

Principles of the theory and practice of medicine / By Marshall Hall.

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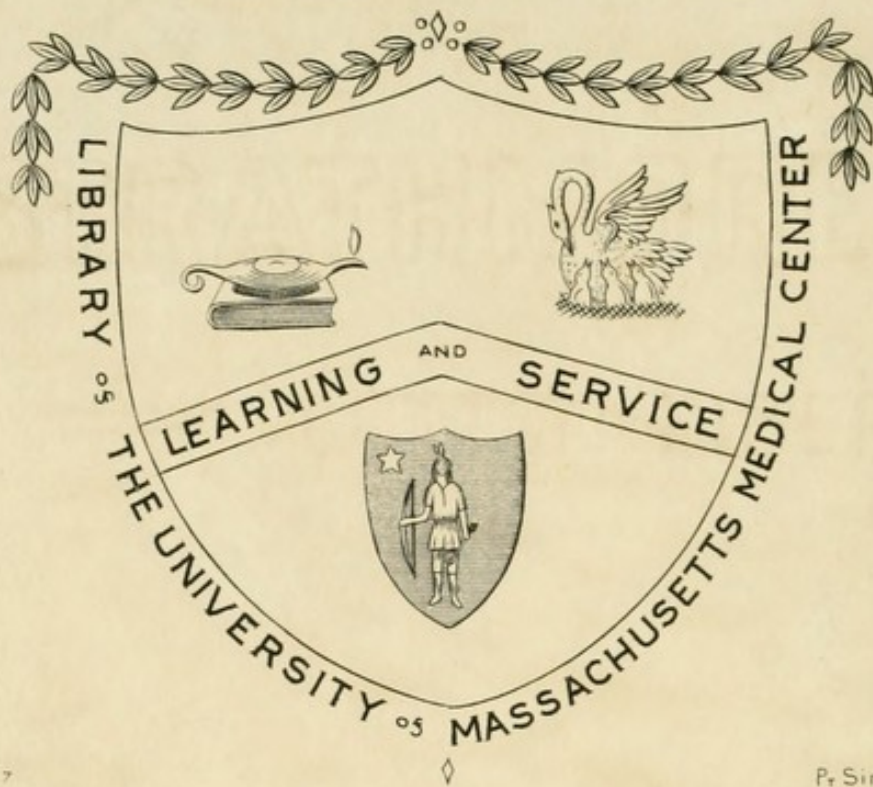
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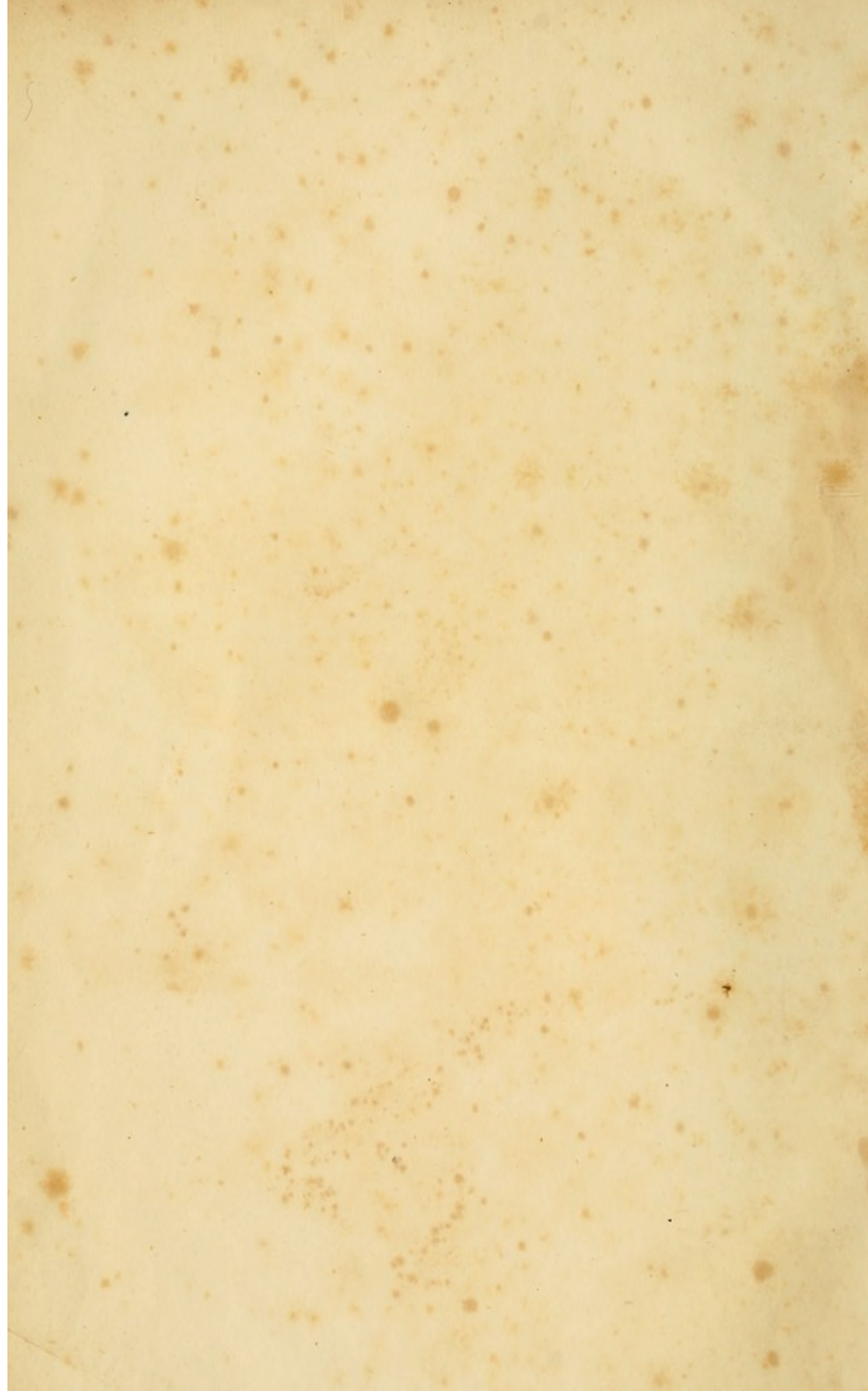
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IN TWO VOLUMES

VOLUME THE FIRST

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PRINCIPLES
OF THE
THEORY AND PRACTICE
OF
MEDICINE.

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SENIOR PRESIDENT OF THE ROYAL MEDICAL SOCIETY OF EDINBURGH; AND PHYSI-
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FIRST AMERICAN EDITION.

REVISED AND MUCH ENLARGED,

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BOSTON :
CHARLES C. LITTLE AND JAMES BROWN.

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TO THE

AMERICAN EDITION.

THE editors of this work, in selecting a text book on the Theory and Practice of Medicine, to be used by the students in the private medical school with which they are associated, have been influenced by various reasons to procure the republication of the present volume in this country.

The reputation of Dr. Marshall Hall, as a writer and an authority in medicine, has been sufficiently known for many years to the public. The present work has been published by him with the avowed intention of treating its subjects in the most simple and practical manner, without superfluous and hypothetical discussions.

The editors, in preparing this volume for the press, have availed themselves of the author's "Principles of the Theory and Practice of Medicine," published in 1837, and also of his "Lectures," more recently published in the London Lancet, in which are contained not only the late discoveries of the author, but likewise communications of some of the most distinguished continental writers.

It has been found necessary, for the sake of convenience, to condense some of these subjects into the form of an abstract. Some controversial parts have been omitted, also a few other portions, which appeared to have only a personal or local interest.

Large additions have been made to the American edition, consisting of subjects not contained, or imperfectly treated, in the original volume. In certain cases, where the science has advanced, the chapters and sections have been rewritten. The additions made by the American editors are included in brackets []. It will be seen that the whole of the four first chapters, also the seventh, the last, and the larger part of several intermediate chapters are furnished by the editors, which, with the other interpolations, amount to about one third of the entire volume.

Boston, Oct. 1839.

PRINCIPLES
OF THE
THEORY AND PRACTICE OF MEDICINE.

PART FIRST.

THE THEORY OF MEDICINE.

PRINCIPLES

OF THE

THEORY AND PRACTICE OF MEDICINE

PART FIRST

THE THEORY OF MEDICINE

PART FIRST.

THE THEORY OF MEDICINE.

CHAPTER I.

ON MEDICAL OBSERVATION.

[1. The observation of phenomena occurring in the living body, whether in health or in disease, is attended with peculiar difficulties. These phenomena are the results of the mutual action of external influences and of living organs upon each other. The influences are extremely numerous, they are constantly changing, and many of them imperfectly appreciable. The living system on which they act itself presents an assemblage of powers and susceptibilities, the extent and balance of which vary at every moment of life. A perfect history of any given case would require a complete exposition of all these external influences and all these internal changes. Still further, as the internal conditions of existence peculiar to an individual, or what is called his *constitution* are, to a great extent, transmitted from his progenitors, a complete observation would require the knowledge of a thousand circumstances relating to those who have perished before the subject of our study existed.

2. A perfect medical history is therefore an impossibility. It is in vain that the student turns to the most exhausting and insatiable of modern observers in the hope of discovering such a model; he may find valuable approximations, but never perfection. Were the patient placed in the balance of Sanctorius; were he surrounded with the instruments for measuring the density, the temperature, the moisture and the electrical state of the atmosphere; were every beat of his pulse regis-

tered; were he percussed by Piorry and ausculted by Laennec; were his intelligence ever so acute, and his questions ever so sagacious, still the account of his disease would be incomplete. And were he to die in spite of all this united wisdom, and were the scalpels and microscopes of all the Louis, the Kiernans and the Ehrenbergs in the world to unite in the investigation of his organs, the autopsy would be imperfect.

3. Since, then, the most complete observation of a case is only an approximation to its real history; and since, even of the apparent facts which we may extort, some may be open to doubt, and others so far trivial as to lead to little or nothing; a sound and discriminating judgment must preside over our inquiries. The student must not imagine that by means of a table of questions he can sit down by his patient and draw up a perfect record. If even in mathematical investigations, we see the mind of the philosopher shine through his rigid formulæ, how much more will the individual qualities of the observer be apparent amidst the refracting media through which medical truths are discerned. A table of questions may be useful in assisting the memory, and in giving a degree of uniformity to our histories of disease, but the act of observation is not, and never can be, reduced to a purely mechanical process.

4. At the present period, when the scattered conclusions of past experience are often brought into conflict with the serried columns of modern analysts, when time-honored opinions are confronted with iron *laws*, it is especially important to form a just estimate of the different methods of arriving at truth which are employed in Medicine. These are,

1. Personal observation.
2. The study of recorded cases.
3. Numerical analysis of recorded cases.

5. *Personal observation.* This may be considered as it regards the observer himself, or as it contributes to the general stock of medical knowledge. To the individual engaged in the study of practical medicine, the habit of observing disease is indispensable. The familiar line of Horace, contrasting the

sense of hearing with that of sight, need not be quoted to show the difference between our appreciation of phenomena received at second hand and of the same phenomena gathered fresh from nature. There is a *physiognomy* to disease as well as to individuals, and the simultaneous impressions of which it is constituted can no more be exactly represented by the successive enumeration of the symptoms, than the countenance of a friend can be recalled by giving us a cast of each of his features in succession. Besides this, the senses themselves require a careful education before their evidence can be trusted in many particulars; as for example, in estimating the state of the pulse, in determining the existence of fluctuation, and indeed in most of the processes of direct exploration of the state of the internal organs. The recognition of the absolute necessity of personal observation as a part of medical education has led to the present advanced state of *clinical instruction*, the only method by which a man can become a physician, unless he choose to acquire all his own knowledge at the expense of the patients upon whom he practises. To the individual observer, then, his own personal experience affords some important knowledge which cannot be transmitted in the form of precepts and propositions. The word *tact* is sometimes used to express the faculty derived from this knowledge.

6. But independently of tact, or of personal skill, the observer may be able to recognise, through his facts, the existence of certain principles or laws, which are capable of being expressed in language, and of being learned, and applied in practice by others. In this manner he may contribute to the previously existing mass of medical knowledge. A great portion of our notions of disease has been gathered in this manner, which is the simplest, the least laborious, and consequently the most ancient and universal form of observation. The epigraph adopted by the venerable Heberden, from Trallian, expresses the feeling with which such knowledge has often been transmitted to posterity:—"Being an old man, and no longer able to labor, I have written this book, in which I have most carefully recorded the results derived from my experience in the diseases of mankind." The aphorisms of Hippocrates and the recent work of Hufeland are collections of similar statements.

7. A proposition having been once announced, rests for its authority on the character and opportunities of the observer. It is subsequently either confirmed or contradicted by general experience. If it be generally confirmed, it passes into the system of medical knowledge as an admitted truth, and is advanced without any other authority than the presumed common consent. The general treatises abound with such statements, which constitute, as it were, the common law of medicine. They are liable to the objection that general experience, which is often imperfect and fallible, may lead to error, instead of truth, and of this every generation has seen examples.

8. *The study of recorded cases.* This may be pursued either by the original observer, or by others, but in either case it is not free from difficulties. The original observer will have the advantage of his own immediate impressions; but he is also liable to be influenced by any errors into which he may have been formerly betrayed during the process of observation, so that his notes may be warped into a confirmation of the supposed results of his looser experience. Observers of more ingenuity than accuracy are constantly sending out their opinions in company with detailed facts from which these opinions are professedly derived, the opinions and the facts being either inconsistent or unconnected with each other. Even in the writings of Corvisart M. Louis has discovered such instances.

The student of another's observations is free from this source of error; but if personally conversant with similar cases, he too may be biased by his own set of false impressions; if the subject be new to him, his attention will not be sufficiently roused by the description of phenomena which he has never witnessed.

9. *The numerical analysis of recorded cases.* This method of study, employed to a limited extent by Bayle and some others, more fully illustrated and made known by the writings of M. Louis, deserves a careful examination in proportion to its high pretensions and as yet disputed value. We shall first explain the object and manner of its application, and then institute a comparison between this and the methods already described.

10. The existence and nature of a certain number of phenomena, constituting a disease, is determined by observation. The object of the medical historian is to determine the frequency of each of these phenomena; their relations with each other and with similar phenomena in other diseases; their relations to certain antecedent circumstances, or their causes; and their relations to the subsequent influences to which they have been subjected, or the effects of treatment, including the limits and average of duration, and the ratio of mortality. The complete investigation of these facts and relations constitutes a descriptive, philosophical, and practical history of a disease. In other words, it weighs all the facts; it links together all the causes and effects; and determines what is to be done and what to be avoided to benefit the subjects of the disease. From this condensed statement of the objects of investigation, it will readily be perceived that the task of arriving at the general truths contained in an extensive series of observations, is far beyond the powers of the unaided memory. Some artificial assistance is necessary to arrive at the exact expression of the constancy, frequency, or rarity of each phenomenon, and to facilitate the comparison of one with another, which would be next to impossible and attended with infinite labor without such aid. It is the object of numerical analysis to afford this assistance.

11. The process of numerical analysis is most conveniently accomplished by means of tables, in which the different series of phenomena are classed and arranged. The plan followed by M. Louis is exposed and illustrated in his essay on Observation; the principles are as follow:

1. To collect a number of cases forming a natural group or a disease.

2. To decompose each case so as to present each symptom, lesion, &c. belonging to a function or an organ in a column of its own.

3. To decompose these primary tables by means of minor ones, so as still farther to facilitate the work of analysis.

12. Thus a hundred cases of typhoid fever are recorded. In

the first table the state of the digestive function, for instance, is arranged in a corresponding column for all the cases. In the second table each symptom, as thirst, or anorexia is placed in a column by itself. The same process is pursued with regard to the other functions, the causes, the treatment, &c. When the case is finally reduced to this form, the labor of analysis is comparatively easy. The first table is principally of use as assisting in the formation of the second.

13. It is not to be imagined, because the analysis of cases is performed by an arithmetical process, that the judgment is not called into exercise. In ascertaining the frequency of a given symptom or lesion, we merely go through a sum in addition. But in selecting the points of comparison to be instituted between one phenomenon and others, we must be guided by some principles, or our task will be endless ; in other words, we must be directed by some *preconceived opinions*, however much this term may be dreaded. To illustrate this point by an example ; in twenty-six fatal cases of fever out of thirty-five, M. Louis observed the rose-colored papular eruption. He noted its abundance, its position, the date of its appearance, its duration, its relation to a single exciting cause. Now it would have been possible to study its relations with all the other facts observed ; how often it occurred with meteorism, with thoracic or cerebral symptoms, with hepatization of the lung, softening of the spleen, and so on, almost ad infinitum. The work from which this example is taken might be swelled to a hundred times its present bulk by extending the comparison of each phenomenon in this manner with all the others, and to little purpose. Our analysis must then be directed by rational considerations. These are derived from the *laws of physiology*, which point out special relations between certain functions and organs ; from *past medical experience*, which has detected a connection between certain pathological occurrences ; or lastly from the desire of testing mere hypotheses or opinions.

14. We shall now endeavor to institute a fair comparison between the three methods of observation the outlines of which we have sketched.

Assuming the absolute necessity of personal observation to form

the practical physician, let us consider the nature of the knowledge acquired by this mode of study unaided by others. Much which the physician observes during a long course of years he necessarily forgets, retaining only some general impressions, out of a long series of facts. He remembers principally such facts as have been most frequently repeated, and such as are extraordinary. In this way he will learn the symptoms found together in the most common diseases, the instances of violent and suddenly fatal affections, remarkable effects from remedies, and similar circumstances. But the most powerful unassisted memory will recall very imperfectly the long series of facts observed, and for this reason the conclusions thus obtained are peculiarly liable to error. All those circumstances which tend to mislead the observer, such as his own prejudices, his theoretical opinions, the different degrees of interest and attention which he has been led to bestow on different cases, and the fallacies involved in the facts themselves which have been observed, will act most fully when he attempts to arrive at medical truths solely by his recollections, uncorrected by any more certain sources.

15. It is evident, then, that he will be assisted in arriving at his conclusions by recording the history of cases before it has become vague and uncertain in his mind, and rectifying his impressions by reference to the transcripts taken directly from the facts. The written history of the cases he has seen, would be useful to every one. But such is the labor of keeping a full record of a large circle of practice, that comparatively few are able and willing to do it. Indeed it can hardly be done without great loss of time, except in public institutions, where the facts may be noted down by an assistant at the time when they are collected. A small portion, consequently, of medical practitioners preserve any thing beyond a mere outline of their cases, and many of them nothing but their recollections. Yet every one must have regretted in meeting with some supposed new feature in a disease, not to have some record by means of which he might compare his previous experience in the same affection with the instance under his eye, or being unable to compare a doubtful case with some similar one which he vaguely recollects.

16. As the habit of recording medical cases does not in the slightest degree interfere with the exercise of the power of observation, while it assists us materially in forming conclusions from what we have seen, it is clearly of great advantage to the physician in all cases.

17. A number of cases—a hundred, for instance—being given, how shall we obtain from them the general truths wrapped up in the facts of which they consist? Many of these truths will strike an attentive reader on a single perusal. On careful study he will perceive many others. But a man might as well read through a ledger and trust to his memory for its contents, as through a hundred detailed cases or the seventy letters of Morgagni with the idea of arriving at all the important principles they contain. Each reader will observe a number of frequently recurring facts, and a number of coincidences which he will regard as cause and effect, but no two individuals will arrive at exactly the same conclusions. Yet the elements contained in the cases are constant and definite. If we can apply a certain and uniform process for arriving at the truths they involve, the results will necessarily be also certain and uniform.

18. As in the case of the merchant's ledger, so in that of the medical observer's case book, this method consists in arithmetical computation. The simple use of addition will determine the constancy or degree of frequency of each phenomenon. The comparison of each series of phenomena with the others will determine their relations. In this process consists the practice of the numerical system, which is evidently the most perfect method of ascertaining the history of disease, since recorded facts are more to be trusted than barely remembered ones, and analysis is more exact than impressions derived from their perusal.

19. If the habit of recording cases rather improves than injures that of observation, the habit of analyzing them exercises a still more beneficial influence. In the tables of the analyst every omission, though but in a single case of his series, becomes instantly obvious, and detracts from the completeness of his result. Take the cases given by Morgagni, by Laennec, by Andral, at least in the four first volumes of the *Clinique Médicale*, and submit them to analysis, and you will find your tables looking like a

chess-board towards the end of the game—a statement here and an omission there—straggling facts and blank spaces. Indirectly, then, the numerical school has improved the observers whom it has taught to analyze, and through their example has raised the general standard of observation.

20. Great and obvious as are the advantages of studying disease with the aid of numerical analysis, it requires so many conditions that its application will always be confined to a limited number of observers. These conditions are, Firstly, time on the part of the observer. The founder of the system in question did not think it too much to devote seven years of “the age of vigor, which is also that of ambition,” solely to the collection of facts. Secondly, opportunity, which is best afforded by public institutions. Thirdly, patience, accuracy, and fairness in the individual who may unite these two preceding essential conditions.

21. The study of the laws of disease, considered in its fullest extent, must therefore remain an express province. The laws ascertained by a few analysts, become axioms that all may use. They are applied by the practical physician as the principles established by the geometrician are applied by the engineer. The same caution must be used in their employment; the constitution of a patient and the circumstances peculiar to an individual case of disease are to the physician what the strength of materials and friction are to the engineer.

22. The numerical analysis of disease enters into the great province of Vital Statistics. The progress of this branch of knowledge is necessarily unlimited, inasmuch as the elements by which the laws of life are determined are inexhaustible. In the department relating to disease, which we have been considering, a few principles only have hitherto been established by rigorous analysis. These are to be tested by further observation, and to these new additions will constantly be made. Exceptions to supposed general laws will accumulate in their proportion. But since every exception supposes some new element as its cause, the investigation of these elements will lead to the discovery of new principles—the laws of exception—and these again will remain open to the same analytical process until the connection

between certain elements is shown by invariable results to be constant and necessary.

23. Not merely does the whole history of disease require to be rewritten, but it will constantly be requiring a repetition of the same process. Diseases themselves will change, the physiologist will discover new laws of life, the pathologist new principles of morbid action, the chemist new methods of analysis applicable to the causes and products of this action, and each generation of observers will start from a fresh point to accumulate new facts, and arrive at new conclusions.

24. For the sake of giving a clearer idea of our comparative ignorance, and the point to which our approximations tend, we may state the following *problems*, the power of solving which implies the perfect ideal of medical knowledge :

1. The cause of disease and the constitution of an individual being given, to know the exact nature of the disease which will ensue.

2. The constitution and the morbid condition being given, to know the causes which have produced this condition, and the period of their agency.

3. The cause, the constitution and the disease being given, to know its course, duration and termination under every supposable hygienic and therapeutic condition.

The materials to solve all these problems exist in the eternal laws impressed upon the living organism, yet how far do they transcend the present condition of our knowledge !

25. Although the utility of numerical analysis is seen more especially in the study of large masses of fully detailed observations, the same method is susceptible of partial applications which may lead to important results. Thus it is in the power of almost every physician to record the age, the sex, the temperament of his patients, the apparent nature of the disease, the time of its occurrence, its duration, and termination, the general plan of treatment and some similar circumstances, because they are commonly ascertained with ease and require little time to reduce to writing or tables. The few results obtained by their analysis

are by no means without value; even with nothing but the common bills of mortality, generally conspicuous for their nosological confusion, some principles may be rudely shaped out, to be finished by subsequent and nicer investigation.

26. The *ultraism* of the over-zealous partisans of the numerical method consists in a disposition to doubt every result of past experience not based upon figures. Its apology is to be found in the contradictions and errors with which that experience is proved to abound. Its absurdity, on the other hand, is demonstrated by the fact that every analyst in his sound senses takes some of these results as the groundwork of a part of his investigations. This point we have already illustrated. (§ 13.)

27. The opposition to this system arises mainly from three principles: 1. A misapprehension of the object with which mathematical processes are employed. Impressed with the fluctuating character of the facts observed in disease, and the invariable nature of arithmetical operations, some have attempted to show that the one is inapplicable to the other. But a series of recorded facts, well established, is as definite and unchangeable as a row of pyramids, and we may count them, compare them, multiply and divide them, if we will, just as easily. The numerical system teaches how to extort truth from facts, but not how to extort facts from nature, which always will be difficult enough, and is totally independent of the subsequent arithmetical operation. 2. Reverence for those opinions of the past, which are crushed by the unsparing machinery of analysis. 3. Self-esteem, which resists all new contrivances for demolishing old and cherished errors.

28. By far the greater portion of the opinions commonly received in medicine, have been established without the aid of numerical analysis. The assertions of individuals must receive our confidence in proportion to their intelligence, their fairness, their opportunities; the agreement of observers upon any point is convincing as it is general, and the point itself free from sources of fallacy; the conclusions derived from recorded cases may be tested by the cases themselves, approximatively or arithmetically; the results of analysis are positive, and we need only

estimate the number and fidelity of the observations from which they are derived.

29. The soundest physician is not the one who shuts himself up in a few principles derived from his tables, and rejects every thing not demonstrated by an $a+b$ calculation, nor he who has seen the most, has read the most, and believes the most; but he who by exercising a good judgment in all he has seen and read, has acquired from his own or others' experience the greatest number of practical principles rendered sufficiently certain to constitute rational grounds of action.

30. We shall now proceed to expose the general plan according to which the history of a case of disease should be investigated. If the importance of all the following considerations in the study of a patient's condition be sufficiently obvious, we need not be deterred from presenting them by their extent and the frequent impossibility of giving a proper attention to all of them. The physician must judge for himself how far he can carry his investigations, and his patient sustain the fatigue of examination without injury. Although in acute and distressing maladies such investigations are often impracticable, yet in those of more protracted course and milder character, the patient is apt to be gratified, rather than annoyed, by the attentions which these inquiries involve.

31. A little habit and sagacity will enable us in many cases by a very cursory preliminary examination to form some idea of the probable nature of the disease, as whether it be acute or chronic, and what important functions are specially involved. This is satisfactory both to the physician and the patient and serves to fix our attention on the points of study, which are practically, if not philosophically, most important.

32. Our systematic examination should of course commence by designating the individual and the time at which the observation is made.

33. We next observe the physical organization, which affords us in some degree a key to the natural and morbid actions.

34. The general influences to which the patient has been subjected should next engage our attention; among which the

occupation, the place of residence and the habitual mode of nourishment may be particularly mentioned.

35. Having obtained two elements of our problem, namely the organization and the ordinary agencies to which it was subjected, we proceed to investigate the result of the action of one upon the other—the habitual state of the functions. This will very probably lead to the discovery of some previous deviations from health, the history of which may be pursued so far as the nature of the facts and their apparent credibility may authorize.

36. The previous existence of some individual diseases, both chronic and acute, deserves to be made a particular object of inquiry. If there have been the symptoms of some chronic diseases, as of scrofula or phthisis, this fact will shed an important light on the tendencies of the constitution. Some of the acute diseases rarely occur but once in the same individual, as the typhoid and eruptive fevers; others are apt to return at intervals, as erysipelas and gout; others to leave behind them important lesions, as pericarditis and pleurisy, and some among them are apt to induce chronic diseases as their sequel, typhoid fever for instance, to be followed by phthisis, and scarlatina by serous effusions. We have mentioned only a few of the more prominent, and others might easily be added. We will only mention farther the Asiatic cholera, the permanent effects of which, upon the constitution, have not yet been studied. We may enforce these considerations by a quotation from one of the most violent opposers of the rigid school of observation:—

“Diseases are only events in the pathological history of our visceral organs; we should therefore follow out this history for a time, in order to ascertain whether their apparent favorable termination does not disguise some fatal remote effect.”¹

37. The medical history of the patient's family naturally follows that of his own previous life. Its details must be received cautiously in proportion to their frequent uncertainty.

38. We come next to the history of the present disease. The supposed date of its commencement having been mentioned, the patient should be accurately questioned as to the exist-

¹ Broussais, Exam. des Doct. Méd. Tom. III. p. 274.

ence of any preliminary symptoms, without which precaution they will be frequently overlooked, and the disease be traced only as far back as the invasion of the more formidable symptoms.

39. The state of the functions since the invasion should then be successively investigated, beginning with those which the previous examination has led us to suppose chiefly affected.

40. The cause of the morbid condition is now to be sought for ; and in no part of our task is greater caution to be exercised. The mind of the patient has almost invariably fastened upon some common agent to which popular belief attributes the origin of disease ; as in acute affections, and in tubercular phthisis, upon exposure to cold ; yet an exact scrutiny shows no proof whatever of its having been an efficient cause.

41. The account of the previous treatment and its apparent effects brings the history of the patient up to the present moment.

42. We now arrive at the study of the patient's actual condition at the time of our observation. Beginning, as in recording the history of the symptoms, by that function which seems principally affected, we should explore as thoroughly as possible the state of all the organs, and the manner in which they execute their several offices. It is convenient to lay down a general order of examination, which can be partially modified according to the predominance of the affection in one part or another.

43. A single obvious remark may close these general observations ; namely, that it is frequently necessary, especially in diseases attended with much suffering or prostration, or where the intelligence is materially deficient, to begin immediately by ascertaining the present condition, and gather whatever we may of the previous history at a subsequent period.

44. It remains to follow from day to day the history of the patient, to observe all the changes that occur in the phenomena, the effects of treatment and other agents, and the duration of the disease, with its termination in recovery, in death or in other diseases.

45. In the event of a fatal issue, the state of all the tissues and of all the organs should be investigated as far as possible.

46. We shall now present the student with a table to be used in drawing up what may be considered a full history of a case of disease. The labor which it implies sufficiently shows that it is intended for those who make a special object of observation. It can only be fully used in the case of patients who have considerable strength, clear minds, and favorable dispositions. But it may be of utility to those physicians who must pursue a more contracted plan, to take a survey of the more extended circle of inquiry which is here delineated, and which may furnish some hints for a judicious selection, which they will be able to follow in practice.

I. THE DESIGNATION OF THE INDIVIDUAL, AND THE TIME WHEN THE OBSERVATION IS COMMENCED.

II. ESSENTIAL CHARACTERISTICS OF THE INDIVIDUAL :

1. The sex.

2. The age.

3. The external aspect.

Size—Form.
Complexion. { Hair.
Skin.
Eyes.
Muscularity.
Mammary development.
Teeth.

III. THE PRECEDING HYGIENIC INFLUENCES.

1. The occupation.

2. The residence—in relation to

{ Light.
Temperature.
Moisture.
Miasms.

3. Habits of exercise.

4. Sleep.

5. Quantity and quality of food. (Intemperance.)

6. Clothing.

7. Passions.

8. Sexual habits.

IV. HABITUAL STATE OF THE FUNCTIONS.

1. Digestion. { Appetite.
Existence of oppression, pain, constipation, etc.

2. Respiration. { Frequency and duration of catarrhs.
Dyspnoea.
Cough.—Expectoration.
Hæmoptysis.

3. Circulation. { Palpitations.
Irregularity of pulse.
Lividities.

4. Calorification. { Susceptibility to cold.
Temperature of the extremities.
5. Secretion. { Edema.
Transpiration.
Urinary function.
6. Nutrition. (Weight at different periods.)
7. Innervation.
8. Reproduction. { Epoch of puberty.
History of menstruation.
Pregnancy, parturition.
Lactation.

V. PREVIOUS SPECIAL DISEASES.

- Chronic.*
1. Scrofulous affections. { Swelling of glands.
Caries.
Affections of the joints.
Ophthalmia.
Cutaneous eruptions of scalp.
Worms.
 2. Syphilitic.—(Use of mercury.)
 3. Cutaneous diseases.
 4. Rheumatism.
 5. Gout.
- Acute.*
1. Fevers, continued, remittent, and intermittent.
 2. Eruptive fevers. { Variola, vaccinia.
Scarlatina.
Rubeola.
 3. Erysipelas.
 4. Local inflammations.
 5. Asiatic cholera.

VI. MEDICAL HISTORY OF THE PATIENT'S FAMILY.

1. Ascending. { Age of parents at the patient's birth.
Their habitual health.
Their special diseases.
2. Collateral.
3. Descending.

VII. HISTORY OF THE PRESENT DISEASE.

1. Supposed epoch of its invasion.
2. Existence and nature of any preliminary symptoms.
3. Cause and nature of the morbid changes in the functions or parts specially implicated.
4. State of the other functions and parts since the commencement of the disease.

VIII. SUPPOSED CAUSES OF THE DISEASE.

IX. TREATMENT, AND ITS EFFECTS.

X. PRESENT STATE OF THE PATIENT.

Examination of certain Obvious Conditions.

1. Attitude.
2. Expression.
3. Movements.
4. Intelligence. Memory. State of feeling.
5. Voice.
6. State of the pupils.
7. Hearing.
8. Color.
9. State of the nutrition.
10. Temperature.
11. Moisture of surface.
12. Œdema of countenance.
13. Pulse.
14. Mode of respiration.
15. External lesions.

Digestive System.

1. The tongue. { Manner of protrusion. Tremor.
Color.
Form. State of papillæ. Indentations.
Character of secretions on the tongue and teeth.
2. Taste in the mouth.
3. Appetite.
4. Thirst.
5. Deglutition.
6. Pain at epigastrium, in abdomen generally.
7. Nausea. Examination of matters vomited, if any.
8. State of the bowels.
9. Meteorism. Ascites. Tumors. { State of the
liver, spleen, etc.
10. Tenderness of abdomen.
11. Existence of rose spots, petechiæ or sudamina.
12. Character of alvine evacuations.

Respiratory System.

1. Frequency and character of Respiration. { Thoracic.
Abdominal.
Laborious.
Noisy.
2. Pain in Thorax. { Seat and character.
Sources of aggravation.

3. Cough. { Frequency.
Character.
4. Expectoration. { Facility.
Quantity.
Color.
Degree of transparency.
Tenacity.
Aeration.
5. Form of the chest. { Inspection.
Mensuration.
6. Comparative movement of two sides in respiration.
7. Percussion.
8. Succussion—if signs of effusion.
9. Auscultation of the { Respiration.
Voice.
Cough.

Circulating System.

1. Inspection of the præcordial region.
2. Percussion.
3. Auscultation of the heart's action. { Frequency.
Force.
Extent.
Rhythm.
Sounds—(natural, modified, adventitious)
4. Pulse. (p. 19.)
5. Auscultation of the arteries.
6. Examination of any pulsating tumors.
7. State of the veins.
8. Character of blood, if any have been drawn.

Secreting System.

1. State of the skin. (p. 19.)
2. The urine. { Quantity.
Color.
Odor.
Sediment.
Chemical character. { Acid, alkaline.
Coagulability.

Nutritive Function. (p. 19.)

Nervous System.

- Intellectual and moral condition. (p. 19.)
- State of the sensibility. { (§ 10.)
Common sensation.
- Mobility. { Paralysis of muscles.
Power and manner of walking.
Force of the hands.

Reproductive System.

- Manual and instrumental examination, if indicated.
- Character of urethral or vaginal discharges.
- State of lactation.]

CHAPTER II.

ON THE SIGNS OR SYMPTOMS OF DISEASE.

[47. Disease when made the subject of study, presents itself to our contemplation under several points of view, so that some ambiguity exists in the application of the term. In its most common or vulgar acceptation, the word disease means the symptoms which are present during illness, and which interfere with the ease and welfare of the patient. Thus dysentery is considered as consisting of pain and soreness in the abdomen, with tenesmus, and mucous or bloody discharges. Phthisis or consumption is said to consist of cough, pain in the chest, dyspnoea, hectic and emaciation. And when common patients are interrogated in regard to the nature of their own disease, the only satisfaction they can give us, is by enumerating the symptoms of which they are conscious. Upon these collections of symptoms are founded many of the older nosologies which have been introduced for the purpose of defining and classifying the morbid affections of the body.

48. But disease, more rigidly and scientifically considered, consists not in the symptoms, but in the morbid changes, or pathological condition, of the organs, in which it is seated, and of which the symptoms are merely consequences. Thus dysentery consists in a certain inflammation in the intestines, and phthisis in a tubercular affection of the lungs. Colic, in which there may be no structural change, consists not in the cognizable symptom of pain, but in the irregular, and supposed spasmodic performance, of an internal function. Disease moreover is not in most cases a simple alteration of structure or function. It consists more commonly in a series of consecutive changes, commencing with a slight deviation from the healthy condition, and

increasing till it involves extensive tissues, and deranges many functions of the body.

49. For our knowledge of the morbid changes which constitute disease, we are dependent, during life, upon our observation of the symptoms. This evidence, although indirect, is the only one which we are able to command, when vital organs are concerned, for no one can obtain ocular evidence of the condition of the brain, lungs or heart. The science of pathology has been built up by a careful observation of symptoms, and a comparison of these with the anatomical appearances exhibited in those who die. In this way we have become able to infer the existence of internal and hidden changes, by external and cognizable phenomena.

50. Symptoms are divided into what are called the *rational* and the *physical* signs. The rational signs, strictly speaking, are those which we derive from the testimony of the patient himself, and which we are obliged to receive from him upon trust, because we have no better means of obtaining satisfaction. Thus pain is a rational sign, of which we should be ignorant, but for the assurances of the patient. In like manner dizziness, noise in the ears, various defects of the senses, thirst, anorexia, nausea, oppression, tenesmus, itching, burning, tenderness, numbness, &c. are all rational signs, the knowledge of which we obtain not from our own senses, but from those of the patient.

51. The physical signs on the contrary, are those which we learn from our own personal inspection, as we should learn the qualities and phenomena of inert matter. Some of the physical signs are obvious at sight, others are appreciable only by circuitous exploration. The color and aspect of the face, and the temperature of the skin, are physical signs. The state of the pulse is a strictly physical sign, about which the patient knows little or nothing from his own sensations, and in regard to which, we should not trust him, if he did. The condition of the surface of the tongue, the appearance of the sputa, the alvine and urinary discharges, the phenomena of tumor and depression, hardness and softness, distortion of shape and irregularity of motion, are among the physical signs. Lastly, the results of the modern modes of exploring the chest, and other cavities, by auscultation

and percussion are called physical signs by way of eminence, and these are often intended alone, when the term is used.

52. It is proper to remark in this place that some writers employ the terms *physiological*, *vital* and *functional* signs, to indicate those symptoms which are exhibited by the manner in which the functions of the living body are performed. Thus cough, diarrhœa, suppression of urine, &c., are functional signs. But on examination it will be seen that all these signs may be resolved into one or the other, of the two great classes already mentioned.

53. Symptoms or signs may be conveniently considered under groups, according as they affect the external appearance and condition of the body, the respiratory system, the circulating system, the nervous system, the digestive system, the urinary system, the generative system, and as they are developed by the use of remedies and external agents. Some latitude must be allowed in the application and interpretation of all symptoms, since few of them are absolutely and exclusively pathognomonic. And furthermore, in a limited work like the present, it is impossible to exhibit all the signs which are connected with disease. It is only practicable to present those which are conspicuous by their frequency, or important by the indications they afford.

Of Signs derived from the External Appearance.

54. This division includes the signs of disease which are detected at sight, or by the touch, in the aspect, attitude, temperature, moisture, surface, flesh, shape and motion of the patient.

55. When the countenance is preternaturally flushed in disease, it usually indicates febrile or inflammatory action. In health it may be flushed by exercise, passions, &c. If the redness be a circumscribed spot on the cheek, it is indicative of hectic.

56. When the face and general surface are preternaturally pale, it may indicate inanition from loss of blood or other causes. It also exists in many chronic diseases and in convalescence. It occurs temporarily during chills, nausea and syncope. It is attended with a peculiar waxen appearance in chlorosis and anasarca.

57. When the skin is yellow, it indicates the affection called

jaundice, and depends upon disturbance in the liver, gall bladder or their ducts, by which bile is thrown into the circulation. It is usually attended with yellowness of the eyes, and with light or clay-colored discharges from the bowels, both which serve to distinguish it from the sallowness, or imperfect yellow, which attends cancer and some other diseases of the stomach. It occurs in yellow fever and in various disorders of the liver.

58. If the skin, particularly that of the face, is of a livid or leaden color, it shows imperfect arterialization of the blood, or venous congestion. It occurs in organic diseases and malformations of the heart, by which venous blood is mixed with arterial; also in pneumonia, by which the pulmonary circulation is obstructed. It is seen also in asphyxia, apoplexy, and many cases of cholera. The extremities, and particularly the nails, are apt to partake of this color.

59. A deep leaden, or slate color is often seen in the last mentioned diseases. The skin may become permanently of a blackish hue under the internal use of nitrate of silver, if long continued. Instances are recorded in which the skin has become black under strong mental impressions.¹

60. When the skin is partially discolored, or spotted, we infer the presence of an eruptive fever, a cutaneous disease, or a congenital blemish. Eruptions are crimson in measles, scarlet or crimson in scarlatina, white and red in urticaria, purple in purpura, red in roseola, vesicular, pustular, &c. in the cutaneous diseases which are ranged under classes to which those names are attached.

61. The skin is liable to become hot in the exacerbations of fever and most acute diseases. It becomes cold during syncope, and under the debility which results from inanition and from various chronic diseases. It is also cold in the superannuated, the moribund and in new-born infants of feeble vitality. Dryness is a frequent concomitant of febrile heat. Sweating, uninfluenced by exercise and temperature, occurs at the termination of intermittent paroxysms and of some other febrile exacerbations. It takes place during sleep in hectic fever, and not un-

¹ Rostan.

frequently in females during the early stage of lactation. Partial sweats confined to the upper and outer parts of the body take place in typhoid fevers. Cold clammy sweats occur in the moribund, in cholera and some other diseases.

62. A shrunken, rough skin, *cutis anserina*, occurs during chills in fevers and inflammations. Chills, shivering or rigors, mark the commencement of these diseases, or of their paroxysms; and also attend some important changes in their progress, such as suppuration, and the sudden invasion of new parts. Chills may precede certain natural processes, as parturition and lactation, and may occur under disagreeable impressions, or affections of the mind.

63. When portions of the skin, or general surface, are red, swollen, hot or painful, there is erythema, or superficial inflammation. If livid, circumscribed, burning and finally vesicating, there is erysipelas. If tumid, elastic and crepitating on pressure, there is cellular emphysema. If swollen, white, and pitting on pressure, with a doughy feel, there is œdema. This last affection may attend on important structural diseases of the heart and other viscera, or it may indicate functional disturbances, as in pregnancy, amenorrhœa, chlorosis, &c. It is often found in old age, and in slow convalescence from acute diseases. Emaciation takes place under inanition, and in various acute and chronic diseases.

64. The lips are influenced by the same causes which affect the color of the face. The prolabia are of a dark purplish hue in asphyxia, the advanced stage of pneumonia, and some diseases of the heart. They are pale or white under syncope, chills, anemia and the passion of fear. The upper lip is apt to be thickened in scrofula.

65. The eyes are suffused and vacant in typhoidal fevers, in various other acute diseases and in intoxication; glazed and fixed in some cerebral affections, as apoplexy, and in the moribund. They are yellow in jaundice, red in ophthalmia, measles, and often in urticaria, intolerant of light in some diseases of the organ itself, or of the brain and its membranes. The pupil is contracted in ophthalmia, in meningitis, and sometimes the first stage of apoplexy. It is dilated in apoplexy and other comatose

affections, in amaurosis, and likewise under the influence of narcotics. The eyes are rolling in various spasmodic affections, turned up under the same affections, and in various disorders both slight and grave of infants. They are turned in, or squinting, in advanced cerebral effusions, and are liable to become habitually so when the vision of one eye is impaired.

66. The lids are partly open during sleep in various febrile affections, which diminish the sensibility of the cornea. An inability to close one eye takes place in paralysis from affection of the facial nerve. They are pertinaciously closed when the sensibility is increased, as in ophthalmia and meningitis. The lids are swollen by common inflammation, erysipelas, urticaria and injuries of the neighboring integuments; œdematous under the use of arsenic, and often dark colored beneath, in pregnancy, chlorosis, dyspepsia, &c.

67. The attitude of the body is erect in cases of great dyspnoea and in some painful affections. It is supine in the advanced stages of typhoidal fevers, pneumonia, and other diseases of great debility. There is total muscular relaxation in complete syncope, apoplexy and asphyxia. Rigidity of the muscles occurs in tetanus, catalepsy, and some other spasmodic diseases. When it occurs in typhoidal fevers it is indicative of great danger. Subsultus, or twitching of the tendons at the wrist, also the act of continually picking or pulling up the bed clothes, are indicative of a low, or grave state, in typhoidal fevers. Muscular tremor may result from debility, fatigue, chill, violent passions, the abuse of tea and coffee, and in delirium tremens. Shaking takes place in chorea, some forms of palsy, in the case of habitual drunkards, and in old age. Jactitation of the limbs is observed in cases of great exhaustion and irritation, and frequently in the moribund. In acute diseases it is to be viewed as an alarming symptom. Cramp in the extremities may happen after great muscular exertions, during parturition, and in certain diseases of the intestinal canal, and most especially in cholera. Convulsions take place under both structural and functional affections of the nervous system, as in cases of dentition, oppression from food, poisons, mineral and narcotic, hysteria, epilepsy, hooping cough, the puerperal state, and often at the approaching close of life.

68. Alterations of shape and size in different parts of the body afford important indications of disease. When the whole head is enlarged with separation of the bones of the cranium, it shows the existence of hydrocephalus. A somewhat similar enlargement, affecting chiefly the anterior part of the skull, results from rickets. But the integuments of the head may be enlarged or thickened in erysipelas, small pox, under various poisons, &c. If the head is carried towards one shoulder, it shows curvature of the spine, or rigidity of the muscles of the neck, or perhaps paralysis. If one shoulder, including the scapula, is constantly raised, it may proceed from curvature of the spine, pleuritic effusion, pneumothorax, or more rarely from tumor. If the spaces above and below the clavicles, or those between the ribs, project on one side more than is natural, we may suspect emphysema, pleurisy, or pneumothorax, on that side. If the same spaces be preternaturally depressed, there are frequently old adhesions of the pleura underneath them, with sometimes cicatrized cavities, in the lung, or the lung after being compressed by disease may not have recovered its due dilatation. A prominence in the region of the heart is natural in many persons. When preternatural, if it be pear-shaped, with its perpendicular diameter longest, it should lead us to suspect pericarditis. If it be oval and transverse, there may be hypertrophy of the heart. But these characters are by no means constant. Various irregularities in the conformation of the chest, arise from softness or other change of the bone in rickety constitutions, and they may take place without any important disease. The protuberance called "humpback" shows a backward curvature of the spine, with loss of vertebral substance, generally from rickets.

69. General tumidity of the abdomen, if it yield a tympanitic sound on percussion, indicates meteorism, or gaseous distension of the intestines. Tumidity with fluctuation, which is felt by placing one hand on the integuments and tapping gently with the other, indicates ascites or abdominal dropsy, especially if there is a dull sound on percussion in the parts to which the fluid gravitates. But if there is fluctuation and dull percussion in a stationary part only of the abdomen, the dropsy is limited or encysted. Tumidity with dull percussion, but without fluctuation, may arise from obesity, pregnancy, and the growth of tu-

mors. If it is confined to the hypogastrium, we may suspect that the bladder is distended by retention of urine. When there is a chronic enlargement of a large joint, attended with pain and fever, we generally find some disease of the synovial membrane, or bone itself. If the pain and swelling shift often from one joint to another, the disease is rheumatism. If it resides chiefly in the small joints of the foot or hand it is probably gout or nodosity. If it affects the bones, especially their epiphyses and articulating processes, it may proceed from rickets.

Of signs derived from the Respiratory system.

70. The average frequency of respiration is from twelve to eighteen times in a minute. It is accelerated by causes which quicken the circulation, such as exercise, passions, certain nervous affections, and a full meal. It is more frequent in a rare atmosphere than in a dense. It is made frequent by diseases which quicken the circulation, derange the pulmonary function, or impede the arterialization of the blood. It becomes preternaturally slow in comatose affections, in narcotism, and sometimes habitually in hypochondriac patients.

71. Healthy respiration consists of an inspiration, an expiration and a pause. It is performed by the easy and natural action of the respiratory muscles. When it becomes laborious there is no pause, and the accessory muscles of respiration are called into action. This happens in obstructions of the trachea from croup, tumors or foreign bodies; in extensive disorganization of the lungs in phthisis, pneumonia and other diseases, in organic changes of the heart, and in paralysis affecting the respiratory muscles.

72. High respiration is characterized by complete expansion of the chest, followed by imperfect expiration. It occurs when the natural degree of collapsing of the lungs has become impracticable, or painful, as in pneumonia, &c.

73. Thoracic respiration is that which is carried on by the muscles of the chest alone, the abdomen remaining still. It may take place in peritonitis, paraplegia, and sometimes in pregnancy and dropsy, large abdominal tumors and extreme meteorism.

74. Abdominal respiration is that in which the muscles of the abdomen act with the diaphragm, but the ribs do not move. It occurs when both sides of the chest are unfitted for respiration, also in some cases of the moribund. It is seen likewise in very old persons the cartilages of whose ribs have become ossified.

75. An unequal movement of the two sides of the chest may be owing to rheumatism, or hemiplegia, or to effusions into one cavity of the pleura, in pleurisy, &c.

Of Percussion.

76. The art of percussion is founded on the familiar fact that a hollow body resounds when struck, while a full body does not. Thus in percussing a cask, or the inner wall of a house, we can decide whether it is empty, or filled up, and in most instances can determine where the vacant space begins or ends. Percussion is employed in medical practice to indicate the condition of that part of the body which is immediately within the point percussed. Any portion submitted to this test, will sound more or less hollow, in proportion as air, or solid substance, predominates in the spot upon which percussion is made.

77. As it is sometimes painful to the patient to percuss directly upon the surface of the body, it is now common to employ an intermediate substance, called a pleximeter, to receive the impulse of the blow. Various pleximeters have been employed, made of ivory, wood, and India rubber. But one of the most convenient is the finger of the hand of the operator, which is not in use, laid firmly and flat on the surface which is to be percussed. It may be variously turned, at the discretion of the operator, to fit the different curvatures of the chest. But in comparing corresponding parts, care should be taken that the finger used as a pleximeter should be placed at the same angle, upon each part, and that it be held upon it with equal pressure. For want of attention to this point, important mistakes are committed.

78. Percussion is commonly performed with the ends of all the fingers at once, holding them so that the last phalanx shall be perpendicular to the surface percussed. A single finger an-

swers the purpose in many cases. The stroke, or tap, should be short and quick, since in this way the clearest sound is elicited.¹ Percussion requires to be repeated with different degrees of force, in estimating the seat of morbid changes. For superficial affections, slight percussion is sufficient, but to elicit the modifications of sound which belong to deep-seated changes, more forcible percussion is needed. It is desirable, however, not to give pain to the patient in any case.

79. For the satisfactory performance of percussion, the patient, if able, should sit up, either uncovered or with a single thickness of covering. It is essential, when opposite sides are to be percussed, that their position and covering should be similar, to enable us to form a just comparison. While the anterior surface is percussed, the patient should sit erect, with the shoulders back and both arms in the same position. When the posterior surface is percussed he should fold the arms and stoop forward. A child is most conveniently examined lying over the nurse's shoulder. To facilitate percussion under the axillæ, the arms should be raised over the head. When the patient is too sick to sit up, the operation becomes more difficult. Still we are able to percuss the anterior and lateral parts, and if the patient can turn upon his sides, the back also becomes accessible.

80. In health the percussion is most resonant where there is most lung and the least integument, muscle or bone. It is therefore most sonorous in the axillæ, and in the inferior regions of the chest. It is somewhat less so below the clavicles, and still less so upon and above them. It is dull upon the spine and the scapulæ,

¹ Some inconvenience is experienced from the disadvantageous position, when we percuss surfaces of different obliquity, and especially on the side next the operator. To obviate this difficulty, we have used in the Massachusetts General Hospital for the last three years, a *percussor* formed of an elastic ball of woollen yarn, covered with velvet, about an inch and three quarters in diameter, with a handle five inches long. This instrument has the advantage of great freedom of motion, as evinced by the circumstance that the operator may percuss with it any part of his own chest. It has also the mechanical advantage that the centre of percussion falls within the percussing part, which is not the case when the hand is used. Its use is attended with much more despatch than that of the fingers, and the sound of one may be employed to test that of the other. The tone varies in proportion to the hardness or softness of the ball, in regard to which a medium is best. It is carried, inserted in a stethoscope, the ear-piece of which, if thickened and used edgewise, makes a good pleximeter.

and somewhat so upon the mammæ and pectoral muscles. Yet these latter give a sufficient sound, if properly compressed by the pleximeter.

81. The two sides of the chest should sound alike in healthy persons, with the exception that the part of the left side occupied by the heart gives a duller sound than the corresponding part of the right side. This portion, called the præcordial region, extends from the middle of the sternum to the left nipple, and from the base of the chest obliquely to about the junction of the sternum with the fourth rib. A source of inequality is found in the lower part of the left chest, from its proximity to the stomach, in consequence of which, it becomes resonant, when that organ is distended with gas. But in this case the sound is peculiarly sharp and tense, having the tone which Piorry has denominated *stomachal* resonance. The right side also at its lower part emits a duller sound, from the proximity of the liver.

82. With the foregoing exceptions the healthy chest should sound alike or nearly so, on the corresponding parts of opposite sides. And if there be a constant and evident difference in the sound elicited by percussion from the two sides, we are justified in inferring that one side, or the other, is a seat of disease. But in estimating the results of percussion, we should not compare different individuals with each other, except in cases of great peculiarity, for perhaps no two individuals yield precisely the same sound; owing to the size of the chest, the amount of integuments, &c. But the same individual may always be compared with himself.

83. Normal sounds are those which are naturally emitted by healthy persons under exploration. In disease the sound of percussion is liable to become *preternaturally* resonant on the one hand, or *dull* or *flat* on the other. The sound is termed preternatural, when the part percussed is more resonant, than in health. If the resonance is excessive it is called tympanitic. It exists in emphysema, in which disease the air vesicles are enlarged, also in pneumothorax, in which air exists in the cavity of the pleura.

84. The sound of percussion is termed dull, when the resonance of the chest is less than natural, and flat, when there is little or no resonance, the sound in this case resembling that

which would be yielded by the fleshy part of a limb, if percussed. Dull and flat percussion are different degrees of the same thing, and take place when a portion of light vesicular lung is replaced by a denser body. This may be a foreign or different substance, such as an enlarged heart, a tumor or an effused fluid; or it may be a portion of the lung itself consolidated by disease as in hepatization and tuberculous infiltration, the former occurring in pneumonia, the latter in phthisis.

85. If the chest emits a dull or flat sound, which shifts its relative position whenever the body is moved from one position to another, always occupying the lowest situation, we may conclude that there is effused fluid which by its own gravity seeks always the lowest level.

86. There is a peculiar sound sometimes heard in percussion which is dull and jarring like that of a cracked earthen vessel, and called by the French *bruit de pot fêlé*. It is best heard during expiration, and with the patient's mouth open. It occurs in phthisis and indicates a cavity in the lung, immediately within the percussed part. The diagnosis is rendered more certain if on light percussion, the part gives a dull sound. In rare cases the cracked sound is met with when the lungs are healthy.

Of Auscultation.

87. Auscultation is the art of estimating by the ear the nature of the different sounds produced by natural processes within the body, more particularly within the chest; and of explaining these sounds by reference to their causes. These sounds may be heard most perfectly by the immediate application of the ear to the surface of the body, and this method is called *immediate* auscultation. It may also be heard by interposing between the ear and the patient's body, a solid substance capable of conducting sound, and this is called *mediate* auscultation. When a person breathes or speaks, the walls of the chest are made to vibrate, in a manner which corresponds to the vibration of the parts immediately within them. This vibration is variously modified by disease, so that to the cultivated ear, the vibration of the walls of the chest expresses the pathological condition of the internal organs.

88. For most purposes immediate auscultation is preferable to mediate, since it is practised with greater ease and despatch, and in most cases gives more satisfactory results. But Laennec, the discoverer of auscultation, introduced an instrument, called a *stethoscope*, which is a hollow cylinder made of some light wood, having a broad surface for the ear at one end, and a trumpet-shaped cavity at the other. The trumpet-shaped extremity collects the vibrations of sound from a considerable space, and these are conveyed through the instrument to the ear. The original stethoscope of Laennec was a large and clumsy instrument, and is now superseded by others of more portable form and dimensions. Although the discoverer of auscultation seems to have considered his instrument as indispensable, and styled his great work a treatise on "Mediate Auscultation," yet the best auscultators of the present day make comparatively little use of instrumental assistance.

89. The chief cases in which the stethoscope is wanted in practice are, 1. To examine depressed surfaces of the chest, into which the ear cannot be inserted. 2. To explore very small spots, or diseased portions of very limited extent. 3. To determine the exact boundaries of a pathological affection. If this is attempted by immediate auscultation, the observer is liable to be deceived in consequence of the conducting power of the bones of the head. 4. When circumstances unconnected with science are opposed to immediate auscultation, such as the modesty of females, and the squalid condition of the lower orders.

90. The patient to be ausculted should be placed in an even and easy position, so that one side may not be more prominent than the other, and the muscles may be equally relaxed. The erect posture is to be preferred, when the patient's strength admits it. The less covering is left upon the chest, the better, and especially all substances which may produce a fallacious sound, as silk and woollen, should be removed. These precautions being attended to, the ear should be applied to different parts of the chest in succession; or if the stethoscope is used, it should be placed even, so that every part of its orifice may be in contact with the surface of the body. The attention should then be

directed to the natural respiration, and to the respiration when forced by more rapid efforts of the patient. Afterwards the voice is to be attended to, and finally the sound of the cough. In all these a careful comparison is to be made between the sound emitted from corresponding parts of the two sides.

91. In immediate auscultation, the ear is most easily directed to parts which correspond on opposite sides, by placing a finger underneath it as a guide, and removing and replacing this by inspection. It is also useful in immediate auscultation to vary the position of the ear, by sometimes turning off the head, so as to liberate the meatus, and still receiving the sound through the bones of the cranium. This may correct our first impressions. In this way a double sound of the heart can often be heard when only one is heard by immediate application of the ear.

92. Two sounds are produced in natural respiration, and may be heard in every healthy person. The first of these, called *vesicular* respiration, is a soft, breezy expansive murmur, which is audible, when the ear is applied to most parts of the chest, but particularly the lower parts. It is confined chiefly to the act of inspiration, and the expiratory sound is scarcely heard in health, except in the upper and posterior parts, and in these places it is weaker than the sound of inspiration. The second, called *bronchial* respiration, is a more harsh and blowing sound, and may be heard in its greatest intensity by placing a stethoscope on the trachea, from which circumstance the highest degree of bronchial, is called *tracheal* respiration. It is heard in a less degree opposite the root of the lungs, between the scapulæ and spine. It occurs both in inspiration and expiration.

93. Vesicular respiration is apparently produced by the entrance of air into the pulmonary vesicles. Bronchial respiration seems to be caused in part by the passage of air through the bronchi and their branches, but is chiefly conducted, like bronchophony, hereafter described, from the fauces and larynx. In health, there is somewhat more bronchial sound on the upper part of the right side, than of the left, owing to the right bronchi being largest. The sounds in different individuals are found to vary greatly in intensity, owing to natural differences in the structure of the integuments and contents of the chest. But

when in the same individual there is a difference in opposite and corresponding parts of the chest, and the difference is not to be accounted for by the mechanism of the chest, which has been already explained, we infer the existence of disease.

94. We suspect disease when the vesicular sound of any part is comparatively diminished or increased ; also when it is replaced by bronchial respiration in a part to which the latter does not naturally belong.

95. When the respiratory sound is particularly feeble or absent in any of the anterior parts of the chest, we suspect the existence of emphysema, or dilatation of the pulmonary vesicles, especially if there is a degree of roughness in whatever sound is heard ; and the diagnosis is confirmed, if there is resonant percussion. If feeble or absent respiration occurs at the posterior or inferior parts of the chest, we suspect pleurisy, and proceed to test the correctness of our diagnosis, by examining for the other signs of that disease. If feebleness be confined to the apex of the lungs, there may be tubercles ; and if it varies, by recurring at periods of short duration, it is owing to the mucous obstructions attendant on bronchitis.

96. When the respiratory sound of any part of the lung is preternaturally loud, but otherwise healthy in its character, it constitutes *puerile* respiration, so called by Laennec, from its resemblance to the loud respiration of children. When this sound is universal, it merely indicates activity or functional excitement. But when it is confined to any one part of the chest, we at once suspect that some other part is diseased ; for when one part of the lungs is disabled by disease from performing its proper function, the remaining parts take on a *supplementary* action, attended with greater labor and more sound.

97. When bronchial or harsh respiration is heard in parts where it ought to be vesicular, and especially if the expiration is bronchial, we infer that there is disease in the part thus affected. This is very commonly an induration of a part of the lung, by which the vesicles are filled up or consolidated, so that the vesicular sound is destroyed, while the consolidated portion conducts the sound from the bronchi directly to the ear. This happens in pneumonia, in which a part of the lung is hepatized ; an

affection which may occur in any part of the chest, but chiefly in the back; or it may take place in phthisis, when a part of the lungs, usually near the summit, is indurated by tuberculous infiltration. Bronchial respiration is often heard in pleurisy, apparently when the effusion of fluid is such as to compress the air vesicles, without compressing or obliterating the bronchi. It is also heard when a bronchus is preternaturally dilated.

98. *Rude* or rough respiration is a mixture of bronchial and vesicular sounds. It is heard in incipient phthisis, and in the lesser degrees of pneumonia and pleurisy.

99. When bronchial respiration is intense, so as to resemble the sound of air blown into the ear, it has been called *tubal*. The circumstance which is best suited to produce this sound, is a dense hepatization, extending from the pleura to the trunk of a large bronchus.

100. *Cavernous* respiration is a modification of the bronchial. Its sound is so modulated as to convey to the ear the impression of air being alternately drawn into and expelled from a cavity. It is commonly of small extent, and indicates an excavation of moderate size in the lungs. It is most clearly pronounced in tuberculous cavities, the walls of which are indurated. It may also exist, though more rarely, in abscess, in cavities from gangrene of the lungs, and in very large bronchial dilatation.

101. *Amphoric* respiration is well marked and easy of recognition. It closely resembles the sound produced by inflating a recent bladder to a great degree of tension. It also is compared to the sound produced by blowing into a glass bottle or tumbler, held near the mouth. It indicates the existence of large cavities, with firm or tense walls, around which the air reverberates in breathing. It accordingly exists in large tuberculous excavations of the lung, and less perfectly in the cavities which follow gangrene. In pneumothorax it is often highly distinct, especially if a free, fistulous opening exists between the cavities of the pleura and bronchi, permitting the entrance and egress of air.

102. The sounds hitherto described are a sort of modification of the natural respiratory noise. There remain to be considered certain adventitious sounds, which are not present in healthy respiration, but occur in different diseases. These are commonly desig-

nated by the French term *râles*, which is the name originally given them by Laennec. The Latin name *rhonchus*, or *rhonchi*, in the plural, is used to express the same thing. The English name *rattle* is sometimes used, but is liable to obvious objections.

103. The *sonorous* *râle* is a continuous sound, of a louder character than the rest, and has been compared to the pipe of an organ, the bass string of a viol, the creaking of a wagon wheel, or the cooing of a pigeon. It is heard both in inspiration and expiration. It commonly attends bronchitis or pulmonary catarrh, and is supposed to be caused by a thickening of the mucous membrane in some of the larger bronchi.

104. The *sibilant* *râle* is continuous like the former, but is more acute in its tone, resembling a low whistling sound. It is supposed to be produced in the smaller bronchial ramifications. It occurs in catarrhal affections, in which it is fugitive, and often changes its place, also in emphysema and in typhoid fever, after the first week.

105. The two foregoing have been called *dry* *râles*, to distinguish them from those which follow, and which have been styled *moist* or *humid* *râles*. But there seems to be no good foundation for this distinction, since the facility with which the sonorous and sibilant *râles* change their places, appear to indicate the presence of fluid in the bronchial passages.

106. The *crepitous* *râle*, sometimes called the fine crepitous, has been compared to the crackling of salt thrown upon the fire, or the rubbing of one's own hair between the fingers close to the ear. It accurately resembles the sound of champagne, or soda water, held in the mouth in a state of effervescence, or of the electric fluid drawn from a sharp point. It is sometimes heard after cough, when otherwise inaudible. It is most distinctly heard in common cases at the end of the inspiration. It belongs exclusively to pneumonia, and is pathognomonic of the first stage of inflammation, or that of pulmonary *engouement*. It is said to be sometimes heard in healthy persons, on a single forcible inspiration, after which it disappears.

107. The *subcrepitous*, or coarse crepitous *râle*, resembles the former, but differs in the size of its bubbles, which are larger

and more unequal, forming altogether a coarser sound. It is heard in catarrh, in which case it is usually audible on both sides at once. It exists in œdema of the lungs, and in pneumonia, when that disease is passing into resolution. If it is heard only on one side, and is confined to the top of the chest, we may suspect tubercles.

108. The *crackling* râle, *craquement* of the French, is a coarser sound than the last, and resembles a short valvular flapping. It is heard best immediately after cough, during the first inspiration, and affords the first sure indication of the softening of tubercles. It is usually met with at the top of the chest.

109. The *mucous* râle is a rattling sound, more loose and coarse than any of the preceding, and giving the impression of a fluid traversed by air in the bronchial passages. It is heard in all diseases of the lungs which are attended with a copious secretion of mucus or pus, such as catarrh, the advanced stages of pneumonia, and phthisis. A lesser degree of this sound is called muco-crepitous.

110. *Gurgling* râle, *gargouillement* of the French, is a bubbling sound, caused by the passage of air through a quantity of fluid contained in a cavity. It may exist in cavities produced by pneumonia, gangrene, or a dilated bronchus; also in the trachea and its large branches. But by far the most common source of this râle is a cavity formed in the lungs in phthisis. It often alternates with cavernous and amphoric breathing, and apparently takes place whenever the level of the fluid rises above the bronchial orifice, which supplies the cavity with air. It may often be produced by coughing, when it is not audible in any other way.

111. The sign called *metallic tinkling* resembles the snapping of a short musical wire, or it is like the sound of a glass or silver vessel when struck by a pin. It requires for its production a cavity having tense or indurated walls, and containing both air and liquid. It indicates the existence either of pneumothorax, or of a large tuberculous cavity. The immediate cause of metallic tinkling is the forcible or sudden disturbance of the liquid in cavity like those mentioned. The explosion of bubbles of air from beneath the surface of the liquid, appears to be the

most common cause of such a disturbance ; but it may take place when a part of the liquid is thrown upward in the act of coughing, and falls back upon the remainder. A minor, or *sub-metallic* tinkling, having no musical resonance, may be produced by slight impulses given to the air in the cavity, such as the breaking of bubbles of mucus at orifices above the surface of the liquid.

112. The *sound of friction*, *bruit de frottement*, has been compared to the rubbing together of two pieces of leather. It conveys the idea of difficult friction, in which two opposing surfaces in close contact alternately move and catch upon each other. It is sometimes not only audible, but palpable to the hand. It exists in dry pleurisy, in which the opposite surfaces of the pleura are covered with a false membrane, or coating of coagulable lymph, without the interposition of serum sufficient to prevent contact. It is most apt to occur after effused serum has been absorbed. It may take place in interlobular emphysema.

Voice.

113. The voice is produced in the larynx, and the vibrations belonging to it are conducted through the trachea and its branches to all parts of the lungs. If we apply the ear to the chest of a person who is speaking, we perceive a confused inarticulate noise. It is clearest and most resounding at the upper parts of the chest, which are near the larynx, and in which the bronchi are largest, especially at the inner edge of the scapula. It is feeblest in the lower parts, where there is a great deal of intervening, spongy, vesicular texture. The degree of resonance varies in different subjects. If other things are equal, it is greater in thin persons than in those who are fleshy, and in persons who have a strong deep voice, than it is in those whose voice is high or feeble.

114. *Aphonia*, or loss of voice, may take place from catarrhal affections, debility, paralysis, ossification of the cartilages of the larynx, or ulceration of the vocal chords in phthisis.

115. The first deviation of the voice from its natural state, perceived in auscultation, is in its *diminished resonance*. When

this takes place in a particular part, independently of affections of the integuments, it most frequently indicates emphysema. It may also occur in pleurisy, when the effusion into the cavity of the chest is sufficient to compress the whole lung.

116. *Increased resonance* of voice takes place when the pulmonary texture is slightly increased in density. It occurs in incipient phthisis, and at the beginning and decline of pneumonia and in dilatation of bronchi. This and the foregoing variety of resonance, can be estimated only by comparing the part of the lung in which they occur, with a corresponding portion which is in a healthy state.

117. *Bronchophony* is a peculiarly loud, clear, thrilling sound, which impresses the listener as if the voice was close to his ear, or as if the patient spoke through his ribs. In different degrees it accompanies bronchial and ~~tubal~~ respiration, and depends upon the same causes, viz. induration of the pulmonary substance by tubercles, hepatization, bronchial dilatation, &c. Bronchophony, in some cases, is attended by a thrill which is not only audible, but palpable to the hand.

118. *Pectoriloquy* is an exalted degree of bronchophony, resembling the sound which is heard by placing a stethoscope on the trachea while a person speaks. It is produced by a cavity in the lungs, of moderate size, having indurated walls, and being empty, or nearly so, of fluid. It is liable to disappear and return as the cavity becomes filled with fluid, or is emptied by coughing. The value of pectoriloquy in diagnosis has probably been exaggerated, and we seldom rely upon it without the concomitant signs of excavation.

119. *Amphoric resonance* of voice is a hollow, reverberating, semi-metallic sound, as if a person spoke in a brazen vessel. It accompanies amphoric respiration in pneumothorax, and in tuberculous excavations of large size.

120. *Ægophony* is a sound which has been compared to the bleating of a goat, from whence its name is taken. A good idea of it may be obtained from the nasal voice of a person who closes his nostrils in speaking. It exists at a somewhat early stage of pleuritic effusion, then disappears, and returns again after the fluid is partly absorbed. For its production it requires that a

certain amount of fluid should be interposed between the lung and the ear, but not so much as to compress the lung wholly. It is usually heard near the lower angle of the scapula. *Ægophony* occasionally runs into *bronchophony*, and an intermediate sound is sometimes produced in pleurisy, viz. *broncho-ægophony*. This sound is apt to exist in pneumonia, attended with a slight degree of pleurisy. According to M. Reynaud, *ægophony* may occur in aneurism, when the trachea and bronchiæ are compressed.

Succussion.

121. A very ancient, though rough mode of exploring the chest, consists in shaking the patient with a view to elicit the sound of free fluid, if such exists in the cavities. This mode is applicable only to cases in which air and liquid coexist, as in pneumothorax and large pulmonary excavations. In patients thus affected, if the body be agitated, the dashing of the liquid can be heard not only by auscultation, but frequently by the ear at some distance from the body. This mode should not be practised to the annoyance of weak patients, but we have repeatedly met with patients who, by their own efforts, could produce the sound of succussion at pleasure.

Cough.

122. A *short dry cough* is attendant on various irritations of the fauces, elongated uvula, some febrile affections, and occasionally in persons in whom no obvious cause can be detected. It attends on the incipient stages of phthisis.

123. A *hoarse cough* is loud, dry, hearty, and forcible, without any peculiar harshness or stridulous sound. It exists in the early stages of pulmonary catarrh, and seems, like a hoarse voice, to depend on intumescence of the vocal chords.

124. An *aphonic cough*, the tone of which is whispering and feeble, seems to depend on the same causes which produce aphonia in the vocal function. It takes place in excessive catarrhal affections of the glottis, in great debility, and in ulcerations of the larynx.

125. A *stridulous cough*, having a barking or brazen sound, occurs in croup, laryngismus, and in some children at the commencement of catarrh and measles. In confirmed croup, under the production of false membrane, it is apt to acquire a wheezing or whistling character.

126. A *loose cough*, as its name expresses, is characterized by the sound of a loose fluid in the air passages. This fluid may be mucus, purulent mucus, or pus. It occurs in the advanced stages of catarrh, in phthisis, in the third stage of pneumonia, and in old age. In catarrh it is frequently a ground of favorable prognosis. A cough may in some cases have a broken and somewhat loose sound, without evidence of much fluid.

127. A *spasmodic cough* consists usually of many short expirations, followed by a single prolonged and often sonorous inspiration. It occurs in whooping cough, and sometimes in dentition and other affections of children. The cough of asthma has generally more or less of a spasmodic character.

128. The *amphoric cough* has a hollow, reverberating sound, and constitutes a striking symptom of the advanced stages of phthisis, with large cavities.

Expectoration.

129. In a state of health the natural saliva and mucus are transparent and colorless, and they generally remain so in the incipient stages of pulmonary diseases.

130. When the sputa consist of mucus which is thick, whitish and opaque, during common pulmonary catarrh, they indicate a subsidence of the inflammation. They are sometimes yellowish or greenish when the disease is prolonged.

131. When the sputa are of a rusty red color, viscid, heaped in small masses, and adherent to the vessel into which they are discharged, the disease is pneumonia. They may also be sometimes brown or yellowish in this disease.

132. When liquid blood of a fresh, florid and frothy appearance is thrown off by an expiratory effort, in any considerable quantity, the case is one of hæmoptysis. It shows in most cases the existence of tubercles in the lungs, but may take place under

the influence of other causes, such as catamenial irregularities, aneurism of the aorta, and external accidents. Pulmonary hemorrhage, when slight, probably proceeds from exhalation from the mucous membrane; when more serious, from the vesicular texture, and in rare cases from the rupture or division of a blood vessel.

133. When pus is expectorated the disease may be bronchitis, pneumonia, or phthisis. The characteristic sputum, often seen in advanced phthisis, has received the French name *pelotonné*, which has been rendered in English by the word *nummulated*. It appears in roundish masses, with shred-like edges, floating in a clear, transparent liquid. The taste is often sweetish, and the smell nauseous. But it is in some cases extremely difficult to distinguish the pus of phthisis from that of chronic catarrh.

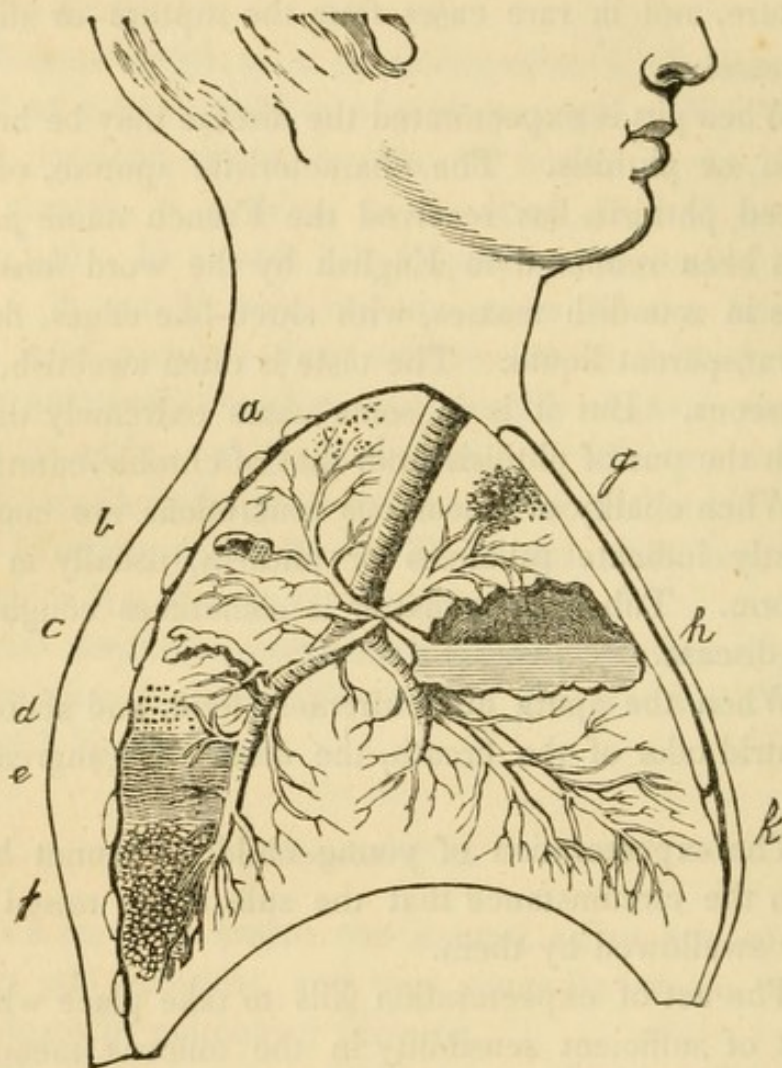
134. When chalky or calcareous concretions are coughed up they mostly indicate tubercles or phthisis, usually in a more chronic form. Tuberculous matter is sometimes coughed up in the same disease.

135. When the sputa are extremely fetid, and accompanied with a putrid odor of the breath, the disease is gangrene of the lungs.

136. The expectoration of young children cannot be examined, from the circumstance that the substances raised are immediately swallowed by them.

137. The act of expectoration fails to take place when there is a want of sufficient sensibility in the mucous membrane or the diseased part, to excite coughing. This happens in the lethargic and the moribund, giving rise to the well known rattling sound in the throat, so often heard in these cases. For the same reason expectoration is suspended during sleep, and takes place in increased quantity on waking. Some patients voluntarily avoid expectoration as long as possible, on account of pain or fatigue attending the exertion of coughing.

138. The subjoined figure, which represents the section of a chest affected with various pulmonary diseases, may serve to illustrate some of the preceding positions.



139. In this figure the summit of the lungs opposite to *a*, contains a few small scattered tubercles, represented by dots. The physical signs discoverable at this place would be only slight resonance of voice and rude respiration, with perhaps some dullness on percussion. Even these signs would not be appreciable, if the tubercles were small and few.

At *b* is a small commencing cavity, caused by the softening of one or more tubercles. At this place a crackling would occasionally be heard, especially after cough.

At *c* is a dilated bronchus, approaching to the walls of the

chest. The signs at this place would be bronchial respiration and bronchophony, and perhaps gurgling.

At *d* is a portion of lung, marked by dots, in the first stage of pneumonia, in which the texture of the lung is slightly increased in density, but still permeable to air. At this place would be heard the fine crepitous râle, and slight obscurity on percussion.

At *e* is the second stage of pneumonia, or complete hepatization. The signs existing at this point would be bronchial respiration, bronchophony, and very dull or flat percussion.

At *f* is the third stage, or grey hepatization. In this place the percussion would be flat, and the respiration attended with sub-crepitous or mucous râle.¹

At *g* is a mass of conglomerated tubercles, or tuberculous infiltration, producing bronchial respiration, bronchophony, and dull or flat percussion. The signs, it will be observed, are nearly identical with those at *e*. But the position of the disease near the summit of the lung, the appearance of the sputa, together with the history and chronic character of the disease, will be sufficient to prevent mistake.

At *h* is a large cavity partly filled with pus, and communicating with a bronchial branch. Here will be heard gurgling whenever the fluid rises above the bronchial orifice, and amphoric respiration and cough when the cavity is empty. If the cavity be of moderate size, there will be pectoriloquy.

At *k* is a healthy portion of lung. This part, as well as the opposite lung, if healthy, would give only puerile respiration, unless masked by some of the sounds of the neighboring diseased parts.

Of signs derived from the Circulating system.

140. To this head may be referred the signs derived from the heart and large vessels, the pulse, and the capillary system.

¹ It will be observed that the different marks used in the figure, are employed to define the supposed extent of each lesion, and not to represent its character.

141. The heart is situated in the left chest, occupying the precordial region already described (81). The apex of the heart points forward, downward, and to the left, about the level of the fifth intercostal space. It is enclosed in the pericardium, and covered by the edges of the lungs, with the exception of a small part of a rhomboidal shape, and generally not two inches square. The portion which in most individuals is thus uncovered, gives a dull sound on percussion, and beyond this part the dullness diminishes, till it is lost in the surrounding pulmonary tissue.

142. The phenomena which are noticed when the ear is applied to the region of the heart in health, are the impulse and the sounds. The impulse conveys the impression that the ear is pushed or struck by the heart, and the sounds which are heard are two in number. The first sound coincides, in point of time, with the impulse, and occupies half the period of a whole pulsation. The second sound is short and abrupt, occupying a quarter or less of the pulsation, while a pause which follows, fills up the remainder of the period. The causes of these sounds of the heart have been the subject of much recent dispute and experimental inquiry. The latest results render it probable that the first sound is occasioned by the muscular contraction of the ventricles, beginning with the closing of the auriculo-ventricular valves, while the second sound is produced solely by the flapping of the semi-lunar valves. In exploring the region of the heart for signs of disease, we attend chiefly to the impulse, the sounds, the rhythm, or order and proportion of the sounds, the extent of dull percussion, the extent of audible respiration, and the prominence of the præcordial region.

143. When the impulse of the heart is strong and lifting, we infer that there is hypertrophy of the organ, or some of its parts. If perceived over a large space, it is probably attended with dilatation. This diagnosis is confirmed if there is œdema of the lower extremities, dyspnœa, bloating and lividity of the face, with violet-colored lips, and pulsation of the jugular veins.

144. When in acute disease the impulse is feeble, irregular, or wanting in an erect posture, we should suspect pericarditis, and look out for its other signs.

145. When there is palpitation, or frequent and abrupt pulsation of the heart, there may be structural or functional disease, or mere nervous irritability of the system.

146. When the first sound of the heart is prolonged by a blowing or bellows-sound, there may be structural or functional disease, or inanition from loss of blood, &c.

147. When the second sound is prolonged and rough, we suspect disease of the valves from vegetations, thickening, rigidity, or contraction. When either sound resembles the noise of a file, rasp or saw, or the cry of a bird, there is probability of still greater valvular disease. In these cases it is generally found that the valves, by their increased thickness, obstruct the passage of blood through the orifices which they command, or else by their imperfect closure, they permit a portion of the blood to regurgitate. By applying the ear in succession to different quarters of the precordial region, an opinion may be formed as to the particular valves which are diseased. Nevertheless, our present knowledge of the import of valvular sounds is by no means complete, and the certainty of their indications is doubted by some able pathologists.

148. When the sound of percussion is dull or flat over a greater extent than natural of the præcordial region, there is reason to suspect hypertrophy or pericarditis, with serous effusion. A similar inference is to be made when respiration is either absent or extremely feeble over the whole extent of this region, and at the same time is distinct in other places.

149. When the heart is perceived in the right chest, pulsating as strongly as in the left, or more so, there is either a preternaturally solidified portion of lung, or tumor, by which the pulsation is transmitted; or else the heart is dislocated by effusion or tumor in the cavity of the left pleura. In some very rare cases there has been a natural transposition of this and other organs.

150. When prominence of the precordial region exists in connection with other signs of diseased heart, there may be pericarditis or hypertrophy. If the prominence be higher than this, we suspect aneurism of the aorta.

151. When there is a friction sound, like the creaking of new

leather, which is synchronous with the pulsations of the heart, there is pericarditis, with effusion of lymph coating the surfaces in contact.

152. When there is dull percussion, with tumor, about the upper and anterior part of the chest, attended with loud pulsation, either single or double, especially if there is a purring tremor above the clavicles, we may presume there is aneurism of the thoracic aorta.

153. The abdominal aorta can be felt in thin persons pulsating along the spine. If the pulsations be excessive, and diffused over a preternaturally large space, there is either aneurism of this part of the aorta, or some tumor transmitting its pulsations. Strong pulsations, if not thus diffused, may indicate merely functional disturbance.

154. When a pulsating tumor is felt in the course of any artery, accompanied with a thrill which is perceptible to the hand or ear, and the tumor subsides on compressing the artery above it, and returns when the pressure is removed, the case is aneurism.

155. When there is pulsation of the jugular veins, we are to apprehend an imperfect closure of the right auriculo-ventricular valves, in consequence of which, when the ventricle contracts, a part of the blood regurgitates to the auricles and veins.

156. In certain patients, if a stethoscope be lightly pressed upon the side of the neck, a continuous sound, without pulsation, is heard. It is sometimes buzzing and musical, at others it resembles the blowing of wind against the corner of a house. This sound is called by the French *bruit de diable*, and is now considered as having its seat in the jugular veins.¹ It is chiefly found in chlorotic and anemic subjects, and is supposed merely to indicate thinness of the blood. Several varieties in this sound have been pointed out, which seem of not much practical consequence.

¹ See Williams's Lectures on the Chest. Bouillaud considered this phenomenon as having its seat in the arteries of the neck. The sound is continuous, but in many cases swells and diminishes with the pulsations.

157. The average frequency of the pulse in healthy persons is from 70 to 75 in a minute.¹ In tall and stout persons it is slower, and in females and irritable subjects, quicker. In infants, during the first month, it averages 120, in the second year 90 to 100, and afterwards gradually diminishes. When the pulse is habitually slower than these rates, it commonly arises from idiosyncrasy. But if the slowness is of recent occurrence, and is great in degree, there may be pressure on the brain, or functional disturbance, as from narcotics. On the other hand, the pulse in health may be preternaturally frequent, from mere constitutional irritability, or from various exciting causes. But in most grave diseases a pulse which at all hours exceeds 120, indicates serious morbid affection, and a pulse of 140, if long-continued and feeble, is indicative of danger.

158. When the stroke of the pulse is strong, hard, and simultaneous with that of the heart, it indicates a state which will bear depletion with benefit, or at least with safety. But from this rule we must except the reaction of pulse which sometimes follows excessive blood-letting or hemorrhage. On the other hand, when the pulse is feeble and easily compressed, and when it follows the stroke of the heart by a perceptible interval, it indicates an atonic state, in which depletion, for the most part, is contra-indicated. The radial pulse may become imperceptible in syncope, in great prostration, and in the moribund.

159. The radial pulse in general represents truly the number of the heart's contractions ; it can never exceed them. But when the heart acts very feebly its pulsations may not reach the wrist ; and when they are irregular in force, some may be propagated to it and others not, in which case the pulse will be intermittent. In some cases the heart, as well as the pulse, omits to contract. This irregularity may be functional, or it may be consequent on organic disease of the heart.

160. Syncope, or fainting, results from a failure of the heart in force, or frequency, or both. It may be occasioned by a great variety of causes, such as mental emotions, loss of blood, especially during an erect posture, violent mechanical injuries, seda-

¹ Heberden.

tive poisons, &c. Some persons faint readily, on slight occasions, from idiosyncrasy. The pulse at the wrist is weak, and often imperceptible during syncope. The sounds of the heart are also feeble in most cases, very short, and without a second sound, and generally irregular.

161. Hemorrhage takes place spontaneously in acute diseases, especially in fever, and likewise in different morbid changes of structure. It occurs most commonly from mucous membranes by exhalation, and less frequently by ulceration or rupture.

Of signs derived from the Nervous system.

162. Our present knowledge of the signs which belong to particular morbid affections of the brain and nervous system is more imperfect than that of most of the other great subdivisions of the human frame. They are distinguished by the occurrence of certain symptoms, any two or more of which, and sometimes even one of which, may, under certain circumstances, furnish evidence that the brain or spinal cord, or their investing membranes, are the seat of disease. But to determine the precise nature of the disease thus seated, is not always within the reach of our science, in its present state of advancement.

163. The principal signs which attend on morbid affections of this system are, 1. Headache. 2. Disturbance of the senses. 3. Disturbance of the intellect. 4. Watchfulness. 5. Coma. 6. Paralysis. 7. Convulsive affections.

164. Most of the foregoing symptoms may occur in affections of the brain, which are purely functional, as in hysteria, and during the influence of narcotics. But when coma, paralysis, or spasm are long continued, we may presume that there is structural disease.

165. When from the permanency and combination of signs, we infer that there is structural disease of the brain, it is not easy to diagnosticate with certainty the nature of the existing lesion. In the fifth volume of Andral's Clinique, there are cases in which paralysis took place not only in hemorrhage of the brain, but also in atrophy, in cancer, in congestion, and in ramollissement or softening of that organ, as well as in meningitis and

in disease of the cerebellum. In like manner, most of the other symptoms may be produced by a variety of different lesions.

166. When, in combination with other symptoms, the eyes are intolerant of light, and the pupil contracted, there being no ophthalmia, we may suspect irritation or inflammation of some part of the brain, or of its membranes.

167. When the pupil is permanently dilated, and the sight imperfect or wanting, with the presence of any degree of coma, and without the use of narcotics, we may presume that there is pressure on the brain from effusion, or some other cause.

168. When loss of consciousness, with stertorous breathing, takes place suddenly, in a patient of plethoric habit, there is probably hemorrhage of the brain.

169. When there is hemiplegia, or loss of the power of sensation or of voluntary motion on one side of the body, there is an affection of the brain or cerebellum on the opposite side.

170. There are other relations between symptoms and lesions of the brain, which if frequently found to exist, are by no means constant. Among the most important are these,

1. Loss of speech, with lesion of the anterior lobes.
2. Paralysis of the upper extremity, with lesions of the optic thalami.
3. Paralysis of the lower extremity, with lesions of the corpora striata.
4. Affections of the generative system, with disease of the cerebellum.

171. When paralysis occurs, with rigidity of the muscles, or convulsive affections, we may suspect acute inflammatory affection or softening of the brain or spinal cord. But if the paralysis is attended with relaxation of the muscles, it more commonly results from chronic disease in those parts, or pressure from effusion.

172. When there is paraplegia, or loss of sensation or voluntary motion in the lower half of the body, affecting the lower limbs, the bladder, rectum, &c., we may suspect disease or injury of the spinal cord. And if one side is more affected than the other, the injury is greatest on that side. Nevertheless, para-

plegia sometimes occurs without appreciable lesion of the spinal cord, the brain being affected with disease.

173. When paralysis is partial, or confined to a limited portion of the body, without more extensive affection, it is owing to some cause acting on the nerves which supply that part. If sensibility alone is affected, the cause acts on the posterior roots of the nerves, or their continuation ; but if motility only is diminished, the cause affects the anterior roots.

174. Pain upon pressure, percussion, or the application of heat to the vertebral column, has been considered by some writers as evincing a diseased state of the spinal cord, to which they have given the name of spinal irritation.

175. If there is pain in the course of a nervous trunk, or its expanded extremities, without inflammation, or other organic change in the part to which the pain is referred, the disease is neuralgia.

Of signs derived from the Digestive system.

176. The tongue, which is clean in health, becomes coated or otherwise altered by various diseases, and again becomes clean on the return of health. Its alterations are frequently useful in prognosis, though its particular state is not always to be depended on as a ground of precise diagnosis. In some individuals the tongue is habitually coated, owing to some slight and almost inappreciable chronic affection. In others it is never coated. In others, it is coated in patches only.

177. The tongue in disease may have its own surface dry, or moist, red, rough, or glossy. It may be coated with a secretion which is white, yellow, or brown. It may undergo various lesions in its surface and substance.

178. In appreciating these changes, we should guard against sources of error arising from accidental circumstances. A tongue which is habitually dry, is moist for a short time after taking drink. A moist tongue also becomes dry, in persons who sleep with the mouth open, and frequently in those who have taken opium. Various foreign substances, when chewed, produce the

resemblance of a morbid coating, such as liquorice, tobacco, certain farinaceous articles, &c.

