altogether, on circumstances, inseparable from the operation of leeching itself.

1139. The operation of leeching is attended with several circumstances decidedly adverse to this disease: for 1. It employs considerable time; during which the patient is obliged to maintain an irksome position, and this may be extremely unfavourable to his breathing. 2. It often becomes important, that the quantity of blood to be drawn, should be exactly determined: this cannot be done in leeching—especially, as the after-bleeding is sometimes very considerable, in spite of every attempt to arrest it, to the manifest injury of the patient. 3. Their coldness; and the sudden exposure of the throat, after having been warmly covered,

is sometimes so mischievous, that the bad symptoms can be seen to increase during the operation; and they are almost sure to follow immediately after it. We can most safely declare, we never have, in a single instance, witnessed it do good; but we have, in a number of cases, known it to do harm.

1140. If topical bleeding must be had recourse to, let it be by cups—against these the objections are not so strong. But if they be employed, between the shoulders is the place to be selected; when drawn from here, we have seen it useful. Cups should never be applied over the throat, for reasons sufficiently obvious.

1141. Dr. Cheyne says, “when bleeding is used upon the commencement of the violent symptoms, the relief is often immediate; and I have scarcely believed that I saw the same child breathing softly, who ten minutes before lay gasping and convulsed.” p. 17.

1142. We have never had the good fortune to see this sudden good effect from bleeding, in a case of genuine croup; we have a number of times witnessed very prompt relief from this remedy, in the spurious, or that kind which is accompanied with sore throat, or perhaps bronchitis. For the vessels of the fauces and bronchia, seem to feel the influence of venesection, more certainly and speedily, than those of the mucous membrane of the trachea.

1143. Neither in the stage of the disease now under consideration, nor in either of the other two, have we ever witnessed any advantage from severe purging;\* though there is evident use, in having the bowels freely opened. Indeed, in the congestive stage, we think we have constantly found it injurious; for it rapidly diminishes the strength, without weakening the disease at the same time. For it would seem, there is less intercommunion between the bowels, and the respiratory viscera, than with almost any other part of the body.

1144. Puking in this stage, (the second,) is manifestly useful; especially, when considerable nausea accompanies the ope-

\* May this not be accounted for, from the strong sympathy which exists between every portion of mucous membrane? And if that extensive surface of it which lines the intestines be much irritated by drastic cathartics, may it not exert an unfriendly influence upon that of the trachea?

ration; it must therefore be repeated, as often as the breathing seems to be obstructed by accumulating phlegm. We believe the tartrite of antimony to be the best emetic in this stage of the disease. The sulphate of copper has been much extolled lately; with what propriety, we cannot say.

1145. Blisters are highly recommended by some; as regards our own experience, we are by no means convinced of their utility, unless it may be in the forming stage of this complaint, and at the termination of the second; but even then, we are not in the habit of relying on them. We prefer the rubefacients, as their powers are more at command, and can be renewed whenever they have ceased to maintain a proper degree of irritation. It has appeared to us, there is a period of the disease in which blisters may be useful, but they are not exclusively to be relied on, as just stated; we have occasionally employed them at this time, and once or twice with marked advantage. It is when the second stage is merging into the third. At this time in some few instances, they seem to act with peculiar felicity.

1146. "The warm bath is a very unequivocal remedy; but as it is a simple and popular one, it is generally used along with an emetic, before the physician is called; and together or separately, by their antiphlogistic powers, they in very many instances prevent the formation of the disease."\*

1147. There are few remedies in this disease so popular, or so much abused, as the warm bath—it is one we feel more difficulty in prescribing, than any other of the materia medica; for it seems to us to be more uncertain, and varied in its effects, than any other. Nor is this to be wondered at; since, the temperature is never exactly fixed, and each given temperature must be a new remedy; or at least a remedy with a different power. Again, the state of the nervous and arterial systems, must be constantly varying; therefore the effects of this remedy, must necessarily be governed in a degree by these conditions. The state of the cutaneous system, must also vary as to susceptibility; therefore temperature must have different operations upon it; these differences must of course lead to very different results;

\* Cheyne, p. 25.

and this we have so uniformly found to be the case, that we never prescribe this remedy, but with all the uncertainty which must necessarily attend applications empirically made.

1148. But we cannot agree with Dr. Cheyne, if in calling the warm bath a "simple remedy," he mean that it is one without any decided powers; we look upon it as one of extensive influence; and may, therefore, be easily abused, if not judiciously directed; as it has unfortunately become a domestic remedy. Besides, let us call to mind the importance of the surface on which this remedy is to act; either as regards its own functions, or the parts which so powerfully sympathize with it; and we shall find there is no good ground to consider this remedy as a "simple" one; at least, not agreeably to our definition of a simple remedy.

1149. This, of all the remedies employed in croup, requires the most judgment in prescribing it; and certainly the most caution, properly to apply it. We have never seen it managed with so much address, as not to have made us tremble for the consequences; nor with so much success, as to tempt us to brave them. We can most conscientiously declare, we have never, in a single instance, witnessed a decided advantage to arise from its application; but we can most truly say, we have had the most unequivocal evidence of injury. We therefore never prescribe it in this disease.

1150. Do not let us be understood to condemn this remedy, when employed by others, because we do not ourselves understand its management; we only mean to confess our ignorance of the proper state, or time, for its application. We are afraid that this remedy has become too much a part of routine in this complaint; therefore, very likely to be abused. There is a popular feeling in its favour which we are very certain it does not deserve; and, in consequence, it becomes "a domestic remedy," and "is employed before the physician sees the patient," and that we fear to the injury of the individual who is subjected to it.

1151. Laudanum in combination with antimony, is recommended by Dr. Cheyne, when the febrile symptoms run high—we admit this to be high authority for the practice; but unless we witness more success from this combination in the hands of others, than

has been experienced by ourselves, we shall not again be tempted to employ it. Laudanum, as far as our experience goes, has ever been injurious in this stage.

1152. If the disease does not yield pretty early after the formation of the second stage, to the remedies just pointed out, the vessels of the inflamed surface relieve themselves by effusion, and thus form

### *The Third Stage.*

1153. This stage consists in the formation of a deciduous membrane, which, more or less, strictly fills the trachea, or else, in the pouring out of a quantity of purulent lymph, which does not coagulate; but almost as certainly obstructs the air passages. This effusion is not confined, however, in all instances to the trachea; the bronchial vessels relieve themselves in the same manner; and this sometimes throughout the lungs; as far at least as the naked eye can trace them.

1154. It is of much consequence to recollect this highly important pathological truth; since it will have a strong bearing on the question of an operation, whenever this may be agitated.

1155. The third stage necessarily is one of great hopelessness; since we cannot with certainty get rid of the existing obstruction; or if we could, we cannot alter, or at least but very rarely, the disposition of the parts, to perpetuate the difficulty by new productions.

1156. The indications in this stage are, 1st, to remove the obstructing lymph from the windpipe; and 2d, to prevent the formation of more, by altering the condition of the inflamed surface of the trachea.

1157. In some few instances, emetics have fulfilled, both the one and the other indication; and the patient has been thus most unexpectedly snatched from the grave.\*

\* "I shall here notice only those remedies which have been found decidedly beneficial. Of this kind are emetics repeated daily or even twice a day. They evidently accelerate the separation of the adventitious membrane, and favour its expulsion. However valuable this treatment may be, and I have myself obtained cures which I could attribute to it alone, it is no doubt too true, that the greater number of cases still prove fatal." *Laennec*, p. 126.

1158. The membrane has been more frequently removed from the trachea, than its removal has been attended by success to the patient, after its discharge. This is a most melancholy truth, and one that should not be lost sight of; especially, as on the removal of the membrane recovery is so confidently expected. Never shall we forget our feelings, when this took place in a beloved child of our own; nor ever cease to remember our disappointment, when we found it to be unavailing.

1159. Michaelis, (Cheyne, Case X. p. 65,) relates a case of death after the membrane was twice discharged by emetics; nor is this surprising, since by the removal of the obstruction, we do not remove the disposition to subsequent effusion; and as long as this continues, there can be no security against new formations.

1160. But this is not to make us abandon an enterprise in which so much *may be gained, if we succeed in removing the obstructing membrane*; especially as the same author furnishes us with an instance of success, after the membrane has been thrown up.