179. Formerly the state of the tongue was supposed to indicate the condition of the mucous membrane of the stomach and intestines. And in many cases a connection in the state of these organs undoubtedly subsists. But the observations of Andral, Louis, Piorry, and others have shown that the tongue is of natural aspect in many cases when the stomach and intestines are diseased, and also that the tongue is variously affected when the latter organs are in a healthy state.

180. A tongue coated with white, and afterwards becoming yellowish or brown, may attend on a variety of acute diseases, and affords no specific indications.

181. When the tongue is swollen, dry, of a dark brown approaching to black, and either rough or glossy, with its surface sometimes cracked and bleeding, it indicates the general state of disease called *typhoidal*. It is most frequently seen in grave cases of typhus and typhoid fevers, but is also met with in the malignant forms of pneumonia, dysentery, and some other diseases.

182. When, in acute disease, a tongue which is coated begins to clear off at the tip and edges, showing the subjacent surface of its natural or healthy appearance and color, we may conclude that the disease is beginning to abate. But if the coat first cleaves off at the middle or posterior part of the surface, leaving the surface red or dry underneath, we are not justified in inferring a favorable change. A red tongue, with elongated papillæ exists in some cases of scarlatina.

183. When the tongue vibrates and cannot be held still by the patient, or when it is protruded and not readily retracted, it shews a disturbed state of the cerebral and nervous functions. If, without local injury, it is constantly turned to one side, it shows paralytic disease.

184. When the tongue is indented at its edges by impressions of the teeth, it shows a swollen or œdematous state of the organ. It occurs in various chronic diseases. If it is wasted and pale, it may show an anematous or atrophic state of the body.

185. Superficial soreness of the mouth may arise from aphthæ,

or it may attend on debility and inanition, as in lactation and in various protracted diseases.

186. Sordes of a brown color collecting on the teeth, lips and tongue, as well as on other mucous orifices, shows a typhoidal state, in febrile diseases. In some cases, when the tongue is coated, the gums partake of the same coat.

187. Dysphagia, or difficult deglutition, may arise from different causes: 1. If it is attended with pain and soreness, it marks inflammation or ulceration in some part of the fauces, or their vicinity. The most common seat is the tonsils, but it may be in the uvula, epiglottis, pharynx, &c. 2. If there is pain in swallowing, without soreness, there may be stricture in the œsophagus, or at the cardiac orifice of the stomach, or pressure from a neighboring tumor. 3. If there is neither pain nor soreness, there may be spasmodic or inverted contraction of the œsophagus, or, more commonly, paralysis of the muscles concerned in deglutition. When painful dysphagia is combined with dyspnœa, there is reason to apprehend laryngitis.

188. When, in attempts to swallow, the liquids taken regurgitate through the nose, it is commonly because the soft palate is enlarged, inflamed, rigid or perforated. This symptom also occurs in ulceration of the epiglottis in phthisis.

189. Anorexia, or loss of appetite, exists in many diseases of the digestive organs and affections of the general system. Appetite is wanting in typhoidal fevers, and its return is one of the surest marks of convalescence. The appetite may be excessive in inanition, atrophy, dyspepsia, tænia, and convalescence. There is a desire of improper food in many cases of hysteria, chlorosis, pregnancy, and sometimes in the cases of lunatics, and feeble children.

190. Thirst is excited by exercise, perspiration, saline and acrid food, and in most acute diseases. It is excessive in diabetes. The thirst of disease is usually not slaked by drinking.

191. When pain in the epigastrium is felt regularly, in a short time after taking food, we may infer that there is disease of the stomach, either structural or functional. But if the pain occurs always one or more hours after taking food, the disease is probably in the duodenum or some other part of the intestine.

192. The sensation called heartburn generally arises from imperfect digestion, in consequence of which the contents of the stomach pass into the acetous fermentation. It is most apt to occur when the aliments taken are of a crude or indigestible nature, more especially when they consist of vegetable substances.

193. Pain in the epigastrium, as well as nausea, may arise from various causes, and indicates nothing with certainty. But pain in the epigastrium, with vomiting of bile, in typhoid and other fevers, indicates serious lesion of the mucous membrane of the stomach.¹

194. Vomiting is occasioned by the action of the diaphragm and abdominal muscles, aided by an inverted action of the stomach, with a contraction of the pylorus, and a relaxation of the cardiac orifice. It may be brought on by a great variety of different causes, such as irritation or disease of the stomach itself, irritation of the fauces, sympathy of the stomach with other organs, emetics in the stomach or in the circulation, undigested food, narcotics, mineral poisons, syncope, concussion of the brain, certain motions of the body, such as whirling, riding backwards and sailing; strangulated hernia, intussusception, nephritis, pregnancy, parturition, emotions of mind, &c. Ineffectual retching, without vomiting, in children, frequently indicates acute disease of the brain or its membranes.

195. If vomiting occur during deglutition, it shows inverted action of the œsophagus or pharynx, and may arise from irritation, sympathy, or organic disease. If vomiting takes place regularly after deglutition, there is functional disorder or structural disease of the stomach. In this case we should endeavor to satisfy ourselves by careful examination, in regard to the existence of hardness or tumor in the region of the stomach.

196. If the substances thrown off in vomiting are highly acid in their character, they result from the same causes as heartburn, viz. imperfect digestion and acetous fermentation.

197. If the bile is vomited, it shows an inverted action of the duodenum. It often takes place after long-continued nausea and oppression, when the stomach is irritable, or its contents irritating;

¹ Louis *Fievre Typhoide*, II, 44, 56.

and it may at any time be produced by the action of a powerful emetic. It takes place copiously in cholera morbus.

198. If mucus or watery fluid be vomited, independently of things taken into the stomach, it shows an increased secretion. But if pus be vomited, it is indicative of ulceration, or abscess communicating with the stomach.

199. If hematemesis or vomiting of blood occurs, it shows the existence of hemorrhage, which most commonly proceeds from the mucous coat of the stomach, under the influence of various causes. It is necessary to guard against a source of fallacy in cases in which blood has been swallowed, a circumstance which often happens during epistaxis, and in infants who nurse from sore nipples.

200. A dark grumous sediment, resembling coffee grounds, or grains of gunpowder, and called *black vomit*, is found in yellow fever and some other malignant diseases. Dark matter is vomited in schirrus of the stomach, and in encephaloid disease of that organ.

201. If substances of a fœcal character are ejected by vomiting, it shows that the peristaltic motion of a long tract of intestine is inverted. This symptom belongs to ileus and strangulated hernia. If worms or gall-stones are thrown up, we have reason to apprehend that more of the same remain.

202. The alvine dejections in health should have a brown color, fœcal odor, and the consistence of a soft solid. They are retained or insufficient in costiveness, and profuse or liquid in diarrhœa. If they are small and hard, in lumps known by the name of scybala, we may infer that they have been long retained. But if they are very thin or liquid, there has been increased secretion into the intestinal canal, or rapid peristaltic motion. Diarrhœa may arise from irritation, inflammation or ulceration of the mucous membrane of the bowels. The cause may be in the large or small intestines, or in both.

203. If the fœcal mass is uniformly attenuated in size, showing that it has passed through a narrow orifice, or is much broken, we infer that there is stricture of the rectum, or diminution of its cavity from schirrus, or other tumor, or contraction of the anus.

204. If the dejections are without fœcal odor, we infer that

the natural discharge has been retained, or else has been washed out. An example of the former kind is seen in dysentery, and of the latter in cholera.

205. If the dejections are whitish or clay-colored, it shows a deficiency of bile in the intestinal canal. This is a common symptom of hepatic obstructions, and if continued, is usually accompanied with yellowness of the skin, constituting jaundice. The stools of infants are often white, from undigested milk.

206. If the dejections are yellow, loose and offensive, they indicate a redundant secretion of bile, as in bilious diarrhœa and cholera morbus. They are black, or fuliginous, in certain affections of the liver, constituting what has been called *melæna*. The presence of blood may cause a similar effect. The color of the fæcal discharges is also affected by certain chemical or coloring agents taken into the stomach. Thus a slaty or black color is produced by iron, a dark green by calomel, a yellow by rhubarb, &c.

207. Discharges may consist entirely of some simple or homogeneous fluid, in which no fæcal matter is present, and these fluids are produced by different diseases. Copious discharges of limpid, watery fluid attend on malignant cholera, and discharges of bile, nearly pure, take place in cases of cholera morbus. Discharges of mucus are common in dysentery and after drastic cathartics; they indicate inflammation or irritation of the mucous coat of the intestines. Discharges of blood, in small quantity, generally proceed from piles; in large quantity, they indicate intestinal hemorrhage, proceeding generally from the exhalent vessels. Mixtures of blood and mucus are common in dysentery; sometimes in piles. Pus indicates ulceration in the intestines, or abscesses communicating with their cavity. Oily or fatty discharges belong to diseased pancreas, sometimes to diseases of the duodenum and liver. Ropy and indurated mucus is thrown off under various irritations, from enemata, &c. and has in many cases been erroneously taken for worms.

208. When gas accumulates in the intestines in moderate quantity, it constitutes *flatulence*, and in large quantity *meteorism*, or *tympanites*. It may be produced by fermentation of the ingesta, or by secretion from the intestines themselves. It occurs

in dyspepsia, hysteria, &c. and constitutes a grave symptom in typhoidal fevers and other acute diseases. It may disappear by expulsion or absorption.

209. Tenesmus, or urgent and ineffectual desire to pass stool, takes place when the mucous coat of the large intestine is irritated or inflamed, as in dysentery. It also occurs under disease of the rectum itself, or of the neighboring organs, as in calculus, enlargement of the prostate gland, disease of the bladder, uterus, &c. It occurs also from the irritation of foreign substances, as ascarides, tænia, and large masses of hard impacted fæces.

210. Involuntary discharges take place in the low stage of typhoid fevers, and are indicative of great prostration and disorder of the cerebral functions. They also occur when the sphincter ani is affected with paralysis, as in paraplegia, and when it has been divided or lacerated.

211. Pain in the abdomen, when it alternates with intervals of ease, and is relieved by pressure, mostly indicates colic, or spasmodic contraction of the intestines or stomach. But pain, which is constant and aggravated by pressure, shows inflammation or other organic disease, which may be in the peritoneum, the muscular, or mucous coat of the intestines, in the texture of particular organs, or sometimes in the abdominal parietes.

212. Sensibility, or tenderness on pressure, is a better indication of the seat of disease, than pain; for the reason that pain is often misplaced, and felt in a part which is not in itself diseased; whereas morbid sensibility of a part does not usually take place unless there is disease in the sensitive part itself. If tenderness is felt upon trifling or light pressure, there is disease in the integuments or superficial parts; but if it is only felt on deep pressure, the disease is in the more deeply seated organs. But in some diseases of the abdominal organs any degree of pressure may give pain.

213. If there is tenderness of the epigastrium, there is probably some morbid affection of the stomach, the transverse colon, the central part of the liver, or the pancreas. If it is found in the right hypochondrium, the seat of the disease is likely to be in the liver or colon. If in the left hypochondrium, it may be situated in the left lobe of the liver, the colon, the stomach, or spleen.

If it is perceived in the umbilical region, we suspect disease of the small intestines or mesenteric glands ; and if the lumbar regions, there may be affection of the kidneys, or of the cæcum and ascending colon on the right, and of the descending colon on the left. Tenderness of the hypogastrium may have its seat in the bladder, uterus, or rectum. General soreness of the whole abdomen exists eminently in peritonitis, also in enteritis, extensive disease of the mucous membrane, in rheumatism, and in some nervous or hysteric cases.

214. Severe pain in the rectum occurs in many persons without structural disease (*proctica simplex*. Good). Pain in passing fæces may arise from piles, fistula, sacks, fissures, scirrhus, and other organic changes in the rectum or neighboring parts. Partial tumors, projecting from the anus, are most commonly piles ; if annular or tubular, and retained when reduced, there is prolapsus ani ; if at a little distance from the anus, they may be boils, abscess or fistula.

215. The phenomena of tumor, hardness, or preternatural resistance, occurring in any of the anatomical localities above mentioned, may lead us to infer a structural change in the organs situated directly within them, as indicated above. But they may also arise from the growth of specific tumors of different kinds, or from tubercular deposits under the peritoneum and elsewhere. It is necessary to guard against sources of error arising from rigidity of the abdominal muscles, as well as from the spine, which is easily felt in thin persons. A mass of retained fæces will sometimes resemble a tumor, but is distinguishable by the circumstance that it can generally be moved or altered by continued pressure. It is important to recollect also, that when organs are enlarged, they are felt in situations beyond their natural boundaries.

Of symptoms derived from the Urinary system.

216. The urinary secretion in most healthy persons, is of a light yellowish color, and transparent. In disease it may be increased or diminished in quantity, and variously altered in its appearance and chemical qualities.

217. The urine is temporarily increased in quantity by the

effect of obstructed perspiration, by cold, by certain passions, by hysteria, and by the use of diuretics. It is permanently increased in diabetes. When the quantity is augmented, the appearance is usually pale and limpid.

218. The urine is sparing in quantity and high colored in appearance, in various fevers, inflammations, and dropsical affections. It may also have somewhat the same appearance in healthy persons, who drink little, or perspire much from heat or exercise, or who are under the influence of certain medicinal agents, particularly opium.

219. When the discharge of urine nearly or wholly fails, it is either not secreted by the kidneys, or being secreted, is retained, most commonly in the bladder. In this case the truth may be learned by the introduction of the catheter, or by the degree of prominence and want of resonance of the hypogastrium, which exists in this retention.

220. When urine fails to be secreted during successive days, it constitutes a dangerous symptom, and is apt to be attended by coma, or other cerebral affections.

221. When there is retention of urine in the bladder, it may arise from paralysis of that organ. But it is more commonly produced by some mechanical impediment which prevents the discharge, such as inflammation of the neck of the bladder, stricture of the urethra, calculus, enlargement of the prostate gland, prolapsus or retroversion of the womb, tumors in the neighboring organs, &c. In these cases there is uneasiness and pain, with frequent micturition, or fruitless attempts to evacuate urine.

222. When the discharge of urine is difficult, painful and insufficient, constituting dysury or strangury, there is most commonly irritation or inflammation about the neck of the bladder. This may arise from primary affection of the urinary parts, as in stricture and gravel, or from affections of neighboring organs, as in dysentery, hysteria, and sudden suppression of the catamenia. Some medicinal agents, as cantharides and turpentine, produce dysury.

223. An involuntary discharge of urine may be habitual or constant in paralysis of the neck of the bladder, and after injuries sustained in parturition and otherwise ; or it may be temporary,

as in the paroxysms of hysteria. In typhoidal fevers it constitutes a grave symptom.

224. Sediments in the urine may be produced by subsidence, or by decomposition in that fluid. When a sediment of solid particles falls to the bottom as soon as the urine is discharged, it is gravel. When a sediment is deposited, after some time standing, of a brick-red color, forming a coating to the vessel, it constitutes the lateritious sediment, and for the most part indicates a febrile or inflammatory state. A mucous, cloudy, floating sediment may exist in various and even slight forms of disease.

225. When the urine has an albuminous character, so that it coagulates by heat, or by the action of strong acids, &c. there is commonly, though not always, a granular disorganization of the kidney. Dropsy is a frequent concomitant of this symptom.

226. When the urine is excessive in quantity, with a sweet taste and smell, and affords sugar by evaporation, the disease is diabetes mellitus.

227. When there is pain and tenderness in the lumbar region, shooting downward toward the thighs, with nausea or vomiting, frequent micturition, numbness of the thigh and retraction of the testicle, we infer that there is inflammation of the kidney.

228. When, in conjunction with some of the foregoing symptoms, the urine deposits a sabulous or sand-like sediment, there is renal calculus, or gravel in the kidneys.

229. When there is acute pain and sense of weight in one lumbar and iliac region, without most of the symptoms which have been previously mentioned, and without disturbance of the pulse, we may suspect obstruction of the ureter by the passage of a calculus.

230. Pain felt in the glans penis, and unattended by disease in the part itself, is indicative of calculous affection in some part of the urinary organs.

231. When there is pain in the glans penis, with frequent desire to pass urine, attended by a sudden stoppage of the stream, there is probably calculus in the bladder, the existence of which can be rendered certain by striking it with a sound.

Of symptoms derived from the Generative system.

232. Of the various diseases which affect the organs concerned in the generative function, some are common to both sexes, and others are peculiar to each.

233. When after exposure to infection, there appears on the glans or prepuce a small roundish ulcer, with thickened edges and a hard base, not disposed to granulate or cicatrize, it is probably a venereal chancre.

234. If after exposure there occurs a continual discharge from the urethra or vagina, which is mucous, whitish and opaque, attended with pain and scalding in the passage of urine, the disease is, in all probability, gonorrhœa.

235. If, during the existence of chancre or gonorrhœa, a hard, distinct inflammatory tumor appears in the groin, it constitutes inguinal bubo.

236. If after gonorrhœa there remains a gleet discharge, attended with a diminished stream of urine, which is spiral or forked as it leaves the body, there is probably stricture in the urethra, and the doubt may be settled by the introduction of a bougie.

237. When there is swelling, heat and tenderness of the testicle, epididymis or tunica vaginalis, coming on after injuries or gonorrhœa, the disease is inflammation or orchitis.

238. A chronic tumor occupying the body of the testicle, and not yielding to remedies, is usually a fibrous tumor, scirrhous, or encephalosis.

239. An elastic tumor in the situation of the testicle, and semi-transparent, or capable of transmitting the light, may be considered hydrocele.

240. A tumor occurring first in the groin, or at the abdominal ring, and thence extending into the scrotum or labium pudendi, increased by expiratory efforts, and capable of being pushed back into the abdomen, and retained there by pressure ; is hernia.

241. A tumor occupying the posterior and lower parts of the scrotum, and feeling like a bunch of cords, but disappearing in a

horizontal posture, and returning in an erect, being also aggravated by pressure at the abdominal ring ; is varicocele.

242. In females, the interruption of the catamenial discharge may take place from amenorrhea, pregnancy, lactation, and finally from advanced age.

243. A discharge of coagulable blood from the vagina, if in the unimpregnated, indicates uterine disorder, the causes and nature of which may be various. But if it occur in those who are pregnant, it indicates for the most part separation of the ovum and threatened abortion ; or if it occurs in labor, malposition and premature separation of the placenta. Hemorrhage also occurs in many persons before the final cessation of the catamenia.

244. A white or yellowish discharge from the vagina, without exposure to the contagion of gonorrhœa, constitutes leucorrhea, and may arise from various causes.

245. A tumor descending into the vagina, in which the mouth and neck of the uterus, of their natural shape, can be distinguished by the touch, attended by a sense of weight and dragging in the lumbar region, by leucorrhea, and in advanced cases by mechanical stoppage of urine ; is prolapsus or procidentia uteri.

246. When, on examination, the mouth of the womb is found pressing backward upon the rectum, and the fundus directed forwards upon the neck of the bladder, thus obstructing the discharge from both those passages, there is anteversion of the womb.

247. When the fundus of the womb is felt pressing backwards upon the rectum, on examination made both by the vagina and rectum, and when the mouth of the uterus points forward, and can scarcely be reached by the finger, these symptoms being attended with retention of urine and fæces ; there is retroversion of the womb.

248. When there is pain and soreness in the region of the womb, aggravated by motion, and by an erect posture, but relieved by lying down, at the same time that there is great tenderness of the os uteri and general nervous irritability, the complaint has been called irritable uterus.

249. A smooth, firm, regular tumor, without sensibility, discovered in the vagina, and attached by a small neck to some part of the uterus ; is a polypus.

250. Various other tumors, and likewise ulcerative affections, indicate particular diseases, which will be found described under their respective heads.

Of signs derivable from the effect of Remedies.

251. In cases of obscure and difficult diagnosis, the physician is obliged to make up his opinion upon that side in favor of which the evidence preponderates ; and he will decide his course of action, according to the supposed character and tendency of the disease. But in all cases where doubt exists, it is important to watch the effect of the remedies which are resorted to ; not only with a view to decide on the propriety of their continuance, but likewise to obtain new light on the character of the disease.

252. When blood-letting in disease is borne with impunity, with diminution of the symptoms and reduction of the frequency of the pulse, without unusual tendency to syncope during the operation, we may infer that there is an entonic state of the system, and that depletives are the proper remedies. But if there is early syncope, prostration, increased frequency with diminished strength of pulse, without relief of symptoms, there is an atonic state, and depletion is prejudicial.

253. When wine and other diffusible stimulants are followed by increased heat, pain, restlessness, and force and frequency of the pulse, the disease is of too active a character to admit remedies of this class. But when after wine, &c., the pulse becomes slower, softer, the heat diminished, and the rest improved, especially in fever, there is an atonic state, susceptible of great advantage from these remedies.

254. When headache, vertigo, heaviness, &c. disappear after the action of an emetic, we may infer that the source of the complaint was probably in the digestive organs.

255. When spasmodic or convulsive affections cease on dividing the gums of a child, we are to conclude that the cause is dentition. If the same symptoms disappear when the stomach

and intestines are evacuated, and not before, we suppose the cause to be in the alimentary canal. If the symptoms disappear under the use simply of anti-spasmodics and tonics, we suspect hysteria or chorea. Lastly, if the symptoms continue in spite of all these remedies, we fear disease of the cerebral or spinal system.

256. When the strength, appetite and spirits improve permanently under a course of air and exercise, we may hope that there is no important visceral lesion, at least in an active state.

257. When a radical change of occupation, of residence, or of climate is followed by early convalescence, we may infer that the disease has been connected with the employment or situation of the patient.

258. The success or failure of certain specific remedies occasionally throws light on the nature of certain doubtful cases. This happens with sulphur in regard to scabies, mercury in regard to syphilis, &c.]

CHAPTER III.

ON THE CAUSES OF DISEASE.

[259. Life is manifested by certain actions of organized bodies, taking place under the influence of external agents, and under the effect produced by one part of the organized system on another.

Health is manifested by the same vital actions, as they occur when the organization is perfect, and the external influences by which it is surrounded are adapted to its nature.

Disease is characterized by some derangement in the vital actions. Its causes are to be looked for either in some inherent imperfection of the living body, or in some want of fitness in the influences to which it is, or has been subjected.

260. The organization itself is formed subject to certain conditions derived from those which produced it, independently of subsequent modifications which it may experience. Thus there may be congenital malformations, and different forms of disease, as tuberculous and syphilitic affections, originating in the foetal state. Or there may be only such a condition that the organization shall be peculiarly liable to disease of certain kinds, as is seen in the scrofulous constitution of some families, in which many individuals are attacked with the symptoms of this affection at different periods of life.

261. The influences by which the living body is surrounded may be unfitted to its natural wants. Some of them may be in excess, others deficient, others improper. The healthy action is then liable to become diseased action, and the natural structure of various tissues, instead of being renewed, to be replaced by diseased structure.

262. We might, therefore, divide the causes of disease into the internal and external, or the inherent and the accidental. The objections to this division are two. 1st. The constitutional or inherent tendencies of any individual towards any disease, must have arisen from the influence of external causes upon some of his progenitors ; so that every cause of disease might be found to have originated at some period in the influence of improper external agents. 2d. The difficulty of determining, in many cases, how far the tendency to a given disease may be innate, and how far acquired.

263. We shall, therefore, consider the causes of disease under the divisions of *general* and *specific*.¹

A *general* cause is one which is capable of producing various morbid affections, each of which may arise from many different sources. Thus a sudden chill may produce catarrh, pneumonia, or rheumatism, and all these diseases may arise from some other cause, although the application of cold is one of the most frequent.

A *specific* cause is one which, for the most part, is capable of producing only one disease, and that either absolutely, or in a great measure peculiar to itself. The poison of variola, for instance, can produce but one disease, and that disease is never found to originate from any other cause. Mercury produces salivation as its most remarkable and uniform morbid effect, but it may also produce some other affections, as erythema or tremor ; and on the other hand salivation, though almost peculiar to the influence of mercury, has occasionally been induced by other causes.

264. It is obvious that the distinction we have established is rather convenient than rigorously exact. Under general causes we shall include the hereditary tendencies, mechanical and chemical impressions, all the ordinary hygienic influences, which by

¹ The term *proximate cause* was formerly employed by authors to designate the primary change of the organism on which the symptoms depend. It was introduced by the nosologists, who considered the *symptoms* as constituting the disease. The change in the structure or mode of action thus designated, is evidently a *part* of the disease, of which it cannot therefore be considered the cause. (See § 47, 48).

their excess, deficiency, or deterioration, become causes of disease, and all substances which simply stimulate or inflame the part to which they are applied. Under the head of specific causes, we shall include such poisonous agents as induce any special well-marked morbid condition other than mere inflammation or irritation, including the contagious principles, and such parasitical animals as are propagated from one individual to another.

General causes.

265. These may be divided into the *predisposing* and *exciting* causes.

The predisposing causes of disease are all those influences, whether hereditary and internal, or accidental and external, which render the system susceptible of any morbid condition.

266. The exciting causes are all those influences, which by their immediate impressions, induce any disease in the systems susceptible of this disease.

267. Every disease must have an exciting cause, however insignificant this may be, for as it necessarily commences in the disturbance of some living action, or the derangement of some tissue, and as this change must be induced by some impression, that impression which is followed by the first morbid alteration is evidently the exciting cause.

268. A predisposing cause is not always required. Some exciting causes are so powerful in their nature, as for instance, many noxious substances, when introduced into the stomach or the lungs, that they produce disease in all cases where they are applied.

269. We may illustrate the general distinction between predisposing and exciting causes by the following example. A hundred individuals being exposed to a sudden change of temperature, especially to moisture and cold united, there will result as a consequence of this exposure, a number of acute affections. One will have catarrh, one pneumonia, one rheumatism. The change of temperature is the exciting cause; this acted on all. But there was some special reason why one should be affected

with one disease, a second with another, and a third still differently. This reason constitutes the predisposing cause, the existence of which we necessarily infer from its effects.

270. It is impossible, in many cases, to say in what the predisposing cause of disease consists. Observation has, however, discovered a connection between certain circumstances and the tendencies which they produce in the system to the development of different morbid affections. We shall commence with the exposition of the most ordinary and best ascertained of these circumstances.

271. Every individual brings into the world an organization differing somewhat from that of every other. But there is one distinction recognised by even the most ordinary observer, namely, that of robust and feeble organizations, or constitutions. A well-developed frame, large and firm muscles, a well-injected surface, are the prominent physical traits of the robust constitution ; imperfect development, small and flaccid muscles, and deficient capillary circulation, shown by paleness of the surface, characterize the opposite condition.

272. It is not clearly shown which of these two kinds of constitution is most exposed to different *acute* diseases.

It may be stated in general that persons of feeble organization are most liable to be affected by those external influences which lead to some of the most frequent *chronic* affections. Thus they are more apt to suffer from dyspepsia, in consequence of errors in regimen, and from derangement of the nervous system in consequence of its over exercise. They become tuberculous under influences that others endure with impunity.

273. Independently of this general division, certain types of constitution called *temperaments* have been supposed to exert great influence in predisposing to certain diseases. Much that has been believed upon this subject was doubtless the result of theory rather than observation. The best established fact is the tendency of persons of the *lymphatic* temperament—those in whom the coloring principles are deficient—to tuberculous or scrofulous diseases. Even this, however, has been disputed. It is to be remembered that there are families and even nations in which the natural type resembles that of the lymphatic temperament,

without any special development of the tendencies supposed to belong to it. We think that a distinction may be recognised between the fair complexion which belongs to one of the healthy varieties of the species, and that in which the deficiency of coloring principles results from poverty of organization. In the first there is generally a yellowish tinge in the hair, a fair but not a pale skin, and frequently a robust frame; in the second the hair is of a dull and more or less white aspect; the skin of a dead white color, and the organization feeble.

274. Some peculiarities of form have been thought to predispose to special diseases. Persons with short and thick necks appear to be peculiarly subject to apoplexy. The narrow-chested have been thought and are still generally considered more prone than others to consumption. The results obtained from the measurement of the chest in many tuberculous patients at the hospital of La Pitié in Paris, were opposed to this opinion. The weight of evidence seems to us in its favor.

275. It is certain from multiplied observations that the tendency to some diseases is transmitted from one generation to another. That which is known of some may be true of many others, but we have only detected some instances in which the fact of transmission is too obvious to escape notice.

Congenital peculiarities, as the existence of supernumerary members, and other malformations, are often hereditary, both in the human species and inferior animals.

An hereditary tendency to cataract has been found in some families. It was distinctly observed by M. Maunoir in some of the cases which fell under his observation. The same remark has been made respecting deafness.

Various instances are on record in which there was perpetuated for two or three generations, and among different members of the same family, a disposition to hemorrhage from the slightest causes.

The tuberculous affections, including scrofula and especially tubercular phthisis, are eminently transmissible.

Apoplexy seems occasionally hereditary, and gout and insanity are well known to be so in many instances.

Emphysema was shown by the investigations of Dr. James

Jackson, Jr., to be frequently transmitted. Some chronic affections of the skin, cancerous diseases, and the tendency to nervous affections are thought to be hereditary.

Variola and syphilis are not unfrequently observed in infants soon after birth, but this fact may be considered as an instance of contagion.

276. The sex of an individual determines or disposes to a certain number of diseases. Besides those which specially affect the reproductive system, some others are more apt to attack one sex than the other. Gout and stone are most frequently found in males; from their frequent exposure they are most liable to rheumatism and acute inflammation of the lungs or bronchia. Females, on the other hand, are more subject to chorea and other nervous affections, and to tubercular phthisis.

277. Age also predisposes to certain affections, as in early life to derangements of the digestive system, convulsions, the different scrofulous affections, and in later years to organic disease of the heart and arteries, to affections of the substance of the brain, to scirrhus and many other organic lesions. The epochs of dentition, of puberty, of cessation of the menses are peculiarly liable to diseases of various nature.

278. The predisposing causes we have hitherto mentioned are inherent in the individual. We proceed to mention those arising from the external agents to which he is subjected.

279. One of the most general predisposing causes is climate. It is true as a general fact that the inhabitants of hot climates are more subject to acute and chronic affections of the alimentary canal and the liver than those of colder regions, and the latter in their turn are most exposed to affections of the lungs. Tetanus is much more frequent in hot than cold climates. But many of the diseases peculiar to hot climates arise from the generation of specific poisons, from the action of heat and moisture on organized matter, or are due to peculiar *exciting* causes, as exposure to violent heat, noxious animals, etc. Season exercises a similar general influence. Affections of the digestive system are more common in the summer and autumn, and those of the respiratory system in the winter and spring.

280. Circumstances of locality influence more or less the pre-

disposition to disease. Mountainous regions, from the purity of the air, and especially from the active habits they induce, are favorable to health. Fertility of soil seems to favor the development of the human race as well as that of other animals, but it leads to indolence with its necessary unfavorable consequences on the health. Some of the inland parts of the United States produce a more vigorous race of men than the sea-board. To what precise circumstances this is owing, and whether any particular diseases are more prevalent in one of these situations than the other, has not been demonstrated.

281. There can be no doubt that the nature of the habitual alimentation has some influence on the tendency to disease, but we have little definite knowledge on this point. An insufficient nourishment beyond all question predisposes to tuberculous affections, and probably to the reception of some contagious or infectious diseases. Over nourishment leads in some constitutions to the formation of a plethoric habit, in which there is apt to be a tendency to cerebral congestion and hemorrhage. But the usual cause of plethora is perhaps less in the quantity and quality of the food than in the activity of the nutritive function. The fluid ingesta also may predispose to disease, as is seen when the exciting causes of different affections act upon constitutions under the effect of the habitual use of alcoholic stimuli.

282. Besides the influence of climate and the general character of localities, some special circumstances connected with every individual residence must have a degree of influence on the state of health and tendencies to disease. The degree of agency of each of these circumstances cannot be exactly appreciated. The action of light is doubtless important to the animal as it is to the vegetable system. Its exclusion is one of the unfavorable circumstances connected with a residence in mines, cellars, and the narrow streets of crowded cities. A damp and cold state of the atmosphere is another frequent evil in such residences, as is also the want of proper ventilation, which permits the accumulation of various effluvia. These circumstances, probably combined with some others, tend to the development of disease. Typhoid fever is common in those newly arrived in great cities, epidemics usually are more prevalent and fatal in

them for similar reasons ; and the whole character of the organization is obviously modified from long subjection to these among other influences. Insufficient clothing may produce, in a similar manner, the susceptibility to exciting causes or actual disease.

283. Habitual over exertion of some functions produces a tendency to disease. This is especially seen in the nervous and reproductive systems, the over action of which has a powerful debilitating influence, and thus favors the action of some exciting causes.

284. The effects of too little exercise of a function are seen particularly in the influence of long-continued muscular inactivity. Under this condition the digestive system will suffer from an exciting cause, which it would have borne with impunity while the habits were active.

285. The depressing passions dispose the system to the reception of some diseases, and may be the direct cause of others. Cholera is thought to attack those who most apprehend it, more frequently than others. The same remark is probably applicable to some febrile affections.

286. The *exciting* causes of disease include almost every influence to which the system is subjected. For when there is a strong predisposition to any morbid affection, the slightest impulse, such as would otherwise be perfectly innocent, may be sufficient to call it into action. In point of fact, if we carefully investigate the history of acute diseases, we shall find in the majority of cases, that it is impossible to specify distinctly any exciting cause. Such, however, is the natural desire to find a reason for every thing, that the mind of a patient has usually fixed upon some circumstance, to which he attributes his complaint, and this is very often assigned merely in compliance with the popular belief ; and occasionally to disguise a constitutional defect, which it is painful to admit. The consumptive usually attribute their disease to a cold ; the humpbacked almost always speak of having had a severe fall.

287. Some of the exciting causes, however, are too well determined to be disputed. Among them are

Sudden alternations of temperature. The most common effect, perhaps, of this exciting cause is inflammation, especially of the

mucous membrane of the respiratory organs, including that of the nares and the conjunctiva, or of the substance of the lungs, or the pleura, in cold climates, and of the gastro-intestinal mucous membrane in warm ones. Rheumatism is another frequent consequence ; neuralgia is occasionally induced. Spasmodic cholera appears to be sometimes induced by the same cause, or by the united impression of moisture and cold.

288. The action of intense light may produce disease of the retina or headache. The direct solar rays of a hot noon sometimes occasions a dangerous or fatal attack of the *coup de soleil*, which probably consists in cerebral congestion or apoplexy. Great degrees of heat occasion different grades of inflammation in the part on which their action is exerted, or completely destroy their vitality or their organization. Extreme cold may reduce the powers of the system, and perhaps occasion death without any other cause, or it may congeal the fluid parts of the body. Some electrical states of the atmosphere excite rheumatic and neuralgic pains in many patients. Intense sounds may be the cause of deafness, or of cephalalgia. Nausea or syncope may be excited by disagreeable odors.

289. Mechanical injuries may induce besides physical lesions, inflammation, neuralgia, or scirrhus, according to the part affected, and the individual predisposition. Similar consequences may ensue from the action of various acrid or stimulating substances. Distortions arise from certain attitudes long continued, especially during the growth of the system, and in feeble constitutions. Febrile paroxysms are sometimes brought on by the introduction of the bougie ; epilepsy and neuralgia may be owing to the presence of a tumor, or similar cause.

290. The substances introduced into the digestive canal are frequent exciting causes of disease. They may induce inflammation of the mucous membrane lining the alimentary canal, or spasmodic action, as in vomiting, in cholera, in colic, or they may increase the natural secretions, as in diarrhœa. The impression of a large quantity of cold water upon the stomach, when the body is much heated, is sometimes followed by sudden death. But in addition to these direct effects on the digestive organs, almost every acute disease may either be aggravated by,

or first openly developed under the influence of improper substances, acting upon the digestive system. The presence of worms may cause various functional derangements.

291. The introduction of foreign substances into the system, by absorption through the skin, may occasion inflammation of the vessels or other disease.

292. Substances conveyed into the lungs with the air, may be the exciting as well as the predisposing causes of disease. The dust raised by shaking a carpet or making a bed, and the presence in the air of powdered ipecacuanha are not uncommon exciting causes of asthma.

293. Impressions upon the brain and nervous system sometimes act as exciting causes.¹ We have known persons to fall down in apoplexy and in angina pectoris, under the influence of a paroxysm of anger. Syncope and hysteria are frequently produced by moral causes. Mania, abortion, and other morbid conditions are frequently brought on in the same manner. Jaundice and erysipelas are sometimes brought on by a fit of anger, or other strong excitement of the passions. Chorea is frequently excited in children, by the sight of others affected by it.

294. Violent or long-continued exertion of the mind or body may be the exciting cause of different affections, especially those of a febrile character. Any severe bodily shock may have similar effects.

295. One of our most distinguished physicians has remarked, in repeated instances, the occurrence of hæmoptysis after exercise during the prevalence of a strong wind.

¹ Andral cites from another author the case of an old man, who, on hearing while seated at table, the news of Napoleon's landing in France, in 1815, rose suddenly and exclaimed,

"Le voilà donc connu ce secret plein d'horreur!"

and immediately fell in an apoplectic fit, which soon proved fatal. [Clin. Med. Tom. V. p. 272.]

The story of the aged father, who died on hearing that his two sons were proclaimed conquerors in the Olympic games, is familiar to many of our readers. Less impressive, but equally instructive, is the story related of an individual in a neighboring State, who expired from the effects of emotion, on hearing of his appointment as town clerk. The immediate cause of Mr. Hunter's death was the excitement produced by some petty cause of irritation.

296. The suppression of habitual evacuations is sometimes followed by disease. But this suppression is probably very often an effect of the disease which it is supposed to cause.

Specific causes.

297. These may act the part of predisposing, or of exciting causes, or of both. These different modes of action are so difficult to distinguish in very many cases from each other, that we shall not use them as the basis of classification.

298. Specific causes, as we have stated, can produce in general but one diseased condition, and that condition can be produced by no other cause, or at least by a very limited number. We do not, therefore, include among them those mechanical or chemical agents which induce simple inflammation and its consequences, or act by their physical violence to derange or destroy the texture of parts.

299. Specific causes, to produce their effects, must be introduced into the system. They may be conveyed into it by the atmosphere, by local application to the external surface, or by being received into the passages which communicate externally. When once introduced, they may excite disease, which is capable or incapable of transmission from the individual to another. They may be divided, therefore, into the *contagious* and the *non-contagious*.

300. We shall first consider the non-contagious specific causes. Various substances of mineral origin may be ranked in this class.

Mercury induces a train of symptoms not absolutely identical, but peculiar to itself. Among these the most familiar is ptyalism in all its grades; an affection which, if sometimes arising with similar symptoms from other causes, is nevertheless sufficiently characteristic to be considered as specific. The state of erythema and the tremor mercurialis are also peculiar effects of this mineral.

301. *Lead* produces a peculiar and well marked affection called in general the painter's colic, in those who have been exposed to its influence. This acute complaint is not unfrequently followed by a distinct form of paralysis, most commonly

affecting the upper extremities. This and some rarer affections are not always preceded by colic.

302. Workmen in copper are liable to a special form of colic attended with diarrhœa. We are less familiar with the *special* effects of many other metallic substances in producing disease. Many of them, however, are capable of exciting violent inflammation and thus acting as poisons.

303. The laborers in coal-mines are subject to an affection of the lungs resembling melanosis in appearance, and probably due to the accumulation of carbon introduced by respiration. Iodine appears to exert a singular power over absorption, which is said to have sometimes led to wasting of the mammæ or the testes during its employment as a remedy.

Among the gases some cause asphyxia by taking the place of the oxygen required for the arterialization of the blood. Others produce a peculiar train of symptoms. The most extraordinary of these are the phenomena caused by the inhalation of the nitrous oxyde, or exhilarating gas.

The inhabitants of regions abounding in lime appear to be especially subject to urinary calculus. The two last causes can hardly be considered as strictly specific, though approaching this character.

304. Among the vegetable principles which act powerfully upon the system, the narcotics are remarkable by inducing a peculiar, though not absolutely uniform series of effects.

The spasmodic movements produced by strychnia, and the singular depressing influence of some of the sedatives, as hydrocyanic acid and digitalis may entitle these agents to be ranked among specific causes. Alcohol, a product of vegetable fermentation, produces two effects peculiar to itself. The first is delirium tremens; the second spontaneous combustion, a phenomenon which has been observed too often to leave any doubt as to its occurrence.

The line of distinction between these and other active vegetable principles, each of which differs somewhat in its mode of action from others cannot be rigidly demonstrated.

305. Among the specific causes of vegetable origin is one of the most desolating agents which destroy the human race—ma-

laria. This atmospheric poison is generated by the action of heat and moisture on vegetable matter at a certain stage of decomposition. It is not identical with putrid effluvia; it cannot be isolated and submitted to examination; but its existence is known by its effects.

306. As malaria requires for its production a certain degree of heat, it is unknown in the highest latitudes, and comparatively frequent in the hot climates. It is stated on good authority, however, to be generated in the latitude of Stockholm, which is nearly 60° .

307. As it requires a certain degree of moisture, it is more apt to be found in low than in elevated situations; especially in the vicinity of collections of water which alternately cover and leave exposed the neighboring region. For the same reason the improvements in the drainage of cultivated districts tends to diminish the generation of malaria. If a wet soil, however, which has been exposed to the heat of the sun be overflowed, and remain permanently covered with water, the formation of malaria is frequently checked. In this case the effect is owing, doubtless, to the abstraction of heat, and perhaps of the influence of the air.

308. The most distinct and remarkable effect of malaria is the production of paroxysmal fever; either of the intermittent or remittent forms. No other cause is known to be capable of producing these diseases, although exacerbations and remissions or even intermissions are occasionally observed in other affections. Beside these more ordinary effects of malaria, others are also liable to be produced. Intermittent headache and neuralgia are among the most common of these; organic disease of the spleen, sometimes of the liver and pancreas, often follow the more acute affections, and a general state of ill health is induced in many cases where no express lesion can be pointed out.

309. One of the most peculiar circumstances connected with malaria as a cause, is the length of time which may elapse between its application and its effects, frequently extending to many months. Individuals who have been exposed to the source of disease in a malarious district may therefore experience its first symptoms at a great distance from this source, and in a region perfectly healthy.

310. *Endemic* causes of disease may usually be traced to some of those sources which have been or will be separately described. Thus malaria will cause fever in a given district; the character of the soil may lead to calculus by affecting the water of a certain region; and from some similar cause the goitre and cretinism prevail in certain mountainous situations.

311. *Epidemic* diseases, independently of those propagated by contagion, are produced by causes the nature of which is utterly unknown. The investigations into the causes of influenza and especially of cholera have succeeded very well in establishing that they did not consist in many things, but have left us entirely uncertain as to that in which they do consist. The same remark may be extended to what has been called the *atmospheric constitution*, or the general cause which impresses a special character on the diseases of a given period. This is independent of those conditions of the atmosphere which we appreciate by physical instruments.

312. *Specific causes of animal origin.* These are, 1st, Decomposing animal matter. Its agency in producing disease is not well determined, but it has been thought to cause malignant fevers. 2. The venomous secretions of certain animals. 3. The flesh of some animals at particular seasons or acting on some idiosyncrasies. 4. The products of diseased action. The last constitute the division of contagious specific causes.

313. The effects of decomposing animal matter have been a subject of much dispute. Being never accumulated in such quantities as vegetable matter, we have not the same opportunity of witnessing its effects upon the great scale. It is certain, however, that the effects of animal decomposition, as observed in large butchering establishments and in dissecting rooms, by no means correspond with the prevailing belief as to their dangerous tendency. Parent Duchatelet, in his report to the government on the removal and employment of the carcasses of horses, remarks that the workmen in the establishments where these animals are slaughtered, consider the emanations to which they are subjected as actually favorable to their health. He adds that they carry in their appearance the marks of the most blooming health, and that all the facts seem to show that their occupation

is not unfavorable to longevity. Yet at Monfalcon, the largest of these establishments, the effect of the effluvia on the senses of a stranger is overwhelming, as we have ourselves experienced ; the soil is reeking with putridity, and the winds carry the odors to the distance of miles from the place of their origin.

In the dissecting rooms it is not usual to observe any morbid effects from the decomposing matters, beyond an occasional disturbance of the digestive system, of little moment, and the inflammatory consequences produced by their introduction into wounds. The malignant pustule and perhaps some other affections originate not from decomposing matter as such, but from a peculiar diseased state of the body from which they are received.

314. The venomous animals are found principally among the reptiles and insects. The poisonous effects of the flesh of certain birds, especially the American partridge, is probably owing to the nature of their food at the season when these effects are produced. Some of the mollusca not unfrequently produce urticaria and other troublesome symptoms. Attacks resembling the effects produced by acrid poisons following the use of pork have been observed. Several cases of this kind were reported in the *Edinburgh Medical and Surgical Journal* for October, 1836.

315. The malignant pustule, originating from the dead bodies of animals in a certain diseased condition, and developed in the human subject, is capable of being communicated by inoculation. This affection, therefore, forms a natural transition to *contagious* specific causes. Contagion may be one among several causes of a given disease, or it may be the only cause. Examples of the first are seen in different diseases which, requiring for their original production the union of various influences, become afterwards capable of communication from one individual to another. We proceed to mention some of these affections.

316. Under certain circumstances, a peculiar febrile disease is generated by the living human body, which disease is afterwards susceptible of transmission, or contagious. This is the true *typhus*, the jail-fever, the camp-fever, as it has at different times been called. The circumstances under which it is first generated commonly consist in the accumulation of large numbers of indi-

viduals within a small space, which is not subjected to proper ventilation. Want of cleanliness, bad food, or the depressing passions, may assist in the efficiency of these principal causes. Having once been generated it appears to be susceptible of propagation through the atmosphere, with an activity which varies in different cases.

317. The contagious nature of dysentery, a disease which is commonly produced by other causes, is not so clearly established, though believed in by many observers.

318. Several local affections, ordinarily of spontaneous origin, may be subsequently propagated by contagion. Such are purulent ophthalmia, aphthæ, mumps, tinea capitis, some forms of eczema, and framboesia or yaws.

319. Diseases originating in other animals may in some instances be communicated to man. Of this nature are hydrophobia, the vaccine disease, and perhaps glanders.

320. In all the affections capable of reproducing themselves hitherto noticed, contagion is not the only source from which they are observed to originate. It is obviously by an extension of the term, that we include them among the diseases produced by specific causes. The general agencies which occasionally give origin to them, may under other circumstances give rise to very different diseases, whereas the contagious principle developed in these morbid states can reproduce the same series of symptoms and no other. But there is a class of diseases, which, though at some period they must have arisen from the action of other causes, are never known to arise at the present time except from intercourse, direct or indirect, with those already affected.

These diseases are all accompanied by, or consist in, an affection of the skin or of some of the mucous membranes.

Among them are three of the most common eruptive fevers,—variola, scarlatina, and rubeola.

321. Variola propagates itself through the atmosphere, or is introduced into the system by inoculation. The preliminary symptoms commonly appear about the eleventh or twelfth day from the time of exposure in the former case, and the eruption about the fourteenth. The eruption in some instances, however, appears as early as the seventh day and as late as the end of the

third week. In the inoculated small-pox the eruption appears about the eighth day.

322. The latent period of scarlatina varies from a few hours to several weeks.

323. Rubeola manifests its first symptoms from the fifth to the fourteenth day. The disease has sometimes been produced by inoculation; in this case the symptoms of fever appeared about the seventh day.

324. The other diseases are local and not of a distinct febrile nature. They all appear to require for their propagation immediate contact with the individual suffering from them, or with some tangible product of the diseased action. They differ in this respect from the eruptive fevers just mentioned, all of which may be conveyed by the atmosphere.

325. Syphilis is one of the contagious diseases never known at present to originate except from contagion. Chancre usually appears in from three to six days after exposure. It requires the application of the poisonous matter in general to a mucous membrane or the surface of a wound, but occasionally produces its action through the epidermis.

326. Gonorrhœa is another affection propagated by contagion, and not apparently of spontaneous origin. It may be, however, simulated by simple inflammatory affections arising from want of cleanliness and similar sources of irritation. Its latent period is from the second to the eighth day.

It has often been a question whether the poison of these two maladies is or is not identical. From the experiments of M. Ricord, performed at the Venereal Hospital of Paris, it appears that the pus of gonorrhœa is not capable of producing chancre, except in a limited number of cases in which there exist chancres within the urethra.

327. Scabies is only known as the result of contagion, and one of the forms of molluscum has not been observed to arise from other causes.

Finally, the insects which habitually infest the exterior parts of the human body are usually if not always propagated from one person to another.

Such is an outline of the principal causes which produce disease. The divisions we have established, though obviously existing between the most distinctly characterized causes of each class, yet so run into each other at different points that they must be considered as convenient, rather than strictly philosophical.]

CHAPTER IV.

ON THE TREATMENT OF DISEASE.

[328. THE foundation of a judicious and effectual treatment of disease, depends on a correct understanding of its diagnosis. Until the nature of a malady is duly comprehended, all attempts at its removal will be merely tentative and empirical. By the term diagnosis, we understand that kind of knowledge by which one disease is distinguished from another. But in the practical application of this word, we find it necessary to distinguish not only the specific nature of the disease, but also the collateral circumstances which affect the particular case submitted to our care. These circumstances are found in the constitution and state of the patient, and his ability to bear the effect of remedies ; in the stage of the disease, in its severity, its character, which may be inflammatory, or typhoidal, and on this account require opposite modes of treatment ; in the tendency of the prevailing epidemics, if such happen to be in existence at the time ; and in the accidents or coexisting symptoms not necessary to the disease.

329. When the practitioner has become possessed of a proper knowledge of the case in the foregoing particulars, he should then weigh the following considerations : 1. What is the probable tendency of the disease, if left to itself. 2. Does it require active remedial interference. 3. Is it curable, or capable of being arrested by remedies, and what are these remedies. 4. If it is not curable, can it be palliated by medical treatment. 5. Is the safety of the patient, or the chance of prolonging his life, affected by the use of remedies. 6. Has the time arrived for the employment of remedies, or is there danger in delay. 7. If the

remedies proposed be effectual, are they in themselves productive of any evil, and is this evil greater or less than the existing disease. 8. Are any of the causes of the disease still operating, and are they of a nature to admit of being removed.

330. The first consideration, in regard to the tendency of a disease, is one of the highest importance, since an attention to this point may prevent us from neglecting our patients in grave or dangerous affections, as well as from annoying them with remedies in slight and unimportant cases. A simple discharge from the ear may terminate in deafness, and an ulcer of the cornea in loss of sight. A protracted intermittent at length undermines the health, and neglected syphilis ends in a miserable death. Cases like these require prompt and energetic interference on the part of the practitioner. On the other hand, diseases which are light in themselves, and tend to recovery, as varicella, hooping cough, mild catarrh, &c., if they occur in healthy subjects, and are not complicated with graver affections, may safely be left to themselves, or treated with the mildest remedies and cautionary measures.

331. The second practical question which regards the necessity of active remedial interference, is connected with the same considerations as those which are involved in the first. But it is here necessary to decide, not only on the danger or safety of the disease, but also upon the competency of remedies, since it would be improper to inflict the inconvenience of energetic medicinal treatment upon persons far gone in a fatal disease, or suffering an incurable one. In such cases our power is limited to palliatives, and these not always effectual.

332. In deciding on the third question, which relates to the curability of diseases, and the selection of means by which a cure is to be effected, the physician relies, first, on the testimony of others, and second, on his own experience. The testimony of others furnishes the only ground on which physicians begin to practise, and with most individuals it constitutes an occasional authority throughout the whole of life. This authority frequently leads to a more sanguine reliance on the power of remedies, than is afterwards sustained by an extended personal experience, because many of the writers on therapeutics have presented us only

the favorable side of their practice, preferring to build up a temporary reputation, rather than to promulgate unpopular truths. We are not able to select the good from the bad, and the true from the exaggerated, until by our own observations we are qualified to pronounce judgment on the value of any prescribed remedial course. And our conclusions in this respect should be built not upon brief impressions and hasty generalizations, but upon attentive and careful inferences, drawn as far as possible from numerical results.

333. In the next place we are to consider how far it is in our power to palliate or diminish sufferings, which we are not competent to remove. Here is a most important field for medical practice, and one which calls for an exceedingly large portion of the time and efforts of every physician. When we consider that most diseases occupy, from necessity, a period of some days or weeks, that many of them continue for months, and some for years, and that finally a large portion of mankind die of some lingering or chronic disease, we shall see that the study of palliatives is not only indispensably called for, but really constitutes one of the most common, as well as the most useful and beneficent employments of a medical man.

334. There are many cases in which we are able speedily to arrest or break up the disease, by the interposition of remedies, as by opium in colic, mercury in syphilis, blood-letting in certain cases of croup, &c. But in other cases, which cannot be thus arrested, it is generally admitted that the safety of the patient may be promoted and his life prolonged, or perhaps the duration of the disease abridged, by remedial treatment. This is believed to be true in regard to evacuations at the commencement of febrile and inflammatory cases, and of a multitude of other remedies, applicable to various diseases. But on this subject it is extremely difficult to obtain decisive and satisfactory knowledge. It is a question which can only be settled by extensive numerical observations, most of which yet remain to be made, although we have valuable contributions of this kind on a few subjects.

335. The appropriate time for the employment of remedies is a subject of much practical importance. Some curative agents can with propriety be applied only at the outset of diseases, and

if this opportunity is lost, the remedies are afterwards less effectual, or perhaps even injurious. This remark applies to blood-letting in many acute diseases. In the early stage it may be productive of great good, in the middle stages it is of less benefit, and perhaps of none, and in the later stage it is often injurious and inadmissible. On the other hand, the use of wine and opiates, which are strongly contra-indicated in the first stage, are afterwards not only tolerated with impunity, but in certain cases are taken with decided benefit.

336. In the employment of remedies, both curative and palliative, every prudent practitioner feels bound to consider the effect and tendency of the remedies themselves, and to inquire whether the means employed to counteract the existing disease, are in their turn likely to produce evil to the patient, and if so, whether the evil will be greater or less than the disease for which they are administered. For example, the healing of an old ulcer or issue may be followed by affections much more serious in their nature than those which have been removed. Many remedial agents, if employed in excess, or with injudicious frequency, result in permanent injury to the patient. The habitual use of active cathartics, although attended with temporary relief, seldom fails to bring on or aggravate a permanent state of costiveness. Large and often-repeated blood-letting tends to the establishment of debility and anemia in some subjects, and of reaction or of plethora in others. Opium and the other narcotics are in themselves, if abused, fertile sources of disease. On account of these and similar circumstances, much discretion is needed on the part of the physician, to enable him to judge rightly of the kind of treatment which it may be necessary or proper to employ, of the degree and amount of that treatment, and of the requisite length of time for its continuance. Medical practice, in many cases, points to the direct substitution of a positive good for a positive evil ; but unfortunately, in other cases, it admits only of a choice between evils ; and it is in these instances that not only the knowledge and experience, but also the judgment and common sense of the practitioner, are put in indispensable requisition, to lead him to a correct issue.

337. But opportunities for doing good in medicine are not

limited to the effect of specific remedies, nor to the application of drugs and instruments. The enlightened physician surveys the whole ground of a patient's case, and looks for the presence of any deleterious agents, and unremoved causes of disease. Many morbid affections, which have resisted powerful remedies, cease speedily on the discovery and removal of their sustaining cause. A child is often sick from an error in the diet or habits of the nurse or mother. An individual frequently suffers from the quality and quantity of his habitual food or drink, or of his exercise, air, occupation and clothing. A patient dies of phthisis under the influence of a damp northern climate, who might have enjoyed long life in a southern ; and on the other hand, men fall victims to a fever and ague at the south or west, who would have escaped from disease by a timely removal to the north. It is as necessary, in many cases, that the physician should inquire into the situation, diet, habits and occupation of the patient, as that he should feel his pulse, or explore his chest ; and it often happens that the state of the one cannot be corrected until the others have been previously set right.

338. Diseases may be divided, with regard to their duration, issue and susceptibility of relief, into three classes.

1. Curable diseases.
2. Self-limited diseases.
3. Incurable diseases.

339. In the first class, or *curable diseases*, are included those morbid affections, which we have reason to believe are under the control of remedies, so that they can be arrested, or abridged in duration. These affections are exceedingly various in their nature, and in the treatment they require. For the most part, acute inflammatory diseases are relieved by depletion and the antiphlogistic regimen, more or less actively enforced, according to their degree of violence. Spasmodic diseases, on the contrary, are influenced by opiates, antispasmodics, tonics, and the removal of the cause, when it can be discovered and remedied, as in cases of dentition, indigestible food, &c. Sympathetic diseases are to be addressed through the medium of the organ or texture which is primarily affected. Thus a headache, depending upon disordered stomach, and a hysteric affection upon

irregularity of the catamenial function, are to be treated under this view of the subject. Hemorrhages and other discharges are to be dealt with according to the nature of the case, by removing the cause, if accessible, in its character by diminishing vascular activity, or by quieting the discharging surfaces with opiates and astringents. There is another class of diseases which are controlled chiefly by specific remedies, being in some instances suspended, and in others radically removed. Thus gout is relieved by colchicum, and intermittents by quinine and bark. Scabies is cured by sulphur, syphilis by mercury, goitre, as we are informed, by iodine, and various chronic eruptions by corrosive sublimate and arsenic. The foregoing statements will serve to illustrate not only the power of medicine, but also the great variety of grounds which should govern medical practice, and the importance of an intelligent diagnosis, as well as a knowledge of therapeutic means.

340. In the second class, or that of *self-limited diseases*, it is intended to include those which receive limits from their own nature, and not from foreign influences, and which, after they have obtained foothold in the system, cannot, in the present state of our knowledge, be eradicated or abridged by art;—but to which there is due a certain succession of processes, to be completed in a certain time; which time and processes may vary with the constitution and condition of the patient, but are not known to be shortened, or greatly changed by medical treatment.¹

341. If the inquiry be made, why one disease has necessary limits, while another is without them, the reply is not uniform, nor always easy to be made. Sometimes the law of the disease may be traced to the nature of the exciting cause. Thus the morbid poison of measles, or of small pox, when received into the body, produces a self-limited disease; but the morbid poisons of itch and syphilis may give rise to others which are not limited, except by medical treatment. Sometimes also, the cause being the same, the result will depend on the part, organ, or texture

¹ See a Discourse on Self-limited Diseases, read before the Massachusetts Medical Society, in 1825, by J. Bigelow, M. D.

which is affected. Thus if we divide with a cutting instrument the cellular or muscular substance, we produce a self-limited disease, which, although it cannot by any art be healed within a certain number of days or weeks, yet in the end gets well spontaneously, by one process, if the lips are in contact,—and by another and slower process, if they are separated.¹ But if, on the other hand, we divide a considerable artery, we have then an unlimited disease; and the hemorrhage, or the aneurism, which follows, does not get well, except through the interposition of art.

342. Under the simple self-limited diseases, we may class *hooping cough*. This disease has its regular increase, height and decline, occupying ordinarily from one to six months. During this period, medical treatment is for the most part of no avail. After hooping cough has reached its climax, change of air appears to hasten convalescence. Also if inflammatory, or other morbid affections, supervene upon the pure disease, they may become subjects for medical treatment. With these exceptions, hooping cough appears to be a self-limited disease.

343. Most of the class of diseases usually denominated eruptive fevers, are self-limited. *Measles*, for example, is never known to be cut short by art, or abridged of its natural career. *Scarlet fever*, a disease of which we have had much and fatal experience during the last ten years, is eminently of this character.

344. *Small pox* is another example of the class of affections under consideration. It may, at first view, appear that inoculation has placed artificial limits to this disease. But it must be recollected that inoculated small pox is itself only a milder variety of the same disease, having its own customary limits of extent and duration, which are fixed quite as much as those of the distinct and confluent forms of the natural disease.

345. *Erysipelas* is an eruptive fever, having strong analogies with those which have been detailed. It is not certain, that art can very materially affect either the duration or the extent of this malady.

¹ In one case the disease is a solution of continuity; in the other, a solution of continuity and contact.

346. To the foregoing enumeration, may be added some of our continued fevers, particularly the typhoid or *dothineritis*, which, of all these affections, has been the most thoroughly investigated. It is now generally conceded that this disease is not capable of being jugulated or broken up by remedies. We have, however, some good authorities for believing that its violence may be mitigated, and the safety of the patient increased, and the disease made shorter, by medical treatment. The subject is one which invites farther observation.

347. Acute rheumatism, as it ordinarily appears among us, is a disease susceptible of great palliation, but of little abridgment. This morbid affection often begins to discover itself in a limited and comparatively unimportant part of the system. From thence, in grave cases, it travels by successive migrations from joint to joint, and from limb to limb, till it has visited nearly all the great articulations of the body. It also attacks the organs of sense, and the viscera which are essential to life. During the course of these migrations, the attending physician cannot foretell at any given stage, what part will be next invaded by the disease, neither can he protect any part from being thus invaded; nor can he control the period during which the disease will reside in any particular part previously to its next metastasis. Nevertheless, this disease, after having run out its necessary career, terminates in spontaneous recovery; though not, in some cases, until it has laid the foundation of serious organic derangements, especially of the heart.

348. A frequent source of fallacy, in regard to self-limited diseases, is found in attributing the spontaneous recoveries, which take place in short and favorable cases, to the effect of remedies.

349. In weighing the influence of treatment, it ought to be recollected, that during the existence of any prevailing epidemic, mild cases, partaking of a similar character to that of the reigning disease, continually appear among the less susceptible part of the community. Thus cholera is attended by diarrhœa or cholerine, influenza by mild catarrh, small pox by varioloid, scarlet fever by slight sore throats or ephemeral eruptions, &c. Now, although these cases are in reality modified examples of the grave diseases which they accompany, yet we believe that

no well-informed physician will attribute the mildness or shortness of their character to his own particular practice.

350. The third class, or that of *incurable diseases*, has been recognised in all ages, and still continues to be the *opprobrium medicorum*. It includes the long train of internal morbid degenerations, malignant and chronic, by tubercle, scirrhus, encephalosis, atrophy and hypertrophy, softening and hardening, ossification, concretion, contraction and dilatation ; with their various consequences of phthisis, emphysema, epilepsy, paralysis, and a multitude of intractable disorders, in which organs are disabled, functions destroyed, and life itself rendered incapable of continuance.

351. Under the same head we are obliged, in the present state of medical science, to rank the fatal epidemics of unhealthy climates, and some of those which at certain times have appeared in all climates ; the cholera, the plague, the malignant fevers, &c. Although at certain times, and under certain circumstances, these diseases have been found susceptible of treatment and recovery, yet it cannot be denied that a large portion of the cases which occur at certain places and seasons, are of such malignity as to baffle from the beginning the best directed efforts at cure.

352. It will be seen that in the three foregoing classes of disease, very different modifications of treatment are required. In curable diseases, our remedial measures should be prompt and energetic, in proportion to the urgency of the case, and the certainty of the benefit which is to follow their employment. In self-limited diseases, our treatment must be more of the expectant character. It consists in doing what we can for the comfort and safety of the patient, in watching against accidents and complications, and in waiting for the salutary operations of nature. In those maladies which are in their nature incurable, we are obliged to confine ourselves to the palliation of suffering, and the removal of causes which may aggravate the disease.

353. Such we believe is the true exposition of the powers and duties of every practical physician. The dignity of our science, and the responsibility of our position, require that we should form just views of the extent of our capacity and duty, and that

we should not shrink from avowing them to the world. We have already achieved much in the prevention, the alleviation, and the cure, of a vast multitude of human diseases.

354. Were there no other trophy for the medical profession to boast, it is sufficient to know, that the diseases of small-pox and syphilis alone would have entailed misery and extermination on a large portion of our species, had not medical science discovered the prevention of the one, and the successful management of the other.

355. But that the usefulness of our profession may extend, our knowledge must go on to increase; and the foundation of all knowledge is truth. For truth then, we must earnestly seek, even when its developments do not flatter our professional pride, nor attest the infallibility of our art. To discover truth in science, is often extremely difficult; in no science is it more difficult than in medicine. Independently of the common defects of medical evidence, our self-interest, our self-esteem, and sometimes even our feelings of humanity, may be arrayed against truth. It is difficult to view the operations of nature, divested of the interferences of art, so much do our habits and partialities incline us to neglect the former, and to exaggerate the importance of the latter. The mass of medical testimony is always on the side of art. Medical books are so prompt to point out the cure of diseases, that the young student goes forth into the world, believing, if he does not cure diseases, that it is his own fault. Yet when a score or two of years have passed over his head, he will come at length to the conviction, that some diseases are controlled by nature alone. He will often pause at the end of a long and anxious attendance, and ask himself, how far the result of the case is different from what it would have been under less officious treatment, than that which he has pursued; how many in the accumulated array of remedies, which have supplanted each other in the patient's chamber, have actually been instrumental in doing him any good. He will also ask himself, whether, in the course of his life, he has not had occasion to change his opinion, perhaps more than once, in regard to the management of the disease in question, and whether he does not, even now, feel the want of additional light?

356. Medicine has been rightly called a conjectural art, because in many of its deductions, and especially in those which relate to the cure of diseases, positive evidence is denied to us. We are seldom justified in concluding that our remedies have promoted the cure of a disease, until we know, that cases exactly similar in time, place, and circumstances, have failed to do equally well under the omission of those remedies; and such cases moreover must exist in sufficient numbers to justify the admission of a general law, on their basis. Nothing can be more illogical, than to draw our general conclusions, as we are sometimes too apt to do, from the results of insulated and remarkable cases; for such cases may be found in support of any extravagance in medicine; and if there is any point in which the vulgar differ from the judicious part of the profession, it is in drawing premature and sweeping conclusions, from scanty premises of this kind. Moreover, it is in many cases not less illogical to attribute the removal of diseases, or even of their troublesome symptoms, to the means which have been most recently employed. It is a common error to infer that things which are consecutive in the order of time, have necessarily the relation of cause and effect. It often happens that the last remedy used, bears off the credit of having removed an obstruction, or cured a disease, whereas in fact the result may have been owing to the first remedy employed, or to the joint effect of all the remedies, or to the act of nature uninfluenced by any of the remedies. We see this remarkably exemplified in recoveries from amenorrhœa, and from various irregularities of the alimentary canal.

357. In the study of experimental philosophy, we rarely admit a conclusion to be true, until its opposite has been proved to be untrue. But in medicine we are often obliged to be content to accept as evidence the results of cases, which have been finished under treatment, because we have not the opportunity to know how far these results would have been different, had the cases been left to themselves. And it too frequently happens, that medical books do not relieve our difficulties on this score, for a great deal of our practical literature consists in reports of interesting, extraordinary, and successful results, published by

men who have a doctrine to establish, or a reputation to build. "Few authors," says Andral, "have published all the cases they have observed, and the greater part have only taken the trouble to present to us those facts which favor their own views."¹ A prevailing error among writers on therapeutics, proceeds from their professional, or personal, reluctance to admit that the healing art, as practised by them, is not, or may not be, all-sufficient, in all cases; so that on this subject they suffer themselves, as well as their readers, to be deceived. Hence we have no disease, however intractable or fatal, for which the press has not poured forth its asserted remedies. Even of late, we have seen unfailing cures of cholera successively announced in almost every city, in which that pestilence unchecked has completed its work of devastation!

358. It is only when, in connection with these flattering exhibitions, we have a full and faithful report of the failures of medical practice, in similar, and in common cases, setting forth not only the truth, but the whole truth, that we have a basis sufficiently broad to erect a superstructure in therapeutics, on which dependence may be placed. Such, it must give the friends of science gratification to observe, is a part of the rigid method, which characterizes the best examples of the modern French school; and such, it is not difficult to foresee, must ultimately be the only species of evidence on this subject, to which the medical profession will pay deference.

359. In regard to self-limited and incurable diseases, the question will naturally arise, whether the practitioner is called on to do nothing for the benefit of his patient; whether he shall fold his hands, and look passively on the progress of a disease, which he cannot interrupt. To this we would answer,—by no means. The opportunities of doing good may be as great in these diseases as in any others; for, in treating every disease, there is a right method, and a wrong. In the first place, we may save the patient from much harm, not only by forbearing ourselves to afflict him with unnecessary practice, but also by preventing the

¹ Bien peu d'auteurs ont publié tous les cas qu'ils ont observés, et la plupart ne se sont empressés de nous transmettre que les faits qui caressaient leurs idées.—*Clinique* III. 618.

ill-judged activity of others. For the same reason that we would not suffer him to be shaken in his bed, when rest was considered necessary to him, we should not allow him to be tormented with useless and annoying applications, in a disease of settled destiny. It should be remembered that all cases are susceptible of errors of commission, as well as of omission, and that by an excessive application of the means of art, we may frustrate the intentions of nature, when they are salutary, or embitter the approach of death when it is inevitable. What practitioner, we would ask, ever rendered a greater service to mankind, than Ambrose Paré, and his subsequent coadjutors, who introduced into modern surgery the art of healing by the first intention? These men with vast difficulty succeeded in convincing the profession, that instead of the old method of treating incised wounds by keeping them open with forcible and painful applications, it was better simply to place the parts securely in their natural situation, and then to let them alone. In the second place, we may do much good by a palliative, and preventive course, by alleviating pain, procuring sleep, guarding the diet, regulating the alimentary canal,—in fine, by obviating such sufferings as admit of mitigation, and preventing, or removing the causes of others, which are incidental, but not necessary, to the state of disease. In doing this, we must distinguish between the disease itself, and the accidents of the disease, for the latter often admit of relief, when the former does not. We should also inquire whether the original cause of the disease, or any accessory cause, is still operating, and if so, whether it can in any measure be prevented or removed: as, for example, when it exists in the habits of life of the patient, in the local atmosphere, or in the presence of any other deleterious agent. Lastly, by a just prognosis, founded on a correct view of the case, we may sustain the patient and his friends during the inevitable course of the disease; and may save them from the pangs of disappointed hope on the one side, or of unnecessary despondency on the other.

360. It will be seen that, in the foregoing remarks, a low estimate has been placed on the resources of art, when compared with those of nature. But the longer and the more philosophically we contemplate this subject, the more obvious it will

appear, that the physician is but the minister and servant of nature ; that in cases like those which have been engaging our consideration, we can do little more than follow in the train of disease, and endeavor to aid nature in her salutary intentions, or to remove obstacles out of her path. How little, indeed, could we accomplish without her aid ! It has been wisely observed by Sir Gilbert Blane, that “the benefit derivable to mankind at large, from artificial remedies, is so limited, that if a spontaneous principle of restoration had not existed, the human species would long ago have been extinct.”¹

361. The importance and usefulness of the medical profession, instead of being diminished, will always be elevated, exactly in proportion as it understands itself, weighs justly its own powers, and professes simply what it can accomplish. It is no derogation from the importance of our art, that we cannot always control the events of life and death, or even of health and sickness. The incompetency which we feel in this respect, is shared by almost every man upon whom the great responsibilities of society are devolved. The statesman cannot control the destinies of nations, nor the military commander the event of battles. The most eloquent pleader may fail to convince the judgment of his hearers, and the most skilful pilot may not be able to weather the storm. Yet it is not the less necessary, that responsible men should study deeply and understandingly the science of their respective vocations. It is not the less important, for the sake of those whose safety is, and always will be, committed to their charge, that they should look with unbiased judgment upon the necessary results of inevitable causes. And while an earnest and inquiring solicitude should always be kept alive, in regard to the improvement of professional knowledge ; it should never be forgotten, that knowledge has for its only just and lasting foundation, a rigid, impartial, and inflexible requisition of the truth.]

¹ Medical Logic, p. 49.

CHAPTER V.

ON INFLAMMATION.

362. THE doctrine of Inflammation is the most important in the Theory of Medicine and Surgery.

363. Some of the provisions of Nature,—or rather of the Creator of all things,—accomplished through the medium of the action and processes of inflammation, are quite wonderful. An abscess may form in the liver; the pus may be expectorated through the bronchial tubes; and the patient may survive. An intestine may be strangulated by being intussuscepted into another portion of intestine; it may separate and pass per anum, leaving the original canal free and entire; and this patient, like the former one, may survive. If we experiment on a dog, draw out a portion of the small intestine, and tie a ligature firmly round it, so as entirely to obstruct its course, the adjacent portions of the intestine reunite, the ligature is separated into its canal, this canal itself remains pervious as before, and the animal survives the dangers of this fearful operation.

364. The condition and mode of action of the capillary vessels, of the secerning and absorbent vessels, of the minute and larger arteries and veins, of the heart, and of the blood; their changes; the influence of different external causes, of variety in texture and function in the parts affected; and of modifications in the condition of the part, or of the constitution or system at large; the reciprocal effect of inflammation on the system: these and a multitude of other circumstances become elements in the grand problem of the nature of inflammation.

365. The authors who have particularly advanced our know-

ledge of inflammation, are Hunter,¹ Burns,² Dr. J. Thomson,³ and M. Gendrin.⁴ They have treated the subject in its relations with the anatomy and with practice. They who wish to become intimately acquainted with this important subject, will find it absolutely necessary to consult and study these authors.

366. Other writers, as Kaltenbrunner, Doellinger, Lobstein, &c. have discussed the subject more theoretically, and have especially observed the condition of the old vessels and the formation of new.

I. *The Causes of Inflammation.*

367. The causes of inflammation may be divided into—

1. The mechanical.
2. The chemical.
3. The vital.
4. The constitutional.

368. *Mechanical* violence, inducing incision, laceration, contusion, &c., is a frequent source of inflammation. The first of these effects is simple ; the subsequent inflammation seems to be Nature's process of cure, and is therefore a good illustration of inflammation from a *vital* cause. In the cases of laceration and contusion, in which these are slight, we have a *physical* impression made upon the capillary vessels of the part, such as probably occurs in every case of inflammation. If the contusion be violent, there is frequently the death of some of the textures, and such a degree of injury done to the capillary vessels as may prevent their ever again conveying the blood.

369. The *chemical* causes of inflammation are principally, heat, which induces burns and scalds ; cold, which occasions chilblain and frost-bite ; electricity ; the acids, the alkalies, &c. These probably all act by inflicting a physical injury upon the capillary vessels.

370. The principal examples of *internal* inflammation from

¹ A Treatise on the Blood, Inflammation, and Gun-shot Wounds. 1794.

² Dissertations on Inflammation. 1800.

³ Lectures on Inflammation. 1813.

⁴ Histoire Anatomique des Inflammations. 1826.

the operation of chemical causes, are those which have arisen from the attempt to swallow hot water, or acrid fluids. Some part of these fluids may reach the stomach, and produce inflammation in that organ ; but the principal result is an affection (*œdema*) of the rima glottidis, with symptoms *resembling* those of *croup*. I formerly called the attention of the profession to the accident as it occurs in children from drinking out of the spout of a tea-kettle or tea-pot.¹ A similar result followed, in one sad case, the administration of a liniment by mistake for a draught. The physician should be alive to the possibility of such an event, for the cause of the affection might be concealed by a nurse.

371. The character of the *vital* causes of inflammation has already been explained, § 368. A simple incision is healed by adhesive inflammation ; a thorn is removed by the suppurative ; and these are vital processes, instances of inflammation excited by the vital energies.²

372. The *constitutional* causes of inflammation operate in producing furunculi, or paronychiæ (*παρά, near, ὄνυξ, the nail*) ; or erysipelas (*ἐρύω, to draw, πέλας, adjoining*) ; or gout, &c. *Erysipelas*, in certain epidemics, is prone to gangrene. The *carbuncle of the plague*, the *malignant pustule*, and the *hospital gangrene*, afford other examples of mortification arising from constitutional causes. There is a peculiar gangrene of the *cheeks*, and of the *pudenda*, in *infants*, arising from constitutional circumstances, which will be noticed in a subsequent chapter. I published an account of the former,³ and Mr. Kinder Wood of the latter,⁴ some years ago. All these probably arise, in every case, from constitutional causes, and are to be prevented only by

¹ Medico-Chirurgical Transactions, v. xii, page 1.

² [Every inflammation has for its *proximate* cause, or, in other words, consists in an altered condition of the vital energies. The *remote* causes of inflammation may be either *external*, which includes mechanical and chemical impressions, or *internal*, as in those inflammations which we somewhat vaguely attribute to the state of the constitution. If the term *vital* be applied to any of the remote causes, it must include all except external impressions, and the third and fourth divisions of the author must be united.]

³ Med. Chir. Trans. v. vi, p. 84

⁴ Med. Chir. Trans. v. vi, p. 84.

attention to the condition of the stomach, the bowels, the secretions—in a word, to the general health.

373. Exposure to wet and cold, rubeola, &c., induce *internal* inflammation through the medium of the general system, or, to express my meaning more distinctly, through the medium of the nervous and vascular systems.

II. *The Signs of Inflammation.*

374. The signs of inflammation are—

1. Redness.
2. Tumor.
3. Augmented temperature.
4. Augmented sensibility.

375. The signs of inflammation, when this is *external*, are very distinctly described by Celsus: “Notæ vero inflammationis sunt quatuor; rubor, tumor, cum calore, et dolore;” Celsus very properly adds, “quo magis erravit Erasistratus, (the Broussais of the Augustan age), qui febrem nullam sine hâc esse dixit.” When *internal*, inflammation manifests itself by *symptoms* which vary with the functions of the part affected, of which they are modifications.

376. The augmented *redness* of parts affected with inflammation depends upon the augmented quantity of blood, and especially of its red particles, and this upon the augmented size of its vessels,—of the true capillaries, and of the minute arteries and veins, of which the former are seen to be enlarged in inflamed transparent parts, as the web of the frog under the microscope, and the latter are obvious to the unassisted eye in inflammation of the conjunctiva.

377. The *tumor*, or swelling which attends inflammation depends, like the augmented redness, principally upon the augmented quantity of blood in the part. I say *principally*, because inflammation does not subsist long without more or less of *effusion*, either of the albumen or *serum*, in recent inflammation, of albumino-fibrine or *lymph* in the less recent, or of both; events

¹ Lib. iii, cap. ii, sec. 6.

of vast importance in this sometimes morbid, sometimes curative, process.

378. The *heat* or increased temperature of inflamed parts is probably owing to the same cause. External parts in general are warmed by the contact of warm blood, and cooled by that of the atmosphere; their actual temperature is a mean result of the operation of these two causes. Augmented temperature may take place, therefore, if the circulation of a part be increased, or the action of the atmosphere be withdrawn. The former occurs in inflammation. More blood passes through an inflamed part, by means of its collateral minute arteries and veins and their anastomoses, than in health. Its temperature approaches that of the blood,—that is, is elevated. But the question still remains,—is there ever a degree of elevation of temperature not to be accounted for in this manner,—for instance, beyond that of the blood itself in the central parts of the system? Hunter investigated this subject. He observes—

379. “A man had the operation for the radical cure of the hydrocele performed at St. George’s Hospital. When I opened the tunica vaginalis, I immediately introduced the ball of the thermometer into it, and close by the side of the testicle. The mercury rose exactly to ninety-two degrees. The cavity was filled with lint, dipped in salve, that it might be taken out at will; the next day, when inflammation was come on, the dressings were taken out, and the ball of the thermometer introduced as before, when it rose to ninety-eight degrees and three fourths exactly.”

380. “Here was an increase of heat of six degrees and three fourths; but even this was not equal to that of the blood, probably, at the source of the circulation in the same man. This experiment I have repeated more than once, and with nearly the same event.”¹

381. “I made an incision into the thorax of a dog, the wound was made about the centre of the right side, and the thermometer pushed down, so as to come in contact, or nearly so, with

¹ On Inflammation, page 293—294.

the diaphragm. The degree of heat was one hundred and one ; a large dossil of lint was put into the wound to prevent its healing by the first intention, and covered over by a sticking plaster. The dog was affected with a shivering. The day following, the lint was extracted and the thermometer again introduced ; the degree of heat appeared exactly the same, viz. one hundred and one. This dog recovered.”¹

382. “ The natural heat of the vagina of a young ass was one hundred degrees. A solution of corrosive sublimate, as much as would dissolve in a tea-cup full of water, viz. about ten grains, was injected into the vagina. In about two hours after, the mercury fell to ninety-nine degrees. Thursday morning, ninety-nine degrees ; evening, one hundred. Friday morning, ninety-nine ; evening, near to one hundred and one. Saturday morning, ninety-nine ; evening, one hundred degrees.”²

383. From these experiments, it is obvious that the heat of an *external* part affected with inflammation is augmented,—that it approaches more nearly to that of *internal* parts,—or of the blood itself. The temperature of internal parts subjected to inflammation undergoes no augmentation.

384. Hunter has a section entitled “ Of the production of *cold* in inflammation.” But it is like the last chapter of Rasselas,—a “ conclusion in which nothing is concluded.”

385. The *pain* or augmented sensibility in inflammation may depend on the augmented quantity of blood and size of the minute arteries of the part. It is, therefore, sometimes *pulsative*, that is, still further augmented under the influence of the systole (*συστέλλω*, to contract) of the left ventricle.

386. This augmented sensibility is so great, in some instances, that parts, which in a state of health are insensible, become acutely sensitive under the influence of inflammation ; such are the serous membranes, cartilage, tendon, ligament, and even bone. The mucous membranes do not appear to experience the same change, in regard to sensibility, when under the influence of inflammation.

¹ On Inflammation, page 294.

² Ibid, page 297.

III. *The Changes in Inflammation.*

387. The changes in the condition of inflammation are—

1. Resolution.
2. Œdema.
3. Adhesion ; Cicatrix.
4. Softening.
5. Induration.
6. Ulceration.
7. Suppuration ; Pus.
 1. Abscess ; Fistula.
 2. Infiltration ; Diffusion.
 3. Its Signs and Symptoms.
8. Gangrene ; Sphacelus.
 1. Circumscribed.
 2. Diffused.

388. By the term *resolution* is simply meant the subsidence of the actions which constitute inflammation ; the redness, tumor, heat, and pain gradually disappearing.

389. It has already been stated that the augmented bulk of a part affected with inflammation, is partly owing to the repletion and augmented size of the capillary and minute vessels, and to the interstitial effusion of limpid albumen or serum. This latter circumstance, viewed distinctly from the former, constitutes *œdema* (*οἰδέω*, *to swell*), and one of the early effects of inflammation. It frequently remains in the form of a pale and colorless swelling, after the vascular repletion and the consequent redness have disappeared. In one case,—inflammation of the larynx,—it is frequently the cause of death,—obstructing the upper orifice of the trachea and suspending respiration. In the eye, this condition has received the designation *chemosis*, (*χαίρω*, *to gape*), the distention of the conjunctiva preventing the closure of the eyelids ; it is particularly seen in that destructive inflammation of the eye arising from phlebitis¹ (*φλέψ*, *a vein*). It is the *white swelling* of inflamed parts, sometimes accompanying, sometimes following, the actual inflammation.

¹ See my paper in the Med. Chir. Trans. vol. xiii.

390. If parts, divided by an incised wound or surgical incision, be brought into accurate contact, they contract *adhesion*, by means of an intervening deposit of coagulable lymph, or what I may term albumino-fibrine, termed *cicatrix*.

391. [The term albumino-fibrine, first employed, we believe, by Dr. Hall, may require some explanation. It is applied to that product of inflammation designated by Mr. Hunter *coagulating* lymph, and more commonly by authors as *coagulable* lymph.

392. The blood, when removed from the living vessels, separates into a solid and a fluid portion. The first of these, considered independently of the coloring principle which it contains, is identical with the washed muscular fibre, both being in chemical language termed *fibrine*. Its special and distinguishing quality is spontaneous solidification. The liquid portion, or serum of the blood, though remaining fluid under ordinary circumstances, becomes solid also under the influence of certain agents, as heat, acids, and alcohol. It is known to the chemist as liquid or solid *albumen*, according as it is or is not coagulated.

393. A solid and a fluid substance are also effused in adhesive inflammation. The first of these constitutes the bond of union in divided parts and the false membranes found on inflamed serous surfaces; the other is the limpid fluid which constitutes the œdema about a wound and is accumulated in the cavity of the inflamed serous membranes.

394. The solid portion, the coagulating lymph of Hunter, was considered by him, and has been generally thought identical with the *fibrine* of the blood and muscles. "In all large cavities," Hunter remarks, "where we can make our observations with certainty, when in the state of inflammation, we find diffused over the sides or through the cavity, a substance exactly similar to the coagulating lymph when separated from the serum and red blood after common bleeding." M. Lassaigne analyzed the false membranes found on the pleura of a horse and found them composed of uncoagulated albumen and fibrine. (Orfila.)

395. The second, or fluid product of inflammation presents the same chemical characters as the serum of the blood; in other words consists of liquid albumen.

396. Are albumen and fibrine two distinct principles, or merely one principle in two different forms?

397. According to Orfila, solid albumen presents nearly the same physical characters as fibrine, and furnishes the same products on distillation, excepting that it affords a little less carbon.

398. Dr. Turner remarks that it bears a very close resemblance to fibrine, and is with difficulty distinguished from it.

399. M. Raspail asserts with his usual vivacity, their absolute identity. His remarks are as follow:—"The chemists of our day have shown the supposed distinction between fibrine and albumen, not by comparative experimentation, under their own eyes, but by arranging in separate chapters what one author has said of fibrine and another author of albumen, taking a difference in the form of their descriptions for a difference in the chemical nature of the two substances."—"To do better justice to their loose descriptions, examine for yourself the fibrine obtained by beating the blood with rods, compared with the insoluble substance obtained by filtering the albumen of an egg; and there is no chemist, however experienced, who will not mistake and confound one with the other, whether he judge by their physical or chemical characters."

400. This opinion of M. Raspail is confirmed by the following observation of M. Gendrin. "From the microscopic examination of the coagulable substance found in inflamed vessels at different periods of its formation, it appears to consist primitively of an *albuminous* liquid, which becomes more and more *fibrinous* and spontaneously coagulable by the progress of the inflammation."

401. The term coagulating lymph, which does not imply an assertion as to the nature of the substance designated, is therefore preferable to albumino-fibrine, which is a double name for what is probably enough, a single proximate principle.]

402. Adhesion is sometimes effected at once: it is then somewhat quaintly designated *union by the first intention*; sometimes other processes intervene—the effusion of lymph and of pus takes place from the unadherent surfaces, and the adhesion is more slowly accomplished by the gradual union of the contiguous layers of lymph; in a third case, the wound may remain

open, granulations sprout up and gradually fill the space, and become, in their turn, covered by lymph, which, at first liquid, becomes indurated by the absorption of its fluid particles, and at length vascular or organized, cellular, and, in every point of view, a living solid.

403. Adhesion and cicatrization may occur in any of the tissues of the body, internal and external, in cavities or in canals, and constitute many of those wonderful operations of Nature for the security of the individual, to which allusion was early made in this work, § 363.

404. The next event which occurs in inflammation, is *softening* or *ramollissement*. It is the opposite of that last mentioned, or adhesion; for in this the natural cohesion of the part affected is destroyed. It occurs in all the tissues; but especially in the parenchyma (*παρά*, and *ἐγχύω*, to pour in) of organs, the brain, the heart, the liver, the spleen, &c., and in the mucous membrane, or lining of canals, that of the stomach, the intestines, &c.; least, if at all, in the serous membranes, or lining membrane of cavities; the arachnoid, the pleura, the peritonæum, &c.

405. Softening is among the first effects of inflammation,—of acute inflammation; *induration* belongs to *chronic* inflammation: the former depends upon a morbid loss of cohesion of the particles; the latter, probably, upon the interstitial deposit of coagulable lymph, or albumino-fibrine.

406. *Ulceration* exists where portions of the superficial substance of a part have been removed. This takes place by interstitial absorption, sometimes *simply*, when the ulcer is said to be healthy; sometimes rapidly, when the ulceration is termed phagedenic (*φάγω*, to eat); sometimes with the separation of dead parts, when the ulcer is designated *sloughing*. The external cutaneous, the internal mucous surfaces, and the synovial membranes are those most prone to ulceration. This process in the serous membranes is rare; and when it takes place in the parenchymatous substance of organs, it is spoken of under another designation—suppuration. Deeply seated parts, as bone, ligament, cartilage, may be exposed in a state of ulceration: in the first of these textures, the process of ulceration is termed *caries*; it frequently follows the death of a part of the bone or necrosis, (*νεκρώω*, to mortify), and exfoliation.

407. Ulceration may either proceed, or become arrested and yield to an opposite process, or cicatrization. Hunter observes—

408. “It is easy to distinguish between a sore that is ulcerating, and one which is standing still, or granulating.

409. “The ulcerating sore is made up of little cavities or hollows, and the edge of the skin is scalloped or notched, is thin, turned a little out, and overhangs, more or less, the sore. The sore is always foul, being probably composed of parts not absolutely absorbed; and discharges a thin matter.

410. “But when the ulceration stops, the edge of the skin becomes regular, smooth, a little rounded or turned in, and of a purple color, covered with a semi-transparent white.”¹

411. An ulcerating surface is generally an absorbing surface: ulcers of Peyer’s and of Brunner’s glands in the intestines lead, probably in this manner, to enlargement of the *corresponding* mesenteric *glands*; ulcers about the heel from chilblain, led, in one instance, to inflammation along the *absorbent vessels* which run along the leg and thigh, which issued in repeated abscesses. The affection of the inguinal glands in chancre, and also in gonorrhœa, is a fact familiar to us all. Is there ulceration in all cases of the latter malady thus complicated with bubo? [The lymphatic glands of the groin and other parts frequently enlarge from very slight sources of irritation.]

412. *Suppuration* is one of the most frequent results of inflammation: the *pus* formed is sometimes enclosed in an orbicular cavity, under the designation of *abscess*; sometimes it burrows into the adjacent textures, under that of *fistula*, especially near the anus; sometimes it is not restricted in its locality, but is *infiltrated* into the meshes of the cellular membrane; and sometimes it is *diffused* over the surface upon which it is formed, as in cases of acute inflammation of the peritonæum.

413. The cavity of an abscess is lined and limited by the formation of a *cyst*; effected by the effusion of albumino-fibrine. This cyst is thin in recent abscess, thicker in abscesses of longer duration, and so intimately adherent to the adjacent cellular texture as not to be readily separated or even distinguished from it.

¹ Op. cit. p. 460.

414. The same sort of albumino-fibrine constitutes the fistula, which, in fact, is only a chronic, elongated, abscess, with an external and perhaps an internal aperture.

415. Some abscesses are neither orbicular nor fistulous, but very extensive, although there be no infiltration: such is psoas (*ψοαί*, the loins), lumbar, or iliac abscess.

416. *Infiltration* occurs in those cases of suppuration, in which, from the want of the formation of a cyst, the pus passes freely, like the serum of œdema, into the cellular membrane of the inflamed part. This infiltration of pus is observed especially in the lung, in which organ abscess is rare: in the liver, on the contrary, abscess is more common, whilst infiltration is seldom seen. Infiltration of the lung is designated the grey hepatization, and succeeds to the red hepatization, or the first stage of pneumonic inflammation.

417. Suppuration is *diffused*, when it occurs over an extensive surface, as that of the arachnoid, the pleura, the pericardium, the peritonæum, the tunica vaginalis testis; but, even in this case, the space containing the pus is sometimes circumscribed by the adhesion of adjacent portions of the peritonæum, for example; the pus may at length point externally, or make its way into the intestine, or the vagina. In the first case, the abscess may be opened without the risk of exposing the general peritonæum. This event I have seen repeatedly after parturition and abortion. A similar event sometimes occurs, from the state, office, and anatomical character, of the caput cæcum coli, and has been described by Dupuytren, as I shall particularly notice in a subsequent part of this work.

418. The distinctive characters of *pus* are its opacity, its peculiar pale straw color, and its *globular* structure. Its globules are seen in the microscope; and they are made manifest by viewing the liquid between two portions of common plate glass, placed between the eye and a bright point of light; irides or rings, of the different hues of the rainbow, are immediately obvious. This is the experiment of the late Dr. Young, and proposed by him as a distinction between pus and mucus. The subject deserves to be pursued; opaque *puriform* mucus, true pus from ulcerated and unulcerated (serous) surfaces, tuber-

cle, &c. should be compared. The globules of pus are supposed by M. Gendrin to be those of the blood deprived of their red coloring matter, and somewhat enlarged and deformed. Dr. Hodgkin and Mr. Lister, on the contrary, think that the globules of pus and of blood are totally dissimilar. This, and other topics connected with inflammation, still present objects of interesting inquiry. The globules of pus, more or less numerous in different cases, float in a transparent albuminous fluid.

419. The *signs* and *symptoms* of suppuration are interesting and important subjects of inquiry.

420. As external inflammation passes into suppuration, the pain becomes greater and more throbbing or pulsating; the skin becomes of a deeper red color, smooth and glossy, and at length one *point*, more prominent than the rest, yields to pressure, and presents the phenomenon of *fluctuation*, whilst its *firmer borders*, by which it is circumscribed, are distinctly traceable by the finger.

421. The *symptoms* attending and denoting suppuration are, frequently, very peculiar; they consist in *rigor* or *successive rigors*. Sometimes one rigor only occurs; sometimes several rigors occur at uncertain periods; in other cases the rigors are repeated at such regular quotidian or tertian periods, as to lead to the idea that the case is intermittent fever or ague. I need not notice the caution in the diagnosis which this important fact suggests.

422. In other cases, suppuration takes place equally unknown and unsuspected by the patient and the physician, from the absence of the usual signs and symptoms. It is *latent* until the abscess *points*. Psoas abscess is an apt illustration of this fact. The fact itself has suggested the question whether suppuration may occur without previous inflammation.

423. Instead of the secretion of pus, inflammation sometimes leads to *gangrene* (*γάγγραινα*, *mortification*), and to *sphacelus* (*σφάζω*, *to destroy*). The former of these terms is conventionally employed to designate the condition of the part when it is on the point of losing its vitality; the latter, to denote that of a part absolutely dead, and ready to pass into a state of decomposition. The part affected with gangrene *may recover*; the sphacelated

part is already deprived of any vital function, and either *dries*, or *putrefies*.

424. As a part affected with inflammation passes into the state of gangrene, its color, from being of a vivid red, assumes a livid, mingled red and purplish hue; its tension and elasticity diminish, and yield to a doughy state, compared to quagmire, frequently with vesications or bullæ; its pain subsides, and there is a loss of sensibility; as the gangrene passes into actual sphacelus, there are total insensibility, coldness, and discoloration, and loss of cohesion between the cutis or cuticle and the subjacent parts, and between those different parts themselves, and decomposition speedily follows. In fortunate cases, Nature effects, first, a line of demarcation and then a total separation, between the living and the sphacelated parts.

425. The part which thus loses its vitality is sometimes limited, sometimes diffused: of the former we have examples in the slough formed in the centre of a carbuncle, and in the circumscribed gangrene in the lung; of the latter, we have examples in the mortification of a whole limb from a violent injury, and in diffused gangrene of the pulmonary structure.

426. Some *parts* are more liable to lose their vitality than others: the extreme parts of the body in general, tendons, &c., are of this number.

427. Some *conditions of the system* dispose to mortification: *typhus fever* (*τίφος*, *stupor*), is frequently attended by mortification of the parts on which the weight of the patient principally presses in bed, as the sacrum, and of the parts to which blisters have been applied.

428. The operation of some *external causes* of inflammation lead to gangrene: one of these is *cold*; chilblain, in the aggravated form of frost-bite, presents an example of this influence:—another example of this kind is afforded by the inoculation of certain poisons: in one case an insect stung the under lip; inflammation and mortification speedily followed.

429. Such are some of the forms of gangrene and sphacelus occurring in cases of inflammation. These morbid, or rather deadly states, occur under other circumstances—chiefly of *obstructed*, or *debilitated* circulation, independently of inflamma-

tion, as will be particularly noticed in a subsequent part of this volume. The *gangræna senilis* from disease of the arteries of the lower extremity, and the *dry gangrene*, [formerly attributed to] the ergot of rye, afford examples of mortification unconnected with inflammation.¹

430. Nothing can illustrate the varied phenomena of inflammation, on a minute scale, better than the variolous pustule: at first, we have simple inflammation—inflammation of a sebaceous gland—redness and tumor; on the third and fourth days we have the effusion of *serum*, a vesicle, the duct of the gland tying down its centre; on the fifth day, we observe the effusion of *pus* around this central point and within the external margin of the vesicle, the intervening space being occupied by transparent serum, and appearing of a red, flesh color, well contrasted with the opaque pus, and there is a surrounding *areola* of deep inflammation; on the seventh or eighth day, the serum is entirely replaced by pus; and on the eighth or ninth, the central duct has been absorbed or has sloughed, and the pustule is orbicular. There is also the early effusion of *lymph*; and, at a subsequent period, it is found that a portion of the cutis vera has *sloughed*. The whole of this series of the phenomena of inflammation is followed by *cicatrization*, again implying the effusion of *lymph*.

IV. *The Symptoms in Inflammation.*

431. By the symptoms (*σύν*, and *πλπτω*, to coincide), in inflammation, I mean the affections of the *general* system, as distinguished from those of the *part* immediately subjected to the disease; they require to be traced in reference,

1. To inflammation.
2. To suppuration.
3. To gangrene.

432. In acute *adhesive* inflammation, the beat of the heart

¹ [It is probable that the epidemic dry gangrene, formerly attributed to the ergot of rye, had its origin in some other cause; since the epidemic has disappeared, while the ergot continues to be taken in food, and still more extensively in medicine.]

and of the pulse becomes stronger, and generally more frequent than natural; there is frequently rigor; but there is, generally, little or no heat of skin, no headache, or vertigo, no muscular tremor or debility, no alteration in the secretion of the urine; in a word, scarcely any of the symptoms which characterize *fever*; but there is augmented power to bear the loss of blood.

433. *Suppuration* is frequently announced by a new, severe, and perhaps repeated rigor. Sometimes it requires much skill to distinguish the general affection in suppuration from intermittent fever; for paroxysms of rigor, heat, and perspiration occur in various succession, as I have already observed, § 420.

434. *Gangrene* is depicted in the collapsed condition of the countenance and of the general system: paleness, and cold, clammy perspiration, and sunken features; a similar condition of the general surface and of the extremities; sub-delirium; tremor; oppression; sickness; a dry, brown tongue; sordes on the teeth; a feeble, threadlike pulse:—such are the *typhoid* symptoms (*τύφος*, *stupor*, *εἶδος*, *likeness*), which denote the occurrence of gangrene.

V. *The Nature of Inflammation.*

435. In treating of the *nature* of inflammation, it will be necessary to consider—

1. The true capillary vessels.
2. The secretory vessels.
3. The absorbent vessels.
4. The newly-formed vessels.
5. The minute arteries.
6. The minute veins.
7. The larger vessels and the heart.
8. The blood itself.

436. Inflammation has its seat in the minute and the capillary vessels. This distinction is neither unfounded in nature, nor unimportant in reference to our present inquiry. If we examine the state of the circulation in the web of the frog placed under the microscope, we shall observe the following phenomena:—

437. The blood is seen rushing into the field of view, along small vessels of a peculiar character, so rapidly as to render the distinction of the globules almost impossible. Trace one of these vessels in its onward course, and we shall see that it divides into smaller branches, which again subdivide into other branches smaller still. This division and subdivision into smaller branches, demonstrate a vessel to be an *artery*. In all this course the blood preserves the same rapid movement which it had at first.

438. At length a new phenomenon takes place ; the artery now divides into two or more branches, of an equal diameter with itself ; the flow of the blood is less rapid, and the globules can now be distinctly seen. These vessels do not continue to divide and subdivide, but they unite and then divide, reunite and redivide in turns, and form a sort of network. The velocity of the blood throughout this network of vessels is uniform, and far less than in the arteries. These are the *true capillary* vessels. The ultimate branches of the arteries from which they take their origin, may be designated the *minute arteries*. The first roots of the veins to which, in their turn, they give origin, are the *minute veins*. To employ the terms capillary arteries and capillary veins, would be to expose our ignorance of the real state of the circulation. The force of the heart extends through the arteries, the true capillaries, and the minute veins. By a little contrivance, this influence of the heart on the circulation in the veins is made obvious to the eye, although denied by Dr. Wilson Philip. We have only to tie a ligature slightly round the limb of the animal ; this induces an impeded circulation along the veins, and the impulse given to the blood by each contraction of the ventricle, becomes perfectly evident in all the three series of vessels which I have enumerated and described.

439. From my own observations of the condition of the capillary vessels in the web of the frog, in inflammation, I should conclude that each cause of inflammation first induces such a *physical* effect upon the internal surface of those vessels, as leads to the adherence of the globules of blood to it, and to their ultimate stagnation.

440. This stagnation augments as the inflammation increases

and becomes more diffused, and seems to constitute the essential character of the disease.

441. I have never been able to detect any action in the capillary vessels themselves,—any augmented or diminished action on the application of stimuli; and I believe that those who have fancied that they have observed such phenomena, have overlooked the effects of the infliction of pain upon the animal, and of the application of a stimulus upon the cutaneous tissues, and the subsequent adherence of the globules of blood to the internal surface of the capillary vessels.

442. It is, probably, by the partial obstruction to the circulation in the capillaries, that the minute arteries become enlarged. The augmented action of the arteries probably induces the minute ecchymoses (*ἐκ*, and *χέω*, to pour out), observed in inflamed parts.

443. The stagnant globules gradually lose their form, their color, their distinctness, and the cellular membrane passes into irregular shreds.

444. It is probably by the fact of stagnation that inflammation differs from mere *blushing*, and, in some degree, from *erysipelas*.

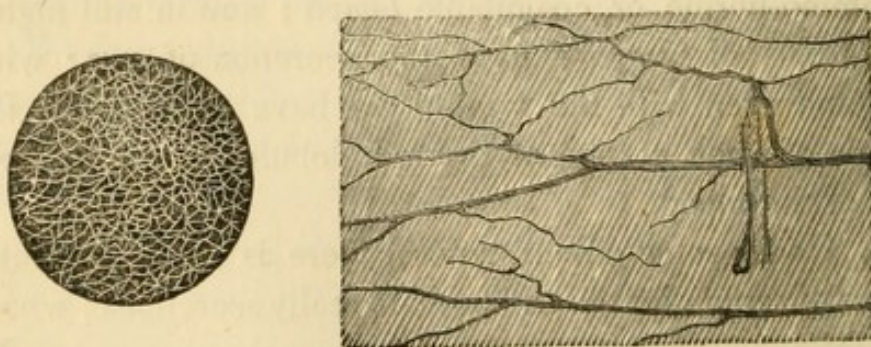
445. It is obvious that the *secerning vessels* of an inflamed part are variously affected in the varied conditions of inflammation: in the lower degrees of inflammation we observe the effusion of *serum*; in higher degrees of inflammation we see the secretion of albumino-fibrine or coagulable *lymph*; and in still higher degrees of this disease, we have the secretion of *pus*: with the serum, and even with the lymph, we have occasionally the appearance of some portion of the red globules, or of the *coloring matter* of the blood.

446. Under some circumstances, there is no doubt that these effusions of serum, lymph and pus, are really secretions; when they occur, for example, at the surface of serous membranes; and, with the substitution of mucus for serum, and with the inversion of the order in which lymph and pus are thrown out, in the mucous membranes. Is it probable that these processes should be of one nature, when they occur upon surfaces where they can be distinctly observed, and of another, when they take place in parts

more deeply seated and less exposed to observation? I am inclined then, to view the separation of albumen, of albumino-fibrine, of pus, from the serous membranes,—and of mucus, pus, and of albumino-fibrine from the mucous membranes, in the varied degrees of inflammation,—as the result of peculiar processes by means of which these matters are *secreted* from the blood. And I would extend the same remark to the formation of cicatrix, and the formation of pus and of cysts—abscesses—in other cases.

447. But if the functions of the discerning vessels undergo particular changes, in inflammation, those of the *absorbent* vessels are not less modified: the progress of a phagedenic ulcer, the separation of a sphacelated part, can only be effected by means of the absorbent vessels,—the true absorbents, or the veins. The fact of ulcerated surfaces being in general absorbing surfaces, § 411, demonstrates the same thing.

448. Our next inquiry is into the newly-formed vessels. After lymph has been long poured out, it is found to become organized, that is, numerous vessels, carrying blood, are observed in it, pursuing a various course. Such vessels are represented in the subjoined wood-cuts, copied from plates by *Monro*,¹ *Hunter*,² and *Lobstein*.³ The first shows the newly-formed vessels in cicatrix; the second a vessel passing through a small portion of pendulous coagulable lymph:

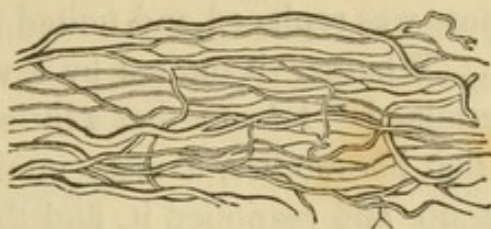


¹ On the Nervous System, Tab. XLVI, fig. 1, p. 175.

² On Inflammation, p. 573.

³ Anatomie Pathologique, pl. vi.

the third, numerous vessels formed in a layer of lymph :



Vessels have also been observed extending into a coagulum of blood, as in this representation, also taken from Hunter :



The coagulum had been poured out from the surface of a puncture or small incision made by the trocar for the cure of hydrocele ; it adhered to the investing membrane of the testis, by means of these numerous blood-vessels. In a third case, new blood and new vessels appear to be formed, which have no connection with the living structure.

449. It has been a question, whether a part once entirely separated from the system, could be reunited, and that by organization. Mr. Hunter transplanted the spur of a young cock to its comb, and the testes into a distant cavity. In a human subject the tooth has been transplanted ; lymph and coagulum of blood unite to contiguous parts, and become organized. I need scarcely recall to your recollection the interesting facts presented by the engrafting of trees. The question is, whether in animals and in the human subject, solid parts once separated and transplanted, ever unite by vascular connections, by organization ; whether they might be injected, &c.

450. A story is told,—by I know not what ancient surgical writer,—of two combatants, one of whom bit off the other's nose, who, before he resumed the battle, took it up out of the gutter

and threw it into an apothecary's shop, which luckily was situated hard by. I forget which of the parties won the battle, but I remember that the nose was replaced and united perfectly, which is the point in hand. Whether it united by a vascular union was not, I believe, ascertained. I *know* that a little boy cut off the tip of his finger, and that his mother, a most intelligent person, immediately took it up and reapplied it, and that it adhered. It remained without sensation, but apparently vascular.

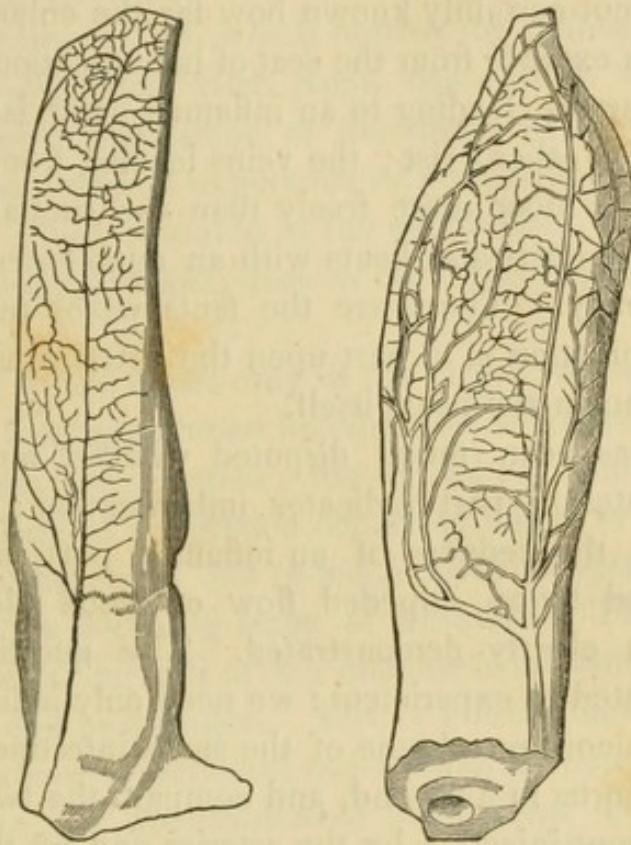
451. [A similar instance occurred very recently under my own eyes. One of our pupils accidentally cut off from the end of the middle finger a portion of skin, four or five lines in diameter, and one or two in thickness. He brought the piece of skin to me upon the razor. I immediately reapplied it, and at the end of a week it was firmly united. As in Dr. Hall's case, it remains without sensation.]

452. I need not detain my readers by any remarks on the Taliacotian or Rhinoplastic art. There is nothing wonderful in the union of parts whose organization and continuity with organized parts have never been entirely interrupted. The nose, the lips, &c., have thus been restored, especially by M. Dieffenbach, and much deformity obviated. Sir Astley Cooper has thus been enabled to remedy fistula in perineo.

453. It is generally asserted that there is a series of vessels which only circulate the serum of the blood, and which exclude its globules. I believe this is a mere hypothesis, and that there is no evidence of the existence of such vessels. Vessels which only admit of single globules will appear colorless. In looking upon, or through, the web or the mesentery of the frog, we only detect lines of redness in the course of arteries and veins which are large enough to admit a considerable number of globules in the space of their diameter. In inflammation, *the minute arteries*, which usually convey only single globules at a time, enlarge and admit a greater number, acquire the color of accumulated globules of blood, give this color to the parts in which they are situated, and become obvious to the naked eye. This is distinctly traceable in inflammation of the conjunctiva.

454. The condition of the *minute veins* has not been ascertained.

455. This enlargement of the blood-vessels is not confined to the *minute* arteries. The *larger arteries* in the immediate vicinity of the inflamed part, also become greatly enlarged. This effect is distinctly seen in this sketch from Hunter :



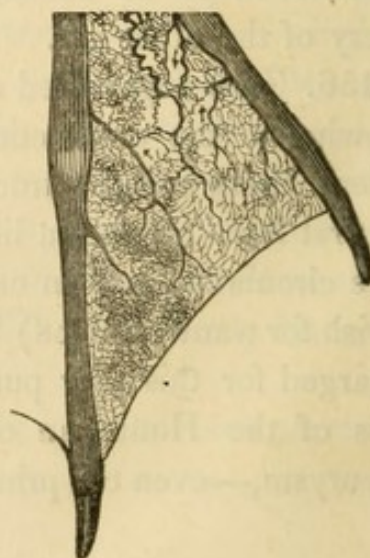
It represents the two ears of a rabbit, one inflamed, in consequence of having been frozen and thawed, the other in the natural state. They were injected at the same time, and consequently with the same degree of force. The artery of the inflamed ear is observed to be considerably larger than the corresponding artery of the other ear.

456. This augmented size of the arteries of an inflamed part is owing to the obstruction in the circulation of the true capillaries. *Every* such obstruction produces this effect, according to a general law. Apply a ligature to the principal artery of a limb. The circulation is then carried on (if the limb do not immediately perish for want of blood) by the collateral arteries, which become enlarged for this very purpose. This is the source of the success of the Hunterian operation of tying arteries of limbs for aneurysm,—even the principal arteries. In inflammation the blood

is propelled along channels, *not*, in general, in *new* channels, indeed, but in the pre-existing channels enlarged. When, in excessive inflammation, or in feeble and disordered constitutions, this cannot be effected, the part dies, and thus we explain the formation of sloughs and sphacelus.

457. It is not certainly known how far the enlarged condition of the arteries extends from the seat of inflammation. The pulse of the radial artery, leading to an inflamed hand, is more forcible than that of the other wrist; the veins leading from the inflamed hand yield their blood more freely than the similar veins of the other arm; the heart also beats with an augmented impulse and greater frequency. These are the facts which prove the influence of inflammation of a part upon the arteries and veins in its vicinity, and upon the heart itself.

458. It has been much disputed whether augmented redness in an internal part indicates inflammation; the distinction between the redness of an inflamed part, and that of a part congested by an impeded flow of blood along its veins, has not been clearly demonstrated. The question might be readily submitted to experiment: we need only induce inflammation of the mucous membrane of the small intestine in one dog, tie the vena portæ in a second, and compare the two accurately, with and without injection by the arteries and by the veins. In the inflamed part we have frequent, slight ecchymoses, as in this sketch from Hunter, of a magnified portion of inflamed tunica vaginalis testis; and I have seen the same appearances in the inflamed web of the frog:



What are the comparative appearances in *congestion* from obstructed return of venous blood?

459. ["The inflammatory redness of serous membranes may be distinguished from that caused by congestion, by its punctuated aspect, and by the loss of transparency and the increased density of the membrane which accompany it. It resists repeated washing and compression, which destroy the redness arising from congestion."]—Gendrin, *Hist. Anat. des Inflam.* vol. i. p. 73.

In the mucous membrane of the digestive tube, M. Andral admits three varieties of hyperemia or accumulation of blood.

1. That which is seated in the capillaries.

2. That which takes place in both the capillaries and the larger vessels.

3. That which exists only in the larger vessels.

460. The first appearance he considers as almost demonstrating the existence of irritation; the second as common to irritation and mechanical congestion occurring before or after death; the third as being rarely due to mechanical congestion, but more frequently to the declining stage of irritation. The red, brown or black color of the villi of the mucous membrane, he believes is frequently due to irritation. But he allows that neither vascular arborizations or network, nor a uniform change of color in the membrane, nor the effusion of blood from its free surface, are sufficient to prove any antecedent morbid process. The principal causes not implying disease in the part, which produce redness of the gastro-intestinal mucous membrane, are these:

1. The activity of the digestive process just before death. In such cases, as we have repeatedly witnessed, the mucous membrane presents a strongly-marked rosy aspect.

2. Obstructed circulation, as in diseases of the heart, or of the liver, in some cases.

3. Gravity, which occasions the blood to accumulate in the depending portions.

4. Exudation through the vascular parietes.

461. Before we decide that injection of the mucous membrane is the result of its inflammation, we should examine its thickness, consistence, and secretions.]

462. The blood itself is well known to undergo considerable

changes in inflammation: the appearances of cupping, and of buff, of the blood drawn from a vein are sufficient evidence of this fact. [Blood is said to be cupped, when the surface of the coagulum, formed by standing, is concave, and buffed when the surface is covered with a yellowish crust. These appearances, although common in inflammation, are not absolutely peculiar to, nor always found in that state.] If the same appearances have not been observed so familiarly upon arterial blood, it is probably because arteriotomy (*ἀρτηρία*, an artery, from *ἀήρ*, air, *τηρέω*, to keep; *τομή*, a section) is much less frequently performed than venesection.

463. I have thus endeavored to give the *facts* which we possess in regard to the nature of inflammation, whilst I have discarded all useless *conjectures*. The condition of medical science still requires this separation of what is ascertained, from what is only imagined,—of the true from the false: to discover the former, and to detect the latter, are equally benefits conferred upon our profession.

V. *The Distinction between Inflammation and Congestion.*

464. [Congestion is the term applied to the undue accumulation of blood in a part, without the phenomena of inflammation.] I have already alluded to the distinction between inflammation and *congestion*. As the former originates in the capillary vessels, the latter is generally induced by undue impulse given to the arterial blood, or to impeded flow of the blood in the veins. Of the former of these we have examples in cerebral apoplexy from hypertrophy of the *left* ventricle, and of pulmonary apoplexy from hypertrophy of the *right*.¹ Of the latter, I know of no example so interesting as the following:

465. *Case 1.* Mr. C——, aged 63, a barrister, called on me on the 10th of September, 1835. He had returned from the circuit, during which his friends had observed his altered appearance. I was struck with his *breathlessness*, small, indistinct pulse, pallor, thinness, &c. I appointed to see him at home.

¹ Clinique de l'Hôpital Necker, par J. Bricheteau; Paris, 1835, p. 133, 214.

466. On the next day I saw Mr. C. at his own house. There were breathlessness on the slightest exertion, augmented impulse of the heart, without either distinct second sound, or *bruit de scie*, slight *anasarca*, and slight *icterus*.

467. The progress of the case was rapid. The breathlessness became urgent, there was a distinct rattle over the posterior right side of the thorax; the left ventricle beat rapidly, with considerable impulse and without distinct second sound, or bruit; there were some cough, distinct *icterus*, and augmented *anasarca*. The jugular veins were turgid; the pulse was small, irregular, indistinct.

468. To these symptoms hæmoptysis succeeded. The only position which could be sustained was the erect. The cough became troublesome. The breathlessness, the rattle on the right posterior side of the thorax, the rapid forcible beat of the heart without second sound or bruit, the small, indistinct pulse, the *icterus*, the *anasarca*, continued, with occasional sickness.

469. Gradually the cheeks became cool, the beat of the heart less forcible, the pulse less indistinct, the posture less raised; the extremities cold and clammy, and the patient sank very slowly during several days.

470. *Examination.* The organs were examined thirty-six hours after death, on September 29th, 1835.

471. There were slight *icterus* and *anasarca*.

472. *The head* was not examined.

473. *The thorax.* The *left* cavity of the pleura contained one pint of sero-sanguineous fluid.

474. The costal pleura was very vascular; there were no adhesions, except between two contiguous portions of the lung, and of this to the pericardium. The *right* cavity of the pleura was obliterated by adhesions.

475. The *trachea* and bronchia were filled by frothy bloody mucus. The bronchial tubes were dilated, and their lining membrane redder than natural.

476. Both lungs, but especially the right, were gorged with bloody fluid, so that only the upper portion gave the healthy crepitus on pressure between the fingers. A portion of the lower lobe of the *right* lung presented a circumscribed apoplexy, of

the size of an egg ; similar but smaller apoplexies were found in the middle lobe, and in the upper lobe of the *left* lung.

477. The two layers of pericardium adhered by means of coagulable lymph, which admitted of being readily torn and stripped off. This membrane was very vascular within ; and, on its exterior surface, it was loaded with fat and serum. The *heart* was considerably enlarged : the *right auricle* and ventricle were dilated and thickened ; the auriculo-ventricular and pulmonary valves free from disease ; the pulmonary arteries and their branches appeared enlarged : the *left auricle* was much dilated and hypertrophied ; the auriculo-ventricular valve was very much thickened, of the firmness of cartilage, and admitted one finger only ; the *left ventricle* was slightly enlarged and hypertrophied ; the *aortic* valves were ossified and rigidly immovable, and their orifice so contracted as not to admit the little finger.

478. *The abdomen.* The peritoneal cavity contained no fluid. The *liver* was small, and its surface granulated. It was shewn to Mr. Kiernan, who stated that it was in the second stage of hepatic-venous congestion. The gall bladder was full of dark-colored bile ; its ducts free.

479. The peritonæum covering the intestines was deeply congested. The intestines themselves, from the middle of the jejunum to the rectum, were highly congested—the valvulæ conniventes being of a deep purple hue and presenting numerous small patches of ecchymosis. The spleen, pancreas, kidney, &c. were healthy.

480. I know of no case on record more illustrative of the effect of obstruction of the circulation, upon the *arrière* part of that circulation.

481. The breathlessness is probably accounted for by the condition of the valves of the aorta and the left auriculo-ventricular valve. The smallness and indistinctness of the pulse by the former. The turgid jugulars by the impeded circulation, propagated from the lungs to the right side of the heart.

482. The impeded flow of the blood through the aortic and mitral valves, led to *congestion* in the lungs, and this amounted to such a degree as became true pulmonary apoplexy ; in consequence of this impeded circulation in the lungs, we have conges-

tion of the hepatic vein in its second stage ; as a further consequence of hepatic-venous congestion, we have congestion of the veins of the intestine, so remarkable on the post-mortem examination.

483. The congested state of the liver led to the icterus, and to the hæmorrhagic state of the intestine. That of the vena cava to the anasarca.

484. We have here a *series* of phenomena distinctly connected : the smallness of the pulse, with the contracted aortic valve ; the congested lung, with impeded circulation through the left side of the heart generally ; the impeded flow of blood through the right side of the heart, and the turgid jugulars, with the congested lung ; the congested hepatic vein, with the impeded flow of blood through the right side of the heart ; the progressive, though *arrière* congestion of the hepatic veins, with icterus, and of the *roots* of the vena portæ, in the intestine, with that of the hepatic vein.

485. This case conveys a true idea of congestion as it occurs in the lungs, the liver, the intestine, from the interrupted course of venous blood. Doubtless, congestion occurs under various other circumstances : the spleen appears to be congested in the cold stage of intermittent, and in purpura. In typhus we may have splenization of the lung and congestion of the spleen.

VI. *The Distinction between Inflammation and Irritation.*

486. *Irritation* and inflammation are frequently allied together as *cause* and *effect*. Yet there is a real distinction to be drawn between them. Calculus in the gall-ducts, or in the ureter, may be a frequent, occasional, or permanent source of irritation, and of nothing more ; but there may be the gradual supervention of inflammation.

487. On the other hand, there may be sources of irritation with scarcely any disposition to inflammation : the irritation of indigestible food in the stomach, and of fæces, morbid in themselves, or too long retained, in the bowels, are examples of this kind, of great practical moment, in their effects on the system, as will be noticed hereafter.

488. In relation to inflammation, the subject of this chapter, there is, however, another view to be taken of irritation: an *inflamed* ovarium may *irritate* the peritonæum, occasion the effusion of serum, and so prove a source of *ascites* (ἀσцитὶς, *a sack*); an inflamed testis may, in the same manner, excite hydrocele (ὕδωρ, *water*, σίλη, *a tumor*): the excited disease is to be cured, in some cases, only by subduing the exciting disease. Not only serum—liquid albumen—but lymph, albumino-fibrine, and even the coloring matter of the blood, may be thus secreted: in an interesting case of cirrhosis (σιρρῶσις, *yellowish*), there were ascites, and over the surface of the rough liver, a thin layer of transparent lymph, nearly as red as the coagulum of the blood; there were, in addition, slight icterus, and œdema of the small intestines, probably from *congestion* in the hepatic vessels and minute gall-ducts. A source of irritation in the large intestine sometimes induces the secretion of mucus, so viscid that it retains the cylindrical form when passed per anum. In one example of this kind, shewn to me by Dr. Harwood, of Hastings, this mucous false-membrane was tinged with the coloring matter of the blood. This appearance of *formed* mucus is common in constipation, from the use of purgative medicines, but especially from the use of warm water enemata. I have never known it to be of the least consequence.

VII. *Inflammation modified by Textures.*

489. The modifications impressed upon the actions of inflammation, by variety in the textures of the parts, are of the most important and interesting character. The textures to be particularly noticed, in this place, are the following:

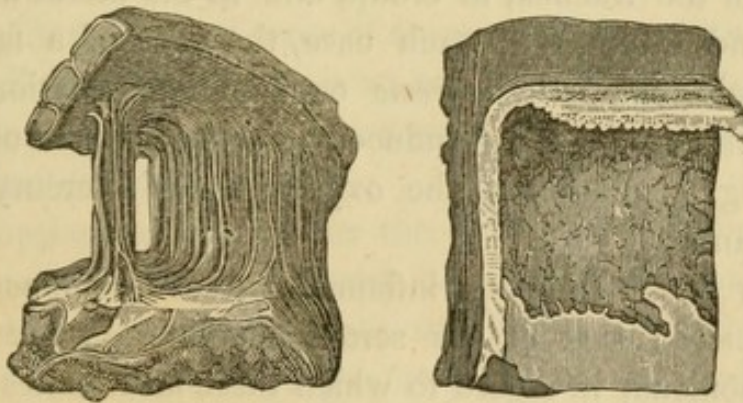
1. The Serous Membranes;
2. The Mucous Membranes;
3. The Cellular Tissue;
4. The Parenchymatous substance of Organs;
5. The Fibrous Tissues, and especially,
 1. Tendon;
 2. Cartilage;
 3. Ligament;

6. Bone ;
7. The Cutaneous Texture ;
8. The Textures of
 1. The Arteries ;
 2. The Veins ;
 3. The Absorbents.

490. Inflammation of the *serous* membranes, in its earliest stage, and in its lowest degree, is marked by redness: and this, when carefully and minutely examined, is found to consist, in *points*, *stars*, and *arborescent forms*, arising, 1, from enlarged vessels, and 2, from extravasated portions of blood. Compare § 458.

491. Sometimes, although rarely, there is *dryness* of the membrane from checked secretion.

492. Far more generally there is *augmented effusion* from the surface of the inflamed membrane; this effusion consists, 1, of *serum*, or limpid, fluid albumen; 2, of coagulable *lymph*, albumino-fibrine, in *layers* spread over the surface of membrane, or *adhesions* between its contiguous surfaces, as in the annexed representations of adhesions of the pleura, from Baillie:



sometimes of albumino-fibrine of a deep red color, from the presence of the coloring matter of the blood; 4, of *pus*, or *puriform* fluid; 5, of *sanguineous* serum.

493. The *adhesions* of which I have spoken, are sometimes little coherent; sometimes they are firm and tenacious; they are close or elongated; and they are frequently organized and minutely injected by newly-formed vessels, § 448, and even the

seat of new disorganizations, as pus, tubercle, &c. ; at length they resemble the true cellular or serous membranes themselves.

494. The last character of inflammation of the serous membranes is a most important, although a *negative* one ; it rarely leads to *ulceration*, and, when it does, contiguous surfaces have generally contracted adhesions, through which the ulceration proceeds.

495. How different from these are the usual phenomena of inflammation when this attacks the *mucous* membranes !

496. There is, however, still, in the first stage, augmented redness and injection, with enlarged blood-vessels, as is obvious in inflammation of the conjunctiva.

497. In the next place, augmented secretion of *transparent mucus* is observed ; but this gradually becomes *opaque and puriform* ; and it reassumes its transparent character as the inflammation subsides. These changes are familiar to us in bronchitis. In some instances the mucus is tinged with blood, an appearance frequently seen in *bronchitis*, and almost constantly in *colitis* or *dysentery*.

498. In inflammation of the mucous membrane, we rarely see the exudation of coagulable lymph : this event takes place, however, in the trachea, in croup, and in the uterus in dysmenorrhœa, and assumes, in each case, the form of a false membrane ; it also occurs in *extreme* cases of inflammation of other mucous membranes : it was induced, in an experiment of Hunter,¹ by injecting a solution of the oxymuriate of mercury into the vagina of an ass.

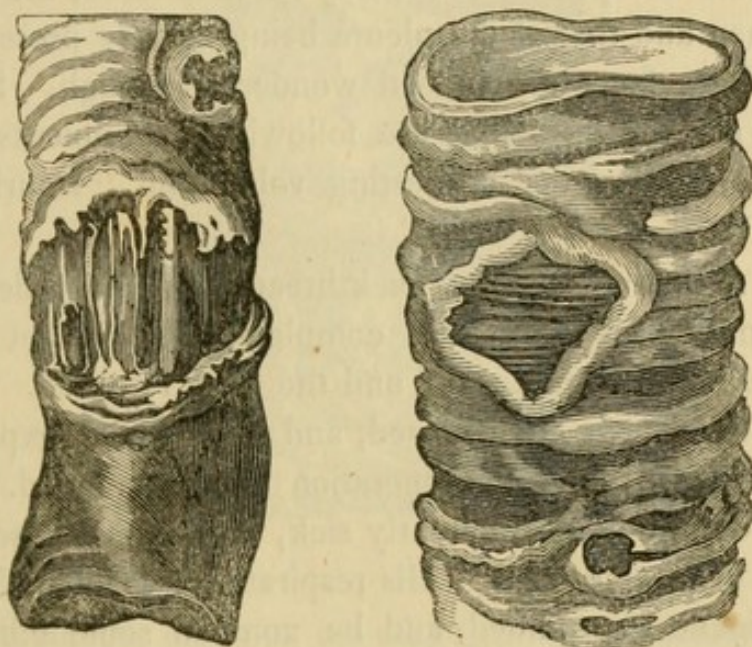
499. In these respects, inflammation of the mucous membranes *resembles* that of the serous membranes ; but there are other phenomena, in regard to which these membranes are, happily, diametrically opposed to each other.

500. It is a frequent event for the inflamed mucous membrane to undergo the change termed *softening*, or *ramollissement* ; this is observed especially in the stomach and in the intestines.

501. Another frequent consequence of inflammation of the mucous membranes, is *ulceration*. This event is common in in-

¹ On Inflammation ; page 297, 575.

flammation of the mucous lining of the stomach, and especially of the intestines. [This is shown in the following figures, which represent portions of the small intestines, inverted so as to show the ulcerations seated in the mucous membrane.]



502. Before I proceed to detail the phenomena of inflammation in the other textures, I shall adduce, at length, several most interesting illustrations of those of serous and mucous membranes, to which allusion has already been briefly made, § 363 ; and then I will suppose these properties reversed, and imagine what fearful consequences would arise.

503. Suppose an abscess in the liver. It enlarges ; it proceeds to evacuate itself : this may be effected, externally, in the hypochondrium ; internally, into the intestine, or through the lungs into the bronchia. In the first case, adhesive inflammation unites the two contiguous portions of the peritonæum, and the subsequent ulcerative process pierces through these two folds of membrane with the intervening layer of albumino-fibrine,—and then through the external integuments. The cavity of the abdomen is protected and preserved from an effusion of pus, which would immediately induce a fatal peritonitis. In the second case, similar phenomena occur, and the abscess finds an issue into the intestine, the abdomen being still protected and preserved as before. In the third case, the two contiguous peritoneal surfaces

first, and then the two adjacent pleural surfaces unite by albumino-fibrous adhesions; and, lastly, the ulcerative process proceeds to open a way for the pus through these adherent membranes, the intervening diaphragm, the cellular tissue, and the bronchial parietes, and the pus is eventually expectorated, the cavity of the abdomen and that of the pleura being equally preserved.

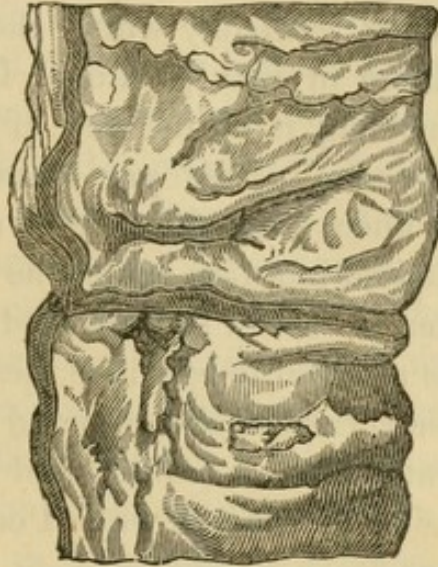
504. These facts are indeed wonderful enough. Still more wonderful are the results of the following experiments, which I quote from Mr. Travers' interesting volume on "*Injuries of the Intestines.*"¹

505. "A ligature of thin packthread was firmly tied around the duodenum of a dog, so as completely to obstruct it. The ends of the string were cut off and the part returned. The abdominal wound was then closed, and the animal expressed no sign of suffering when the operation was concluded. On the following day he was frequently sick, and vomited some milk which had been given him. His respiration was hurried. Third day, his sickness continued, and he vomited some bilious fluid. Fifth day, he passed a copious stool of the same appearance as the fluid discharged by vomiting. His sickness from this time ceased, and his breathing was natural. He took bread and milk, and drank abundantly of water. Seventh day, he had three similar evacuations and appeared well, eating animal food freely. Tenth day, he had a natural solid stool of a dark color. On the fifteenth day, his cure being established, he was killed.

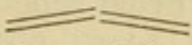
506. "*Examination.* The lacteal system was well displayed, the animal having fed recently. A portion of omentum connected to the duodenum was lying within the wound, and the folds contiguous to the strictured intestine adhered to it at several points. A slight circumferential depression was observed in the duodenum. The gut was then carefully laid open; the villi appeared turgid with chyle. This surface was more vascular and of a deeper color than usual. A transverse fissure marked the seat of the ligature. The edges of the sections were distinctly everted, and the appearance corresponded with that of the union by suture, hereafter to be described."

¹ Page 98—99.

507. The appearances subsequent to this experiment are represented in the subjoined sketch :



508. " Having made an opening into the abdomen of a dog, and brought out a fold of ileon, it was strangulated by a ligature applied a little above the angle. The strangulated piece was then cut off below it, and the cut extremities connected by the ligature were carefully put back into the belly. The wound was sewed up, and the animal did not appear to suffer materially.—Second day. He was sick, vomited bile, but drank water and a little milk.—Third day. Continued much the same.—Fourth day. Passed a solid stool, and from this time recovered his looks and spirits. After a month, having perfectly recovered, he was shot.

509. "*Examination.* The external wound was healed. The abdomen presented no appearance of disease, and but few adhesions of the peritoneum. The ileum lay upon the vertebræ in this position:  At the internal angle the sides adhered to each other. The opposite was closed by adhesions to the omentum and neighboring intestine. Upon carefully laying open the tube, it appeared that the ligature and the ends of the gut had been discharged through the canal. At one point the line of union was scarcely completed; and there appeared a little cyst, like an abscess, communicating with the tube, in

which the tied ends of the gut had been lodged previously to their being voided.”¹

510. Ramdohr’s operation in a case of strangulated hernia, is well known. “Having excised the sphacelated portion, he inserted the upper sound extremity within the lower, confining them closely by a suture in that position. In this state he reduced the gut, connecting it by the end of the suture to the wound. The matters soon passed *per anum*, and the woman recovered. A year afterwards, she died of a pleurisy. Ramdohr examined the united intestine, which he found adhering to the parietes. Heister, to whom he presented it, informs us, that he preserves it in his museum to convince the incredulous.”²

511. *Similar* phenomena are also observed in the human subject, in cases of *hernia* (ἔγρος, *a branch*) and of *intus-susceptio*, as I shall have occasion to observe when I come to treat of diseases of the intestines.

512. In all these cases the contiguous points of serous membrane unite by the effusion of albumino-fibrine; the interior tissues, with the mucous membrane, are severed by the ulcerative process. The cavity of the peritonæum is *guarded*, from the irruption of the fæcal matters, by *adhesive* inflammation; whilst the canal of the intestine is *preserved entire* by the *ulcerative*.

513. Now let us suppose these properties of the serous and mucous membranes reversed. Every inflammation of the former would tend to ulceration and abscess; every inflammation of the latter to close a canal.

514. But I must now proceed to describe the effects of inflammation in the other tissues; and, first, in the *cellular tissue*. It is in the cellular tissue that we most frequently observe the usual phenomena and signs of inflammation already described, and the changes in inflammation detailed. To these paragraphs I must refer my reader, in order to avoid repetition.

515. There is a special inflammation of the cellular membrane which I must, however, notice distinctly, although briefly, in this place. It is *inflammatory anasarca*. It results from exposure to damp and cold; and is a sequel of scarlatina. It issues not in the effusion of *lymph*, or of *pus*, but of *serum*, into the

¹ Travers, page 342—343.

² Ibid. p. 268—269.

meshes or cells of this membrane. It is sometimes conjoined with serous effusion within the head, thorax, or abdomen.

516. I have several remarks to make upon inflammation occurring in tissues compounded of the serous, mucous, and cellular.

1. *Adhesions* usually occur on their *exterior* surface: when such a surface is inflamed, it irritates [inflames] the *contiguous* serous membrane, and both pours out lymph itself, and induces the effusion of lymph from that membrane, § 486; mutual adhesion is the consequence, effected through the medium of this albumino-fibrine. 2. *Ulcerations*, on the contrary, usually occur in the *interior* surface of such composite tissues: the mucous membrane first loses its firmness and thickness, and then suffers a loss of substance by ulceration. 3. In cases of *perforation*, ulceration usually proceeds from *within*; it also generally occurs under peculiar states of the constitution *opposed* to adhesive inflammation, and *disposed* to sloughing, as typhoid fever. It is on account of this latter circumstance, that we see perforation of the intestine in typhoid fever, whilst such an event in phthisis is so rare, although ulceration of Peyer's glands occurs equally in both.¹

517. The *parenchymatous substance* of organs is apt to be softened by acute, and indurated by chronic, inflammation, to become the seat of abscess, of gangrene. Softening, induration, abscess, are frequently seen in the brain; abscess in the liver; gangrene in the lungs. See § 405, 416, 425.

518. Of the *fibrous tissues*, tendon is apt to slough, cartilage and ligament to ulcerate.

519. Caries and necrosis are well-known frequent occurrences in bone. [The first of these terms corresponds to ulceration, the second to mortification.]

520. The *cutaneous textures* resemble, in their disposition to ulceration, &c. the internal mucous linings of canals, to which they give origin. Hordeolum, furunculus, paronychia, anthrax (*ἄρθραξ*, a *burning coal*), erysipelas, afford specimens of the disposition to partial and incomplete suppuration, sloughing, or

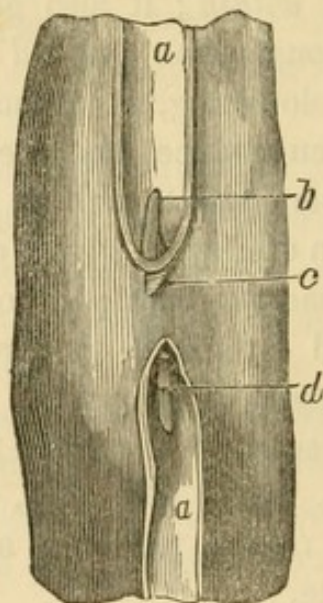
¹ [It must not be supposed that the perforations in typhoid fever are produced by mortification. "In none of these cases (eight in number) was there the appearance or odor of gangrenous inflammation, so that the destruction of the tissues seemed in a great measure the result of absorption." Louis, *Rech. Anat. pathol. sur diverses maladies*, p. 199. *Perforation de l'intestin grêle*.]

gangrene, which characterize inflammation of these textures. The various cutaneous diseases illustrate the other forms which inflammation assumes when it affects the skin.

521. In connection with difference of texture, is another interesting and important subject, the difference of inflammation in relation to *arteries*, *veins* and *absorbents*.

522. Arteries are little disposed to inflame. If you divide an artery by the scalpel, or if you partially divide it by a ligature, it is the divided border which inflames ; not, as in veins, its internal membrane. This will be illustrated by two diagrams taken from the admirable work of Dr. Jones.

523. The first represents the femoral artery of a dog nine days after its division.



a a. Portions of the femoral artery, above and below the ligature.

b d. Coagula passing into the cavity of the artery.

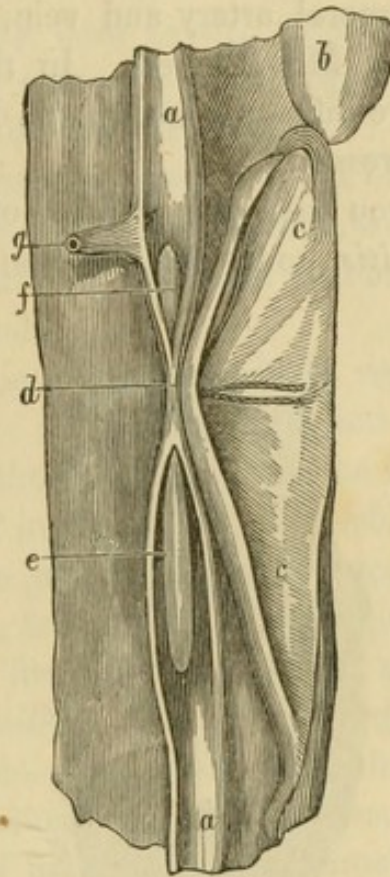
c. Clot of fibrine.

524. Both ends of the artery are *retracted* in length, and *contracted* in circumference ; they are closed by a minute clot of blood, unadherent, except at the point immediately in contact with the cut extremities, which have united by adhesive inflammation, that is, by the effusion of albumino-fibrine, or coagulable lymph, which is adherent, and doubtless organized.

525. The second plate represents the carotid artery of a dog, twelve days after the application of a ligature.

526. Precisely similar processes have taken place. A ligature always divides the internal and middle tunics of the artery ; a

fact ascertained by Dessault, Dr. J. Thomson, and Dr. Jones. In this manner the case of the ligature becomes similar to that of division by incision.



a a. Carotid artery.

b. A gland.

c c. Muscles of the neck.

d. Point of ligature.

f e. Clots of blood.

g. Transverse artery of neck.

527. *Retraction* cannot take place, but *contraction* does. The cut surfaces unite by adhesive inflammation; the same minute coagula are seen within the vessel, but unadherent, and extending, as in this representation, to the point from which a branch is given off, if this be near the place of ligature.

528. In all these cases there is no inflammation of the internal tunic of the artery,—no *arteritis*.

529. Dupuytren has, however, traced the disease termed *gangrena senilis*, to an inflammation of the arteries.

530. There is, then, little disposition to *arteritis*. Arteries are apt to become ossified in the aged, but they are little disposed to inflammation even in the young.

531. How different is the pathological disposition or character

of veins. How disastrous are operations on these vessels apt to be ; and what deplorable results would ensue, after amputations, for example, if these properties of arteries and veins were reversed.

532. Compare the figures of a divided or tied artery with figures of ligatured femoral artery and vein, in man, taken from the interesting essay of Mr. Travers. In the *artery*, you have the results of adhesive inflammation of the divided edges of the internal coats of the vessel.

533. In the vein you have the *diffused* effusion of albumino-fibrine, diffused *phlebitis*, under the infliction of the same kind of injury.



a b. Internal coats of vein. *c.* Coagulable lymph.

534. This sketch represents the effects of a ligature applied to the jugular vein of a horse. There is no division of the internal coats of the vessel ; the whole of the parietes are puckered longitudinally on being brought together. There is a *large* clot of blood *filling* the veins above. But there is no union, no ad-

hesive inflammation, to repair the injury or close the vessel. Nor is there, in this instance, any diffused, adhesive, but eventually destructive phlebitis.

535. But, in many instances, a destructive phlebitis runs along the vein, towards the heart, inducing fever of a typhoid character, and a speedily fatal event. This has occurred, in the human subject, after venesection, the ligature of veins, wounds, especially of the head, and parturition.

536. In other instances, another and a different state of things takes place. Instead of diffused phlebitis, with typhoid symptoms, we have a more confined and local phlebitis, with suppurations equally circumscribed.

537. Inflammation of the lymphatic vessels is, like phlebitis, apt to be diffused. The morbid action extends along their course towards the thoracic duct and the heart, and would probably prove as fatal in its results as phlebitis, if it did not meet with a barrier in the glands of the system, situated in the neck, the axilla, the groin, &c. These glands guard the inlets into the great cavities; they frequently suppurate; and what havoc would ensue, were they *within*, instead of being *without*,—Poupart's ligament for example. Inflammation of the absorbents generally terminates by resolution. In one instance, however, it passed on to suppuration, and many abscesses formed in the course of the lymphatic vessels, as they ascended from the heel (which was the seat of ulcer from chilblain, the cause of the inflammation) upwards along the thigh.

538. The lymphatic glands, in the neck, the axilla, the groin, &c., are frequently the seat of inflammation from similar causes, viz. an ulcer on the head, the hand, the foot, the penis; and this inflammation frequently passes on to suppuration.

539. The phenomena of inflammation are perhaps most distinctly traced in the *eye*. Constituted by numerous serous, fibrous, mucous, and other textures, it presents inflammation under all the modifications which difference of texture produces. It is also an organ belonging equally to the province of the physician and the surgeon. The works of Saunders and of Mr. Wardrop will be studied with great advantage, in this point of view.

540. The eye is an interesting organ under another point of view, in its relation to inflammation: the eye is very apt to suffer from mere *debility*: dogs fed upon indigestible food by M. Magendie, and bled to a state of exhaustion by myself, became affected with inflammation, tending to ulceration; and I have seen a *similar* event from debility in the human subject. In an experiment, in which M. Magendie divided the *fifth* pair of nerves within the cranium, the eye underwent similar destructive changes. The eye suffers from destructive inflammation in phlebitis, and is frequently the seat of encephalosis.

VIII. *Inflammation modified by Conditions of the System.*

541. Inflammation is much modified in its character and effects, by different conditions of the general system. In *rubeola*, the inflammatory or *phlogistic* ($\varphi\lambda\acute{\epsilon}\gamma\omega$, to burn) diathesis ($\delta\iota\alpha\rho\theta\eta\mu\iota$, to dispose) frequently prevails; the bronchia and sometimes the pleura are affected by such inflammation as is the usual result of exposure to damp or cold. In *scarlatina*, the fauces, nares, and pharynx ($\varphi\acute{\alpha}\rho\upsilon\gamma\chi\iota$, the throat) are inflamed, with a disposition to ulceration and sloughing; the character of the general fever, and of the local inflammation, is frequently *typhoid*.

542. In § 430, I have described the series of phenomena which occur in the variolous pustule. The description belongs to that form of the disease termed *distinct*. In the *confluent variola*, a very different series of events takes place, under the influence of a typhoidal state of the system: the *papulae* are less hard and elevated; the *serum* and *pus* are less distinctly characterized, and resemble an undefined, and sometimes bloody, *sanies*; the progress, the circular and orbicular forms, the periods, the termination of the eruption, are less marked, less distinct; and there is a greater disposition to *slough*, and consequently, to *scars*. The influence of varied states of the system, on the character of local inflammation, cannot be more vividly illustrated than by the contrast of the pustules in distinct and confluent variola.

543. But the influence of constitutional condition is extremely

obvious in typhoidal fevers; the disposition to softening of the organs, to sloughing of the integuments, and to the effusion of a sanguineous serum, is extremely marked.

544. Furunculus and paronychia in the young, and carbuncle, in later years, are all illustrations of the influence of constitutional diathesis upon local inflammation. The same remark may be applied to erysipelas in its phlegmonous and gangrenous forms, in the former of which there are frequently extensive, diffused, and deep-seated suppuration and sloughing, and in the latter, actual mortification of the whole of the part or limb involved in the disease.

IX. *The influence of Inflammation on the System.*

545. But if the influence in the constitutional diathesis upon local inflammation be strongly marked, that of inflammation upon the general system is not less so. I shall illustrate this subject by a reference to the influence of inflammation in—

1. The Serous,
2. The Mucous, and
3. The Compound Tissues.

546. In inflammation of the *serous* membranes, there are, in general,—1, acute pains; 2, great power to bear the loss of blood; 3, great disposition to buff and cupping of the blood itself.

547. In inflammation of the *mucous* membranes there is far less pain, far less power of bearing the detraction of blood, and far less disposition to buff and cupping of the blood.

548. There is, however, an exception to this general rule in regard to the influence of inflammation of the mucous membranes, in the case of *croup*, whether common or rubeolous: in this disease there is great power of bearing the loss of blood.

549. In inflammation of the parenchymatous and compound tissues, there is an intermediate condition of things, differing with the organ affected.

X. *Diffusion of Inflammation.*

550. Inflammation is by no means always confined to one part, or organ.

551. *Eruptive* inflammation is very apt to extend from the cutaneous to the mucous tissues, and especially to those of the throat: *scarlatina* affects the conjunctiva, the posterior nares, the fauces, the pharynx, &c., *rubeola*, the conjunctiva, the anterior nares, the larynx, the trachea, the bronchia, &c.

552. We occasionally observe *diffused* inflammation of the *mucous* membranes, those of the air-passages, and of the digestive organs, being simultaneously or consecutively affected; this is particularly the case with erythematous (*ἐρυθρημα*, *redness*) and aphthous (*ἀπτω*, *to inflame*) inflammation.

553. Sometimes too, though less frequently, several of the *serous* membranes, especially the pleura, the pericardium, and the peritonæum, are simultaneously affected with inflammation, with the effusion of *serum*, *lymph*, or *sanguineous* fluid.

554. Pus is frequently found in various organs, and in several parts of those organs at the same time; as in the integuments, the eye, the brain, the lungs, the liver, &c. in cases of *phlebitis*, succeeding operations, accidents, parturition, &c.

555. Pus may exist in the *veins*, in connection with an abscess, or from phlebitis; and it may exist in the *lymphatics*, either in connection with an abscess, or from inflammation of these vessels. These facts are particularly observed in *puerperal* metritis (*μῆτρα*, *the uterus*), or metro-peritonitis.

XI. *On Inflammation as a Curative Means.*

556. Without inflammation, the art of Surgery could hardly exist. Most operations imply the resources of Nature in healing divided parts. This is accomplished by the immediate adhesion of contiguous surfaces, *union by the first intention*; or by the gradual filling up of cavities, by *granulation*.

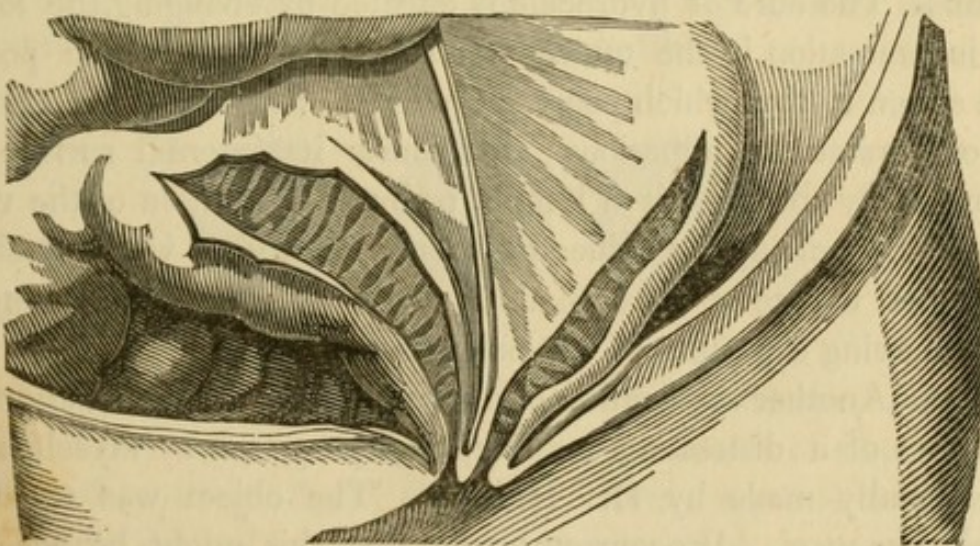
557. Inflammation, as a curative measure, is sometimes employed by Nature, sometimes by Art.

558. A coagulum of blood is formed in the substance of the brain, in *apoplexy* : in the first place, albumino-fibrine is thrown out, forming a cyst which lines the torn cavity of the cerebrum and incloses the coagulum ; in the next place, the coagulum may be gradually absorbed, leaving a cyst replete with serum ; in the third place, this serum may be absorbed, the parietes of the cyst approach, adhere, and the cyst is obliterated, nothing but a cicatrix remaining.

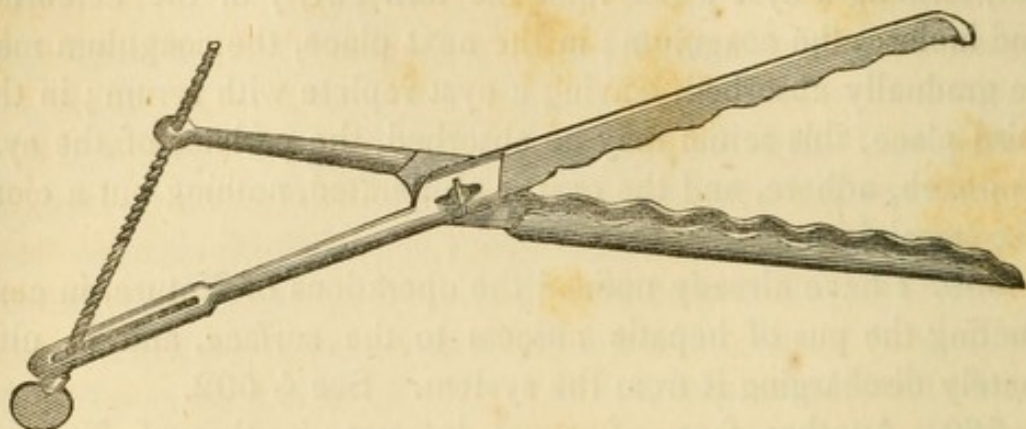
559. I have already noticed the operations of Nature, in conducting the pus of hepatic abscess to the surface, and in ultimately discharging it from the system. See § 502.

560. Another fact, of equal interest, is that of Nature's operations in the formation of *artificial anus* : the peritonæum lining the abdomen, and the peritonæum covering the intestine, unite by layers of effused albumino-fibrine ; the strangulated portion of the intestine sloughs, but the abdominal cavity is safe. The patient is not destroyed ; but he is left a prey to a loathsome malady. We shall see how art, guided by genius, completes what Nature had begun.

561. The cure of artificial anus was devised by Dupuytren. The state of the intestine, in that affection, is thus represented by that distinguished surgeon :



562. The instrument by which Dupuytren contrived to effect the cure, is pourtrayed in the subjoined wood-cut :



563. It will be observed that one of the blades of this instrument is received into a groove in the other ; its edge is dull, indeed one line in breadth, so that the intestine is held and *crushed*, not *severed*, when seized by it. The first blade is passed into the upper, the second into the lower portion of the intestine, and it is gradually but firmly closed. The adjacent parts of the peritonæum *unite* by albumino-fibrinous exudation ; the textures seized by the instrument *slough* ; the cavity of the abdomen is preserved entire, whilst the canal of the intestine is made continuous. The external wound is healed when the passage of the *faeces* has become free.

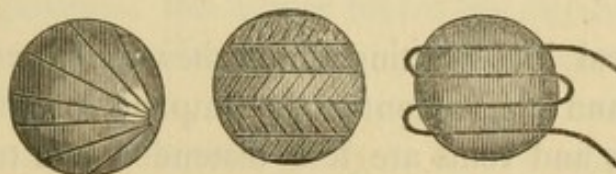
564. The cure of hydrocele is effected by changing the form of inflammation in the tunica vaginalis, from that which pours out serum to that which pours out lymph. Sometimes the cavity is obliterated by adhesions ; sometimes its internal surface is changed by the deposit of lymph, or by the condition of the vessels. This change is induced by some proceeding which excites a higher degree of inflammation : by an injection, by a seton, by removing a portion of the peritonæum, &c.

565. Another application of the principles of inflammation to the cure of a distressing malady, was proposed by myself, and successfully made by Dr. Heming. The object was to cure *prolapsus uteri*. It occurred to me that this might be accomplished by diminishing the calibre of the vagina, so that the uterus might be supported in its place at its upper part. The vagina, being lined by mucous membrane, could not be readily

excited to contract adhesions with itself; I proposed, therefore, to remove one or two slips of that membrane, and draw the opposite edges into contact by suture; adhesion would take place, the canal would be firmly contracted, and the prolapsus of the uterus prevented. All this was effectually accomplished in one case, the details of which I gave in the Medical Gazette.¹ Several years afterwards, the case was examined by Mr. Vincent; the uterus was still retained in its proper position. Recently, this operation has been successfully repeated by M. Velpeau and M. Bérard, jun. In the young, I would propose that the slip of mucous membrane removed from the highest part of the vagina be broader than that removed from below.

566. The object in this operation is to contract the vagina. It is accomplished by changing a mucous surface, opposed to adhesive inflammation, into a surface of another character on which this form of inflammation is readily excited. The operation has been designated by M. Bérard, '*élytroraphie*' (*ἐλυστρον*, *vagina*, and *ἑσφῆ*, *a suture*).

567. There is one other application of the principles of inflammation to the cure of disease, which I also proposed some years ago, and must briefly notice in this place. It occurred to me that if I could change the vascular texture of certain forms of *nævus* into firm lymph or cicatrix, I should effectually cure that congenital disease. The plans which I proposed, in order to accomplish this object, are represented below :



The circle to the left represents a *nævus* punctured from one point, in various directions, by means of a needle of considerable size, with cutting edges; the middle circle represents a *nævus* absolutely *divided* by two operations; the third, a *nævus* pierced in several parts by a needle and thread, the latter being left to excite inflammation. Little pain is inflicted, scarcely a drop of

¹ Vol. xvii, page 266.

blood is lost, no scar is produced ; the deposit of lymph is effected very slowly ; but it is only necessary to repeat the operation often enough, at due intervals, and to wait long enough for Nature's processes. The celebrated Professor Lallemand, of Montpellier, has quite recently proposed a precisely similar mode of proceeding : the *only* difference being that that gentleman suggests the propriety of leaving the needles themselves in the nævus, for a time sufficient to induce the deposite of lymph.¹

568. Such are some of the applications of the principles of inflammation to the cure of disease. The use of ligatures to arrest hæmorrhagy, to remove hæmorrhoids, &c., proceeds upon similar principles.

XII. *Treatment of Inflammation.*

569. The principal *remedies* for *external* inflammation are—

1. Blood-letting ;
 1. General ; venesection ; arteriotomy.
 2. Topical ; cupping, leeches, scarification.
2. The division of the part.
3. The cold lotion.
4. Cataplasms ; fomentations.
5. Blisters ; rubefacients.
6. The nitrate of silver.

570. General blood-letting diminishes the force of the heart and arteries, and consequently the impetus of the blood ; the minute arteries and veins are less distended and turgid, and the capillary vessels are proportionately relieved. Topical blood-letting relieves the minute and capillary vessels more immediately.

571. The *division* of the inflamed part is an efficacious remedy in inflammation, when it can be performed, as in *inflammation of the tonsils, erysipelas, carbuncle, &c.*

572. The *cold lotions* subdue the action of the minute arteries ; *cataplasms* and *fomentations* appear to act by relaxing the integ-

¹ See Med. Gaz. vol. xvii, page 299.

uments and textures generally, and so diminishing the degree of *tension* in the inflamed part.

573. *Blisters* and *rubefacients* are principally applicable to cases of *chronic* inflammation, and are usually combined with rubbing, the use of the part, &c.

574. Lastly, the profession is indebted to Mr. Higginbottom,¹ for introducing to their notice a *new antiphlogistic* remedy, in the nitrate of silver. Lightly passed over and beyond the moistened surface of inflamed parts, as in paronychia, erysipelas, inflamed absorbents; wounds, punctured, lacerated, or bruised; the nitrate of silver often succeeds in subduing the morbid actions. Duly applied in variola, over and beyond the pustule, it prevents the sloughing which leads to the pitting sometimes so distressing in this disease.

575. In addition to these remedies for *external* inflammation, we must mention those which are more particularly required in cases of *internal* inflammatory disease. They are chiefly—

1. Blood-letting.
2. Purgatives and other evacuants.
3. Mercury.
4. The tartrate of antimony.

576. The employment of blood-letting in internal inflammation is the most important act of the physician: *inefficient* and *undue* blood-letting are equally followed by serious, perhaps dangerous consequences; the former leaves the disease to commit its ravages unarrested, the latter plunges the patient into a state of debility, perhaps more calamitous than the original disease. This subject will be treated fully in a distinct chapter. The reader may also consult my work upon blood-letting.² [The other depletive remedies, purging, vomiting, sweating, &c., especially the first, are applicable to the treatment of various forms of inflammation. Rest and the antiphlogistic regimen are important aids.]

¹ On the Nitrate of Silver.

² Observations on Blood-letting, founded upon researches on the morbid and curative effects of Loss of Blood.

577. Next to blood-letting, mercury seems to be our principal remedy in inflammation, and especially in inflammation of the mucous membranes of the larynx and trachea, and of the iris.

578. Recently, the Italian and the French physicians have introduced the tartrate of antimony, as a remedy in inflammation, and especially in *pneumonia* (*πνεύμων*, *the lung*).

CHAPTER VI.

ON TUBERCLE.

579. AFTER inflammation, tubercle is the most important of the subjects comprised in the Theory of Medicine,—or Pathology.

580. Whilst inflammation frequently constitutes processes of reparation or restoration, and effects those purposes in the most marvellous manner, unaided, (§ 363 ; 502 et seq.) or directed by the skill of the surgeon (§ 557 et seq.), the tendency of tubercle is always destructive : it arises from a morbid condition of the system ; and it tends to devastations of the part or parts affected, which, if internal, ultimately prove fatal.

581. It is true that inflammation frequently induces the effusion or secretion of serum and pus, which, being fluid, have no tendency to become organized ; or the softening or ulceration of parts, which are destructive processes ; but, frequently, instead of these, coagulable lymph or albumino-fibrine is deposited, and this substance generally tends to become assimilated with the living solids ; the process is one of restoration or of reparation. Some degree of softening, and actual ulceration, even, may in this manner be effectually remedied.

582. But in the case of tubercle, every thing tends to destruction, to disorganization : the tubercle itself, solid at the first, softens, liquefies ; the organ in which it is situated, and the system at large, are involved in fatal changes.

583. This distinction between inflammation and tubercle and other morbid processes of a similar tendency, has been forcibly

insisted on by Lobstein, who has expressed the two modes of action by distinct terms: the first he designates by the term *euplasy* (from εὖ, *good*, and πλάσις, *formation*); it obtains in the formation of cicatrix, &c.; the second he terms *cacoplasia* from κακός, *bad*, and πλάσις); it leads to deposits which tend to softening and destruction: such are tubercle, melanosis, encephalosis, scirrhus, &c. The former is usually a topical affection; the latter arises from a morbid diathesis of the system, and invades several organs or systems simultaneously.

584. Tubercle is hereditary, and, doubtless, frequently congenital. It is heterogeneous¹ from the living solid, and incapable of organization.

585. It is to the works of Bayle² and Laennec,³ of M. Louis,⁴ and M. Andral,⁵ and Dr. Carswell,⁶ that we are chiefly indebted for our knowledge of tubercle.

I. *The Causes of Tubercle.*

586. The causes of inflammation are principally external, and only occasionally constitutional; the causes of tubercle are almost invariably such as induce a morbid diathesis, a sort of cachexia (κακός, *bad*,, ἔξις, *habit*), through the medium of which tubercle is generated. This diathesis is the result of—

1. Hereditary disposition.
2. Cold and damp soil, or air.
3. Insufficient food.
4. Insufficient clothing.
5. Insufficient exercise, air, or light.
6. The depressing passions.
7. Attacks of fever, inflammation, dyspepsia, &c.
8. The abuse of remedies.

¹ Compare homogeneous (from ὁμός, *like*, γένος, *kind*).

² Recherches sur la Phthisie Pulmonaire; Paris, 1810.

³ De l'Auscultation Médiate; Paris, 1826.

⁴ Recherches sur la Phthisie; Paris, 1825.

⁵ Clinique Médicale, ed. ii; Paris, 1829.

⁶ Pathological Anatomy; London, 1834.

587. To this account of the immediate *causes* of tubercles, I must add that of the *influence*,

1. Of age.
2. Of sex.
3. Of season, &c.

588. Innumerable painful facts prove the existence and influence of hereditary disposition to tubercle. The youthful members of a family are frequently affected with tubercles in succession: in one family, the disease may affect the lungs, in another, it may affect the mesenteric glands, in several individuals in succession. Tubercles have been found in the lungs of the fœtus.

589. Tuberculous disease is frequent in cold and damp situations. It is far less so on high mountains, as the Alps, and on sea-coasts. The late Dr. Wells has, however, adduced many interesting facts,¹ which tend to prove that tuberculous disease is little known in localities in which intermittent fever prevails. He attempts to explain this fact on the principle, "that the existence of one disease in the human body, or even a tendency to one disease, often renders it less susceptible of another."² Neither the northern parts of Europe and America, nor the temperate climates of France, Spain, Italy, and Greece, enjoy any immunity from this terrible disease. The inhabitants of the country are less subject to tubercles than those of towns, and especially than those of crowded cities.

590. It is a prevailing opinion that deficient food and clothing predispose to tuberculous disease. Dr. Withering stated in a letter to Dr. Beddoes, published in 1793, that butchers are exempt from consumption.³ It is also generally admitted that the want of exercise and the privation of wholesome air, and of light, have the same baneful influence in disposing to this disease.

591. That the depressing passions have a similar influence,

¹ Transactions of a Society for the Improvement of Medical Knowledge, iii, page 471.

² Ibid., p. 513.

³ Ibid., p. 508.

even when no predisposition to tubercular affection existed, I have recently, alas! had painful evidence, in the case of a near relative. Laennec observes—"parmi les causes occasionnelles de la phthisie pulmonaire, je n'ai pas connu de plus certaines que les passions tristes, surtout quand elles sont profondes et de longue durée."¹

592. Attacks of fever, of inflammation, of acute dyspepsia, have led to the development of tubercles; the excessive loss of blood, and the influence of mercury, have sometimes appeared to have a similar baneful tendency.

593. In general, whatever impairs the strength, and the tone of the system, favors the formation of tubercle: whilst whatever invigorates and nourishes, operates as a preventive of this direful malady.

594. Such are the principal circumstances which promote, or obviate, the tendency to tubercle. There are two other conditions of the system which coöperate with this tendency:

595. The first of these is the youthful age of the patient. Tubercle has, indeed, been observed in the fœtus, in children of less than a year old, and in octogenarians;² but it occurs most frequently between the ages of fifteen and fifty. The following table, taken from Bayle, displays the mortality from *pulmonary* tubercle, in the different ages.

Ages.	Deaths.	Ages.	Deaths.
From 15 to 20 years	10	From 40 to 50 years	21
20.....30.....	23	50.....60.....	15
30.....40.....	23	60.....70.....	8
			<hr/>
			100
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596. This agrees nearly with the subsequent observations of M. Louis,³ as set forth in the following table:

¹ Op. cit. t. i. p. 646.

² See Bayle, page 40, and Laennec, edition 1826, tome 1, page 652.

³ Recherches sur la Phthisie, page 533.

Ages.	Deaths.	Ages.	Deaths.
From 15 to 20 years	11	From 40 to 50 years	23
20.....30.....	39	50.....60.....	12
30.....40.....	33	60.....70.....	5
			<hr/> 123 <hr/>

597. Laennec simply remarks, in opposition to the statement of Bayle, that the female sex is more subject to pulmonary tubercle than the male. M. Louis¹ observes, that in the 123 patients of whom the several ages are given in the preceding table, 70 were women and 58² men, and of 43 patients who died of other chronic diseases, tubercles were found in the lungs of 25 women and of 15 men; the sums of these two series being 95 and 73.

598. *Season* would appear to have little influence on the event of tubercle, if we may judge from the subjoined table of the deaths in 244 cases of phthisis, taken from Bayle :³ of these

54 occurred in Spring,	64 occurred in Autumn,
68.....Summer,	58.....Winter.

599. Having made these remarks on the *causes* of tubercles, I shall now introduce the first part and specimen of an invaluable manuscript confided to me for this purpose by my friend, M. Louis, and containing the result of his labors *before* and *since* the publication of his incomparable work upon phthisis.

600. "*Causes*.—The analyses to which I have devoted myself have less enabled me to discover the causes of phthisis, than to appreciate certain opinions of authors upon this subject. In studying two orders of facts, the first relating to cases of phthisis, the second to cases of other diseases, in a certain number of which there were tubercles in the lungs, I have found that phthisis is less frequent in men than in women, in the proportion of 55 to 72, a difference of some importance, and confirmed by researches made since the publication of my work on phthisis.

¹ Recherches sur la Phthisie, page 522.

² Here is a slight error.

³ Op. cit. page 43.

601. " Since this publication, too, M. Benoiston, de Chateau Neuf, has analyzed a still more considerable mass of facts, taken from the registers of the hospitals of Paris, and has arrived at a similar result, the proportion being, after the age of 15, as 3 to 5.

602. " A similar remark applies to infancy, before the age of 15. M. Papavoine has found that in 532 children of the female sex, and between 2 and 15 years of age, who died at the *Hopital des Enfants*, 338, or about two thirds, had tubercles ; whilst in 387 boys, only 210, or seven thirteenths, a little more than one half, were so affected.

603. " On the other hand, severe pneumonia and catarrh are more frequent in men than in women, nearly in the proportion of 2 to 1, a fact which contradicts the general opinion that inflammations of the lung are the most frequent cause of phthisis.

604. " In addition to this I may observe, that in 11 cases of dilatation of the bronchia, of from two to six years duration, in subjects who had not experienced symptoms of phthisis, I found in 8 the mucous membrane of the bronchia, of triple or quadruple its natural thickness, of an intense redness, and as if granulated ; in a word, manifestly inflamed ; and yet in the whole 11 cases 3 only were complicated with tubercles, a proportion similar to that observed in other cases of fatal disease, not phthisical.

605. " Emphysema of the lungs is generally accompanied by cough and chronic pulmonary catarrh, which may continue ten, twenty, or thirty years or more, without producing the symptoms of tubercles.

606. " Of 44 subjects who died of disease of the heart, whose cases I took at La Charité, 19 had hypertrophy of the right auricle, with or without dilatation, and 29 had a similar affection of the corresponding ventricle ; 6 of the 29 had the pulmonary artery dilated, and hypertrophied even to its minutest divisions, a result of the augmented force with which the blood had been propelled along it. Yet of the whole 44 cases, 2 only were affected with tubercles, and these but in small number ; whereas in 50 cases of cancer of different organs, in patients of the same age, taken at the same time, 11 presented tubercles.

607. " Lastly, when we only find tubercles, or grey, semi-transparent granulations in the lung, the bronchia offer no traces of

inflammation. They are only inflamed with redness and thickening, in cases of excavation, and then only those branches which are in communication with those excavations. Hence we must conclude that inflammation is an *effect*, and that, doubtless, of the continual contact of the sputa or contents of the cavities with the bronchial mucous membrane, and not the *cause* of the tubercles.

608. " On the other hand, of 46 subjects carried off by typhoid fever, 4 presented some tubercles or semi-transparent gray granulations at the summit of the lungs ; and these subjects had died from the 25th to the 46th day of the disease, whereas none of those who died before the former period, presented any tuberculous affection. We must thus conclude that the protracted duration of the disease had contributed to the formation of the tubercles.

609. " The influence of climate is not so incontestably proved as is generally supposed, for this proof can only result from calculations, and the materials for these calculations probably exist only at Paris, where the subjects are opened in all the establishments.

610. " Almost all the monkeys which die at Paris, die of tubercles, and it has been concluded that they die from the influence of cold. But before coming to such a conclusion, it would be necessary to ascertain, first, the proportion of tubercles in the monkey tribe in hot climates ; and in the second place, the influence of a change in habits, nutriments, &c. Almost all the cows kept in stables in Paris are said to die of tubercles ; here we cannot suspect the influence of cold.

611. " A fact already mentioned, viz. the greater prevalence of phthisis amongst women than men, should lead to the same result, for the former are far less exposed to the alternations of heat and cold than the latter.

612. " Tight stays and other clothing have been considered as a cause of phthisis ; and this idea has seemed to be supported by the fact just mentioned, of its greater frequency among women than men. But this cause can scarcely be supposed to operate among the patients of *La Charité*, from whose cases I have deduced my conclusions ; and we must not forget that phthisis prevails more in the female sex in infancy.

613. "On the other hand, these latter facts seem to support the ancient idea of the lymphatic temperament being a predisposing cause of tubercles."

II. *The Appearances and Changes of Tubercle; the Granulations of Bayle.*

614. Tubercle, in its simplest and least dangerous form, consists of opaque bodies of a yellowish-white color, of the consistency of cheese, the particles of which have little cohesion,—varying in size from that of a millet seed to that of a pea or of a nut,—sometimes isolated and globular, or oval, sometimes agglomerated into masses of various size and form, sometimes infiltrated into the tissue of the organ in which it is situated, and sometimes surrounded by a distinct cyst.

615. Tubercle occurs then under the following forms principally :

1. The Isolated.
2. The Agglomerated.
3. The Infiltrated.
4. The Encysted.

616. Tubercle appears to be a formation or secretion totally distinct or heterogeneous from any natural or morbid structure : it is inorganizable, and incapable, of course, of being injected ; it is as a foreign body in the midst of the living solid, and there is a constant disposition, in that solid, to effect its solution and discharge from the body.

617. Bayle has described an appearance in the lungs which he has designated by the term *granulations* : he observes :¹ "The lungs are studded ("farcis," whence the term used by veterinarians) with miliary, shining, transparent granulations, sometimes marked with brilliant, black points or lines. These granulations appear of the nature and consistence of cartilage ; their size varies from that of a millet seed to that of a grain of wheat ; they are never opaque, and do not soften. By these characters,

¹ Op. cit. page 26.

they are distinguished from miliary tubercles, which have the same magnitude, but are always gray or white, and opaque, and which eventually soften completely.”

618. [We sometimes meet with larger indurated masses presenting an appearance and consistence resembling that of the granulations already described, and like them, in some instances, containing the yellow tuberculous matter in their interior.]

619. Laennec¹ is of opinion that these granulations are the first stage of tubercle. M. Louis² is of the same opinion. M. Andral,³ on the contrary, contends that they are merely inflamed portions of the pulmonary lobules.

620. [The question of the relation between the gray granulations and the yellow tuberculous matter is one of great pathological interest. The first circumstance to remark is this, that these two lesions are usually found in company, so that it is rare to meet one without the other. Bayle, who first described the miliary granulations, as the basis of a distinct species of phthisis, admits that they are almost always accompanied with tubercles. Laennec, who considered them as the first stage of tubercles, of course admitted the usual coincidence of both lesions in the same subject. Louis remarks that he never found tubercles without granulations but twice, nor granulations without tubercles but five times. They are obviously, then, both derived from a common cause, and the existence of the miliary granulations as well as that of the yellow tubercles, is proof of the tuberculous diathesis.

621. This practical point is independent of some further questions that have been agitated. The granulations, whether isolated or in masses, are often apparently transformed into the yellow tubercle. How is this affected?

622. Bayle, as we have seen, considered the two affections as forming different species of disease.

623. Laennec asserted that the change of the granulations into tuberculous matter commenced at their centre. He considered it as originating in the granulation itself, from its inherent powers. Louis takes a similar view of this transformation.

¹ Op. cit. t. i, p. 537.

² Op. cit. p. 2.

³ Op. cit. t. ii, p. 5; 28.

624. Andral supposes that the granulations are formed by the air cells, which become solidified in consequence of their chronic inflammation. The yellow tuberculous matter may be secreted in this condensed tissue as in any other, according to him, but the two have no essential and necessary connection.

625. Carswell agrees with Andral in considering the yellow tuberculous matter a secretion, but supposes the granulations formed by mucus inspissated in the air cells. The various proportions in which these two secretions are found will account for the apparent transformation of one into the other.

626. Dr. Williams¹ considers the granulations, whether distinct or agglomerated, as a deposit of feebly organized animal matter occurring from a low degree of chronic inflammation, or from defective vitality in the nutritive fluid. Its conversion into tubercle he regards as the result of a new secretion of friable albumen, and parallel to the change which precedes the conversion of effused lymph into pus, an instance of which may be seen in the transition state of the red into the gray hepatization of pneumonia.

627. The statements in the present work, which rest principally on the observations of M. Louis, shew that the *obvious signs* of inflammation neither precede nor follow, at least necessarily, the formation of crude, or unsoftened tubercle.

628. The facts mentioned by M. Louis prove that inflammation of the bronchiæ, and pulmonary tissue have no obvious and demonstrable influence in producing tubercles.

629. If it be true then that inflammation is concerned in the production of granulations and tubercles, it is not the inflammation which we have already described, but one which is different in its phenomena as it is in its results. Nor is it distinctly under the influence of the usual remedies of inflammation; so that we have gained but little by the train of argument which has been supposed to establish the relation of these two affections. For the production of the miliary granulations, as for that of tubercle properly so called, the general condition of the system, whether hereditary or acquired, appears to be an element of far more importance than any local irritation. See § 633, &c.]

¹ Lect. on Diseases of the Chest, in Bell's Medical Library.

630. Tubercle appears to be a morbid *secretion*. Its size augments by the addition of fresh particles of the same kind. It at the first infiltrates the texture in which it is found ; afterwards it becomes isolated from that texture, except in the case of diffused infiltration. It then becomes infiltrated itself, *softened*, and transformed into a puriform fluid. It acts as a thorn or other foreign body, inducing the secretion of pus in the textures by which it is contained. Eventually, like such other foreign body, it is, if possible, removed from the economy. It then leaves a cavity, an *ulcer*, which in rare instances, contracts and cicatrizes.

631. Ordinary tubercles contain about 98 parts of animal, and 2 parts of saline, matter, viz. the muriate of soda, and the phosphate and carbonate of lime. In some cases they undergo a *calculous* transformation, and they then consist of 3 parts of animal, and 97 parts of saline, matters. [Andral remarks that as the cretaceous matter consists of the same salts that are found in tubercle, the conversion of this into the former is owing to the absorption of the animal portions, and increased deposition of saline matters.] This calculous transformation is observed in the lungs, in the mesenteric glands, &c. It is opposed to softening.

632. Tubercles are principally developed in the cellular membrane of organs. They may be sub-mucous, subserous, intramuscular: they may occur in the substance of the cerebrum and cerebellum, the liver, the spleen, the kidney, the testis, the absorbent glands, the bones, &c. Tubercle has been seen on the surface of mucous membrane, free from ulceration ; in the mucous follicles ; and in the lymphatic vessels : in these, and some other cases, it is obvious that other textures besides the cellular membrane, had poured out tuberculous matter.

III. *The Relation of Tubercle with Inflammation.*

633. There have been perpetual disputes amongst pathologists upon this question. M. Broussais asserts the affirmative ; M. Louis the negative, and physicians generally are divided in their opinions upon this point ; in a word, it has been distinctly seen that there is a connection between tubercle and inflammation,

and yet the real nature of that connection has not been detected.

634. I think it will appear obvious, from the facts I shall now adduce that tubercle is *not* a simple *effect* of inflammation. I think it will be equally obvious that tubercle is *not*, in its pristine condition, a *cause* of inflammation. What, in fact, are the signs of inflammation? Redness, tumor, enlarged capillaries, and minute arteries, effusion of serum, effusion of lymph. Do these phenomena, or any of them, uniformly attend the development, the existence of tubercle? I believe not.

635. Nay, the very commonest results of inflammation,—the effusion of serum, or of lymph, do not take place at the moment that tubercle is deposited, or during the crude state of this morbid deposit. It is true that tubercle is described as being sometimes *encysted*. But in the whole course of M. Louis's inquiries he found encysted tubercle but *once*! In addition to this fact I may observe, that the bronchial tubes, the cellular texture of the lungs, adjacent to crude tubercles, and the pleura covering them, do not display any marks of inflammation. The first are free from redness or other inflammatory affection of their mucous membrane; the second is free from consolidation; and the last from the deposit of albumino-fibrine or lymph.

636. I may, therefore, conclude that the formation and presence of tubercles are unattended by the usual effects of inflammation. What, then, is the relation between these two pathological conditions?

637. Tubercle, when quite crude and simple, has *no* connection with inflammation. It is only when tubercle begins to *soften* that it becomes as a *foreign body* in the economy, *exciting* like a thorn in the cutaneous, or like a bullet in the muscular, textures, or like the pus of an ordinary abscess, inflammation with its train of consequences. Tubercle induces inflammation as it softens; it induces the adhesive and the ulcerative ulceration; it induces the formation of a cyst, lining the cavity which it leaves; these cavities are covered by firm layers of lymph deposited upon the surface of the pleura. The process of ulceration proceeds, and sometimes we have even *perforation*.

IV. *The Diffusion of Tubercle ; Important Law of M. Louis.*

638. Whilst inflammation is frequently, nay generally, confined to one texture, organ, or cavity, tubercle is apt to be diffused, to affect several textures and organs at the same time.

639. The degree of frequency in which tubercles occur in the different organs, is represented in the following table of M. Louis', which is founded upon 358 post-mortem examinations : tubercle existed in

The Lungs	in	ALL the cases except one.
— Small Intestine	—	one third.
— Large Intestine	—	one ninth.
— Mesenteric Glands	—	one fourth.
— Cervical Glands	—	one tenth.
— Lumbar Glands	—	one twelfth.
— Prostate	—	one thirteenth.
— Spleen	—	one twentieth.
— Kidneys	—	one fortieth.
— Cerebrum	}	— one case only.
— Cerebellum		
— Spinal Marrow		
— Uterus		
— Urethra		

640. This table is full of interest, and deserves to be carefully *studied*. It is only in the lungs that tubercles exist *alone*.

641. The *left lung*, and the *upper lobe*, appear to be the most prone to the development of this disease : in *seven* cases, observed by M. Louis, in which the tubercles were *confined* to one lobe, they existed in the *left lobe* alone in *five* ; in the *right*, in *two* only. The gray granulations (§ 619), tubercles, cavities, are *all* more frequent, numerous and advanced, in the entire upper lobe, than in the lower lobe, but especially at its apex ; the former is sometimes impermeable to the air, whilst the latter is still subservient to respiration. In 38 cases, M. Louis observed

¹ Op. Cit. Rapport, p. 4—5.

this fact 28 times in the left lung and 10 times only in the right. In 8 cases of *perforation* of the pleura, 7 were also observed in the left lung.

642. There are several questions of considerable interest still to be determined by future observation: a *first* is, in what proportion of the cases of phthisis are the tubercles *confined* to the lungs? a *second*, in what proportion of cases of tuberculous affection, is the disease *predominant* in the mesenteric glands? a *third* relates to the proportion of cases in which tubercle is *diffused* over many organs, surfaces, cavities, &c.

643. I shall now briefly state an important *Law*, and some important *facts* deduced by M. Louis from his observations upon this disease:

644. 1. M. Louis has ascertained, from the analysis and comparison of 358 cases, of which 127 were cases of death from phthisis, and 40 from other diseases, that *tubercles* never occur in any organ in the body after the age of fifteen, except in cases in which they also exist in the lungs.

645. 2. A second deduction of M. Louis is, that ulcerations of the epiglottis, the larynx, or the trachea, are not observed in any chronic disease, except phthisis (tubercles) and syphilis.

646. 3. A third deduction relates to the existence of ulcerations of Peyer's glands, which are only found, in chronic diseases, in connection with tubercles in the lungs.

647. 4. A similar deduction relates to chronic peritonitis, chronic from the beginning [namely, that this is attended with the formation of tubercles beneath the peritonæum, and consequently with tubercles in the lungs, according to the law first mentioned].

648. 5. A fifth deduction from the observations of M. Louis is, that the affection termed fatty liver, is almost exclusively a complication of pulmonary tubercle.

649. Such are the results of the original researches of M. Louis. They relate to ages beyond that of 15. M. Lombard has pursued the inquiry in reference to infancy and the earlier periods of life:

650. 1. Tubercles are very rare in the *fœtus*, and in the *early months* after birth.

651. 2. They become rather more frequent towards the age of *four* years ; and exceedingly so from *four* to *five*.

652. 3. They again become less frequent from the age of *five* years to that of puberty.