1161. As in the third stage, the obstruction is purely mechanical so far as we know; and as that consists of a membranous production, but feebly attached to the side of the trachea, as fresh lymph is most probably constantly pouring out, to weaken its adhesion, it would seem that, that remedy which would give the most sudden shock to the respiratory organs, would bid fairest, to remove it—hence the utility of pretty powerful emetics at this period.

1162. In this all practitioners seem to agree; but there is some variety of opinion, on the proper substance for this purpose. In Europe, saline, or antimonial emetics, are considered best; in this country the polygala seneka in very strong decoction is preferred; and we believe with propriety. At least the only instance we have witnessed of the expulsion of the membrane, was produced by a very strong decoction of this root.\*

\* Take half an ounce of powdered seneka, pour on it half a pint of boiling water, and let it simmer until nearly half reduced; strain it carefully, and give a tea-spoonful every fifteen or twenty minutes until it puke. This quantity will answer for a child from one to three years old—for one of greater age, two tea-spoonsful at a time may be given; but we believe the decoction should never be weaker than the above.

1163. We would therefore rely on it with more confidence than any other of the emetic substances.

1164. This medicine is, however, apt to run off by the bowels when exhibited thus strong; should this be the case, a quantity of laudanum sufficient to merely restrain its purgative effects, should be given from time to time. Two or three drops every two or three hours, will generally be found sufficient for this purpose.

1165. We have but very little confidence in any other remedies in this stage of the disease; especially any that can fulfil the second indication, unless emetics do.

1166. We have never seen calomel, blisters, or warm bath, do the least good at this period; indeed the painful remedies should now, we think, be withheld, (if we except the more powerful rubefacients,) since they hold out so little promise of success. We thought we saw evident relief in a late case, from the spirit of turpentine.\* Twenty drops were given every hour; it seemed to relieve much; but the patient died.

1167. As a last resource, tracheotomy has been proposed with confidence; but it has been but too often performed without success. Nor is this to surprise us; since by the operation *nothing more* can be expected, than has resulted from the spontaneous discharge of the membrane; and we have already said that this is but rarely followed by permanent relief.

1168. In our opinion, the operation has been proposed with more intrepidity, than discretion; for until we can prevent new accumulations after the removal of the previous ones, we need promise ourselves but little success from this scheme. It has been said, that the failure from this operation has been principally owing to its being performed too late; and hence it has been advised early in the disease. But who would promise himself that he had saved life by this operation, should the patient even live, since if it be performed early, other remedies might have succeeded as well? And when performed late, who has

\* What might be the effects of this medicine in the congestive stage of croup, if boldly pushed, we have yet to learn; we think, however, it deserves a trial, as its influence upon the mucous membranes seems to be undisputed; we shall certainly urge it, the first fair opportunity we have the misfortune to contend with.

witnessed its success? Therefore, in the early stage of the disease, the operation is certainly not called for, nor would it be proper to have recourse to it, since, the disease is very often relieved without it, and in the latter, we believe it has ever been unavailing.

1169. We have seen it performed twice without success, where the operation, simply considered, had every advantage which sound judgment, and consummate skill could give it—for Dr. Physick was the operator. And we believe we do not venture too much, when we say he has no confidence in it. Dr. Cheyne employs some most convincing arguments against this operation, to which we with pleasure refer those who may wish to investigate this subject farther.

1170. But notwithstanding the unmanageable character of this disease, when its first stages have been neglected, or feebly treated, we have the experience of some of the most respectable European practitioners, as well as our own, to bear us out in the assertion, that when early attacked, by adequate means, there are few diseases so entirely under the control of medicine.

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## CHAPTER XVIII.

### PERTUSSIS, OR HOOPING COUGH.

1171. HOOPING COUGH usually begins like a cold, with more or less fever, and catarrhal defluxion; these continue, in some instances, throughout every stage of the complaint; while in others they cease in a few days. The onset of this disease is for the most part abrupt, without any distinct febrile movement, and is sometimes early attended by the peculiar inspiration which gives it its common name.

1172. But this mark must not be too exclusively relied upon, in the history of this complaint; for we have repeatedly seen cases of hooping cough where the sonorous inspiration has been altogether wanting—we are certain we do not labour un-

der any mistake on this subject, as we have witnessed the fact in the same family of children, all of whom were, at one and the same time, under the influence of this disease. Dr. Hastings declares the same occurrence; he says, “in some cases, where it, (hooping cough,) has obviously arisen from contagion, and has begun in the form of catarrh, it never takes on the peculiar character of hooping cough; for the difficulty of breathing, cough, and pyrexia, are so urgent as to prove speedily fatal.”\* It would seem that the absence of hooping has been a fatal symptom in the cases observed by Dr. H. but we do not think this to be essential to this exemption; for it is certain, that death does not always follow in such instances, if our observations do not very much mislead us.

1173. At other times a considerable period elapses before this takes place, and in some cases it does not at all happen. Cullen tells us he has had instances of a disease, “which though evidently arising from the chincough contagion, never put on any other form than that of common catarrh.”

1174. The disease becoming confirmed, the paroxysm consists of a number of short expirations, closely following each other, so as to produce a sense of suffocation, to overcome which, a violent effort of coughing is made, which usually ends in vomiting, or with a discharge of phlegm, or mucus, from the lungs.

1175. In many cases, when the paroxysm is over, there is complete relief in the interval; so much so, that the individual seems not at all affected, except perhaps, temporarily a little weakened.

1176. This complaint is not accompanied by difficulty of breathing, as a necessary attendant, unless in such as may have a chronic affection of the thoracic viscera. If it attend hooping cough in such as have no pectoral complaint ordinarily, it betrays for the most part, some latent mischief in either the bronchial membrane, or the substance of the lungs themselves—this may be inflammation or engorgement.

1177. Dr. Watt says that hooping cough is sometimes at-

\* Treatise on the Inflammation of the Mucous Membrane of the Lungs, p. 200.

tended with great torpor of the bowels, requiring large and frequent doses of medicine before it can be overcome; we have never witnessed this condition; and when it does occur, it is perhaps only "a relative state;" the coats of the stomach and bowels being "varnished" as it were with mucus, and this preventing the operation of medicine, by not permitting a contact between the medicine, and the intestinal membrane. Also that the urinary secretions is influenced, and micturation produced.

1178. In the commencement expectoration is sometimes very deficient; the cough is hard and dry; the paroxysms recur frequently, and are long continued. Congestion of the lungs now take place; which produce, by the interruption of the circulation in these organs, a correspondent state of the head; and as a consequence, a turgescency and suffusion of face, amounting sometimes even to lividness, which is sometimes relieved by gushes of blood, from the mouth, nose, eyes, or ears. In this manner, the disease runs an indefinite course, from one month to three, or even twelve months, though the average is, perhaps, the second period. This, however, very much depends on the season of the year; it being always of longer duration in winter. The popular notion is, and which indeed is not far from the fact, that it is six weeks in reaching its height, continuing for some time with but little abatement, then declines, and goes off in six weeks more.\*

1179. Some writers, especially Webster, consider the hooping cough as consisting in some cerebral disorder; and adduce as evidence, the existence of head-ache, redness in the eyes and cheeks, and the relief that a bleeding at the nose affords, together with the appearance of the brain and its appendages, after death.

1180. Dr. Gregory, like Webster, speaks of a "*tensive* pain of the forehead, and in severe colds, this is obviously an *urgent*

\* The course and termination of hooping cough is very uncertain; for even when mild as respects its general symptoms, it may persevere without much change from two to four months; and the severer forms may last a year, as we have more than once seen. Weather has a very decided influence upon its character and continuance; being almost always of a milder grade and shorter duration in warm dry weather.

symptom, and one which demands attention in reference to practice." We have paid considerable attention ever since we read Mr. Webster's paper on whooping cough, to the symptoms which particularly mark this disease; but we have never satisfied ourselves of the existence of any *primary cerebral disorder*. We have occasionally had confessions from our patients that they had more or less head-ache, especially after violent coughing, but there is surely nothing in this, more than might be expected, from the severe efforts of the chest which this disease demands. And of the "tensive pain in the forehead" just spoken of, we have never been able to satisfy ourselves that it existed, even late in the disease. This may have arisen from our patients, at least nineteen out of the twenty we have examined with this view, were too young to either describe it, or make them sensible of our meaning. In the few we interrogated that could comprehend what we suppose Mr. Webster intended by the expression, it was certainly wanting. Nor is the relief experienced from bleeding from the nose, any proof of the existence of the condition of the brain and its appendages Mr. W. insists on; since this kind of bleeding very certainly removes pain from the head, when the mucous membrane of the frontal sinuses is inflamed in catarrh. Besides, the appearances after death, as stated by Mr. Webster, do not appear to be confirmed by Laennec.