653. 4. After puberty, tubercle again becomes more frequent, but in the *lungs* only.

654. It is further ascertained that tubercles are more diffused, and more frequently occur in other organs, without affecting the lungs, in infancy than in adult age.

655. They also exist in the various organs in a different *proportion* : out of 100 cases, for instance, tubercles occurred in the mesenteric glands in 31, and in the intestines in 9. Compare § 639.

656. M. Andral has deduced from his own observations that men are more subject to tubercles from the age of 21 to that of 28, while females are more exposed to this disease *before* the age of 20.

657. M. Andral observes that *after* puberty the term tubercle becomes nearly synonymous with phthisis. I have, however, traced the symptoms and appearances of tuberculous disease in the abdomen, in many cases after the age of 15, and especially between that period of life and the age of 25. In one interesting case, the patient was 35.

658. There is one other observation which I have made: I have seen phthisis in several members of one family, and abdominal tubercles the predominant disease in those of another. So that not only the disease, but its form and seat, would appear to be derived from hereditary tendency.

V. *Signs and Symptoms of Tubercles.*

659. The *signs* of external tubercle are, principally, insidious and slow inflammation, suppuration and ulceration, followed by a red, indented cicatrix, and situated—1, in the absorbent glands,—of the neck, the groins, &c. 2, in the joints,—of the wrist, the ankle, the elbow, the knee, &c. and 3, in the bones,—of the finger, the arm, the leg, &c.

660. The further signs of this disease, are those of the tuber-

culous *diathesis* : the tumid, cracked lip ; the red, denuded eyelid ; the florid complexion ; the precocious mind ; &c. or similar appearances in other members of the family.

661. The *symptoms* of tubercles are very peculiar, and have not been sufficiently noticed by practical writers :

662. Before the stethoscope (*στήθος*, *the chest*, *σκοπέω*, *to explore*) can detect the existence of tubercles in the lungs, the constitution of the patient frequently takes the alarm, and the functions of the circulation and of the respiration become slightly accelerated, or are easily hurried. I have frequently observed that, with a complexion which is apt to alternate between the pallid and the vivid, there is a degree of sensitiveness to cold, of susceptibility of the effects of heat, of breathlessness on moving quick or ascending a hill or staircase, and of cough ; this cough is frequently slight, hacking, and dry, and scarcely or not at all observed by the patient or friends. In other cases, and especially in females the countenance is pallid, with the slightest waxen or lemon hue, a tendency to blue lividity observed in the lips and at the roots of the finger nails, and a disposition to coldness of the extremity of the nose, the ears, and the hands and feet. These changes are frequently so insidious, that they are apt to be first observed, not by those who are in the daily habit of seeing the patient, but by some one who sees him after a certain interval and is struck by the change.

663. Even at this early period, I have frequently found, on inquiry, that the catamenia have ceased. And I would observe, that this cessation of the uterine discharges is generally or at least frequently, complete at once ; unlike the case of disorder of the general health, in which the flow becomes very slowly paler and more scanty, and except in chlorosis, not ceasing altogether, and even in that disorder generally very gradually. This is the more remarkable, because the condition of the uterus, under the influence of tuberculous disease, is one of great proneness to conception, a change which has, in its turn, a reflex action in arresting the progress of the tuberculous affection.

664. The fever which accompanies phthisis, like other symptomatic fevers, and unlike all pure and primary fevers, is frequently unattended by muscular debility, or by affection of the

head, or of the digestion. There is no headache or vertigo, and the patient often continues to walk or to ride to the last. There is a degree of feebleness and stooping observed in the gait, very early in the disease ; and this remains little augmented, until the colliquative perspiration or diarrhœa bring with them their own debility and emaciation.

665. Tuberculous disease in the abdomen is greatly characterized by three symptoms :—1, great tendency to coldness and lividity of the extreme parts of the body ; 2, a frequent pulse, and 3, slow but progressive emaciation.

666. The aspect of the countenance is altogether peculiar, especially in cold weather, together with an obvious emaciation and expression of languor and disease ; the end of the nose is livid in color, and cold to the touch ; and there is, in general, either paleness or a slight degree of flushing.

667. Similar observations may be made respecting the general surface. There is emaciation ; the skin is soft, and apt to become moist, and there are generally perspirations during sleep, especially in the early part of the morning ; to prevent this perspiration, the patient frequently endeavors to keep awake ; there is an undue sensibility to cold observed on the slightest unexpected exposure,—as the opening of a door,—and the patient usually creeps over the fire ; sometimes I have observed the back of the hands, and the fore part of the legs, to assume a peculiar brown color, from being burnt by this constant exposure to heat ; the hands and fingers are apt to be extremely livid and cold.

668. The mode of walking is peculiar, being attended by stooping, weakness and caution. The pulse is always frequent, and generally regular. It is earlier and longer frequent, in tuberculous affection of the abdomen, than in that of any other cavity. I have known the pulse to be between one hundred and one hundred and twenty for several years. The emaciation in tuberculous disease of the abdomen is uniformly but very slowly progressive. It is accompanied by a state of unvaried debility ; and in the later periods of the disease, by some œdema, generally observed more in one leg than the other. The catamenia simply become scanty, or cease, without undergoing the changes

observed in some cases of disorder of the general health. There are altogether a peculiar appearance of the countenance, and a peculiar attitude and manner in general, all denoting debility and great disease; if to these be added the peculiar sensibility to cold, and tendency to coldness and lividity of the extreme parts of the body, the very gradual emaciation, and the habitual frequency of the pulse, it is scarcely possible to mistake the nature of this disease.

669. Tuberculous affection of the encephalon, can, I believe, only be suspected, and distinguished from insidious inflammation or the slow formation of tumors, by observing the concurrent existence of tubercles, or of some other strumous affection, in other parts of the body. Or, if there do exist symptoms which distinguish this morbid affection within the head, they have not hitherto been noticed with accuracy. It is in the case of suspected tubercles of the encephalon or spinal marrow that the law ascertained by M. Louis, § 644, is so valuable: are there signs or symptoms of tubercles in the lungs? according as this question is answered affirmatively or negatively, is the probability that the case is one of tubercles of the other organ.

VI. *The Prevention and Treatment of Tubercles.*

670. This question is one of the deepest interest. That tuberculous formation has been prevented in some instances, and that it has been cured in others, is undoubted. The principles upon which these events have been effected are:

1. The removal of the *causes*.
2. The correction of the *diathesis*.
3. The local treatment.

671. The modes of avoiding the causes of tubercles will be readily understood, by reverting to the enumeration of those causes, § 587.

672. The second object seems to be best accomplished by the free exposure to the country air, or sea-breezes;—by first stimulating the general surface of the body by sponging with salt water and using a coarse towel, and then by protecting it by

flannel and proper clothing ;—by keeping up tone and strength of the system, by an animal diet, regular exercise without fatigue, early hours, by frequent journeys, voyages, change of scene, total change of abode, &c.

673. [Animal food, discreetly used, tends to invigorate the system, and is useful in a common tuberculous diathesis. But when there is inflammation or febrile action, as from recent hemoptysis, a very light milk and vegetable diet is essential.]

674. The cold, damp soil, or air, the insufficient food, clothing, exercise, air, diet, light, &c., are to be exchanged for the opposite order of things.

675. For the sponging I advise an ounce of common salt to be dissolved in one pint of water ; with this the patient is to sponge the whole surface of the body, using it warm in winter, tepid in spring and autumn, and cold in summer ; a very coarse towel is then to be used actively, so as to induce a general glow of warmth over the system. The *feet* may be rubbed last, until they glow. The towel may be dipped into such a solution of salt, and be allowed to dry before it is used.

676. The sponging is to be repeated every morning ; it may also be repeated, *as the most effectual remedy for the colligative perspirations of tuberculous patients*, in the night or early part of the morning. After this the patient may remove to another bed, and will frequently pass the remainder of an otherwise wearisome night, in a comfortable and refreshing sleep.

677. The general surface should be protected by flannel,—the upper clothing must vary with the season.

678. The diet should consist of mild and nourishing food. Travelling or the sea breezes, or, best of all, a sea voyage to the West Indies, constitute the most important remedy in incipient tubercle. The change, the tonic air, the milder climate do good. Would it were possible to accomplish these things for our pauper patients. I do think that if we could convey our patients to a large ship at sea, and leave them there for a time, instead of landing them upon a heated island, much good might sometimes be accomplished.

CHAPTER VII.

ON SCROFULA.

[679. SCROFULA is a term originally employed to designate a particular disease, characterized by swelling of the glands of the neck, frequently followed by the discharge of ill-conditioned matter. It has been often used in a more vague sense, and the adjective *scrofulous* is daily employed with a somewhat indefinite notion of its meaning. We shall endeavor to give as exact an idea as we are able of the affections included under this term.

680. The name scrofula is derived from the Greek word *scrofa*, a swine, probably from the prevalence of a similar affection among those animals. The disease, properly so called, is manifested by a gradual enlargement of the lymphatic glands, especially of the neck, which become the seat in many, if not in all cases of the deposition of tuberculous matter. As in other organs, this matter becomes softened, the surrounding tissues ulcerate, a curdy fluid is discharged, and as these changes occur in a part not vitally important to the system, they are frequently followed by a slow healing process, which leaves the part seamed with deep and irregular cicatrices.

681. This disease has long been observed to occur most frequently in individuals presenting certain physical characteristics. These are a feeble organization, shown by imperfect development of the frame, small and flaccid muscles, a long and slender neck ; the signs of what is called the lymphatic temperament, a fair skin, light hair, and blue or grey eyes ; to which may be added, long eye lashes, tumid upper lip, precocious intelligence, and excitability of mind and body. This kind of organization has,

consequently, been called the *scrofulous constitution*. It is admitted that a tendency to scrofulous or tuberculous disease is not unfrequently met with in individuals of dark complexion, and even of robust formation, but we believe that most observers would acquiesce in the following propositions of Andral: first, that the disposition to tuberculous disease is in a direct ratio to the development of the constitutional characteristics we have first mentioned; and secondly, that in proportion as the marks of this constitution become indistinct, tubercles are more rarely met with, and especially that they tend to affect a smaller number of organs at the same time.

682. The subjects of scrofula, and those who present the signs just described as belonging to the scrofulous constitution, have been long observed to be peculiarly subject to certain other morbid affections, which have, consequently, obtained the name of *scrofulous diseases*. The word *strumous* is often employed with a similar meaning.

683. The name scrofula may very properly be used to designate the tuberculous affection of the glands of the neck, just as the term phthisis is employed to distinguish tuberculous disease of the lungs, and tabes mesenterica, a similar affection of the mesenteric glands. But however we may name the affection for the sake of convenience, we must remember that its essential character consists in the secretion of, or the disposition to secrete tubercle. As a local affection, almost peculiar to a certain period of life, and from its situation presenting some special phenomena, and requiring some particular treatment, it deserves to be considered by itself. As one form in which the tuberculous cachexia manifests itself, it should be considered under the general head of tubercles, the laws of which have already been considered in the preceding chapter, to which we therefore refer for the description of tubercle itself, of the causes under the influence of which it is produced, and of the general or constitutional treatment adapted to those suffering from, or predisposed to, this affection.

684. The anatomical changes which occur in the enlarged lymphatic glands are thus described by Dr. Abercrombie. "In the first state of enlargement these glands present, when cut into,

a pale flesh color, and an uniform, soft, fleshy texture. As the disease advances, the texture becomes firmer, and the color rather paler. In what may be regarded as the next stage, we observe portions that have lost the flesh color, and have acquired a kind of transparency, and a texture approaching to that of soft cartilage. While these changes are going on, we generally observe in other specimens the commencement of the opaque, white structure, which seems to be the last step in the morbid changes, and is strictly analogous, in its appearance and properties, to the white tubercle of the lungs. In a mass of considerable size, we can sometimes observe all these structures, often in alternate strata; some of the strata being composed of the opaque, white matter; others presenting the same pellucid appearance; while in other parts of the same mass, we find portions which retain the fleshy appearance. In the most advanced stage the opaque, white, or ash-colored tubercular matter is the most abundant; and this afterwards appears to be gradually softened, until it degenerates into the soft, cheesy matter, or ill-conditioned supuration, so familiar to us in affections of this nature."

685. The diagnosis of this affection is not difficult in general. The enlarged glands are readily felt in the earlier stages as smooth, oval or globular tumors, moving freely under the skin, of moderate firmness, and little sensible to pressure. They subsequently convey the sense of fluctuation, if matter is formed, and become fixed to the skin by adhesions. When an external opening has taken place, its edges are of a livid or purplish color, thin and undermined by the diseased cavity. The cicatrices are remarkably puckered and wrinkled, and sometimes even traversed by bridges of skin, under which a probe may be passed. The only stage at which there can be doubt of the nature of the disease is the first, the signs of which are the same as those of irritation or inflammation of the gland from common causes. In the latter case, the source of irritation can commonly be detected by a proper examination, and will be found to consist in an eruption upon the scalp, the state of the gums from dentition, or some similar local cause. It is to be remembered, however, that disease originally excited by one of these causes, may acquire the scrofulous character; that enlargement from irritation may

acquire the scrofulous character ; that enlargement from irritation may terminate in the deposition of tubercle. Our opinion must be determined by the constitutional character and hereditary tendency, by the existence of similar affections in other parts, and by the effects of removing the apparent causes of irritation. Scrofulous patients are apt to attribute the cicatrices of this disease to *burns*, from which they may be distinguished in most instances, by their limited extent, their number, and the peculiar aspect we have mentioned.

686. The causes peculiar to this form of tuberculous disease are principally two. 1. As a predisposing cause, youth exercises a most important influence. This disease rarely appears before the age of two or three years, or after the age of puberty. 2. The position of the cervical glands, which receive the lymphatic vessels from parts peculiarly liable to irritation from different sources, exposes them to numerous exciting causes.

687. With respect to the treatment adapted to this affection, the general rules laid down for that of tuberculous disease may be considered applicable. The local treatment consists in the application of leeches, if there is much inflammation, in the use of friction with the iodine ointment, and the employment of pressure when the tumors are indolent. Should the formation of matter be unavoidable, poultices or fomentations should be applied, and as soon as fluctuation is discovered, it will be proper to evacuate the fluid by a small opening. After ulcers have formed, astringent lotions, the black wash, occasionally touching their edges with nitrate of silver, if indolent or irritable, and if very painful, a cataplasm of fresh hemlock leaves, will be the proper applications.

688. We have described the disease as it affects the cervical glands, because this is the affection to which the term scrofula was originally applied, and because it is the most usual form of tuberculous disease affecting the external lymphatic glands. Other external glands, however, as those of the groin and axilla, may be the seat of the same affection, though much more rarely. By a slight extension of the term, these instances may be included under the same denomination. They do not evidently

require a separate notice, as they are due to similar causes and require similar treatment with the affection already described.

689. All diseases, whether internal or external, in which tuberculous matter is secreted, are, by a still further extension of the term, denominated scrofulous. To this extension of the original meaning there can be no great objection, since wherever this morbid product is found, it indicates a general diseased condition, produced under similar circumstances, shewn by similar external signs, and leading in many instances to the deposition of tubercle in various organs at the same time.

690. But besides the affections of which we have spoken, the common character of which is the tuberculous deposit, others which do not present this circumstance are ordinarily spoken of as scrofulous affections. They have derived this appellation because they were thought to be frequently found in company with tuberculous disease, or to belong especially to that kind of organization in which such affections are most frequently met with. In consequence of this license in the use of the adjective, much vagueness has necessarily arisen in its employment. So long as the presence of tubercle is taken as the test of the scrofulous condition, or the presence of tuberculous disease in a family as a mark of hereditary predisposition, it cannot well be misapplied. But when many lesions of very different character are included under the same term, every practitioner is at liberty to apply it, not merely when a connection is demonstrated, but wherever he may choose to see such a connection. This has happened with regard to some cutaneous diseases, which are not uncommonly called scrofulous, without any proof of their having any thing in common with that affection.

691. We shall briefly mention some of those diseases usually recognised as of scrofulous nature.

692. 1. Diseases of the skin. Impetigo and chronic eczema, are most frequently met with in children of feeble health and fair complexions. These affections are less distinctly allied with scrofula, however, than lupus, especially that form of lupus attended with hypertrophy, which has been pointed out by M. Bielt.

693. 2. All writers on diseases of the eye admit the exist-

ence of a form of ophthalmia peculiar to scrofulous individuals. Beer asserted that nine tenths of the cases of ophthalmia in children at Vienna were of this character. Many cases of otorrhea appear to be connected with a scrofulous tendency. The mucous secretions are said by some authors to be more abundant in scrofulous subjects than in others. Such subjects are said also to be liable to ulcerations of the mucous membrane of the mouth and nostrils.¹ The tonsils are often enlarged under similar circumstances. Irritability of the pulmonary and gastrointestinal mucous membrane is considered as a common trait of the scrofulous constitution, with a tendency to leucorrhea in females. M. Lugol remarked in his lectures that scrofulous children were peculiarly subject to worms.

694. Chronic inflammation of the synovial membranes is thought to occur most frequently in the scrofulous.

695. Affections of the bones are unquestionably frequent in scrofulous subjects. When they are seated in the articulating portions of bones they lead to the disease called *white swelling*. In the spinal column scrofulous disease is liable to induce curvature. In different regions it may terminate in caries, in necrosis, and in the formation of abscesses.

696. Scrofulous persons are said to be more subject to nervous affections and to insanity than others.

697. Having mentioned those affections commonly spoken of as being of a scrofulous nature, we shall adduce three important statements made by M. Ruz, at the end of his inaugural thesis, in reference to this subject. His authority is peculiarly valuable from his familiarity with the diseases of children during a long attendance at the Children's Hospital of Paris, and from his character as an exact and rigorous observer.

698. 1. "In the examination of the bodies of thirty-two children who had died from the effects of some of those morbid changes called *scrofulous*, I found tubercles in the lungs in every instance."

699. 2. "Affections of the bones in children are, in the ma-

¹ The disease called glanders in the horse has been shewn by M. Dupuy to consist in a tuberculous affection of the lining membrane of the nostrils. He disbelieves in the contagious nature of this disease.

majority of cases, due to the development of tuberculous matter in their substance."

700. 1. "Pulmonary tubercles are less frequent in ricketty children, than in those who die of other chronic diseases."

701. We shall close this chapter with the following propositions, which present a general view of the subject of which we have been treating.

702. 1. Under the influence of certain external conditions, the human organization degenerates from its healthy standard, and transmits a defective form of existence to those derived from it.

703. 2. This degeneration is shown by the external aspect, by some functional peculiarities, and by a tendency to, or the existence of, certain diseases.

704. 3. When the deterioration of the standard of being has arrived to a certain point, its indefinite continuance is arrested by the intervention of *tuberculous disease*, which, reacting on the morbid system in which it was generated, tends to put a stop to life, and, consequently, to the transmission of the disease to others.

705. 4. Three special forms of tuberculous disease may be considered as among the principal agents in preserving the healthy standard of mankind, by cutting off a large portion of imperfectly organized beings before they have become capable of reproduction; *tabes mesenterica*, tubercular meningitis and pulmonary phthisis. The last disease only continues frequent after puberty.

706. 5. The non-tuberculous diseases, commonly considered scrofulous, if not complicated with tubercles of other parts, are for the most part compatible with prolonged existence, and, consequently, do not contain a principle to restrain their indefinite increase. This complication exists, however, so frequently, that the subjects of these diseases are often prevented by fatal tuberculous affections from transmitting their imperfect organization to posterity.

707. 6. The diseases and morbid tendencies described may be generated by accidental or external causes in individuals of

healthy organization, but these causes will in general be resisted in proportion to the natural strength of constitution.

708. In the constitutional treatment of scrofulous affections in general, a great variety of specific remedies, the use of which has seemed to originate in the hypothetical, and frequently chemical, opinions of their advocates, have been employed. Alkalies, acids, lime water, salts earthy and metallic, chalybeates, vegetable tonics, in their respective turns, have raised and disappointed expectation. Iodine, from the reputation it has acquired in bronchocele, holds at present a doubtful supremacy among the remedies which have been accounted specific. But we are sufficiently satisfied that no single remedy is entitled to reliance, for the removal of this constitutional taint. If the general vigor of the system can be sustained, and the healthy performance of the functions promoted for a certain period, the patient may outgrow a malady which specific medicines do not exterminate. Hence the open air, regular exercise, light, wholesome, nourishing food, sufficient clothing, the shower bath, and especially sea bathing, are followed in a great many cases with renovation of the general health, and diminution and final disappearance of the scrofulous symptoms. We have known a sea voyage to heal scrofulous ulcers of bad character, which had resisted years of medical treatment.]

CHAPTER VII.

ON MELANOSIS.

709. THE designation *melanosis* (μελας, μέλας, *black*) was given by Laennec to a peculiar disease, which has recently greatly engrossed pathologists, but which is, in reality, of little importance to the practitioner: 1, it is a rare disease; 2, it is, in general, undetectable during life; and 3, if detected, it suggests no indications for the treatment. I will devote to it precisely that degree of attention which it appears to deserve, comparatively with the other subjects of this volume.

710. Melanosis consists generally of a deposit,—a *secretion*—of a dark color, varying in shade from brown and other hues to deep black. It stains paper like Indian ink. It seems to consist principally of the coloring principle of the blood greatly modified.

711. Like tubercle, melanosis appears, as I have stated, to be a morbid secretion. It is inorganized, and incapable, of course, of being injected. It exists in masses, or patches, the forms of which are greatly modified by the texture and forms of the part in which it is deposited: it exists, therefore, sometimes in rounded portions, as in the lung, the liver, sometimes in lamellated or stellated portions, as in the intestines, or the surface of the serous membranes, &c. It is,

1. Isolated.
2. Agglomerated, and of various size and form.
3. Infiltrated.
4. Encysted.

712. It is usually of uniform texture. It is occasionally seen in cysts and in the natural cavities, in the *liquid* form.

713. Like tubercle, the *size* of melanosis varies from that of a millet seed, to that of a pea, of an egg, of an apple; and its *forms*, from the round, or oval, to the lobulated, induced by the intersection of portions of cellular membrane,—and to the perfectly irregular, induced by the various coalescence of minor masses.

714. Melanosis rarely undergoes the process of softening and expulsion; it then, however, leaves an ulcer or cavity, which may enlarge or contract, and ultimately cicatrize.

715. Like tubercle, melanosis generally exists in several organs simultaneously. It is most frequently found in the *lungs*. It occurs occasionally in the *liver*. M. Andral observes that it has not been observed in the *brain*; it has, however, been both described and depicted by Lobstein, as occurring in the optic thalamus; and in the brain itself by Dr. Carswell. It occurs in the stomach and intestine; in the lymphatic glands; in the ovarium; in the subcutaneous cellular tissue; in the bones, &c. And it occurs in masses of encephalosis or scirrhus.¹

716. [Dr. Carswell² distinguishes the black deposits found in different tissues into the *true* and the *spurious* melanosis. The first includes all those which are the result of a true secreting process, as in the subcutaneous tumors, &c. The second comprehends those which are produced by mechanical accumulation, by chemical agency, or stagnation of the blood. The most remarkable form of spurious melanosis, is the affection of the lungs which has been observed in the laborers in coal mines, and is due to the detention of the particles of carbon received into them during respiration.]

717. Unlike tubercle, melanosis is most frequent in advanced age.

718. The existence of internal melanosis is sometimes revealed by the appearance of similar deposits under the skin, through

¹ *Traité d'Anatomie Pathologique*, tome 1, p. 460; and plate xvi, fig. 1 and 2.

² *Lond. Cyclop. of Pract. Med. Art. Tubercle.*

which the black color is more or less distinctly or faintly discerned.

719. The *symptoms* of melanosis are very obscure ; Laennec¹ observes that there is no fever, but emaciation, and dropsy of the extremities, and even of the serous cavities.

720. Of the remedies of melanosis nothing is known.

721. The subject of melanosis has been principally treated of by Laennec,² Bayle,³ M. Breschet,⁴ M. Cruveilhier,⁵ M. Andral,⁶ Dr. Carswell, &c. M. Cruveilhier is of opinion that melanosis is formed in the capillary vessels or minute veins ; Lobstein has depicted the matter of melanosis within a small vein.⁷

¹ Op. cit. tome ii, page 30.

² Op. cit. tome ii, page 26.

³ Op. cit. p. 209.

⁴ Journal de Physiologie, tome i, page 354.

⁵ Anatomie Pathologique, Fasc. xix, xxii.

⁶ Précis d'Anatomie Pathologique, tome i, p. 446.

⁷ Plate xiv, fig. 3 * *.

CHAPTER IX.

ON ENCEPHALOSIS, SCIRRHUS, &c.

722. I HAVE detailed the phenomena of the two most important subjects in the Theory of Medicine—Inflammation and Tubercle,—and have added a brief sketch of a subject of less moment, Melanosis. I now proceed to treat of Encephalosis and of Scirrhus, or of *soft* and *hard Cancer*.

723. Encephalosis, as its designation, encephaloid (*ἐγκεφαλος*, *the brain*, *εἶδος*, *likeness*), imports, resembles the medullary portion of the brain, both in consistency and color.

724. Scirrhus, on the other hand, as its etymology implies (*σκληρός*, *hard*), is extremely hard, and of the consistency and color of cartilage.

725. These two forms of disease, so apparently dissimilar, occur too frequently simultaneously in the same organ, or in different organs, to be viewed as a distinct disease. It is not known, however, that they are changed, or transformed into each other. They are rather variously mingled together.

726. Encephalosis is very vascular, and, if torn or cut, in the living subject, is very apt to bleed. It was designated by the term fungus hæmatodes (*αἱματώδης*, *bloody*), by the late Mr. Hey. It consists of a peculiar substance frequently interposed between the meshes of the cellular membrane, whence it obtains various lobular and other forms.

727. Scirrhus is less, or not at all vascular, and appears to consist, according to M. Andral,¹ of the same cellular membrane, in a state of induration and hypertrophy.

¹ Anatomie Pathologique, tome i, page 498.

728. These two forms of the disease are homogeneous. *Intermediate* forms, however, consist of admixtures of these two substances in various manner and proportion. Scirrhus is frequently described as consisting of meshes, or cells, formed by hard, white, opaque bands, which contain, in the spaces formed by them, another of transparent and softer matter: it is true encephalosis and true scirrhus mingled together.

729. Encephalosis and scirrhus constantly tend to *enlargement*, to *ulceration*, to *multiplication*, to *diffusion*. It frequently happens, that when an external fungus has been removed by the surgeon, the symptoms of the internal disease begin to manifest themselves.

730. This disease has a tendency to assume different forms in different organs: thus it is generally fungous in the encephalon, tuberos in the liver, hypertrophous in the stomach and rectum. This rule, however, is by no means constant.

731. The parts most liable to this disease are the eye, the mamma, the encephalon, the lungs, the liver, the stomach, the rectum, the kidney, the testis, the lymphatic glands, the bones; but by no means in the precise order in which I have here enumerated them. It would be interesting to supply the want of numerical statements relative to the diffusion of encephalosis and of scirrhus in the different organs.

732. One fact is very remarkable: the encephaloid matter has frequently been detected in the *veins*, especially in the liver and the kidney.¹ It was discovered accordingly by M. Bérard,² that an injection could be transmitted by the *arteries*, but *not* by the *veins*: in a case of cancer of the thyroid gland, it is said—"not a vein was injected, whilst the arterial injection penetrated every part of the tumor."³ M. Cruveilhier concludes that encephalosis has its *seat* in the "capillary veins;" and that these become distended, and form the cells in which the cancerous matter is contained.⁴

733. There appears then to be, in this disease, the secretion

¹ See Cruveilhier's Anatomie Pathologique, Fasc. xii, p. 6, and xviii, pl. i.

² Ibid.

³ Cruveilhier, Op. cit. Fasc. xix.

⁴ Ibid., Fasc. xxiii, page 4.

of a peculiar substance of soft consistency ; induration and hypertrophy of the cellular membrane ; a disposition to the formation or deposit of the former in the veins ; such are the facts we possess upon this subject, until the result of Mr. Kiernan's researches shall appear. The disposition to enlargement, by which injurious pressure is frequently induced,—to thickening of canals, by which obstruction is occasioned,—the disposition to pass into ulceration and to form fungus,—the disposition to become diffused in the animal economy, and to affect the system with a peculiar cachexia ;—these are the terrific characters of this fearful malady.

734. In connection with the more ordinary forms of encephalosis and scirrhus, several others must be noticed : to the other textures, melanosis¹ is occasionally added ; in some instances the disease assumes the areolar and gelatiniform appearance, from the deposit of a jelly-like substance, termed by Laennec *colloïde* (κόλλα, *glue*, εἶδος, *likeness*), in the meshes of the cellular membrane.² This last form of cancer is most frequently seen affecting the pylorus and adjacent part of the stomach,—and, next to this, the bones.

735. The symptoms in encephalosis and scirrhus, are, first, those which arise from injurious *pressure* upon the contiguous *organs* ; secondly, those which arise from *obstruction* to *canals* ; and thirdly, the state of *cachexia*, with straw-colored complexion, emaciation and debility, &c., which frequently result from the influence of the disease upon the system at large. This interesting subject will be treated of hereafter. I will only add, in this place, that the organs compressed are frequently,

1. The Trachea ;
2. The Œsophagus ;
3. The Aorta, or Carotid Artery ;
4. The Jugular Vein ;

with appropriate symptoms, when the tumor occupies the sterno-clavicular region ; and

¹ Cruveilhier, op. cit. Fasc. x.

² Ibid.

1. The Rectum ;
2. The Urethra ;
3. The Vagina ;

when it occupies the pelvis ; and that the canal most apt to be obstructed is the alimentary, in various parts of its course, as,

1. The Œsophagus ;
2. The Cardia, the Pylorus ;
3. The Ileum, the Colon ;
4. The Rectum ;

with symptoms equally appropriate.

736. Scirrhus occurs later in life generally than encephalosis. It is chiefly remarkable by inducing a pallid, sallow, straw-colored hue of the complexion, with emaciation, and peculiar pains, resembling those of rheumatism. But the principal symptoms of encephalosis and scirrhus are those produced by the *mechanical* pressure upon adjacent organs, or obstruction of canals, which arise out of the peculiar and relative situation.

737. Encephalosis is more rapid in its course than scirrhus, and it usually destroys the patient by its morbid pressure on some important adjacent organ. I may advert to the arrangement just given. If the tumor may be situated within the cranium, it may induce the symptoms of *compression* of the brain ; it may protrude the eye from the orbit ; it may induce loss of the sense of smell, of sight, &c., and symptoms of asphyxia, or disordered respiration, according to its precise situation. If it be situated in the lung, it may induce a slow *asphyxia*, by compressing the bronchia and trachea. If it be seated differently, it may induce *dysphagia*, by compressing the œsophagus. If, on the other hand, it be fixed over a large artery, it may receive a strong movement at each pulsation of that vessel. Before the real nature of the disease is detected, it may thus be mistaken for tracheitis, for stricture of the œsophagus, or for aneurism of the aorta, or arteria innominata. In any case the course of the blood may be impeded by the jugular veins, and the face and neck may be livid and tumid. A slight degree of these phenomena should lead, indeed, to the suspicion of encephaloid tumor within

the thorax, and to a recourse to the stethoscope and percussion for its detection. When the disease occupies the *pelvic region*, and the rectum, the urethra, or the vagina is compressed and interrupted, we are enabled to clear up the diagnosis by a proper examination. Until this is instituted, the disease is frequently mistaken for stricture of the rectum, or urethra, or disease of the bladder or uterus.

738. If the scirrhus be situated in the upper part of the œsophagus, there is difficulty in the first act of deglutition. If the disease be seated lower down, or at the *cardia*, the first and some subsequent acts of deglutition are accomplished without difficulty, until the œsophagus becomes filled and distended, and then the further acts of deglutition are impossible, and several events occur; the fluid attempted to be swallowed is forced through the nares, and perhaps an act of vomiting is excited by the contact of this fluid with the fauces; this vomiting merely empties the œsophagus—it is œsophageal. If the scirrhus occupy the lower curvature or body of the stomach, it may act upon the *system* without inducing *local* symptoms. If it be seated in the *pylorus*, pain occurs after taking food, and is only relieved by acts of vomiting. When the disease is fixed in the intestine, it produces pain,—iliac or colic pain, according to its locality,—with a sense of obstruction, and a sensible tumor. When the disease affects the rectum, it impedes the evacuation of that bowel, and is detected by a proper examination.

739. Hitherto no cure is known for encephalosis or scirrhus. Extirpation is the only remedy; and this, for the reason mentioned § 728, is too frequently unavailing. However, it seems to prolong life, and mitigate present suffering. The only other remedy which has appeared to do good, is the perfect quiescence of the part affected; a plaster worn for years has apparently staid the progress of scirrhus of the mamma; whereas marriage, in one case, immediately developed scirrhus of the uterus, not suspected before. A blow has frequently been the exciting cause of encephalosis or scirrhus.

740. I must add a few words upon the subject of cancer. This term, or carcinoma, (*καρκίνος*, *a crab*), is applied to many intractable and destructive ulcers, but especially such as result

from encephalosis and scirrhus. It is frequently a question, especially in the contemplation of excision, whether a given ulcer be cancerous in this sense or not : when such ulcer is situated in the lip, in the tongue, for instance. Facts are wanting to solve this momentous question.

741. Besides the diseases which I have just noticed, others will be treated of in the course of the subsequent pages, in connection with the organs in which they appear principally ; they are chiefly the encysted, the fibrous, the polypous tumors. It is only necessary in this place, to point out the necessity for a strict diagnosis between these tumors and encephalosis and scirrhus.

CHAPTER X.

ON FEVER.

742. SCARCELY less important than the subject of Inflammation, is that of Fever.

743. The first question in reference to fever is this : can fever exist without some topical inflammation as its immediate or proximate *cause* ? In other words, can fever be idiopathic (*ἰδιοσ*, *peculiar*, *πάθος*, *affection*), or primary ? or is it always and necessarily symptomatic ?

744. Sydenham, Cullen, and other writers on medicine of the last and a former century, did not hesitate to establish an order of idiopathic fever ; but their neglect of morbid anatomy prevents us from relying upon their opinions.

745. Recently two attempts have been made, one in this country, the other in France, to establish the localization of fevers.

746. Dr. Clutterbuck has contended that continued fever is, in fact, a peculiar inflammation of the brain ; M. Broussais, that it is a gastro-enteritis, or inflammation of the mucous membrane of the stomach and bowels.

747. On the other hand, M. Louis¹ has demonstrated that the morbid changes in the encephalon and in the mucous membrane of the stomach and of the intestine, are *equally* frequent in other diseases and in typhoid fever ; and M. Andral² and M. Louis³

¹ Recherches sur la Gastro-entérite, t. i, pp. 395, 181, 222 ; tome ii, p. 153, 155, &c. See especially p. 170—171.

² Clinique Medicale, ed. ii, t. iii, page 593.

³ Ibid.

have proved, that the cerebral symptoms bear no relation to the detectible morbid appearances either in the encephalon or in the mucous membrane of the alimentary canal.

748. If, therefore, we are guided by the facts of the case, we shall conclude that fever is neither an encephalitis, nor a gastro-enteritis.

749. M. Andral began the first edition of his *Clinique Médicale* with these observations: "Whether the idiopathic fever of nosologists can or cannot be considered as the constant result of a local affection, it seems proper, in the actual condition of the science, to designate this class of diseases by the term *Fevers*; in this manner we do not prejudge their nature, and we restrain ourselves to the strict observation of facts." Such is the opinion taught by M. Lerminier in his Lectures, who speaks of "*fever, continued or intermittent, with or without evident local affection of the organs of the head, chest, or abdomen.*"

750. The opinion of M. Lerminier, and the original opinion of M. Andral (§ 749), is, indeed the safest. Certain diseases form a class, and are termed fevers: their causes, nature, complications, mode of prevention and treatment, &c. become objects of investigation.

751. Having rejected the notions of Dr. Clutterbuck, M. Broussais, &c. in reference to inflammation of the encephalon, or of the mucous membrane of the stomach and intestines, as the essential cause of fever, I must now notice another subject of extreme interest: it has been shewn by MM. Petit and Serres,¹ Bretonneau, Cruveilhier,² Andral, but especially by M. Louis, that a peculiar disease of the clustered and solitary glands of the intestine, is the constant morbid appearance in typhoid fever. M. Andral has, indeed, adduced a series of cases which he regards as exceptions to this conclusion; it is plain, however, that these are no real exceptions,³ but that, in fact, other diseases have been ranked by M. Andral as cases of typhoid fever.

752. M. Bouillaud has renewed the controversy on the subject of the localization of fever, and of M. Broussais's success in

¹ *Traité de la Fièvre Entéro-Mésentérique*; Paris, 1813.

² *Op. cit.* Fasc. vii.

³ See the *London Medical Gazette*, of September 15, 1832.

accomplishing this object, by considering this disease of the glands of the intestines as a gastro-entéritis and the local cause of fever.

753. This dispute is one of mere terms, if it be upon the question whether the affection of the glands of the intestine be a gastro-enteritis; and of terms used in a very vague and general sense.

754. To those who still contend for the localization of fevers, I would put these questions: how do you view rubeola, scarlatina, variola, &c.? are these eruptive fevers symptomatic or consecutive and dependent upon the condition of the air passages, the posterior nares and fauces, the skin, respectively? or are these local affections, not the local *cause*, but simply part and parcel of the whole disease?—They are sometimes absent, or nearly absent. As you view these febrile affections then, so regard the synochus, and the typhus, fevers, of which I am about to treat; and there will be an end of all dispute. In the former of these there is frequently no complication, except herpes (*ἔρπω*, *to creep*) oris; in the latter, the disease of the intestinal glands must be considered as bearing the same relation to the fever, as the pustules on the external and internal surfaces do to that of variola.

755. [M. Chomel has considered typhoid fever not merely as one in the group of eruptive fevers, but has formed a still more comprehensive class of diseases, containing all those which present disseminated local inflammations as their characteristics;—as variola, furuncular eruptions, plague, and rheumatism. He remarks that the affection of the follicles in typhoid fever has not even the pathological importance of the pustules in variola, because the fever of the last named disease is in proportion to the abundance of the eruption, but that it is rather parallel to the bubo of the oriental plague, that is, neither the cause nor the measure of the general symptoms. Vide *Leçons de Clin. Méd.* pp. 531, etc.]

756. To prosecute this dispute any further, would be alike vain and unprofitable. It will be more useful to us, to learn to recognise these various diseases, to study every part, to watch for injurious or dangerous complications, and to investigate their

influence, in their turn, upon the febrile symptoms, and upon the general system.

757. Such is a brief sketch of our present knowledge on the subject of fevers. I will now briefly state my own opinion :

758. 1. I consider that there is an order of fevers induced by fatigue, anxiety, watching and other similar causes, which vary with the age, sex, and constitution of the patient, and which may be *complicated* with local affection, but in which such local affection is by no means essential, as the *cause* of the fever. I shall call this order of fevers, which I shall describe very particularly hereafter, *Synochus*, or common fever from ordinary causes.

759. 2. There appears to be another fever, more peculiar in its causes, nature, symptoms, and morbid appearances, and in the persons whom it attacks, which is true *Typhus*. In this there is always disease of the glands of the intestines ; and there are other morbid changes, less constant, and less essential.

760. [We shall hereafter advert to the distinction between two groups of diseases both of which have been designated as typhus, but which appear to be of different origin and nature, one of them being attended with disease in the follicles of the small intestines, and the other free from this lesion. The first is the *typhoid* fever of Louis and others ; the second is the proper *typhus*.]

761. 3. There is a third kind of fever, not less peculiar in its source, symptoms, morbid anatomy, and treatment, viz. : *Intermittent*, or *Ague* ; it is usually induced by marsh miasmata (*ὑλασμία*, from *μυαίνω*, to *pollute*), or effluvia, and it is apt to induce, in its turn, disease of the spleen, and dropsy.

762. This appears to me to be a simple view of a complicated subject. The question of the essential idiopathic or symptomatic nature of fever is resolved at once : *synochus* may exist with or without topical complication ; *typhus* [*typhoid*] seems to have the same relation to disease of the glands of the intestines, as *variola* has to the pustules—to disease of the glands of the skin ; *ague* is mysteriously associated with the function and condition of the spleen.

763. Chills, succeeded by heat of skin, flushing, frequent

pulse, and, in the remittent and intermittent forms, especially, by perspiration, are the principal symptoms of fever. The more continued fevers pursue their course *æquo tenore*; the remittent, and especially the intermittent, subside, and recur, at various intervals.

764. Throughout *all* fevers, the office of the physician is to watch and examine daily, for changes, for complications, and to meet them with prompt and efficient remedies. In *each* we are led from experience to expect and to anticipate particular complications: in typhus, we watch the condition of the head, the chest, the abdomen,—the intestine, especially; in ague, that of the spleen; in scarlatina, that of the throat and fauces; in rubella, that of the trachea and bronchia.

765. To ascertain the existence of fever, and of fever of a particular kind even, is easy, compared with the task of detecting early any complication which may occur, and against which in fact, our most important remedies must be directed.

766. I have already noticed, § 432, 546, the difference between the general symptoms in inflammation, and the symptoms of fever. I beg my reader to refer to those paragraphs, in order that our space may be economized. In inflammation we have a permanent stimulus, by which the actions of the system, are, at once, excited and sustained. In fever, we have, in the excited actions of the vascular system, a sort of fictitious strength; as we have, in the state of the nervous and muscular systems, a sort of fictitious debility: blood-letting soon induces syncope; but it is borne better eventually, than, from that appearance of debility, might have been expected.

767. The further description of the modes of *treatment* of fever must be left for the more extended and *practical* part of this treatise.

CHAPTER XI.

ON IRRITATION.

768. IRRITATION consists in the presence and effects of some cause of pain and suffering, or in the more immediate effects of such a cause, should it have been removed. The irritation of a calculus in the hepatic duct, or in the ureter, is well known to occasion severe pain and a remarkable sympathetic affection of the stomach, viz. nausea and vomiting.¹ The introduction of a bougie into the urethra sometimes induces rigor and a complete febrile paroxysm, although it be immediately withdrawn. Uterine irritation is not less frequently or unequivocally the cause of extraordinary effects upon the system generally and upon various organs.

769. But of all the sources of sympathetic morbid affections, irritation in the stomach and intestines is the most common, the most important. Indigestible substances taken, and fæculent matters too long retained, are the frequent causes of that combined affection of the head and of the stomach, termed sick-headache, and of other and more acute sympathetic morbid affections, less recognised by the profession.

770. But as the mere presence of a calculus in the gall-duct is not always sufficient, alone, to induce an attack of pain and vomiting, so a deranged condition of the intestinal contents will not,

¹ These two examples of irritation will be noticed more fully hereafter. It is only necessary to state, in this place, that the former is denoted by local pain, sympathetic sickness and vomiting, and sometimes icterus; whilst to the pain and sickness, in the latter case, are added a state of urine charged with animal matter, with a strong smell, high color, and sometimes an admixture of blood. In either, a calculus, or calculi, may be expelled.

alone, induce an attack of the morbid affection which I am about to describe: in general, some superadded cause, some shock sustained, or some effort made by the system, is necessary to rouse into activity the cause of irritation otherwise dormant. In the same manner, indigestible substances may frequently be taken with impunity, when the health is unimpaired; but if the system be under the influence of shock, or effort, or of nervous or vascular excitement, or of exhaustion, a cause of disorder, which might have been inert in other circumstances, proves of frightful activity. Intestinal irritation is, therefore, frequently brought into action by a fall, or other accident, by serious operations, &c. One condition frequently involves *all* these causes: it is the *puerperal state*.

771. The *effects* of intestinal irritation generally begin in the manner of a sudden attack. This attack is usually ushered in by rigor, frequently by a more distinct and decided rigor than is observed in many cases of inflammation; the rigor is usually soon followed by much heat of surface; with the heat the patient experiences some affection of the head, chest, or abdomen, and, indeed, frequently of all; there are vertigo on raising the head, pain, and some morbid impression on the mind; panting in the breathing, fluttering about the heart, with general hurry, irritability, and restlessness; the tongue is white and loaded; the alvine evacuations are morbid,—dark-colored, fœtid, scybalous,—or yellow like the yolk of egg,—or of the appearance of yeast; the urine is turbid and frequently deposits a copious sediment.

772. These affections are apt to occur in sudden attacks, and to recur in paroxysms,—perhaps varying their form,—and exciting great alarm in the patient and his friends, who usually despatch a hurrying message to the medical attendants.

773. The *complications* consist of affections *resembling*,

1. Arachnitis;
2. Pleuritis;
3. Carditis;
4. Peritonitis.

774. 1. The affection of the head consists of the most

acute pain, the utmost intolerance of light and sound, and the severest form of vertigo, wakefulness, and distress, and sometimes even delirium, and the pupils of the eyes are often extremely contracted.

775. 2. The affection of the chest is denoted by severe and acute local pain, which is apt to vary its situation, passing from one side to the other, or to the back, or occupying a situation higher up or lower down : this pain checks a deep inspiration, and even the ordinary breathing, to which it imparts a character of difficulty and anxiety.

776. 3. When the heart is the seat of this affection, there are violent attacks of palpitation, and the course of the carotids, and even of the abdominal aorta, is sometimes the seat of violent pulsation or throbbing.

777. 4. When the abdomen is affected, there are acute pain, and great tenderness under pressure, in some part, or more or less generally diffused. The attack and situation of the pain are such, in some instances, that the case is with difficulty distinguished from gall-stones, though it more generally resembles peritonitis.

778. I must again draw the attention of my reader very particularly to that source of diagnosis afforded by the effects of remedies ; and particularly to the diagnosis between the class of complications of intestinal irritation resembling inflammation from actual inflammation itself. In the latter case, thirty, forty, and even fifty ounces of blood may flow before deliquium is observed : in the former there is frequently the most decided syncope on abstracting nine or ten ounces of blood. I have already alluded to this important subject, and shall have frequent occasion to recur to it in the subsequent pages, and in one chapter expressly.

779. A further diagnosis is afforded by the condition of the intestinal evacuations, as ascertained by the administration of copious warm water enemata, &c.

780. The treatment consists in removing the source of irritation, by a gentle emetic, a gentle purgative, or an ample enema of warm water ; and in calming the system by gentle, but effectual opiates.

CHAPTER XII.

ON EXHAUSTION.

781. EXHAUSTION chiefly arises from loss of blood; but it may also have its origin in undue lactation, in leucorrhœa (*λευκός*, *white*, *ῥέω*, *to flow*), &c. If the more immediate of these effects be well known, the more remote have been overlooked, or mistaken for other morbid affections. Yet to the physician the symptoms of reaction from loss of blood, so similar to those of some affections of the head, and of the heart, present subjects for his observation of the utmost moment in actual practice. The diagnosis of these cases is most important; the prognosis and the treatment alike depend upon it.

782. The *remote* effects of exhaustion are particularly apt, from their similarity to inflammatory diseases, and from the present though transient relief conferred by the further detraction of blood, to deceive the unwary. It is highly important, therefore, to bear this distinction in mind.

I. *The immediate Effects of the Loss of Blood.*

783. The most familiar of the immediate effects of loss of blood is syncope. In ordinary syncope from loss of blood, the patient first experiences a degree of vertigo, to which loss of consciousness succeeds; the respiration is suspended, affected by deep and repeated sighs, and then suspended as before; the beat of the heart and of the pulse is slow and weak; the face and general surface become pale, cool, and bedewed with perspiration; the stomach is apt to be affected with eructation or sick-

ness. On recovery, there is perhaps a momentary delirium, yawning, and a return of consciousness ; irregular sighing breathing ; and a gradual return of the pulse.

784. In cases of profuse hæmorrhagy the state of the patient varies : there is at one moment a greater or less degree of syncope, then a degree of recovery. During the syncope the countenance is extremely pallid, there is more or less insensibility, the respiratory movements of the thorax are at one period imperceptible, and then there are irregular sighs, the pulse is slow, feeble, or not to be distinguished, the extremities are apt to be cold ; the stomach is frequently affected with sickness, and this is followed by an apparent amelioration.

785. In cases of fatal hæmorrhagy there are no ameliorations. The symptoms gradually and progressively assume a more and more frightful aspect : the countenance does not improve, but becomes more and more pale and sunken ; the consciousness sometimes remains until at last there is some delirium ; but every thing denotes an impaired state of the energies of the brain ; the breathing is audible as in ordinary breathlessness, stertorous, and at length affected by a terrible gasping ; there may be no efforts to vomit ; the pulse is extremely feeble or even imperceptible ; the animal heat fails, and the extremities become colder and colder in spite of every kind of external warmth ; the voice may be strong ; there are constant restlessness and jactitation ; at length the strength fails, and the patient sinks, gasps, and expires.

786. Besides syncope, there are other immediate effects of loss of blood. These are,

1. Convulsions.
2. Delirium.
3. Coma.
4. Sudden dissolution.

787. 1. Convulsion is, after syncope, the most familiar effect of loss of blood. It constitutes one species of puerperal convulsion, and should be accurately distinguished from other forms of this affection, arising from intestinal or uterine irritation, or an immediate disease of the head or spine.

788. 2. Delirium occurs as an immediate, as mania occurs as a more remote, effect of loss of blood.

789. 3. We may be called to patients so perfectly comatose, immediately after blood-letting, or hæmorrhage, that we may be in doubt for a time whether the case be not apoplexy. The history, the state of the countenance, of the pulse, of the beat of the heart, and of the extremities, and the other symptoms will, after a little watching, make the case clear to us.

790. 4. Sudden death has occurred from misapplied blood-letting. For an account of the circumstances in which this is apt to take place, I must refer to the work already quoted more than once, viz. *Researches on Blood-letting*, page 46; and to the *Lancet*, vol. xi, p. 94.

II. *The more Remote Effects of Loss of Blood.*

791. The more remote effects of loss of blood are induced by repeated detraction of blood, or continued hæmorrhagy, and consist in,

I. Sickness and Vomiting.

II. Excessive Reaction; sometimes with

1. Delirium; Mania; or

2. Coma; Amaurosis; or Deafness.

III. The Sinking State.

I. *Sickness and Vomiting.*

792. Sickness and vomiting constitute a very frequent remote effect of loss of blood or other source of exhaustion; every thing taken, food or medicine, is apt to be rejected, either immediately, or on assuming the erect position. Eructation and hickup are frequently conjoined with the sickness. The treatment consists in the administration of the mildest food, of ample enemata of warm barley-water, of gentle stimuli, gentle opiates, &c.

II. *Excessive Reaction.*

793. *The Symptoms.* Excessive reaction is formed gradually, and consists, at first, in forcible beating of the pulse, of the caro-

tids, and of the heart, accompanied by a sense of throbbing in the head, of palpitation of the heart, and eventually perhaps of beating or throbbing in the scrobiculus cordis, and in the course of the aorta. This state of reaction is augmented occasionally by a turbulent dream, mental agitation, or bodily exertion. At other times it is modified by a temporary faintness or syncope. There is also sometimes irregularity of the beat of the heart and of the pulse. The respiration is apt to be frequent and hurried, and attended with alternate panting and sighing; the movement of expiration is sometimes obviously and singularly blended with a movement communicated by the beat of the heart; the patient requires the smelling bottle, the fan, and the fresh air. The skin is sometimes hot; and then there are frequently general hurry and restlessness. In this state of exhaustion, sudden dissolution has sometimes been the immediate consequence of muscular effort on the part of the patient, or of his being too suddenly raised from the recumbent into the erect position.

794. In the more exquisite cases of excessive reaction, the symptoms are still more strongly marked, and demand a fuller description. They consist in affections *resembling*,

1. Arachnitis ;
2. Carditis.

795. 1. The beating of the temples is at length accompanied by a throbbing pain of the head, and the energies and sensibilities of the brain are morbidly augmented; sometimes there is intolerance of light, but still more frequently intolerance of noise and disturbance of any kind, requiring stillness to be strictly enjoined, the knockers to be tied, and straw to be strewed along the pavement; the sleep is agitated and disturbed by fearful dreams, and the patient is liable to awake or to be awake in a state of great hurry of mind, sometimes almost approaching to delirium; sometimes there is slight delirium, and occasionally even continued delirium; more frequently there are great noises in the head, as of singing, of crackers, of a storm, or of a cataract; in some instances there are flashes of light; sometimes there is a sense of great pressure or tightness in one part or round the head, as if

the skull were pressed by an iron nail, or bound by an iron hoop.

796. 2. The action of the heart and arteries is morbidly increased, and there are great palpitation, distinct "bruit de scie," under the ear or the stethoscope, and visible throbbings of the carotids, and sometimes even of the abdominal aorta, augmented to a still greater degree by every cause of hurry of the mind or exertion of the body, by sudden noises, or hurried dreams or wakings; the patient is often greatly alarmed and impressed with the feeling of approaching dissolution; the state of palpitation and throbbing are apt to be changed, at different times, to a feeling of syncope; the effect of sleep is in some instances very extraordinary—sometimes palpitation, at other times a degree of syncope, or an overwhelming feeling of dissolution; the pulse varies from 100 to 120 or 130, and is attended with a forcible jerk or bounding of the artery.

797. Exhaustion with reaction has, I am persuaded, frequently been mistaken for inflammation or other disease of the head or of the heart. Under this impression, recourse has frequently been had to the further detraction of blood by the lancet. And the effect of this practice is such as greatly to impose upon the inexperienced,—for all the symptoms are perhaps greatly relieved by the induction and temporary substitution of a state of syncope.

798. It seems only necessary to refer to the occurrence of *delirium*, *mania*, *coma*, and *amaurosis*, as effects of exhaustion from loss of blood. They are distinguished by being traced to their *cause*. The first frequently occurs, either as transient delirium or as more permanent mania, as a puerperal disease. Coma, amaurosis, and deafness, have occurred from similar causes, and under similar circumstances. They must be cautiously distinguished from similar symptoms resulting from cerebral inflammation or congestion.

799. This subject will be pursued hereafter in reference to particular forms of disease,—meningitis, carditis, puerperal mania, &c. The *treatment* consists in the persevering observance of quiet, the recumbent position, &c., in mild opiates, and stimuli, diet, aperients, enemata, &c.

III. *The Sinking State.*

800. This term is adopted not to express a state of negative weakness merely, which may continue long and issue in eventual recovery, but to denote a state of positive and progressive failure of the vital powers, attended by its peculiar effects, and by a set of phenomena very different from those of exhaustion with reaction.

801. If in reaction the energies of the system are augmented, in sinking the functions of the brain, the lungs, and the heart are singularly impaired. The patient is no longer affected by noises as before ; there is, on the contrary, a tendency to dozing, and gradually some of those effects on the muscular system which denote diminished energy of the brain supervene, as snoring, stertor, blowing up of the cheeks in breathing, &c. ; instead of the hurry and alarm on awaking observed in the case of excessive reaction, the patient, in the state of sinking, requires a moment to recollect himself and recover his consciousness ; he is perhaps affected with slight delirium, and he is apt to forget the circumstances of his situation, and, inattentive to the objects around him, to fall again into a state of dozing. Not less remarkable is the effect of the state of exhaustion with sinking on the function of the lungs ; indeed, the very first indication of this state is, I believe, to be found in the supervention of a *crepitus* in the respiration, only to be heard at first on the most attentive listening, or by means of the stethoscope ; this crepitus gradually becomes more audible, and passes into slight rattling, heard in the situation of the bronchia and trachea ; there is also a degree of oppression, sighing, hurry, blowing, or catching in the breathing, inducing peculiar movements of the nostrils, of the lips or cheeks, or of the thyroid cartilage ; in some cases there is besides a peculiar, catching, laryngeal cough, which is especially apt to come on during sleep, and awakes or imperfectly awakes the patient. The heart has, at the same time, lost its violent beat and palpitation, and the pulse and arteries their bounding or throbbing. The stomach and bowels become disordered and flatulent, and tympanitic, and the command over the sphincters is impaired. The last stage of sinking is denoted by a pale and

sunken countenance, inquietude, jactitation, delirium, and coldness of the extremities.

802. Extreme exhaustion from loss of blood leads to,

1. Effusion of Serum or Blood within the Head.
2. Œdema of the Lungs, accumulated Bronchial Secretion, and Serous Effusion from the Pleura.
3. Serous Effusion from the Peritonæum.
4. General Œdema or Anasarca.
5. Tympanitic Distention of the Bowels.

803. I have been as full, yet as brief as possible in this description of Intestinal Irritation and Exhaustion. I was anxious that subjects so little understood should be fairly brought before the student: yet I was equally anxious not to devote an undue degree of space to them, however important.

CHAPTER XIII.

ON SINKING.

804. BESIDES the state of sinking, induced by the loss of blood and other direct sources of exhaustion, a state of things very similar not unfrequently occurs in the course of certain diseases. It is apt to take us by surprise ; for it is sometimes very insidious, and sometimes sudden, in its mode of accession. [It is, in fact, one of the modes in which death takes place in fatal diseases, independently of any simple appreciable cause, such as syncope, asphyxia or apoplexy.]

805. Mr. C*****, aged forty, was affected with icterus and reiterated attacks of pain in the region of the stomach ; these attacks, together with the remedies necessary to relieve them, gradually reduced the patient to extreme weakness and great emaciation. In this state he went to Leamington, and was apparently benefited by a course of the blue pill. At this period, feeling himself better than usual, he rose early one morning, dressed himself, and went down stairs, with the intention of agreeably surprising his friends. He was overcome by the effort, however, and became faint ; he was then taken with chilliness ; he was removed to bed, and became slightly feverish.—On the succeeding morning there was rigor, followed by great heat of skin, and a sense of tightness under the sternum.—On the next day there were slighter rigor, less heat, a degree of delirium, and then constant dozing ;—in this state of dozing he continued for some hours, no danger having been intimated by the physician in the morning, or felt by his friends during this sleep, from which

they expected to see him awake refreshed. In the evening, when the physician arrived, the pulse could scarcely be felt, and the vital functions shortly afterwards ceased altogether.

806. Some diseases are apt to issue, even at a rather early period, in a state of sinking; in other cases, sinking supervenes in the later stages of these diseases. This state seems sometimes to be the result of a direct influence of the disease in lowering the vital powers; sometimes the disease has subsided, but the state of sinking has continued and destroyed the patient; and sometimes the sinking has appeared to annihilate the morbid actions which constituted the disease, and thus to prove a *cure*, though a fatal one. In the latter cases, the physician, whose eye is fixed on the disease alone, and the friends of the dying patient, are apt, from the apparent truce in the actions or pains of the disease, to be led into a sanguine, but delusive, hope that the patient is better;—there is, perhaps, a degree of dozing, mistaken for a long wished-for sleep, or some painful symptom has subsided, and the patient expresses himself as easier; but there are some of the appearances or symptoms about to be described, which will not fail to undeceive the careful observer.

807. This subject has been treated, in the author's peculiar style, by Hunter, in his Chapter on *Dissolution*. It has also been noticed by Sir Henry Hallford, in his valuable paper published in the Transactions of the College of Physicians, vol. vi, p. 398, republished in his Essays and Orations, and entitled, “*On the Necessity of Caution in the Estimation of Symptoms in the Last Stages of some Diseases.*”

808. Hunter observes, “Death or dissolution, appears not to be going on equally fast in every vital part; for we shall have many people very near their termination, yet some vital actions shall be good, and tolerably strong; and if it is a visible action, and life depends much upon this action, the patients shall not appear to be so near their end as they really are: thus, I have seen dying people, whose pulse was full and strong as usual, on the day previous to their death, but it has sunk almost at once, and then become extremely quick, with a thrill: on such occasions it shall rise again, making a strong effort, and, after a short

time, a moisture shall probably come on the skin, which shall in this state of pulse be warm ; but, upon the sinking of the pulse, shall become cold and clammy : breathing shall become very imperfect, almost like short catchings, and the person shall soon die.

809. " It would appear in many cases, that disease has produced such weakness at last, as to destroy itself : we shall even see the symptoms, or consequences of disease, get well before death.

810. " Even when in the state of approaching death, we often find a soft, quiet, and regular pulse, having not the least degree of irritability in it, and this when there is every other sign of approaching death ; such as entire loss of appetite, no rest, hickup, the feet cold, and partial cold, clammy sweats, etc."¹

811. Sir Henry Hallford remarks that, " It often happens at the latter end of some diseases, both of an acute and a chronic nature, that appearances present themselves of a very equivocal and delusive nature ; with which the issue of the malady does not correspond. This is most frequently the case when the resistance of the constitution against the influence of the disease has been long protracted, or when the struggle, though short, has been very violent. Here, a pause in nature, as it were, seems to take place ; the disease ' has done its worst,' all strong action has ceased, the frame is fatigued by its efforts to sustain itself, and a general tranquillity pervades the whole system. This condition of comparative ease, the eager wishes of friends misconstrue into the commencement of recovery, and the more readily so, as the patient himself being appealed to, to confirm their anxious hopes, having lost some of his sufferings, admits, perhaps, that he is better.

812. " I have seen this fallacious truce in four or five instances of inflammation of the brain, particularly where the membranes which cover it have been inflamed, producing frenzy.

813. " In inflammation of the bowels generally, it is so noto-

¹ Hunter on Inflammation, 4to. edition, 1794, pp. 504—508.

rious, that mortification often follows a cessation of pain,¹ that I do not think it necessary to dwell upon this form of disease with a view of cautioning physicians; but in that partial inflammation of the intestines which a strangulation of a portion of it in hernia produces, how often have I had occasion to deplore the disappointment and broken hopes of relatives, who, having been made happy by the assurance of the surgeon, that he had reduced the protruded bowel, and that now all would be well, in only a few hours afterwards were doomed to lament the patient's death! It is an invariable rule with me still to consider life as in jeopardy, until the intestines shall have performed their functions again, all irritation having left the stomach, and the skin remaining universally and equally warm."

814. The diseases in which the state of sinking is most marked are, I think, typhus, delirium tremens, pneumonia, bronchitis, enteritis, and dysentery,—though many other diseases lead to this state, and especially some which consist in repeated attacks, each attack leaving the patient weaker than before, until they issue in sinking of the vital powers. [Some of the most remarkable cases of sinking, without sufficient lesion, or appreciable cause, to account otherwise for death, are observed in scarlatina, cholera, and the puerperal state.]

815. Amongst the first symptoms, coldness and lividity of the hands are frequently observed,—the livid color disappearing imperfectly on pressure: the cheeks and nose are at the same time usually cool. There are often much general and indefinable suffering, distress, and restlessness; sometimes slight dozing, at others, slight delirium, and in some cases convulsion followed by coma; the breathing is sometimes imperfect, the inspirations sudden and *catching*—a fatal symptom; and I have, in some cases, observed the *crepitus* in breathing—also a fatal symptom—of which I have spoken, § 802, for some days even before there was any other decided symptom of sinking; the voice is frequently altered and rather husky; the pulse is small and frequent, and perhaps irregular; the motions are apt to be passed

¹ [The popular idea still prevails that mortification is the cause of the cessation of pain in fatal cases of peritonitis, dysentery and other inflammations. True mortification, or gangrene, however, is not the usual termination of such cases.]

involuntarily, and sometimes there is tympanites, or retention of urine :—it is usual for some distressing symptom, as delirium in phrenitis, cough in affections of the chest, and pain in those of the abdomen, to have ceased as the state of sinking has come on.

816. In typhus, sinking is very apt to occur in the later stages, and after undue exertion, as in getting and sitting up. Laennec observes, “in some subjects, peripneumonia proves fatal before it has affected one fourth of the lungs,—a fact,” he adds, “calculated, like many others, to prove that death is frequently owing more to the failure of the vital principle than to the extent of the local disease.”¹ In some diseases of the bowels, this state sometimes occurs *early* in their course. In such cases it has been usual with some to conclude that gangrene had taken place ; but, on examination, no such appearance has been observed : the sinking state is, equally with gangrene, attended by a subsidence of the abdominal pain. There is a puerperal affection of the bowels, the course of which is similar. In two instances there were very severe attacks of pain ; the surface became cold and livid, the voice changed, the breathing imperfect, the pulse frequent and small, and the patients expired with all the symptoms of sinking. On examination, there were no morbid appearances whatever. In one case of *suppression* of urine, the secretion was somewhat restored in the last stage, or sinking state.

817. In the more chronic cases leading to sinking, there are various slight efforts of reaction,—as flushes, and heat of skin ; sometimes there is shivering, followed by heat ; slight dozing, or delirium, catching, crepitus or labor in breathing, mucous cough, cold extremities, the eye being bedimmed by a film of mucus.

818. Sinking is sometimes induced by undue and inappropriate depletion ; at other times it is the peculiar tendency or effect of disease. Altogether, especially in reference to the prognosis, and the reputation of the physician,—I regard this subject as of peculiar interest,—very imperfectly known,—and still requiring the most attentive investigation. I have here only pretended to offer hints and some materials for thinking, leaving the matter for future inquiry. Remedies seem to be vain.

¹ Op. cit. ed. i, p. 168, § 201.

CHAPTER XIV.

ON BLOOD-LETTING.

819. THE subject next in order, in treating of the Theory of Medicine, relates to the use of certain important remedies ; and, amongst these, blood-letting ranks preëminently as the first.

820. It is one of the most remarkable facts in physic, that if several patients of similar strength and constitution, but affected by dissimilar diseases, be respectively placed in the erect position and bled to deliquium, they will be found to lose very various quantities of blood. I have known a patient, not apparently very feeble, faint on losing four ounces ; and I have known patients bear to lose fifty, sixty, and even seventy ounces of blood without syncope.

821. This fact, plain and simple as it is, with its rationale and practical applications, has, I think, been greatly overlooked.

822. Its rationale is to be found, I believe, in connection with an equally interesting fact, that different diseases induce in the constitution different powers or susceptibilities in regard to the effects of loss of blood. Each disease appears, indeed, to possess its own peculiar and intrinsic virtue in this respect ; this is determined by placing the patient perfectly erect, and bleeding to incipient syncope : the quantity of blood which flows is the measure of the protective influence of the disease, in one class of cases, and of its influence in superinducing a susceptibility to the effects of loss of blood, in the other.

823. In cases in which it is doubtful whether the pain or other local affection be the effect of inflammation or of irritation, the question is immediately determined *by placing the patient upright and looking upwards, and bleeding to incipient syncope ;*

in inflammation, much blood flows : in irritation, very little. The violence of the disease, the powers of the system, and the due measure of the remedy, are determined at the same time. There is, in my opinion, no single fact in physic of equal importance and value, in the diagnosis of acute diseases and in the use of a powerful remedy.

824. An interesting scale of diseases may be formed representing these properties. It would begin with congestion of the head, or *tendency to Apoplexy* ; *Inflammation of the serous and synovial membranes*, and of the *parenchymatous substance* of various organs would follow ; and, lastly, *Inflammation of the mucous membranes, of the skin, &c.* This part of the scale would be divided from the next by the condition of the system in health. Below this would be arranged *Fever*, the effects of *Intestinal Irritation*, some cases of *Delirium*, *Reaction from loss of blood*, and disorders of the same class with *Hysteria*, *Dyspepsia*, *Chlorosis*, and *Cholera Morbus*.

825. Persons in health and of moderate strength will generally faint, if bled in the erect posture, on taking fifteen ounces of blood. I have known seventy ounces to be taken in the sitting posture, in the tendency to apoplexy, without syncope, but the case is an extreme one. Patients with *Menigitis*, *Encephalitis*, *Pleuritis*, or *Pneumonia*, frequently lose thirty-five ounces of blood without fainting. In *Bronchitis*, little more is borne to be lost than in health. A stout person in *Fever* will frequently faint on losing ten, twelve, or fourteen ounces of blood. In *Intestinal Irritation*, with urgent symptoms even, the abstraction of nine or ten ounces of blood will generally induce deliquium. In *Delirium Tremens* or *Puerperal Delirium* the patient soon faints from loss of blood. The same thing is still more observed in those cases of violent reaction which arise from loss of blood itself. In *Dyspepsia*, *Hysteria*, and *Chlorosis*, the susceptibility to syncope from loss of blood is very great : and I have known a patient of good strength, affected with *Cholera*, faint on taking four ounces of blood, who had shortly before borne to lose nearly twenty ounces without faintishness, under the influence of *inflamed Mamma*. As cases of the diminished tolerance of loss of blood, I would also enumerate paralysis from *laceration of the brain*,

apoplexy from *concussion*, before reaction or inflammation be established. It must also be carefully noticed that cases of accident—that of fractured ribs, for example—do not bear the loss of blood like those of inflammation. Surgeons are very apt to err in such cases.

826. The practical application of these facts consists chiefly in their affording—

1. A Rule for blood-letting, in all cases in which this measure is required to be fully instituted.
2. A Guard at once against inefficient and undue blood-letting ; and
3. A Source of Diagnosis.

827. This rule is suited also to the *degree* and the *duration* of the disease ; for, with each of these, its influence in inducing tolerance or intolerance of loss of blood is respectively augmented.

828. It is not less adapted to those most frequent of all events, *mixed* cases. Inflammation and irritation may be conjoined : for example, there may be mere nephralgia, or absolute nephritis, from calculus, or a mixed case involving both. There may be mingled intestinal irritation and inflammation. In each of these circumstances, the rule for blood-letting which I have proposed, adapts itself accurately to the demands of these various morbid affections, and to the actual strength and condition of the general system.

829. It is difficult to say whether more injury has been done by an undue or an inefficient use of the lancet. In inflammation we must bleed fully. In irritation we must bleed cautiously. Inefficient blood-letting, in the former disease, and undue blood-letting in the latter, are alike dangerous or even fatal to the patient ; from both extremes we are guarded by the rule which I propose. By directing the patient to be placed in the erect position, and bled to incipient deliquium, we shall often take much more blood than we should have ventured to *prescribe* to be taken in inflammation, and very much less than we might be disposed to direct, in irritation ; and in both these cases the rule conducts us to the only safe mode of treatment.

830. And if much blood has flowed before syncope has occurred, we must suspect inflammation ; if little, we must suspect

that, however similar the symptoms, the case is in fact of a different nature—perhaps irritation, perhaps exhaustion.

831. I have also found that, in every case in which early syncope occurs from blood-letting, the more remote effects of loss of blood, as reaction, or sinking, are also very liable to occur; and it is in these cases that sudden dissolution has followed the use of the lancet. There is, in every point of view, intolerance of loss of blood. The reverse of all this obtains in inflammation, which seems to be incompatible, to a certain degree, with the effects of loss of blood; these are, on the other hand, very apt to supervene as the inflammatory action subsides.

832. And here I would solicit the coöperation of the profession in the further investigation of this important subject. It is by the multitude of facts alone, that the propositions which have been stated can be established or corrected. With the view of obtaining these facts, I would propose that, in every case in which full blood-letting is to be instituted, the patient be placed perfectly erect in a chair, or in bed, and bled to the very first appearance of deliquium; the quantity of blood taken is then to be noted, and accurately registered in a table. The same thing is to be observed on each repetition of the blood-letting.

833. And that nothing may be left unattended to, which may throw additional light on the subject, I propose to notice—1, the appearance of the blood, and 2, the effects of its abstraction upon the disease.

834. These various facts may be registered in the following manner:

Age and strength of the patient.	Disease, its stage and complication.	Quantity of blood taken.	Effects on the patient and disease.	Appearances of the blood.	Repetitions of the blood-letting.	Effects.

835. It is obvious that none but the most unequivocal cases should be thus registered. Cases, the diagnosis of which was not perfectly clear, would only add their own obscurity to the investigation.

836. It is equally obvious that the investigation proposed cannot fail to add useful facts, which will in their turn become useful guides to the physician. It is still true, as Celsus has observed,—“*nulla perpetua præcepta medicina recipit.*” To the young practitioner, however, I think the practice proposed will prove of great assistance; and if it preserve one from the bitter reflection, which too many have experienced, of having done too much or too little, I shall not esteem that my exertions in introducing it have been in vain.

837. I would observe, in conclusion, that I do not think it *safe*, in any case, to bleed to actual deliquium, in the *recumbent* posture. But there are few cases, if any, in which, if it be proper to bleed fully at all, danger can accrue from bleeding to the most incipient syncope, in the perfectly upright position. Besides, the *remedy* is at hand. It consists simply in laying the patient recumbent, and, if necessary, raising the feet and depressing the head.

838. It may become a question whether the patient may, in a little time, be again placed erect, so as to re-produce a state of slight deliquium, and thus to add to the power of the previous blood-letting in subduing the disease. But I do not think a state of continued syncope free from danger. I have known it lead to delirium, or apparent sinking.

839. On the other hand, the influence of an opposite position, the head being placed extremely low, and the lower part of the body being very much raised, has not been sufficiently traced, in the various cases of the immediate or remoter effects of loss of blood.

840. Amongst the other objects of this “proposal,” is that of collecting any modifications or exceptions, in regard to the rule which I have laid down. It cannot be imagined that it should be without exceptions. It is as important that these should be pointed out, as that the rule itself should be established. There are already two exceptions to the rule which I have proposed,

which I would briefly mention. In some cases of fever requiring blood-letting, the patient cannot support the erect position: in such a case, the arm must be first prepared; the vein should then be promptly opened; and then the patient should be gently raised and *supported* in the upright position, carefully avoiding all muscular effort. On the other hand, in the case of congestion of the brain from exhaustion, there is not such early syncope from blood-letting as might be expected; and yet it is obvious that the system cannot bear the loss of blood: I have known this to obtain in exhaustion from undue lactation.

841. It will also be an interesting question, whether this rule, in its repetitions, besides excluding undue blood-letting on the one hand, and inefficient blood-letting on the other, does not secure the cure of the disease, with the least possible expenditure of the vital fluid.

842. It seems almost needless to allude to the case of early syncope from *timidity*. It is only necessary to arrest the flow of blood, to lay the patient recumbent, and to wait until his timidity has subsided.

843. Two objections have been made in reference to this rule for the administration of blood-letting: the *first* is that in some cases not inflammatory, more blood might be taken than the patient could bear to lose, in order to institute the test: my reply is, that, such cases are not *included* in my proposition, which only relates to cases in which blood-letting "*is required to be FULLY instituted*;" see § 826. The *second* is, that in some cases *more* blood ought to be taken than would flow before syncope is induced. I greatly doubt this assertion; I think it replete with *peril*; but if it be true, let the patient be replaced in the recumbent posture,—wait a few minutes, and again let the blood flow; we have at least ascertained the state of tolerance of loss of blood, and this fact will *guide* us in determining *how much more* blood may be withdrawn; it is a fact *added*; it is *knowledge* substituted for what *must* otherwise be *ignorance*. See § 838.

844. I shall now throw the *results* of my investigation into this subject into the form of a table, for the sake of distinctness. No one *can* pass the eye over it without being impressed with the value and importance of the facts it displays, with the diagnostic, the guide, the guard, which it affords.

[NOTE. As this table appears to be the result of the author's general impressions and is not substantiated by any detail of exact observations, it must be received with caution. Great modifications are due to the constitution, habits, previous condition, &c. of the patient, and stage of the disease.]

I. AUGMENTED TOLERANCE.

Represented by the mean quantity of blood which flows
before incipient syncope.

I. *Congestion of the Brain.*

- | | | |
|------------------------------|---|-------------------|
| 1. Tendency to Apoplexy. | } | $\bar{z}_{XL}-L.$ |
| 2. Apoplexy from Congestion. | | |

II. *Inflammation of the Serous Membranes.*

- | | | |
|---|---|---------------------|
| 1. Arachnitis. | } | $\bar{z}_{XXX}-LX.$ |
| 2. Pleuritis. | | |
| 3. Peritonitis. | | |
| 4. Inflammation of the Synovial
membrane and of the Fibrous
Textures of Joints. | | |

III. *Inflammation of the Parenchyma of Organs.*

- | | | |
|-----------------------------------|---|------------------|
| 1. Of the substance of the Brain. | } | $\bar{z}_{XXX}.$ |
| 2. Pneumonia. | | |
| 3. Hepatitis. | | |
| 4. Inflammation of the Mamma, &c. | | |

IV. *Inflammation of the Skin and Mucous Membranes.*

- | | | |
|----------------|---|------------------------|
| 1. Erysipelas. | } | $\bar{z}_{XVI}.$ |
| 2. Bronchitis. | | |
| 3. Dysentery. | | |

II. HEALTHY TOLERANCE.

This depends on the age, sex, strength,
 &c. and on the degree of thickness
 of the parietes of the heart, and is
 about..... } §xv.

III. DIMINISHED TOLERANCE.

- | | |
|---|------------|
| i. Fevers and Eruptive Fevers..... | §xii—xiv. |
| ii. Delirium Tremens and Puerperal
Delirium..... | } §x—xii. |
| iii. Laceration or Concussion, of the
Brain..... | |
| iv. Accidents, before the establishment of
Inflammation..... | } §viii—x. |
| v. Intestinal Irritation..... | |
| vi. Dyspepsia ;—Chlorosis..... | §viii. |
| vii. Cholera..... | §vi. |

845. I have known persons speak boldly of taking twenty ounces of blood in fever, who would be struck with terror at the idea of withdrawing forty or fifty in apoplexy from congestion; and yet the former is a dangerous, the latter a safe, measure, comparatively. Both, however, must be *regulated* by the plan which I have proposed, to be free from every kind of danger.

846. Since these remarks were first published (in 1826), they have been fully and explicitly confirmed by Mr. Wardrop, in Lectures recently published in the *Lancet* (1834), and separately (1835),¹ in *similar* words, and, I am sorry to say, without acknowledgment:²

847. “In the last Lecture I endeavored to impress on your minds more particularly three points: 1st. The peculiar incompressible state of the pulse which, in conjunction with other symptoms, indicates the propriety of general blood-letting; 2d. The importance of the *first bleeding*, and the almost insuperable difficulties which are to be often overcome when this first deple-

¹ On Blood-letting.

² See Medical Gazette, vol. xvii, p. 176.

tion has been too sparing ; and, lastly, I endeavored to point out the propriety of abstracting blood until a fainting state of syncope supervened, in all cases wherein venesection is decidedly preferable to local bleeding.

848. " You are now naturally led to inquire—What is this quantity of blood which it is necessary to abstract at the first bleeding, in order to produce a state of fainting ? Such, indeed, is the variety of the constitution of individuals,—such the difference in the severity of disease,—and such the difference of the period when called on to treat particular cases, that you will find, that whilst in some the pulse sinks after the removal of but a few ounces of blood, in others depletion must be carried to a great extent before syncope is produced.

849. " When employing venesection, and observing the indications which have already been pointed out in order to regulate its extent, it will be generally found that the quantity of blood which you are able to remove before fainting comes on, is, in fact, never more than is requisite for the cure of the disease. Hence a person in health usually faints from the loss of a comparatively small quantity of blood, whilst the same individual, after suffering but a few hours from active inflammation, requires to lose an almost incredible quantity,—a quantity essential for the cure of the disease,—before he falls into a state of syncope."—" A large quantity of blood may be taken away at the first bleeding before syncope is produced, whilst, at every succeeding operation, fainting comes on from the loss of a smaller and smaller quantity.

850. " If you are to be guided in the employment of blood-letting by the principles which I have been endeavoring to inculcate, you will readily conceive the differences in the quantities of blood which must be abstracted in different examples even of the same disease ; and whilst, in some instances, you will be disappointed, from the smallness of the quantity which flows from the vein before syncope supervenes, you will in others be surprised at the extent to which it may be carried, and with the happiest results. Hence the difficulty of attempting to give any thing like a precise idea of the quantity of blood which patients require to lose in the treatment of particular diseases.

851. "The state of fainting is to be considered as an index of the quantity of blood necessary to be removed for relief from the disease ; and, as I have already said, you will always find that quantity to be in the ratio of the propriety and necessity of procuring it.

852. "There is a class of cases in which blood-letting is often employed unnecessarily, and often too, perniciously. I allude to the common practice of bleeding persons immediately after an accident, or during an apoplectic or convulsive fit. In many accidents, more particularly where the head suffers, the first effects of the injury are a diminution or collapse of the vital powers ; and if, under such circumstances, blood-letting be had recourse to, a still further diminution of the vital powers is produced. It is not until the powers of life have revived, or that a reaction has taken place, that you should, after severe injuries, employ blood-letting, and even then it ought to be had recourse to with great circumspection."

853. "In proportion to the violence of an apoplectic shock, so are the powers of life diminished : and hence, if the quantity of blood abstracted be regulated by the severity of the symptoms, in like proportion will it be hurtful by still further diminishing the vital powers. When a person is in a state of insensibility from an apoplectic fit, those around are too apt to urge the necessity of bleeding, conceiving that the loss of blood will cure the disease in the head, of which the fit is merely an effect or symptom."

854. "There are cases of plethora or congestion in the brain, producing a sudden loss of the intellectual powers and convulsions, in which too much blood can scarcely be removed to save life ; but in such cases the pulse is strong, usually acquiring vigor whilst the blood is flowing from the vein.

855. "In cases where there are organic changes in the brain's structure, and when the sudden apoplectic attack is caused by some vessel of the diseased part giving way and pouring out blood, blood-letting is of no avail, and when had recourse to when the pulse is feeble, and the vital powers already are much diminished, it never fails to hasten the patient's death : there-

fore, in such cases, blood-letting ought to be resorted to with great caution."

856. It is not a little interesting to know that similar observations and similar inferences obtain in veterinary practice. For the following valuable note I am indebted to Mr. John Field, Jun. of Oxford Street.

DEAR SIR,

The following are the replies to your questions, so far as I am able to give them:—

1. The symptoms which precede syncope from blood-letting, are sighing, restlessness, frequency and feebleness of pulse, accelerated respiration, sweating, &c.

2. I desire that blood-letting in acute inflammatory diseases be continued until the horse sighs.

3. Cases of acute pleurisy, and of acute inflammation of the laminae of the feet, bear the loss of large quantities of blood at a time, and require frequent repetitions of the blood-letting.

4. In inflammation of the mucous membranes, or of the submucous tissue, much smaller quantities can be detracted.

5. Should inflammation of the mucous membranes be translated to the pleura, or from continuity of inflammatory action, should pleurisy supervene to pneumonia, the pulse will suddenly indicate the necessity of blood-letting, and the horse will bear the loss of a large quantity of blood.

6. Fat horses do not bear the loss of blood so well as lean ones.

I remain,

Dear Sir,

Yours very truly,

JOHN FIELD, Jun.

294 Oxford Street.

October 29th, 1830.

857. In concluding this brief notice of blood-letting as a diagnostic, &c. I must adduce one of the most interesting cases I ever witnessed, and one of the most important in its results:—
A gentleman, residing twelve miles from London, was taken

with an affection of the head. I was sent for, and found on inquiry that he had been bled early, and that he had speedily fainted under the influence of loss of blood. The case was long one of great anxiety. Another physician was consulted. It was supposed to be '*ramollissement*,' or softening of the brain. Confiding in the diagnosis afforded by the *early* syncope, in the *early* stage of the disease, from blood-letting, I continued to hold out hope of recovery. The patient did recover. Now, the hope I felt and held out, in this case, flowed almost entirely from the confidence I reposed in the diagnostic afforded by the event of the blood-letting.

858. A few days ago I was consulted by a medical friend in the Edgeware Road in the case of his wife; he feared peritonitis: there had been previous attacks of the same kind; there were great pain and tenderness of the abdomen; the tongue was loaded: I prescribed blood-letting in the upright position: the patient, though young and stout, fainted on losing eight ounces of blood. From this moment there was no obscurity in the diagnosis, no hesitation in reference to the treatment, no interruption in the recovery.

859. There is a final observation relative to the use of blood-letting: in all cases in which there is great tolerance of blood, it is *remedial* and *safe*; in all cases in which there is intolerance, it is proportionately of *doubtful efficacy*, and *replete with danger*.

860. [NOTE. The practical application of the rule, which it is the object of the foregoing chapter to enforce, appears to us by no means free from difficulties. The rule is intended to apply only to cases "in which blood-letting is required to be fully instituted." But, it may be asked, how are we to know these cases? Either by the author's test, or not. If we apply the test to discover them, we may do mischief by bleeding when we should not. If we can find them out without the test, then the test is superfluous. Besides, patients often faint under blood-letting, from mere nervous impressions, and it is not always easy to diagnosticate syncope arising from these causes, nor to prevent its recurrence. Many patients, both in an erect and horizontal posture, assure us during bleeding, that they feel no faintness, and yet faint entirely after the flow is stopped. Al-

though the author's rule may in many cases be of useful application, nevertheless we are of opinion that when full bleeding is indicated by the nature, stage, and probable tendency of the disease, as well as by the constitution, state and pulse of the patient, the bleeding should be performed in the horizontal position, that it may not be frustrated by premature syncope. In cases of an opposite character, the experiment of blood-letting is better omitted. In doubtful cases the test may be applied.]

CHAPTER XV.

ON MERCURY.

861. I HAVE, in chapters XII and XIV, briefly detailed the morbid and curative effects of loss of blood; in this, I shall give a sketch of the similar effects of Mercury.

862. [The primary effect of Mercury consists in the well known phenomena of ptyalism and salivation. The secondary effect, when injudiciously continued for an improper time, or in undue quantity] is that designated by Mr. Pearson, to whom we owe its detection, the *erethismus* (ἐρεθίζω, to excite) *mercurialis*. To this affection the late Dr. Bateman, the friend of Mr. Pearson, fell a victim, and that from the want of a prompt diagnosis. The first symptoms of this terrible affection occurred on the *ninth* day of the mercurial inunction; this was nevertheless continued to the *thirteenth*. Dr. Bateman observes, in the detail of his own case, given in the ninth volume of the Medico-Chirurgical Transactions, "It is evident that the features of the malady are not sufficiently known, even to the most enlightened members of the profession; for the failure on the part of the medical advisers, in the instance about to be related, to recognise its first symptoms, and the consequent repetition of the dose of the poison, after its first commencement, had nearly proved fatal."

863. The detail itself is full of interest: and not the least affecting part of the story is, that, eventually, the disease did carry off this able physician.

864. Mr. Pearson observes—"In the course of two or three years after my appointment to the care of the Lock Hospital, I observed, that in almost every year, one and sometimes two instances of sudden death occurred among the patients admitted

into that institution ; that these accidents could not be traced to any evident cause ; and that the subjects were commonly men who had nearly, and sometimes entirely, completed their mercurial course. I consulted Mr. Bromfield and Mr. Williams upon this interesting subject, but they acknowledged themselves unable to communicate any satisfactory information : they had carefully examined the bodies of many who had died thus unexpectedly, without being able to discover any morbid appearances ; and they confessed that they were equally ignorant of the cause, the mode of prevention, or the method of treating, that state of the system which immediately preceded the fatal termination.

865. "As the object of my inquiry was of considerable importance, I gave a constant and minute attention to the operation of mercury on the constitution in general, as well as to its effects on the disease for which it was administered ; and, after some time had elapsed, I ascertained that these sinister events are to be ascribed to mercury acting as a poison on the system, quite unconnected with its agency as a remedy ; and that its deleterious qualities were neither in proportion to the inflammation of the mouth, nor to the actual quantity of the mineral absorbed into the body."

866. The *erethismus mercurialis* may come on at any period of the use of mercurial remedies. In Dr. Bateman, the first symptom occurred on the ninth day of mercurial inunction, with languor, fever, and, on the next morning, with violent and irregular beating of the heart.

867. Mr. Pearson observes—"The gradual approach of this diseased state, is commonly indicated by paleness of the countenance, a state of general inquietude and frequent sighing :—the respiration becomes more frequent, sometimes accompanied with a sense of constriction across the thorax ; the pulse is small, frequent, and often intermitting, and there is a sense of fluttering about the *præcordia*. In this early stage, the farther progress of the mercurial *erethismus* may be frequently prevented, by giving the camphire mixture with large doses of volatile alkali, at the same time suspending the use of mercury." And further—"the *erethismus* is characterized by great depression of strength, a sense of anxiety about the *præcordia*, irregular action of the heart,

frequent sighing, trembling, partial or universal, a small, quick, and sometimes an intermitting pulse, occasional vomiting, a pale, contracted countenance, a sense of coldness ; but the tongue is seldom furred, nor are the vital or natural functions much disordered. When these, or the greater part of these symptoms are present, a sudden and violent exertion of the animal power will sometimes prove fatal ; for instance, walking hastily across the ward ; rising up suddenly in the bed to take food or drink ; or slightly struggling with some of their fellow patients, are among the circumstances which have commonly preceded the sudden death of those afflicted with the mercurial erethismus."

868. In Dr. Bateman's case it was remarked—"that the action of the heart and arteries, which was extremely feeble as well as irregular while awake, was so much more enfeebled during sleep, as to be in fact almost suspended, and thus to occasion alarming faintings and sinkings ; so that it became necessary, notwithstanding the extreme drowsiness which had succeeded the long-continued watchfulness, to interrupt the sleep at the expiration of two minutes, by which time, or even sooner, the sinking of the pulse and countenance indicated the approaching languor."

869. "To prevent the dangerous consequences of this diseased state, the patient ought to discontinue the use of mercury ; nor is this rule to be deviated from, whatever may be the stage, or extent, or violence of the venereal symptoms. The impending destruction of the patient forms an argument paramount to all others ; it may not be indeed superfluous to add, that a perseverance in the mercurial course, under these circumstances, will seldom restrain the progress of the disease, or be productive of any advantage. The patient must be expressly directed to expose himself freely to a dry and cool air, in such a manner as shall be attended with the least fatigue. It will not be sufficient to sit in a room with the windows open ; he must be taken into a garden, or a field, and live as much as possible in the open air, until the forementioned symptoms be considerably abated. The good effects of this mode of treatment, conjoined with a generous course of diet, will soon be manifested ; and I have frequently seen patients so far recovered in the space of from ten

to fourteen days that they could safely resume the use of mercury; and, what may appear remarkable, they can very often employ that specific efficiently afterwards, without suffering any inconvenience."

870. To show how little this affection is understood, even now, I quote the following short account, which may be compared with that given by Dr. Bateman: "Mr. —, surgeon, and a West-Indian, called upon me to hold some conversation on his own case. He attributed his unhappy condition to a malignant fever, with erysipelas, during which there had been exhibited a great deal of calomel, as much as thirty grains at one dose, which cured him; but he thought it left him subject to a gastric affection, with a chronic inflammation.

871. "However that may be, this is his present condition. On falling asleep, just at the moment when volition and sensibility cease, the involuntary motions also stop, with a sensation of death, under which he awakes generally convulsed.

872. "His medical friends have sat by him and watched him, and they have found that when sleep is overpowering him, the breathing becomes slower and weaker, the heart and pulse also fall low, and cease to beat as sleep comes on, and, after a short time, he awakes in tremor.

873. "This gentleman is very naturally in much apprehension that some of those attacks may terminate existence. But he is young, and I think the attack is essentially different from the case of angina pectoris. It presents to us a lively idea of what would result, were the involuntary nerves subjected to the same law with the nerves of sense and volition; for then sleep, by overpowering both, would be death!"¹

874. There is great similarity between the erethismus mercurialis and the effects of loss of blood, the extreme degree of chlorosis, and disease of the heart itself: in all, the peculiar effect of sleep, and the proneness to sudden dissolution, are the same.

875. The erethismus described by Mr. Pearson is not the only *morbid* effect of mercury. This remedy, instead of pro-

¹ Bell on the Nervous System, ed. 1830, p. 148.

ducing a kindly effect on the system and on the disease, sometimes induces a quickened pulse, with feverishness and general inquietude, a furred tongue, a harsh and intolerable feeling about the stomach and bowels, perhaps with sickness, perhaps with diarrhœa.

876. Each dose and every form of the medicine produces these painful and untoward effects, and we are frequently compelled to relinquish the use of our most important remedy.

877. In two recent instances, the first of inflammation over the caput coli, the other of inflammation of the right ovarium with ascites, the progress of the treatment was repeatedly interrupted by this unkindly action of mercurials. Their form was changed ; they were omitted, and resumed repeatedly.

878. In other cases, a single dose of the pilula hydrargyri, or of the hydrargyri submuriæ, induces a state of nausea and sickness, or of tormina with diarrhœa.

879. There is still another *morbid* effect of mercury, the *erythema*, or rather *eczema* (ἐκζέω, *to boil out*), *mercuriale*.¹ This affection will be described in a remote part of this volume. A *similar* rash is induced by opium, arsenic, and other substances ; and by gastric irritation from various causes.

880. I shall now proceed to describe the curative influence of mercury. This medicine was first proposed, as a remedy for inflammation, by the late Dr. Hamilton of Lynn Regis. Its powers as a remedy in various inflammatory diseases have been more recently investigated by Dr. Farre.

881. Dr. Farre observes, in an interesting letter to Mr. Travers²—“ We are mainly indebted to John Hunter for directing our attention to the action of the capillary arteries, a knowledge essential to medicine and surgery, considered as a science. To be able to present to the mind the actual condition of the capillary arteries of an inflamed organ, and the changes which are taking place at their extremities, is to know the disease ; and to be able to alter, to regulate, and to control that action by

¹ See Pearson, *Op. cit.* Bateman on Cutaneous Diseases, &c.

² Surgical Essays by A. Cooper, F. R. S., and B. Travers, F.R. S. ed. 2, 1818, page 97.

remedies, is to cure it. Whilst the principal tendency of that series of remedies, which we comprise under the received term, antiphlogistic, from general blood-letting downwards, is to diminish the force of the heart and the arteries; it is in a peculiar manner the operation of mercury on the whole capillary arterial system to change its action, but not indefinitely. The gentlest action of mercury is to correct and restore the secretions proper to the alimentary canal to their natural condition, and, as by a charm, to dissolve the functional disorder of distant organs sympathizing with the first passages. This is an operation which so exactly accords with the intention of nature, that no morbid actions ought to result from the remedy itself when thus used. But it is quite another thing when it is necessary to arrest organic disease. The remedy itself produces a train of morbid actions. Not to dwell on what is well known, suffer me to direct your attention to the condition of the extreme arteries when fully excited by mercury. It is an erythema—an action which essentially weakens the cohesion of parts: but the adhesive inflammation is so exactly opposed to this, that both cannot be the result of mercurial action. From the moment that I commenced the study of morbid anatomy, I directed my attention to the adhesive inflammation, because it opened to my view the most usual process of disorganization of the viscera.

882. "I had been led, from repeated observation of the adhesive inflammation of various textures being cured by the mercurial action, to receive it as one of the *general laws* of its operation to change that arterial action on which the effusion of coagulable lymph depends, and consequently to arrest all the subsequent changes which flow from this process. Doubtless, there are exceptions to this general law. The class of tumors, properly so called, form an immense and lamentable exception to it; and scrofula, in the same proportion that it has impaired the restorative powers of the constitution, forms another not less considerable. The extent and duration of the adhesive inflammation itself, forms a third; for all reasonable expectation of success, even from the use of the most powerful remedy, is founded on, and pre-supposes a structure perfect enough to effect the salutary changes; but it is the actual organization of the

part which suffers by the continuance of this process, and thus unfits it to effect them."

883. "Is iritis an example of pure adhesive inflammation?—I consider that it is; for if the case be left to nature, this is its tendency and termination.

884. "Is the mercurial action an erythema or an adhesive inflammation of those parts on which it falls?—If the former, which I believe it to be, no two actions can be more opposed.

885. "Are sloughing ulcers cured or aggravated by the mercurial action in which the establishment of adhesive or phlegmonous inflammation is essential to the preservation of the part? Accept an example or two. Mr. B. was under mercurial action for a chancre on the glans penis; an erythematous inflammation surrounded the ulcer, and the part sloughed; contiguous portions of the glans died successively. As soon as this destructive inflammation was set up, the further use of mercury was suspended, and two ounces of the powder of the best Peruvian bark was given daily. The granulating process was established before the whole of the glans was lost. You know that mercury would never have occasioned the deposition of lymph, nor the organization of that lymph, so as to heal by granulation in this alarming case. A child was brought to me with one eye lost by slough, and the other inflamed, with nothing remarkable in its appearance, except a small, opaque, yellowish spot on the cornea. A mild antiphlogistic treatment was prescribed; but just before the patient was dismissed, the mother told me that the child had some sores about the pudendum and nates. On examination several small ulcers appeared, all of which were in a sloughing condition. This served me as a key to the condition of the capillary arteries. The extract of the bark was freely given. In eight and forty hours every ulcer on the body had a clean surface. The ophthalmia declined, and the eye was saved. Need I ask you what would have been the effect of the mercurial action in this case?

886. "I have uniformly regarded the mercurial action as one of the most effectual means of arresting the disorganizing process of adhesive inflammation, whether of the iris, or of any other texture of the body. To the liver in this state of disease

(hepatitis), it has been long applied, except that some have had their fears about commencing it too early, and through this delay have probably lost the opportunity of preventing suppuration. In cynanche trachealis it has been more recently used with success. In the last stage of marasmus, from nodes of the large bones, I applied it with success in 1805, and since that period, with equal success, to adhesive inflammation of the pericranium, both where it has been entitled, pseudo-syphilitic, and where it was neither syphilitic, nor bearing any resemblance to syphilis; before and since that period, with marked advantage, in arterial congestion, and even in organic changes of the brain; in 1809, successfully in carditis from acute rheumatism, and since that period, in chronic carditis.

887. Mr. Travers remarks,—“Whether the mercurial action is always restricted to the state denominated erythema, and never advances to the adhesive stage of inflammation, is a point which I cannot take upon myself to decide.” He adds,

888. “Since this paper was written, I attended an elderly lady, the subject of iritis of the right eye, cutaneous eruptions, and rheumatic pains, which yielded readily to a very slight ptyalism. Three weeks after the cure of the iritis, she was attacked with an inflammation, precisely resembling the former, in the left eye, and, notwithstanding a slight paralytic affection of the right side, I persisted in the plan before pursued, diminishing the quantity of mercury one half, and at the same time exhibiting a light tonic; the inflammation yielded as speedily as before.

889. “Whether sloughing sores are cured or aggravated by mercury, is an inquiry to which it is not difficult to reply, but which does not appear to me to be fairly connected with the question at issue. It will not be denied that ulcers often granulate, even luxuriantly, under the mercurial action. I have seen a rapidly destructive ulcer on the penis, arrested by mercury, to which bark gave no check; but opium is a remedy on which I place more reliance in progressive sloughing.”

890. The general result of my observations relative to the use of mercury in inflammatory diseases is this: conjoined with

active depletion, it is invaluable—1, in acute inflammation, of the serous membranes, of the larynx, of the trachea, &c.; 2, in acute inflammations partially, but not entirely subdued; 3, in chronic inflammations uncomplicated with the tuberculous diathesis. I have seen meningitis, pleuritis, peritonitis, laryngitis, effectually removed by this important remedy.

CHAPTER XVI.

ON THE TARTRATE OF ANTIMONY.

891. It is principally to Sig. Rasori, in Italy, and to Laennec, in France, that we are indebted for our knowledge of the powers of the Tartrate of Antimony in subduing certain inflammatory diseases, and especially pneumonia.

892. Laennec observes—"From the moment that I detect pneumonia, if the patient be in a condition to bear the loss of blood, I prescribe the abstraction of six or eight ounces from the arm. I rarely repeat the venesection, except in cases in which there is disease of the heart, or the threatening of apoplexy, or other congestion of blood. I have even cured several cases of pneumonia, very rapidly, without having recourse to blood-letting; but I generally premise this remedy, as does also Sig. Rasori, except in cases of cachexia or debility. I regard blood-letting as a means of arresting the inflammatory orgasm, and of obtaining time for the action of the tartrate of antimony.

893. "Immediately after the blood-letting, I give a first dose of one grain of tartrate of antimony, in two ounces and a half of infusion of orange flowers and half an ounce of syrup. I repeat the dose every two hours until six doses have been taken, and then, if the symptoms be not severe, and if the patient be disposed to sleep, I allow him a respite of seven or eight hours.

894. "But if the pneumonia be advanced, if the oppression be great, if the head be affected; if both lungs, or the whole of one lung, be inflamed, I continue the remedy until the disease be abated. If several of these morbid conditions be combined in the same case, I augment the dose to one grain and a half, two grains, or even two grains and a half."

895. Many patients experience neither vomiting nor purging. More frequently, however, they are sick twice or thrice, and have five or six evacuations during the first day, but the first day only. When *tolerance* of the remedy is established, according to the phrase of Sig. Rasori, it is sometimes necessary even to give mild aperients. It may, however, be necessary, on the contrary, to add syrup of poppy to the antimonial draught.

896. Sometimes the amendment in the symptoms, and in the stethoscopic signs, is obvious in the space of forty-eight, twenty-four, or even two or three hours. This amendment occurs at all periods of the disease; and it is always progressive. It is in this latter point of view that the advantage of the tartrate of antimony over blood-letting, even when repeated, is most marked.

897. Laennec gives a glowing account of the efficacy of this mode of treatment in pneumonia, and of its advantages over blood-letting. It is proper to add, however, that M. Bouillaud has recently denied this superiority.

898. Laennec adds,—“I continue the use of the tartrate of antimony as long as the tolerance of the remedy and the existence of the crepitant râle continue. This tolerance sometimes continues during the convalescence, and the patient has a good appetite though he be taking six, nine, or even eighteen grains of the tartrate daily.”

899. Laennec assures us that he has never witnessed any very painful or dangerous effects from this mode of giving the tartrate of antimony.

900. Laennec has tried the tartrate of antimony in other inflammatory diseases besides pneumonia:

901. 1. “In inflammations of the serous membranes, and especially in *pleuritis*, the antimony is rarely ‘heroic,’ and only when the disease is very acute. It subdues the inflammatory action; but when the fever and pain have ceased, the effusion is not absorbed more rapidly by its means;

902. 2. “I have not,” adds Laennec, “tried the antimony in *peritonitis*, and I shall not readily do so, since the mercurial frictions carried rapidly to salivation, after one or two applications of leeches, appear to be the most successful remedy in this disease.

903. 3. "In forty-eight hours the tartrate of antimony removed a disease having all the symptoms of acute *arachnitis*. The same happy result was observed in three cases of acute *hydrocephalus*."

904. The *contra-indication* for this use of antimony is the *want* of *tolerance*, denoted by the continuance of sickness and vomiting, and of purging.¹

905. I have thus treated of various subjects,—diseases and remedies,—which appeared to me properly to illustrate the *Theory* of Medicine. A full view of this subject would involve the consideration of

- | | |
|--------------------------|--------------|
| I. The Anatomy, | } of Organs. |
| II. The Physiology, and | |
| III. The Morbid Anatomy, | |

The first and second of these I must, however, suppose to be treated of elsewhere; the last I have associated with my account of individual diseases. I must now, therefore, proceed to the *Practice* of Medicine, as far as *diseases* are concerned, leaving the further treatment of the subject of *remedies* for the department of the *Materia Medica*.

906. In treating of each disease I shall revolve in my mind the following subjects:

- I. The Literary History.
- II. The History, comprising
 1. The Causes,
 2. The Course.
- III. The Symptoms.
- IV. The various Forms and their Diagnosis.
- V. The Complications, the Sequelæ, and their Diagnosis.
- VI. The Treatment, the Effects of Remedies.
- VII. The Prognosis.
- VIII. The Pathology, the Morbid Anatomy.

¹ De l'Auscultation Médiante, ed. 2, t. i, p. 492, &c.

1804. In forty-eight hours the state of emphysema in most cases passing into the symptoms of acute anasarca. The same happy result was observed in three cases of acute anasarca.

1804. The same result for this use of ammonia in the case of anasarca attended by the continuance of sickness and vomiting and of purging.

1804. I have then treated of various subjects—diseases and remedies—which appeared to me properly to illustrate the Theory of Medicine. A full view of this subject would involve the consideration of

- I. The Anatomy,
- II. The Physiology, and
- III. The Medical Anatomy,

The list and record of these I must, however, suppose as the treatise of anatomy; the last I have associated with my account of medical diseases. I must now, therefore, proceed to the Practice of Medicine, as far as diseases are concerned, leaving the further treatment of the subject of venereal for the department of the Venereal diseases.

200. In treating of each disease I shall resolve in my mind the following subjects:

- I. The History History.
- II. The History, comprising
 1. The Cause,
 2. The Cause.
- III. The Symptoms.
- IV. The various Forms and their Diagnosis.
- V. The Complications, the Sequelae, and their Diagnosis.
- VI. The Treatment, the Effects of Remedies.
- VII. The Prognosis.
- VIII. The Pathology, the Medical Anatomy.

PRINCIPLES
OF THE
THEORY AND PRACTICE OF MEDICINE.

PART SECOND.
THE PRACTICE OF MEDICINE.

PRINCIPLES

OF THE

THEORY AND PRACTICE OF MEDICINE

IN

PART SECOND

THE PRACTICE OF MEDICINE

PART SECOND.

THE PRACTICE OF MEDICINE.

I. OF DISEASES OF THE GENERAL SYSTEM.

CHAPTER I.

ON FEVERS.

907. IN a preceding part of this volume (page 183), I have treated of fever in a *theoretical* point of view ; I now proceed to treat of Fevers *practically*.

908. Much difficulty has existed in regard to the division and arrangement of Fevers. [The editors have extended the original division of the author, which was into Synochus, Typhus, and Intermittent, so as to include the following heads :

- I. Synochus.
- II. Typhoid Fever or Dothinenteritis.
- III. Typhus.
- IV. Intermittent Fever.
- V. Remittent Fever.
- VI. Yellow Fever.
- VII. Congestive Fever, Spotted Fever, &c.
- VIII. Plague.]

909. Our task of diagnosis is only half performed when we have ascertained the case to be fever—a special form of fever. The

complications may, mediately or immediately, be the cause of death. If these be undetected, or undistinguished, the first part of the diagnosis will be unavailing. In the course of fevers, the early detection of a complication is, therefore, of the utmost moment. This will appear very obvious on reading the subsequent pages. It will also appear of the greatest importance to cultivate a habit of watching and of renewed examination, for such complications.

I. SYNOCHUS.

910. The term Synochus is used to designate the *common fever* of England, as it arises from ordinary causes. It was used in this sense by the late Dr. Willan;¹ and some term distinctive of such a form of fever from typhus is essentially necessary to the inquiry into the nature of fevers. It is that form of fever which is most frequently seen in *private practice*, amongst the higher and middle ranks of society; it is, comparatively, rare in *hospitals*.

911. Synochus varies exceedingly in persons of different ages and sex. The varieties of this fever may be classed in the following order:

- I. *The Acute*, seen principally in the young and robust;
- II. *The Protracted*, in the feeble and delicate, and in the female sex;
- III. *The Typhoid*, chiefly in the aged and infirm.

912. The *acute* form of Synochus is the most frequent; in the heat of summer it is apt to be complicated with *bilious* vomiting and diarrhœa, and yellowness of the conjunctiva. The *protracted* Synochus frequently pursues the course of a "*slow nervous*" fever, for six, eight, or ten weeks. The *typhoid* Synochus is seen principally, but not exclusively, in the aged and infirm, after anxiety, fatigue, accidents, or surgical operations.

¹ Miscellaneous Works, by Ashby Smith, M. D., London, 1821.

I. *Acute Synochus.*

913. I. *The History.* The acute Synochus arises from fatigue, anxiety, and watching, as in unremitted attendance on the sick ; from long exposure to cold and rain, as in taking long journeys, or, as I have often seen, in the labors of the harvest ; from extreme errors in diet, &c. It usually comes on immediately after exposure to one of these causes, with chilliness, febrile heat, flushing, &c. Its duration is from ten to one-and-twenty days.

914. [The febrile affection, called by the French *courbature*, and to which the term *ephemera* may, by a slight extension of its meaning, be applied, should doubtless be included under this term synochus. The *courbature* is very common in strangers who arrive in Paris after a long journey on foot, and yields to a very few days of quiet and regimen in the hospitals. When merely the result of fatigue, it is seldom of as long duration as the period mentioned by the author.]

915. II. *The Symptoms* enumerated more fully are the following:—Flushing and tumidity of the countenance, injection of the conjunctiva ; heat, softness, and tumidity of the skin generally ; the tongue is loaded, white, and generally moist, swollen, and indented ; the breath tainted. There are aching pains, lassitude, and muscular debility ; headache ; intolerance of light or sound, and, in the erect posture, vertigo or faintishness. The respiration is hurried ; the pulse frequent, full, and soft ; there are anorexia and constipation.

916. III. *The complications* usually seen in this affection are,

I.—1. Herpes Oris, and

2. Herpetic Sore Throat ;

but besides these, there is occasionally,

II.—1. Encephalic,

2. Thoracic, or

3. Abdominal Inflammation ;

and, in summer, there are frequently,

III. Bilious Vomiting and Diarrhœa.

917. IV. *The Treatment.* The first remedy required in the acute Synochus is usually an emetic, which may consist of half a dram of the pulvis ipecacuanhæ, given in tepid, weak tea, administering some similar diluent *before* and *after* it. The bowels should then be well moved by means of a pill of two grains of the hydrargyri submuriæ, and three of the pilula hydrargyri, followed by a draught, consisting of about twelve drams of infusum sennæ, and of two or three of confectio sennæ, and of the sulphas magnesicæ.

918. It frequently happens that, for the excessive febrile action, or for pain of the head, blood-letting is required : the patient should then have his arm prepared, the vein opened, and be placed in the perfectly erect position, looking upwards, and the blood should be allowed to flow until the face or lips turn slightly pale, the forehead be bedewed with perspiration, the breathing attended with sighing, the stomach affected with eructation, or the pulse become feeble, slow, or irregular.

919. The medium quantity of blood which will thus be withdrawn, is usually slightly above that denoting the healthy tolerance ; see page 209. If there be a complication of affection of the head, or of pleuritis, or pneumonia, that quantity will be *proportionately* greater.

920. The pulvis antimonialis may now be given, in the dose of three grains, every three, four, or five hours, with a saline draught.

921. A mild aperient must be given daily.

922. The diet should consist of tea, barley-water, &c., only.

923. V. *The Complications*, whether of the head, chest, or abdomen, must be treated by repeated venesection, or leeches, until the pain or other symptoms subside.

924. VI. *The Morbid Anatomy.* I have never known this form of Synochus to prove fatal ; the morbid appearances are, therefore, unknown to me.

925. A vivid idea of this familiar morbid affection will be best given by an example :—A youth toils through the session at Edinburgh ; then takes the mail for London ; arrives heated and fatigued, but trusting that, by repose, his feverishness and weariness will subside. Several days pass over, and these symptoms

do not subside: the lips have become affected with herpes; there is sore throat, and, on examination, erythema, herpes, or aphtha is observed: there are still headache and vertigo, and perhaps coughing; there may be chills; the face is flushed, the skin hot, the pulse frequent; the tongue white and loaded, and the breath tainted, &c. These symptoms continue from ten to twenty days.

926. This febrile affection, and not typhus, is what I observe in the young gentlemen of an extensive drapery establishment, which is placed under my care. It may very appropriately be called *common fever from common causes*.

927. The harvest laborers are apt to become affected with this fever; there is frequently then the complication of bilious vomiting and diarrhoea, with slight icterus. Such a form of fever has been designated *bilious fever*.

928. An account of the acute Synochus will be found in Dr. Willan's Reports of the diseases in London,¹ pp. 148—150. Dr. Willan was in error in supposing that Synochus is confined to summer, or becomes changed in autumn, into typhus.² It is produced, at any season, by its appropriate causes; it is *modified*, however, by season, being conjoined with inflammatory affections, and especially pleuritis, in severe cold weather, and bilious symptoms, as I have stated, in hot; but it is always essentially different from typhus.

II. *The Protracted Synochus.*

929. I. *The History.* This form of Synochus comes on more slowly, and after a still more protracted exposure to the causes already enumerated; from disappointment and grief; from want and poverty, &c. Its duration is frequently protracted through six, eight, ten, or even twelve weeks.

930. II. *The Symptoms.* The countenance, occasionally flushed, at first, becomes shrunk, wan, sallow, and tremulous; the general surface shrunk, dry, harsh, and exfoliating; the hands are rough and harsh; frequently a circle of redness and burning

¹ Op. cit. p. 106.

² Ibid. p. 163.

is observed extending round the palm; there are muscular tremor and debility, headache or vertigo, delirium or coma; the pulse becomes frequent and small; the respiration and the articulation are tremulous; the tongue becomes brownish and dry in the centre or morbidly red, smooth and dry; there is sometimes vomiting or diarrhœa; the urine usually deposits a copious pinkish sediment.

931. III. *The Complications* most frequently seen in this form of the common fever, are,

I. Aphthæ of the Mouth and Throat.

II. Chronic.—1. Cephalic,

2. Thoracic, or

3. Abdominal, Inflammation.

III. Tubercles.

932. IV. *The Treatment.* This affection comes on too insidiously to require the more active remedies recommended in the acute Synochus. § 917, 918. It must be treated, at first, with mild aperients, antimonials, salines, and diet. Asses' milk is peculiarly proper.

933. In due time, these remedies are to be exchanged for gentle bitters or tonics, as the infusum gentianæ compositum or the infusum cinchonæ.

934. The state of the general surface frequently requires the use of ablution with tepid or warm water; that of the nervous system, the hyoscyamus, &c.

935. But the principal object in the treatment is, as in all fevers, to watch against the supervention of affections of the head, chest, or abdomen,—especially slow and insidious inflammation, or tubercle.

936. V. *The Morbid Anatomy* is totally unknown. The appearances found, post mortem, are usually those of the *complications* to which I have just adverted.

937. I have described, § 925, the usual mode of accession of the acute Synochus. I shall do the same in reference to the insidious and protracted form of this fever. In this manner the student and young practitioner will receive a more distinct impression of the character of this disease.

938. Thus, a young person of delicate constitution, shall attend the sick-bed of a parent, for example, incessantly, anxiously, night and day, until the patient recovers or sinks. At this moment the anxious nurse becomes affected with feebleness, feverishness,—the face is alternately pale and flushed, the tongue is white, the pulse frequent,—in a word a “*slow nervous fever*” seizes the system, and the patient lingers in it for many weeks: there are emaciation, dryness of the skin, the load peels off the tongue, leaving it morbidly clean, perhaps beset with aphthæ; there may be constipation or diarrhœa.

939. There is a slight sketch of this form of fever in Willan’s Reports, already quoted (§ 928), p. 132, 126. Dr. Willan describes one case as terminating fatally, from intestinal hæmorrhagy, about the twentieth day.

III. *The Typhoid Synochus.*

940. I. *The History.* The causes of the typhoid Synochus are similar to those of the other forms of this fever; but the subjects are, usually, the feeble, the aged, females, &c. This affection is apt to supervene upon accidents and operations.

941. II. *The Symptoms.* In typhoid Synochus, the surface is less heated, the tongue becomes brown and dry, and the teeth affected with sordes, and there are delirium, coma-vigil, or subsultus; but there is rarely purpura, or tympanites, and never the rose-spots,¹ so frequently observed in typhoid fever.

942. III. *The Morbid Anatomy.* This is not distinctly ascertained. There is an absence of the ulcerations of the clustered intestinal glands, which appear to constitute the essential anatomical character of typhoid fever.

943. IV. *The Treatment* of the typhoid Synochus is extremely similar to that of the protracted Synochus. To the remedies employed in the latter form of the disease, § 932, may be added, however, *wine* cautiously administered.

944. I shall now present my readers with an interesting case of typhoid Synochus. It was published in the Medical Gazette, vol. x, p. 756.

¹ Examen de l’ Examen de M. Broussais, par P. Ch. A. Louis; p. 115.

945. The patient, in the seventh month of pregnancy, suffered from great anxiety, fatigue, and watching, during the illness of two little children, for upwards of a week. She then became affected with a violent hysteric paroxysm, febrile symptoms, and delirium. These affections augmented daily; the tongue became dark-brown, and dry; the teeth covered with sordes; the pulse frequent, then losing its force; the delirium more and more violent, and continuous. The powers of life at length failed. I had expressed my opinion that the case, however *typhoid*, was not real typhus. An examination was made, in the most accurate manner, by Mr. Hammond and Mr. Crowdy, of Brixton, Mr. Heming, of Kentish Town, and myself. The brain was free from effusion, or morbid appearance of any kind; so were the viscera of the thorax. The stomach and small intestines, and the colon, were free from any mark of disease; there was no affection of the clustered glands whatever; the only morbid structure consisted, in a very few instances, of inflammation, with minute central ulcer, in the solitary glands, occupying a small space at the uppermost part of the rectum. There were no petechiæ, nor was there the least tympanitic affection of the intestines.

946. It appears to me impossible that an individual case can establish more facts than this one. The cause, the course of the disease, were known; its typhoid character amply attested; the absence of "dothinerite" predicted; and the conclusion that it was not typhus, however similar to typhus, fully established and confirmed.

947. The typhoid Synochus is extremely apt to occur in old age, both from the causes which I have enumerated, and as a complication of other diseases. It also frequently occurs in younger subjects, as a complication of disease, and as the result of circumstances of extreme fatigue, exhaustion, &c. In *none* of these cases are the glands of the intestines found diseased or ulcerated; a condition which, as I have already stated, is peculiar to true typhus.

948. A knowledge of the *typhoid* Synochus is absolutely necessary in determining the important question, whether the affection of the intestinal glands be *peculiar* or *essential* to one

form of fever, or whether there be exceptions to this law. To this question we shall have to revert presently.

II. TYPHOID FEVER, OR DOTHINENTERITIS.

949. [In the original chapter, by the author of this volume, as well as in most similar systematic works, two separate diseases are confounded under the name of Typhus. Although these resemble each other in many of their symptoms, yet they have lately been found to differ in their causes, in the anatomical lesions which characterize them, as well as in a part of their symptoms; and they are, therefore, now recognised as distinct diseases. The American editors have on this account thought it best to dispense with the author's article on Typhus, and to present a separate view of each of these morbid affections, under the names of *Typhoid fever* and *Typhus*, these being the distinctive epithets under which they are now beginning to be known. As this subject constitutes at the present time one of the most interesting points of pathology, and, at the same time, least generally understood, no apology will be necessary for this deviation from the plan of the work.

950. The *typhoid* fever, we have reason to believe, is the most common of the continued fevers, which are met with in the northern and eastern parts of the United States. It is also not uncommon in the more central sections. In Europe, it prevails in many countries, and especially in France, where it predominates over other febrile affections, and has been made the subject of the most exact observation.

951. The name typhoid fever is objected to by Andral, as expressing a general state which is common to various adynamic diseases. In ordinary language, the term *typhoidal state* implies a state of atony and prostration, attended with certain symptoms, which resemble those of typhus and typhoid fevers. We occasionally meet with this state in pneumonia, phlebitis, erysipelas, &c. It would, therefore, have been better had some unequivocal name been adopted, like that used by Bretonneau, who styles the disease in question *Dothinenterite* (*δοθινη, a pustule*, and *εντεον, intestine*). Nevertheless, as the term typhoid fever

is now sanctioned by some of the principal writers on this affection, as Louis and Chomel, in France, and Drs. Jackson, and Gerhard in this country, we may consider the name as having become sufficiently current under this particular acceptation to be free from danger of misapplication.

952. For an account of the progress of observation which led to the knowledge of this disease, we refer to the article on Typhus. For the present, it is sufficient to say that the typhoid fever is distinguished from other diseases of its class, by a morbid alteration in the clustered follicles of the mucous coat of the small intestines, known as the glands or patches of Peyer, with an enlargement of the corresponding mesenteric glands; also in most cases by an enlargement and alteration of the spleen, and an eruption of lenticular rose spots upon the skin.

953. The common symptoms of typhoid fever are chills, with or without shivering, followed by heat, which at length becomes constant, and is attended with a dry skin, or with partial perspiration. There is also pain in the head, back, and limbs, frequently sudden and great debility, confusion of mind, laborious and unrefreshing sleep, vertigo and drowsiness, difficulty of attention, and false measure of time. To these are added thirst, destitution of appetite, and frequently diarrhœa, with pain in the abdomen. The tongue, in the early stage, is coated white in most cases, becoming afterwards darker.

954. After the sixth day, we discover in most patients an eruption, confined chiefly to the abdomen and chest, composed of a few red, papular elevations, or pimples, which vanish upon pressure and immediately reappear. Sudamina also are very often formed after the twelfth day, consisting of a multitude of minute vesicles, containing watery fluid, existing on the trunk and limbs, but most commonly about the clavicles, axillæ, epigastrium, and inguinal regions. Epistaxis occurs in a great portion of cases, but without relief of other symptoms; hemorrhage may also appear from other passages, especially from the bowels.

955. The eyes become reddish in many cases, suffused, and often vacant in expression. A tinnitus or a buzzing sound in the ears is common. The attention and memory grow more imperfect as the disease advances, and the patient relapses into

somnolency after being roused. The utterance is slow and hesitating, and there is unwillingness and inability to exert the body or mind. Delirium, in a greater or less degree, is a common symptom, especially during the night.

956. As the disease advances, the tongue grows dry and darker, and in bad cases is swollen, glossy at the edges, parched, often cracked and bleeding, and sometimes incrustated, at others dry and rough; its motion is trembling or vibrating, it is protruded with difficulty, and withdrawn slowly. Sordes collects on the teeth and lips. The abdomen becomes tumid and resonant from meteorism. The spleen can, in many cases, be felt by the hand in the left hypochondrium, shooting past the fingers when the patient makes a long inspiration. There is sonorous râle in the chest, coming on after the first week, with sometimes slight subcrepitous râle and cough. The countenance grows more suffused, red or purplish, sometimes bloated; the expression sunken and vacant, or wild. The pulse, which at first is ordinarily not much accelerated, becomes frequent, quick and tense as the disease advances.

957. A twitching of the tendons of the wrist, *subsultus tendinum*, attends the low stages of this disease, the patient picks or pulls up the bed clothes, and sometimes catches at imaginary objects; spasms take place in the lips, muscles of the jaws or eyelids; and in bad cases, there is sometimes permanent rigidity of the muscles of the neck, limbs and abdomen.

958. The attitude is supine, the patient tends frequently to slide down in the bed; sloughing of the skin and integuments sometimes takes place on the sacrum, and on places to which blisters have been applied.

959. The prognosis in typhoid fever depends on the continuance or change of certain symptoms. It is to be remarked in this disease, that no patient is to be accounted safe, however mild the symptoms may be, until some radical change or progress towards recovery has taken place. On the other hand, no patient is to be despaired of, even under the most grave and severe symptoms, until those of fatal character have occurred. We may divide the symptoms into the favorable, the grave, and the unfavorable or threatening.

960. The favorable symptoms, or those which for the most part indicate approaching convalescence, are that the sleep becomes more tranquil and refreshing ; the pulse slower, softer and more regular ; the coat separates from the tongue at the tip and edges, leaving the surface moist and of the natural color ; the appetite begins to return, which is among the most favorable signs. At the same time we find the mind to grow clearer, there is more attention to external circumstances, the countenance becomes brighter and more intelligent ; the heat of the skin diminishes, the meteorism lessens or disappears ; the alvine dejections are less fluid and fetid, and the muscular system acquires more steadiness.

961. The grave signs, which indicate the confirmed typhoidal state, are attended with more or less danger, yet nevertheless are not incompatible with recovery. Such are moderate delirium, inattention to surrounding objects, slowness of comprehension, of memory, and of utterance ; pungent heat of the skin, sordes on the teeth and lips, the tongue red or rough, swollen, parched, glossy, cracked, vibrating, and, when protruded, left unretracted ; the abdomen meteorized and spleen palpable ; great diarrhœa, subsultus of the tendons, picking of the bed clothes, great muscular debility, sliding down in bed, hemorrhages, eschars of the sacrum.

962. The unfavorable signs, or those which indicate great danger, are constant and violent delirium, with attempts to leave the bed, and to resist all restraint, a very rapid and feeble pulse, cold sweats, cold extremities, purple cheeks, involuntary discharges in bed, retention of urine, very offensive urine and dejections, jactitation of the limbs, a jerking, noisy, or snuffing respiration. Among the signs which for the most part are fatal, are permanent rigidity of the muscles of the limbs, neck or trunk, permanent comatose or convulsive affections, a pulse in adults constantly exceeding 150 per minute, and the general shrunken, pinched, and ghastly expression of countenance, known as the *facies Hippocratica*, from its earliest describer.

963. Among the complications of typhus, pneumonia constitutes a dangerous attendant ; erysipelas of the face is generally,

not always,¹ fatal ; sudden development of peritonitis indicates perforation of the intestine, and is almost necessarily fatal. The symptoms of this last event are sudden pain and tenderness, diffused over the abdomen, nausea and vomiting, a sunken countenance, small and feeble pulse, paleness, cold perspiration, and rapid sinking of the powers of life.

964. The ordinary duration of typhoid fever is from two to six weeks. Louis considers its limits as from eight days to forty. Chomel says it rarely terminates before the twentieth day.² When patients die after the sixth week, it is most commonly from some secondary lesion.

965. The duration of convalescence varies in different subjects, but in young persons of good constitutions, it is often extremely rapid. Appetite during this period is apt to be voracious. The amount of flesh which has been lost is frequently regained in a few weeks, and the patient, as after most acute diseases, may become more fleshy than before his illness.

966. Notwithstanding the severity and distinctness of the symptoms in ordinary cases of typhoid fever, yet they are sometimes so slight as not to confine the patient, or occasion apprehension to his friends. Such cases do not always terminate favorably. In the *latent* typhoid affection, as it is termed by Louis, patients have been able to walk out till the third week, and until a few days before their death.

967. The causes of typhoid fever, like those of many other diseases, are often difficult to detect. It is often endemic, but does not appear to be contagious. Its greatest prevalence is in summer and autumn, and its smallest in spring. Although every species of irregularity, exposure and excess has been considered capable of exciting it, yet precise inquiries on this subject have not been attended with much satisfaction. Chomel endeavored to ascertain the assignable cause of 115 cases of typhoid fever which came under his observation. Of these, a small number, not exceeding 5 to each cause, respectively attributed their illness to cold, to bad nourishment, grief, debility from previous

¹ One case in the Massachusetts General Hospital recovered under this complication. The cases observed by Louis and Chomel were fatal.

² *Fièvre Typhoïde*, page 336.

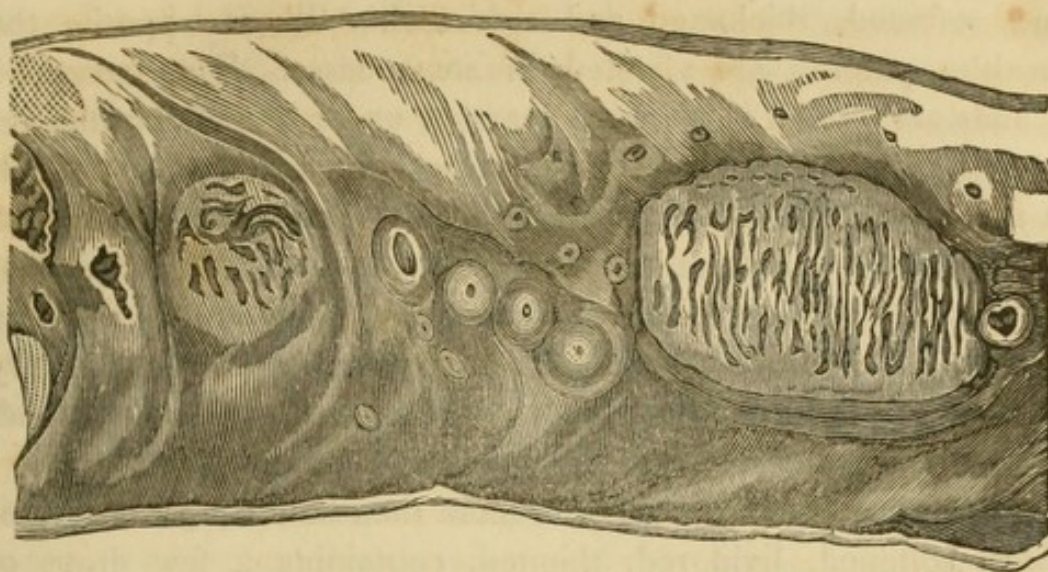
disease, fatigue, intemperance, &c. But of the whole number, 79, or more than two thirds, could give no account of any satisfactory cause.

968. According to the observations of Louis, it would seem that recent removal, or residence in a new place, is an event which more frequently than any other, has preceded the attack of this fever. It must be recollected, however, that his observations were derived from hospital patients, a class among whom many are found to be strangers in the place of their sickness. On the other hand, in confirmation of his remark, we may observe, that various other fevers affect the unacclimated, in the place of their prevalence, more frequently than the older inhabitants.

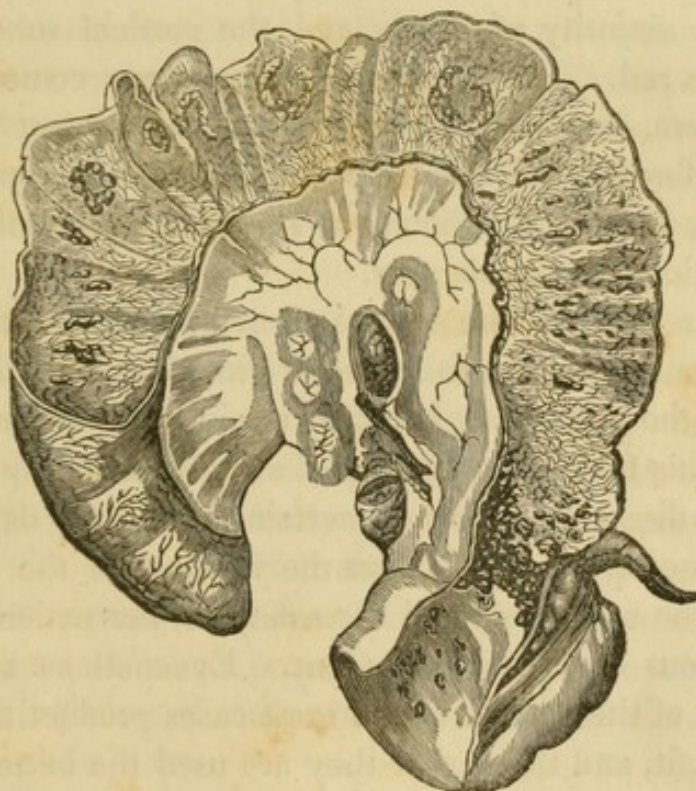
969. Of the anatomical changes which take place in typhoid fever, the most constant is the lesion of the elliptical patches or glands of Peyer. These are thickened, softened, changed in color, and finally ulcerated. Those which are lowest in the ileum, or nearest the cæcum, are most seriously affected. The first change in these glands is their swelling by the formation of a yellowish white, slightly friable matter under the mucous coat. This state is followed by ulceration, which often occurs at first in separate points, giving to the patches a honey-combed appearance. The cellular, as well as the mucous membrane, is always affected, the muscular coat is in some cases diseased or destroyed, and finally the peritoneal coat may be fatally perforated. When resolution is taking place in these patches, they assume a purplish or a slate color, and when cicatrized after ulceration, they exhibit a smooth surface with thin edges.

970. The mucous membrane without the patches is various in appearance, white, red, grey, softened, or healthy in appearance. The isolated follicles, known as Brunner's glands, are affected in about a fourth part of the cases.

971. The subjoined cut, copied from Dr. Baillie's plates, Fasc. IV, pl. ii, fig. 3, is a beautiful representation of the appearance of the intestine in this disease.



972. The following sketch, presenting a different view, is reduced from the splendid work of M. Cruveilhier :



973. The large intestines are meteorized, thickened or natural, the mucous membrane red to a certain extent in some portions, white or grey in others, sometimes softened in parts, sometimes ulcerated.

974. The mesenteric glands, opposite the diseased patches,

are softened, thickened and reddened. Those opposite the healthy patches are affected in some cases. The mesocolic glands are altered in a similar manner, under like circumstances.

975. The spleen, in nearly all cases, is softened and enlarged. it is sometimes found of four or five times its natural dimensions. The stomach is natural in about half the cases, its mucous coat sometimes softened, thinned in bands, mamillated, ulcerated in a few cases. The liver is of natural size, softened, pale and dry on incision, in half the subjects ; the bile abundant, very fluid, reddish or greenish.

976. The heart is healthy in more than half the cases, sometimes softened, livid red, thinned, containing a few drops of blood mixed with air, clotted and not fibrinous. Lungs natural in a third of the cases, sometimes partially hepatized, or splenified. Pleuræ containing some serous fluid in nearly half the cases.

977. In the brain the medullary substance is moderately injected in a majority of cases, and the cortical substance often more or less red. But these appearances are common to other acute diseases, and may be occasioned in the last moments of life. The foregoing is an abstract of anatomical appearances as observed by Louis and Chomel in Paris, and generally confirmed by observations in this country.

978. In regard to the treatment of typhoid fever, it is now generally conceded that no remedial process can be depended on to jugulate the disease, or break it up in the earlier part of its career. This fever, like small-pox and measles, appears to be a self-limited disease, requiring a certain number of days to complete its necessary course. But the violence of the disease can apparently be mitigated, and the safety of the patient increased, by a judicious course of treatment. Evacuations at the commencement of the disease are in most cases productive of greater or less benefit, and the earlier they are used the better. Among these the most common are cathartics and emetics. Blood-letting is indicated in plethoric subjects, and leeching the temples gives great relief to the headache which is common in the early stage.

979. In the report on typhoid fever by Dr. Jackson, made from observations of cases during twelve years in the Massachu-

setts General Hospital, the numerical preponderance of favorable cases is on the side of those, in which active remedies were resorted to in the early stage of the disease. Of 59 patients who took emetics in the first week, 4 died, being about one in 15, and of 31 patients who did not take emetics in the first week 3 died, or about one in 10. The mortality was smallest among those who took this remedy during the first 3 days. For other numerical results the work referred to may be consulted with advantage.

980. After the first few days, the time for active treatment has generally passed by. A certain period must elapse before convalescence, and during this period the patient is to be carefully nursed, protected from external annoyances, especially from noise, conversation, and motion. He should be kept on mild farinaceous liquid diet, with water, and a little juice of fruit occasionally. Soda water is an agreeable and refreshing beverage. As there is usually much thirst, it is better to give drinks in small quantities and to repeat them frequently, than it is to allow large draughts, which oppress the patient, without removing the thirst. The skin should be occasionally sponged with water or spirit, which should be used cold to the head and warm to the extremities.

981. In small doses the spirit of nitrous ether given three or four times a day, tends to tranquillize the nervous system and promote diaphoresis; in large doses, like the other ethers, it is too stimulating. The liquid acetate of ammonia answers a similar purpose in the dose of a fluidrachm. Attention must be paid to the state of the bowels. If there is diarrhœa it should not be checked, but merely restrained, by the chalk mixture or the mildest opiates. If there is costiveness, a gentle laxative, such as castor-oil, infusion of rhubarb, or a Rochelle powder, may be given once in two days.

982. No other treatment than the above is necessary in favorable cases. When the approach of convalescence is indicated by a return of appetite, the liquid food may be increased with the addition of a little milk, and bread may be allowed in small quantities, followed in a day or two by the juice of meat, and afterwards by a little of the lighter kinds of solid animal

food. But the effect of each increase must be carefully watched, and the patient must not be allowed to fully satiate his appetite, especially in the latter part of the day.

983. When in the advanced stage of the disease, symptoms of great prostration show themselves, such as constant delirium, subsultus of the tendons, wakefulness, and a small, feeble, frequent pulse; wine and other cordials, may be resorted to with decided benefit. At first they should be given in small quantities, diluted with water. If the heat, restlessness, and force and frequency of pulse are increased by them, they must be immediately postponed. But if on the other hand, these symptoms abate under their use, we should persevere and gradually increase the quantity allowed. Dr. Stokes thinks that the state of the heart in fever, affords a rule for the employment of this remedy. According to him, "the diminution or cessation of impulse, the proportionate diminution of both sounds, or the preponderance of the second sound, are direct and nearly certain indications for the use of wine in fever." No general rule can be given for the quantity of wine applicable to all cases, but in cases where it evidently is relished by the patient and is followed by improvement, from a fluidrachm to half a fluidounce may be given once in two hours. But many bad cases recover without the use of wine in any shape.

984. As an evidence in favor of the mild, or palliative and expectant plan of treatment, we may mention that in the Massachusetts General Hospital, where this plan has been generally pursued for the last two years, with very little active treatment by medicine or otherwise; the results have been very favorable. In 1837, there were 36 cases of typhoid fever in the wards, including a due proportion of those attended with grave and threatening symptoms, and not one death occurred from this disease. In 1838, among 23 cases there were two deaths, both which were of persons brought in in a nearly moribund condition. [The daily records of all these cases may be seen in the hospital books.]

III. TYPHUS.

985. [Continued fevers, before the time of Broussais, were considered generally, as affections of the system rather than of special organs. They were distinguished from each other either

by the usual characters of the symptoms, as the inflammatory, the adynamic, the ataxic ; by some special symptom, as in the case of spotted fever ; or by their causes, as the jail or camp-fever. But whatever the form or name of the complaint, no one anatomical lesion was supposed constantly to attend it. Such was the state of opinion when Broussais endeavored to show that the real source of these various affections was in an inflammation of the mucous membrane of the stomach and bowels—a gastro-enteritis. His opinion prevailed very widely, and a considerable part of the medical world supposed the seat of the lesion in continued fevers as well ascertained as that of pneumonia. The internal surface of the stomach and bowels is so often found, even when quite healthy, more or less red and injected, that most who looked with the expectation of finding inflammation were satisfied of its existence.

986. This opinion had been current for some time when the attention of pathologists was attracted to a new lesion, observed particularly in an epidemic fever, of which particular epidemic it was supposed the characteristic. This was the lesion soon afterwards ascertained by M. Louis to exist also in the common continued fever of Paris ; namely, a diseased condition of the elliptical patches of the small intestine, known as the glands of Peyer. The concurrent testimony of the best observers soon settled the fact beyond dispute of the connection between this lesion and continued fever, as that disease was found in Paris. No disease could be found there in which, the symptoms being such as are called typhus or typhoid fever, this affection of the follicles was found wanting. If any single such instance could be discovered it was only as a rare exception and found its parallel in the “*morbilli sine morbillis*,” and other eruptive fevers, in which the eruption may occasionally be wanting, though their nature is evident from their symptoms and causes.

987. The publication of M. Louis’s work alone was sufficient to determine the anatomical character of the continued fever of Paris beyond a doubt. The same lesion was therefore sought for in other parts of Europe and in America, and it was found by many observers, residing in different and remote countries. The disease observed by Louis in Paris therefore was not a mere

endemic ; one constant well-marked train of symptoms, attended in all fatal cases with one identical organic change, was discovered wherever it was looked for, by competent observers. This is the typhoid affection of which we have just given a detailed account.

988. It was soon remarked, however, by many of the British practitioners that there existed among them numerous cases, which although they presented the aspect and many of the most striking symptoms of the typhoid fever of Louis, or dothineritis, yet offered no traces upon examination of the characteristic lesion of that affection. But their testimony was received with a certain distrust, and it was too readily believed by many that lesions which really existed had been overlooked by the numerous and intelligent observers who were carefully examining for these very lesions. At the same time it was observed by the British physicians that some of the laws ascertained by Louis to belong to the typhoid fever did not apply to all their continued fevers ; especially it was found that these affections with them were in many cases manifestly contagious, and that they affected all ages nearly alike.

989. In the midst of this apparent contradiction it began to be suspected that there might be two different kinds of fever in Great Britain, one identical with, and the other differing from, the fever of Paris as described by Louis.

990. The distinction between these two fevers was formally and fully pointed out by Dr. Perry of Glasgow, in the *Edinburgh Medical and Surgical Journal* for Jan. 7th, 1836. The characters assigned by him to the affection which he calls *typhus*, are principally these.

991. It is propagated by a specific contagion only.

992. It is an exanthematous disease like small-pox, measles and scarlatina, and is generally experienced only once by the same individual.

993. Its exanthematous character is shewn by a reddish, slightly elevated, irregular, papular or measly eruption, sometimes sparingly at others thickly scattered over the trunk and limbs, but rarely appearing on the face.

994. The febrile symptoms abate after fourteen days, unless there are local lesions. "The appetite frequently continues de-

fective till the twenty-first day, when all the functions resume their healthy action."

995. A dark fluid state of the blood, congestion in the vessels of the brain, and a serous effusion on its surface are the most frequent morbid appearances, in many cases the only ones. Next in frequency is thickening and darkened color of the bronchial mucous membrane, and next to this disease of the mucous membrane of the small intestines, especially of the follicles of the ileum.

996. *Dothinenteritis*, or disease of these follicles, occurs, according to Dr. Perry, in about one in six who die from typhus. These cases should be most accurately compared with the others to ascertain if they are not different from them in their causes, their course and their symptoms, as well as in their lesions.

997. The differential symptoms of typhus, and typhoid fever (*dothinenteritis*) are thus stated.

998. "The less compressible state of the pulse, the clearness of the eyes, the flushing of the cheeks, the more florid, parched, and fissured state of the tongue, the comparative absence of the frontal headache, and the complete absence of the typhus eruption, sufficiently distinguish this disease (*dothinenteritis*) from contagious typhus."

999. In the Dublin Journal for September, 1836, was a communication from Dr. Lombard of Geneva, a gentleman well known by different valuable contributions to medical science, of which the following abstract, to be found in the British and Foreign Medical Review, for January, 1837, is too interesting to be farther abridged.

1000. "Dr. Lombard states that he came to Great Britain, after having studied fever both in Paris and Geneva for seven years, fully convinced that in all cases of continued fever there was enlargement and ulceration of the mucous glands of the small intestines; but, to his surprise, cases fell under his own observation, both in Glasgow and Dublin, in which there was no lesion whatever of the intestinal tube. The general symptoms which he had almost always seen in fever in Paris and Geneva, were exactly those which he observed in Dublin and Glasgow, so that he was firmly convinced it was the same disease. The

most obvious differences were, in the fevers of Great Britain; a greater quantity of the eruption of rosy spots which is always seen, but not in any extent, in continental typhus [typhoid]; and the occurrence of the disease in infants and very old people, which is not witnessed in France and Switzerland. Diarrhœa also, which is almost a constant symptom abroad, is less frequent in the fever of Dublin and Glasgow, which is also more highly contagious. These facts, which were very startling to Dr. Lombard, led him to modify his previous opinion that fever was connected with a diseased state of the intestinal canal, and to conclude that 'typhus fever is more a general disease affecting the whole constitution, than a malady depending on any local inflammation, or any local change of structure.' The practical results from this view of the subject are, that one mode of treatment is not universally applicable, and that charity should be exercised when one set of pathologists criticises another in a different country.

1001. "In a subsequent communication, written at Geneva, after reflecting on these facts and seeing cases of fever in England, Dr. Lombard endeavors to reconcile some of these differences. In the Fever Hospital of Liverpool he saw a hundred cases resembling those in Dublin very closely. In Manchester Fever Hospital the proportionate number of cases was much less, but the symptoms very similar. In Birmingham there was no fever hospital, and but one fever ward in the Infirmary: he was told that fever cases were by no means frequent, but that, when they proved fatal, ulcerations in the ileum were always found. In the London Fever Hospital there were only twelve cases; the symptoms were similar to the Dublin typhus, and, according to Dr. Tweedie's researches, ulcerations of the intestines were not found in more than one fourth of the cases. From these facts Dr. Lombard adopts the opinion that Ireland is the source of the contagious fever which prevails in Great Britain, and that it is the same disease which the French have called 'typhus contagieux, fièvre des armées, fièvres des prisons,' as described in 1813, 14, 15, when it prevailed wherever the armies met and sojourned. In twenty-five years there have been 77,866 cases in the Cork-street Fever Hospital in Dublin. Wherever the Irish poor go they carry this fever: hence it is

prevalent in Glasgow and Liverpool, where the Irish pass in great numbers; and less so in Manchester, Birmingham, and London. But Dr. Lombard does not regard this as the only source of fever; fever is also sporadic, and he believes that this sporadic form is the common continued fever of the country, always attended with disease of the mucous glands of the small intestines, and similar to the typhoid or continued fever of Paris and Geneva."

1002. The Editors of the Review add the following remarks. "This paper of Dr. Lombard's is of much importance, although the first part of it contains nothing new, the opinions being exactly similar to those commonly embraced in this country. For, notwithstanding Dr. Alison and other pathologists have stated most emphatically that follicular disease of the intestines was not universal in the typhoid fever of this country, the fact has not met with the attention which so high an authority should command, from its being a direct contradiction to the constant experience of the Paris pathologists. The testimony of one who confesses his previous scepticism may be of greater service in producing conviction. The theory with which Dr. Lombard concludes is very ingenious: it may be that the highly contagious typhus of Dublin and Glasgow is identical with the camp typhus of 1814, described by Chomel and others; but we do not think that Dr. Lombard has sufficient facts to prove that the common continued fever of this country is always attended with follicular disease, as in Paris. We are very deficient in exact and extensive information on this point."

1003. In the American Journal of the Medical Sciences for February and August, 1837, are two articles by Dr. Gerhard of Philadelphia relating to an epidemic fever which occurred in that city in the spring and summer of 1836.

1004. Dr. Gerhard first mentions the fact of the complete identity of the typhoid fever (dothineritis) of Paris with this affection as it occurs in Philadelphia, a fact established by himself and confirmed by similar results in other parts of our country. He then refers to the typhus of Great Britain, and more particularly of Ireland, as being unaccompanied with the affection of the follicles found in the typhoid fever. The absolute distinc-

tion of the two diseases he believes was first established by Dr. Lombard of Geneva, to whose paper we have already referred.

1005. Dr. Gerhard considers the disease which forms the subject of his memoir as identical with the British typhus. It is the same affection which has been called typhus gravior, ship-fever, jail-fever, camp-fever, sometimes petechial or spotted-fever, as in the case of its former prevalence in New England. For many years previous to 1836, there had been no such epidemic in Philadelphia, but in 1812-13, the same disease appears to have prevailed extensively. Dr. Gerhard studied the epidemic of 1836 with the special object of ascertaining whether there was any fundamental difference between this disease and the typhoid fever, which is always found in America as a sporadic affection. We shall give some of the most important of his results.

1006. It was shewn by the clearest evidence that the epidemic typhus was contagious in an eminent degree. This result agrees with those obtained in Great Britain, and is in strong contrast with the almost absolute non-contagiousness of typhoid fever, established by Louis and confirmed by Dr. Gerhard's own observation.

1007. The age liable to the two affections was widely different. In the epidemic typhus, all ages after childhood seemed equally liable to attack. About half the whites affected with this disease were above the age of thirty-five years. The typhoid fever on the other hand very rarely occurs beyond this period of life, the average age of its subjects being for Paris and Philadelphia $22\frac{1}{2}$ and 22 years.

1008. Change of life and habits, including removal from country to town, seemed of no importance. It is under these circumstances that the typhoid fever, on the contrary, is very frequently developed.

1009. The triple lesion of the glands of Peyer, mesenteric glands and spleen, constituting the anatomical characteristic of the dothineritis or typhoid fever, although sought for with the greatest care, did not exist in the epidemic typhus.

1010. The lesions of other organs were various, as in most acute diseases, and depended on the season or accidental circumstances.

1011. Among the changes observed were the slight coagulation of the blood, the presence of dark blood in the left side of the heart and aorta, congestion in the membranes of the brain, and friability and congestion of the pulmonary tissue.

1012. The petechial eruption was of a dull, livid or purple tint, and was almost always general, extending to the limbs, as well as the trunk, differing in both these respects from that of typhoid fever, which is rose-colored, and seldom extends beyond the abdomen and thorax.

1013. The sensibility of the skin was universally augmented during the course of the disease, unless the patient were insensible from stupor.

1014. A constant symptom was a dull, livid, red hue of the countenance, coinciding with strong dark red suffusion of the conjunctiva.

1015. Stupor and inactivity of mind existed even when there was no delirium.

1016. The intestinal functions were remarkably natural, except that diarrhœa became frequent towards the conclusion of the disease, in the middle of summer, when the weather was hot, and dysentery was very prevalent.

1017. Dulness on percussion, at the posterior part of the lungs, frequently combined with subcrepitant or mucous râle, gave evidence of the engorged state of these parts, but the sibilant râle of typhoid fever was rarely observed.

1018. The pulse was usually more frequent than in typhoid fever. The skin was dry, and conveyed the sensation of pungent heat, the "*coler mordicans*" of authors.

1019. A peculiar odor, pungent, ammoniacal, or resembling that of putrid animal matter, was exhaled from the body of the patients.

1020. The coagulability of the blood was even more diminished than in typhoid fever, but sloughs and ulcerations about the sacrum and trochanters were much less common than in this affection.

1021. Cephalalgia, in some cases very severe, appears to have been one of the most common symptoms.

1022. After the initial period of typhus, Dr. Gerhard thinks

it may be readily distinguished from typhoid fever. Before this period has passed there is usually some fact which may throw light upon its nature.

1023. 1. Typhoid fever is commonly sporadic, and when epidemic its symptoms are so well marked as not to be doubtful except in a few of the earliest examples. Typhus, on the other hand, is very rarely sporadic.

1024. 2. Typhus is very contagious; typhoid fever not contagious under ordinary circumstances, though perhaps capable of becoming so in some epidemic forms.

1025. 3. The initial symptoms chiefly differ in the greater stupor, dulness and prostration of typhus, which are in strong contrast to the moderate cephalalgia and disturbance of the senses in dothineritis.

1026. When the disease is completely formed, the characters on which the distinction between the two forms of fever rests, are: 1. The suffusion of the eyes, which occurs in every case, or nearly every case of typhus, with the dusky red aspect of the countenance. 2. The extreme stupor and inactivity of the mind, even when positive delirium does not exist. 3. We also observe in typhus no constant abdominal symptom, and at first merely dulness on percussion and feebleness of respiration at the posterior surface of the lungs. 4. If to these symptoms be added the peculiar eruption of petechiæ, which is scarcely ever absent in whites, there remains hardly a possibility of error. In the typhoid fever we consider as distinctive characters that the prostration, the somnolence, the slow development of nervous symptoms, are not so strongly marked as in typhus. The abdominal symptoms (of the typhoid fever) are tympanites, pains in the abdomen, and diarrhœa. The sibilant rhonchus is heard in the chest; and lastly there is an eruption of rose-colored papulæ and sudamina upon the skin.

1027. The duration of the epidemic typhus of Philadelphia varied from eleven to twenty-eight days. In a few cases of longer duration, it was complicated with accidental lesions. The average duration, exclusive of the cases which terminated in death, or sloughing of the depending parts, or disease of the chest, was nineteen and a half days. About one half the cases termi-

nated at or very near the twentieth day (from nineteenth to twenty-first inclusive). This fact corresponds remarkably with the observations of Dr. Perry of Glasgow.

1028. Since the foregoing publications, various articles have appeared from Dr. West, in the *Edinburg Journal*, and from other European writers, which go to corroborate the opinion of the distinct and separate character of typhus.

1029. The following is an abstract of the treatment recommended by Dr. Gerhard, the details of which he has given at length in his valuable paper.

1030. At the beginning, local blood-letting will diminish the cephalalgia, or other local symptoms which may chance to exist; general bleeding is to be used only when specially indicated: afterwards the patient should be kept upon a mild farinaceous diet, with a little animal broth. The heat of the surface is to be moderated by cool and tepid sponging, a solution of chloride of soda being preferable to simple water. The effervescing draught and other mild beverages may be taken as common drinks; more stimulating diaphoretics if the strength of the patient should fail; wine and other stimulants should be given when the prostration is great; and quinine, with a nourishing diet, should be added when the fever subsides and the skin becomes cool. Emetics, purgatives and blisters were found useful as occasional prescriptions, adapted to the removal of particular states of the system, but did not answer expectations as a general method of treatment.]

IV. INTERMITTENT.

1031. The *specific cause* of Intermittent Fever appears to be *marsh effluvia*, emphatically termed *miasmata*. Some *subsidiary* causes are—1, malaria of towns, &c; 2, the northeast wind; 3, spring and autumn; 4, the night air; 5, cold and wet; 6, fatigue; 7, the depressing passions; 8, defective clothing, diet, &c.

1032. Marsh effluvia, the specific cause of Intermittent, are engendered under a very peculiar combination of circumstances

only, *the stagnation of fresh water over fresh vegetation in a state of decay.*

1033. Mere stagnant water does not produce Intermittent, nor does pure watery vapor. Nearly double the quantity of rain falls in some of the western counties of England, compared with its eastern shores. There can, therefore, be no deficiency of stagnant water. Yet there are no Intermittents. Flooded or inundated districts are not liable to ague. The Delta of the Nile is free from this disease. The same remark applies to places where the thickest fogs prevail.

1034. Nor is it sufficient that water stagnate over fresh vegetation, if this be in a state of growth. Flooded, or water meadows, as they are termed, in which vegetation is frequently most luxuriant, do not induce Intermittent.

1035. Even the actual growth of the vegetation is unnecessary, if it be not in a state of decay or putrefaction. The bogs and peat marshes of Ireland and Scotland are not liable to induce Intermittent.

1036. Far less will water, which does not stagnate, give origin to this disease. The banks of rivers and of lakes are free from Intermittent fever.¹

1037. It is also an essential point that the water should be fresh-water; salt-water marshes, those which surround Venice, for example, do not engender Intermittent. A marsh near Minehead, Somerset, four miles in length, and one in breadth, washed by the Bristol Channel, is free from this disease. A salt-water marsh at the mouth of a river may, however, be surrounded by another of fresh-water, and hence, if the latter fact be inadvertently overlooked, be erroneously supposed to induce ague.

1038. [The statements of Dr. Macculloch are entirely at variance with those of the author on several of the preceding points. Dr. Macculloch states that the salt marshes of Normandy are notoriously productive of intermittents; that the same fact is observed in the southern parts of Great Britain, on the shores of the Mediterranean, and in every part of Asia, Africa,

¹ [This is not true of the banks of rivers and lakes in America. These situations, while the land is new, are among the most prolific of fever and ague.]

and America, within a certain range of temperature. He denies the universality of the rule, that the presence of living vegetables, or fresh vegetables in a state of incipient decay, is necessary to the production of malaria. He does, however, consider it as "a sort of rule ; yet under exceptions in particular climates, that is, in the colder ones, which almost render it useless and even false as a rule of practice, or as a rule connected with precaution." In his opinion, malaria is produced by peat grounds, when the temperature is sufficiently high, and the process of conversion of the vegetable matters into peat unfinished. He entirely denies the doctrine that running water is unproductive of malaria, and alludes to abundant facts, occurring both in England and in other countries, as disproving this opinion, which he considers as a mere instance of popular ignorance or prejudice.¹]

1039. Compare with these facts, that of the prevalence of Intermittent wherever fresh water stagnates over decaying vegetation, and the disappearance of this disease whenever the marsh or fen is effectually drained. The coast of Lincolnshire, in our own country ; the ill-famed Walcheren, situated "below the level of the sea at high water," "divided into two small inclosures by ditches, which serve as drains, two thirds full of water," "the soil an alluvial detritus carried down by the Rhine and Scheldt ;"² the Pontine marshes ; will afford us sufficient examples of the truth of this proposition.

1040. It sometimes occurs that the base of a mountain or considerable hill may be free from Intermittent, whilst a marshy tableland, in an elevated part, may be liable to ague. This is the case with Pamphill, Wimburne, Dorsetshire.

1041. In general, the presence of a river, the stream of which was even moderately rapid, would indicate the absence of ague ; whilst that of certain plants, the peculiar growth of marshes, as the *juncus vulgaris*, the *iris lutea*, would indicate the probable prevalence of that disease.

1042. But then we are met with the fact, that Intermittent fever occurs where the marsh effluvia cannot exist. Occasionally

¹ Essay on Malaria, c. iv.

² Sir G. Blane's Select Dissertations, 1822, p. 99.

we see Intermittent in London: James I¹ and Oliver Cromwell² both died of this disease; it prevailed even in the time of Sydenham;³ it was seen, occasionally, by Willan and by Bateman; and it was not uncommon so recently as the year 1828. Intermittent seems also, from the remarks of M. Andral, sometimes to originate in Paris. [According to Chomel, Intermittents were not known to originate in Paris until within a few years. We know from various authorities that Intermittents have become more frequent than formerly in the neighborhood of New York and Philadelphia. Some of the country seats in the vicinity of the latter city, have become uninhabitable from this cause. In the New England States the disease is less frequent than at former times, being almost confined to two localities,—the banks of the river Housatonic and the borders of Lake Champlain.] Dr. Willan observes, in his report for the autumn of 1796, “Contagious malignant fevers bore a smaller proportion than usual to other acute diseases; neither have Intermittents this autumn been very numerous. The latter occur, for the most part, in persons who have resided some time in the neighborhood of marshes. We must not, however, consider marsh effluvia as the universal cause of Intermittents; since it is found, that persons constantly residing in the most healthy parts of the metropolis are sometimes affected with them, as happened in two cases above put down amongst the periodical diseases.”⁴ Dr. Bateman relates, in his report for the spring of 1805,—“The majority of the Intermittent fevers, which we occasionally see in London, is brought from the marshy parts of the country: but instances sometimes occur, which cannot be traced to the miasmata of marshes, nor even to unwholesome exhalations from damp and uncleanly situations of any kind. One of the patients in the preceding list had not been absent from London for many years, and has lived, during the last eight months, in a court between Holborn and the north side of Lincoln’s-Inn Fields;

¹ Hume’s History of England, v. vi, p. 134, ed. Oxon, 1826.

² Ibid. v. vii, p. 251.

³ Entire Works of Dr. Sydenham, by J. Swan, M. D. ed. 2; 1749; p. 44.

⁴ Miscellaneous Works, 1821, p. 167.

yet he was attacked by a very obstinate tertian."¹ M. Andral says,—“Most of the patients had contracted the fever in the very centre of Paris, where they had resided several months, or more than a year.”²

1043. Does Intermittent fever, then, ever arise from the malaria of a crowded city? Does London, in 1660, differ from the same metropolis in 1835, merely by the deficient condition of its drainage, at the former period, compared with the latter? This is a highly interesting question,—like too many others in medicine, still undetermined.

1044. Malaria is the first of those subsidiary causes of Intermittent which I have enumerated (1031); exposure to the *north-east wind* is the second. The prevalence of this wind in 1828 seems to have produced Intermittent over the country, especially in the fenny districts, but also in districts in which Intermittent is usually unknown. Here another question of interest occurs: can the northeast wind alone induce Intermittent in those not predisposed to this fever by previous exposure to the influence of marsh miasmata, or of malaria? Is it a cause so subsidiary as to require the existence of the seeds of Intermittent to be already sown in the system? Whatever may be the truth, in reference to this question, there can be no doubt of the powerful influence of this wind in inducing, or reproducing, Intermittent in the predisposed. And Dr. Bateman justly observes,—“In attempting to ascertain the origin of Intermittents, one circumstance requires attention, viz. the period during which the influence of miasmata may lie dormant in the constitution, or the time which may intervene between the exposure of the person and the commencement of the disease. An inattention to this circumstance tends very much to invalidate the conclusion which might be drawn from the cases of Dr. Beddoes. The first case which appeared at the Dispensary commenced in March; the patient had resided in London since the beginning of December, at which time he returned from Essex. About the same time, two patients, attacked with ague, who had also returned to town from Kent or Essex early in December, applied to a medical friend in the

¹ Reports, p. 41.

² Clinique Médicale, T. i, p. 472.

city. In these instances, a period of three months had elapsed between the infection (if the term may be used) by miasmata, and the appearance of the consequent ague.

1045. "Another patient in the above list, after residing several months at Sheerness, returned to London in November last, and in the beginning of the present month was seized with tertian, having lived, during an interval of nearly half a year, in Liquor-pond Street, Gray's Inn Lane. From these facts, it would appear that the latent period of Intermittents is very indefinite; probably greater and more irregular than that of continued fever, according even to the limits allowed by Dr. Haygarth."¹ M. Andral² makes some similar observations: "Of the patients affected with Intermittent, the smallest number had been exposed to the influence of marsh miasmata. In some, the fever began in the very place where the miasmata existed, and where Intermittent was epidemic. In others, the first paroxysm took place after the patient had left the source of the miasmata." "One patient, who had lived with impunity during two months at Brie-Comte-Robert, where there were many cases of fever, was seized with the first paroxysm on the day of his arrival at Paris. Another had only experienced a little headache when he quitted Rochefort, where Intermittent was epidemic; on his arrival at Paris he was seized with a first paroxysm.

1046. "In another patient, a mere visit to a marshy country renewed an Intermittent, which had originated in a marshy district, but which had ceased during two months."

1047. The influence of spring and especially of autumn, in inducing or renewing Intermittent fever, is well known. In aguish districts, these are the seasons during which the inhabitants suffer most severely; and after exposure to the miasmata of marshes, or after having actually experienced an attack of Intermittent, although a considerable interval may have elapsed, this fever is frequently excited by the atmospheric circumstances of spring or autumn. Sir Gilbert Blane observes,—"When those who have imbibed the poison, are transported into countries

¹ Reports, p. 41-42.

² Clinique Méd. ed. i, part i, p. 471-472.

where the air is in a state of the greatest purity, it is in the autumnal months that they are most commonly attacked. There was a very striking proof of this after the campaign of North Holland, in 1799. In the following year, some of the officers and men who had escaped the disease, were taken ill in the autumnal months; and none that I heard of, at any other season of the year.”¹

1048. The other well-known subsidiary causes of Intermittent are, exposure to the *night air*, or to *wet and cold*, or to *fatigue*, or *depressing passions*; *defective clothing*, *diet*, &c. In fact, any cause of exhaustion of the system, whether this act through the nervous, muscular, vascular, or digestive organs, may induce ague in the predisposed. Sir G. Blane observes,—“I was informed, in February, 1811, by a field-officer, who came home from Portugal on account of bad health, that those men of his own regiment, as well as of others who had served before in Walcheren, were, upon the first exposure and fatigue, rendered unfit for duty, chiefly by intermittent fevers, so as to leave not more than a third part of them fit for service, a proportion of such far above that of the army in general.”²

1049. The modes of *prevention* of Intermittent are so interwoven with a knowledge of their causes, that I have bestowed greater time and space upon this subject than I should otherwise have thought it right to do. With the same view, it is important to remark, that, as the inhabitants of crowded towns are less subject to typhoid fever than those newly arrived, so the inhabitants of marshy districts are less subject to Intermittent fever than strangers,—the *acclimated* than *new-comers*. It is therefore particularly incumbent upon visitors and “freshmen” to be very careful to avoid the subsidiary and auxiliary causes of this disease.

1050. It would be interesting to inquire—what degree of exposure to marsh effluvia is sufficient to sow the seeds of an Intermittent; during what period of time these seeds generally remain latent. Dr. Wells³ says those newly arrived in an aguish district do not become affected with Intermittent fever in less

¹ Select Dissertations, p. 104.

² Ibid. p. 107.

³ Trans. of a Soc. for the Improvement of Med. and Surg. Knowledge, v. iii, p. 515.

than eight or ten days ; and that "agues often do not appear until spring, though their causes were applied in the preceding autumn." Dr. Wells adds, "I have known three instances of this latter fact myself." He even suggests that the presence of the influence of these seeds of ague in the system may,—on the principle that "the existence of one disease in the human body, or even a tendency to one disease, often renders it less susceptible of another,"—actually protect the individual, and the population indeed, from phthisis ; for he endeavors to prove that, where ague prevails, phthisis rarely occurs.

1051. When the seeds of Intermittent exist in the system, as in those who have been exposed to marsh effluvia, or who have already experienced the disease, exposure to the other subsidiary causes will, however, excite the febrile actions and induce the disease more promptly.

1052. II. *The Course* of Intermittent is marked by successive, distinct, cold, hot, and sweating stages ; and these are recurrent, every second, or every third day, or at other intervals, giving origin to the designations, quotidian, tertian, quartan, &c.

1053. 1. The *Quotidian* has an interval of twenty-four hours, a paroxysm of moderate severity, but of long duration, beginning with a slight cold stage, generally in the morning. It is apt to assume the remittent form. It occurs principally during the spring.

1054. 2. The *Tertian* has an interval of forty-eight hours, a severer cold stage, a shorter paroxysm, recurrent generally about noon, and followed by much perspiration. This is observed to be milder in spring than in autumn.

1055. 3. The *Quartan* has an interval of seventy-two hours, a short paroxysm, and a long intermission. The paroxysms usually occur after noon, with a long and severe cold stage, a gentle hot stage, and slight perspiration. The Quartan Intermittent fever occurs chiefly in autumn, is apt to prove obstinate, without having any tendency to assume the remittent form.

1056. To reduce this question to numbers, M. Andral observes¹ that of 25 quotidians, the paroxysm in 11 began between

¹ Clinique Médicale, ed. i, t. i, p. 475.

4 and 11 A. M., 8 between 11 and 2, and 6 in the evening ; of 19 tertians, 12 began before 10 A. M., 4 at noon, 1 at 2 P. M., and 2 in the evening ; of 7 quartans, 1 began in the morning, the rest after noon ; in one case, which changed its type, the paroxysm came on in the morning whilst it was quotidian, and in the afternoon when it became quartan.

1057. Of the relative numbers of the different types of Intermittents, we have the following table from M. Louis¹ and M. Andral:²

	Louis.	Andral.
1. Of Quotidians.....	40	28
2. Of Tertians.....	36	19
3. Of Quartans.....	8	7
4. Irregular.....	25	2

1058. 4. Intermittent fever sometimes assumes the *Reduplicated*, and sometimes the merely *Remittent* forms ; and sometimes every kind of *irregularity* in form, and in the intensity of its paroxysms, or of their different stages.

1059. The recurrence of the paroxysm, although not always accurate in point of time and hour, in different instances, affords a very important means of diagnosis in obscure cases. The rigors in suppuration and in hectic have not even this degree of regularity of return.

1060. III. *The Symptoms.* The paroxysms of Intermittent fever begin with yawning and languor, and a sense of creeping along the back ; the patient then shivers with cold ; the countenance and general surface are pale, shrunk, and cold ; there is that state of the skin termed “*cutis anserina*,” and the nails assume a livid hue ; the respiration is sibilant ; the pulse is small and frequent, and perhaps irregular ; there are anorexia and thirst ; the tongue is dry and clammy ; the urine is limpid.

1061. The cold stage gradually subsides, and the countenance becomes flushed and tumid, and the eyes injected, whilst the general surface is turgid, hot, smooth, and dry ; there are frequently acute pains of the head, throbbing of the temporal arte-

¹ Op. cit. t. ii, p. 292-294.

² Ibid. t. i, p. 470.

ries, intolerance of light and sound, and delirium ; the respiration is frequent, but less anxious ; the pulse strong, full and frequent ; there is urgent thirst, with continued dryness of the tongue ; the urine becomes high colored.

1062. In the sweating stage, the countenance assumes nearly its natural appearance ; the skin loses its tumidity and heat, and becomes covered with perspiration. The head is relieved, and sleep often supervenes ; the respiration becomes free, the pulse nearly natural ; the urine deposits a degree of sediment. The observations made upon the urine by the older writers on Intermittents, are confirmed by M. Andral, in the *Clinique Médicale*, ed. 1, t. i, p. 479.

1063. When the paroxysm is over, the patient is left somewhat pale and languid, and there are headache and anorexia. In the commencement of Intermittent fever, the apyrexia is, however, sometimes almost free from indisposition. The health is, at length, gradually impaired : the complexion assumes the hue of painters' putty, and emaciation and anasarca supervene upon the other symptoms.

1064. IV. *The Diagnosis.* There are three affections from which it is essential to distinguish Intermittent : they are—

1. Hectic.
2. Suppuration.
3. Stricture.

1065. The symptoms of fever, in some cases of hectic, assume the Intermittent type in such a degree as to resemble Intermittent. It must, however, require but ordinary care to detect the primary and local disease.

1066. The danger of an error in the diagnosis is still greater, when deep-seated and undetected suppuration has taken place. The paroxysms of fever are such as to impose upon the most experienced for a time. In cases of Intermittent fever, it is well, therefore, to examine for visceral disease, especially in districts little liable to ague, and to bear in mind, that, even amongst endemic ague, we may have cases resembling Intermittent, but, in fact, of a totally different nature.

1067. Stricture, and the use of the bougie, are not unfrequently attended by rigor, fever, perspiration, &c. ; in fact, a paroxysm of Intermittent fever. Repeated quotidian paroxysms occasionally occur from stricture, and are treated for Intermittent, *until that stricture is detected*, and removed by the use of the *bougie*.

1068. V. *The Complications* of Intermittent fever are frequently, like the fever itself, periodic,—Intermittent or remittent : and sometimes, without fever, there are similar paroxysms and intermissions, or remissions, of local affections.

1069. The principal of these are—

1. Hemicrania.
2. Pain of the Eye-brow, or Brow-ague.
3. Thoracic Pain.
4. Pain of the Testis.
5. Other Topical Pains.

1070. These complications of Intermittent deserve the most attentive consideration. One of them frequently becomes the *prominent* malady, and *masks* the principal disease. Sometimes, as I have stated, without the febrile symptoms, a local affection assumes an Intermittent or aguish form. In other cases, the patient who has once had ague, becomes subject to languor, and vague, aching, weary pains, which are only to be traced to their cause by the utmost attention.

1071. These affections sometimes assume a more aggravated form, and there are—

1. Headache, Delirium, Coma, or Amaurosis.
2. Thoracic Pain, Cough, Asthma, or Syncope.
3. Colic, Cholera, or Diarrhœa.

1072. These local affections may precede, accompany, or follow Intermittent fever ; or they may exist variously in the Intermittent or remittent form, independent of febrile symptoms. They will be particularly noticed hereafter.

1073. The most frequent of these complications is the cephalalgia, hemicrania, or brow-ague. In the cases observed by M.

Louis, cephalalgia occurred in 37 out of 40 cases of quotidian, in 36 out of 38 of tertian, in 7 out of 8 of quartan, ague.

1074. But, perhaps, the most extraordinary symptom is the *splenic* pain, tenderness and tumor. These are frequently observed in the beginning of Intermittent, and the cold stage of each paroxysm especially. After a time the spleen is apt to become permanently enlarged.

1075. The connection between the paroxysm of Intermittent and the state of the spleen, and the effect of cinchona and arsenic, are highly interesting; and it is an equally interesting question, whether the same connection subsists in the case of ague-like paroxysm from suppuration or stricture; (see § 1060).

1076. The principal permanent complications are—

1. Enlargement of the Spleen.
2. Anasarca.

1077. There is a prevailing notion, or suspicion, amongst the French Pathologists, that the source of Intermittent is in the spleen.¹ This organ becomes tender and tumid, especially in the cold of each paroxysm, and eventually permanently enlarged, constituting the "*ague-cake*," in the course of the disease, if this be protracted.

1078. M. Louis observes, with his wonted reserve, "if we cannot affirm that Intermittents consist in a change, more or less severe, of the spleen, because it preserves its size in the intervals, and because these fevers may be removed whilst it is undiminished; still this organ deserves great attention from those who investigate the subject of Intermittents, since it is evidently affected in the *commencement* in many cases, and much more frequently than the other organs."² M. Andral asks—"What is the nature of the change experienced by the spleen in Intermittent fevers? Is it *cause* or *effect* of the fever?"

1079. I must add a few words respecting the dropsy which

¹ Compare Louis, Op. Cit. t. iii, p. 293, &c. Cruveilhier, Op. cit. fasc. ii, p. 3. Andral, Op. cit. ed. i, t. i, p. 481.

² Op. Cit. t. ii, p. 293. Note.

occurs in Intermittent. Dr. Wells observes¹—"Dropsy is another well-known consequence of ague. Whenever I have observed dropsy of the abdomen to arise from this cause, which, however, has not been often, swelling of the lower extremities have always preceded it. Sir John Pringle remarks that the dropsies which occurred after ague in the Netherlands, generally began at the feet, and rose gradually to the belly." M. Andral observes,—“When dropsy is the result of disease of the liver, ascites almost constantly precedes the anasarca. In the patients affected with Intermittent, on the contrary, the anasarca was first observed.”

1080. It appears probable to me that the enlarged spleen of Intermittent may induce anasarca, by pressure or counter-pressure upon the ascending cava; whereas ascites may be produced, in disease of the liver, by interrupted circulation through the vena portæ.

1081. VI. *The Morbid Anatomy* of Intermittent fever seems really to be little known. The spleen is the organ chiefly and most frequently affected; it becomes enlarged. This enlargement is discovered during life by recurrent pain, dulness of sound on percussion over the false ribs of the left side, and, at length, on examining the region of the spleen by pressure. The spleen may remain enlarged, ascend, or descend, and constitute a mode of ascertaining the former existence of Intermittent fever, without materially affecting the health.

1082. VII. *The Treatment* comprises the measures adopted,—1, during the *interval*; 2, during the *paroxysm*; 3, in the case of *imperfect remissions*; 4, for the *complications*; 5, against *relapses*.

1083. During the intervals, the functions of the stomach and bowels must be principally attended to: unless there be excitability of the stomach, a gentle emetic (see § 919) does good; this should be followed by a mild dose of the hydrargyri submuriæ (§ 919), and an aperient draught (§ 919). Afterwards, the secretions of the bowels must be gently excited.

1084. If there be irritability of the stomach, the emetic and

¹ Trans. of a Society for the Improvement of Med. and Chir. Knowledge, vol. iii, p. 527.

aperient medicines must be avoided, and the secretions and the bowels will be best excited by means of large enemata of warm soft water: the proper mode of administering this remedy is to inject the water as *slowly* as possible, and as *long* as possible: the colon is, in this manner, first filled, then distended, and stimulated to contraction; the medium quantity used, is from fifty to sixty ounces; and its efficacy, in removing the load of the *colon*, and in restoring the bile to its channels, is quite extraordinary.

1085. The functions of the stomach and bowels being thus regulated, the next object is to prevent the coming paroxysm.

1086. The different preparations of the cinchona afford the most effectual means of accomplishing this object; two or three grains of the sulphate of quinine, may be given every hour, or every two hours; or large doses of the pulvis cinchonæ flavæ may be given at similar intervals. If necessary, the doses of these medicines may be augmented and the intervals between them diminished. [Quinine should not be increased, after it produces a ringing in the ears, and sense of tension in the head.]

1087. If the cinchona fail, the liquor arsenicalis may be given in the dose of from six to eight, ten, or twelve, minims, twice or thrice a day,—*watching* against sickness, griping [œdema of the eyelids] diarrhœa, or mucous discharges.

1088. There is this difference between cinchona and arsenic: the former may be given in any dose which the stomach can bear, and may be administered to produce a *prompt* effect—to prevent the *coming* paroxysm; the latter must be given with caution, continued so as to effect a *slower* impression on the system, and gradually to subdue the *disposition* to returns of the paroxysm. With *both* these objects, the cinchona and the arsenic may be given simultaneously.

1089. It would be impossible and useless to enumerate all the remedies which have been proposed as cures of Intermittents: every kind of stimulant, every kind of astringent; mental, as well as bodily, impressions; have been employed with occasional success in preventing the return of the paroxysms.

1090. During the paroxysms various remedies have also been proposed. Venesection has recently been highly recommended in the cold stage by Dr. Mackintosh of Edinburgh, to cut short

the paroxysm and obviate the disposition to its return. Venesection has also been instituted in the hot stage. Warm diluents in the cold stage, and salines in the hot, are otherwise perhaps the only safe or useful remedies during the paroxysm of Intermittent.

1091. There is a circumstance in which the remedies, proper during either the intervals or the paroxysm, can be efficiently administered ; it is where there are, after the violence of the paroxysm is over, but imperfect remissions : it is then necessary to give mild mercurials and aperients, to correct the secretions and regulate the bowels ; and to *wait* for a more perfect remission of the febrile symptoms, and the opportunity of giving the cinchona or the arsenic.

1092. The next object is to relieve the complications : the pains and the irritability of the stomach sometimes require opiates ; the affection of the spleen is best remedied by local blood-letting, leeches or cupping.

1093. To prevent Intermittent, and to prevent relapses, a mild nutritious diet, a moderate quantity of wine, the quinine, care to guard against cold, damp, or exposure to the night air, the north-east wind, &c. are the principal remedies. To prevent relapses especially, the patient should keep the secretions and bowels in order ; should live on the simplest and most wholesome dishes ; take wine moderately, and the quinine occasionally, but especially in the autumn and spring, on the slightest feeling of neuralgia, or of aching, weary pain, or of any aguish symptom, however slight.

1094. [Removal to a healthy district is to be resorted to, when practicable, and greatly expedites recovery. In recent cases which arrive in the eastern section of the United States from other places, it is not uncommon for the disease to cease, after one or two paroxysms, under the use of slight remedies.] Dr. Fordyce observes,¹—"When Intermittents cannot be cured in fenny countries, they give way easily on the patient's coming into dry air ; as I have observed in patients brought from Lincolnshire to the hospital, who have been easily cured, although the same remedies had been used before without success."

¹ Trans. for Improvement of Med. and Surg. Knowledge, v. i, p. 14.

1095. Precisely the same principles obtain in the treatment of various diseases of intermittent character, as hemicrania, brow-ague, neuralgia. The secretions must be restored, and the quinine, the arsenic, &c. must be tried.

V. REMITTENT FEVER.

1096. [When, instead of a complete suspension of the symptoms, as happens at intervals in the form of fever just considered, there takes place only a diminution of their intensity from time to time, followed by an exacerbation, the disease is called Remittent Fever. This affection, like Intermittent fever, is produced by malaria. It is consequently met with principally in warm climates. It most frequently prevails in autumn, not uncommonly in summer, and occasionally in spring. It is one of the most common diseases in the southern parts of the United States, but is comparatively rare in New England, being hardly known beyond a few localities, where it has shewn itself at different years in connection with intermittents. Facts appear to show that remittent is produced by marsh miasm in its more concentrated form, and intermittent when the poison is more diluted or less active.

1097. This disease varies very much under different circumstances in the violence of its symptoms and its fatality. The symptoms may be stated in general to resemble those of intermittent fever. The stomach is more apt to be affected, as is shewn by the frequency of nausea and vomiting. The chills are not as constant, and the paroxysm does not distinctly terminate by the sweating stage as in intermittents. If accompanied with vomiting of bile it acquires the name of bilious remittent; a term which has also been applied to yellow fever, which appears to be a more severe grade of the same affection.

1098. *The Morbid Anatomy.* The appearances observed on dissection are very similar to those found in intermittent fever. We are happy to be able to refer to the authority of Dr. Gerhard, whose observations on this as on many other subjects which he has treated, we consider as entitled to the highest confidence.

1099. "Having once established the complete identity of a fever which is so common at Paris, and so well described (dothi-nenteritis) with a similar affection, not unfrequently met with at Philadelphia, I examined the pathological phenomena of our remittent and intermittent fevers of the severe malignant character, so frequently observed along the southern coast, and sometimes occurring in those malarious parts of the country which are situated within a short distance of Philadelphia. In all these fevers the glands of Peyer, as well as the other intestinal follicles, were found perfectly healthy; the large intestine was occasionally but not constantly diseased, while the stomach, and to a still greater degree, the liver and spleen, were invariably found in a morbid condition. If the fever proved fatal in the course of the first fortnight, the liver and spleen were softened as well as enlarged; but if the disease assumed a more chronic form, the viscera were hardened as well as hypertrophied. The latter was the first stage of those chronic lesions which are formed in the livers of patients long affected with remittents or intermittents, and which continue throughout the course of the ascites, which is so common a consequence of these diseases. I made numerous examinations of the bodies of patients who died of the same variety of malignant remittent and intermittent during the summer of 1835, and still more frequently in the epidemic of 1836, a year in which these diseases have been unusually fatal throughout the southern states. The results of these late examinations have confirmed those already obtained, and showed that the follicles of the small intestine are free from lesions, and that the anatomical character of the disease is to be looked for in the spleen, liver and stomach."¹

1100. The *treatment* consists in general and local blood-letting, cathartics in the early stages, especially calomel, cooling drinks, and the occasional employment of other remedies to combat particular symptoms. The use of emetics is contra-indicated by the condition of the stomach. Anti-periodic remedies, as bark and arsenic, cannot, for the most part, be employed with propriety unless the fever assumes something of an intermittent character.]

¹ Amer. Jour. of Med. Sciences for Feb. 1837.

VI. YELLOW FEVER.

1101. [The disease commonly called yellow fever, from the color of the skin, which is one of its frequent symptoms, has received several other names more or less characteristic. Thus from the aspect of the symptoms, united to the peculiar color, it has received the name of *typhus icterodes*; from one of its most striking and fatal concomitants the Spaniards have named it *vomito prieto*, or black vomit, and from places where it has prevailed, and from which it was thought to have been imported, it received the appellation of the *Siam* or the *Bulam* fever.

1102. Yellow fever is principally known as an endemic of hot countries. It has, however, sometimes extended its ravages beyond its usual limits, and appeared even as far north as New England. It prevails also much more fatally and extensively in some seasons than in others.

1103. Like intermittent and remittent fever, this disease is produced by malaria. It appears under the same circumstances and in the same situations from the influence of heat and moisture upon some stages of vegetable decomposition. But as, on the one hand, malaria or marsh miasm is by no means always capable of generating this form of fever, it may be questioned whether, on the other hand, it does not arise in some cases from other causes. Of these, the most probable is the exhalation from decomposing vegetable matter, when accumulated within narrow limits, as is liable especially to happen on shipboard.

1104. In the year 1819, a ship from the coast of Africa, called the *Ten Brothers*, arrived at Boston in the month of July. She remained about a fortnight at quarantine, during which time, as well as on the passage, the crew continued well. After this period she came up to the wharf and opened her hatches. Immediately a large portion of the crew were taken with yellow fever, also various other persons, laborers and custom house officers, employed on board, and the crews of other vessels lying along side. Most of these cases terminated fatally. It is proper to remark, that in this year the yellow fever existed in Boston before the arrival of this vessel at the wharf, and that in one in-

stance three individuals had died of the disease almost simultaneously in one house.