1181. Dr. Watt says, as observed above, that this disease is a bronchitis. And dissection agreeably to him, has proved this to be the case. In case third he says, that "on laying open the upper part of the trachea its internal surface was of a reddish flocculent appearance, but without any inflammatory exudation. This inflammatory appearance increased as we proceeded downwards, till in the more minute ramifications of the bronchia, the whole surface was of a bright red colour, as if painted." Watt on the chincough, page 145. And Dr. Lettsom says, that in a dissection made by Mr. Combe of a patient who died of whooping cough, that the ramifications of the aspera arteria were greatly inflamed, and that the farther they were followed the more considerable the inflammation appeared.

1182. While on the other hand, Dr. Watt says, page 146, that "on removing the skull-cap, the dura mater adhered to it

very firmly, but did not show any signs of disease. The veins over the surface of the brain were very turgid, but perhaps not more so than we usually find in young subjects. There was no water in the ventricles; and the other parts of the brain appeared to be perfectly healthy. And other dissections mentioned by him prove, that hooping cough is virtually a diseased condition of the mucous membrane of the bronchia; and that the brain if affected, is so secondarily; and consequently, not the seat of the disease. Besides, the "tensive pain in the forehead," is a constant attendant upon "bronchitis," and must not be looked upon, as a necessary consequence of a cerebral affection.

1183. With respect to the origin of pertussis, there is considerable doubt. It is supposed to depend on a specific contagion, which affects persons only once. To this however, there may be exceptions.

1184. While it is pretty generally admitted that the disease proceeds from contagion; there are writers who maintain that it occasionally, at least prevails as an epidemic; and hence must originate in a more common source. Much discussion has lately taken place on this point: but the facts are not sufficiently numerous, nor well authenticated, to warrant any positive conclusion. Yet we confess, that we are inclined to believe that it depends on causes of a more general and pervading influence than contagion.

1185. That it does in some instances arise from other causes than contagion, seems quite certain. Willis, who was the first to describe it accurately, declares it to be an epidemic, occurring most commonly in spring and autumn. By Hoffman it is said to have spread in Berlin to a great extent in the same way. In the tenth volume of the Medical Repository of New York, Dr. Willey gives an account of the disease having suddenly broken out in Block Island, and where it prevailed widely, without the inhabitants of the place having had any intercourse with an infected source. It is a rule with few or no exceptions, that where a disease can be traced to atmospherical influence, it does not prove contagious. Nature, indeed, can hardly employ two such opposite causes to produce the same effect.\*

\* It is a well known fact that many become affected, where every precaution is taken to avoid contagion; and that the disease is uniformly relieved or

1186. Believing that the complaint is generated by specific contagion, we have perhaps too much neglected to look for other causes of its production.\* Yet on the whole, in the present state of our knowledge, it will be most prudent to proceed in practice, under the impression of its contagious nature.

1187. It may be inferred from the history of the disease, that the diagnosis is neither difficult nor obscure, but this is not exactly so; for in its commencement, it so much resembles the common catarrh, that it is almost always mistaken for it; especially, in early spring, and late autumn: nor can it well be decided, which disease it may be, until the permanency and obstinacy of the affection, declare it to be hooping cough.

1188. Dr. Heberden says, that "old persons are less liable to hooping cough than children, but are by no means exempt from it; I have seen it in a woman of seventy, and in a man of eighty. A child has some notice of the approach of a fit, so as to be able to run to his nurse or mother, before it begins; but adults are as it were overpowered at once upon the access of the fit, so that they fall down instantly as in an apoplexy, but very soon come to themselves; this is a distinguishing symptom of the disease in those who are grown up."†

even cured, by a removal beyond the limits of the supposed distempered atmosphere.

Agreeably to Desruelles, the following writers have described epidemic hooping cough. (*Traité de la Coque cluche*, p. 101.)

Pasquier speaks of an epidemic of this kind that broke out in March, 1411. More than 100,000, in Paris alone, were attacked with it. This account is confirmed by Maquay.

De Thou relates another epidemic, that besieged Paris, 1510; this was called hooping cough; the symptoms were not related by him; though mentioned by Sennertus.

Reverius mentions one that spread over almost the whole of Europe, in 1557. Buillon gives an account of one in 1578.

Geller describes one that took place in 1557, in the duchy of Mecklenburg. Askou, one that happened at Copenhagen, 1775.

Arrand one that occurred at Mayence in 1769, &c. &c.

From these testimonials it would appear, that this disease has occasionally appeared in an epidemic form, from 1411 to 1815; the last, that is, the one of 1815, is said to have occurred at Milan.

\* Dr. Watt gives an account of a cough, resembling in every respect the hooping cough, produced by a quantity of saw dust getting into the windpipe.

† Commentaries, p. 434.

1189. The remote cause of hooping cough may be received, at the moment catarrh is about to make its appearance; and this may be confounded with it; or it may be called into action by the catarrhal affection, and thus perpetuate the symptoms of this disease. Or it may, and we believe it often does, at the periods just named, assume all the forms of catarrh, and from which, in the commencement, it would be impossible to decide, whether the affection under consideration be hooping cough or catarrh; for hooping cough, in the *spring and fall, at its onset*, is attended by as much febrile action as catarrh, and it is not until this inflammatory stage is about to pass away, that the cough assumes the paroxysmal form, and declares the disease to be hooping cough. When the spring is pretty far advanced, and during the hot weather of summer, hooping cough is rarely confounded with catarrh; for at these periods there will be less fever, and the disease will more quickly betray its peculiar character. But fortunately no evil can arise from their being confounded; for at this period their treatment must be precisely the same. It also resembles the initial symptoms of measles; for in hooping cough there is sneezing, watery eyes, swelling of the eyelids, and an unusual fulness of the face. But the doubts to which of the diseases these symptoms belong, is for the most part soon cleared up, by the eruption taking place in measles on the third or fourth day after the commencement of the catarrhal affection. It is however said that instances of measles, have occurred without any eruption having taken place; but this we have never seen.

1190. This disease is generally most severe with infants, as they cannot expectorate with the same freedom as older children, and are thus debarred this source of relief. Dr. Watt and Mr. Moss, however, seem to be of a different opinion. Dr. W. says, "I have almost always found that a healthy child at the breast, suffers as little from the disease, as at any age." p. 71. Mr. M. declares, that "a child of two or three months old will often struggle through it, as safely as an older child."\*

1191. Where it attacks with much fever and catarrh, it is unfavourable; and with pneumonia, or peripneumonia notha, still

\* Management of Children, &c. p. 281.

more so. Consumptive subjects rarely, or never recover. The favourable circumstances are absence of fever and oppression; free expectoration, and facility of vomiting. The disease terminates sometimes by the gradual wasting of strength, or runs into chronic affections, as consumptions, asthma, hydrothorax, and hydrocephalus; or suddenly by apoplexy, or suffocation from spasm of the glottis.

1192. It is obvious, that the irritation of the remote cause, wherever it may primarily be seated, induces an inflammation of the mucous membrane of different parts of the organs of respiration, occasioning an increased secretion of fluid; which, accumulating, acts as an extraneous substance, and brings on the cough for its expulsion. When this natural effort succeeds, there is for a time a complete interruption of the coughing; but upon its being reproduced, we have a repetition of the paroxysm. By too long a continuance of this irritation, disorganization takes place in the lungs; and the system at large participating in the morbid affection, a gradual exhaustion of strength, and death takes place: or the air cells being choked up, or the glottis closed by spasm, or by collection of mucus, or lymph, the patient dies suddenly from suffocation: or possibly in some instances as is represented, the brain may become so affected as to constitute a new and more complicated case, terminating life by coma, convulsions, &c.

1193. At this period, an inflammatory state of the system undoubtedly exists. It however exhibits a very peculiar character, owing perhaps to the nature of the cause by which it is excited; for it unquestionably is far less obedient to the usual remedies than ordinary inflammation; and in many respects proves illustrative of the modification which this condition receives from the agent producing it.

1194. Dr. Watt regards this disease as essentially an inflammation of the mucous membrane of the bronchia; and that when it terminates fatally, it is generally by the production of severe bronchitis. Dr. Hastings says, "these cases," cases that terminate speedily in death, "do not differ from bronchitis. Dissection shows the trachea and bronchia highly inflamed, and the latter and the air cells filled with a whitish pus-like fluid." p. 201.