1105. As happens with regard to most fatal and widely-spread acute diseases, the opinion was long entertained that yellow fever is contagious. In this country, at least, this opinion is now generally abandoned. The most elaborate investigation of this point was made by Dr. Chervin, of Paris, in 1814 and the subsequent years. For these researches he received the prize of the French Academy, from whose report it appears that he had employed nearly ten years, and travelled not less than thirty thousand leagues in America and Europe, for the purpose of studying the disease in its different localities. The result of all his observations went to prove that yellow fever is not contagious; and the opinion of five hundred American and Spanish physicians out of six hundred and thirty, whom he consulted, coincided with his own conclusions. This preponderance of evidence may be viewed as conclusive, when we consider that timidity, prejudice, and popular panic, naturally take the side of the contagious view of this question; and furthermore, that during the early stages of this controversy, many physicians committed themselves on one side of the question, when the amount of evidence on the subject was far less complete and satisfactory than it is at the present day. The Memoirs of M. Audouard, the envoy of the French government at different periods of the prevalence of yellow fever, on the contrary, supports the doctrine of contagion. The editors of Gregory's Practice, in their notes upon this subject, express the opinion that heat, moisture and putrefaction from any cause may produce the disease, and that on this account the clothes and excretions of the sick, in close and unventilated places, sometimes, though very rarely, reproduce it; but the same effect might happen, in their opinion, from the excretions of healthy persons. In the epidemic in Boston in 1819, the infected district was confined to a small square on the southerly side of Fort Hill, and to the vessel already alluded to. Many patients were removed from this district to healthy parts of the town, and to the adjacent country, where they afterwards died. Yet in no instance did their attendants or visitors contract the disease beyond the limits of the district affected, with the solitary exception of a girl, who

took the disease beyond the district, after washing the clothes of a yellow fever patient.

1106. *Symptoms.* The disease sometimes commences with a chill, of half an hour or less in duration. Sometimes this symptom is absent, and the disease begins by pain in the head, back, or limbs, and in some cases by local pains in other parts, resembling neuralgia, or by spasmodic affections of the muscles. The headache increases, the eyes become injected and dull, sometimes delirium appears early, there is anxiety and restlessness, the pulse becomes full and rapid, the heat of the skin is sometimes, but not always, increased, there is nausea, vomiting, thirst, and pain at the epigastrium, the tongue is sometimes white, at other times little altered. This state continues, according to Dr. Barton¹ of New Orleans, from twelve to twenty-four hours, and is followed by a remission; on the return of the symptoms the vomiting becomes more urgent; sometimes every thing is immediately rejected, and the peculiar fluid, called the *black vomit*, resembling coffee grounds, or flakes of a brown substance, suspended in a watery fluid, makes its appearance. Hemorrhages often occur from the mucous membranes, and petechiæ appear in some instances. Delirium or coma, suppression of urine, hiccup and diarrhœa are among the symptoms met with in the second period of severe cases. Dr. Barrington gives the following description of the symptoms towards the end of the disease.²

1107. "As the latter stage draws near, the breath becomes very foetid, more particularly in those who used mercury freely; confirmed black vomit takes place; hiccup; the skin of the neck and face becomes of a bronzy yellow; the patient, if asked, will say he has no pain, and express a desire to get up and walk about, which, indeed, he often does; he will be picking at his lips and teeth; the belly is often distended with flatus (meteorism); the eyes become fixed and partly closed, showing only the white; subsultus; irregular respiration; heaving of ab-

¹ On Epidemic Yellow Fever. Amer. Jour. Nov. 1834.

² Amer. Jour. Aug. 1833.

domen ; convulsions, resembling in some a fit of epilepsy ; and finally death."

1108. Yellowness of the skin is by no means a constant symptom, as might be supposed from the name of the disease. When this color exists it may vary from a pale lemon to a very deep or orange tint.

1109. The duration of the disease is from five to seven days. If the patient passes the sixth day without the occurrence of black vomit or suppression of urine, his chance of recovery is much increased. Relapses and second attacks of this disease are very rare.

1110. *Morbid Anatomy.* We are much in want of more accurate examinations of the state of the organs, especially of the mucous membrane of the stomach and bowels. It is impossible not to recognize the fact, that some of the recent observers in this country saw with the eyes of Broussais, and we should be aware that nothing is easier than to find the supposed marks of gastro-enteritis or gastro-duodenitis whenever there is a disposition to support the cardinal point of the physiological doctrine. It is probable, nevertheless, that the principal lesions, as in remittent fever, are to be looked for in the stomach, and perhaps the liver and spleen, the two last of which have been occasionally found diseased, and the first is generally said to have been inflamed, with the duodenum, or the intestine more generally. As in most other acute febrile affections, it is not unusual to find congestion or effusion in the viscera or membranes of the head or thorax. We are happy to learn that the researches of M. Louis, the first of living pathologists, on the subject of yellow fever, are about to be published in the English language in this country. As one of the commissioners of the French government to investigate the disease at Gibraltar, M. Louis had ample opportunities for learning its history and nature, and we are led to think that new and most important light will be shed upon this affection, by the publication of the work to which we have ventured to refer.

1111. *Treatment.* In a disease of such acknowledged malignity and frequent fatality as yellow fever, it becomes us to speak with diffidence of the power of remedial treatment. Of the active measures proposed for the disease in question,

that of copious venesection has received the most general approbation, at least in this country, where it was first boldly practised by Dr. Rush. He was in the habit of bleeding repeatedly, to the extent of more than a hundred ounces in the course of a week, in many cases, each bleeding being rarely less than ten ounces. Dr. Robert Jackson introduced the practice of bleeding more largely at the commencement of the disease, carrying it to thirty or forty ounces at once, and even in some cases as far as eighty ounces. At the same time, while the consent of many of the European physicians, and of most medical writers in the United States, is united in favor of active depletion, we cannot omit to mention the contrary opinion and evidence of Dr. Brown, one of the writers in the London Cyclopædia of Practical Medicine, who has himself been conversant with the disease. He mentions the statements of the experienced practitioners of Spain, and the records of the Naval Hospital of Jamaica as confirming his own opinion. Local blood-letting is generally allowed to be useful, when special indications exist. It is stated by some writers that natives of cold climates, who are attacked with the yellow fever in southern ones, require copious and early venesection, while the natives of hot climates, and those who have become acclimated, do not bear venesection well. These differences, and the varied character of the disease in different seasons and places, may account for the discrepancies which appear so full of perplexity.

1112. Next to blood-letting, mercury in large doses has excited most attention and discussion as a remedy in this disease. The use of this remedy was particularly insisted upon by Dr. Chisholm, in conjunction, however, with other means. In the words of this author, "Upon the whole then, the treatment is reduced to one sentence:—bleeding to the extent necessary, plentiful alvine evacuation, mercurial ptyalism, and cold affusion." Since his time this mode of treatment, or at least the united employment of depletion and mercury has been widely adopted. It is highly spoken of by some of the most popular English writers and has been widely employed in this country. When mercury has been trusted to as the principal remedy, the mortality of the disease has in some cases, at least, been very

great. Dr. Barrington of the United States Navy has given a tabular view of the duration of the disease in fourteen patients, seven of whom were treated with, and seven without mercury. The cases treated with mercury lasted nearly twice as long as the others. Of nine fatal cases mentioned by the same gentleman, eight were treated with mercury, of whom five were salivated or had the mouth affected. What can we say, when to such results are contrasted the statements of some of the ardent advocates of this method of treatment, which almost elevate it to the rank of a specific? To us it appears that the principal cause of these contradictions is to be found in the disease itself, and not in the treatment. The poisonous miasm of yellow fever, like the unknown cause of cholera, acts with different intensity in different seasons and places; it is generated slowly or rapidly, in greater or less quantity, with more or less active qualities. It may moreover have to act upon a mass of population very differently predisposed, in different years and seasons. Nevertheless we are constantly meeting, in the history of fatal epidemics, with the same false confidence, the same discrepancies which we find in that of the disease in question. To assume that nature cannot form a poison more active than any remedy; to select a fortunate series of cases and attribute all the results to treatment; to find some specious reason for every instance of failure; to frame a triumphant formula which the next breath of the pestilence will sweep away,—such has been too often the course of those who have usurped the place of true observers. The first question asked by the surgeon of those who have been wounded in action is—what is the nature and extent of the injuries received? But the degree of activity of a destructive miasm, which instead of inflicting a palpable mechanical injury, has mingled itself with the circulating fluids, and shews its intensity in the symptoms which follow, is thought an insignificant element in the history of a series of cases, to which the name of a disease has been assigned, and all the important effects are attributed to the loss of a few pounds of blood, or the exhibition of a few drugs and potions. As well might the surgeon forget to tell us whether his patients were shot through the brain or through the biceps, and confine his account to the nature of his dressings.

1113. To return from this digression, into which we have been led by the utter confusion that reigns on the subject of treatment in the disease under consideration, we confess ourselves unable to arrive at any rules more positive than these ; first, to study the general indications, and secondly, to observe the effects of remedies in the particular season and locality of the prevalent epidemic.

1114. The general indications are, to allay the irritability of the stomach, to stimulate the system if there is a collapsed condition, to control over action as far as practicable by venesection and purgations, and to diminish local suffering or inflammation by leeching, cupping, counter irritation or revulsion. If the brain is especially affected with violent delirium, or where there is intense febrile action, it may be proper to employ cold affusion.

1115. Of the efficacy of particular methods of treatment in any one season and place, experience only can decide, and results worthy of confidence can never be obtained until comparative trials have been instituted, in the same epidemic and locality, by men whose object is to learn truth, and not to parade their own supposed success. It is sufficient to have mentioned the claims of the two modes of treatment which have received the most general confidence, and to leave the decision between them to be formed from their effects, which may be various under different circumstances. But it should be remembered that as great fatality has sometimes attended both modes of treatment, it is possible both of them may sometimes be injurious ; and as it often happens both in this and other epidemics, when one mode of treatment is generally successful, other modes of treatment are also at the same time found to be successful ; or in other words the disease is less fatal and the tendency to recovery is greater, than in ordinary times ; and if a physician could be found bold enough to try the purely expectant treatment, attending only to the more obvious symptoms, it is by no means certain that the results would not be quite as favorable.]

VII. CONGESTIVE FEVER, SPOTTED FEVER, ETC.

1116. [The term, Congestive Fever, has been applied to different febrile affections, in which it was either anatomically

demonstrated, or inferred from the symptoms, that the blood was preternaturally accumulated in some of the internal organs. It is evidently, however, an improper specific term, since the existence of this lesion or its supposed symptoms is common to several totally distinct diseases. The same reason exists against its use, as would hold against the employment of such a specific designation as delirious fever. We shall briefly show that congestive fever is not a distinct disease.

1117. Dr. Chisholm remarks that "it ought to be a general rule of practice to consider all *remittent* fevers within the tropics as symptomatic of local congestion and inflammation."

1118. Dr. Armstrong, to whom according to Mackintosh, the profession is much indebted for the very excellent manner in which he has illustrated the nature and treatment of congestive fever, describes the disease as a form of *typhus*. It is characterized, according to Armstrong, by the great depression of the energies of the system, in consequence of which there is, in severe cases, very imperfect reaction, or none at all. In consequence of venous congestion, there is either a total want of morbid heat, or a concentration of it in some parts of the body, while others are considerably beneath the natural temperature. Overpowering lassitude, pain in the head, confusion of mind, feebleness of pulse and coldness of the extremities are among the prominent symptoms.

1119. This is the train of symptoms found also in *Spotted Fever*. In *intermittent* fever there is sometimes an icy coldness of the skin, and death, without reaction. Dr. Mackintosh himself, who treats of congestive fever under a distinct head, remarks of this disease,—“It may be shortly mentioned, that the appearances on dissection are much the same as those described in *intermittent* fever.” A disease called by the inhabitants *cold plague* has occasionally appeared among laborers employed on canals and similar works in miasmatic districts of the United States. It is marked by collapse, sinking, coldness, and death often within twenty-four hours. It is considered by some of our most intelligent physicians, as the first stage of an *intermittent* in its most aggravated form, the stage of reaction being wanting. The earlier stages of *Asiatic cholera*, and some cases of *scarlatina*

present very similar phenomena. The blood and the heat leave the skin, which becomes cold and shrunken, the action of the heart becomes laborious, and the patient dies as if the internal organs were oppressed by the fluids which have left the surface.

1120. "Ever since the ravages of *Cynanche maligna* in New Hampshire and Massachusetts," says Dr. Miner,¹ "in 1735, the physicians of New England have known that in its worst form, that disease had no stage of reaction. Why they should be taken by surprise, when they met with cases of Spotted fever, Dysentery, Yellow fever, and even common Typhus, when this stage is wanting, it is extremely difficult to conceive." It is as difficult to conceive why a state common to several distinct diseases should be qualified by a specific name, as if it were itself a disease. As a peculiar morbid condition, however, the collapsed state of the system supposed to arise from congestion deserves particular attention. We shall speak of the treatment of this condition, in connection with some remarks upon *Spotted Fever*, an affection in which it was present to a remarkable degree.

1121. A sudden and fatal disease, appeared, or first attracted attention by its appearance at the town of Medfield, in Massachusetts, in the year 1806. It continued to show itself for several years in different parts of New England, and extended itself into some parts of New York, Pennsylvania and Canada. A similar epidemic is supposed to have prevailed in other parts of the world from time to time.

1122. This disease was characterized by the following symptoms. Sense of lassitude, great prostration, faintness at stomach, sinking of the pulse, coldness of surface, occasionally chills, pain in the head, coma, delirium or convulsions, vomiting, in some instances approaching that of cholera morbus, and the appearance of *petechiæ*, or spots of effused blood, beneath the epidermis. This eruption, which gave the name of Spotted Fever to the disease, was not constant, and was less frequent in the years 1808-9, than in the two preceding. Death commonly occurred within twelve, twenty-four, or forty-eight hours in the fatal cases. In favorable cases reaction took place and a mild fever of uncertain duration ensued.

¹ Essays on Fever, &c. p. 118.

1123. *Morbid Anatomy.* From the necessarily imperfect accounts we have received of the results of post-mortem examinations, it appears that little was found beyond congestion in the internal organs, especially in the brain.

1124. *Causes.* The disease prevailed most in the cold months, and was thought to be excited by the immediate influence of cold, the depressing passions and debilitating agents; but its special cause remains utterly unknown. It is somewhat singular that the suspicion of its contagiousness seems hardly to have been entertained. This circumstance would throw some doubts upon the similarity supposed by Dr. Gerhard to exist between spotted fever and the British typhus, since the last is considered by most observers, and by Dr. Gerhard himself, to be eminently contagious.

1125. *Treatment.* In the extreme prostration which frequently attended the invasion of spotted fever, the most active stimulants were generally employed by the New England practitioners. Heat and friction externally, wine, brandy and opium internally, were the common prescriptions. There was some division of opinion, however, as to the degree to which these remedies should be employed. Drs. Miner and Tully advocated the most energetic exciting treatment; Dr. Gallup and Dr. Wilson were in favor of less powerful stimulation, and the former of these two physicians, in opposition, as he states to the general opinion, reposed confidence in bleeding. The usual array of successful cases is marshalled on both sides. Dr. Miner states, according to the editors of Dr. Gregory, that of those attacked in the epidemic of 1823, "all who took opium invariably recovered." Dr. Gallup asserts¹ "of eighty-one decided cases, committed wholly to my care, and treated as above, and without opium, one case only proved fatal." On this subject we refer to our remarks on the treatment of yellow fever, § 1112.

1126. The treatment of this stage of the disease must resemble in its principles that of the first period of cholera, of sinking from violent injuries, and of extreme cases of what has been called congestive fever. In these affections, it is generally

¹ Sketches of Epidemic Diseases in the State of Vermont, &c. p. 267.

agreed that the system must be roused to reaction by stimuli, and this reaction controlled by depletion. The most important point is to determine whether by reducing the amount of blood, the oppressed circulation will not be relieved, so that this apparently debilitating remedy will in fact restore the enfeebled actions of life. This was the doctrine of Sydenham, and is still generally supported. We know no other rule to determine its application than its effects in any given case: if blood can be obtained, which is not always true, and the pulse appears to rally under the effects of the process, it will be proper, according to the practice of Mackintosh, to bleed and stimulate at the same time. When reaction is fairly established, the treatment will be similar to that of common continued fever, being guided by the general condition, and the local complications.

1127. The affection described by authors as *Infantile Remittent*, does not seem to us to constitute a distinct disease. It has obtained this character from the readiness with which the irritable constitutions of children sympathize with various local diseases, to which it stands in the same relation as hectic to lesions of different organs in the adult.]

VIII. THE PLAGUE.

1128. [This disease prevails in some countries as an endemic, but has at times appeared in different regions not habitually subject to its ravages. It seems to require for its development a certain temperature, which, according to Sir Gilbert Blane, is not below 60° or above 80°. It is therefore found either in hot countries, or in the warm season of temperate climates.

1129. We shall present the student with the description of this affection as communicated by the distinguished Egyptian physician, Clot Bey, to Dr. Chervin of Paris, in the year 1835.

1130. The first symptoms are pain in the head, nausea and vomiting, injected eyes, staggering walk, as if from drunkenness, stupid expression, white moist tongue, full and frequent pulse. On the second or third day there is mental confusion, sometimes delirium; the tongue is dry in the centre, with red edges; the skin hot, there is often pain in the epigastrium, rarely diarrhœa;

buboes and carbuncles. On the fifth and sixth day, petechiæ and blue patches on the skin. The petechiæ are particularly on the neck, sides of the chest and limbs; the buboes in the groins and armpits, very rarely in the neck; all the lymphatic glands were enlarged in those who had no buboes; carbuncles were observed in three cases only.

1131. The bodies of the dead did not present the hideous aspect which physicians have described and artists painted. There was no particular tendency to rapid decomposition; the subcutaneous veins were not apparent; heart and veins in the cavities gorged with black blood, as well as the liver and spleen; this last viscus was generally doubled in size and softened. The arteries were empty; the kidney of a deep violet, gorged with blood; there was hemorrhage in the pelves of these organs. The stomach always contained a blackish fluid; its mucous membrane, much injected, exhibited red patches like petechiæ, which sometimes, from their size, might be called ecchymoses; their last degree is ulceration. The intestines were in a similar condition, but less well marked. The lymphatic glands were always engorged, sometimes increased five or six times, softened, and of a color like lees of wine, and sometimes black; those of the groin or armpit, by their agglomeration, formed a homogeneous mass of a color almost always like lees of wine, with effusion of black blood into the surrounding cellular tissue. A similar change was seen in the chain of glands along the vessels of the abdomen and chest; and in many cases the extravasation of blood around them amounted to hemorrhage. The subarachnoid veins and the sinuses were engorged; the parenchyma of the brain and spinal marrow was natural, except in two or three cases, where it was softened.¹

1132. *Causes.* It is generally conceded that the plague originates in some countries, and particularly in Egypt, from endemic causes, but of what precise nature is not determined. It has been supposed also, from time immemorial, to be propagated by contagion, and the history of the different pestilences considered as identical with the disease in question, abound with the

¹ British and Foreign Med. Rev., for Jan. 1836.

evidence of its transmission. Some of the most intelligent observers however, of the disease as it occurs in Egypt, and amongst these, Clot Bey himself, do not believe in its contagiousness. A paper was recently read before the British Association by Dr. Bowring, containing many facts and statements opposed to the opinion that it can be transmitted by contagion, directly or indirectly. It is perfectly possible that the disease which, as it now exists in Egypt, seems hardly capable of being communicated, may under other circumstances acquire that capability; it is possible also that more than one kind of disease has been included under the same term, as has happened with regard to typhus, and typhoid fever.

1133. *Treatment.* The measures employed by Clot Bey were emetics and diffusible stimuli in the first period, followed by bleeding, cupping, and cauterization of the buboes and carbuncles in the state existing on the second or third day, in which he believes there is irritation of the digestive canal, brain and lymphatic glands. Sydenham, who at first recommended blood-letting, was led subsequently to prefer sudorifics, which he considered less enfeebling. Inunction with oil, and various other remedies, have been recommended. But we must, in this disease, as in too many others, concede that no one plan has been uniformly found successful, and that the guide of practice must still be looked for in the general state of the system, the local affections which may complicate the disease, and the character of the prevailing malady.

1134. The treatment of buboes and carbuncles consists in the application of poultices; in the gangrenous state of the latter it may be proper to begin by the use of topical stimulants.]

CHAPTER II.

ON ERUPTIVE FEVERS.

1135. SINCE the appearance of the classical work of the late Dr. Willan, and the useful abridgement of Dr. Bateman, [followed by the more mature labors of Biett, Rayer, Alibert and others], nothing seems wanting to the description and portraiture of cutaneous diseases, both acute and chronic. And if to distinguish these several diseases from each other were all that were required, the diagnosis might be said to be almost complete. But this is not all. The treatment of these diseases does not depend merely upon the questions, whether the affection be rubeola, or scarlatina, or other eruptive fever ; but upon the question whether the disease, be it what it may, be complicated with internal organic changes, or modified by constitutional circumstances.

1136. These are the really important points for diagnosis, the important questions on which recovery or death depends. And I do not hesitate to say, that, in these respects, but especially in that of the complications, the subject is involved in the most intense obscurity, and offers ample scope for investigation. If there be any thing *peculiar* in these complications, that peculiarity is completely unknown, and must be established by new examinations. If such peculiarities of morbid change require peculiarities in the treatment, this too remains to be ascertained by future inquiries.

1137. It has not even been ascertained whether the affection of the mucous membranes be merely inflammatory, or whether it be specific ; that is, whether it be rubeolous in rubeola, and scarlatinous in scarlatina, as it is variolous in variola. But I believe it is so. This observation applies not to the eyes, fauces, larynx,

trachea, and bronchia only, but also to the stomach and intestines.

1138. But the observation is of still greater moment when it is considered in connection with the other textures, the morbid affections of which, in eruptive fevers, appear scarcely to have been examined at all. Yet it is certain that the arachnoid, the pleura, and the parenchymatous substance of the lungs, as well as the mucous membrane of the bronchia and of the stomach, undergo morbid changes in rubeola; that the arachnoid, as well as the parenchymatous, serous, and mucous textures of the thorax and abdomen, the subcutaneous cellular tissue, and the joints, are involved in the course of scarlatina. Yet where do we meet with any satisfactory account of these morbid changes? Willan and Bateman, Rayer and Biett, Laennec and Andral, are searched in vain for the morbid anatomy of eruptive fevers. There are merely scattered opinions or facts. All is vague, general, and unsatisfactory. A work upon this subject at all comparable to that of M. Louis upon Typhoid Fever, would be an inestimable contribution to medical science.

1139. But, besides the *complications*, there is another interesting subject of inquiry, especially in regard to eruptive fevers: it is the remoter *consequences* or *sequelæ*. These are acute and chronic. The former affect the head, the chest, the abdomen, the cellular membrane. The latter are, principally, *chronic inflammation* and *tubercles*.

1140. In the present chapter I propose to notice those objects of the diagnosis upon which the treatment principally depends: these are, the conditions of the system and of the internal organs. In a subsequent chapter I shall compare and contrast the different rashes, with the view of determining the question of the subsequent safety or liability of the individual, in regard to the different contagious eruptive fevers respectively.

1141. There are several points for consideration in reference to each of the Eruptive Fevers. They are—

1. The prevailing Epidemic.
2. The Latent period.
3. The Febrile period.

4. The form and locality of the Eruption.
5. The form and locality of the Internal affection.
6. The Sequelæ.

1142. Rubeola and scarlatina, variola discreta and variola confluens, the different forms of erysipelas, are remarkably different in all these respects, and the difference is one of great practical moment.

1143. There are no diseases which try the skill of the physician, in reference to early diagnosis, more than Eruptive Fevers. It is so important to determine, on the very first appearance of the eruption, this question of the diagnosis, that I shall take great pains to point out the source from which it flows; the fate of a family, of a school, and the reputation of the physician, frequently depend upon the promptitude and accuracy with which the disease is detected. The lesson is one which cannot be learnt in *hospital* practice.

1144. I shall proceed to enumerate the principal Eruptive Fevers. They are—

I. RUBEOLA.

1. Vulgaris.
2. Sine Catarrho.
3. Nigra.

II. SCARLATINA.

1. Simplex.
2. Anginosa.
3. Maligna.

III. VARIOLA.

1. Discreta.
2. Confluens.
3. Modified.

IV. VARICELLA.

1. Varicella lenticularis.
2. Varicella conoidalis.
3. Varicella globata.

V. VACCINIA.

1. Perfect.
2. Imperfect.
 1. The Vaccine Pustule.
 2. Ulceration.
 3. Irregular Vesicles.

I. RUBEOLA.

1145. [Rubeola, or *measles*, is a disease characterized by a crimson rash appearing upon the skin in irregular and crescent-formed spots, accompanied with fever and catarrhal symptoms.] Besides its ordinary form of *Rubeola vulgaris*, it occasionally occurs unaccompanied by catarrhal symptoms, when it is designated by Dr. Willan *Rubeola sine catarrho*; at other times the rash, which is usually florid, becomes livid, when it is called *Rubeola nigra*.

I. *Rubeola Vulgaris*.

1146. I. *The History*. Rubeola is unequivocally contagious. A latent period of from *ten* to *fourteen* days intervenes between exposure and the development of the febrile symptoms.¹

¹ Dr. Willan states—"The children of my friend Mr. Pearson were affected with the measles in the following order:

1. A boy, aged 10, had the eruption on the 5th day of fever, 3 Dec. 1797.
2. A boy, ——— 7, ————— 6th ————— 15.
3. A boy, ——— 2, ————— 3rd ————— 15.
4. A girl, ——— 11, ————— 4th ————— 16.
5. A girl, ——— 6, ————— 5th ————— 18.
6. A boy, ——— $\frac{1}{2}$, ————— 3rd ————— 27.
7. A girl, ——— 13, ————— 4th ————— 1 Jan. 1798.

The last child came home from school on the 16th, and was, therefore, affected with the rash sixteen days after exposure to contagion. For eight days before, she had had catarrhal symptoms, attended with headache and giddiness.

"The eldest child of White, King Street, St. James's, had the rash, October 31, 1796, the 5th day of fever. Two younger children had the rash on the 11th of November, the 5th day of fever.

"Infants at the breast are not so susceptible as children more advanced."
Cut. Dis. p. 214.

The catarrh appears on the *second* or *third* day of fever. The rash first appears on the face and neck on the *fourth* day, and on the chest and extremities on the *fifth*; on the *sixth* it begins to decline on the parts first affected, whilst it is vivid on the general surface. On the *seventh*, *eighth*, and *ninth* days, the rash fades, leaving the cuticle in a state of exfoliation. [These numbers are to be taken only as the approximative or average dates.]

1147. II. *The Symptoms.* Rubeola is early characterized by the conjunction of the fever, and a sensation of stricture across the forehead and eyes, with a disposition to sleep; to these symptoms are added, on the second and third days, redness of the eyes, and turgidity of the eyelids and nostrils, a copious flow of tears, and frequent sneezing, a sense of soreness about the throat, hoarseness, a frequent, dry cough, difficulty in breathing, and a sense of constriction across the chest. The rash commences with distinct, red, and nearly circular dots; afterwards larger patches appear, which tend to assume crescentic forms. The surface of the skin is gently raised; the wrists and hands are papillated; the color of the rash is deeper and less vivid than that of scarlatina, being of the raspberry hue; miliary vesicles are frequently seen on the neck, breast, and arms. The general surface is less tumid than in scarlatina.

1148. II. *The Complications* of Rubeola are the following:

- I. Inflammation of the Eyes and Nostrils.
- II. Inflammation of the Ears; or Ear-ache.
- III. Efflorescence on the Throat.
- IV. Inflammation—1. Of the Larynx ;
2. Of the Trachea and Bronchia ;
3. Of the substance of the Lungs ;
4. Of the Pleura and Pericardium ;
5. Or of the Peritoneum.
- V. [Diarrhœa or Dysentery.]
- VI. Appearance of the Catamenia.
- VII. Sudden attacks of Inflammation of the Brain and its Membranes,—with or without—

VIII. Acute Inflammation of the Cellular Membrane, with Anasarca.

1149. III. *The Sequelæ* are—

- I. Chronic—1. Cephalic, or
2. Thoracic, Inflammation.

II. Tubercles.

1150. This table of complications and sequelæ should be vividly present to the mind whenever we visit a case of Rubeola. To avoid repetition, I refer the reader to the several chapters which treat of cephalic and thoracic diseases, for the special diagnosis of these morbid affections, whether they exist as simple forms of disease, or as complications of the various fevers.

1151. IV. There are several occasional *Events* in the History of Rubeola, which I will enumerate in this place : they are—

- I. The recurrence of the rash.
- II. The recurrence of Rubeola.
- III. The Interruption of another disease.
- IV. The Conjunction of another disease.

1152. The *recurrence* of the rash and febrile and catarrhal symptoms soon after the first series had disappeared, is mentioned by Dr. Willan.¹ It should, therefore, be borne in mind as a possible event.

1153. The *recurrence* of Rubeola in patients having previously gone through this disease, was first pointed out by Dr. Baillie,² and afterwards witnessed both by Dr. Willan³ and Dr. Bateman.⁴ [Most physicians of long experience have had opportunities of seeing the recurrence of measles, scarlatina, small pox, hooping cough, &c. in particular cases in the same individuals.]

¹ Op. cit. p. 218; and on Cutaneous Diseases, p. 236.

² Trans. of the Society for Improvement of Med. and Surg. Knowledge, vol. iii, p. 258, 263.

³ Reports, p. 304. Cut. Dis. p. 235.

⁴ Reports, p. 276.

1154. Dr. Bateman gives two cases in which other diseases were *interrupted* by the recurrence of Rubeola:¹ the first was pertussis; the second, the crowing disease of infants. His remarks may be compared with the observations of Dr. Willan.²

1155. The *conjunction* of another disease with Rubeola has been noticed by several authors. Dr. P. Russell gives two cases of the simultaneous existence of Rubeola or Variola.³ The same fact was observed by Dr. Thompson of Edinburgh.⁴

1156. V. *The Morbid Anatomy* of Rubeola, in its simple forms, is, in my opinion, unknown; that of its ~~complications~~ and sequelæ is supposed to be perfectly similar to that of affections of the several parts enumerated in the preceding table, not rubeolous. Is it so?

1157. VI. *The Effects of Remedies; the Treatment.*

1158. In simple Rubeola we have frequently nothing to do but to *watch* the patient through the disease, giving salines, mild aperients, and tea and barley-water for diet.

1159. We avoid exposure to cold for fear of repelling an eruption which is less deeply seated, less diffused, less permanent and certain, and attended with less heat than that of scarlatina simplex or anginosa. For the same reason the cold or tepid affusion is a dubious remedy.

1160. The retrocession of the eruption is said to occasion delirium, restlessness, difficulty of breathing, pain of the bowels, and diarrhœa, and greatly to endanger the patient's life. A case of dyspnœa from this cause is related by M. Andral.⁵

1161. In the cases of the [more dangerous inflammatory] *Complications*, § 1148, blood-letting is *the* remedy. The patient being placed perfectly upright, and bled to syncope, § 823, it is found that there is great tolerance of loss of blood; and this tol-

¹ Reports, p. 91. Compare Willan on Cut. Dis. p. 219 (note); on Vaccination, p. 33; Jenner, p. 137; 169.

² Reports, p. 159.

³ Trans. of the Soc. for the Imp. of Med. and Surg. Knowledge, vol. ii, p. 90.

⁴ Account of the Varioloid Epidemic, 1820, p. 151.

⁵ Op. cit. ed. 2, t. i, p. 245. See Willan's Report, p. 212.

[The sudden retrocession of the eruption is often attended with an aggravation of the disease. But whether the former is the cause of the latter, or its consequence, or merely its concomitant, appears not to be well settled. An emetic and warm applications to the surface of the body are the most suitable remedies.]

erance is further discovered to be precisely in proportion to the diffusion and severity of such complication. [But in cases of typhoidal aspect, blood-letting is inadmissible.]

1162. Blood-letting may be succeeded by antimonials and mercurials ; the former in nauseating doses, the latter followed by mild aperients. [Diarrhœa occurring about the middle of the disease, if mild, is salutary, and does not require to be interfered with. But if severe, it may be restrained by moderate astringents or opiates.]

1163. The *Sequelæ* of Rubeola, § 1149, require the appropriate treatment of chronic inflammation, or of tubercles ; and especially local blood-letting and gentle tonics, with unirritating food, sea-breezes, &c. in the latter. See § 670—672.

II. *Rubeola sine Catarrho.*

1164. Dr. Willan observes,—“ When the measles are epide-
mical, a few cases occur wherein the eruption goes through its
different stages without any cough, difficulty of breathing, or in-
flammation of the eyes ; without much alteration of the pulse, or
any febrile symptoms.” It does not, then, “ appear to emanci-
pate the constitution from the power of the contagion, nor to
prevent the accession of the *Rubeola vulgaris* at a future period.”
[It is, however, very rare to see measles without some catarrhal
accompaniment.]

III. *Rubeola Nigra.*

1165. Dr. Willan observes—“ I never saw the *Rubeola vul-
garis* intermixed at an early period with petechiæ : but it some-
times happens, about the *seventh* or *eighth* day, that the rash
becomes suddenly black, or of a dark purple color, with a mix-
ture of yellow.” This appearance has continued ten days, in
some cases longer, with no other symptoms of fever than a quick
pulse and a slight degree of languor.

II. SCARLATINA.

1166. [Scarlatina or scarlet fever is characterized by a fine
scarlet rash, accompanied with fever, and with inflammation or

ulceration of the tonsils and other parts of the fauces.] It occurs under three forms—*Scarlatina simplex*, *Scarlatina anginosa*, and *Scarlatina maligna*.

I. *Scarlatina Simplex*.

1167. I. *The History*. *Scarlatina* is eminently contagious. The eruption appears after a latent period of *five* or *six* days, and on the *second* day of febrile symptoms. It consists of a close scarlet efflorescence, and first occupies the face and neck, and, in the course of another day, is diffused over the general surface, the nostrils, the inside of the eye-lids, cheeks, and lips, the tongue, the palate and the fauces. On the *fifth* day the rash begins to decline; it disappears on the *sixth* and *seventh*, leaving the cuticle in a state of exfoliation.

1168. II. *The Symptoms*. The *Scarlatina* begins with debility, heaviness, and slight chills, which lead to great heat and tumidity of the general surface. Numerous specks, or minute patches, of a vivid scarlet, appear about the face and neck on the *second* day. In the course of the *third* day the efflorescence becomes almost continuous over the whole surface of the body, and of a full scarlet hue, especially on the loins, nates, and in the flexures of the joints. The rash is most vivid in the evening, and on the *third* and *fourth* days. Some papulæ appear. On the *fifth* day it begins to decline, the scarlet hue becoming less vivid, and the interstices between the patches being augmented.

1169. The tongue is white in the middle, of a scarlet redness at the edges, and marked by elongated vivid papillæ at the point and edges. [Sometimes these appearances are wanting.] The face is tumid. The scarlet efflorescence may sometimes be observed over the tunica conjunctiva, and the eye is bright and humid, but without the flow of tears observed in *rubeola*.

II. *Scarlatina anginosa*.

1170. I. *The History and Symptoms*. In this form of *Scarlatina* the febrile symptoms are more severe, the rash ap-

pears later, as on the *third* day, and is less diffused, and more in scattered patches; it sometimes vanishes and reappears; its whole duration is longer, and its color deeper, than that of *Scarlatina simplex*. To the fever and efflorescence are superadded swelling of the tonsils, *velum pendulum palati*, and *uvula*, with florid redness, sloughs, and ulcerations. The voice is hoarse and the deglutition difficult, and there is cough.

1171. There are frequent headache, delirium, restlessness; great heat, frequent pulse, quick respiration; languor and faintness, nausea and vomiting. [The last mentioned symptom is quite common, and often precedes the eruption.]

1172. [While *Scarlatina* is prevalent among the children of a family, it is by no means uncommon for adults in the same family to be affected with sore throat, which is sometimes slight and sometimes severe, but unattended with eruption. These nevertheless have proved to be genuine cases, and capable of communicating the contagion.]

1173. II. *The Complications* in *Scarlatina anginosa* are—

I. Affection of the nares, fauces, pharynx; (the glottis, and larynx?)

II.—1. Cephalic,

2. Thoracic.

3. Abdominal, Inflammation, or Congestion.

III. Enlargement and softening of the parotid, submaxillary, and mesenteric glands, the kidneys, &c.

1174. III. *The Sequelæ* are,

I. An affection of the Joints, similar to Rheumatism.

II. Inflammatory Anasarca.

III. Meningitis.

III. *Scarlatina maligna*.

1175. I. *The History*. The rash, in this form of *Scarlatina*, appears *late*, and is uncertain in its duration: it sometimes disappears in a few hours, and reappears at the expiration of a week, continuing two or three days. In one case Dr. Willan

observed its reappearance, in numerous patches, a third time, on the seventh day from the second eruption: it remained two days.

1176. II. *The Symptoms.* There are dark-red flushings of the cheeks, fulness and lividity of the neck, and dull redness of the eyes. The efflorescence is usually faint, except in a few irregular patches, and presently changes to a dark or livid red color; it is often intermixed with petechiæ. There are ulcerations of the tonsils and adjoining parts, covered with dark sloughs and surrounded with lividity. The tongue is tender and ulcerates on the slightest injury. An acrid discharge takes place from the nostrils, with soreness, chaps, and blisters, about the nose and lips. The breath is extremely fœtid. The state of the whole system is *typhoidal*.

1177. III. With these appearances there are in different instances the following *functional Complications*:

- I. Deafness, delirium, coma.
- II. Rattling, laborious respiration, teasing hawking, and cough.
- III. Constriction of the jaws and dysphagia.
- IV. Violent pains of the bowels, diarrhœa.
- V. Petechiæ, vibices, hæmorrhages.
- VI. Vesications on the hands and feet.
- VII. Sudden and unexpected dissolution.

1178. Many patients sink at an early period, without any admonitory symptoms.

1179. IV. There is doubtless a corresponding condition of the *structures*. But, unfortunately, there are few accurate cases of post-mortem examinations in *Scarlatina maligna* on record. There are, however,

- I. Ulceration of the posterior nares, the fauces, tonsils, œsophagus, (the larynx, and trachea?)
- II. Inflammation, or Congestion, in the—
 - 1. Head,
 - 2. Chest, or
 - 3. Abdomen.

1180. An occasional event in Scarlatina, and especially in Scarlatina maligna, which should be carefully borne in mind, is that of *sudden death*,—apparently from the condition of the fauces. I imagine that a slough, in separating, has occasionally been drawn into the larynx and induced asphyxia.

1181. V. *The Diagnosis.* The principal point in the diagnosis of Scarlatina is its distinction from rubeola. I shall therefore compare and contrast these two important diseases in this place :

1. *The prevailing Epidemic.*

RUBEOLA.

SCARLATINA.

2. *The latent period.*

From 10 to 14 days.

From [1] to 6 days.

3. *Symptoms.*

Febrile catarrh, coryza,
ophthalmia.

Febrile sore throat, great
heat and tumidity of
surface, [nausea or
vomiting.]

4. *Appearance of the Eruption.*

On the fourth day.

On the 2nd day in S. s.
3rd in S. a.
later still in S. m.

5. *Form of the Eruption.*

Circular dots ; crescentic
arcs.

Diffused.

6. *The Indoles.*

[Mostly] Inflammatory.

[Often] Typhoid, and es-
pecially in S. maligna.

7. *Principal Complications.*

Affections of the anterior
nares, the larynx, tra-
chea, lungs, &c.

Affections of the posterior
nares, fauces, &c.

8. *Principal Sequelæ.*

Thoracic disease.

Inflammatory anasarca ;
meningitis.

1182. [Nothing is more uncertain than the contagiousness of scarlet fever. We have known a nursing infant to suck from the breast of a patient during the whole course of a severe scarlatina, without taking the disease. Two patients were accidentally introduced and went through scarlet fever in the Massachusetts General Hospital without communicating the disease to any of the inmates, or medical students, of whom in one case, upwards of sixty visited them. Yet in other instances the evidence of contagion is so strong as to be irresistible.] The latent period, the period which intervenes between the beginning of the febrile symptoms and of the rash, are both shorter in Scarlatina than in Rubeola.

1183. In reference to the *Scarlatina maligna*, it may be observed that the rash is later in its appearance, more uncertain in its duration, less diffused, less distinct altogether, than the *Scarlatina anginosa*; it is also faint and livid, and mingled with petechiæ; there is less heat of surface, less tumidity; the fauces are sloughy, ulcerated, and affected with an ichorous discharge.

1184. VI. In reference to the *Indoles* of these two diseases, I would remark that Rubeola principally attacks the parts of the respiratory organs *below*, whilst Scarlatina is chiefly situated *above*, the *glottis*. This important point appears to be the *boundary* of the internal affection in both these diseases respectively.

1185. Another distinction is, that in severe cases of Rubeola, there is the constant tendency to the deposit of albumino-fibrine; in Scarlatina, on the contrary, there is more disposition to ulceration, and slough, and ichorous discharges.

1186. I need not observe that these observations are very general. Bateman¹ and Laennec² have both seen cases of croup in connection with Scarlatina. With their observations we may contrast the remarks of M. Bretonneau, who states that, during twenty years, he had not observed the affection of the fauces to extend to the larynx.³ [In the United States croup occasionally supervenes on scarlet fever and is almost always fatal.]

1187. VII. *The Morbid Anatomy* of Scarlatina is as little known as that of rubeola. M. Louis remarks, "I have observed, in five subjects, in the latter portion of the ileum, disease of a greater or less number of the *solitary* glands, which were more or less developed, white or reddish, and this appears to me to be worthy of attention; three of these cases were individuals who had died of Scarlatina, the only ones attacked with this affection which I have examined. This would seem to indicate that the development of these glands (supposing such to be the lesion in question) is, if not constant, at least very frequent amongst those who die of this affection."⁴ The whole subject is open to new inquiry. The particular condition of the skin, of the mucous membranes, of the parenchymatous textures, of the blood, &c. is still unknown.

1188. [Ulceration in the tonsils and palate is the most common lesion in Scarlatina, but the other morbid appearances discovered in autopsies of cases of this disease are exceedingly various and uncertain. Among those which we have observed, are ulcerations in the larynx, and inflammation of the mucous membrane of the trachea and bronchia. In one case of thirty-six hours duration, the chief morbid appearance, in addition to the ulcerated throat, was an extensive peritonitis with effusion of coagulating lymph, lining most of the abdominal cavity. Serous effusions in and upon the brain have been occasionally noticed, but most frequently in the secondary forms of the disease. In the child of an eminent physician in this city, whose case and autopsy we witnessed, there was slight ulceration of the tonsils,

¹ See Reports on the Diseases of London, p. 191.

² Op. cit. t. i, p. 246, 251, &c.

³ De la Diphthérie; Paris, 1826, p. 249.

⁴ De la Fièvre typhoïde; t. i, p. 222.

but no lesion of any important viscus could be detected, though diligently sought for by our best pathological anatomists. Similar cases have been noticed by some writers on the disease. In these cases the poison of the disease seems to destroy life without exciting inflammatory action.

1189. Family predisposition appears to influence the tendency to mortality in Scarlatina. In some cases the children of a family all die in rapid succession. A predisposition to take the disease seems also affected by the same cause, so that it sometimes operates during the same season upon members of the same family residing in different places, without personal intercourse.

1190. The latent period between the inception and development of this disease appears subject to great variation. We have known a patient to be taken with scarlet fever in forty-eight hours after arriving in this country by a passage of forty days from Europe. In this instance, as no case existed in the ship, the latent period must have been less than two days, or more than forty.

1191. Scarlatina and some other eruptive fevers reciprocally affect the development of each other. During the prevalence of measles and scarlet fever in this city in the winter and spring of 1832, a considerable number of cases occurred, in which the two diseases, each preserving its own distinctive character, were successively passed through by patients, without quitting their beds, yet the diseases were in no wise blended, or intermixed. In the family of a lady residing in Tremont place, five individuals had scarlet fever, and three of them measles, nearly at the same time. The circumstances are interesting. One child had measles first, the disappearance of which was immediately followed by Scarlatina; both diseases proved mild, and were completed in about twenty days. Another child had severe Scarlatina with a bad throat, the ulcers of which were not healed before the sixteenth day. After this the patient remained stationary, with a quick pulse and without return of appetite or strength for several days more, when the eruption of measles appeared under the cuticle which was desquamating from Scarlatina, and passed through its regular course. A third child in the same family was affected in a more singular manner. The eruption of mea-

sles appeared first, with slight catarrhal symptoms, and continued one day. It then vanished, and was in two days succeeded by scarlet fever. This lasted about a week, and when the patient was expected to get well, the crimson eruption of measles reappeared, and lasted three days more. In these cases the two diseases, though probably coexisting in the body at the same time, and in the last case decidedly so, were never extant at once in an active or characteristic form. There was no reason to suppose that the intensity of either disease was diminished, or aggravated, by the presence of the other.

1192. Scarlet fever exists in some cases where its presence is not suspected, as the following cases, selected from a number of similar ones, may show. A child, previously well, was taken in fits at night, and died on the following morning. As the disease was not epidemic at the time, the nature of the complaint was not suspected till a few hours before death, when another child coming out with the eruption, this circumstance led to an examination of the throat of the first, which was found ulcerated. In another case, a child was affected with a very troublesome rheumatic stiff neck. On inquiry it was ascertained that a scarlet efflorescence had existed on the preceding week, of which the rheumatism was doubtless a sequel, though the nature of the eruption had not been apprehended.

1193. The sequelæ or secondary effects of scarlet fever are extremely various. Rheumatic affections are among the most common. Dropsical effusions are frequent, both in the cellular texture and in large cavities. Anasarca and ascites are not of uncommon occurrence. We have seen hydrocele, which disappeared spontaneously in a few weeks, and hydrocephalus which proved fatal. Troublesome indurations of the parotid and submaxillary glands often occur, and may, or may not, be followed by suppuration. A fatal induration of the whole anterior neck is sometimes met with. This we have seen both in the primary and secondary disease. A purulent or sanious discharge from the ears occasionally follows scarlet fever and sometimes continues long enough to destroy the organic texture, and with it the sense of hearing, in one or both ears. Erysipelas and roseola are among the other appearances which we have seen to super-

vene upon this uncertain disease. Fortunately, however, the largest portion of cases are attended with no sequelæ, or with such as disappear spontaneously in their own time, without permanent injury to the patient.]

1194. VIII. *The Treatment.* The remedies in Scarlatina are those of the synochus acuta (§ 997), or of typhoid (§ 978), according as it assumes the simple, anginous, or malignant forms. In the first case, an emetic, or a mild dose of hydrargyri submuriatis, [or other] aperient, mild antimonials, and salines, are proper remedies. [Common cases do well with no other treatment than gentle laxatives, diluents, and the antiphlogistic regimen, as abundant experience has shown. Antimonials should not be continued if they create nausea, nor salines if there is much thirst.] The angina may require blood-letting, general, but especially local. The malignant form requires the cinchona, and remedies directed to the condition of the posterior nares and fauces, such as the inhalation of steam, gargarisms with the chloride of soda, the nitrate of silver, &c., external fomentations, &c.

1195. The principal continued treatment is the regulation of the bowels, the diet, the temperature, &c. The bowels should be moved daily; the diet should be mere barley-water, or gruel; the atmosphere of the room should be kept fresh and cool.

1196. [Every extreme of medical treatment has had its advocates in Scarlatina. Tonics and stimulants were urged by Fothergill, cold affusion by Currie, copious blood-letting by Southwood Smith and others, emetics by Dr. Cross. But the experience of the profession has not sustained the expectations formed of the effect of these remedies. Although scarlet fever is occasionally one of the most fatal of our epidemics, yet a vast majority of its subjects recover under mild treatment.]

1197. A free state of the bowels is the most important preventive of the inflammatory anasarca, so apt to follow scarlatina. When this sequela does occur, blood-letting [general or local] is a remedy for the anasarca itself, and a preventive of meningitis. [But it is not required in all cases, and a judicious regard must be had to the state of the pulse and strength of the patient.]

III. VARIOLA.

1198. [Variola, or small-pox, is a contagious febrile disease, attended with a pustular eruption, terminating in scabs, and leaving pits or scars.] It varies extremely in severity, and, according to the abundance and form of the eruption, is designated the *distinct* or the *confluent*. There is also another form of this disease, the *modified*, which occurs after a previous attack, or after vaccination.

I. *Variola discreta*.

1199. I. *The History*. The unique cause of Variola is contagion. The latent period is from *twelve* to *fourteen* days.¹ There are febrile symptoms, on the *fourth* day of which the eruption generally appears. Sometimes there is vomiting, sometimes an attack of epilepsy.

1200. II. *The Symptoms*. The early symptoms are febrile chills, heat, and diffuse perspiration; languor, pain of the head and back, and tenderness of the epigastrium. The eruption first appears on the face, neck, and breast, and spreads on the next day over the general surface of the body, the febrile symptoms abating.

1201. On the *first* and *second* days of the eruption, (the *fourth* and *fifth* of fever) the inflamed points are *papular*, small, hard, and globular, red and painful, separate and distinct from each other, with nearly colorless interstices.

1202. They enlarge gradually, and on the *third*, *fourth*, and

¹“ Dr. Rutherford, my learned master, in his Lectures on the Practice of Physic, to ascertain the time the natural affection of the small-pox is latent before it produces the fever, mentioned the case of a party of soldiers marching through a village where the disease was; they were seized from twelve to fourteen days afterwards with the fever, and that this was the usual time.” Fordyce; Trans. of a Society for the Improvement of Med. and Surg. Knowledge, vol. i, p. 5.

Heberden observes, “ Parentibus aliquibus visum est, siquidem unus ex liberis in variolas incidisset, non amovere reliquos, sed sinere ut omnes una manerent in eadem domo, aut etiam in eodem cubicolo. At sexto plerumque die postquam morbus ad *ακμην* pervenerit, sani pueri cœperunt ægrotare.”—*Commentarii*. p. 379. Eight days (the acme), added to six, make *fourteen*.

fifth days they become *vesicular*, containing a little yellowish fluid, and the interstices become red.

1203. During the *sixth* and *seventh* days the variola assumes a very peculiar character: it consists of concentric rings, of which the exterior and anterior are opaque and pustular; the intermediate one vesicular and still transparent; it may be therefore denominated *vesiculo-pustular*. It is further distinguished by a *central indentation*, and a *surrounding areola of rose-colored inflammation*, which frequently coalesces with those of adjacent pustules, when the eruption is numerous.

1204. On the *eighth* day the eruption is perfectly *pustular*. The central indentation remains.

1205. On the *ninth* and *tenth* days the pustular character is still retained, but the central indentation has given way, and the form is *orbicular*. The pustules are said to be "full at the top of the pock."

1206. On the *eleventh*, *twelfth*, and *thirteenth* days, the pustules burst and form *scabs*.

1207. After this period the scabs fall off, leaving the subjacent parts brown and pitted, a minute portion of the cutis having sloughed and separated.

1208. The course of the eruption is most distinct on the face; less so on the extremities; it is *shorter* in the very *distinct* cases; a little protracted and less regular in the more confluent. From these circumstances the enumeration of the days or periods of the eruption is but approximative.

1209. I shall here insert a little table of these appearances of the eruption of Variola:

On the	1	}	days it is papular.
	2		
	3	}	vesicular.
—	4		
	5	}	indented, annular, vesiculo-pustular, and areolated.
—	6		
	7	}	pustular.
—	8		
	9	}	orbicular.
—	10		
	11	}	burst, and formed into scab.
—	12		
	13		

1210. About the *fourth* day there is frequently an increased flow of saliva, and the integuments of the face are apt to become tumid, the eye-lids being swollen, and sometimes closed; this tumefaction gradually declines, and, about the *seventh* day, is often replaced by swelling of the hands and feet, the salivation and perspiration ceasing.

1211. III. *The complications* in the Variola discreta are,

I. Variolous Inflammation of the

1. Eyes;
2. Mouth;
3. Throat;
4. Epiglottis, Larynx, Trachea, and Bronchia;
5. Pharynx, Œsophagus, Stomach and Intestines.

II. Inflammation within the Head:

1. Of the Membranes;
2. Of the substance of the Brain.

III. Inflammation within the Thorax:

1. Pleuritis;
2. Pneumonia;
3. Pericarditis.¹

IV. Inflammation of the Peritoneum.

V. Inflammation of the Joints.

II. *Variola confluens.*

1212. I. *History and Symptoms.* The early symptoms of confluent small-pox are *typhoid*; there is delirium or coma, vomiting, diarrhœa, cool perspiration, labor in breathing, a feeble, frequent pulse. The eruption appears *early*, on the *third* day, and induces less and less permanent relief of the febrile symptoms, which resume their violence on the *sixth* day; it is preceded or attended, in many instances, by exanthematous redness.

1213. The pustules are more numerous on the face; smaller and less hard and eminent than the variola discreta; during a *slower* and less marked progress, their diameters enlarge; they

¹ See Andral, Clinique Médicale, ed. 2, t. i, p. 30.

do not retain the circular and orbicular form, but assume an irregular figure, remain flat, and coalesce, so that frequently the face seems covered with one extended and continuous pustule. The interstices are pale and flaccid, and without the rose-colored inflammation observed in the variola discreta. The contained fluid becomes opaque and brownish, and does not assume the yellow, consistent, and purulent appearance. The pustules at length break, the cuticle shrivels up, the enclosed fluid issues; dark brown scabs are formed, separate slowly, and leave deep pits.

1214. The tumefaction of the face, and the salivation, take place earlier, and are more considerable than in the variola discreta; they abate, and the hands tumefy, about the *seventh* day.

1215. On the general surface the pustules are more distinct; but they are less prominent, and the enclosed matter less consistent, than in the former variety.

1216. In this form of variola, the pustules are less distinct from each other, and in their form, progress, and stages; less distinctly indented; less circular; less orbicular; less disposed to suppurate, and more to form sanies and slough, than in the Variola distincta; the febrile symptoms are not only more typhoidal, but they are less relieved on the appearance of the eruption, and they recur about the *sixth* day; the tumefaction of the face and the salivation occur earlier, then abate, being succeeded by swelling of the hands about the *seventh* day.

1217. II. *The functional Complications* of the Variola confluens are—

I. Cephalic :

1. Delirium ; 2. Coma ; 3. Subsultus ; 4. Spasm, &c.

II. Thoracic :

1. Cough ; 2. Rattle ; 3. Dyspnœa, &c.

III. Abdominal :

1. Vomiting ; 2. Diarrhœa ; 3. Melæna ; 4. Hæmat-
uria ; 5. Menorrhagia.

IV. Integumental :

1. Petechiæ ; 2. Vibices ; 3. Livid Vesicles ;
4. Gangrenous Ulcers ; 5. Anasarca, &c.

1218. III. *The Structural Complications are,*

- I. Variolous Ophthalmia.
- II. Ulcerations—1. Of the Mouth, Fauces, and Pharynx ;
2. Of the Stomach, Intestines, &c.
- III. Ulcerations—1. Of the Epiglottis and Glottis ;
2. Of the Larynx and Trachea.
- IV. Cerebral Congestion.
- V. Thoracic disease :
 - 1. Bronchitis, with bloody mucus ;
 - 2. Congestion of the Lungs ;
 - 3. Pleuritic, Serous, Purulent, or Sanguineous Effusion.
- VI. Abdominal Congestion.
- VII. Glandular Swellings.
- VIII. Swelling and Stiffness of the Joints.

1219. IV. The *Morbid Anatomy* of Variola is amongst the most interesting of the subjects still requiring investigation : it consists of,

1220. 1. The pustular form of inflammation of the mucous membranes. Of all the mucous membranes, that lining the air passages suffers the most ;¹ the whole of the alimentary canal is subject to variolous inflammation, but chiefly the appendix vermiformis cæci.²

1221. 2. Inflammation of the serous membranes, in regard to which the *peculiarity* of form is not either established or refuted.

1222. 3. Inflammation of the parenchymatous substance of organs, as of the brain, the lungs, &c.

1223. I insert in this place an interesting case of Variola from the pen of Sir Gilbert Blane :—"Charles King, a common sailor belonging to the Conqueror, was admitted on the 1st of March,

¹ For sketches of Variola affecting the trachea, my reader may refer to M. Rayer's plates of Cutaneous Diseases ; pl. vi. fig. 11 ; and Dr. Carswell's plates of Pathological Anatomy, fig. 8, pl. i, fig. 6.

² M. Rostan observes, Cours de Médecine Clinique, ed. 2, t. ii, p. 201, "J'ai vu un canal alimentaire garni des mêmes pustules que celles de la bouche depuis l'œsophage jusqu' au rectum."

1783, into the Naval Hospital at St. Lucia, on the fourth day after being attacked with fever, and just as the eruption of the small pox was becoming visible. The pustules, which followed, were flat from the beginning, and blackish in the middle; and they continued to wear this appearance till his death, which happened on the 19th of the same month. There was no matter in the pustules, except on the hands, and there it was of a very thick consistence. They were very numerous, and in some parts confluent. The scrotum, prepuce, and glans penis, began to mortify before he died.

1224. "The cavity of the abdomen being exposed, the intestines appeared to be perfectly sound in their outer surface; but, on their being slit open from the stomach to the rectum, both included, the whole inner surface was found beset with small round ulcerated spots. The same appearance was found on the inner surface of the œsophagus. These spots were most crowded in the duodenum, and in the great intestines they were of a dark color in the middle, like the small pox on the surface of the skin.

1225. "The villous coat of the stomach, near the pylorus, had the appearance of being much inflamed.

1226. "The liver and kidneys were sound. The gall-bladder was full of viscid bile.

1227. "On the inner surface of the trachea, the same sort of ulcerated spots was found as in the intestines, and they were continued on the bronchia as far as their ramifications could be traced. All these surfaces bore the appearance of having been in a state of inflammation.

1228. "Tubercles were found on the right lobe of the lungs, but neither hard nor suppurated. The whole of this side of the lungs had a turgid and inflamed appearance. On its uppermost extremity there was a cicatrix, the vestige of some old injury; and upon cutting into it, there were found small white hard bodies, of the consistence of horn or cartilage. The lungs on the left side were sound in every respect.

1229. "The brain being examined, the lateral sinuses, particularly the left, were found remarkably turgid with blood, and their coats were considerably thickened, and of a firmer texture than natural, with a number of very small, clear, globular bodies ad-

hering to their internal surface. There was a red suffusion, or increased vascularity, on the fore part of the cerebellum.”¹

1230. But the *Pathology* of Variola has been more recently and particularly investigated by Dr. Heming, in this country, and by M. Velpeau in France. The former author considers the variolous pustule as an inflammation of the sebaceous glands of the skin, and of the mucous follicles in the mucous membranes. It is in this manner that the central indentation of the variolous pustule is explained: it is formed by the duct of the inflamed gland, and constitutes the specific distinction between variola and varicella. It is in this manner that the presence of variolous inflammation in the mucous membranes, and its absence in the serous membranes, are also explained.

1231. Dr. Heming observes, “although I have spoken of the variolous pustule as affecting the follicles of the mucous membrane, such pustules are never perfect; the presence of a cuticle being required to form the perfect pustule. The variolous affection of the mucous membrane assumes, first, the form of an inflamed point, then becomes an ulcer, and then passes into a state resembling that in aphthæ.

1232. “The variolous affection is to be seen in some part of the track of the mucous membrane, in almost every case of the disease; but in no single case in great number. It is equally true that the mucous follicles pervade the whole of these membranes. There are some parts of the mucous membranes, as on the tongue, the palate, and the mouth generally, covered by a cuticle of sufficient thickness occasionally to allow of being distended by fluid effused underneath, and, consequently, of the formation of a pustule. But, in most parts of the mucous membranes, the epithelium is so thin as not to allow of distention by the subjacent effusion of fluid: in these, of course, no pustule can be formed; but we observe the mucous follicle enlarged by inflammation, covered by a layer of whitish matter, very much resembling that in aphthæ, and sometimes ulcerated. Whether one or other of these appearances be found, will depend upon the different periods of the disease at which the examination of

¹ Trans. of a Soc. for the Imp. of Surg. and Med. Knowledge, vol. iii, p. 425.

the mucous membranes takes place. It is a curious fact that, throughout the mucous lining of the bowels, extending from the stomach to the rectum, there is no portion of it where the mucous follicles are so frequently affected by small-pox as that of the appendix vermiformis.

1233. "In regard to any affection of a serous membrane, I must repeat that I have never observed any thing either pustular or of the character of the affection of the follicles of the mucous membrane, which I have just described."¹

1234. V. *The Treatment*. The principles of the treatment are the same as in synochus, typhus, scarlatina, and all other fevers, and consist in attention to the following points :

1. A free state of the bowels.
2. Mere barley-water, or tea, for diet and beverage.
3. A cool or temperate state of the atmosphere.
4. Perfect repose in the recumbent position.

1235. It thus only remains to watch, as *in all fevers*, for the occurrence of *complications*, and meet each with a prompt and appropriate remedy.

1236. In stating the treatment of Variola, I must not omit to mention that it has been proposed to interrupt the progress of the eruption on the face, and to prevent pitting, by applying the nitrate of silver. This mode of treatment has been carried much farther lately by M. Gariel fils: this gentleman has covered the face, or considerable portions of the face with various applications, with the effect of preventing the progress of the eruption, and of greatly mitigating the constitutional disease.

1237. Besides the *Distinct* and *Confluent* forms of Variola which have been described, Dr. Thomson has described, in his interesting volume on the "Varioloid Epidemic" two other forms of Variola—

1. The Mild-Vesicular.
2. The Vesiculo-Pustular.

¹ Med. and Phys. Journal, New Series, vol. vii, p. 189.

1238. In the *mild vesicular* form of Variola, "the eruption has been almost always papular in its origin. In a small number of cases, in which the eruption has been scanty, the papulæ have become vesicular on the first or second day, have continued such nearly till their disappearance, which has usually happened before the end of the fifth or sixth day, and have left behind them only a slight roughness, or small thin scales upon the skin. The cases to which I allude have occurred in situations in which confluent and malignant small-pox existed, and to the contagion of which they could be distinctly traced. Had it not been for this circumstance, I should never have had any doubt of these cases having been examples of genuine chicken-pox. This variety might be termed *mild vesicular* small-pox."

1239. In the *vesiculo-pustular*, "the papulæ have from the first appeared vesicular; the vesicles, after continuing pellucid for two or more days, have become filled with a whitish fluid, sometimes resembling milk, and sometimes pus, which dried into small crusts or scabs. It was impossible, during the vesicular state of the disease in these cases, to say, whether the vesicles would become pustules; whether, when they became pustules, they would continue prominent, or become depressed in their centres; and whether they would decay by the sixth or by the ninth day. In this variety, though the disease might have been regarded as chicken-pox in its commencement, it was impossible, by any characters with which I am acquainted, to have distinguished it from small-pox, in its termination. This variety may be termed *vesiculo-pustular* small-pox."

1240. It will be obvious, at once, that a strict attention is required to *all* the varied forms of Variola, as it occurs in the unprotected, before we can either judge of the effect of previous Variola, or of Vaccini, in *modifying* the subsequent Variola, or enter into the question whether Varicella be a distinct or a merely modified disease. I now proceed to describe what is universally admitted to be—

III. *Modified Variola, (or Varioloid.)*

1241. This form of Variola occurs, 1, after previous Variola, natural, or inoculated; 2, after Vaccination.

1242. Mr. Bryce observes that such a second attack of Variola has at all times been a more frequent occurrence than is generally imagined; that the disease then assumes a milder form, and has been denominated *horn-pock* or *stone-pock*; and that it arises from the contagion of Variola, and is capable of inducing Variola in the unprotected,¹ in its turn.

1243. This form of Variola is distinguished by presenting small inflamed papulæ, which become vesicular or partially pustular, increase to the *fourth* and *fifth* day, and then decline, forming horny crusts, raised upon a firm tubercular base, which is distinctly perceived by the finger, if the effused fluid be evacuated on the *third* day.

1244. Mr. Bryce observes, "Since the time of the introduction of vaccination until lately, I have seldom had occasion to see the small-pox epidemic under a very severe form, and then the eruptions which appeared occasionally amongst the vaccinated on exposure to small-pox contagion, were almost entirely of that hard and tubercular kind which has been denominated the horn-pock; of late, however, while the small-pox raged in the neighborhood, and in several other districts in Scotland, under a more severe form than had been known in this country for perhaps upwards of forty years, the eruptive disease, with which those who had been vaccinated, as well as those who had formerly undergone an attack of small-pox, have been frequently affected, has also been observed to be considerably more severe; the eruption has been more numerous, and it has approached nearer in its progress to cases of mild and distinct small-pox, having been in many instances papular, vesicular, and frequently pustular, in succession. Of this kind I consider to have been the case of Dr. Monro's eldest son, and also some other cases which I had an opportunity of seeing about the same time. Most of these cases have, from their appearance, and the progress of their symptoms, been called chicken-pox by many medical men of great eminence and experience. I have long, however, regarded them to be, and it is a satisfaction to me to find that my opinion agrees with your observations that they really are, cases

¹ Thompson on the Varioloid Epidemic, p. 59.

of small-pox, modified or rendered milder by previous vaccination, or by a previous attack of small-pox ; and I am well convinced that this nearer approach to regular small-pox than what I formerly observed, is entirely to be attributed to a greater malignancy than usual in the nature of the lately prevailing epidemic ; and from what I have seen, I will venture to predict, that as the epidemic small-pox becomes more mild, the cases of eruption after vaccination will also become more mild, and that they will then be again generally observed under the form of that slight affection, the horn-pox.”¹

1245. [As the varioloid disease is capable of communicating the contagion of small-pox to the unprotected, its diagnosis becomes highly important. We insert the following characteristics from the valuable and splendid work of Dr. J. D. Fisher on small-pox.]

1246. “In the inflammatory character of the eruptive fever, in the seat of the eruption, in its early appearance, and in the infectious properties of the contents of the pustules, the varioloid disease does not differ from the original unmodified small-pox. The principal particulars in which it does differ from the true disease and by which it may in most cases be distinguished from it are the following : the precursory symptoms are less violent, and of shorter duration ; the eruption takes place rather sooner, and is more promptly completed ; the pocks are less regular in the order in which they invade the different regions of the body, and in their distribution over them ; they are seldom preceded or accompanied by an erysipelatous efflorescence ; they are more early and rapidly developed than in the unmitigated variola ; and are less distended with virus. The liquor secreted in them seldom becomes perfectly purulent, but remains serous and liquid. Desiccation takes place suddenly, and is quickly completed. The varioloid is not attended by a secondary fever, nor is it accompanied by the salivation, nor does it emit the unpleasant odor, which are so peculiar to the unmodified disease. The interstitial effusion, and the swelling of the face and eruptive surfaces are usually inconsiderable in the mitigated malady, and

¹ Thomson, *op. cit.* p. 62-64.

the skin after the scabs have fallen, is destitute of the redness which remains in it after the small-pox, and is distinguished only by a tubercular appearance, which however soon disappears. The most remarkable circumstances which distinguish the modified from the unmodified disease are the comparative mildness of its symptoms, the rapidity of its march, and the shortness of its duration."

IV. *Varicella*.

1247. [Varicella or *chicken-pox* is a mild disease accompanied with very slight fever, and an eruption of vesicles.]

1248. I. *The History*. This eruptive disease was first distinguished from variola by the late Dr. Heberden¹ and recently, more particularly by Mr. Bryce² and Dr. Abercrombie.³ It arises from contagion, and appears after a latent period of about *fourteen*⁴ days. The following is Mr. Bryce's beautiful description of its *symptoms* :

1249. "This eruptive disease generally attacks with little or no fever, the appearance of [an eruption] on the shoulders, neck, and breast, being often the first symptom observed. [This at first consists of small red spots or pimples, slightly elevated and disappearing on the slightest pressure. These are speedily converted into vesicles, which are sometimes small, and sometimes] when first seen, about the size of a split pea, perfectly transparent, and covered only by the cuticle, as thin as that separated by a scald or by a blister; they generally have at first an inflamed areola, but this seems also to be confined to the surface, and there seems to be little if any hardness in the true skin beneath or around them. On puncturing the vesicle, the clear lymph is wholly evacuated, the cuticle falls flat down, and very little if any hardness is perceived on passing the finger over the collapsed vesicles. The vesicles generally increase in number for several days; and while new vesicles are appearing on some parts of the

¹ Trans. of the Col. of Physicians, v. i, p. 427; and Commentarii.

² Thomson, op. cit. p. 59.

³ Ibid. p. 183.

⁴ The daughter of a friend visited a little girl affected with Varicella; the eruption appeared that day fortnight; it appeared in her sister and in her brother on the thirteenth and fourteenth days afterwards.

body, those which at first came out are beginning to shrivel, and the fluid contained in them has become somewhat milky. Many of them are broken by the second or third day, and have a small crust formed on the cuticle, which adheres to the skin beneath, and is surrounded by an opaque or milky fluid, confined by the shrivelled cuticle. When the eruption is numerous, the body has the appearance of having been exposed to a shower of boiling water, each drop of which had occasioned a vesicle or blister: and these are generally, on the second and third day, when turgid, broader at the summit than at the base. [But more commonly in children the irritation causes the vesicle to be broken by scratching, leaving only its inflamed base.] When the vesicles remain unbroken for four or five days, as is sometimes the case, the covering of cuticle, as well as the contained fluid, becomes opaque, and the latter purulent. The vesicle is then much flattened, and in this stage of the disease it is scarcely to be distinguished from small-pox, unless by the very thin, delicate, and shrivelled appearance of the covering cuticle."¹ [During the first days of the disease the eruption often increases by successive crops, but by the fifth or sixth day, it is succeeded by thin, brownish scabs.]

1250. Mr. Bryce adds,² in reference to the question of identity or difference of variola and varicella, that—

1251. "1. The character of this vesicular disease, or the chicken-pox, particularly during the first three days of the eruption, appears extremely unlike the character of the small-pox.

1252. "2. When this disease affects the unvaccinated, it maintains a character as mild and purely vesicular, as when it affects those who had been vaccinated.

1253. "3. Children who have been affected with this disease, have, within a month afterwards, undergone the process of vaccination in the most regular manner.

1254. "4. There is great difficulty, if not impossibility, of propagating this disease by inoculation.

1255. "5. I have never observed this disease giving rise to small-pox, nor small-pox giving rise to this disease."

¹ Thomson, *op. cit.* p. 64.

² *Ibid.* p. 75.

1256. Dr. Willan describes three forms of varicella :

1. The *V. lenticularis*, or Chicken-pox, [with the vesicles irregularly circular, and flattened at top.]

2. The *V. conoidalis*, or Swine-pox, [with the vesicles acuminate, and fluid pellucid throughout.]

3. The *V. globata*, or Hives, [with larger and globular vesicles. Sometimes all these varieties may be mixed in the same case.]

1257. II. In reference to the *Pathology* of Varicella, I have only to remark, that whilst variola appears to be a specific inflammation of the sebaceous glands, Varicella seems to consist in inflammation of the subcuticular cellular membrane more indefinitely : there is *no* central *indentation*, *no* tuberculous *hardness* ; there is superficial *vesication* rather than deeply seated *suppuration*.

1258. [The following diagnostic marks are from Dr. Fisher's work already quoted in a previous part of this chapter.

1259. In most cases the chicken-pox is, by the experienced observer, easily and readily distinguished from the small-pox. When, however, the former is extraordinarily violent, and the latter unusually mild, the distinguishing marks are obscure, and the two diseases are, therefore, frequently confounded.

1260. In *small-pox* the fever is ushered in by a cold stage, is severe and continues three or four days, and if it declines or ceases during the eruptive process, it commonly reappears during the suppurative stage, or between the fifth and eighth day of the eruption.

1261. In *chicken-pox* the fever is not often preceded by a cold stage, is uniformly light, and is frequently insensible ; it seldom continues more than two days and never reappears after it has once ceased. When, however, the vesicles appear in successive crops, the fever lasts longer, and continues until the eruption is completed.

1262. In *small-pox* the eruption does not break out until the third or fourth day of the fever ; it appears first on the face, then

on the neck, chest, trunk, and extremities, and is completed in the course of two days.

1263. In *chicken-pox* the eruption breaks out by the termination of the first or on the second, and almost invariably before the end of the third day of the fever; it usually appears first about the breast and shoulders, afterwards on the face and extremities. It frequently appears in successive crops for four or five days.

1264. In *small-pox* the eruption presents itself in the form of small red circular points or papulæ; these are hard, resisting and moveable, and communicate to the finger a shot-like sensation. They scarcely project above the surface, but are easily and distinctly felt by drawing the finger over them.

1265. In *chicken-pox* the eruption likewise breaks out in small inflamed spots, but these are not papular in their origin, and are not exactly circular, but tend to an oblong figure. They may be distinctly felt by the finger, but they are yielding under it, and are destitute of the tubercular hardness and rolling motion which characterize the variolous eruption at the same period.

1266. In *small-pox* the eruption seldom becomes vesicular before the end of the second or the commencement of the third day, and the vesicles are confined to the summits of the pocks.

1267. In *chicken-pox* the eruption is vesicular from the beginning, or from the early part of the first day, and by the second day the whole surface of the pocks are converted into vesicles which resemble little bladders of transparent fluid.

1268. In *small-pox* the pustules at first have acuminate summits; they afterwards become rounded, and at an early period present slight depressions in the centre of their surfaces.

1269. In *chicken-pox* the vesicles are usually lenticular in form, but are sometimes conoidal or globate, and preserve one shape through their course, or until they become ruptured.

1270. In *small-pox* the eruption is situated in the substance of the cutis, as has been proved by dissection, and as is evident from the sensation which the pustules communicate to the finger.

1271. In *chicken-pox* the vesicles are not formed in the true

skin, but are situated upon its surface in the cellular tissue, between the skin and cuticle.

1272. In *small-pox* the pustules are composed of little cells, all of which, however, communicate with each other, and the cuticular coverings of the pocks are opaque, tough, and not easily broken.

1273. In *chicken-pox* the vesicles are composed of a single cavity, and the coverings are extremely thin, fragile, diaphanous and very easily broken.

1274. In *small-pox* the pustules are at an early stage filled with a serous secretion; this, after a time, becomes converted into a purulent matter, that exhales a very unpleasant and peculiar odor.

1275. In *chicken-pox* the vesicles contain, when fully matured, only a whitish transparent and serous fluid; this never, except through accident, becomes pus, and is destitute of any ungrateful odor.

1276. In *small-pox* the pustules remain whole until they are six or seven days old, when some of them commonly become ruptured, and permit a little of the virus to ooze out upon their surface; but they still retain their form and prominency.

1277. In *chicken-pox* the vesicles often become broken in two or three days after their appearance, and permit the whole of their contents to escape; their coverings then sink down and collapse, and the vesicles become flattened, and lose their original form.

1278. In *small-pox* the pustules break out simultaneously, pursue a regular march, and arrive at maturity about the same time.

1279. In *chicken-pox* the vesicles generally break out in successive crops for a number of days, in which case a great variety may be observed among them; some are appearing while others are fully formed, shrivelled or crusted.

1280. In *small-pox* desiccation does not commence till about the eighth day from the appearance of the eruption.

1281. In *chicken-pox*, when the vesicles run their course without bursting, desiccation commences in them as early as the fifth day of their age, but it always begins as soon as the vesicles are

ruptured, and, consequently, it more usually commences on the third or fourth day, and sometimes as early as the second day after they appear.

1282. In *small-pox* the processes of eruption, of suppuration, and of desiccation, constitute three successive periods, rendered distinct from each other by their duration ; the first occupies about three days, and the other two about five days each.

1283. In *chicken-pox* these three periods seem to be confounded, in consequence of the pocks appearing in successive crops, and even when they are distinguishable, the sum of their duration seldom exceeds eight days.

1284. In *small-pox* a general swelling of the cutaneous surface takes place just before the pustules begin to desiccate : this swelling is greatest in the face and hands, and in some instances the eyelids are so much swollen that the eyes become closed, and the patient for a time is deprived of sight.

1285. In *chicken-pox* desiccation is never preceded by any extensive swelling of the cutaneous surface.

1286. In *small-pox* the scabs fall off in a single piece.

1287. In *chicken-pox* the scabs do not usually fall off in a single piece, but in small fragments, of different forms and sizes.

1288. In *small-pox* one of the most peculiar and prominent characters is the purplish color, which remains for a long time upon the surfaces of those who have had the disease.

1289. In *chicken-pox* the marks remaining in the skin, after desquamation, are but slightly colored, and the redness, if apparent, soon disappears.

1290. In *small-pox* the scars which remain permanently in the skin are irregular in figure, and present uneven surfaces.

1291. In *chicken-pox* the scars left permanently in the skin by the vesicles, are usually regular in figure, and present smooth surfaces.

1292. The *small-pox*, even when distinct and of moderate mildness, is a disease of fifteen or twenty days in duration, and it often proves fatal.

1293. The *chicken-pox*, on the contrary, runs its course and

is completed in five or six days, or in eight or ten at most, and it never, of itself, proves fatal.

1294. Lastly. The *small-pox* has the same power of communicating the variolous disease, either by contagion or by inoculation.

1295. The *chicken-pox* has no such power, and is incapable even of giving rise to a disease of its own kind, by inoculation. These are the principal circumstances which distinguish the chicken-pox from the true, unmodified small-pox. But the distinctions between the chicken-pox and the varioloid disease, or the small-pox, in its modified form, are less striking and less easily recognized. The following peculiarities, however, may generally be observed in the two diseases, and will, in most cases, lead to a correct discrimination.

1296. The *chicken-pox*, as has already been stated, is distinguished by the eruptive fever being generally light.

1297. In the *varioloid disease* the precursory fever is commonly sharp, and of several days duration.

1298. In *chicken-pox* the eruption appears in the form of vesicles, or it is vesicular at least from an early period of the first day.

1299. In the *varioloid disease* the eruption is always papular in its origin, and seldom becomes vesicular before the second or third day.

1300. In *chicken-pox* the eruption breaks out by degrees, or in successive crops, and seldom or never in a sudden and simultaneous manner.

1301. In the *varioloid disease* the eruption appears all at once, and seldom breaks out in successive crops.

1302. In *chicken-pox* the vesicles, when fully formed, are destitute of any peculiar hardness or swelling at their bases, and are distinguished by the thinness and fragility of their coverings.

1303. In the *varioloid disease* the pocks are, in the first instance, elevated on solid tubercular bases, and their tops are resisting and not easily broken.

1304. In *chicken-pox* the eruption is situated in the cellular tissue, between the cuticle and true skin, as may be perceived

by opening the vesicle and examining its edge after the lymph has run out.

1305. In the *varioloid disease* the eruption, as in the unmodified variola, is formed in the substance of the true skin, as is evident from the hard and elevated bases which remain after the lymph is removed from the pustules by puncture and pressure, and by the kernels or tubercular elevations which remain in the skin after the scabs have fallen off.

1306. In *chicken-pox* the vesicles, for the first three days, or until they are fully formed, are soft and yielding, and communicate to the finger a sensation similar to that which a minute globule of fine sponge would occasion on being pressed.

1307. In the *varioloid disease* the pocks, from their first formation, are hard and unyielding, and are moveable and rolling under the finger.

1308. In *chicken-pox*, if during the first day of the eruption, the parts on which it exists be embraced by the thumb and finger, and gently distended by them, or if a single finger be drawn over them with a force just sufficient to cause the little rugæ of the cuticle to become smooth, the inflamed spots, in which form the vesicles first present themselves, readily disappear, and leave no discoloration or induration in the skin.

1309. In the *varioloid disease*, if a like distention of the parts occupied by the eruption, be made at the same date, the inflamed spots disappear less readily, and even when the distending force is sufficiently great to make them disappear, a dim discoloration can be perceived, and a distinct shot-like hardness may be felt at the points upon which they were planted.

1310. In *chicken-pox*, if the eruptive surface be put into a state of moderate distention, on the second and third days after the eruption breaks out, by the thumb and finger acting in opposite directions, the inflamed borders of the vesicles quickly vanish, and the vesicles themselves, on a slight increase of that distention, gradually subside and finally disappear.

1311. In the *varioloid disease*, if on the second or third day of the eruption, or after it has become vesicular, the eruptive surface be distended in the manner just mentioned, the areolæ which surround the pustules, and likewise the little vesicles

which are formed at their summits, will vanish, but even an increased distention of the parts will not obliterate the bases and bodies of the pocks. They will still remain round, hard and prominent. These experiments and observations should be made during the first three days of the eruption, and always before the vesicles of the chicken-pox become broken, or their fluid contents grow thick and turbid. For it should be remembered, that the chicken-pox eruption sometimes acquires a tubercular base, and the varioloid eruption loses it about the third day.

1312. The *chicken-pox* is never communicated by the varioloid, or the true, unmodified small-pox.

1313. The *varioloid disease* may be communicated by the variolous disease, both modified and unmodified.

1314. Lastly. The *chicken-pox* never gives rise to the varioloid disease, or the true small-pox, either by contagion or by inoculation.

1315. The *varioloid disease* has the power of communicating the unmodified and modified small-pox, either through the atmosphere or by inoculation.]

1316. III. In general, *no treatment* is required in chicken-pox. An open state of the bowels; barley-water for diet and drink; a cool atmosphere; perfect quiet and repose, are the sole remedies.

VACCINIA.¹

1317. [Vaccinia, or *cow-pox*, is a disease communicated by inoculation, attended with one or more vesicles, which are confined mostly to the inoculated part, and are circular, semi-transparent, depressed in the middle, and surrounded by a red areola.]

1318. I. *The History.* According to Dr. Jenner, the matter of the *Grease*,² a disease in the heel in horses, is conveyed to

¹ "The most valuable communication ever made to the public."—Wollaston.—*Baron's Life of Jenner*, p. 374.

"The discovery of Vaccination as a preventive of Small-pox, is the most important event which the History of Medicine can furnish," and "has conferred immortality on the name of JENNER."—*Willan*.

² Compare Jenner's *Inquiry into the Variolæ Vaccinæ*, 1803, p. 1—8; and Bryce on the *Inoculation of Cow-pox*, ed. 2. Edinburgh, 1809, p. 17; 22.

the nipple of cows, and thence to the dairy-maids who are "for ever secure from the infection of small-pox!"

1319. On the nipple of the cow it appears in the form of irregular pustules, which are, at first, of a palish-blue or livid color, and surrounded by inflammation; these pustules are apt to degenerate into phagedenic ulcers.

1320. On the fingers and wrists of the milkers inflamed spots appear, issuing in small vesications and superficial suppurations, of a circular form, with edges more elevated than the centre, and of a color distantly approaching to blue. There is fever, but no general eruption.

1321. These facts, vaguely known to the people of Gloucestershire, remained barren and fruitless until they suggested to the philosophic mind of Jenner the idea of Vaccination with all its momentous consequences!

1322. II. *The Characteristics of Vaccinia.* On the *third* day after Vaccination, an inflamed point is observed, and this is augmented on the *fourth* day, with *redness* and *hardness* under the finger. On the *fifth* day a small pale *vesicle* is observed, which is turgid and depressed in the centre, and *without areola*. On the *sixth* and *seventh* days the vesicle enlarges, remains circular, with a regular and well-defined margin, more turgid edges, more depressed centre, with a small crust.

1323. At this period the vaccine vesicle is strongly characterized, and very different from variola: it is divided into distinct cells, like a honey-comb, so that a puncture does not evacuate the whole of the fluid, as in the latter disease; and unlike variola, it is free from surrounding areola.

1324. It is between the *seventh* and *eighth* days that an inflamed areola *begins* to form. This augments during the *ninth*, *tenth*, and *eleventh* days, remaining circular, and becoming, from one and a half to two inches in diameter, deeply red, hard, and tense. The central crust becomes darker, and the turgid margin shining, as if the lymph were assuming the character of pus.

1325. About the *eleventh* day the vesicle has attained its acme, and the surrounding areola begins to subside, *from the centre towards the circumference*, where it leaves at last a mere *ring*.

1326. The fluid in the vesicle becomes turbid, and rapidly forms into a smooth, shining, semi-transparent crust of a dark-brownish color. This crust sometimes adheres for one or two weeks. "It leaves a permanent circular cicatrix, about five lines in diameter and a little depressed, the surface being marked by many minute *pits* or indentations, denoting the number of cells, of which the vesicle had been composed."¹

1327. In some cases there are chills, fever, and headach; but these usually soon subside. [They are more frequently experienced by adults than by children. Infants ordinarily discover little or no inconvenience from vaccination. The best time for vaccinating is at the age of from two to six months.]

1328. III. *The diagnosis.* The vaccine vesicle should be carefully examined every *third* day—the *fourth*, the *seventh*, the *tenth*, and the *thirteenth*, from inoculation. The appearances at these periods are stated in the following table, which may be compared with that, § 1209.

On the 4th day there is a distinct hardness.

———— 7th —————	a distinct circular vesicle, of a cellular structure, with a central indentation and crust, and an elevated margin.
———— 10th —————	a vesicle at its acme; an enlarged central crust; a turgid, cellular margin; a red, hard, tense, and broad areola.
———— 13th —————	a hard crust; areola gone.

1329. Very different is the result of inoculation of variola: in this case the cutaneous affection consists of *several distinct pustules*, which unite and give an irregular form; there is no central crust; the contained fluid is formed in *one cavity*, becomes distinctly *purulent*, and dries into a thin, rough, and *opaque* scab. In the case of variolous inoculation we have also an eruption of pustules on the general surface, and a contagious disease.

1330. The phenomena described § 1323—1327, leave no doubt in reference to the perfection of the vaccine vesicle. But

¹ Willan on Vaccination, p. 10.

we are indebted to Mr. Bryce for a further criterion of true and perfect vaccination. This criterion consists in the result of *reinoculation* on the *fifth* or *sixth* day.

1331. If the *previous* vaccination has been efficacious, the second induces a miniature vesicle, which runs its course more rapidly. The areola, which appears on the *seventh* or *eighth* day of the *first* vaccination, appears very shortly—a few hours—later, only, in the *second*; the two areolæ then *augment* and *fade, together*.

1332. This *test* of perfect vaccination is beautiful, both in principle and practice.¹ Dr. Jenner observes, in a letter to Mr. Bryce, dated April 5th, 1803, “I much admire your precaution in using a *test* of the certainty of infection; and your ingenuity in the manner in which you employ it. To all young vaccinators it cannot be too strongly enjoined. The *experienced* will determine from the character of the pustule. The evidence before the House of Commons evinces the propriety of your observations.”²

1333. Whenever *any* deviation from the perfect and genuine vaccine vesicle arises, common prudence, as Dr. Jenner remarks, points out the necessity for revaccination. It may be well, however, to notice the different forms of the

II. IMPERFECT VACCINA.

1. The Vaccine Pustule.
2. Ulceration.
3. Irregular Vesicles.
4. Deficient Areola.

¹ Mr. Bryce was led to this discovery by remembering some experiments in inoculation for variola. He observes, “It was found, if the person was inoculated every day until the fever induced by the first inoculation supervened, all the other punctures quickly advanced in their progress; and that, in the course of a day from the time the fever or general affection began, even that puncture which had been last made, perhaps only twenty-four hours before, equalled in maturity the one first made, perhaps eight or nine days before, and from which the fever had arisen.” On the Inoculation for Cow-pox, by James Bryce, F. R. S. E., ed. 2; Edinb. 1809, p. 159.

² Baron's Life of Jenner, p. 536.

1334. I. *The History.* It has been ascertained that Vaccination may be imperfect or insufficient,—1. When the fluid employed has lost some of its properties. 2. When persons inoculated are soon afterwards affected with any contagious or eruptive fever. 3. When they are affected at the same time with some cutaneous disorders, as Herpes, Psoriasis, Impetigo, Lichen, Porrigo; and perhaps Scabies and Prurigo. [Chronic eruptions, while present, are exceedingly apt to retard the growth of the vaccine vesicle, but do not always frustrate it. Except in urgent cases, children should not be vaccinated when any considerable eruption is present.]

1335. The pustule or ulceration may arise from the use of effete or altered virus, or from the presence of chronic cutaneous eruptions. The vesicle without an areola arises when the patient has previously received the infection of small-pox, or is affected with some other contagious disease.

1336. II. *The Symptoms.* Imperfect Vaccination is denoted, in different instances, by the appearance of pustules, ulcerations, or vesicles of an irregular form.

1337. 1. The Vaccine Pustule is conoidal; it increases rapidly from the *second* to the *fifth* or *sixth* day, when it is raised on a hard inflamed base, with a premature diffuse redness extending beyond it on the skin. It is usually broken before the end of the sixth day, and is soon after succeeded by an irregular yellowish-brown scab. The redness disappears within a day or two, and the tumor gradually subsides. This pustule resembles the suppuration induced by the presence of a thorn; it contains a straw-colored opaque matter.

1338. 2. The Ulceration probably arises from the vaccine pustule, when it is rubbed or scratched off at an early period.

1339. 3. The Irregular Vesicles are of three kinds. 1. A single pearl-colored vesicle, set on a dark-red base, slightly elevated. It is larger and more globate than the pustule; but it is much less than the genuine vesicle, its top is flattened, or sometimes a little depressed, but the margin is not rounded or prominent. The areola is usually diffuse, and of a dark rose-color. 2. A vesicle which appears cellular, like the genuine Vaccination, but somewhat smaller, more sessile, and having a sharp

angulated [or serrated] edge. The areola is sometimes of a dilute scarlet color, radiated, and very extensive, as from the sting of a wasp; sometimes it is less extensive. The areola appears round these vesicles on the *seventh* or *eighth* day after inoculation, and continues more or less vivid for three days, during which time the scab is completely formed; it is smaller and less regular than that which succeeds the genuine vesicle, falls off sooner, and leaves a smaller cicatrix, which is sometimes angulated. 3. The third Irregular vesicle is unattended with areola.

1340. Under this head I must present my reader with the facts ascertained by Dr. Willan relative to the reciprocal influence of Variola and Vaccinia. Dr. Willan observes—¹

1341. “1. When a person is inoculated with vaccine and variolous matter, at the same time, both inoculations prove effective; the vaccine vesicle proceeds to its acme in the usual number of days, and the maturation of the variolous pustule is attended with a pustular eruption on the skin.

1342. “2. These effects take place without much variation, when the *interval* between the two inoculations does not exceed a week; but when variolous matter is inserted on the *ninth* day after the vaccine inoculation, its action seems to be wholly suspended.

1343. “The vaccine and variolous fluids, inoculated about the same time, do, however, restrain the action of each other on the human body,² so that in some cases the vaccine vesicle is smaller than usual, and has a very slow progress, in other cases the areola is scarcely perceptible; while, in others, it is large but premature:—the variolous eruption consists of hard, distinct, shining pustules, which have but little inflammation around them, and which seldom maturate. Some of these pustules are tuberculated. The small quantity of matter in them soon disappears, leaving the cuticle which confined it horny and elevated for many days afterwards. The rest of the eruption is minute and papulous, not suppurating, but desquamating.”³

¹ On Vaccination, p. 2.

² Compare § 1331;—and p. 326, note.

³ Willan on Vaccine Inoculation, p. 4.

1344. The variolous pustule and the vaccine vesicle, *in these cases*, produce, by inoculation, variola and vaccinia respectively ; the double inoculation does *not*, therefore induce, as was formerly imagined, a *hybrid* disease.

1345. *Of Inoculation.* The transparent lymph of the vaccine vesicle is the proper material for inoculation. At an early period of the vesicle, as the *fourth* day, its quantity is too small ; during the *seventh*, *eighth*, and *ninth* days, sufficient lymph exudes, on making several incisions through the cuticle into the *cells* of the vesicles, and waiting a minute or two. At a *later* period this lymph dries into the transparent crust which has been described § 1326 ; but a degree of *suppuration* goes on underneath : this *pus* is inert, of course, being the result of mere common inflammation, but the *source* of many errors on the part of the early vaccinators.

1346. The lymph thus obtained is allowed to dry, and is then preserved between pieces of thin plate-glass, [or for short periods on the points of quills], until it is required for vaccination. The *transparent* crust, pulverized and moistened, may be used for the same purpose.

1347. Variolation was not *always* safe to the individual, and was a source and centre of contagion to the public ; but

1348. Everything in the history of Vaccination concurs to render its victory over Variola as complete as any achievement in medicine !

1349. [*Re-vaccination.* The small-pox and vaccine disease, measles, scarlet fever, hooping-cough, mumps, typhoid fever and some others, are entitled to the name of *protective* diseases, being but rarely had a second time by the same individual. But under peculiar circumstances of the constitution or of the atmosphere, each of these diseases is liable to recurrence. Small-pox, more particularly in the form of varioloid, appears both sporadically and epidemically, in certain cases ; affecting commonly, with the milder form of the disease, those who have had it before, or who have been vaccinated. On this account it is by many thought useful to repeat vaccination, at intervals, as long as it produces any marked effect on the place of insertion. Each successive vaccination produces a diminished and spurious vesi-

cle. But in some cases the first re-vaccination gives an imitation of the original disease so perfect as to be with difficulty distinguished. In some very extensive experiments made on the troops in Prussia and Wirtemberg, it is said that one third of those re-vaccinated had the genuine vesicle. In the London Lancet of Jan. 1839, is published a collection of statistical results from observations made in England, France, Germany, Italy, Sweden, and Denmark; from which it appears that persons most recently vaccinated are the least liable to take the small-pox or cow-pox, on re-vaccination, and that, on the other hand, the susceptibility to these diseases increases with the length of time which has elapsed since vaccination. Re-vaccination is recommended as the most effectual safeguard.

1350. Some doubts have been entertained on account of a supposed deterioration in the power of the virus during a lapse of years, and on this account matter has been repeatedly, and in one instance quite lately, obtained from its original source, the cow. On the whole, we have little cause in this country to be dissatisfied with the protective power of vaccination. This is abundantly shewn by the comparative rarity and greatly diminished fatality of small-pox, among those who have been properly vaccinated, in all our cities.]

CHAPTER III.

ON RHEUMATISM, ARTHRITIS, ERYSIPELAS, ETC.

1351. THE diseases of which I have hitherto treated, are, principally, diseases of the general system, to which local complications are frequently added. The same remark may properly be applied, although with a less degree of force, to the diseases which I am now about to bring under the notice of my reader.

1352. Pure inflammation itself has been considered by some observers as the result of a previous febrile affection.¹ It is more generally regarded, however, as the cause of the accompanying fever. What shall we say of Rheumatism? There can be less doubt of the constitutional origin of Arthritis, of Erysipelas, of Furunculus, Paronychia, and Carbuncle.

1353. Whenever a disease arises from a constitutional source, it is apt to appear in more organs or parts than one :—Now, we have occasionally inflammation in several organs simultaneously : meningitis, and especially pleuritis, occasionally coexist with peritonitis ; occasionally pleuritis, or pneumonia is double, or combined with pericarditis. In such cases there is generally a constitutional cause in operation, and the malady bears a far more serious prognosis. But Rheumatism is, in general, a more diffused disease : externally and internally it is apt to assail several parts simultaneously. As to Arthritis, there is little doubt that it is of constitutional origin ; and the same remark applies to Erysipelas, boil, whitlow, and carbuncle.

1354. This is a *practical* view of the subject. The modes of prevention and of the treatment are alike suggested by it : dis-

¹ See particularly the Examen de l'Examen de M. Broussais, par M. Louis ; Paris, 1834 ; p. 36—38.

eases apparently so dissimilar, are thus naturally and usefully grouped together :—

I. INFLAMMATION.

- I. Serous.
- II. Parenchymatous.
- III. Mucous.

II. RHEUMATISM.

- I. Acute.
 - 1. External.
 - 2. Internal.
- II. Chronic.

III. NODOSITY.

IV. ARTHRITIS.

- I. Acute.
 - 1. External.
 - 2. Internal.
- II. Chronic.

V. ERYSIPELAS.

- I. Phlegmonodes.
- II. Erraticum.
- III. Œdematodes.
- IV. Gangrænosum.

VI. ERYSIPELAS NASI.

VII. FURUNCULUS.

VIII. PARONYCHIA.

IX. CARBUNCLE.

I. INFLAMMATION.

1355. I have little to say upon inflammation in this place, having treated the subject fully already. I shall merely make a few *practical* remarks upon it.

1356. I. *The History.* Among the most usual *causes* of Inflammation is exposure, and especially *partial* exposure, to cold and damp. It is then generally *simple*, that is, confined to one texture or organ. It is frequently, however, a *complication* of other diseases or states of the constitution : it is then apt to be more *diffused*, and it is more disposed to induce morbid changes, and less to undergo the processes of resolution and reparation. This fact is so important that pleuritis, for example, may be regarded as a curable, or as a formidable disease, according as the previous health of the patient was good or impaired.

1357. II. *The Modifications* of Inflammation. Besides the modification of inflammation induced by the condition of the general system, others are induced by the difference of textures of the part affected. We have, hence, the various forms of Inflammation seen in the—

- I. Serous,
- II. Parenchymatous, and
- III. Mucous, textures,

already noticed.

1358. III. *The Symptoms.* Inflammation of the *serous* membranes is chiefly seated in the

- I. The Pia Mater,
- II. The Pleura,
- III. The Peritoneum.

It is distinguished, generally speaking, 1, by *acute pains* ; 2, by the absence of the heat of surface, debility and tremor of the muscles, the aching pains, the affection of the head, the hurry of breathing, &c. observed in fevers : and, 3, by extreme tolerance of loss of blood.

1359. Inflammation of the *Parenchyma* of organs is seated in the brain, the lungs, the liver, &c.

1360. *The Symptoms* of this form of Inflammation are, in some respects, intermediate between those of serous and mucous inflammation ; but they approximate far more to the former than the latter. There is less pain ; and there is less tolerance of loss of blood.

1361. Inflammation of the *Mucous* membranes is principally seated in—

- I. The Bronchia,
- II. The Intestinal Canal,
- III. The Urinary Organs,
- IV. The Uterine Organs.

It is characterized, 1, by less pain, and 2, by far less tolerance of loss of blood than inflammation of the *serous* membranes, or even of the *parenchyma* of organs.

1362. IV. *The Morbid Anatomy* of Inflammation has been already fully given.

1363. V. The same remark applies to the *Treatment*.

II. RHEUMATISM.

1364. Rheumatism occurs in the Acute, Chronic, and Intermediate forms, and is external or internal in its seat.

I. *Acute Rheumatism.*

1365. I. *The History.* The Acute Rheumatism usually arises from exposure to wet and cold, and affects the young, the athletic, and the male sex principally. Chronic Rheumatism is more frequent in females, the old, and the infirm; and it is a frequent *sequela* of the acute form of the disease.

1366. [The subject of the causes of Acute Rheumatism has recently been a matter of dispute between M.M. Chomel and Bouillaud, who have both written upon the disease in question. Unfortunately the only result arrived at is this, that the patients of M. Chomel, who are severely cross-questioned, do not give unequivocal testimony as to the agency of cold in producing their rheumatic affections; while those of M. Bouillaud universally assign it as the cause. It may be uncharitable to suppose, that in the one case the patients are questioned out of their real opinions, and in the other are led, by the manner of examination, to give an answer in accordance with the avowed notions of the questioner; but some such cause of discrepancy must exist,

and the subject should be studied by those who are indifferent as to the results of inquiry. It is at least certain that cold is among the more common causes of rheumatism. M. Bouillaud found that cold was the cause of rheumatism fifty times in fifty cases ; M. Chomel only twice in nine cases.]

1367. II. *The Symptoms.* The Acute Rheumatism is denoted by a painful affection of several or most of the limbs and *large* joints, accompanied by tenderness, and a slight degree of tumor, and of redness. The joints, and of course the muscles, are principally and successively, affected ; the pain is comparatively slight during a state of rest, but rendered excruciating on muscular motion or effort.

1368. Acute Rheumatism is further characterized by a great expression of pain, with excessive perspiration on the forehead, and a loaded and moist state of the tongue. The patient generally lies on his back, and especially avoids every motion of the body or limbs ; or, if he does move, he experiences an acute aggravation of pain, calls out, and gives a prompt check to the muscular effort. There is little languor or debility, little disturbance of the mental faculties. The general surface is usually covered with perspiration, which is usually *acid* ; the skin is warm, pale, and often profusely moist ; frequently with miliaria, and a peculiar odor is exhaled. The pulse is frequent, strong, and full. The functions of the head are unaffected. The appetite is sometimes little impaired. The bowels regular. The urine is *acid*, and deposits a sediment of the lithates, especially on the decline of the affection.

1369. III. *The Complications or Metastases.* The subject of Internal Rheumatic Affections is one of the very deepest interest, and still demands a renewed and connected investigation.

1370. Rheumatism of the Heart is that form of internal Rheumatism best known. It was first distinctly pointed out to the pupils of St. Bartholomew's by Dr. Pitcairn in 1788 ; afterwards it was particularly noticed by Dr. Baillie,¹ by Dr. Odier

¹ See the Morbid Anatomy.

of Geneva,¹ Mr. David Dundas,² and Dr. Wells;³ and it has been recently noticed by Dr. Latham,⁴ Dr. Watson,⁵ and particularly by M. Bouillaud,⁶ &c. The last-named author lays an unjust claim to originality, in reference to Rheumatic Carditis; but he has distinguished, with great force, the external and internal forms of this disease under the apt designations of Pericarditis (*περὶ, around, καρδία, the heart*), and of Endocarditis (*ἐνδον, within*).

1371. [No writer has insisted as forcibly as M. Bouillaud on the frequent connection of disease of the heart with Rheumatism. In his Treatise on Diseases of the Heart he asserts that pericarditis exists in about half the cases of acute articular rheumatism. In his Researches on Rheumatism, he states the proportion of pericarditis and endocarditis in this affection as about one third. In the cases reported by M. Grissole, Chef de Clinique of Chomel, two out of seven gave evidence of affection of the heart. Of eighty-five cases related by Dr. McLeod, the heart was affected in eighteen, rather more than one fifth.]

1372. The head; the pleura, and the lungs; the liver, and some of the other abdominal viscera, have also been supposed to be affected by Rheumatism. But the extent and the limits, the history, the diagnosis, and the pathology, of Internal Rheumatism, are still to be ascertained. It may exist as a *complication* of external Rheumatism, or it may take its place by *metastasis*. It then affects,

1. The Pia Mater and Brain.
2. The Pleura and Lungs.
3. The Pericardium and Heart.
4. The Pleura and Diaphragm.
5. The Peritonæum, the Liver,⁷ &c.

¹ Manuel de Médecine Pratique, 1803.

² The Med. Chir. Trans. vol. i, p. 31.

³ Trans. of a Soc. for the Imp. of Med. and Surg. Know., vol. iii, p. 372.

⁴ London Med. Gaz. vol. iii, for 1828-1829.

⁵ Ibid. vol. xvi, for 1833, p. 56.

⁶ Traité Clinique des Maladies du Cœur; Paris, 1835; and Nouvelles Recherches sur le Rheumatism; Paris, 1836.

⁷ My reader may compare the Trans. for Imp. vol. iii, p. 411; the Clinique of M. Andral, vol. i, p. 4; 472; vol. ii, p. 167; the Trans. of the Irish Col. of Phys. vol. iii, p. 291; the Dublin Hospital Reports, vol. ii, p. 321, &c.

1373. It must be admitted to be remarkable, that so many who have written *expressly* upon Rheumatism, have failed to observe its tendency to induce organic affection of the heart.

1374. Dr. Fordyce observes, "The disease seldom proves fatal." "Out of 87 cases, only two proved fatal. One was markedly a very sudden and unexpected transition to the brain. In the other, the disease seemed to be suddenly transferred to the vital organs, producing the most violent dyspnœa, and speedily proving fatal."¹

1375. Dr. Haygarth says, "Physicians have observed that the Acute Rheumatism is seldom, or never a fatal disease. This observation may be true, and is confirmed by my own experience, while it remains in its proper seat, the muscles and joints, and when not combined with other mortal maladies. But out of 170 cases, I have found 12 which had a fatal termination, either by a translation of the inflammation to the brain, lungs, kidneys, stomach, or some other vital part, or as being found in combination with other diseases." He deduces the following conclusions from his observations: "1st, that seven fatal cases were combined with phrenitis; 2nd, that three cases terminated with a sudden and violent diarrhœa, two of them combined with phrenitis, and the third with convulsions; 3rd, that in one case, when the pain and swelling receded from the joints the patient was attacked with shortness of breath, cough, and spitting of blood, which soon terminated fatally; 4th, that in three of the fatal cases the patients were so faint and languid that they were apprehensive of falling into a syncope; 5th, that in two cases miliary eruptions accompanied the Rheumatism; 6th, that in one there was a suppression of urine; and 7th, that one was combined with a typhus fever, and aphthæ on the tongue and throat."²

1376. We cannot but read the following paragraph of Heberden with surprise:—"Rheumatismi acuti dolores rarissime relinquunt articulos, et in viscera transeunt."

1377. IV. *The Diagnosis.* These complications of Acute

¹ Medical Reports on Rheumatism; 1795, p. 266.

² Clinical History of Diseases; 1805, p. 61.

Rheumatism are distinguished by the same means as similar affections purely inflammatory. It is only necessary that the young physician should be warned of their frequency, and especially of that of affections of the *heart*, in the course of the original disease. He is thus led to *watch* for them, to detect them *early*, and to treat them *promptly*, as well as energetically.

1378. But, besides this list of Internal Rheumatisms, there is a series of rheumatic affections of the parietes of the cavities, which it is very essential to distinguish. These are,

1. Of the Head ; hemicrania ; or cephalodyne.
2. Of the Thorax ; or pleurodyne.
3. Of the Diaphragm.
4. Of the Parietes of the Abdomen.
5. Of the Loins ; or Lumbago.

1379. V. *The Morbid Anatomy* consists principally in thickening of the articular fibrous textures,—the ligaments, cartilages, and periosteum ; and of effusion into the joints and bursæ.

1380. VI. *The Treatment*. The first remedy in Acute Rheumatism is general blood-letting. [It is recommended by various authors, but frequently found unavailing.] This operation [if resorted to] must be conducted on the principles already explained. There is, as in inflammation of the serous membranes, great tolerance of loss of blood ; but Rheumatism is less under the control of blood-letting than inflammation.

1381. [M. Bouillaud has carried bleeding in rheumatism as in other acute diseases, to a very great extent, and professes to have derived from this mode of treatment the most advantageous results. The medium quantity of blood drawn in a vigorous subject is four or five pounds in a violent case. In some cases as much as eight pounds, in mild cases only two or three pounds are taken. M. Bouillaud asserts that rheumatism treated in this manner lasts only one or two weeks, instead of six or eight. The reviewer of the works of Chomel and Bouillaud in the British and Foreign Quarterly Review remarks that the practice resembles that employed in Edinburgh during the reign

of the Cullenian doctrines, so that it has been once tested. He adds, that as acute rheumatism is rarely fatal under other modes of treatment, even if the plan of bleeding "coup sur coup," should be capable of materially abridging the disease, he should regard this as a trifling argument in favor of depletion carried to such an exhausting extent. But M. Chomel, admitting M. Bouillaud's facts, endeavors to show that the average duration of the disease is not abridged by the treatment in question. Dr. Leroni of Manheim has published some cases and remarks in the *Heidelburgh Medical Annals* tending to shew the dangers of M. Bouillaud's method, which he believes liable to fix the affection on a single articulation, to favor the development of internal disease and to produce a higher state resembling hectic. The opinion that blood-letting in rheumatism is apt to produce disease of the heart has long been entertained by the English physicians. It might be suspected that there is some connection between the frequency of pericarditis and endocarditis in the wards of M. Bouillaud and the great extent of depletion to which his patients are subjected.

1382. Some attention was excited a few years since by an Essay in the *Boston Medical and Surgical Journal*, recommending the use of opium in large doses in the strongest terms, as a remedy for rheumatism. From the remarks of different practitioners in this city, it appears that they have not obtained the same results as the advocates of this practice, Drs. Mauran and Webb, of Providence. Dr. Gerhard mentions in one of his *Clinical Lectures*, published in the *Medical Examiner*, that he made use of the remedy in two cases, but without producing a decided impression on the disease. Opium has been extensively tried in the *Massachusetts General Hospital* in doses of one grain every one or two hours, until pain was relieved. In some cases from eight to eleven grains were given in a day without inconvenience, and with great relief and comfort to the patient, but without apparently abridging the duration of the disease. Some few patients were unfavorably affected by it, and it was necessary to discontinue it. But on the whole, it may be considered as a palliative of great value; rendering supportable a disease which it seems inadequate to remove.

1383. Dr. Sigmund, in his interesting Lectures on *Materia Medica* and Therapeutics, published in the London Lancet, speaks of *aconite* as one of the most important agents in the cure of rheumatism and gout. Dr. Lombard of Geneva varied the use of this remedy, which had been formerly employed by the continental physicians. He begins with the dose of one fourth, or half a grain of the extract two or three times a day.

1384. It is proper to mention also, that in certain cases of rheumatism, having something of the neuralgic character, relief has been obtained by cupping and other local remedies applied to the spine, near the origin of the nerves distributed to the painful part.]

1385. After general blood-letting, leeches appear to constitute an important remedy.

1386. The other remedies are calomel and opium, ipecacuanha and opium (Dover's powder); antimony; guaiacum; cinchona; vapor and warm baths, &c.

1387. Calomel and opium, given so as to induce ptyalism, have great efficacy, after blood-letting has been sufficiently administered, in subduing this painful disease.

1388. The colchicum is less specific in Rheumatism than in arthritis; but it is doubtless a very valuable remedy: the tincture, the wine, the acetous extract; the three former in doses from ten to twenty minims, the last, in that of from one to two grains, may be given three, four, or five times a day, so as to affect the system.

1389. When the remedies already noticed have failed, the cinchona, and especially the sulphate of quinine, has been found effectual. One, two, or three grains, with a few drops of dilute sulphuric acid, may be given three, four, or five times a day. Dr. Willan observes, "Some practitioners continue to let blood in most cases of Acute Rheumatism, thinking themselves justified in their mode of practice by the *sizy* appearance of the blood. The same principle might lead them to empty the whole sanguiferous system; for, every time blood-letting is repeated, the blood becomes more and more dense, or *sizy*. I have farther observed that, by bleeding repeatedly, the pains, swellings, and febrile symptoms, were not only aggravated at the time, but

often protracted infinitely ; at least, I have seen them continue, under such a mode of practice, upwards of two months. The ill success of it probably first induced other practitioners to adopt an opposite plan ; when it was found that Peruvian bark, and vitriolated iron, or the precipitate of it combined with myrrh, as recommended by Dr. Griffiths, afforded both speedy and permanent relief."¹ Dr. Haygarth says, "the principal purpose of his publication is to recommend the Peruvian bark in preference to all other remedies."²

II. *Chronic Rheumatism.*

1390. I. *The History.* This form of Rheumatism is frequently the *sequela* of the acute. It is frequently too the gradual effect of long-continued exposure to damp and cold : the soldiers, miners, the weavers who in Manchester work below the surface of the soil, are frequently the subjects of this painful disease.

1391. II. *The Symptoms.* In Chronic Rheumatism the pain is more fixed, and less general, and there is not even the slight tumor, or discoloration, or the tenderness, of the acute form of Rheumatism. But the limbs gradually lose their power, their sensibility, and sometimes even their wonted bulk, and the patient becomes extremely lame. Or these affections take place in a slight degree only.

1392. III. *The Diagnosis.* Chronic Rheumatism must be distinguished from

Periostitis,

whether this be syphilitic, mercurial, or the effect of exposure to damp or cold. Periostitis is apt to fix itself in the long or flat bones,—the cranium, the clavicle, the ribs, the ulna, the tibia, &c. It is usually distinguished by detecting a *spot* affected with tenderness and swelling. It prevents sleep. It is relieved and eventually cured by mercury, carried to ptyalism.

1393. IV. *The Treatment.* Besides the remedies for Acute Rheumatism, already detailed, others have been recommended in

¹ Reports, p. 261.

² Op. cit. p. 18.

its Chronic form, but chiefly guaiacum, the warm bath, sulphur and vapor baths, blisters, liniments, &c.

1394. The guaiacum has been given in Chronic Rheumatism in the form of powder, the ammoniated tincture, &c.

1395. To these remedies Dr. Bardsley, of Manchester, has added the arsenic, and the Cod-liver and Ling-liver oil, in a work entitled Medical Reports, and published in 1807.

1396. After leeches, blisters, and a liniment of spiritus terebinthinæ, fomentations, and the vapor bath, followed by shampooing, &c., and, lastly, cold bathing, have been found of great utility in Chronic Rheumatism.

III. NODOSITY.

1397. Nodosity of the joints was first distinguished from rheumatism and arthritis by Dr. Haygarth of Bath.¹

1398. I. *The History.* This disease occurs principally in females somewhat advanced in years; but I have seen it in its most extensive form in a very young lady: it attacks the first joints of several fingers. I have also seen a similar affection in a youth, which affected the second joint of several fingers, and not the first, inducing considerable thickening. Dr. Haygarth observes, "These nodes are almost peculiar to women, and generally begin about the period when the menses naturally cease." He adds—

1399. "Out of the number of cases above stated, there was only one man. His age is not noted, but he appeared to be between 50 and 60 years old. He ascribed the complaint to a fall that had violently strained his wrists and fingers, which were the only seat of the nodes in this case. But in the female constitution it is seldom confined to so few joints."

1400. II. *The Symptoms.* The affection consists in hard, pale, and painful swellings, about the different articulations, especially those of the fingers, but also successively about any of the other joints. It increases gradually, and often induces much suffering and more deformity. The swellings are some-

¹ Op. cit. p. 119.

times tender under pressure ; they are confined to the immediate vicinity of the articulations, and do not appear to affect the muscles ; the motions of the joints become much impeded, and sometimes a degree of dislocation occurs.

1401. The following table of Dr. Haygarth presents a view of the parts most apt to be affected with Rheumatism and Nodosity respectively :—

<i>Joints and Muscles affected with Acute Rheumatism.</i>				<i>Joints affected with Nodes.</i>	
JOINTS.	CASES.	MUSCLES.	CASES.	JOINTS.	PATIENTS.
Knees	67	Head	22	Fingers 13	} . 29
Shoulders . . .	43	Chest	21	Hands 7	
Ankles	42	Thighs	20	Wrists 9	
Hands	38	Legs	20	Knees	10
Feet	36	Arms	12	Feet	6
Wrists	33	Side	7	Ankles	6
Hips	30	Belly	3	Shoulders . . .	4
Back	25	Hypochondre .	3	Neck	3
Neck	15	Stomach . . .	2	Elbows	3
Loins	13	Face	2	Hips	3
Elbows	10	Eye	2	Heel	1
Fingers	9	Throat	1	Leg	1
Heel	4	Gums	2	Joints	8
Toes	2	Groin	1		74
Ham	2		118		
Joints	19				
	388				
		Limbs	8		
		Wandering . .	4		
		General . . .	2		
			14		

1402. III. *The Diagnosis.* Dr. Haygarth observes—"The nodes appear most nearly to resemble Gout. Both of them are attended with pain and nodosity of the joints : but they differ essentially in many distinguishable circumstances. 1. In gout, the skin and other integuments are generally inflamed, with pain which is often acute, soreness to the touch, redness and swelling of the soft parts, but in no respect like the hardness of bone. 2. The gout attacks the patient in paroxysms of a few days, weeks, or months, and has complete intermissions, at first for years, but afterwards for shorter periods. 3. The gout attacks men much more frequently than women.

1403. "These nodes are clearly distinguishable from acute

rheumatism, because they are not attended with fever. The tumor of the joints is much harder, more durable, and less painful, in the former than in the latter disease. The nodes are totally different from chronic rheumatism, because the latter chiefly affects the muscles, and is seldom attended with any swelling of the affected parts." p. 159, 160.

1404. IV. *The Treatment.* One lady kept the fingers black with the nitrate of silver, with great benefit. Otherwise I am not aware of any remedy for this deformity. Dr. Haygarth says, "For this complaint I have ordered guaiacum in 10 cases; cinchona in 9; leeches in 9; warm bathing and pumping at Bath in 9, at Buxton in 2; vapor-bath in 2; sea-bath in 1; antimony in 5; mezereum, aconite, and, externally, oleum jecoris aselli cum camphorâ, and bootikins, in one case each;" and he adds, "As far as my experience extends, most benefit was derived from the warm-bath, and a stream of warm water, with repeated application of leeches, on the diseased joints."

IV. ARTHRITIS, [GOUT.]

1405. Arthritis, like rheumatism, occurs in an Acute and Chronic form, and is seated externally or internally.

1406. I. *The History.* Arthritis seldom occurs during early youth.¹ It is decidedly hereditary. It generally recurs in the person who has been once affected; sometimes at nearly stated periods; occasionally from accidental causes. It affects the same, or different, and even successive parts, on these occasions; the pain is then less severe, but the subsequent debility longer continued. Arthritis affects the male sex, and the intemperate principally, but by no means exclusively. It is generally dependent on a deranged state of the system, and especially of the stomach and bowels; and it very frequently attends the acute or protracted dyspepsia.

¹ Hippocrates says—*Παῖς οὐ ποδαγρία, πρὸ τοῦ ἀφροδισιασμοῦ*; Sect. vi, Aph. 30; and Celsus—*Ea—raro castratos vel pueros ante fœminæ coitum tentant*. Lib. iv, cap. 24; and every scholar is acquainted with that epigram:—

*Λυσιμελοῦς Βάκχου, καὶ λυσιμελοῦς Ἀφροδίτης
Γεννᾶται θυγάτηρ, λυσιμελὴς Ποδάγρα.—ΗΛΥΛΟΣ.*

I. *Acute Arthritis.*

1407. II. *The Symptoms.* The Acute Arthritis, especially on its first accession, generally affects one particular joint alone,—most frequently the ball of the great toe, but occasionally the ankle, the knee, the hand, or the elbow. The attack frequently begins without apparent cause; it is most apt to take place during the night or early in the morning; it induces extreme pain, tenderness, throbbing, or sense of weight, even whilst the limb remains unmoved; it is attended with tumor, a vivid redness, and an appearance of distention of the skin; and afterwards with a more diffused and œdematous tumidity. The attack is often preceded by some symptoms of disorder of the digestive organs, or of the general health; and it is sometimes attended with feverishness, heat of the skin, inappetency, a loaded tongue, thirst, constipation, and a loaded state of the urine, from which a copious sediment of lithic acid, or the lithates, is deposited. The violence of the pain frequently remits during the morning, and returns in the evening.

1408. III. *The Complications or Metastases.* Internal Arthritis is far more obscure than internal rheumatism. It assumes the following forms principally:

1. Vertigo; tinnitus aurium.
2. Palpitation; faintishness.
3. Nausea; pain at the Stomach, or in the Bowels.
4. Calculus, or gravel, of lithic acid or the lithates.

1409. In one case described by M. Cruveilhier, the patient experienced several attacks of apoplexy. Mr. Kiernan found a calculus in the brain in a case of Arthritis. M. Bayle describes the expectoration of calculi as apt to occur in arthritic patients. Otherwise, I believe that *no internal arthritic changes of structure* have been discovered. The complications are *functional*. This, if true, forms an important distinction between Arthritis and Rheumatism.

1410. Another distinction consists in the greater tolerance of loss of blood in internal Rheumatism, than in internal Arthritis. In illustration of this point, I must quote an interesting case of Dr.

Haygarth :—the case was supposed to be carditis arthritica on July 3rd, and enteritis arthritica on the 22nd. On the former occasion seven ounces of blood were taken with the effect of producing “sickness, prostration of strength, depression of spirits, cold extremities, and faintness approaching to syncope.” On the latter, the patient bore the loss of blood better.¹

1411. IV. *The Morbid Anatomy* of Arthritis consists in tophaceous (*τόφος*, a crumbling gravel stone) deposits in the joints affected: they consist, according to Dr. Wollaston, of the *urate of soda*; according to M. Barruel, of *urate of soda and phosphate of lime*.² It is impossible not to see the relation which these deposits bear with those of the *urine*.

1412. V. *The Diagnosis* of Rheumatism and Arthritis is both interesting and important; and I shall, therefore, state it more fully here:

RHEUMATISM

- 1.—occurs in the young, even the very young and the robust.
- 2.—is induced by *external* causes, principally by exposure to damp and cold.
- 3.—affects many of the larger joints, and the muscles.
- 4.—induces but slight redness or tenderness, and pain principally felt on moving.
- 5.—*may* suppurate.
- 6.—is attended by profuse *acid perspiration*.
- 7.—is particularly liable to induce *organic* disease of the *heart*.
- 8.—is attended by *great tolerance* of *loss of blood*.
- 9.—is less liable to return.
- 10.—is not hereditary.

ARTHRITIS

- 1.—occurs in the middle-aged, the old, the dyspeptic, &c.
- 2.—is induced by *internal* or constitutional causes, and especially by profusion in diet and wine.
- 3.—usually affects one of the smaller joints only, especially the ball of the great toe.
- 4.—induces intense redness, tenderness, and torture, even without motion.
- 5.—rarely or never suppurates, but forms deposits of urate of soda and phosphate of lime.
- 6.—is attended by *urinary* deposits of the *lithic acids* or the *lithates*.
- 7.—is apt to induce *functional* disturbance, of the *head*, of the *stomach*, &c.
- 8.—is attended by *impatience* of *loss of blood*.
- 9.—is very apt to return.
- 10.—is hereditary.

1413. In a word, Rheumatism is an affection of *tissues*, and though peculiar, yet *inflammatory*; Arthritis is an affection of *functions*, and more allied to *irritation* than common inflammation. In fatal cases, organic changes destroy in the former; failure of the vital powers or functions, in the latter.

1414. It is interesting to remark, that the modes of treatment of former times agree with this last remark: blood-letting was the treatment of Rheumatism, cordials of internal Arthritis.¹ There is also a total absence of records of any internal organic change in Arthritis, with the exception of calculus.

1415. VI. *The Treatment* of Arthritis consists, in the first instance, in a strict attention to the stomach, bowels and kidneys.

1416. The most rigid *diet* should be enjoined, consisting of the mildest animal food, and especially mutton, stale bread, the plainest kinds of pudding; tea, coffee, cocoa, &c., avoiding stimuli and sauces, and condiments of every kind. [We have known entire recoveries to take place under the simple avoidance of vinous and spiritous liquids.]

1417. The *secretions* should be corrected, and then, with the bowels, regulated with the utmost attention: mild mercurials may be proper with the first object, and aloës with the second; one or two grains of the hydrargyri submurias, or three, four, or five of the pilula hydrargyri, with five or ten grains of the pilula aloës et myrrhæ, may be given every night; and a draught, consisting of twelve drams of infusion of rhubarb, one of the tincture, one of manna, with one dram of the sulphate, and one scruple of the carbonate, of magnesia, may be given each morning.

1418. For the acid urinary diathesis, and deposits of lithic acid and the lithates, a scruple of the carbonate of potass may be given in soda water twice or thrice a day. In France Arthritis is frequently treated with success by the eaux de Vichy.

1419. Such a plan may be pursued to perfect recovery. But, should the patient become impatient, the colchicum must be administered; of the tincture, or the wine, twenty drops may be given twice, or thrice, or four, or six times a day, according to the urgency of the case; or the acetous extract may be given

¹ Plerique autores olim consenserunt remedia arthritidis esse prorsus contraria iis quæ prosunt adversus rheumatismum. Etenim contendunt calidissima quæque illi convenire; ab hoc omnigena refrigerantia postulari. Sydenhamus sanguinem mittere prohibet in arthritide; quem idem in rheumatismo quater, aut sæpius, copiose detrahendum præcepit. Attamen in iis quæ postea scripsit, videtur aliquid remittere voluisse de tantis sanguinis missionibus, quas in uno ægroto non bene cessisse comperat.—*Heberdeni, Commentarii*, cap. ix, p. 54.

¹ Sub finem Epist. Respons. Primæ.

in the dose of a grain, once, twice, or thrice a day. Sir Joseph Banks, Sir Gilbert Blane, and Sir Henry Halford¹—have borne their testimony to the identity of the *Hermodactyl* recommended against Arthritis by Alexander Trallianus, of the ingredient to which the *Eau Medicinale de Husson* owes its anti-arthritic virtues, and of the modern *Colchicum*; and to the extreme value of this remedy.

1420. In severe suffering, the acetate or muriate of morphia may be given, in the dose of one third, one half, or a whole grain.

1421. Leeches, a fomentation, a tepid lotion, may be applied locally.

II. Chronic Arthritis.

1422. Chronic Arthritis consists in a permanent pain, tumor, weakness, deformity, distortion, ankylosis, of the parts which have been repeatedly the seat of Acute Arthritis, and especially of the hands and feet.

1423. Eventually tophaceous deposits take place. More remotely still, these deposits induce a partial suppuration, ulceration, and fistulous openings, and at length escape, or are removed.

1424. The mind suffers; for “every paroxysm may be as justly denominated a fit of *anger*, as a fit of the gout.”²

1425. The sufferings attendant on calculus are frequently superadded; “the patient is sometimes at a loss to know whether the *stone* or the *gout* be most severe.”³

1426. “But,” says the illustrious Sydenham, “what is a consolation to me, and may be so to other *gouty* persons of small fortunes and slender abilities, is, that kings, princes, generals, admirals, philosophers, and several other great men, have thus lived and died. In short, it may, in a more especial manner, be

¹ See the “Medical Logic,” ed. 2, p. 251, and “Select Dissertations,” p. 55, of Sir Gilbert Blane; and the “Essays and Orations,” 1831, of Sir H. Halford, p. 10. To these names may be added that of Sir E. Home.

² Sydenham, op. cit. p. 425.

³ Ibid.

affirmed of this disease, that it destroys more rich than poor persons, and more wise men than fools."¹

1427. The treatment of Chronic Arthritis is similar to that of the Acute, only longer continued, in a milder form, and conjoined with milder tonics, especially the quinine, iron, bitters, &c. and gentle frictions applied to the affected limbs.

V. ERYSIPELAS.

1428. Erysipelas is a peculiar disease, in which some portion of the surface of the body is affected with livid, circumscribed intumescence, progressive from part to part, having a burning sensation, and large, irregular vesications. It occurs under four different forms :

1. The Phlegmonode.
2. The Erratic.
3. The Œdematous.
4. The Gangrenous.

1429. I. *The History.* Erysipelas is generally preceded by marked derangement of the digestive organs. It is frequently the immediate effect of indigestible food. It frequently prevails epidemically, especially in hot seasons, and then assumes its worst, or even the gangrenous form. It was supposed by Dr. Wells to be sometimes contagious.²

I. *Erysipelas phlegmonodes.*

1430. II. *The Symptoms.* This form of Erysipelas frequently affects one side of the head and face ; at other times it appears upon one of the limbs. In the former case there are languor, drowsiness, and dull aching pains in the head, neck, and back ; the tongue is white, the breath tainted, and the bowels disordered. The swelling usually begins on the *second* or *third* day, on the side of the nose, on the cheek, or near the ear ; and

¹ Sydenham, op. cit. p. 425, 426.

² Trans. of a Soc. for Imp. of Med. and Surg. Know. vol. ii, p. 213.

extends subsequently to the scalp, neck, or breast : it is of a dark red, smooth, and soft, and attended with heat and tingling. The face becomes disfigured, and there is frequently delirium or stupor. On the *fourth* or *fifth* day vesications take place, principally about the central part of the swelling, of unequal size, and irregular base, and containing a fluid at first clear and watery, afterwards straw-colored and opaque, or livid. These vesicles break about the *fifth* or *sixth* day, when the swelling begins to subside and assumes a yellowish hue.

1431. Similar appearances take place when the disease affects a limb.

1432. The *erratic* form of Erysipelas is only peculiar by its milder and wandering character.

II. *Erysipelas œdematodes.*

1433. This form of Erysipelas is marked by less redness and greater tumefaction than the former. There is also greater tendency to delirium and coma, and to gangrene. It is frequently fatal, with these symptoms, about the eighth day.

III. *Erysipelas gangrænosum.*

1434. This form of the disease begins sometimes as the phlegmonous ; sometimes as the œdematous. The swelling exhibits a dark red hue, inclining to lividity ; it is soft and puffy ; phlyctænæ form upon it, containing a dark-brown or livid fluid, whilst the skin at their bases become black and gangrenous. On the cheeks and other parts, there are deep ulcerations, with livid edges ; a thin purulent fluid is often diffused through the cellular membrane, and sinuses, caverns, and sloughs are formed ; the eye-lid frequently becomes hard and brown, or blackish, and sphacelates. Delirium and coma accompany these appearances. It affects various parts of the body.

1435. III. *The Complications.* Dr. Heberden justly remarks—"In hâc, ut in omni aliâ febre, oportet, vigilare, et quicquid mali oriatur, idoneis remediis succurrere." Indeed, in some cases of fatal Erysipelas, it is probable that there is either

Inflammation or Congestion, within the

1. Head,
2. Thorax, or
3. Abdomen.

1436. IV. *The Morbid Anatomy.* I need scarcely repeat what I have already stated several times, that the morbid anatomy requires to be investigated anew in reference to each of the eruptive fevers ; this remark applies to Erysipelas, equally with scarlatina, variola, &c.

1437. It is by no means certain that all the *Complications* of Erysipelas are either inflammatory or congestive : Dr. Wells observes, "It seems probable that the delirium and coma in Erysipelas do in no case depend upon inflammation of the brain, or its membranes ; for it is certain, that they may exist in Erysipelas of the face without any such cause, since Dr. Baillie found, upon opening the body of a person who died of that disease in January, 1796, and who had been affected with delirium and coma, that the contents of the head were altogether free from any morbid appearance." Dr. Wells adds, "I once assisted at the examination of the body of a stout young soldier, who had died comatose, while laboring under a scarlet-fever, unattended with any considerable affection of the throat, in whose brain no mark of inflammation or extraordinary fulness of the blood-vessels was discovered."¹ These remarks agree with those of M. Louis in reference to cerebral symptoms in typhus fever.²

1438. To these observations I may add that some *local* affections must be particularly noticed as further *complications* of Erysipelas. These are, in the *phlegmonode* Erysipelas,

- I. Bullæ.
- II. Diffused Suppuration.
- III. Sloughing of the Cellular Membrane.

And in the *gangrenous*,

- I. Bullæ.
- II. Ichor ; Sanies ; Pus.
- III. Slough ; Gangrene.

¹ Trans. of the Soc. for the Imp. of Med. and Surg. Know. vol. ii, p. 224, 225.

² Op. cit. t. i, p. 395, &c.

1439. V. *The Treatment.* The first remedy proposed in Erysipelas is blood-letting. This may be highly proper in the phlegmonode form of this disease ; in the three others it is manifestly improper. It must, for the sake of safety, be administered in the way which has been described, and its measure and repetition must be regulated by its effects.

1440. An emetic, a dose of calomel, and a draught of senna, should be administered immediately ; and the second and third of these remedies must be repeated daily, or each second day.

1441. Leeches and blisters have been applied over the parts affected. But punctures or incisions made with the lancet, recommended by Dr. Dobson,¹ similar incisions carried to the extent of about an inch, as proposed by Mr. Hutchinson,² or the still larger incisions recommended by Mr. Lawrence,³ are far more efficacious.

1442. To these remedies must be added the nitrate of silver, as recommended by Mr. Higginbottom to be applied over, and beyond, the part affected. [The efficacy of every one of the foregoing modes of treatment has been greatly overrated. Erysipelas, in most cases, is a self-limited disease. Phlegmonous erysipelas of the face and head generally runs its course in spite of remedies, and gets well spontaneously. The more deep-seated erysipelas of hospitals, which occurs after wounds and operations, often proves fatal under all modes of treatment.]

1443. For all the forms of Erysipelas, except the phlegmonode, the cinchona appears to be highly valuable. I must refer, on this point, to the volumes enumerated in the note subjoined.⁴

VI. ERYSIPELAS NASI.

VII. FURUNCULUS.

VIII. PARONYCHIA.

IX. CARBUNCLE.

1444. There are several local diseases of constitutional origin to which I must beg to draw my reader's attention, in connection with Erysipelas, in this place.

¹ Med. Chir. Trans. vol. xiv, p. 206.

² Ibid. vol. 5, p. 278 ; vol. xlv, p. 213 ; see also p. 207.

³ Ibid. vol. xiv, p. 1.

⁴ Trans. of a Soc. for Imp. of Med. and Surg. Knowledge, vol. i, p. 290 ; vol. ii, p. 224 ; vol. iii, p. 371.

1445. The *first* of these is Erysipelas itself, assuming a peculiar character, and seated in the *nose*. This part of the face is apt to be affected, in some patients, with *attacks* of Erysipelas repeated every month or two, or at other intervals. It is accompanied with a distressing sense of heat and stiffness. It is effectually cured and its recurrence prevented by a persevering use of mild stomachic aperients, such as rhubarb and aloës.

1446. Another affection, nearly allied to this, is Furunculus, or common boil. It is rarely solitary. Depending on a deranged state of the general system, furuncle usually occurs in considerable numbers, simultaneously or consecutively. It need scarcely be described: it consists in an indurated phlegmon, from half an inch to an inch and a half in diameter, and of intense redness, attended by extreme pain, tenderness, and throbbing. It suppurates partially. In its centre, a portion of the cellular membrane usually sloughs, constituting what is termed the *core*. It is relieved and cured at once by an incision, by means of a lancet, and its recurrence is prevented by a course of mild stomachic aperients, preceded by a dose of ipecacuanha, of the hydrargyri submuriæ, and of senna and salts.

1447. Precisely the same remarks, as to its origin and cure, apply to paronychia or whitlow, which is a similar phlegmon, having its seat at the root of the finger-nail. It suppurates partially. The nail sloughs at its root, and sometimes the bone itself is affected with necrosis.

1448. Carbuncle is a phlegmon of a still more serious character, arising out of constitutional causes of a still more serious kind. It frequently occurs on the back of the neck, in persons far advanced in years. It sloughs externally, and the patient frequently sinks with *typhoid* symptoms. A prompt and free crucial incision is the important remedy, whilst the strength of the patient is supported by wine, the carbonate of ammonia, the quinine, &c.

1449. In the predisposed, carbuncle is frequently spontaneous; but it is also frequently excited by slight circumstances, such as the application of a blister, or the subsequent application of a poultice. It soon assumes a deep, livid, red hue, especially in its central part. It often spreads to a diameter of five inches or more.

CHAPTER IV.

ON DYSPEPSIA, CHLOROSIS, ETC.

1450. THE class of diseases of which I now proceed to treat, consists of a more general morbid affection, usually combined with some topical symptom or symptoms. The general affection is complex and various; the complications are multiform and changeable, and, by their incidental predominance, frequently imitate other diseases widely different in their nature.

1451. The complications of these morbid affections are apt to be mistaken and mistreated for different inflammatory and other local diseases, and appear to me to constitute a class of morbid affections scarcely less frequent or less important, and requiring to be distinguished with the utmost care.

1452. I propose to collect and embody the system of facts which belong to this part of pathology,—to present accurate descriptions of the different forms, and to trace the diagnosis of the numerous complications of these disorders.

1453. The first part of the chain of constitutional causes and effects in these disorders is a loaded state of the large intestine. From this loaded state of the bowels, their functions, and those of all the chylopoietic viscera, most probably become deranged. The alvine contents become disordered merely by delay; and their presence induces, in its turn, a disordered state of the functions,—or actions,—of all the organs contributory to digestion, and at length of other organs more remotely situated in the animal frame.

1454. The functions of the parts within the mouth become obviously disordered. The secretions become morbid; the tongue

becomes loaded and swollen; the gums red and tumid; the breath tainted; and the saliva sometimes profuse and offensive. The complexion and the skin become morbid, and there are the appearances observed in the acute dyspepsia or in chlorosis, and frequently œdema. This condition of the complexion and skin varies with the state of the original disorder, and with that of the tongue and internal mouth, of which it affords indeed an index. With the state of the mouth and skin, that of the secretions and other functions of the whole course of the alimentary canal and the contributory digestive organs,—the liver, the pancreas, &c. may be presumed to be all morbidly affected. Digestion is variously deranged; the contents of the bowels become melanic, or clay-colored, or otherwise unnatural.

1455. As co-existent or subsequent links of this chain of sympathies, the functions of the brain, heart, respiration, stomach, intestines, uterus, bladder, &c. become variously affected. The muscular system and the senses also suffer in different instances. And nutrition, absorption, or secretion is impeded and impaired.

1456. The disorders comprised in this class may be arranged in the following order:

I. DYSPEPSIA.

1. The Acute,
2. The Protracted,
3. The Cachectic,
4. The Chronic, Forms.

II. CHLOROSIS.

1. Incipient,
2. Confirmed,
3. Inveterate.

III. HYSTERIA.

1. Mild,
2. Severe,
3. Inveterate.

I. DYSPEPSIA.

1457. This disorder occurs under four forms : the *acute*, the *protracted*, the *cachectic*, and the *chronic*.

I. *The Acute Form.*

1458. I. *The History.* This affection is the usual result of sedentary habits. It affects literary persons, and is particularly apt to be induced during a residence at college ; it is also frequently seen in females and persons of a delicate mode of life ; it affects tailors and mantua-makers, and the youthful inhabitants of schools.¹ It comes on insidiously, but often first attracts attention by the suddenness and severity of some of its complications.

1459. II. *The Symptoms.* The Acute Dyspepsia is early and principally characterized and distinguished by the concurrence of the following symptoms,—namely, weakness, tremor, headache, vertigo, fluttering, faintishness, tendency to perspiration, susceptibility to hurry and agitation, weariness, and loss of flesh.

1460. The countenance is rather pale and thin ; the lips are pale, and, with the chin, frequently tremulous, especially on speaking ; the surface of the face is generally affected with an appearance of oily, clammy, and swarthy perspiration, especially near the nose.

1461. The tongue is almost invariably loaded :—sometimes only slightly, whilst its edges are clean and red ; in severe cases, a load has formed over the tongue, and has, almost at once, peeled off, leaving the surface morbidly red, smooth, and tender ;—at other times it is more loaded, swollen, and œdematous, formed into deep sulci or plaits, and marked by pressure against the contiguous teeth,—the inside of the cheeks being also impressed in the same manner : the papillæ of the tongue are

¹ I have, in two localities, witnessed the most marked form of the Acute Dyspepsia within the precincts of convents. The seclusion and inactivity of these establishments appear to be the causes which slowly induce this disease.

numerous and enlarged; the gums are red and swollen, and occasionally bleed; the teeth and the mouth are in general foul, and the breath fœtid; in a fourth instance, the tongue may, however, be clean, but lobulated, whilst the internal mouth and breath are little affected.

1462. There is a tendency to perspiration, on slight exertion, or any surprise, and, sometimes, in the night, or early in the morning; the skin is, in general, cool, rather moist, and clammy; in some protracted cases, it has become dry and harsh.

1463. The hands and feet are apt to become very cold, and the nails occasionally assume a lilac hue.

1464. The patient is often affected with great tremor, observed sometimes in the quivering of the lip, or dimpling of the chin, but more usually on holding out the hand, or in carrying a cup of tea, for instance, to the mouth, on attempting to stand erect or walk, or on being fatigued or hurried.

1465. There is an early and daily loss of flesh.

1466. The patient experiences headache and vertigo, and he is nervous, and easily hurried and agitated. There is sometimes heaviness for sleep; sometimes great wakefulness and restlessness; sometimes incubus, rarely delirium; sometimes loss of memory and absence of mind. There is almost universally a peculiar sense of fluttering about the heart and pit of the stomach. And there is frequently an acute pain in some part of the course of the colon.

1467. The bowels are at first constipated; afterwards constipation and diarrhœa alternate, and sometimes the latter symptom becomes nearly permanent: the motions, during the constipation, are small; during the diarrhœa, scanty, extremely fœtid, dark-colored, often accompanied by blood, and frequently attended by tenesmus.

1468. III. *The Complications.* Besides the symptoms just enumerated, there are others which prevail more or less in almost every case; but they are, on the whole, less constant and more diversified; and, of these, one sometimes predominates so much over the rest, as to engross the attention of the patient, and sometimes of the practitioner, too exclusively. The secondary affection is then considered as idiopathic, and the symptom is apt to

be treated as the disease. It is, therefore, of the utmost importance to present my reader with the following distinct enumeration of these symptoms :—

1. Headache ; Vertigo ; Stupor, &c.
2. One Form of Epilepsy.
3. Paroxysms of Oppressive Dyspnœa ; True Asthma.
4. Palpitation of the Heart ; Fluttering ; Faintishness ; Irregularity and Frequency of the Pulse ; One Form of Angina Pectoris.
5. Frequent and Violent Hiccough ; Vomiting.
6. Some Convulsive and Spasmodic Affections.
7. Pain in the Epigastric, or One or Both of the Hypochondriac, or Chondiliac Regions.
8. Constipation ; Diarrhœa ; Tenesmus.
9. Hæmatemesis ; Melæna.
10. Icterus.
11. Severe Pains of some of the Limbs.
12. Sudden Tumefaction of the Integuments, especially of the Face.

1469. Even where one of these symptoms is particularly marked and severe, however, several concur, and are experienced in a mitigated form, affording a characteristic feature of this disorder and a principal source of discrimination ; for whilst most local diseases are denoted by being simple, and definite, this affection is distinguished by its multiplicity, and by apparently conjoining many or all disorders in one,—*Ουχ' ΕΝ τι των κακων φαινεται, αλλ' εσιν οτε ΠΟΛΛΑ, η και ΠΑΝΤΑ.*

1470. This form of Dyspepsia is also characterized, although less so perhaps than the more chronic and continued forms of this affection, by being variable, better and worse,—with this or that prevailing feeling or symptom,—even during a general recovery ;—changes chiefly induced by bodily fatigue, mental agitation, errors in diet, or constipation.

1471. IV. *The Treatment.* It is proper, in the first instance, to evacuate the bowels freely ; but afterwards our object should be to induce a full and consistent evacuation daily, at

once avoiding, as much as possible, the teasing and irritating operation of medicine.

1472. The decoction of aloës, the infusion of rhubarb and of senna, the vinum aloës, the Rochelle and Epsom salts, and manna, and aloës and rhubarb, variously formed into pills, are the remedies which I have thought most suited to effect the object which I have described.

1473. In cases in which all medicines have proved irritating, a draught with five drops of *tinctura opii*, and the same quantity of *aqua ammoniæ* has done great good.

1474. Gentle mercurials are useful. But I have known many patients who could not bear them even in their mildest forms. They must still, however, be deemed useful, when the alvine evacuation does not resume its proper color by means of more ordinary aperients.

1475. The cure is to be promoted by attention to diet, which should be of the most mild, light, but nutritious kind, and should be taken in very moderate quantities. The stomach is, in many cases of this disease, easily oppressed by the smallest portion of improper food, or by an undue quantity even of the lightest. In general, solid food, well masticated, and, of course, eaten slowly, agrees best, and especially mild animal food, as chicken or mutton; next to these, good stale bread not toasted, and mealy potatoes for vegetables, are proper; tea and coffee agree, except in individual cases, [but are contraindicated when there is much agitation, tremor and weakness.] In cases in which the stomach is irritable, a much stricter and milder kind of diet is required. Arrow-root or sago, perfectly done in water, without any addition but sugar at first, afterwards with milk, cream, and spice, according to the effects produced, are the articles of food best suited to such cases. [The food should be reduced to such quantities as the stomach can bear with impunity, however small at first.]

1476. When the head is affected, cupping at the back of the neck, properly moderated, is the most important remedy.

1477. The affection of the heart is relieved by the *tinctura hyoscyami*, the *spiritus ammoniæ aromaticus*, and by every soothing plan that can be devised.

1478. In all those cases attended by hæmorrhage, I have been accustomed to prescribe the pilula hydrargyri. I am not sure that the more useful purgatives would be equally efficacious and beneficial.

1479. In the case of icterus, the administration of an emetic, consisting of half a dram of ipecacuanha, and of an active purgative, has usually been attended by early relief.

1480. In the cases of diarrhœa, the general treatment already described, is always effectual; the object is to procure consistent and ample evacuations daily. It is highly advantageous, in this case particularly, to follow the action of the mild, cordial aperient, with a few drops of the tinctura opii and the spiritus ammoniæ aromaticus, as already mentioned.

1481. In the state of loaded bowels, which is frequently attended by pain, and even by tumor, in the course of the colon, the warm-water injection, administered by Mr. Reid's admirable syringe, is of great advantage.

1482. [Cathartics, when habitually repeated, are apt to aggravate the costiveness for which they are administered. It is therefore desirable to substitute for them injections, suppositories, or a laxative diet composed of unbolted flour bread, cream, fruit, &c. A change from a sedentary to an active life is highly important.]

II. *The Protracted Form.*

1483. I. *The Symptoms.* In the more protracted form of this affection, the debility, tremor, loss of flesh, and tendency to faintishness and perspiration, are less observed, although perhaps not altogether absent. The countenance is rather sallow, and its surface is more or less affected as in the severer form described above. The tongue and the internal mouth are often affected in the severer degree described. The patient is incapable of pursuing any laborious employment. He is prone to perspire from slight exertion or agitation. He perhaps experiences loss of flesh. He is low-spirited and listless. The appetite is sometimes impaired, but sometimes craving. And he suffers from the symptoms described, and from the complications enumerated,

only in a milder and more protracted form than the subject of the severer cases of Acute Dyspepsia.

1484. II. *The Complications.* Besides the symptoms enumerated, the less severe but more continued form of this disease is sometimes attended with one of the following affections:—

1. Furunculi; Paronychia; Hordeola.
2. Erysipelas of the Nose; Erythema Nodosum; Urticaria Chronica; Lichen.
3. Purpura; Hæmorrhages.
4. Ulcerations and Pustules of the Conjunctiva.
5. Decay of the Teeth; a Morbid State of the Gums; a peculiar Ulcer of the Tongue; Chronic Sore Throat.

1485. III. *The Treatment.* In addition to the plan of treatment proposed for the Acute form of this affection, § 1471, there are questions, in the present case, respecting several other remedies: as the sarsaparilla, the sulphate of quinine, and the sulphate of iron. The two first, I am of opinion, may be safely given, and will be found of considerable advantage. The sulphate of iron requires rather more precaution in its administration; but it is, I believe, a more efficacious remedy, when suitably given, than either of the former. In order that the sulphate of iron may be prescribed with advantage, the bowels must have been first freely evacuated, and then properly regulated for some time; the tongue must be clean, and the prolabium and countenance in general pale.

1486. The sarsaparilla, sulphate of quinine, and sulphate of iron, may also be advantageously given together.

1487. The system of diet, of alternate exercise and repose, of free and full exposure to fresh air, and especially to the sea-breezes, and of sponging the surface, is essential in this, as in the more acute form of disorder of the general health; the same precautions must be observed in avoiding the causes; and all this must be done with great diligence, and with greater perseverance.

III. *The Chronic Form.*

1488. I. *The History.* This form of Dyspepsia, the common Dyspepsia of authors, is intimately allied to the less severe and more continued forms described, from which it may originate, or into which it may pass. But it very frequently begins and pursues a longer or shorter course, with the character about to be given.

1489. II. *The Symptoms.* It is denoted, in general, by fits of despondency and gloom, of invincible disinclination for exertion, of pain about the head, sinking at the præcordia, and heat or fulness of the stomach. The countenance is liable to be rather sallow, and occasionally rather pallid; and there is often a great expression of despondency and lowness. The tongue is whitish and clammy, furred, and often affected with minute white points. There are, at different times, and in different instances, heartburn, a sense of heat or burning, acidity, load, distention, inflation, nausea; sometimes eructation of an acid, at other times of a nidorous taste, and sometimes the rejection of fluid, or of food. The bowels are often constipated, or there are unsatisfactory evacuations, and the patient feels a sense of load about the rectum; sometimes there is considerable pain in the bowels. The appetite is in some cases moderate, in others much impaired, and, with the digestion, various in different periods and in different instances. There are many uneasy feelings in different parts of the body, which vary exceedingly, but always engross the patient's attention in a forcible manner.

II. CHLOROSIS.

1490. I. *The History.* Chlorosis occurs principally in female youth; but frequently in married women, both young and old; and occasionally in the young and sedentary of the male sex, and even in men of adult age, from the influence of sedentary habits and mental anxiety. The most frequent cause is sedentariness. This affection is, therefore, usually observed in schools, in females of a delicate mode of life, or of a sedentary occupation or habit. Parturition; too long lactation; frequent hæm-

orrhagies ; protracted or long-continued habits of menorrhagia,—and of leucorrhœa ; anxiety ; fatigue ; and loss of rest, have appeared to induce the Chlorosis of persons more advanced in years.

1491. Chlorosis occurs under three forms—the Incipient, the Confirmed, and the Inveterate.

I. *The Incipient Form.*

1492. *The Symptoms.* The incipient form of Chlorosis is denoted by paleness of the complexion, an exanguineous state of the prolabia, and a slight appearance of tumidity of the countenance, and puffiness of the eyelids, especially the upper one. There is sometimes a tinge of green, or yellow, or of lead-color, and frequently darkness of the eyelids.

1493. There are great paleness of the general surface, hands, fingers, and nails ; an opaque, white, tumid, and flabby state of the skin ; and a tendency to œdema of the calves and ankles. And there is a certain loss of flesh.

1494. The tongue is white and loaded ; it is swollen, marked by pressure against the teeth, or variously formed into creases or folds ; its papillæ are very numerous and much enlarged. The gums and the inside of the cheeks become tumid, and the latter as well as the former are sometimes impressed by the teeth. The breath is tainted.

1495. The patient is generally languid, listless, sedentary, indisposed for exertion, easily overcome by exercise, nervous, and low-spirited, drowsy, dizzy, faintish, or breathless. There is generally severe headache or vertigo ; the memory and power of attention are apt to be impaired ; and there is sometimes heaviness for sleep.

1496. There is, in different instances, pain of one or both sides about the false ribs, or in the hypochondriac or chondiliac regions. Sometimes there is cough, difficulty in breathing, palpitation or irregular action of the heart, or imperfect syncope, and almost universally a sense of fluttering about the præcordia.

1497. The appetite is generally impaired. There is fre-

quently a morbid appetite for acids, or for magnesia. The bowels are constipated—a state which sometimes leads to diarrhœa. The fæces are dark-colored, fœtid, and scanty. The urine is frequently loaded.

1498. The catamenia become irregular, are preceded and attended by much pain of the back and region of the uterus, and sometimes, but not always, become slowly defective in quantity, and pale in color.

II. *The Confirmed Form.*

1499. *The Symptoms.* In the confirmed stage of this affection the state of the complexion and general surface is still more marked. The countenance is still more pallid, the prolabia and the gums exanguious, or the prolabia, especially the upper one, have a slight lilac hue, and the integuments are tumid. The skin is smooth, but becomes preternaturally dry. The integuments are puffy, opaque, and pale, or yellowish, and there is a tendency to œdema of the feet, and slight exfoliation of the nails. There is frequently scarcely any further loss of flesh.

1500. The tongue becomes clean and smooth ; but it is pale, with a slight but peculiar appearance of transparency, and of a pale lilac hue ; it remains a little swollen and indented.

1501. The patient is affected with languor, lassitude, and even serious weakness, being at once reluctant and unable to undergo fatigue.

1502. There are often attacks of severe pain of the head, or of equally severe pain of the side ; and repeated bleeding, leeches, and blisters, are usually employed, affording a temporary respite from these complaints.

1503. There are also, sometimes fits of dyspnœa, of palpitation of the heart, or fainting, with beating of the carotids.

1504. The pulse is rather frequent, often about 100, and easily accelerated and rendered irregular by mental emotion.

1505. The appetite is sometimes impaired, occasionally greater than natural, and very frequently depraved, inducing a longing or constant desire for some indigestible substance, as

acids or pickles, magnesia, chalk, cinders,¹ and coffee-grounds, tea-leaves, flour, grits, wheat, &c.

1506. The bowels are slow and constipated,—a state which sometimes alternates with diarrhœa, and induces melæna; the stools are dark, fœtid and scanty.

1507. The catamenia are attended with pain, and become paler, and less in quantity, and often cease altogether.

III. *The Inveterate Form.*

1508. I. *The Symptoms.* In the inveterate form of Chlorosis all the symptoms assume an aggravated character.

1509. There is a very slow but progressive loss of flesh. The languor becomes a state of permanent debility.

1510. The œdema increases and takes on the aggravated form of anasarca.

1511. There is less appearance of mere disorder, and more of the character of disease. Or those local affections which existed in a less continued manner before, now become either permanent, or are induced by the lightest causes, and the patient can scarcely bear the most ordinary occurrences of domestic life, and perhaps remains always in bed.

1512. Sometimes there is an almost permanent pain of the head, perhaps with intolerance of light or of noise.

1513. Sometimes there is pain of the chest, with tenderness, difficulty in breathing, and cough.

1514. Frequently there are pain and tenderness of the abdomen, with sickness and constipation, or with diarrhœa.

1515. Different symptoms reign in different instances,—as some hysteric or spasmodic affection: a state of locked jaw, closed hand, contracted foot, or twisted limbs; palpitation of the heart; hurried or suspended respiration; long fits of coughing; hic-cough; retention of urine.

1516. II. *The Varieties.* Besides the forms of Chlorosis which have been described, there are some varieties of deranged complexion, which require to be distinctly noticed.

¹ In the West Indies a similar disease prevails amongst the Negroes, who are termed Dirt-eaters.

1517. 1. Sometimes there is *less pallor* of the countenance and prolabia, *but a ring of tumid darkness round the eye*, and perhaps a tumid state of the upper lip. 2. Sometimes the *complexion* is of a more yellow or *icterode hue*. 3. Sometimes the complexion is of a peculiar *lead-color*. 4. There is sometimes a peculiar state of *coldness, cold moisture, and lividity of the hands and fingers*, and the lilac hue of the nails, the tips of which often become white and opaque. 5. The state of Chlorosis consequent on hæmorrhage also deserves to be distinctly noticed; there are paleness and slight yellowness of the complexion, exanguious prolabia, a greater degree of loss of flesh, and great fluttering and nervousness. There are also more chronic forms of this affection, in which there is a continued, though variable, state of *sallowness, of yellowness or icterode hue, of darkness, or of a wan, squalid, or sordid paleness of complexion*; or a *ring of darkness surrounding the eyes*, and extending a little, perhaps, towards the temples and cheeks, and sometimes encircling the mouth, without tumidity, without paleness of the prolabia, and without much tendency to œdema.

1518. III. *The Complications*. Such are the usual symptoms of the different stages of Chlorosis. But, as in acute dyspepsia, some of these symptoms are liable to be much aggravated, and to assume the form of serious local disease. The following list of these complications possesses, therefore, great interest:—

1. Pain of the Head;
2. Cough and Dyspnœa;
3. Palpitation of the Heart;
4. Pain and Tenderness of the Side;
5. Pain and Tenderness of the Abdomen;
6. Constipation; Diarrhœa; Melæna;
7. Menorrhagia;
8. Leucorrhœa;
9. Tendency to Hæmorrhage; Purpura;
10. Hysteric Affections;
11. Œdema; Anasarca; Erythema Nodosum.

1519. IV. *The Pathology.* There is occasionally a remarkable state apparently of the capillary system, giving rise to hæmorrhagic tendency,—to epistaxis, melæna, hæmatemesis, menorrhagia, and even purpura. Still more generally, the *blood* discharged from the nose, or taken from the arm, and the *catamenia*, become almost aqueous and colorless; so that this affection presents an instance in which the vital fluid undergoes considerable change. I have seen the blood scarcely tinge the sheets, and I have seen it resolve itself almost entirely into serum, with scarcely any crassamentum. It is a state of bloodlessness altogether peculiar, and not unattended with danger. This influence of the state of bloodlessness which occurs in Chlorosis, upon the encephalon, has not been duly noticed by practical writers; I shall, therefore, mention this subject a little more in detail than some others.

1520. I have, within the last eight years, seen four cases of fatal Chlorosis. The fatal event took place in one case suddenly: the patient was seized, quite unexpectedly, with the symptoms of dissolution whilst sitting up for a few minutes in a chair, when in a state of apparent convalescence from a feverish cold, and speedily expired. In the second case, a feverish cold led to the symptoms of a more gradual sinking. In the third, fever, cough, and aphthæ, followed parturition, and issued in the sinking state. The fourth and last case issued, in the most insidious manner, in a series of symptoms of an equally insidious sinking of the vital powers.

1521. Of the second and third cases no post mortem examination could be obtained. In reference to the first and last, and especially the last, I was more successful in my entreaties to obtain this satisfactory elucidation of the nature of disease.

1522. Miss H***, aged eighteen, was well, with the exception of a little constipation, when she went to school at Boulogne in 1828, aged thirteen.

1523. She remained a year and returned home. She went again in six weeks, and remained another year; and, during this year, the catamenia did not appear, and the bowels were constipated. On her return she looked pale, but she was stout, and grown, lively, and in good spirits.

1524. A fortnight after her return the catamenia appeared, but they were pale and scanty; the bowels were constipated.

1525. She continued pretty well until July, 1833, when she became sallow, pale, affected with pain of the head, and shortness of breath, and coldness and dampness about her person; the catamenia gradually diminished in quantity and color; the bowels were constipated, and she became fond of concealing and eating dry rice, coffee, and tea-leaves.

1526. About a year ago the paleness was augmented, and the ankles began to swell; leeches were applied to the temples.

1527. During the last summer the paleness augmented still further, and the œdema assumed the character of anasarca; the perspiration became offensive; the catamenia were scanty, pale, and yellowish, or greenish, and varying much in color, but never red.

1528. December 13th, 1834,—I saw Miss H*** seven days ago: the countenance was pale and slightly œdematous; the legs anasarca; the head affected with mild delirium, with a degree of intolerance of light and noise; the breathing was hurried, and rather audible and rattling, with cough; the pulse 130, and throbbing; the abdomen tumid.

1529. These symptoms continued; at first there was delirium; afterwards there were dozing and slight coma; afterwards the mind was clear; at length the coma returned: the respiration became momentarily suspended and the inspiration sudden, and sometimes *catching*; the abdomen became decidedly tympanitic, with the escape of much flatus; the pulse continued at 130 and sometimes 140, with fulness and throbbing.

1530. The strength gradually declined, and dissolution took place rather suddenly after the free evacuation of the bowels.

1531. On examination, there was effusion of serum and of opaque lymph under the arachnoid at the summit and base of the brain: there was an effusion of six drams of serum into each ventricle.

1532. The summit of each lung was extremely pale, œdematous, and crepitant between the fingers; large portions of foaming lymph exuded from the incisions made into them; the root of each lung was red, not crepitant, and sank in water; and, on

making incisions, much fluid exuded without *foam* or bubbles of air. The bronchia were injected. Each cavity of the thorax contained five or six ounces of serum, and the pericardium one ounce; the heart was natural.

1533. The viscera of the abdomen, except the ovaria, were natural, but pale: there was no effusion; the tympanites had disappeared. The ovaria were large, and one of them contained a cyst replete with serum, of the size of a large walnut.

1534. There was considerable adipose substance.

1535. This case is important in every point of view. It is important in regard to the nature of the disease, of which it is an example, demonstrating, as it does, the tendency of that disease to induce, not merely external dropsy, but effusion under the arachnoid and into the pleuræ, the pulmonary cellular membrane, &c. It is important too, as an unequivocal representation of the disposition to such organic changes in cases of bloodlessness and exhaustion. It is also important, as establishing the fact, that, not only serous effusion, but the deposit of coagulable lymph, may take place in similar circumstances.

1536. In a recent fatal case of delirium tremens, serum was found effused under the arachnoid and into the ventricles, whilst opaque lymph was deposited under that membrane. Similar appearances observed in Chlorosis enable us to say that such an appearance cannot be adduced in proof of inflammatory action. For no one can imagine that the appearances which have been detailed, as observed in Chlorosis, can be any other than the peculiar effects of this disease; or that the deposit of lymph under the arachnoid can depend upon any cause different from that which induced the effusion of serum under this membrane, and from the pleura, and the pulmonary and cutaneous cellular membranes.

1537. I need scarcely add the remark, that Chlorosis must not be viewed as totally free from danger. When anasarca has supervened to great pallor, there is the fear of effusion into the encephalon, and of a fatal result, which is sometimes of the most insidious, sometimes of the most sudden kind.

1538. V. *The Treatment* of this form of disorder of the general health must be begun by a due evacuation of the bowels;

but the use of mercurials, and of active purgatives in general, requires still greater precaution.

1539. Of the class of aperient remedies, aloës and rhubarb appear to me to be best adapted to the cure of Chlorosis; the first of these may be given in the form of the decoction, the wine, the simple and compound tinctures; the latter, in those of the infusion and the tinctures, and these may also be variously combined together, and, if quite necessary, with manna, and the Rochelle salt.

1540. When the bowels have, by these means, been fully but gently regulated for some time, different preparations of iron, the ammoniate, the iodide, but especially the sulphate, become specific in this disorder,—gradually restoring the complexion, the general surface, and the uterine discharges, to their healthy state.

1541. The painful affections of the head, sides, and abdomen, are much relieved by the application of a spiritous lotion to the former part, or of a liniment composed of the soap liniment, the sal volatile, and the liquor ammoniæ, to the latter, or, if necessary, by a blister.

1542. For the attacks of palpitation, of panting, or of the fits of coughing, the spiritus ammoniæ aromaticus, æther, hyoscyamus, and the tinctura opii, are useful remedies.

1543. In cases of extreme languor, the carbonate of ammonia is a valuable remedy. It may be given in pills of three grains, prepared with bread three times a day. [Gentle exercise, fresh air, and a light nourishing diet, are important parts of the curative treatment.]

III. HYSTERIA.

1544. Hysteria generally occurs in cases of the acute dyspepsia, or of chlorosis. But it is occasionally induced by severe mental emotions, as excessive joy or grief; and a less curable form of the affection has been occasioned by surprise, especially by fright. It is almost peculiar to the female sex.

1545. This affection is generally denoted by combining some considerable emotion of the mind, denoted by sighing, sobbing, tears, or laughter, with a sense and expression of suffocation, and with some urgent affection of the head, heart, respiration, stomach, or muscular system.

1546. Hysteria occurs in three forms: the Mild, the Severe, and the Inveterate.

I. *The Mild Form.*

1547. *The Symptoms.* The mild form of Hysteria subsists as a tendency to alternate high and low spirits, to fits of laughter, to frequent deep sighing, and to tears. A fit of laughter, or of crying, sometimes takes on an aggravated character; the laughing, or the sobbing, becomes immoderate, convulsive, and involuntary, and there is frequently a peculiar spasmodic choking in the throat, and a copious flow of limpid urine.

1548. The countenance changes, being alternately flushed, and pale, and denoting great anxiety.

1549. There is frequently an urgent difficulty in breathing, with much rapid heaving of the chest. Sometimes a dry, spasmodic, and violent fit of coughing occurs. There is generally a sense, and appearance, and an urgent fear of, impending suffocation. In different instances there is palpitation, hiccough, retching, or borborygmus.

1550. The patient is despondent, and exaggerates all her sufferings.

II. *The Severe Form.*

1551. *The Symptoms.* The severe form of Hysteria consists in a various attack, catenation, or combination of the following symptoms:

1552. The commencement, course, or termination, of this, and indeed of every form of Hysteria, is generally marked, and the case distinguished, by the signs of some inordinate mental emotion,—joy, grief, or other affection,—which constitute the most characteristic symptoms of this disorder, and have appeared to be literally *hysterical*.

1553. The attack is frequently ushered in by an unusual appearance of the countenance,—a rapid change of color, rolling of the eyes, distortion or spasmodic affection of the face.

1554. The extremities are apt to become very cold.

1555. A state of general or partial, of violent, or of continued,

convulsion, or fixed spasmodic contraction, takes place, and displays every possible variety in mode and form.

1556. The severe form of Hysteria sometimes consists chiefly in a severe, general or partial pain and throbbing of the head. Occasionally this pain is confined to one particular spot, and is so acute as to have obtained the appellation of *clavus hystericus*.

1557. Sometimes there is intolerance of light and noise. Sometimes a state of stupor ; sometimes delirium.

1558. The respiration is frequently much affected :—an oppressive and suffocative dyspnœa takes place ; or the breathing is rapid, anxious, and irregular ; or variously attended with sobbing, sighing, much rapid heaving of the chest, and sometimes with a spasmodic action of the diaphragm, inducing a peculiar elevation of the abdomen, or an equally peculiar succussory movement of the trunk in general ; sometimes the respiration appears to be suspended altogether for some time, the pulse continuing to beat as before.

1559. A crowing noise, or screaming, is apt to occur in this affection. There is, occasionally, hoarseness, or even an entire loss of the voice, continued for some time.

1560. There is sometimes a painful, violent, dry, hoarse cough, continued, or recurrent in paroxysms.

1561. There is occasionally acute pain of the chest or abdomen.

1562. Palpitation of the heart and syncope are usual affections in the Hysteria. The pulse is otherwise little affected.

1563. There is frequently an urgent sense of suffocation, accompanied with the feeling of a ball ascending into the throat : this symptom is so peculiar as to have obtained the denomination of *globus hystericus*, and is considered as diagnostic of this affection.

1564. Hiccough, and violent singultus ; retching and vomiting ; the sense of a ball rolling within the abdomen ; borborygmus ; a peculiar, great and sudden tumidity of the abdomen, apparently from flatus ; constipation, &c. are usual symptoms in Hysteria, and sometimes recur in paroxysms, and sometimes assume a more continued form.

1565. There is frequently difficulty or retention of urine, succeeded by a very copious flow of limpid urine.

III. *The Inveterate Form.*

1566. *The Symptoms.* The Inveterate Form of Hysteria—*id enim vitium quibusdam feminis cerebro revertens perpetuum evadit*,—consists sometimes in an almost perpetual agitation of some part of the body, the limbs, the respiration, the throat, or the stomach; and sometimes in a state of continued contraction of the hand or foot, or of some other part.

1567. In different instances, too, there is a continued state of nervousness or agitation from the slightest noise or other cause,—of paralytic, epileptic, or spasmodic disease,—or of imbecility of the mind.

1568. *The Varieties* of Hysteria are more numerous even than those of the other forms of disorder treated of in this chapter. They are also more *acute, urgent, and violent*. The following list, it is hoped, will be found tolerably complete:—

1. Convulsion.
2. Pain of the Head. 3. Delirium. 4. Stupor.
5. Pain of the Chest. 6. Dyspnœa. 7. Violent Cough.
8. Apparently suspended Respiration. 9. A Painful Affection of the Diaphragm.
10. Imitation of Croup; and 11. Appearance of impending Suffocation.
12. Palpitation of the Heart. 13. Syncope.
14. Dysphagia. 15. Hiccough. 16. Retching and Vomiting. 17. Pain of the Abdomen.
18. Dysury. 19. Retention of Urine.
20. Apparent Paralysis.
21. Trismus. 22. Tetanus. 23. Contracted Hand. 24. Distorted Foot. 25. Twisted Legs.

1569. The attention has, I think, been too exclusively directed to the paroxysm of *convulsion* in this affection. Some of the *other* varieties in the attack of the Hysteria are almost equally frequent. This affection is characterized, indeed, by affecting in the same, or in different instances, singly or conjointly, all the several systems which constitute the human frame: the organs

of animal and organic life ;—the different sets of muscles, voluntary, involuntary, mixed, and sphincter ; the faculties of the mind, and the emotions of the heart ; the functions of the head, the heart, the stomach, &c. It is in thus viewing Hysteria, that the diagnosis is often formed between the different and very various attacks, and other affections having a different origin, but of which it is the *imitator*,—for, as Sydenham observes—“*nullos fere non æmulatur ex iis affectibus quibus atteruntur miseri mortales.*”

1570. Errors in the diagnosis are to be avoided by a cautious inquiry into the history of the case, the mode of attack, the immediate, exciting cause or causes, and the early symptoms ;—by a cautious observation of the existing symptoms,—their character of hurry and urgency, their multiplicity, and their conjunction with others of an unequivocal character ;—and by cautiously waiting, and watching the accession of further symptoms which may tend to unveil the obscurity of the case. The causes are frequently a disordered state of the general health,—the recurrence of the catamenial period,—and some mental emotion ; the early symptoms are *laughter, tears, globus*, or other symptoms of the same character ; the mode of attack is usually marked by hurry and alarm ; and the course of the affection is frequently attended by some symptom or event of the same diagnostic character.

1571. Sydenham enumerates the following forms of Hysteria : apoplexy, epilepsy, pain of the hand, palpitation, perpetual dry cough, affections resembling the iliac passion, or a fit of stone, vomiting, and purging, pain of the back, tooth-ache, tumor of the fauces, shoulders, hands, thighs, and legs, coldness of the external parts. He adds, “It should seem that no chronic disease occurs so frequently as this ; and that, as fevers, with their attendants, constitute two thirds of the diseases to which mankind are liable, upon comparing them with the whole tribe of chronic distempers, so hysteric disorders, or at least such as are so called, make up half the remaining third part, that is, they constitute one moiety of chronic distempers. For few women (which sex makes one half of the grown persons) excepting such as work and fare hardly, are quite free from every species of this disorder ; and several

men also, who lead a sedentary life, and study hard, are afflicted with the same.¹ And it would take too much time to enumerate all the symptoms belonging to hysteric diseases; so much do they vary and differ from each other. Democritus, therefore, in writing to Hippocrates, seems to have reason to assert, though he mistook the cause of the disease, *that the womb was the origin of six hundred evils and innumerable calamities.*"²

1572. Heberden treats at length of the varied forms of Hysteria, throughout his Classical Commentaries.

1573. Recently, Madame Boivin and M. Dugès have enumerated, as distinct forms of Hysteria, the suffocating, the apoplectic-form, the syncopal, the cardiac, the pertussiform. I have given these epithets because they convey useful information.

1574. I must add that M. Louyer-Villermay has distinguished by the term *Hystericism*, certain spasmodic affections which sometimes accompany dysmenorrhœa, metritis, puerperal peritonitis, and serious uterine hæmorrhage.

1575. Peculiar painful affections have recently been described by the Drs. Griffith, Sir Astley Cooper, and Sir Benjamin Brodie, as Hysteric:—

1. Pain along the Spine;
2. Pain of the Mamma;
3. Pain of the Knee;

and to these affections may probably be added that described by the late Dr. Gooch, under the designation of the
Irritable Uterus.

1576. II. *The Treatment.* The remedies in Hysteria are such as are required by the state of constitutional disorder, and especially by that of the stomach and bowels, and by that of the uterus, the functions of which require to be restored as quickly as possible. Aperient medicines, fomentations of the feet, and of the lower parts of the abdomen, are amongst the principal remedies.

1577. Then follow the means of relieving the urgent symptoms, which are as various as those symptoms themselves.

¹ Op. cit. p. 367.

² Ibid. p. 375.

1578. For the affection of the head, a lotion of spirit of wine and rose-water is of great service, and, if necessary, a small blister may be applied to the nape of the neck ; with these remedies, the tincture of hyoscyamus, sal volatile, and æther may be given, or a saline effervescent draught.

1579. For the pain of the chest or abdomen, a liniment, with sal volatile, or a fomentation of hot water, may be applied, with similar internal remedies.

1580. The same observations apply to the other forms of hysteria. In all, it is of the first importance to act upon the alimentary canal and uterus, and then to soothe, and lastly to relieve, the local pain or distress.

1581. [Moral agencies have frequently a great control over various forms of hysteria. A change of scene, an agreeable interview, or even a strain of music, has totally suspended the most violent symptoms. The return of paroxysms is sometimes effectually prevented by associating with them some disagreeable, but necessary accompaniment, such as an emetic, or nauseous dose of medicine.]

CHAPTER V.

ON THE HÆMORRHAGES.

1582. AFTER inflammation, tubercles, dyspepsia, &c. hæmorrhage is amongst the most frequent and important of diseases, especially as it occurs in the brain and the lungs, in the substance of other organs, and from the stomach, the intestines, the kidney, and bladder, the uterus, &c. ; and it bears, in different instances, a certain relation to each of those diseases.

1583. The use of the term hæmorrhage must be extended beyond its literal meaning. The congestion which precedes the flow of blood cannot be distinguished by the generic term, from the clot of blood or the flow of blood, when the parietes of the vessels have given way. They are different stages of the same affection, which must be distinguished by an epithet, or in description.

1584. The different forms of hæmorrhage are very numerous, and all its forms are probably not yet distinguished.

1585. The first and simplest form is that which results from the uninterrupted return of the venous blood. In this manner, *congestion* first, then *effusion* of blood, occurs in the lungs and in the brain, and possibly in the substance of some other organs, in disease of the heart, and especially in contraction of the left auriculo-ventricular orifice. In this manner, congestion and effusion of blood occur in the course of the intestinal tube, from compression or obstruction in the course of the vena porta. I beg my reader most particularly to read § 464—485.

1586. The second form of hæmorrhage is that which occurs from too forcible a projection of the blood from the heart. Thus effusion into the brain is an effect of hypertrophy of this viscus.

1587. The third form of hæmorrhage occurs—in cases in which the return of the venous blood is not impeded, or the flow of the arterial blood augmented—from disease of the minute vessels themselves, as we observe in some cases of hæmorrhage into the brain or from the lungs; in cases of broken texture, tubercles, &c.

1588. A fourth form of hæmorrhage occurs, far more frequently than is supposed, in the acute and other forms of dyspepsia. It takes place from the mucous surface, and especially from those of the nostrils, the stomach and intestines, constituting the most frequent forms of hæmatemesis and melæna. It also, doubtless, takes place from the mucous lining of the gall ducts, the kidney, the uterus, &c.

1589. But, besides these forms of hæmorrhage, there are others, if possible, still more formidable :

1590. In one case, cysts of blood are formed in the parenchymatous substance of various organs, simultaneously, or in several parts of the same organ. M. Cruveilhier observes—"Several facts prove distinctly the connection which exists between hæmorrhages of different organs. But none is more so than that submitted to the Société Anatomique by M. Robert, one of its members. All the organs of the skin, the cellular tissue, the muscles; the brain, the lungs, the spleen, the liver, the pancreas, the uterus, &c., were studded with hæmorrhagic deposits. The lungs, especially, contained a great number. Unfortunately, no positive information could be obtained respecting the corresponding symptoms. There are states of the system in which spontaneous hæmorrhages with rupture may be manifested simultaneously in all, or nearly all, the systems of organs. These states have been particularly recognised in scorbutus. But, in the greater number of cases, one single organ is the seat of these hæmorrhages."

1591. In other cases there is less disposition to hæmorrhage into the substance of organs, but the blood is poured out from the mucous membranes, or immediately underneath the cuticle. This affection constitutes the *Purpura hæmorrhagica*.

1592. In the third place, must rank the disease termed *Scorbutus*; a disease totally distinct, I think, from purpura. In this

disease, effusions of blood are found in the spleen, the liver, the uterus, the heart, &c.

1593. Besides the forms of hæmorrhage already enumerated, I have witnessed another, which displayed, on dissection, numerous distinct effusions of blood in the substance of the brain, together with an obvious admixture of pus or coagulable lymph with the blood in the large veins: the eyes had become affected with chemosis and ulcerations, and had burst.

1594. The different forms of hæmorrhage may, then, be arranged in the following manner:—

I. TOPICAL HÆMORRHAGE.

1. From obstructed return of the Venous Blood.
2. From excessive impulse of the Arterial Blood.
3. From disease of the minute, or Capillary Vessels.

II. DYSPEPTIC HÆMORRHAGE.

1. Epistaxis.
2. Hæmatemesis.
3. Melæna, &c.

III. GENERAL HÆMORRHAGE.

1. Cysts of Blood in several Organs, or several parts of the same Organ.

IV. PURPURA.

1. Simplex.
2. Hæmorrhagica.

V. SCORBUTUS.

I. TOPICAL HÆMORRHAGE.

1595. The Hæmorrhage which arises from *obstructed return of Venous Blood* has been fully described and illustrated § 464—485.

1596. That form of Hæmorrhagy which arises from *excessive impulse of the Arterial Blood*, is treated particularly by M.

Bricheteau, in his "*Clinique Medicale*," p. 133 and 214. Hypertrophy of the *left* ventricle of the heart is described as inducing hæmorrhage of the *Brain*; hypertrophy of the *right* ventricle, that of the *Lungs*.

1597. M. Lallemand particularly insists that it is only when there is no source of *obstruction* in the course of the *aorta*, as the *cause* of the hypertrophy of the left ventricle, that this latter can become a cause of cerebral hæmorrhage, or apoplexy.¹

1598. M. Louis observes—"Between 1821 and 1827, I collected 27 cases of hypertrophy with dilatation of the right ventricle of the heart; yet none of the patients had hæmoptysis, although six of them had dilatation of the pulmonary artery and its divisions, the manifest proof that the blood had been carried into the parenchyma of the lungs with an unnatural degree of force."²

1599. Hæmorrhage from *Disease of the Minute or Capillary Vessels* occurs under the form of *Epistaxis*, *Hæmatemesis*, *Melæna*, and *Hæmaturia*.

1600. These forms of Hæmorrhage are frequently complications of

II. DYSPEPSIA.

1601. They are then to be treated on the principles laid down for the cure of that disease, § 1471, 1485. Epistaxis occasionally requires the quinine. I have known a hæmaturia to be induced by exposure to cold, and relieved by the warmth of bed, so distinctly as to leave no doubt upon this influence of temperature.

1602. The history and symptoms of that form of hæmorrhage in which distinct effusions of blood occur in various organs of the body, § 490, are altogether unknown.

1603. It only remains for me to treat, in this place, of the constitutional symptoms of Purpura, and of Scorbutus, which I propose to do at considerable length.

¹ Recherches de l'Encephale, t. i, p. 44; note.

² Examen de l'Examen, p. 35.

III. PURPURA.

1604. Purpura occurs under three forms :—1. Purpura simplex ; 2. Purpura hæmorrhagica ; and 3. Purpura urticans. It is the second which is principally to occupy us in this place.

I. *Purpura simplex.*

1605. The Purpura simplex is characterized by an appearance of petechiæ, or dark red spots, without much disorder of the constitution, but with paleness, languor, debility, and pain of the limbs. They are diffused chiefly over the arms, legs, breast, and abdomen, being largest on the legs, though seldom confluent. In some cases the appearance of the petechiæ is preceded, for a day or two, by a general red efflorescence.

II. *Purpura hæmorrhagica.*

1606. I. *The History.* The usual causes of this disease are a sedentary mode of life, poor diet, impure air, anxiety of mind, laborious work. Of seventeen patients seen by Dr. Willan, two only were men ; nine were women, of whom four were beyond the age of fifty, three were boys, and three infants, not more than a year old. This disease is sometimes preceded by pallor and lassitude. Its duration is uncertain, and varies from fourteen days to as many months. It combines hæmorrhage, vibices, and anasarca.

1607. II. *The Symptoms.* The purple spots appear first on the legs, and, at uncertain periods, on the thighs, arms, and trunk of the body, the hands and face being generally free from them. They are numerous on the tonsils, uvula, palate, gums, tongue, and inside of the cheeks and lips, where they are sometimes raised and papulated, and discharge blood on the slightest pressure. The color of the spots on the surface of the body is at first a bright red, but it soon becomes purple or livid ; the cuticle over them is smooth and shining, but not elevated. They are nearly of a circular form, but of different sizes ; sometimes few and distinct, sometimes numerous and coherent ; sometimes

distributed uniformly over the surface, sometimes in irregular clusters. Many of the patches disappear in a week or two, while fresh ones arise in other places. They are largest and most vivid in the evening or night, smaller and of a yellowish hue during the day. Generally they are interspersed with vibices or livid patches resembling the effects of a bruise.

1608. The hæmorrhage takes place from the nostrils, fauces, gums, lips and cheeks, the tongue, the lungs, the stomach or intestines, or from the uterus even, in women of an advanced age. It sometimes precedes, sometimes succeeds, and sometimes accompanies the eruption; it is at first profuse, and cannot be easily restrained; in some cases it returns daily at a stated hour; after a week or two it becomes less violent and frequent. When the hæmorrhage flows from the gums and mouth, the spots on the surface of the body are numerous and smaller than usual, and the fauces, gums, and tongue, sometimes appear livid and tumefied. This complaint is attended with extreme debility and depression of spirits. The pulse is generally weak and frequent. Febrile paroxysms occur at intervals. Sometimes there are shiverings, sometimes heat without shiverings. At a late period, anasarca takes place, first about the ankles, and subsequently in the thighs, body, arms, cheeks, and eyelids, with sallowness of the complexion, emaciation, and coldness of the extremities.

1609. III. *The Complications* may be enumerated thus:

I. Petechiæ upon, or

II. Hæmorrhage from,

I. The Mucous Membrane of

1. The Nostrils.

2. The Gums, the Tongue.

3. The Bronchia.

4. The Stomach and Intestines.

5. The Kidney or Bladder.

6. The Uterus.

II. The Serous Membranes.

III. Parenchymatous Hæmorrhage.

IV. The Effects of Hæmorrhage upon

1. The Brain.
2. The Heart, &c.

V. Anasarca.

1610. The blood and the parenchymatous tissues have alike little cohesion: the former does not separate into serum and crassamentum, but forms a semi-fluid clot, of which the upper part resembles jelly in color and consistence, and the lower, molasses; the tissues are broken by the slightest bruise or pressure.

1611. IV. The various *Treatment* which has been recommended comprises, 1, blood-letting; 2, purgatives; 3, sulphuric and other acids; 4, cinchona; 5, the spiritus terebinthinæ, &c.

V. SCORBUTUS.

1612. I. *The History.* Scorbutus or scurvy is generally induced by a deficiency of fresh vegetable food. It is also occasionally referred to other errors in diet, to the respiration of a crowded or otherwise impure atmosphere, to excessive fatigue, &c.

1613. II. Scorbutus is usually distinguished by a set of symptoms designated by the term *putrescent*, such as a spongy and ulcerated state of the gums, with extreme fœtor of the breath; gangrenous ulcers; a fœtid state of the urine, &c.

1614. The countenance and skin generally become peculiarly pale, and sallow, or yellowish, and tumid; there are extreme debility; a disposition to somnolency, to syncope, &c.; shortness of breathing; a feeble pulse, &c. Petechiæ and vibices appear on various parts of the body; the gums bleed; former cicatrices are dissolved, and the ulcerated surfaces bleed, and perhaps slough; there is hæmorrhage from the bowels, the kidney or bladder, the uterus, &c.; serous effusions take place into the cellular membrane and the cavities.