1195. Laennec says, that hooping cough holds a middle place between the mucous, and pituitous catarrh, as far as regards the nature of the expectoration, and the bronchial congestion; but that it possesses some characters peculiar to itself.

1196. Such, as its rarely occurring twice in the same person; the cough taking place by fits; "each fit," he says, "is composed of a quick succession of sonorous coughs, with scarcely any perceptible inspiration between; except that from time to time the expirations of coughing are suddenly interrupted by a very deep, seemingly convulsive, and noisy inspiration, accompanied by a lengthened hissing, which constitutes the pathognomonic sign of this variety of catarrh. The stethoscope exploration of the chest in the intervals of the fits, supplies only the usual results of catarrh—namely, a feebler respiration than natural, or the complete absence of this in certain points which however sound well—puerile respiration in other parts, and, occasionally, a slight sonorous or sibilous mucous rattle." p. 96.

1197. Desruelles makes it consist of an inflammation of the bronchia, complicated with cephalic irritation. But that the "inflammation des bronches est toujours primitive, et l'irritation du cerveau consécutive," p. 77. We can readily imagine that the brain, or its appendages may indirectly become implicated with hooping cough; since the very efforts of the thorax during the paroxysms are well calculated to force an unusual quantity of blood into the brain—we therefore need not be surprised that dissections have revealed water in its ventricles; though we cannot admit that the inflammation which terminated by the effusion of water, was the cause of the affection of the lungs.

1198. Desruelles considers the character of hooping cough, as essentially inflammatory, under all its modifications, and appearances. He says, "à quelques causes que puissent être attribuées les modifications qui présente la coquecluche; quelles que soient l'activité ou la lenteur de sa marche; la violence ou la faiblesse de ses symptômes, la promptitude ou le retard de sa guérison, son état de simplicité ou de complication, son issue heureuse ou funeste, cette affection offre toujours les caractères d'une maladie inflammatoire dont les différens degrés, sont les principales causes des formes diverses qu'elle revêt." p. 27.

1199. We are every way willing to admit, that hooping

cough is an inflammatory disease; but we are tenacious that this inflammation should be located primarily and consecutively, in the mucous membrane of the bronchia, because post mortem examinations prove this fact, and because, almost all the phenomena of this disease declare the same thing. For in its commencement, the lungs are primarily affected, as is evidenced by cough, and sometimes by the rapid formation and expectoration of mucus. In its progress, especially in the severer cases, by a sense of suffocation, and difficulty of breathing; and in its terminations, by a proper expectoration of phlegm, when it eventuates favourably, or by suffocation, when its issue is fatal, while the cerebral affections appear to be secondary, if they even show themselves. Some look upon the disease to be entirely spasmodic.

1200. This last opinion is principally derived from the fitful nature of the coughing paroxysms, the debility which sometimes attends the disease, and the convulsive action of the moving powers of the chest. But this opinion must be given up upon the evidence revealed by dissections, of mechanical obstructions existing in the air cells, and bronchia of the lungs. For it is one of the functions of inflamed surfaces to throw out lymph or serum; and this is performed in hooping cough with so much certainty, that we never see the disease, without it being attended with a profuse secretion of mucus; and this sometimes to such an extent, as to destroy the patient, by preventing the due oxygenation of the blood, by interrupting the ingress of air from without.

1201. But it may not always be necessary to danger, that an immoderate secretion of mucus should take place; for a high state of inflammation of the membrane of the air cells and bronchia may be every way sufficient to prevent a due oxygenation of the blood, as these membranes cannot perform a healthy function while labouring under a powerful and perhaps an overwhelming diseased action—hence the sudden relief experienced sometimes from the loss of a few ounces of blood, where severe oppression of the chest, lividity of the lips, and cheeks were found.

1202. It will therefore follow as a consequence, that the violence and obstinacy of the disease will very much depend upon the extent and degree of the inflammation of the larynx, trachea,

bronchia, and air cells; for several or all may be involved at one and the same time. For the inflammation may be so limited in extent, and so mild in degree, as to create but little general, or even local injury; or it may involve so much structure, as to occasion death, immediately, by suffocation, or remotely, by producing phthisis in those who may labour under tubercular predisposition. When we speak however of suffocation, we do not mean that it is always by mechanical obstructions in the air cells; but from the want of the necessary decarbonation of the blood; a thickening, or turgescency of the mucous membrane, of the air cells and bronchia, as just noticed above; giving rise to the circulation of black blood—and hence perhaps the sudden and extreme debility, that sometimes takes place in this complaint, from the effect that black blood exerts upon the nervous system.

#### *Treatment.*

1203. Notwithstanding, a more correct light has been shed on the pathology of hooping cough, little new is proposed in the management of it.

1204. As the whole phenomena of this disease at its commencement declare it to be catarrhal; and as in most instances, in the colder parts of our seasons, it is attended with fever, and marks of local irritation, and inflammation, there is the most decided necessity of treating this complaint by evacuants; as blood-letting, laxatives, and vomiting; and these must be repeated, according to the exigency of the case. These remedies should be persevered in, until they produce direct evidence, that the inflammatory stage of the disease is abated, or subdued; or, in other words, let the disease in the first instance, be considered as a violent catarrh, and be treated accordingly.

1205. We are persuaded, that this disease oftentimes becomes inveterate, and sometimes dangerous, from prescriptions being based upon a mistaken pathology. Thus both Burton\* and Millar† reject blood-letting altogether; though Millar sometimes ventured upon the application of leeches. Lieutaud‡ never employed it, but in extreme cases; that is, when the fever was very violent, and the respiration difficult, &c. We would therefore wish

\* Appendix to treatise on the non naturalis.

† Observations on the Asthma and Hooping Cough.

‡ Med. Prat.

the reader to keep in mind the opinion of Laennec, Desruelles, Watt, and others, that in hooping cough the bronchia, or other portions of the lungs, are sure to be in a state of inflammation, especially in its commencement; and if proper depletion be neglected, a second stage of the disease is formed, and in which we find a disposition either to metastasis to the brain, or that this organ already participates severely with the original complaint—hence, convulsions, inflammation of the brain, or hydrocephalus, are found to supervene.

1206. Bleeding is demanded in many instances, independently of other circumstances, by the interrupted circulation through the lungs; and it affords almost always, the most decided relief.\* And this must be repeated as the necessity for it may continue; or as this necessity may subsequently return, in the progress of the case. Even in Europe, where the lancet is comparatively so sparingly resorted to, this practice is commended, and generally adopted; but in this country, its employment, for the most part, is indispensable.

1207. This was the practice of Willis, who was the first to give a regular account of this disease;† he chiefly relied for its cure upon vomiting, purging, and blistering. This appears too, to have been the general practice of the age, and particularly of Sydenham; and we have, among many inferior names, those of Astruc, Huxham, Hoffman, Hillary, Home, Lettsom, &c. in favour of this course of treatment.

1208. Evacuations from the alimentary canal must be brought in aid of bleeding; and these may be made by emetics, or laxatives, according to circumstances; the best laxative is castor oil, after the bowels have once been well opened by calomel. Emetics are chiefly applicable to children; and where the attack is violent, and the oppression great, they are to be repeated, provided the accumulation of phlegm is great and threatening. To keep up the impression on the stomach, small doses of the syrup of squills, or ipecacuanha,‡ should be given in the intervals. Or

\* By bleeding we wish to be understood constantly, the taking of blood from the general system, by means of the lancet.

† This was in 1664.

‡ We would use the squills, where there was but little fever; and the ipecacuanha, where this was considerable.

what has answered all these intentions with the most decided efficacy, is Coxe's hive syrup, giving in proper doses.\*

1209. We always have recourse to this medicine immediately after the reduction of the pulse by bleeding, if this has been necessary, and after having purged with calomel. The hive syrup must be given in such doses as shall freely promote expectoration; or should there be oppression, or evidence of great accumulation of phlegm in the windpipe and lungs, in such quantity as shall freely puke. We, for the first purpose, order doses suitable to the age of the child, every hour or two, as it may show its effects. For a child of three or four months old, we would order eight drops every hour or two, and a proportional larger quantity, as the age of the child is advanced; and, for the second view, we would give this quantity every fifteen minutes, until an emetic operation is produced. Let it be, however, remembered, that children of the same age will bear very different quantities of this medicine, as well as of every other; therefore the dose must be constantly regulated by the effects. After this medicine has operated as an emetic, it must be given as before directed, as an expectorant.† But should bleeding not have been necessary, the case will rarely require more than demulcent drinks, and a low diet.

\* The hive syrup, it is true, contains both squills and seneka, but the stimulating effect of both these articles, is controlled by the emetic tartar, and on which it almost exclusively depends for its emetic properties. In cases not accompanied with much arterial excitement, we do not hesitate to commence with it, if the promotion of expectoration is desirable; or if the removal of phlegm by puking be necessary.

† The following is the recipe for making the compound syrup of squills, or Coxe's hive syrup.

Take of Seneka snake-root bruised,	}	each half a pound.
Squills dried and bruised,	}	
Water, - - - -		eight pounds.

Boil together over a slow fire till the water is half consumed; strain off the liquor, and then add of strained honey four pints.

Boil the honey and the strained liquor to six pounds, or to the consistence of a syrup; and to every pound of the syrup, add sixteen grains of tartar emetic; that is, one grain to every ounce. It is best to have the tartar emetic dissolved previously in some hot water, that it be equally distributed through the syrup.

1210. The state of the expectoration is a matter of consequence, and should always be attended to; for from it much may be learned. In favourable cases, after the disease has arrived at its height, or is upon the decline, the expectoration becomes more profuse, and the sputa lose their mucous character by assuming a more purulent appearance. But if this take place suddenly, or in the early part of the disease, it is for the most part an unfavourable sign. Nor is blood mixed with the expectorated matter, a good token, generally speaking.

1211. The most abstemious diet should be observed during the whole of the catarrhal stage of this complaint, which is from three to six weeks, according to the season. Children at the breast should receive nothing but the mother's milk; and those who are weaned should be confined strictly to a milk and vegetable diet. All animal food, or broths, must most scrupulously be avoided. Rennet whey is preferable to whole milk. The drinks should be barley water, flaxseed tea, slippery-elm bark tea, gum Arabic water, bran tea, toast water, molasses and water, &c. The milder laxatives, though recommended by many, do not answer as well as calomel for the first purging; for, independently of its purgative effects, this medicine would seem to exercise some other power. Certain it is, that active evacuations by calomel in the commencement of the disease, have, in a greater or less degree, the effect of breaking down the force of the catarrhal symptoms, and to abridge the career of the disease. We, therefore, almost always commence the treatment with a mercurial purge; and repeat this for the first two or three days if the condition of the bowels require it. But, whatever opinion we may adopt of its mode of action, we are certain of its utility; and, as there can be no dispute as to the propriety of having the bowels well opened in the beginning of the disease, calomel seems to be suited to the best purposes.

1212. During the general treatment which we have pointed out, we are not wholly to lose sight of some local remedies in this disease. Congestion and inflammation of the lungs are apt to take place; for the relief of which, blisters are found decidedly advantageous after proper evacuations; or should it be necessary to draw more blood, let it be done by leeches, or cups, from be-

tween the shoulders. We are decidedly of opinion, that blood cannot be taken by leeches or cups with any thing like the same advantage from any other part, when congestion of the lungs is threatened; and it sometimes becomes important to follow this up, by a blister, to the same part.

1213. When there is a strong determination to the head, the same remedies are required; both general, and local. Leeches to the temples we have found of singular advantage, where much pain in the head has been experienced after each spell of coughing; indeed we now never neglect this last symptom; as we are convinced it was the prelude to fatal issue in two or three cases we have seen, by extravasations within the brain—and who has not witnessed the advantage, or at least the immediate relief, from an accidental bleeding from the nose?

1214. Though we admit of determination of blood to the head in this disease, and recommend, as just stated, local depletion for its relief, we are by no means of opinion that either this determination, or an inflammation of the brain or its appendages, have the least agency in the production, or even the perpetuation of the cough, with which either may be associated. Yet the supervention of inflammation, or even a congestive state of the brain, will very much increase the danger of the patient—therefore these conditions require the active means just recommended for their relief. Nature sometimes furnishes the means of relief herself, by instituting a bleeding from the nose—this, when sufficiently extensive, affords more relief than either cupping or leeching, and should therefore always be encouraged to as great an extent as may be compatible with the exigency of the symptoms, and the strength of the patient, if this be practicable; but this is rarely so, as the discharge from the nose is almost always small in these cases.

1215. But let it be remembered, that the bleeding from the nose, however instrumental or speedy it may be in abating the violence of the marks of determination to the head, or of congestion in the brain, only proves the immediate condition of these parts, and not an original agency, in the production of hooping cough.

1216. In the use of the remedies recommended above, we

would wish it to be understood, that we do not always prescribe bleeding, or the loss of blood in any other way, in every case of hooping cough, as it very often presents itself without the symptoms which would justify this, or perhaps any other depleting remedy, except occasionally, the use of the syrup as just directed, to secure a free expectoration, or the administration of a few grains of calomel, or what is better, after the few first days of the disease, is the occasional use of castor oil, if the bowels are confined.

1217. If due regard have been paid to the treatment of the inflammatory or catarrhal stage of hooping cough, or if the remedies for subduing this state have been successful, a second period of this disease will arrive, in which other remedies may be useful.

1218. But it should be carefully ascertained, before the character of the remedies are changed, that every vestige of inflammatory action shall have ceased; therefore the pulse must be carefully examined, and it must be found sufficiently subdued, before we commence with the antispasmodic and tonic remedies.

1219. Desreuelles finds much fault with these directions; and says, "comment se fait-il que le Doctor Dewees, qui montre tant de confiance dans le régime, qui le prescrit avec tant de réserve et de sagesse, ait cru nécessaire de donner l'émétique, d'entretenir les nausées par des petits doses d'ipecaacuanha, de purger souvent avec calomelas, et de s'abandonner à l'action incertaine et souvent nuisible des narcotiques des antispasmodiques et même des toniques? il préconise la saignée et la diète, et il administre des médicamens stimulans; n'est-ce pas détruire d'une main ce que l'on a fait de l'autre. Par quelle étrange association d'idées peut on faire concourir au même résultat des moyens se opposés, et si contradictoires?" p. 242.

1220. In answer to the above questions, it will be only necessary to say, we differ a little in the progressive pathology of hooping cough, and on this circumstance, does the difference of our treatment arise. Desruelles considers the bronchia at least, if not the brain or its appendages to be in a state of phlogosis during the whole continuance of the cough; while we are of opinion, that the stage of inflammation passes away; and that if the cough

continue, after the pulse declares the absence of febrile action, that it arises from some impression made upon the nervous system; or that it may then become the cough of habit. With this belief in view, we prescribe a rigid diet, order bleeding, either general, or topical, or both, purging, &c. but after the necessity for this discipline has ceased, we think, we have always found it useful to give either antispasmodics, or tonics.

1221. We do not order as, will be perceived, two different plans at one and the same time; for we have just insisted, that “before the character of the remedies are changed, we should carefully ascertain that every vestige of inflammatory action has ceased.” There is certainly no inconsistency in this practice—nay it is very often essential to the cure of many affections, as fevers, and especially intermittents, that the system be reduced before tonics are given.

1222. We have just stated that Desruelles looks upon the hooping cough to be essentially an inflammatory disease under all its modifications, and through the whole of its career; and that it consequently requires an antiphlogistic treatment from its commencement to its final departure. But as we have never had any reason to be of this opinion ourselves, we have not adopted the notions of this author upon this point. The difference of our views of the character of this disease during its progress, will readily account for the difference of our plans of treatment; we might therefore retort his queries with equal propriety, when he insists upon one uniform mode of practice through the whole course of the disease; for to us it appears as inconsistent, as our plan does to him.

1223. In justice however to him, we have to acknowledge, that we have seen a number of cases of hooping cough subdued, and that speedily in some instances, by a perseverance in the antiphlogistic plan of treatment; but in justice also to ourselves we must say, that we have seen very many more, that required the change in treatment, that we have laid down.

1224. We believe it has been chiefly owing to want of attention to the state of the pulse, that this disease has not yielded more generally to the influence of remedies—for it has been prescribed for more empirically, than almost any other complaint in

the long catalogue of human diseases. When the first stage has been neglected, or improperly treated, the disease will pursue its course in spite of all opposition; and the patient may be felicitated when it takes its departure, however protracted this may be, and leaves not behind, more serious evils than were experienced by its presence.

1225. We have no confidence in the opinion, that this disease will have a determined course; and that we can only relieve the pressure or inconvenience of the immediate symptoms, though urged by Sydenham himself. Nor shall we inculcate this belief, unless it were a well ascertained fact, as it would but too certainly foster supineness and indifference in the treatment of this formidable disease.

1226. Too much has already been taken for granted upon this subject; and though we are not in possession of proper counter-agents for this complaint, it certainly does not prove it to be indomitable. The intermittent fever, and lues venerea, were once thought to be equally, if not more unmanageable, than hooping cough; but the discovery of the bark, and the use of mercury, have rendered them comparatively harmless diseases; the proper or appropriate remedy for hooping cough may therefore be yet discovered.

1227. If the opinion prevail, that hooping cough will have a definite duration, all exertions to abridge its career will be paralyzed, and the poor suffering infants and children will be deprived of even the moderate aid it is now in our power to give. As regards ourselves, we are decidedly of opinion, that its duration may as certainly be shortened, as the march of fever; nor do we say this upon slight or inadequate grounds if our observations have not deceived us. We have known this disease to be made run its course in eight members of the same family, and at the same time in less than six weeks; and in many other instances the period has been abridged with equal success. But what has entirely confirmed us in the persuasion, that the period of this disease can be shortened, nay, even stopped short in some instances, was the success we once witnessed from the exhibition of the tincture of artificial musk, in a family of five children, who were all labouring under confirmed hooping cough.

1228. When we prescribed this remedy, the disease had been of about two weeks standing; all the children were attacked within the period of a week; the catarrhal symptoms were very mild; it was summer, and they readily yielded to a moderate antiphlogistic plan. All inflammatory action was completely subdued, and all the children were put upon the use of the artificial musk at the same time. One, the youngest, (eleven months old,) ceased to cough altogether in less than a week, and neither of the others continued as much as a fortnight.

1229. We however confess, we have not seen so striking an instance of the influence of this article since; though we are every way convinced, it is a valuable remedy in this disease, and one that we have long been in the habit of using.

1230. Another disadvantage arising from the belief that this disease cannot be shortened, is, the neglect of early measures to subdue, or moderate the inflammatory action of the system in its commencement. In consequence of this, cerebral and pulmonary congestions form, of which the patient perhaps speedily dies, or such disorganization takes place as to render him miserable for life. This doctrine is not understood by people in general—for when it is declared we cannot abridge the period of the disease, it is always understood to mean, that we can do no good in hooping cough; of course the physician is but too rarely employed in this complaint.

1231. Yet we are certain, there are few diseases, in which more relief is experienced, than a hooping cough when treated in the commencement of the disease; of this opinion also was the experienced Dr. Underwood, who declares, “there is no complaint of children, with which I am acquainted, in which medicine is at times more evidently serviceable than in bad hooping cough.” Then why should poor children be abandoned in this formidable complaint, for an ill-sustained hypothesis?

1232. Narcotics, and antispasmodics, are also directed at this period of the disease, and of these, opium claims our first notice. After evacuations have been duly made, and there is a proper abatement of fever, or other marks of irritation, its use as a palliative of the more troublesome symptoms, is sanctioned by the experience of almost every body. The pleasantest, and we

believe the best form for its exhibition, is the brown mixture in suitable doses at night.\*

1233. During the prevalence of the pathology that ascribed the disease to spasm, antispasmodics were the chief remedies. Of this class of remedies, almost the whole were tried in succession, and particularly the castor, artificial musk, and assafœtida. Of the powers of the former we are entirely ignorant, having never prescribed it. Cullen, however, tells us, that it is of no value.

1234. The second, or artificial musk, has been long in use in spasmodic affections, and its powers have been in some degree ascertained. It is only, however, within a few years, that an application has been made of it, for the cure of pertussis; and we have already said, that we have found it sometimes a valuable remedy. It is also highly estimated by Underwood; and especially where the spasms are violent; it is given in the dose of five or six drops on sugar, or highly sweetened milk.

1235. Of the antispasmodics, assafœtida has always born a high character; but our own experience is by no means calculated to advance the reputation of its powers, in the disease in question; we have found it occasionally useful, but never of decided efficacy.

1236. On the subject of assafœtida, it may be well to say a few words more, as popular opinion is much in its favour. Our own experience we have just stated; I shall therefore quote from those who have had ample experience in the employment of this drug.

\* The following is the formula for the brown mixture; so called from its colour:—

R. Elix. paregor.	- -	℥j.		Take Paregoric elixir	1 ounce.
Vin. antimon.	- -	℥ss.		Antimonial wine	½ ounce.
Suc. Glycyrrh.	- -	℥iij.		Liquorice ball	3 drachms.
Pulv. G. Arab.	- -	℥ij.		Gum Arabic -	2 drachms.
Aq. fervent	- -	℥vj.		Hot water -	6 ounces.
		M. ft. sol.			Mix.

Of this a child from four months to six may take a small tea-spoonful every two or three hours during the night, should the cough be troublesome; one from six months to a year, a large tea-spoonful, and repeat, if necessary; one from one to two years, a dessert-spoonful, and repeat; one from two to four, a table-spoonful, and so on as age increases.

1237. Dr. Millar says, "when it, (assafœtida,) was prescribed early, other medicines were seldom necessary, the patient, while using it, was cool, free from thirst, or any other febrile symptom, and easy between the fits of coughing, which were moderate, and attended with a discharge of phlegm, by which an accumulation of viscid humours in the stomach and lungs was prevented, the appetite preserved, and all the excretions duly maintained."

1238. On this, and similar accounts of the success of this drug, Dr. Watt makes the following remarks. "Such is the account which Dr. Millar gives of the effects of assafœtida in chincough; but though no doubt partial, to his favourite remedy, he does not appear by any means to have been blind to its defects. Even to the mildest cases he did not trust to it alone; and in the more severe he deemed it altogether inadmissible. Hence he goes to remark—

1239. "But though assafœtida has been given with remarkable success in the early stage of hooping cough, yet I never venture to prescribe it in the advanced state, or when the disease was accompanied by a hectic fever, hæmorrhage, or phthisical symptoms. It is therefore not to be imagined, that no other remedy is at any time necessary; for as the management must always depend upon particular circumstances, no invariable rule can be laid down; thus on some occasions, emetics, blisters, issues, and setons; and in others, astringent medicines may be indicated."

1240. "On the whole," says Dr. Watt, "even by Dr. Millar's own account, assafœtida is only to be regarded as a remedy in chincough, when the disease is mild, and when perhaps little or no treatment is necessary."\* We are persuaded our own observations on the use of this drug, have furnished us with a number of instances in which it proved highly injurious.

1241. We are next to consider the proper plan, after the cause of the disease, whatever it may be, has worn itself out, or is dismissed from the system, and when the cough is kept up by the force of habit only; to interrupt the trains of morbid association, tonics have been directed; and especially such, as are supposed

\* Watt on Chincough, p. 285, &c.

to have the effect of subduing paroxysmal tendencies. The Peruvian bark was of course placed at the head of this class; and is much celebrated. Cullen bestows on it unqualified praise; and considers it by far the most certain means; and even says, when given in sufficient quantity, he has seldom seen it fail of speedily putting an end to the disease. It is reasonable to suppose, that the bark might be useful; though it must be confessed that we have not witnessed such striking results from it; and, on account of the difficulty of getting children to take it regularly, it is rarely prescribed in this city.

1242. This objection, however, does not apply to the sulphate of quinine; and it deserves a fairer trial than we suspect it has received. We have employed it in but one case; but this was one of the most forlorn kind—it produced almost resuscitation.

1243. Mr. Sutcliffe combined the bark with cantharides, and administered it with great success, he says, in hooping cough. The following is his formula:—

R.	Tinct. cort. Peruv.	-	℥ij.		Take Tincture of bark	6 ounces.	
	Elix. paregor.	-	℥ss.			Paregoric elixir	½ ounce.
	Tinct. canthar.	-	℥j.			Tincture of cantharides	1 drachm.
	M.				Mix.		

Of this mixture small doses were given three or four times a day, gradually increasing until a slight strangury was excited; and then the dose was diminished, or taken at longer intervals. The strangury would generally take place about the third day; and the hooping cough seldom continued above six days from the first exhibition of the medicine. It however succeeded sometimes without exciting any strangury, though it generally produced its salutary effects sooner, when that circumstance came on, whether the bark was joined with the cantharides or not.

1244. Dr. Lettsom informs us, that “during twenty years, this ingenious practitioner, has almost constantly continued to use this medicine with the most flattering success.”

1245. Dr. Lettsom being desirous to know whether Mr. Sutcliffe’s more mature experience led him to place the same confidence in this remedy, wrote certain queries to him respecting chincough.

1246. Mr. S. replied to these several queries, and concluded by remarking, “I never yet saw an unsuccessful event after

using the composition of bark, cantharides, &c. having never lost a patient in the hooping cough." Dr. L. declares a similar success awaited his own trials of this medicine. Watt, p. 282.\*

1247. But we never employed any remedy of equal efficacy with the garlic in substance, to relieve the cough of habit after hooping cough. We have very often used it; and we have rarely seen it fail. The objections arising from its smell, are, however, very great in the minds of some; so much so, that they cannot be prevailed upon to use it. But children of six or seven years of age, or even older, can very often be prevailed upon to eat it, and become after a while very much attached to it. A child of six or seven, may begin by taking a third of a common-sized clove, morning, noon, and evening; gradually increasing the dose as the system becomes accustomed to its action. One of ten years old, may take half a clove three times a day; increasing it as it may be necessary; and so on for greater ages.

1248. Desruelles condemns us for the employment of the garlic, either externally, or internally; indeed he goes so far as to say, we give a blind confidence in this substance. This affects us not; and so long as we continue to experience benefit from it, we shall persevere in recommending it under the restrictions suggested above; namely, in the absence of all febrile excitement, and when the cough appears to be perpetuated by habit. The following case is highly deserving of attention. Miss M. W. aged twelve years, had the hooping cough in great severity, notwithstanding she was subjected to a very active treatment in the early, or inflammatory stage of the disease. It began in March, and the cough continued with great violence un-

\* "Specific for the Hooping Cough. In Rust's Mag. f. die Gesamt. Heilk. (No. 2, 1828,) it is stated that Dr. Meyer, of Menden, has in a few days been enabled to remove all the symptoms of pertussis, by the external application of morphia. He directs a small blister to be applied over the præcordia; the detached cuticle being removed, the exposed surface is to be sprinkled over with half a grain of morphia rubbed up with starch. The morphia to be repeated every evening. The only internal remedy he employed was an emetic. If necessary, the blister may be reapplied every third day. In five cases, the disease was so diminished in eight days, that no farther treatment was considered necessary."—*North American Med. and Surg. Journ. No. XV. July, 1829. p. 197.*

til July, at which time we were requested to prescribe for her—at our first visit, we had an opportunity of witnessing two fits of coughing; both of which spells exceeded in severity any thing we had ever seen; she was literally black in the face, and was threatened with immediate suffocation.

1249. These paroxysms were repeated frequently; especially during the day; they left her weak, and exhausted; she lost flesh daily, and was so debilitated as scarcely to be able to walk. She was ordered to eat a small clove of garlic three times a day; in forty-eight hours these paroxysms left her entirely; a slight cough remained for a few days, and this soon ceased altogether. We cannot but believe it was the garlic which afforded such speedy and happy relief; particularly, as it has frequently proved as certainly, if not as extensively, serviceable, in other cases of hooping cough.

1250. Exactly on the same principle, the arsenical solution is employed; and we have the strong testimonies of Simmons and Ferriar in support of it. Each of these writers goes so far as to declare that it is the only medicine deserving of much confidence.

1251. On this point we can say nothing from our own experience; as we do not deem the few trials we have given this medicine, entitled to much weight; our impressions of its efficacy are not strong.

1252. We have said nothing of the utility of topical remedies, in the acute stage of the disease; for they can rarely be useful: but in the one now under consideration, external applications may be advantageously resorted to; such as liniments of an irritating nature, as the volatile or camphorated; the spirit of turpentine mixed with olive oil; or the juice of garlic rubbed along the vertebral column. But we think we have observed more advantage to result from the use of the tartar emetic ointment,\* than

\* The following formula we are in the habit of using for children:—

R. Tartar. antimon.	-	ʒjss.	Take Tartar emetic	1½ drachm.
Ol. lavend. vel ess. lem.	-	gtt. xx.	Oil of lavender, or es-	
Cerate simp.	-	ʒj.	sence of bergamot, 20 drops.	
M.			Simple cerate	1 ounce.
			Mix.	

With this the part indicated above must be rubbed, three times a day, until it shows a number of small pimples upon it—dress with common cerate. If the irritation subside too soon, it must be re-excited by the ointment.

from any other application—this should be applied high up between the shoulders.

1253. It is well understood, how much the action of the lungs is dependent on a nervous influence from the spinal marrow; and it is probably on this principle, the efficacy of such embrocations is to be explained. The muscles of the chest, diaphragm, and scapulæ, receive portions of the cervical and dorsal nerves; the accessory nerves of Willis form a part of the par vagum, and assist in giving rise to the cardiac and pulmonic plexus; hence the propriety of applications to the spine; and the popular opinion of the utility of a Burgundy pitch plaster between the shoulders, is accounted for, from anatomical arrangement.

1254. Of the efficacy of the change of residence, more particularly to the country, and even of a frequent exposure to fresh air, every one is so fully persuaded, that the remedy is abused, by its general and indiscriminate adoption. It is by no means uncommon to see children exposed, in the coldest and most inclement seasons; and this sometimes, by the order of the attending physician. Nothing can be more pernicious and ill judged.

1255. On the subject of the change of air, Dr. Watt observes, p. 217, "I agree that pure air and change of air, are exceedingly necessary to bring round the patient from a convalescent to a confirmed state of health; but this is not the only period in which change of air may be useful. I have seen the disease kept remarkably mild in many individuals, and in several large families, by having the children almost constantly in the open air from the commencement; driving them about from place to place in carts and open carriages. I have known many where the disease was very severe, on being taken out in the open air, getting better every hour as they proceeded on their journey, the patients scarcely giving a cough, and the fever going off entirely."

1256. "It must be confessed, however, that on many occasions children have been worse on being freely exposed to the open air. I saw several remarkable instances of it last winter and spring. Some people, who had formerly experienced the benefit of change of air, were anxious to give it a trial, without reflecting sufficiently on the nature of the case, and season of the year." p. 218.

1257. "I have never seen children in any state of the disease,

the worse for being taken out in the summer months, unless too much exposed to the sun in the middle of the day, or to the cold damp in the mornings and evenings." p. 218.

1258. "The great question then appears to be, what are the symptoms which most mark that state of the disease, when exposure will be useless if not injurious? To which I would reply, considerable fever, a strong, full, and frequent pulse, violent cough, pain in the breast, and above all, great oppression of breathing." p. 221.

1259. Dr. Ferriar is of opinion that soil may influence the surrounding atmosphere, so as to render it more valuable to the lungs in hooping cough, he instances the limestone soil of Derbyshire, which has been long celebrated for the cure of this disease.\* Of this we can say nothing from our own experience.

1260. In the inflammatory catarrh, we guard against cold, by keeping the patient in a room duly warmed; the same should be observed in the first stage of hooping cough. The lungs in this case are either inflamed or peculiarly susceptible of inflammation, so that the slightest exposure brings on, renews, or violently exasperates the attack. Catarrh, or active pneumony superinduced on pertussis, constitutes a formidable case, and most frequently is the way in which the disease proves obstinate, or fatal. But, the inflammatory stage having passed, and the weather mild, much advantage may be derived from gentle exercise in the open air—this may be by walking, or riding in a carriage. But completely to eradicate the disease, the child should be removed into the country, provided the season of the year will justify the change.

1261. During the summer months, we think our little patients have been much benefited by frequent excursions on the water, in the steam boat, and we constantly recommend this mode of exercise when the weather is propitious.

\* Med. Hist. and Reflec. Vol. III. p. 222.

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The copious information which, if a just idea of the whole may be formed from the first volume, this work affords on American subjects, fully justifies its title of an American Dictionary; while at the same time the extent, variety, and felicitous disposition of its topics, make it the most convenient and satisfactory Encyclopædia that we have ever seen.—*National Journal*.

If the succeeding volumes shall equal in merit the one before us, we may confidently anticipate for the work a reputation and usefulness which ought to secure for it the most flattering encouragement and patronage.—*Federal Gazette*.

The variety of topics is of course vast, and they are treated in a manner which is at once so full of information and so interesting, that the work, instead of being merely referred to, might be regularly perused with as much pleasure as profit.—*Baltimore American*.

We view it as a publication worthy of the age and of the country, and cannot but believe the discrimination of our countrymen will sustain the publishers, and well reward them for this contribution to American Literature.—*Baltimore Patriot*.

We cannot doubt that the succeeding volumes will equal the first, and we hence warmly recommend the work to the patronage of the public, as being by far the best work of the kind ever offered for sale in this country.—*U. S. Gaz.*

It reflects the greatest credit on those who have been concerned in its production, and promises, in a variety of respects, to be the best as well as the most compendious dictionary of the arts, sciences, history, politics, biography, &c. which has yet been compiled. The style of the portion we have read is terse and perspicuous; and it is really curious how so much scientific and other information could have been so satisfactorily communicated in such brief limits.—*N. Y. Evening Post*.

A compendious library, and invaluable book of reference.—*N. Y. American*

This cannot but prove a valuable addition to the literature of the age.—*Mer Advertiser*.

The appearance of the first volume of this valuable work in this country, is an event not less creditable to its enterprising publishers, than it is likely to prove lastingly beneficial to the public. When completed, according to the model presented by the first volume, it will deserve to be regarded as the spirit of all the best Encyclopædias, since it comprises whatever is really desirable and necessary in them, and in addition, a large proportion of articles entirely original, or expressly written for its pages. This is the condition of all the articles of American Biography, by Mr. Walsh; those on Zoology, by Dr. Godman; and those on Mineralogy and Chemistry, by a gentleman of Boston, distinguished for his successful devotion to those studies. The work abounds with interesting and useful matter, presented in a condensed and perspicuous style; nor is it one of its least commendations that it is to be comprised in twelve octavo volumes, which may be placed on an office table, or occupy a shelf in the parlor, ever ready for immediate reference, instead of requiring almost a room to itself, like its ponderous predecessors, the *Britannica*, *Edinburgensis*, &c.

The vast circulation this work has had in Europe, where it has already been reprinted in four or five languages, not to speak of the numerous German editions, of which SEVEN have been published, speaks loudly in favor of its intrinsic merit, without which such a celebrity could never have been attained. To every man engaged in public business, who needs a correct and ample book of reference on various topics of science and letters, the *Encyclopædia Americana* will be almost invaluable. To individuals obliged to go to situations where books are neither numerous nor easily procured, the rich contents of these twelve volumes will prove a mine which will amply repay its purchaser, and be with difficulty exhausted, and we recommend it to their patronage in the full conviction of its worth. Indeed it is difficult to say to what class of readers such a book would not prove useful, nay, almost indispensable, since it combines a great amount of valuable matter in small compass, and at moderate expense, and is in every respect well suited to augment the reader's stock of ideas, and powers of conversation, without severely taxing time or fatiguing attention. These, at least, are our conclusions after a close and candid examination of the first volume.—*Am. Daily Advertiser*.

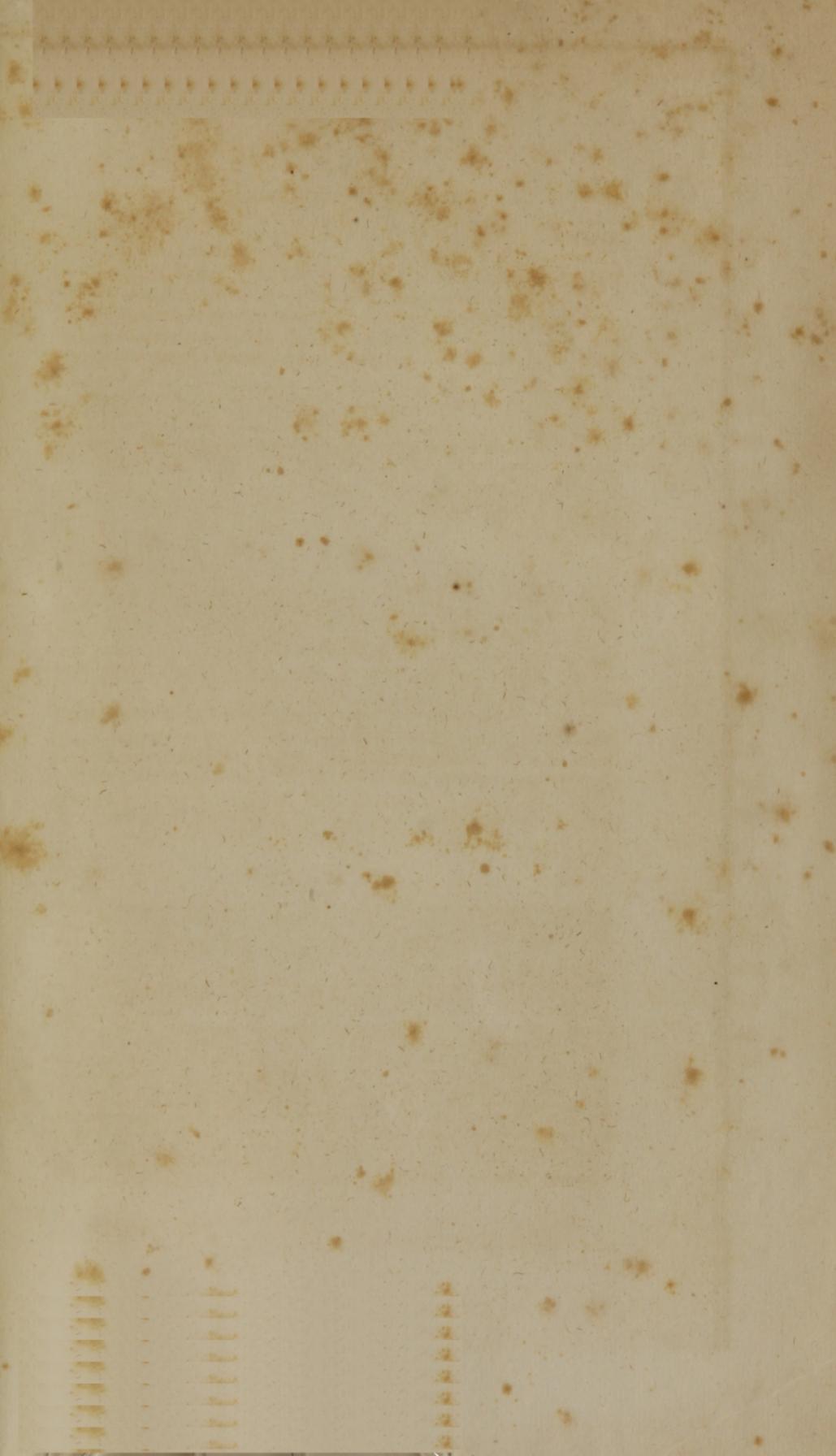
We have seen and carefully examined the first volume of the *Encyclopædia Americana*, just published by Carey, Lea and Carey, and think our readers may be congratulated upon the opportunity of making such a valuable accession to their libraries.—*Aurora*.

The department of American Biography, a subject of which it should be disgraceful to be ignorant, to the degree that many are, is, in this work, a prominent feature, and has received the attention of one of the most indefatigable writers in this department of literature, which the present age can furnish.—*Boston Courier*.

According to the plan of Dr. Lieber, a desideratum will be supplied; the substance of contemporary knowledge will be brought within a small compass;—and the character and uses of a manual will be imparted to a kind of publication heretofore reserved, on strong shelves, for occasional reference. By those who understand the German language, the *Conversation Lexicon* is consulted ten times for one application to any English Encyclopædia.—*National Gaz.*

The volume now published is not only highly honorable to the taste, ability and industry of its editors and publishers, but furnishes a proud sample of the accuracy and elegance, with which the most elaborate and important literary enterprises may now be accomplished in our country. Of the manner in which the editors have thus far completed their task, it is impossible, in the course of a brief newspaper article, to speak with adequate justice.—*Boston Bulletin*.

We have looked at the contents, generally, of the second volume of this work, and think it merits the encomiums which have been bestowed on it in the northern papers. It continues to be particularly rich in the departments of Biography and Natural History. When we look at the large mass of miscellaneous knowledge spread before the reader, in a form which has never been equalled for its condensation, and conveyed in a style that cannot be surpassed for propriety and perspicuity, we cannot but think that the American Encyclopædia deserves a place in every collection, in which works of reference form a portion.—*Southern Patriot*.



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