1615. III. *The Morbid Anatomy* of Scorbutus consists of the effusion of blood, or of bloody serum, or of serum alone, into the various parenchymatous textures, or serous cavities of the body, or from the mucous membranes; of an uncoagulable condition of the blood, and of softening of the solids.

1616. IV. The *Prevention* and the *Cure* of Scorbutus consists in the administration of fresh and vegetable food, but, above all, of citric acid.

1617. Sir Gilbert Blane observes¹—"The scurvy, a disorder incident chiefly to a sea life, but by no means peculiar to it, has been nearly eradicated by lemon juice, or more properly the citric acid; for the juice of limes, Seville oranges, unripe China oranges, and in short of all the species of the botanical *genus citrus*, or the natural order of fruits called *Hesperidææ*, possess the same virtue. This was known to be a remedy for the scurvy far superior to all others two hundred years ago, as appears by the writings of Woodall.² It is singular that this important fact should have been hardly known for more than one hundred years³ afterwards, when the late Dr. Lind, of Haspar hospital, revived and diffused this valuable piece of knowledge by his writings. It was this author who first clearly stated the singular powers of this remedy in the cure of scurvy; for Woodall only affirmed that its virtues were far superior to all other remedies. Notwithstanding this, the navy continued to suffer severely from this disease, till the order for a general supply of lemon juice, twenty-seven years ago. This salutary measure was accomplished by a representation from the Medical Board of the navy in the year 1795, during the administration of Earl Spencer, from whose enlarged and benevolent mind every thing was to be expected. One of the most impressive parts of their argument, was built on the report of the effects of it in the Suffolk of 74 guns.⁴ This ship sailed from England on the second of April, 1794, and an experiment was made of supplying her with a quantity of lemon juice sufficient to serve out two thirds of a liquid ounce every day, to every man on board. This was

¹ Select Dissertations, p. 5.

² His work is entitled "The Surgeon's Mate, or Military and Domestic Medicine, by John Woodall, master in surgery:" London, 1636, p. 165. He concludes his praises of it by saying, "I dare not write how good a sauce it is at meat, lest the chief in the ship should waste it in the great cabin, to save vinegar." See a still earlier testimony in Purchas's Pilgrim, p. 158.

³ Treatise on the Scurvy, p. 153 and 543. Third Edit. 1772.

⁴ See more concerning the first general supply of lemon juice, in Observations on the Diseases of Seamen, p. 490, ed. 3; by Gilbert Blane, M. D. Lond. 1799.

mixed with their grog, along with two ounces of sugar. She was twenty-three weeks and one day on the passage, without having any communication with the land, and arrived in Madras roads on the 11th of September, without losing a man, with only fifteen men on the sick list, all slight cases, and none of them affected with the scurvy. This disease appeared in a few men in the course of the voyage, but soon disappeared on an increased dose of lemon juice being administered. Let this fact be contrasted with the state of the Channel fleet in 1780, as described by Dr. Lind, which was overrun with scurvy and fever, and unable to keep the sea, after a cruise of ten weeks only: and let the state of this fleet be again contrasted with that of the Channel fleet in 1800, as described by Dr. Baird, which, by being duly supplied with lemon juice, kept the sea for four months without fresh provisions, and without being affected with scurvy."

1618. It is a question of intense interest how far the three last morbid affections are allied; and the entire subject of Hæmorrhage is one of great promise to the new inquirer.

1619. The hæmorrhages are not remotely allied to the dropsies, of which I propose next to treat. The effusions and the urine in the dropsies frequently contain the albuminous, and sometimes even the coloring part of the blood; and hæmorrhage within the brain frequently occurs in these diseases. Dropsy, on the other hand, frequently supervenes in the hæmorrhages.

CHAPTER VI.

ON DROPSIES.

1620. THE transition is easy from the hæmorrhagies to the Dropsies, and it would be difficult to find a subject of greater obscurity, difficulty, and interest. A few years devoted to the investigation of Dropsy, its varieties, causes, nature, and treatment, could not fail to produce a most valuable contribution to medical science.

1621. Dropsies differ, like the hæmorrhages, according to their *causes*. The diagnosis and the treatment are, therefore, principally suggested by the history.

1622. I purpose, in this place, to enumerate the principal causes of this disease, and to construct an arrangement or tabular view of the subject upon this principle.

1623. The *first* cause of Dropsy which I shall mention is *inflammation*. From this cause we have frequently general anasarca, and effusions from the several serous membranes, as the arachnoid, the pleura, the pericardium, the peritonæum, the tunica vaginalis testis, &c.

1624. The *second* cause of Dropsy is some exanthematous disease, and especially scarlatina.

1625. The *third* source of Dropsy has been pointed out by Dr. Bright, as consisting in disease of the kidney.

1626. A *fourth* cause of Dropsy is debility, exhaustion from loss of blood, &c.

1627. A *fifth* and frequent cause of Dropsy is obstruction to the flow of the venous blood; it takes place in disease of the heart, disease of the lungs, disease of the liver, &c.

1628. These various forms of Dropsies may be thus arranged:

- I. INFLAMMATORY DROPSY.
- II. EXANTHEMATOUS DROPSY.
- III. NEPHRITIC DROPSY.
- IV. DROPSY FROM EXHAUSTION, DEBILITY, ETC.
- V. DROPSY FROM OBSTRUCTION TO THE VENOUS CIRCULATION.

1629. Dropsy assumes various *local* forms, and is hence divided into—

- I. HYDROCEPHALUS.
- II. HYDROTHORAX.
- III. ASCITES.
- IV. ANASARCA.

These various forms of Dropsy may result from each of the causes enumerated in 1621–1624. They will, however, demand a separate consideration.

I. INFLAMMATORY DROPSY.

1630. I. *The History.* This form of Dropsy generally takes place rather suddenly, and is to be traced to wet and cold.

1631. II. *The Symptoms* consist in the appearance of tense anasarca, observed *first* in the *face*, but soon becoming *diffused*, and generally combined with dyspnœa, and frequently with the signs of effusion into the head, thorax or abdomen, and with a coagulable and occasionally a sanguineous condition of the urine.

1632. Dr. Abercrombie describes a species of Dropsy which seems to belong to the inflammatory: he says—“The disease comes on suddenly, and generally affects persons in the vigor of life. It is usually ascribed to sudden exposure to cold, especially after the body has been previously overheated. The first symptom is an oppression and uneasiness in breathing; and, in a short time, frequently in a few hours, or in the course of the same day, this is followed by the dropsical swelling. The affection of the

breathing varies considerably in different cases. In some cases there is only a feeling of oppression and tightness in breathing, without pain or cough ; in others, the breathing is quick, short, and frequent ; in some, there is pain, increased by a full inspiration, with sharp painful cough ; and in others, there is great oppression in breathing, preventing the patient from lying, except in one particular posture, or even preventing him from lying down at all. The pulse is, in some cases, a little frequent, but in others, it is not above the natural standard. It is sometimes of good strength, but frequently rather weak, and in some cases irregular. The anasarcaous swelling is commonly observed first in the face ; from this it extends downwards upon the trunk of the body, and then to the extremities. This progress was in one case so remarkable, that even at night, after the patient had been sitting up through the whole day, he was affected with a great degree of anasarca, down to the middle of the legs, whilst the feet and ankles were free from it ; next day, the feet and ankles were affected also. This peculiarity, however, does not occur universally, for, in some cases, the swelling is first observed in the legs ; but, in general, the face is affected at a very early period. The urine is scanty, and high-colored ; in some cases it is coagulable, but in others there is no trace of albumen. If the disease be now allowed to go on, the swelling increases, and the breathing becomes more and more oppressed : it may be fatal in a few days, or it may be drawn out to several weeks.”¹

1633. III. *The Morbid Anatomy* varies according as the Dropsy is confined to the cellular membrane, or extended to the serous membranes ; in the latter case there is frequently the effusion of coagulable lymph, as well as of serum, from the serous surfaces. There is frequently peripneumonia, or œdema of the lungs.

1634. IV. *The Treatment*. Dr. Abercrombie observes—“ The most decided benefit is experienced from early and free blood-letting ; and, in a recent case, it is to be repeated till the pulmonary symptoms are relieved. This effect I have generally observed from one or two full bleedings ; and it is to be kept in

¹ Edinb. Med. and Surg. Journ. vol. xiv, p. 163.

mind, that, in such cases, the strength of the pulse is a very uncertain guide ; for, when the transmission of blood through the lungs is much impeded, we frequently find that the pulse is small, and even irregular ; and that it improves in strength, and becomes regular, after copious blood-letting. When the pulmonary affection is removed, the dropsical swelling often disappears, without the use of any remedy ; and if the case has been recent, and treated with decision, this happens so rapidly, that, on the second day of the treatment, the swelling may be gone. In these cases, the urine, which was scanty and high-colored, becomes copious, and of a natural color, almost immediately after the pulmonary affection is removed. If the disease has been of longer standing, the progress may be slower and less favorable ; and even after the pulmonary affection has been entirely removed, a course of diuretics may be required for carrying off the swelling.”¹

II. EXANTHEMATOUS DROPSY.

1635. I. *The History.* This form of Dropsy succeeds to some exanthematous diseases, but by far most frequently to *scarlatina* ; and the blood drawn is buffed and cupped. Its first appearance is generally on the *twenty-second* or *twenty-third* day after the commencement of the preceding fever : it may, however, appear so soon as the *sixteenth*, and so late as the *twenty-fifth*. It occurs only in infants and young persons. It is frequently seen after *mild* cases of the scarlatina.

1636. II. *The Symptoms.* This form of Dropsy *begins* with languor and feverishness, with sickness and constipation. Its first appearance is usually in the *face* ; it is apt to spread to the *hands* rather than the *feet* ; it rarely extends over the entire surface. The pulse becomes quick. The urine is passed frequently, in a turbid state, with numerous small *films* floating over it ; it is frequently red, from containing the red particles of the blood, and coagulable on exposure to heat, from containing albumen.

¹ Edinb. Med. Journ. vol. xiv, pp. 166, 167.

1637. III. *The Complications.* With this kind of Dropsy there is frequently—

- I. Meningitis ; Convulsion.
- II. Pleuritis ; Hydrothorax.
- III. Peritonitis.
- IV. Enlarged Lymphatic Glands.

1638. IV. *The Treatment* consists, *first*, in the use of the lancet ; especially when the head, thorax, or abdomen is affected. The patient should be placed perfectly upright and bled to the most incipient syncope : the tolerance of loss of blood is extraordinary.

1639. It is remarkable how totally different the *Indoles* of this dropsy is from that of the fever which had immediately preceded it.

1640. Leeches or cupping, and blisters, are useful as local applications.

1641. The bowels should be kept free by the oleum ricini.

1642. Diluents and the mildest fluid diet, and especially asses' milk, are extremely useful.

1643. I must not conclude my observations on this subject without noticing the admirable memoir of Dr. Wells,¹ of St. Thomas's Hospital, one of the most remarkable physicians whom this or any other country has produced. He quotes Plenciz of Vienna, and Burserius, of Florence, who have both written upon the scarlatinous dropsy. The latter author observes—that the bodies of several persons who had died of this disease at Florence, about the year 1717, having been opened, the lungs, pleura, intercostal muscles, diaphragm, kidneys, and intestines, were found more or less inflamed ; that peripneumony having hence been considered as the primary disease, and the dropsical swelling only as a consequence, blood was taken from the arm in the succeeding cases, once or oftenter, as the occasion required ; and that no one afterwards died of the dropsy who was thus treated. He adds—" Dr. Blane, on reading the foregoing paper, favored me with the following remark. ' It has been my prac-

¹ Trans. of the Soc. for the Imp. of Med. and Surg. Know. vol. iii, p. 167.

tice, for some years, to give repeated purges after scarlet fever, with a view to prevent Dropsy, following the analogy of the measles, and I do not recollect that dropsy has occurred when this practice was adopted.' "

III. ON NEPHRITIC DROPSY.

1644. I. *Literary History*. For our knowledge of this species of Dropsy we are indebted to Dr. Wells, M. Andral, and especially to Dr. Bright. Dr. Wells, in one of his admirable contributions to medical science, observes—"A soldier, forty-seven years old, in whose urine a considerable quantity of serum had been present, died dropsical.

1645. "He had also, shortly before his death, labored under an inflammatory affection of his chest. The inferior lobe of the right lung was greatly inflamed, and its air cells were much compressed by effused coagulable lymph, mixed with some blood. The upper part of the diaphragm was also much inflamed. There was about a pint of watery fluid in the cavity of the chest. The kidneys were much harder than they usually are. Their cortical part was thickened and changed in its structure, from the deposition of coagulable lymph, and there was a small quantity of pus in the pelvis of one of them. I do not conclude, however, from these appearances, and those which were found in the former case, that the kidneys are always diseased, when the urine in Dropsy contains much serum. The morbid appearances of the kidneys might be altogether unconnected with the morbid secretion; and if they were not, a diseased action of the secreting vessels, which was in those cases induced by an organic disease of the glands, may probably arise from various other causes.

1646. "Soon after this paper was read to the Society, an elderly man died in St. Thomas's Hospital, who had become ascitical, after laboring some time under a disease in his chest, and dropsy of the skin, and whose urine had contained a considerable quantity of serum. On opening his body, all the parts which are naturally red, were found to be much paler than such parts usually are. The kidneys were larger and softer than

if in a healthy state, and on the outside of both were several vesicles, partly embedded in their cortical substance, and containing an amber-colored fluid. The greatest of them was of the size of a hazel nut. Both ureters were enlarged at their commencement. The liver was large and indurated; the color of its surface and of that of the spleen was blue. The lungs adhered very generally to the ribs, and when they were cut, a fluid oozed from them which seemed to contain pus. The quantity of water under the skin was much less than it had been several weeks before his death. There were about fifteen pints of water in the abdomen, about one pint in the chest, about half an ounce in the ventricles of the brain, and a little between the pia mater and tunica arachnoides."¹

1647. M. Andral observes—"Before Dr. Bright published his Researches (in 1827), I had inserted in the third volume of the Clinique Médicale (ed. 1, 1826, t. ii, p. 567), a case of granular kidney, coinciding with a dropsy, without disease of any other organs."²

1648. Recently, Dr. Christison and the late Dr. Gregory have published some interesting observations on this subject.³

1649. But it is undoubtedly to Dr. Bright that the profession and mankind are principally indebted for the detection of this disease; it is designated in the Parisian Hospitals, "*la maladie de Bright*."

1650. II. *The Causes* of Renal Dropsy are unknown.

1651. III. *The Symptoms*. Anasarca gradually ascending from the feet, suppressed perspiration, and albuminous urine, occasionally tinged with the red particles of the blood, are the pathognomonic symptoms of Nephritic Dropsy. The region of the kidney is sometimes tender on percussion or pressure.

1652. IV. *The Complications*. There is in this species of Dropsy, occasionally—

¹ On the presence of the Red Matter and Serum of Blood in the Urine of Dropsy, which has not originated from Scarlet Fever.—Trans. of the Soc. for the Imp. of Med. and Surg. Knowledge, vol. iii, p. 194.

² Anatomie Pathologique, t. ii, p. 624.

³ See the Edinb. Med. and Surg. Journ. vol. xxxvi, xxxvii.

1. An attack of Apoplexy ;
2. Attacks of Epilepsy or Convulsion ;
3. Inflammation of the Serous Membranes, especially of the Pleura.

The *liver* is usually found free from disease.¹

1653. IV. *The Morbid Anatomy.* Dr. Bright observes—
 “In all the cases in which I have observed the albuminous urine, it has appeared to me that the kidney has itself acted a more important part, and has been more deranged both functionally and organically than has generally been imagined. In the latter class of cases I have always found the kidney decidedly disorganized. In the former, when very recent, I have found the kidney gorged with blood. And in mixed cases, where the attack was recent, although apparently the foundation has been laid for it in a course of intemperance, I have found the kidney likewise disorganized.”²

1654. Dr. Bright describes three kinds of this disease of the kidney. In the *first*, the kidney loses its usual firmness and becomes of a yellow mottled appearance externally. The size of the kidney is not materially altered. In the *second*, the whole cortical part is converted into a granulated texture, and there appears to be a copious morbid interstitial deposit of an opaque white substance. The kidney is generally rather larger than natural. In the *third*, the kidney is rough and scabrous externally, and rises in numerous projections not much exceeding a large pin's head, yellow, red, and purplish ; it is hard and inclined to be lobulated, and its texture approaches to a semicartilaginous firmness : there appears, in short, a contraction of every part of the organ, with less interstitial deposit than in the last variety.³ [For further remarks see diseases of the kidney.]

1655. V. *The Treatment* of this form of Dropsy is unknown. In one case the patient was cupped over the kidney, at stated periods : the albumen disappeared from the urine, except immediately after each application of the cupping instruments ; and

¹ Dr. Bright's Reports, vol. i, pp. 1—4 ; 93 ; 119.

² Ibid. vol. i, p. 4.

³ Dr. Bright's Reports, vol. i, pp. 67—69.

the anasarca greatly diminished. I directed the cupping to be done above or below the kidney, and the albumen and dropsy disappeared altogether. Many months afterwards, however, I learnt that the patient, a young lady, had become epileptic.

1656. Dr. Wells observes—"In the attempt to cure Dropsy, when serum was present in the urine, I gave for some time Peruvian bark, and steel conjoined with myrrh, if the urine was abundant, but, as far as I could see, without advantage. When the urine was scanty, I employed crystals of tartar, squills, and digitalis; but these medicines seemed to be less useful here, than in those cases of dropsy in which the urine contains no serum. I afterwards thought, that, as the presence of serum in the urine must arise from some diseased action of the kidneys, if a new action were excited in them, the former might be overpowered, and their healthy state at length restored. With this view I gave cantharides in large doses, for a considerable time, in five cases of Dropsy attended with serous urine;"¹ and considerable benefit was derived from this remedy.

IV. DROPSY FROM DEBILITY; ETC.

1657. I. *The History.* This form of Dropsy occurs—

1. From Loss of Blood.
2. In Chlorosis.
3. In Cachexia, &c.

1658. II. *The Symptoms.* Dropsy from Debility begins *slowly*, and is first seen in the lower extremities; the urine is generally free from albumen. Dr. Wells observes—"Of nine cases of dropsy of the skin, apparently arising from weakness, the urine in seven was altogether without serum. Two of the latter occurred in old dysentery, one in chlorosis, one in chronic rheumatism, two after agues, and one after profuse bleeding, which had been employed to remove a great inflammation in the chest. In the eighth case, which took place after ague, and in

¹ Trans. of a Soc. for the Imp. of Med. and Surg. Know. vol. iii, p. 231, 232.

the ninth, which occurred in chlorosis of very long standing, there was a small quantity of serum in the urine.”¹

1659. III. *The Treatment* embraces all those remedies which are calculated to restore the general health: in the cases arising from loss of blood, and chlorosis, iron is the principal remedy; in the case of cachexia, sarsaparilla and cinchona are useful.

1660. The diet, the bowels, the exercise, and the hours, must be strictly regulated; change of air and the sea-breeze are extremely valuable.

1661. Should the various diuretics be added to the other remedies?

V. DROPSY FROM OBSTRUCTED VENOUS CIRCULATION.

1662. The principal examples of this kind of Dropsy are those which arise from—

- I. Disease of the Heart, or its Valves.
- II. Disease of the Liver, especially Cirrhosis.
- III. Disease of the Spleen; Tumors, &c. within the Abdomen; Pregnancy, &c.
- IV. Tumor in the Iliac region, or in the Axilla.

1663. I. Dropsy from Disease of the Heart or its Valves is frequently very general, comprising hydrothorax, ascites, œdema of the lungs, anasarca of the extremities, &c.

1664. Dr. Wells, in the paper already quoted, § 1643, makes a distinction between Dropsy obviously arising from a disease within the thorax, and Dropsy not having such origin; and he concludes that “the greatness of the disease of the chest always lessens the probability of any great quantity of serum being found in the urine.” p. 216.

1665. II. Dropsy from Disease of the Liver usually first assumes the form of *Ascites*; this may be followed by *Anasarca*.

1666. M. Andral observes²—“When Dropsy is the result of

¹ Op. cit. p. 212.

² Clinique Médicale, ed. 1, t. i, p. 481.

disease of the liver, the ascites almost constantly precedes the anasarca; in our cases (of Intermittent), on the contrary, the lower extremities were first affected with dropsy." M. Andral adds, that this fact seems to prove that disease of the liver is not the cause of Dropsy in intermittents; and he considers that disease of the spleen alone cannot be the cause of Dropsy.

1667. Sydenham observes that the principal "symptom" which accompanies intermittents in their decline is "a dropsy wherein the *legs first* swell and *then* the *abdomen*."¹

1668. Dr. Wells observes²—"Dropsy is another well-known consequence of ague. Whenever I have observed dropsy of the abdomen to arise from this cause, which however has not been often, swellings of the lower extremities have always preceded it. Sir John Pringle remarks, that the dropsies, which occurred after ague in the Netherlands, generally began at the feet, and rose gradually to the belly;" he adds, "I have found, that in by far the greater number of instances of ascites, which occur now among the poor of London, the swelling of the belly precedes that of the skin;" and he concludes that this is owing to "the intemperance of the lower people with respect to spirituous liquors."

1669. This is an interesting question; for the same judicious author observes—"In fourteen cases of '(Ascites),' apparently not encysted, and in the histories of all of which I either have marked, that the swelling of the limbs had followed that of the abdomen, or have taken no notice of an external swelling, there was likewise no serum in the urine.

1670. "In seven cases, in other respects similar to the above mentioned fourteen, there was a very little serum in the urine.

1671. "But with respect to ascites, which is distinctly preceded by dropsy of the skin, the result of my observations has been very different. These have been made in eight cases, in seven of which the swelling of the abdomen had occurred under my own eyes, and in regard to the eighth, I had a history of what had happened, both from the patient himself, and from his

¹ Op. cit. p. 63.

² Trans. of a Soc. for Imp. of Med. and Surg. Know. vol. iii, p. 527.

physician, that leaves no doubt concerning it. In three of these cases the urine was made entirely solid by heat. In two others the quantity of serum in it was considerable, but still not sufficient to occasion an entire coagulation when heat was applied. In the remaining three the quantity was sometimes less considerable. It appears, therefore, that ascites, following dropsy of the skin, differs greatly from ascites which either precedes dropsy of the skin or is not accompanied by it."¹

1672. III. The Dropsy arising from Enlarged Spleen, and other Tumors within the abdomen, from Pregnancy, &c. usually assumes the form of Anasarca. Does it arise from pressure upon the vena cava?

1673. IV. A tumor in the *Iliac* region has induced anasarca of the *corresponding* lower extremity; a tumor of the *Axilla*, that of the arm. In these cases the Dropsy is obviously owing to the impeded return of the venous blood.

VI. TOPICAL DROPSIES.

1674. I must make a brief allusion to the various forms of local Dropsy, and their several *causes*:

1675. 1. Hydrocephalus, Hydrothorax, Hydropericardium, Ascites, may be the simple effect of *Inflammation*, acute or chronic;

1676. 2. The same forms of Dropsy may be excited by the presence of *Tubercles* in these cavities severally, or may coincide with these.

1677. The presence of *Cirrhosis* of the Liver, appears to induce ascites on the principle of *Irritation*, from contact with the adjacent peritonæum; in one most interesting case the same result occurred from the similar contact of an inflamed and enlarged *Ovarium*.

1678. The same principle may obtain in the dropsies of the *other Cavities*, and it appears not to have been sufficiently noticed by medical writers.

1679. How much still remains to be investigated, in reference to Dropsy must be apparent from this sketch. It is a field which,

¹ Trans. of a Soc. for the Imp. of Med. and Surg. Know., vol. iii, p. 218.

if diligently cultivated, would yield an abundant harvest. No one must enter upon it without first making himself intimately acquainted with the invaluable papers of Dr. Wells, so often quoted, and with the works of Dr. Blackall, Dr. Bright, Dr. Ayre, Dr. Osborne, &c.

1680. Before I conclude the subject of Dropsy, I must make a few observations upon *two* points of great importance, viz.—

- I. The state of the Urine,
- II. The use of Diuretics,

in reference to the various forms of this disease.

1681. According to Dr. Prout the *blood* consists of

Water,

Solid red particles, } From the similarity of their chemical properties,
Fibrin, } termed, by Berzelius, the *albuminous principles*
Albumen, } of the blood.

Lactate of soda, and some peculiar animal matters, which, according to Berzelius, always accompany it.

Muriates of potash and soda.

All of which, except the red particles, and perhaps the fibrin, are held in a state of solution whilst circulating in the living body.

1682. According to Berzelius, 1000 parts of healthy *urine* consist of

Animal and destructible principles.	{	Water	933.00
		Urea	30.10
		Lithic acid	1.00
		Pure lactic acid, lactate of ammonia, and animal mat- ters not separable from these	17.14
		Mucus of the bladder33
		Sulphate of potash	3.71
		— of soda	3.16
		Phosphate of soda	2.94
		— of ammonia	1.65
		Muriate of soda	4.45
		— of ammonia	1.50
		Earthy phosphates, with a trace of fluuate of lime	1.00
		Silex03
Alkaline and earthy salts.	{		
			1000.00

1683. "Besides these ingredients, which appear to be essential to *healthy* urine, this secretion in different *diseases* has been found to contain albumen, fibrin, and the red particles of the chyle and blood; nitric acid, benzoic acid, and the red particles of the chyle and blood; nitric acid, various acids formed from the lithic, oxalic acid, benzoic acid, and carbonic acid; xanthic oxide, cystic oxide, Prussian blue, sugar, bile, and pus.

1684. "*Albumen, fibrin, and the red particles*, which constitute the great bulk of the matters existing in the blood, are never met with in healthy urine; but in some varieties of Dropsy, and other diseases, the urine not only contains the serum of the blood, but the fibrin and red particles likewise pass through the kidneys unchanged.¹

1685. Dr. Prout describes albuminous urine as being sometimes *chylous*, sometimes *serous*; as existing, occasionally, unconsciously to the patient, and without symptoms; sometimes with diuresis and a frequent desire to void the bladder.

1686. Dr. Wells concludes from his observations—1. that the exhibition of *mercury* is apt to induce albuminous urine;² 2. that albumen in large quantity in the urine is rare, except in *Dropsy*; 3. that "the presence of albumen in the urine seems to be independent of weakness. It would appear, on the contrary, from the full and frequent pulse which frequently accompanies it, to be connected with too great action in some part of the system."³

1687. It will be sufficiently obvious, from the preceding remarks, that the different Dropsies must be treated upon very different principles:—1. the *Inflammatory* and *Exanthematous* dropsies require the use of the lancet; 2. the dropsies from *Loss of Blood, Chlorosis, Cachexia, Debility, &c.* require chalybeates, bitters, sarsaparilla, &c.

1688. But it is usual, *in all*, to give diuretics of various kinds. It must, however, be evident that, in *Inflammatory Dropsy*, mercury, with digitalis, tobacco, &c., or the *debilitant* or *sedative* diuretics, would be proper; whilst in the Dropsy of *Exhaus-*

¹ Inquiry into the affections of the Urinary Organs, ed. 2, 1825, p. 2.

² Op. cit. p. 230, 231.

³ Op. cit. p. 213.

tion, squills, spartium, juniper, the spiritus terebinthinæ, &c. or the *stimulant* diuretics would be preferred.

1689. Several salts of potass, as the acetate, the bitartrate, the nitrate, are useful diuretics in *most* cases of dropsy.

1690. In addition to the diuretics, I ought to mention certain purgative remedies, but especially the elaterium. By exciting the intestines, it excites the absorbents, just as diuretics do so by exciting the kidneys. [Elaterium generally produces vomiting, followed by very copious watery alvine dejections. No medicine excels it in the temporary reduction of dropsical swellings.]

1691. There is one other remedy which should be noticed,—viz. *paracentesis*. This operation has been performed in chronic *hydrocephalus*, in *hydrothorax*, and *hydro-pericardium*, in *ascites*, in *hydrocele*, and, if I may so apply the term, in *anasarca*. The object is in all cases to withdraw the dropsical fluid. The presence of *inflammation* is a counter-indication to its use; the chronic character of the disease, urgent symptoms, as dyspnœa, are the motives which induce us to have recourse to this measure. If there be inflammation, and paracentesis be performed, the whole of the fluid should not be withdrawn—the inflamed membranes should not, for obvious reasons, be brought into contact. In the absence of inflammation, the full evacuation of the fluid is extremely desirable.

1692. I here terminate what I had to say on *the Diseases of the General System*. My arrangements will not always bear severe scrutiny by the nosologist; but I am also persuaded that they will be of use to the young clinical student, or practitioner; and this object I esteem of greater value than the former. I now proceed to treat of the *Diseases of Individual Systems or Organs*.

II. OF DISEASES OF INDIVIDUAL SYSTEMS.

CHAPTER I.

ON THE DISEASES OF THE NERVOUS SYSTEM.

1693. BEFORE I proceed to treat of the Diseases of the Nervous System, I must give a brief idea of the parts of which that system consists.

1694. I believe all recent anatomists have divided the Nervous system into the Cerebro-spinal and the Sympathetic. The first of these is represented in a plate by M. Manec : it consists, first, of the cerebrum as a centre ; secondly, of *sentient* nerves, which pursue their course to it, and, thirdly, of *voluntary* nerves, which proceed from them, either along the base of the brain, or along the spinal marrow, and then along every external part of the animal frame. The second is partly represented in another plate by the same anatomist ; it comprehends the internal ganglionic or sympathetic.

1695. To these two subdivisions of the Nervous System, I believe a third must be added, before our views of that system can be considered as at all complete ;—it is one which I claim the merit of first pointing out in all its fulness. Suppose the cerebrum, the *centre* of the first subdivision of the Nervous System, and the ganglionic, or the second subdivision of this system, removed, *this remains*. It consists of the *true* spinal marrow, distinguished from the sentient and voluntary nerves which run along its course, as an *axis* of *excitor* and *motor* nerves. It is

the seat of a peculiar series of physiological phenomena, and of a peculiar class of pathological affections : in the former are included *all* the functions which relate to the immediate acts of *ingestion* and *egestion* ; to the latter, *all* spasmodic diseases.

1696. According to this view of the subject, instead of dividing the Nervous System into—

- I. The Cerebro-Spinal, and
- II. The Ganglionic, or Sympathetic,

I would propose to divide it into—

- I. The Cerebral, or the Sentient and Voluntary ;
- II. The True Spinal, or the Excito-motory , and
- III. The Ganglionic, or the Nutrient, the Secretory, &c.

1697. I must, in the first place, observe, that the designation, cerebro-spinal, is incorrect. It comprises *two* subdivisions of the Nervous System, which must be distinguished from each other, and of which the cerebrum and the true spinal marrow are the respective centre and axis.

1698. The first comprises every part of the Nervous System which relates to *sensation* and *volition*, the nerves of *sense*—the olfactory, the optic, the auditory, the gustatory, the nerves of touch, and the whole of the nerves of voluntary motion. Its centre is the cerebrum, including the cerebellum ; its sentient nerves run variously from the organs of sense, and from the *external* surfaces, first *without* the cranium or spine, and then *within* the cranium or spine, *to* that centre ; its voluntary nerves pursue a similar but retrograde course *from* that centre to the muscles of voluntary motion.

1699. A peculiar set of nerves constitute, with the true spinal marrow as their *axis*, the second subdivision of the Nervous System. As those of the former subdivision were distinguished into sentient and voluntary, these may be distinguished into the *excitor* and *motory*. The first, or the excitor nerves, pursue their course principally from *internal* surfaces, characterized by peculiar excitabilities, *to* the true medulla oblongata and spinalis ; the second, or the motor nerves, pursue a reflex course *from* that medulla to muscles having peculiar actions concerned principally

in ingestion and egestion. The motions connected with the former, or cerebral subdivision, are sometimes, nay, frequently, *spontaneous*; those connected with the true spinal are, I believe, *always excited*.

1700. [The originality of Dr. Hall's views of some of the nervous functions, and the interest which their discussion has excited, have induced the editors to give a short abstract of his peculiar doctrines, condensed from his Lectures.

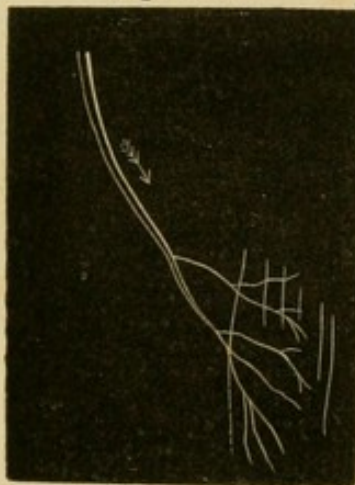
1701. Dr. Hall remarks that the principle of action giving rise to what he calls the *excito-motory* phenomena, has long been partially known, but that its application to the explanation of the phenomena of health and disease has been overlooked.

1702. This principle was called *vis nervosa* by Haller, *vis motoria* by Müller, and *excitabilité* by M. Flourens. Its seat was supposed to be in the tubercula quadrigemina, the spinal marrow and the motor nerves.

1703. It was supposed to act only in one direction; that is, *from* the source in the nervous centres, *towards* the part where the branches of the nerves are distributed.]

1704. If a muscular nerve, or nervous fibre be stimulated, either mechanically by the forceps, or by means of the galvanic influence passed across its fibres, the muscle or muscles to which it is distributed are excited into contraction. This fact is represented in figure 1.

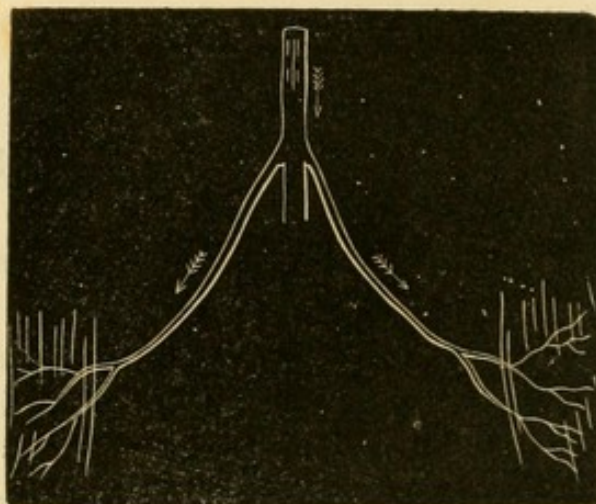
Figure 1.



1705. The same phenomenon is observed if, instead of stimulating a muscular nerve, the spinal marrow itself be subjected to the action of a mechanical or the galvanic stimulus. All the

limbs, the muscles of which receive nerves from *below* the part of the spinal marrow which is subjected to the influence of the stimulus, are thrown into action. This fact is represented in figure 2.

Figure 2.



1706. These are among the oldest of physiological experiments. Nevertheless, they are totally without application to physiology. It was surely improbable that a principle of action should exist, so distinct, so energetic, without playing its part in the phenomena of life. The reader will not, therefore, be surprised to learn that it has, indeed, a wide and extensive influence and agency in the animal economy.

1707. [Dr. Hall then mentions some experiments of Redi, Whytt, Sir Gilbert Blane, and Mr. Mayo, which he considers as having been mere experiments—unapplied facts.]

1708. They assume a very different rank and importance now that I have been able to demonstrate their dependence on the one and identical principle of the *vis nervosa*, and their extensive application to physiology and pathology.

1709. Not a step could be taken in this course until the opinion of Haller, and the laws of Professor Müller, relative to the *vis nervosa*, or *motoria*, were confuted.

1710. No second step could be taken until it was shown that the power which was only known to act upon external and cutaneous surfaces in experiments, acts also upon *muçous internal* surfaces in the living animal economy.

1711. These two objects I have accomplished in a series of experiments, which I now proceed to detail.

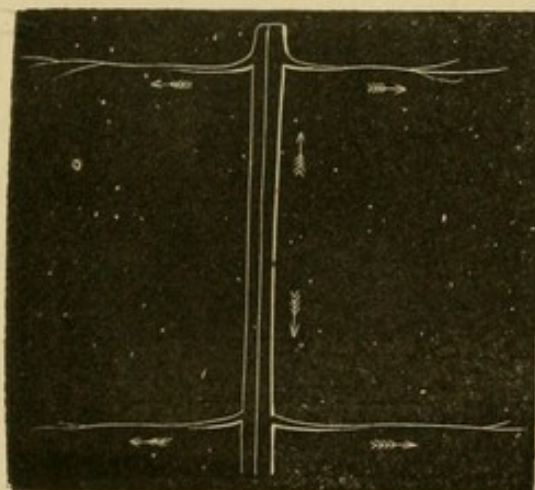
1712. 1. The head of a turtle being removed, to remove sensation and volition, I denuded and divided the spinal marrow in the dorsal region; I then irritated the *lower* end of the *upper* portion by a needle, the forceps and galvanism; I produced movements in the *superior* extremities. The motor power had acted in a retrograde direction. This experiment is represented in figure 3.

Figure 3.



1713. 2. In another decapitated turtle, I laid bare the spinal marrow in the dorsal region, and stimulated it as before. I produced motions in *both* the superior and inferior fins. This experiment, represented in figure 4, combined the experiment of Haller and my own, and proves that it is the *same* motor power which acts in *both*.

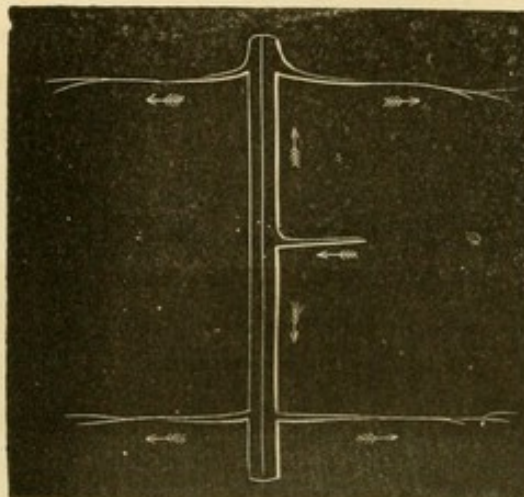
Figure 4.



1714. 2. Instead of denuding the spinal marrow, I now exposed a spinal intercostal nerve in the decapitated turtle, and stimulated it as I had done the spinal marrow itself in the former experiment. I produced similar movements in both the superior and inferior extremities. In this experiment the motor power

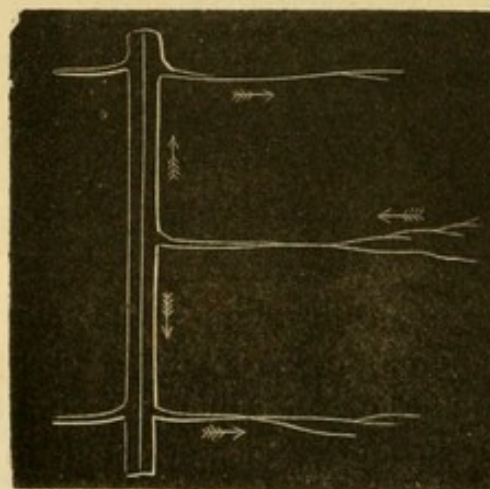
again acted in a retrograde, or in an incident course, into the spinal marrow, and both upwards and downwards into both extremities. This experiment is portrayed in figure 5.

Figure 5.



1715. 4. In the next place, instead of irritating the spinal marrow or the nerves, I irritated the cutaneous surface to which those nerves are distributed in a decapitated turtle. Precisely the same phenomena ensued; both superior and inferior extremities moved. The same effects were observed when I irritated the extremities of any of the fins. But this is identical with the experiments which we have quoted from Whytt, Legallois, &c. and referred by them, and by all physiologists, with one exception, to sensation. It is sketched in figure 6.

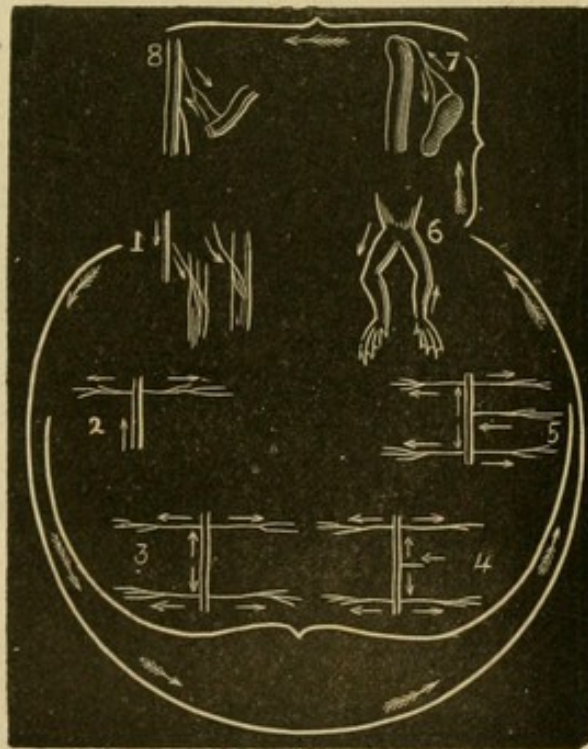
Figure 6.



1716. I have thus traced the operation of the vis nervosa of Haller, in new directions, until I have shown that its last mode of action is identical with that of the second series of experiments to which I have alluded. It now remains to point out the *application* of this principle to the phenomena of the animal economy.

1717. Now, on irritating the border of the glottis in an animal, from which the brain has been removed, the larynx is closed; on irritating the border of the anus, the sphincter is firmly contracted. By an extended series of experiments I have proved that these, and a multitude of other physiological phenomena to be detailed hereafter, depend upon the action of the spinal marrow, and thus, I think, my demonstration is complete. It is given in figure 7; for it is most important as denoting the progress of this inquiry. This sketch plainly shows the progress of this inquiry. The action of the larynx and sphincter ani are shown in the most distinct manner to depend upon the vis nervosa of Haller. The statement must be generalized, so as to include *all the orifices* and *all the sphincters* of the animal frame.

Figure 7.



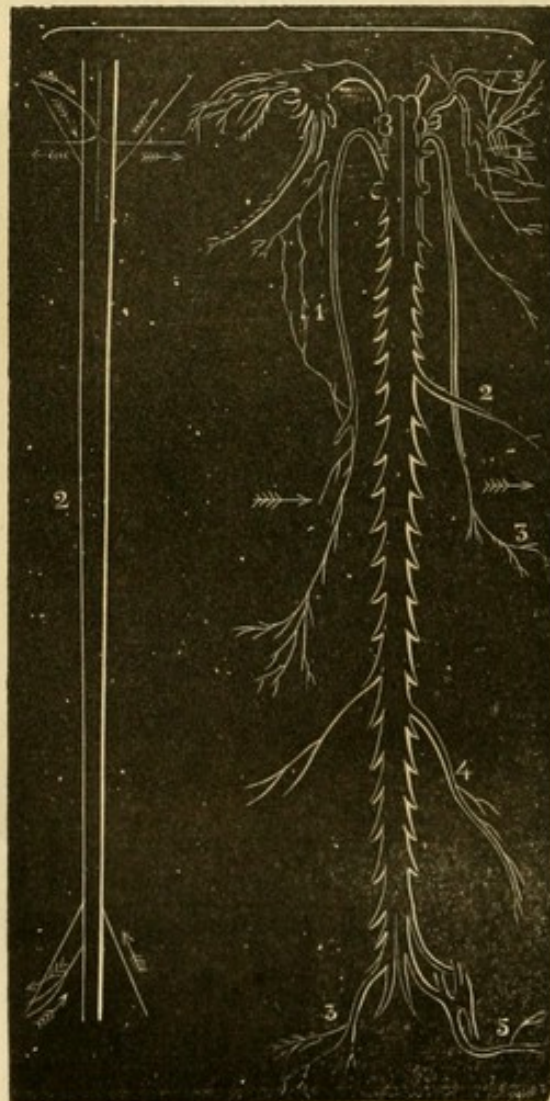
1718. But there are further applications of the excito motory power to physiology.

1719. These remarks lead me to observe that *all* the acts of this system are the results of *excitation*, by stimuli applied to *nerves*, which proceed to the *spinal marrow*, whence other nerves take their origin, and pursue a *reflex* course to the parts to be moved.

1720. The *system of incident nerves*, of the *true spinal marrow*, and of *reflex nerves*, is, like the agency carried on through it, new to physiology. It presides with its own power over the acts of ingestion and expulsion in the animal economy,—over the orifices and sphincters in the animal frame. It is represented in figure 8.

1721. The lines bracketed with the figure denote the varied course in which the excito-motory power moves and acts, and effectually disproves the idea of mere segments of the spinal marrow. If that idea were true, we must at least admit of segments in longitudinal as well as transverse directions.

Figure 8.



1722. The subjoined figures represent the course of incident nerves—as the trifacial, the spinal centre, and the course of reflex nerves—as the facial through which the excito-motory property acts, in the excited closure of the eyelids on touching their borders or lashes in the case of apoplexy.

1723. *Five* circumstances are requisite in this and every instance of an excito-motory act:—1, *an excitant*; 2, *an excitor nerve* continuous to the nervous centre; 3, the integrity of *that centre*; 4, a *motor nerve* continuous to the muscle to be excited into contraction; and 5, that *muscle* endowed with perfect irritability.

1724. If *any* part of this arc be interrupted, the phenomenon ceases instantly. The subjoined figures represent the spinal centre—the keystone of the arc, as it were, destroyed.

Figure 9.

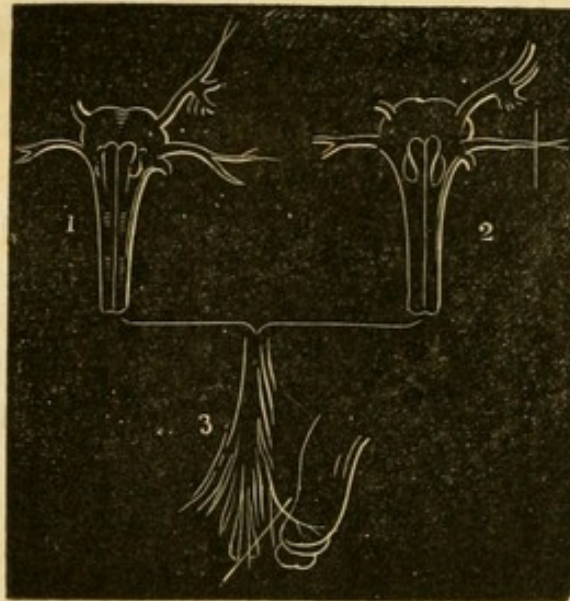


Figure 10.



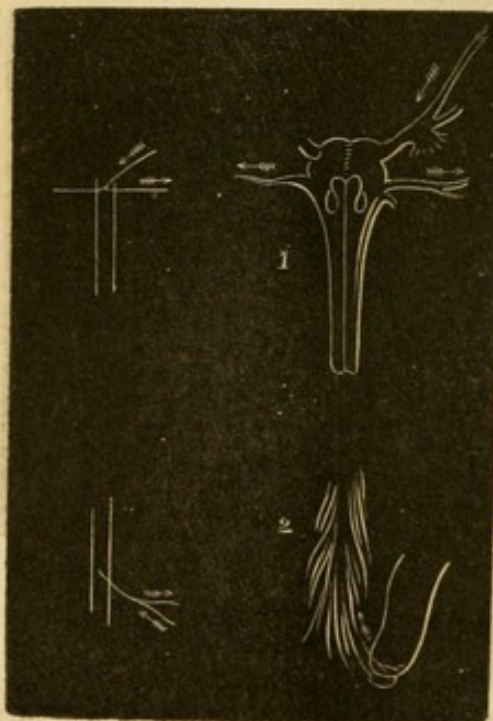
1725. Figure 9 represents the experiment in which the *incident* nerve alone; figure 10 that in which the *reflex* nerve alone; and figure 11 that in which *both* are severed.

Figure 11.



1726. These facts prove that certain incident nerves, as well as the spinal marrow and motor nerves are excito-motory ; and they establish a *class* of such nerves previously unknown to physiologists, or confounded with sentient nerves.

Figure 12.



1727. The two next figures represent an incident nerve, as the trifacial, or the nerve which supplies the border of the larynx,

or of the sphincter ani, proceeding from that organ to and from points which are nearly on the same parallel. They may be said to denote distinct segments of the spinal marrow.

1728. Figure 13 denotes the *direct*, figure 14, the *retrograde* course of the excito-motory influence along the spinal marrow, as observed in experiments in physiology, and in the effects of diseases and of remedies, and disprove the idea of the excito-motory phenomena being restricted to *segments* of the spinal marrow, at least *transverse* segments; and prove the existence, at least, of segments taken in a longitudinal direction.

Figure 13.

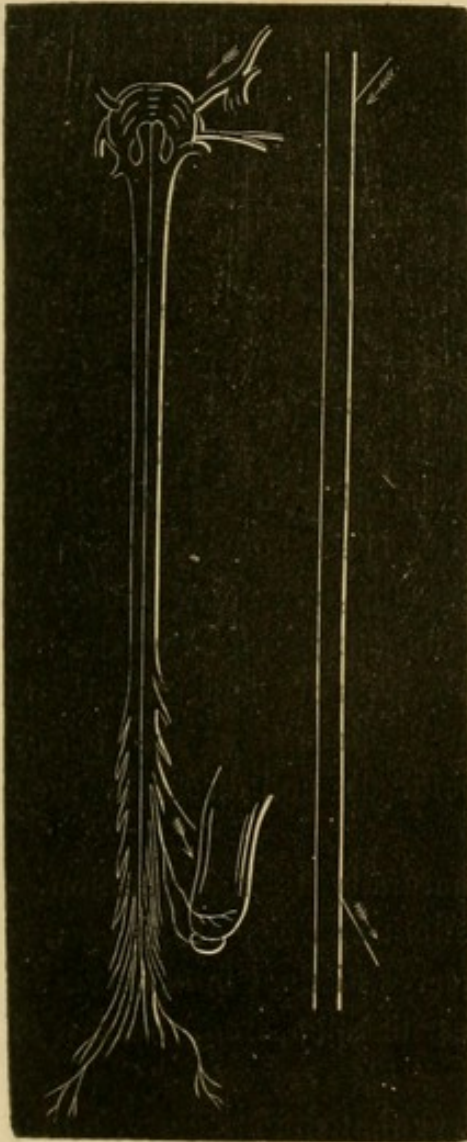
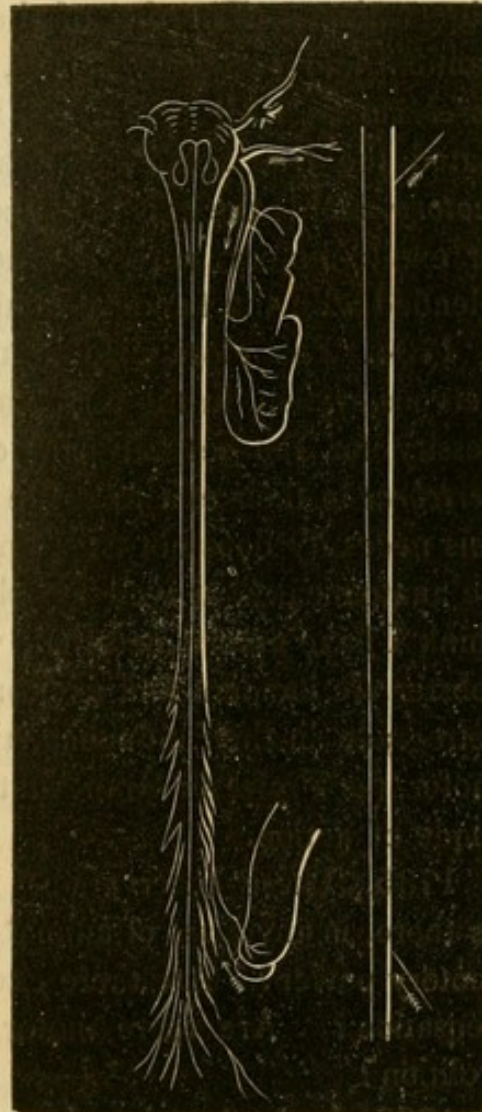


Figure 14.



1729. From the experiments which have been detailed, we may, I believe, infer the existence—

1730. 1. Of a *true spinal marrow*, *physiologically* distinct from the chord of intra-spinal nerves.

1731. 2. Of a *system of excito-motory nerves*, *physiologically* distinct from that of the sentient and voluntary nerves.

1732. 3. Of a nervous influence—the excito-motory power—operating in directions *incident, upwards, downwards* and *reflex*, with regard to the true spinal marrow, the centre of this excito-motory system.

1733. The entire medulla spinalis in the *vertebrata* consists then, of *two* portions, so intimately blended together, indeed, as not to be easily separated by the anatomist and perhaps only to be distinguished by physiological experiments and pathological observations. The *first* of these is the intra-vertebral *chord* of sentient and voluntary *nerves*, which proceed *to* and *from* the *cerebrum* as their centre. The *second* which may be denominated the true spinal-medulla, is distinguished by being *excito-motory*, and is the axis of a peculiar system of excitor and motor, or excito-motory nerves, generally but perhaps not invariably, blended with the former. This is represented in figure 8.

1734. The close combination of these two portions of the nervous system, in the *vertebrata*, is the consequence of the necessity for the several pairs of compound nerves being *inter-vertebral* in their exit from the spinal canal. In the *articulata* this necessity does not exist and the two systems may, therefore, be anatomically, as well as physiologically, distinct. Indeed, I think I have ascertained that, whilst the ganglionic nerves in the lobster are incident and excitor and the columns both direct and retrograde in their influence, the aganglionic[?] nerves are purely motor (as Professor Grant first conjectured) and direct in their mode of action.

1735. These observations lead naturally to the question—Is there, in any class of animals, a distinct *anatomy* of the excito-motory power? Are there excitor nerves distinct from nerves of sensation? Are there motor nerves distinct from nerves of volition?

1736. In the first place I may observe that the olfactory, optic, and acoustic nerves are nerves of *sense* only, and destitute of ex-

cito-motory power ; so are the cerebrum and cerebellum, the former of which is probably the centre of the sentient and voluntary system. Is there a pure *voluntary* nerve? a nerve which conveys the acts of the will, without possessing the motor, or excito-motory power? It appears to me that *one* such purely voluntary nerve only exists, for every muscle of the animal power, with one exception, seems to require *tone*, which is a result of the excito-motory power, conveyed by motor nerves, probably involved, in general, in the same neurilemma with voluntary nerves. This power acts during *sleep*, in *all* muscles *except the levator palpebræ*, and perhaps the four *recti oculi*.

1737. But as there are purely sentient nerves, it may be a question, whether there be purely excitor nerves. Such a nerve probably does not exist absolutely in health. An experiment made by the late Mr. Broughton, Mr. Field, and myself, in 1835, led to the conclusion that the *pneumogastric* nerve is destitute of sentient property. This nerve is certainly the least sentient, and the most purely excitor, of any in the class *vertebrata*. In certain cases of disease we, however, observe the sentient power annihilated, whilst the excito-motory still continues ; this occurs in those diseases of the brain which destroy the sensibility of the face ; the excito-motory property may remain, and the eyelash and the nostril be as susceptible of stimuli as ever. In the experiments in which the cerebrum, the *centre* of the sentient and voluntary system is removed, and in diseases, and in other experiments in which the spinal marrow is disorganized or divided, the phenomena which remain are entirely of the excito-motory class. Sentient and voluntary nerves are blended with the excitor and motor nerves, but their functions are suspended when the influence of the centre of their system is cut off. The centre of the excitor and motor nerves being the appropriate portions of the spinal marrow itself, the functions of these nerves remain. Still the two sets of nerves are generally blended anatomically. If they be distinct in any class of animals, it is probably in the *invertebrata* (§ 1734), and especially in their lowest forms in which sensation and volition are nearly extinct, and the animal lives a sort of excito-motory life only.

1738. But if the existence of a *distinct* anatomy of the

excito-motory system be doubtful, that of the *blended* anatomy, and that of the distinct physiology, pathology and therapeutics of this system, are perfectly obvious.

1739. I think I may now regard the proof as quite complete, that the principle formerly designated the *vis nervosa*, and that which operates in producing that series of actions, which have been designated instinctive, automatic, sympathetic, &c., but which I propose to designate excito-motory, are one and the same. The incident, retrograde, and reflected courses, and the combined forms in which it operates, are at variance with the laws of its operation, deduced from the facts formerly known by Professor Müller, and afford the *type* of the extensive series of physiological, pathological, and therapeutic phenomena to which I have alluded.

1740. The experimental fact noticed and represented in § 1775, gives the type of all those physiological phenomena in which the excito-motory property acts, first in an incident, and then in retrograde and reflex directions, and in *combined* modes, as we observe in the excited acts of ingestion and expulsion, and in the action of the orifices and sphincters.

1741. The same fact represents the effects of dentition. The experiment detailed and represented (§ 1714), affords us the type of traumatic tetanus.

1742. The therapeutics of agents which operate through the excito-motory system, are still nearly unknown and require a careful investigation. Strychnine, besides acting on the general excito-motory system, is apt to affect the larynx; cantharidine, the cervix vesicæ, &c.

1743. In *all* these actions the medulla oblongata, or the medulla spinalis, is the special COMBINER and DISPOSER of the excito-motory influence, in producing those complex effects and operations which we observe in deglutition, respiration, &c.

1744. [*Functions of the Excito-Motory System.* This system is constituted by the incident excitor nerves, the medulla, and the reflex motor nerves. The distribution of these nerves takes place partly about the larynx and pharynx and about the sphincters. These consequently guard the orifices and exits of the animal power. Nerves of this class preside over inges-

tion and egestion ; the introduction of food and air, and the excretion of the fœces, urine, &c. Another portion gives general *tone*, or permanent contraction, to the muscular system. All the actions under the influence of this class of nerves are entirely independent of the cerebral system, and remain after the brain has been disorganized or removed.]

1745. There is good reason for viewing the fifth and the posterior spinal nerves as constituting an external ganglionic system, for the nutrition, &c. of the external organs ; so that I would further propose to subdivide the *ganglionic* subdivision of the Nervous System into 1, the *internal* ganglionic, which includes that usually denominated the sympathetic, and probably filaments of the pneumogastric ; and 2, the *external* ganglionic, which will embrace the fifth, and the posterior spinal nerves.

1746. To the *Cerebral* or *Sentio-voluntary* system, all diseases of *sensation*, *perception*, *judgment*, and *volition* belong, whether these functions are augmented, diminished, or annihilated,—and, therefore, all painful, mental, and comatose, and some paralytic, diseases. To the *true Spinal* or *excito-motory* system belong ALL *spasmodic*, and certain *paralytic* diseases. It must be observed, however, that these two parts of the Nervous System influence each other, both in health and disease, as they do both influence the ganglionic system.

1747. It was well known to the ancients, that disease in one hemisphere of the brain induces paralysis in the opposite side of the body.

1748. This fact has been confirmed by modern pathologists. It has been fully ascertained that disease confined to one hemisphere of the cerebrum, or of the cerebellum, and to one side of the mesial plane in the tuber annulare, constantly affects the *opposite* side,—whilst disease, confined to one of the lateral columns of the medulla oblongata and medulla spinalis, affects the *corresponding* side, of the muscular system. The encephalon has a *crossed effect* ; the medulla a *direct effect*.

1749. It has been further ascertained that, in *experiments*, lesions of the encephalon induce *paralysis only*, whilst lesions of the medulla oblongata and spinalis induce *convulsion*, or *paralysis*, according to their severity. Hence it becomes an important

question to determine the cause of convulsive affections in disease of the *encephalon*: to this question I shall particularly direct the reader's attention immediately.

1750. I need scarcely add, in this place, that in those cases in which hæmorrhage occupies an extensive space, affecting both hemispheres of the cerebrum,—as in meningeal hæmorrhage at the summit, or at the base of the brain, in extensive hæmorrhage within the brain, extending from one hemisphere to the other, or in both ventricles,—*general* paralysis is observed; the same event takes place in the cases in which a clot is formed in the mesial line in the tuber annulare,—the *nodus encephali*, as it has been termed.

1751. Apoplexy and general paralysis are always serious. They are still more so when they affect the excito-motory system, inducing dysphagia, stertor, relaxed sphincters, &c.

1752. I must not, however, extend my observations on the cerebral system, but hasten to that in reference to which I particularly wish to engage the interest of the reader.

1753. The *first* remark I would make is a very comprehensive one. I believe that the *whole* order of spasmodic and convulsive diseases belongs to this, the excito-motory division of the Nervous System,—and that they cannot be understood without a previous accurate knowledge of this system.

1754. Another remark is equally important. *All* these diseases have their source in *one* of three parts of the excito-motory system: the *first* series have their origin in the spinal marrow itself, the axis or centre of the system; I shall designate these cases by the epithet *centric*: the *second* series have their source in the excitor nerves, consequently at a distance from that centre; I shall denominate them the *eccentric*; a *third* series occurs, like the spasmodic tic of the seventh pair, in the course of the motor nerves.

1755. A third remark is, that in *all*, or *almost all*, the order of spasmodic diseases, the parts most immediately concerned in ingestion and egestion,—the orifices and exits of the frame,—are those principally affected. The physiology has become pathology. The *larynx* is *closed* in the convulsions of children, in epilepsy, in puerperal convulsion; it is spasmodically affected

in tetanus and hydrophobia ; it is partially affected in the croup-like convulsion, in hysteria, in which there is frequently loss of voice, &c. The *pharynx* is affected in some of these diseases. The *respiratory* muscles are so in all. In epilepsy we observe affections of the *sphincters*, and even of the ejaculators.

1756. After these brief remarks, I will merely add an Arrangement of the Diseases of the Nervous System.

I. DISEASES OF THE CEREBRUM.

- I. Encephalitis.
- II. Tuberculous Meningitis.
- III. Chronic Hydrocephalus.
- IV. Congestion and Hæmorrhage.
- V. Tubercles ; Tumors.
- VI. Hypertrophy ; Atrophy.
- VII. Mania.

II. CEREBRAL DISEASES RESULTING FROM VARIOUS AFFECTIONS OF THE SYSTEM.

- I. Intestinal Irritation.
- II. Exhaustion from Loss of Blood.
- III. The Hydrocephaloid Disease.
- IV. Chlorosis.
- V. Excessive Study ; Shock ; Alcohol ; &c.
 1. Delirium Tremens.
 2. Delirium Traumaticum.
- VI. Affections of the Kidney ;
 1. Dropsy.
 2. Ischuria.

III. DISEASES OF THE CEREBRAL NERVES.

- I. Paralysis.
 1. Of the Sensitive Nerves.
 2. Of the Voluntary Nerves.
- II. Augmented Action.
 1. Of the Sensitive Nerves ;

1. Inflammation ; Ulceration ; Tumors ; &c
2. Neuralgia.
3. Hemicrania ; Brow-ague, &c.
2. Of the Voluntary Nerves ;
Spasm ?

IV. DISEASES OF THE CEREBELLUM.

V. DISEASES OF THE SPINAL MARROW.

- I. The Centric Diseases, or Diseases of the True Spinal Marrow itself.
- II. The Eccentric Diseases, or Diseases excited through the Excitor Nerves.
- III. The Diseases of the Motor Nerves.

VI. INFLAMMATION WITHIN THE SPINE.

- I. Inflammation of the Membranes, or Spinal Meningitis.
- II. Inflammation of the Substance, or Spinal Myelitis.
 1. Of the Cerebral, or Sentient and Voluntary Tracts.
 2. Of the True Medulla.
 3. Of its Principal Divisions.

VII. CONGESTION ; HÆMORRHAGE.

VIII. CENTRIC CONVULSIONS OR EPILEPSY.

IX. PARALYSIS AGITANS.

1. General ; or
2. Hemiplegic.

X. TREMOR MERCURIALIS.

XI. THE ECCENTRIC DISEASES OF THE SPINAL MARROW.

- I. Eccentric Epilepsy.
- II. Puerperal Convulsion.
- III. Tetanus.
- IV. Hydrophobia.
- V. The Croup-like Disease.

XII. DISEASES OF THE SPINAL MOTOR NERVES.

- I. Spasmodic Strabismus.
- II. Spasmodic Tic.
- III. Spasmodic Torticollis.
- IV. Spasm of the Respiratory Muscles.

XIII. DISEASES OF THE GANGLIONIC NERVES.

I. OF ENCEPHALITIS.

1757. Encephalitis must be distinguished into—

1. Inflammation of the Membranes,
 1. Of the Summit,
 2. Of the Ventricles,
 3. Of the base, and
2. Inflammation of the Substance,
 1. Of the Principal Divisions of the Cerebrum.
 2. Of the Cerebellum.

1758. The former of these might be distinguished by the term *meningitis*, the latter by that of *myelitis*.

1759. I. The *Causes* of Encephalitis are mechanical injuries of the head itself,—blows, falls, contre-coups ; excessive mental application, anxiety, &c. ; the intemperate use of spirits ; exposure to the sun-beams, &c. Frequently, encephalitis forms a complication of other diseases of the system, or of distant organs, especially fevers, the exanthemata, and dropsies. It is also frequently the *effect* of other diseases of the encephalon itself ; it is excited round the coagulum, or cyst, in cases of cerebral hæmorrhage,—tumors, tubercles, &c. ; it is also sometimes excited by ossifications, or projecting spiculæ of bone. Meningitis and myelitis frequently excite each other. M. Lallemand details a case in which a ligature applied to a part of the *right* brachial plexus induced inflammation and suppuration of the *posterior* part of the *left* hemisphere of the brain.¹

¹ De l'Encéphale, t. i, p. 122 ; 226.

1760. Encephalitis is said to have followed the suppression of the catamenia and other discharges. Is it ever connected with rheumatism?

1761. The *Symptoms* of this disease first manifested, are affections of the *cerebral* functions; affections of the *true spinal* and of the *ganglionic* functions, follow in their turn. These symptoms vary much in the *first* and in the *later* stages of Encephalitis.

1762. The very *first* symptoms are affections of the sensibility: the earliest, the most important, sometimes the *only* symptom, is *pain* or cephalalgia; this is variously situated, not always acute, sometimes excruciating. In addition to pain, there is frequently intolerance of the eye to light, of the ear to sound, and occasionally of the skin to the touch; to these are added the sense of flashes of light, or of sudden noises.

1763. The *next* symptoms are affections of the mental faculties: sleeplessness, or disturbed sleep, restlessness, delirium which is sometimes violent, moroseness, stupor, unwillingness to be disturbed.

1764. The *third* source of the symptoms is the volition: there are various voluntary motions, denoting either pain or delirium.

1765. Besides these affections of the voluntary movements, there are, in meningitis, spasmodic movements; and in myelitis spasmodic, alternating with, or followed by, paralytic affections, which strongly characterize these different forms of Encephalitis.

1766. The symptoms which belong to the *true spinal* system are very peculiar: the *first* of these is *vomiting*; this symptom should, therefore, never be neglected: the *second* is *strabismus*; the *third* is some decided *spasmodic*, or even *epileptic* attack.

1767. The symptoms which belong to the *ganglionic* system are more obscure; the pulse is frequent; the bowels are frequently constipated; but the secretions are little affected.

1768. Encephalitis is sometimes marked almost solely by violent delirium, and it is then the *phrenitis* of nosologists; sometimes an early, if not the first symptom, is convulsion; sometimes there is violent headache as the chief symptom. In other cases,

this disease is insidious in the highest degree: the patient seems *idle*, perhaps is suspected of *feigning*; he will not move or speak; and there may be *no* other marked symptom.

1769. There is no symptom perfectly diagnostic of meningitis and myelitis, see § 1758. The former is more marked by acute pain, delirium, and convulsions; the latter by muscular contractions, alternating with or followed by paralysis.

1770. [Dr. Mackintosh mentions as the characteristic symptoms of inflammation of the *substance* of the brain, an absence of violent delirium; speedy insensibility; paralysis, accompanied by morbid involuntary contraction of the flexor muscles; a urinous smell. He observes that cases occur, however, in which there is a different train of symptoms, and in which paralysis and rigidity do not co-exist.

1771. He mentions also a very fatal affection of the brain and its membranes, connected with disease of the petrous portion of the temporal bone, and a discharge from the ear. This affection is slow in its progress, and disease of the brain is often unsuspected before dissection, when it is found softened and containing pus; the membranes being partially destroyed, or inflamed and thickened.

1772. Acute inflammation of the substance of the brain lasts, in fatal cases, from a few days to two or three weeks.

1773. Softening of the brain, (*ramollissement* of the French) has been considered by many writers as the result of inflammation. By Rostan and others it is considered as a peculiar change not of inflammatory character. Dr. Abercrombie supposes that it may be sometimes the result of inflammation, and at other times consist in a change resembling mortification in the other tissues, and arising from disease of the arteries. A similar view is taken by Dr. Carswell. The symptoms of the first kind of softening are, of course, those of encephalitis. Dr. Carswell mentions two periods in softening from obliteration of the arteries. The symptoms of the first period are pain, slight affections of the intellect, numbness, stiffness, prickling sensations, or increased sensibility of the extremities, imperfect action of the organs of sense, inappetency, constipation, dysuria. Some of these symp-

toms may be absent, or some may predominate over others by their intensity. The symptoms of the *second period* are ushered in by a sudden aggravation of those of the first, by complete paralysis, and suspension or abolition of the intellectual faculties.]

1774. The second stage of Encephalitis is denoted by diminished sensibilities and mental faculties: the pain and delirium subside into insensibility, stupor, coma; the spasmodic into paralytic affections. There may be blindness, deafness; the pupils are generally incontractile on exposure to light.

1775. Eventually, the true spinal functions suffer: there is permanent strabismus, difficulty in deglutition, stertor, and other affections of the respiration; relaxation of the sphincters, &c. The pulse varies much in frequency. The bowels are apt to be constipated. The urine is often scanty.

1776. The insensibility of the patient frequently leads to a particular event. He is unconscious of the existence of a disease, which, under other circumstances, would induce great pain. Complications with Encephalitis are, therefore, apt to be overlooked. One event I must point out in an especial manner: from insensibility, the patient does not void the bladder: this viscus becomes excessively distended, and there may be a stillidium urinæ; in *every* case of insensibility, in *every* case of involuntary discharges of urine, we must examine the hypogastric region.

1777. There is another *practical* fact of much importance on which we must fix our attention: not only the dawn and the course of Encephalitis are insidious, but its termination is particularly so. In some cases an unexpected state of *sinking* takes place, in which the symptoms, whether pain or delirium, &c. subside, and the patient is thought to be convalescent. The same event occurs in some other diseases, especially enteritis. We must beware of this fact too, and suspect some such insidious change, unless *all* the symptoms concur to denote returning health.

1778. III. The principal *Morbid Appearances* left by Encephalitis are,

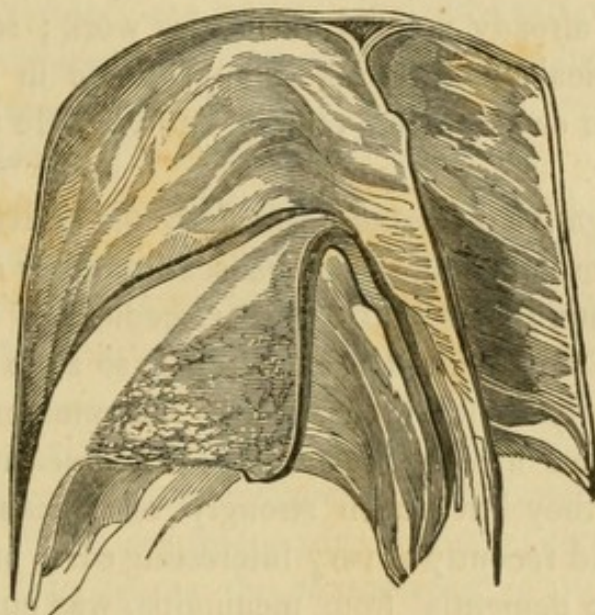
In Meningitis,

1. Injection.
2. Effusion of serum.
3. Effusion of Lymph.
4. Effusion of Pus.
5. Ulceration.

In Myelitis,

1. Injection ; Tumefaction.
2. Softening.
3. Purulent Infiltration.
4. Abscess, encysted, unencysted.
5. Induration.

The effusion of lymph upon the dura mater is represented in the following sketch from Dr. Baillie :



1779. These morbid appearances may take place in various parts of the encephalon. Those left by meningitis occupy the summit and the base of the brain, and the ventricles. Those induced by myelitis occupy the surface and the central parts, and any individual portion or portions of the substance of the brain.

1780. For further information upon these important points, I refer my reader, with great satisfaction, to the works of M. Andral and Dr. Abercrombie. The only point to which I would draw attention particularly, is the fact that the inflamed brain is *tumefied*. This fact explains the occurrence of pressure and its varied effects on different parts of the encephalon, frequently situated remotely from the part affected by inflammation, softening, &c. It is on this principle that we explain the occurrence

of various affections of the true spinal system in inflammation of different parts of the cerebral system,—the strabismus, the vomiting, the various convulsions which occur in the early stage ; and the stertor, the relaxed sphincters, &c. which occur in the later stages of Encephalitis.

1781. IV. *The Treatment* of Encephalitis embraces blood-letting, general and local, purgatives, antimonials, mercurials, cold lotions applied to the head, counter irritation, &c.

1782. The efficacy and safety of blood-letting depend upon its prompt and effectual administration. I believe the *only* satisfactory mode of the institution of this important remedy is that which I have already pointed out in this work ; see § 823.

1783. Topical blood-letting is appropriate in cases in which some symptom or symptoms remain, and we dare not deplete the system further.

1784. Purgative medicines, especially the active purgatives,—as the oleum croton tiglli,—and nauseating doses of antimonials, are powerful auxiliaries to the other remedies.

1785. The free exhibition of mercury, so as to affect the system, is distinctly useful in continued inflammatory affections of some serous and mucous membranes ; as pleuritis, peritonitis, croup ;—and they have been strongly recommended in Encephalitis. I had recently a very interesting case, in which a state approaching to dementia, from meningitis, was cured by a long-continued mercurial course.

1786. Ice, an alcoholic lotion, applied to the head, the cold water douche, &c. are other powerful auxiliary remedies. The same remark may be applied to blisters, issues, or setons, applied on some convenient part of the head or in the neck.

1787. It is important that the head should be raised ; that the feet should be fomented and kept warm. It is important to prevent the patient's mind from being disturbed, or tried, in any way ; to keep the eye from the light, the ear from noises, &c.

II. ON CONGESTION AND HÆMORRHAGE IN THE ENCEPHALON.

1788. I now proceed to notice two diseases of the Encephalon, certainly not less important, not less frequent than en-

cephalitis. They are apoplexy and paralysis, or, more correctly,—

- I. Congestion without Rupture, and
- II. Hæmorrhage, or Rupture.

1789. These affections, like encephalitis, may occur in—

- I. The Membranes,
- II. The Substance, of the Brain.

1790. I. The *Causes* of the attack of congestion or hæmorrhage within the head, are predisposing and exciting: the former are plethora, repletion, or, on the contrary, exhaustion, inanition, or debility; disease of the heart, especially hypertrophy, and contracted valves, of the left side; some forms of acute anasarca; deranged or suppressed function of the kidney; disease of the arteries or veins, or other tissues within the cranium, &c. The exciting causes are excess in eating; muscular efforts, especially straining, vomiting, sneezing, passion; the recumbent posture, &c.

1791. II. As inflammation usually assumes an *acute* character, congestion and hæmorrhage are, as generally, *sudden* in their attack. There are frequently, however, certain *antecedent Symptoms*, which denote the *threatening* of this attack, and which I shall take pains to point out.

1792. I would observe, too, that these antecedent symptoms can only be observed and learnt,—like those of many other diseases,—in *private* practice,—I had almost said in the cases of the rich and affluent; by which I mean that it is in *such* cases that we are compelled, from our very office, to remain by the patient, watching, anxiously watching, every shade of change.

1793. These antecedent symptoms consist of headache, vertigo; a sense of pressure, a sense of confusion; incoherence, delirium; loss of consciousness, of memory; drowsiness; numbness, paralysis, spasm; giddiness, flashes of light, visual spectra, noises; pallor, sickness, vomiting; faintishness, &c.

1794. These symptoms are all *cerebral*, with the exception of the vomiting and of the spasm. The relation of the former of

these to affection of the head, has been already pointed out ; but it cannot be insisted on too much. A fall on the head, inflammation, and other diseases of the Encephalon, so frequently induce vomiting, as to make it a most valuable premonitory symptom in these cases.

1795. The *attack* of congestion, or of hæmorrhage itself, is frequently of the most sudden kind. There is a total loss of sense and volition ; the patient is flushed, comatose, breathes with stertor, and the pulse is strong and full. This is probably the case of congestion. In the attack of considerable hæmorrhage, there are symptoms of *shock* inflicted upon the nervous system : pain of the head is followed by paleness, sickness, and vomiting ; coma, or paralysis, loss of speech, or of the power of swallowing, succeeds immediately or more slowly, probably according to the promptitude or the extent of the hæmorrhage. In the attack of partial hæmorrhage, these symptoms are observed in a slighter form ; and it is some paralysis, hemiplegia, partial loss of speech, &c. which ensues. In one interesting case, such an attack as I have last described, was followed in a few months by one of severer form, and the patient survived but a few days.

1796. M. Lallemand observes—"In fine, in inflammation of the arachnoid, there are *spasmodic* symptoms without paralysis ; in hæmorrhage, *sudden paralysis* without spasmodic symptoms ; in inflammation of the substance of the brain, *spasmodic* symptoms, and *slow and progressive paralysis*."¹

1797. It will be perceived that in these cases the true spinal system is affected in proportion to their gravity. To the loss of sense and voluntary motion are now added dysphagia, stertor, and relaxed sphincters ; sometimes there are convulsions, sometimes contraction of the limbs ; in other cases, as I have stated, sickness and vomiting.

1798. The ganglionic system suffers in its turn : the bronchia and trachea become clogged with mucus.

1799. III. The *Morbid Anatomy*. The injection of inflammation is probably seated in the minute *arteries* and the

¹ Recherches sur l'Encephale, t. i, p. 278.

capillaries, whilst the morbid anatomy, in these cases, consists in congestion or rupture of the minute *veins* and capillaries, of the medullary substance.

1800. M. Serres speaks of a meningeal apoplexy ; M. Cruveilhier depicts an “apoplexie capillaire” of the substance of the brain :

1801. The meningeal rupture is both described and depicted by the late Dr. Cheyne,¹ and by M. Serres ;²

1802. The congestion of the substance of the brain is readily understood. It is not always obvious on post-mortem examination.

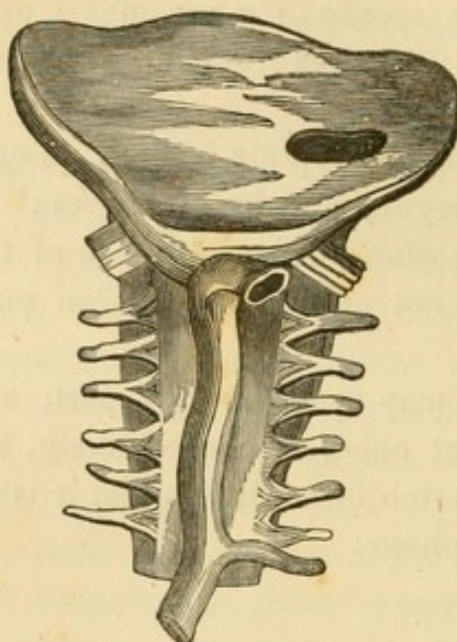
1803. Rupture may occur in any part, and even different parts of the brain at once, or consecutively, and to any extent. In the subjoined sketch from Dr. Baillie, it is represented as occupying the hemisphere :



¹ Cases of Apoplexy and Lethargy, 1812, p. 216, pl. III.

² Annuaire des Hôpitaux, 1819, p. 309, pl. XI.

In this sketch from M. Ollivier it occupies one side of the tuber annulare :



It produces corresponding and proportionate effects,—paralysis, partial, in the former case, or general, in the latter, and coma, in their various forms and degrees.

1804. Diffused meningeal apoplexy ; extreme hæmorrhagic effusion into the substance, or into the ventricles of the brain, induce general paralysis, or coma ; partial hæmorrhage of a hemisphere, paralysis of the opposite side of the body ; still more partial and circumscribed hæmorrhage may affect the arm, or the leg only, or the speech.

1805. The appearance of cerebral hæmorrhage is very different at different periods after its occurrence. At first there is a mere coagulum of blood of various dimensions and form ; afterwards, the coloring matter disappears, and fibrine or serum remains, enclosed in a cyst lined with a fine membrane like the serous membranes ; in some cases the sides of this cyst gradually approach each other, and remain in simple contact or unite. The contents of the cysts sometimes become organized. The parts of the brain surrounding the hæmorrhage are frequently softened, sometimes as the cause, sometimes as the *effect*, of the hæmorrhage ; in old cases they are much indurated. The ad-

jacent arteries are frequently diseased,—beset with calculus or osseous matter,—or affected with aneurism.¹

1806. The treatment of congestion and hæmorrhage of the Encephalon embraces the use of blood-letting, general and local, purgative medicines, the most rigid abstinence, &c.

1807. The principal point which I wish to impress upon the mind in reference to blood-letting, is its different measure proper in mere *congestion* and actual *rupture*. In the former there is extreme tolerance of loss of blood; in the latter, the system is extremely, and even dangerously, susceptible of this loss. The diagnosis is frequently difficult. I have pointed out the most distinctive symptoms, § 1795. In addition to an attention to these, I must again impress the mind with the importance of placing the patient in the perfectly upright posture before the blood is allowed to flow: we must watch his countenance, his breathing; keep our finger on his pulse; and the moment the slightest indication of approaching syncope takes place, arrest the flow of blood, and place the patient recumbent.

1808. If early syncope occur, we must trust the future to local depletion by means of cupping at the occiput and the neck. If the patient lose a large quantity of blood without change, we must pursue and repeat the remedy boldly; his life depends upon ample depletion of the sanguiferous system. We must add, to the energetic use of the lancet, that of the cupping instrument.

1809. The head should be covered with a spirit lotion. The feet should be fomented, involved in ample bran poultices and sinapisms alternately.

1810. The bowels must be purged freely, daily.

1811. The diet must be mere barley-water.

1812. The countenance, the respiration, the pulse, must, however, be watched, and the least disposition to debility cautiously noticed and remedied,—even by stimulants, and especially by the carbonas ammoniæ.

1813. The next questions relate to the treatment of the paralysis, should the patient survive, or escape the attack of

¹ See Blane, Trans. of a Soc. for the Imp. of Med. Know. vol. ii, p. 193; Serres, Archives de Méd. t. x, p. 419, &c.

apoplexy. I must suppose all inflammatory action dissipated. In this case liniments and electricity may be tried, but especially voluntary movements of the limb. Is strychnine ever of advantage?

1814. Should not we rather be still contemplating the condition of the brain, and using the remedies proper for the cerebral disease, the source of the paralysis? Cupping, so as to induce irritation, rather than to withdraw blood, setons, issues, near the part affected,—that is, upon the hemisphere opposite to the paralyzed side,—are our principal remedies, but especially of the first of these.

III. TUBERCLES OF THE ENCEPHALON.

1815. Besides the diseases which I have hitherto mentioned, there are others which may occur in the Encephalon. These are Tubercles and various kinds of Tumors.

1816. As inflammation, congestion, and rupture constitute the acute and sudden affections of the brain; tubercles and tumors present us with slow and gradually progressive diseases of this organ. Not that this rule is without exception: for inflammation is sometimes slow and insidious in its accession; whilst tumors occasionally produce the sudden attack of an apoplexy.

1817. The difference between the same encroachment upon the cavity or contents of the cranium, formed promptly, or with extreme slowness, is very great. Large tumors, slowly formed, may exist within the skull almost without a symptom; a clot of blood of the size of a pea, or certainly of a nut, in the substance of the brain, may produce hemiplegia.

1818. In speaking of tubercles of the brain, I must allude to the important law discovered by M. Louis, in regard to tubercles—that, beyond the age of fifteen, tubercles are never found in *any organ* of the body without being present in the *lungs*. In a doubtful case, then, we examine the condition of the thorax: if there be tubercles there, it is a presumption that there may be tubercles in the Encephalon: if there be no sign of pulmonary tubercle, it is a presumption that the affection of the brain is not tuberculous. But, as pulmonary tubercles are not

always easily detectible, we endeavor to ascertain, in the absence of signs, whether there be other reasons for suspecting tuberculous formation,—such as an hereditary strumous or tuberculous affection in the system, or in any organ, &c.

1819. Otherwise the symptoms of tuberculous affection of the brain do not differ from those of slow inflammation.

1820. Tubercles occur principally in the cortical and medullary substance of the upper part of the hemispheres: but also in the cerebellum, tuber annulare, medulla oblongata and spinalis; and in the peduncles, the corpora striata, and the thalami. They vary from the size of a millet seed to that of a pea or of an egg. They sometimes become encysted, especially as softening takes place. They frequently excite increased and inflammatory action in the adjacent portions of the nervous mass—whence the symptoms.

IV. TUMORS OF THE ENCEPHALON.

1821. Tumors, and especially the scirrhus and encephaloid, may exist within the cranium. They have occasionally followed blows on the head; they frequently co-exist with similar affections in other organs of the body.

1822. Developed slowly, they may exist with scarcely any symptom, or they may induce symptoms, on the principle, 1, of compression; 2, of irritation; and 3, of inflammatory action in the adjacent parts; 1, of the brain; 2, of the nerves; 3, of the membranes; and 4, of the cranium itself. These symptoms are frequently induced gradually, sometimes suddenly; and are varied with the part principally affected. They consist of pain, followed perhaps by stupor; loss of smell, sight, touch, hearing, or taste; paralysis; or various convulsive affections, as strabismus, and even *epilepsy*.

V. HYPERTROPHY OF THE BRAIN.

1823. This disease has been only recently distinguished from other diseases of the Encephalon. We owe our knowledge of

it principally to MM. Bouillaud,¹ Dance,² Scoutetten,³ and Andral.⁴ It has sometimes occurred in children; but most frequently between the ages of twenty and thirty.

1824. The brain is at once larger and paler than natural. In this latter particular it differs from inflammation or congestion, in which there is also a degree of tumefaction. On opening the cranium, the dura mater seems ready to burst; on removing this membrane, the convolutions of the brain are found to be so firmly pressed together that the intervening triangular spaces have disappeared.

1825. The symptoms are those induced by compression: after long-continued pain, loss of intelligence and muscular power; convulsions; epilepsy.

1826. In one case only were these symptoms absent. It was the case of M. Scoutetten, which occurred in a little child aged five, in whom the cranium grew, *pari passu*, with the augmented size of the brain.

VI. ATROPHY OF THE BRAIN.

1827. I have, in this place, simply to notice a fact which should not be unknown, that the brain sometimes becomes atrophied in some part, especially of the convolutions, in the latter, or latest, periods of life. Dementia and paralysis are the effects of this singular malady. Frequently the patient becomes utterly helpless, and passes into *second childhood*, as it is termed, and the evacuations pass involuntarily.

1828. Sometimes the convolutions are simply reduced in volume; at other times they are puckered; in other cases there is induration.

1829. The patient lives a life of a mere excito-motory and nutritive kind. The cerebral functions are obliterated. The true spinal and ganglionic functions remain alone.

1830. There is much for the physiologist and pathologist

¹ *Traité de l'Encéphalite.*

² *Repertoire d'Anatomie Pathologique*, 1828.

³ *Archives Générales de Médecine*, t. i, et. t. ii.

⁴ *Clinique Médicale*, t. v. p. 595.

to investigate in this singular *return* to a sort of infantile existence.

VII. OF MANIA.

1831. There is still much obscurity in our views of this sad, but interesting subject.

1832. I. The most important consideration in regard to the *Causes* of mania, is, undoubtedly, hereditary predisposition.

1833. The most powerful exciting cause is mental harass: the arduous duties of our prime ministers, the anxieties of the stock-exchange, have frequently led to mania in its worst forms. Another set of causes of mania are the circumstances involved in the parturient and puerperal states, whether these be shock of the system, intestinal irritation, the loss of blood, the establishment of lactation, the condition of the uterine system, &c. I have had the most unequivocal evidence of the influence of loss of blood in inducing mania under other circumstances. For a case of this kind I may refer to the Medical Gazette, vol. ix, p. 421. Protracted lactation is also an undoubted cause of mania. A very morbid condition of the bowels also, indubitably leads to mental derangement: hence the term melancholia (*μέλαινα χολή*, *black bile or choler.*)

1834. II. *The Symptoms.* Mania assumes various forms: it is sometimes attended by an expression of the eye and of the countenance, a manner, a demeanor, a loquacity, which denote the utmost excitement; in other cases it is moping *melancholy*, with a corresponding attitude and taciturnity; in a third instance there is *monomaniacal* (*μόνος*, *single*, *μανία*, *madness*,) disposition to suicide or homicide; in a fourth patient we may have *nymphomania* (*νύμφη*, *nympha.*)

1835. The first symptom is frequently wakefulness: we should never neglect this symptom; it is so frequently the prelude to inflammatory or maniacal affections, that it should always be treated with extreme attention.

1836. Then some incoherent idea is expressed: love is changed into hatred; friends are viewed as enemies; prosperity

as ruin ; there are suspicions of a thousand kinds ; despondency, or absolute despair ; &c.

1837. Some such expression will excite attention to the impending evil, and then we may proceed to ascertain its particular cause or causes, its form, &c.

1838. III. An important question is that which relates to the *Morbid Anatomy* : is this *cause* or *effect* of the mania ? That it is frequently the effect, and that it has been too exclusively regarded as the cause, I can scarcely doubt. The appearances are usually deposits of serum and of lymph between the arachnoid and pia mater ; sometimes effusion into the ventricles, sometimes injection of the cortical substance.

1839. In protracted cases these effects may be more considerable still, and lead to dementia, general paralysis, &c. We may consult M. Calmeil's interesting volume upon this subject.

1840. If encephalitis is the frequent effect of mental harass and effort, why may not these appearances be the effect of the maniacal state ?

1841. This question is an important one. If the view at which I venture to hint is correct,—if mania be the *cause* of the morbid appearances,—our hopes are excited ; if it be the *effect*, our fears are confirmed. Indeed, I have always observed that certain facts, such as the inveteracy of the case, a peculiar effect on the countenance, the manner, &c. lead to the formation of an unfavorable prognosis ; and, I believe, because they denote the *supervention* of morbid changes in the Encephalon.

1842. According to MM. Delaye and Foville, the *cortical* substance is principally affected in Mania : there is injection, with a red or deep brown color, either generally, or here and there, and with softness, so that portions of the brain are raised with the membranes when these are detached ; the membranes are opaque and covered with serum, lymph, or pus ; the bones are found, in some cases, thickened and hardened.

1843. MM. Bouchet and Cazauvieilh¹ agree with MM. Delaye and Foville, in their opinion of the organic origin of Mania ; and add the important remark, that, as Mania consists in acute

¹ De l'Epilepsie, &c. p. 45.

or chronic inflammation seated in the cortical substance, epilepsy consists of chronic inflammation of the white or medullary part of the brain.

1844. *Dementia* and *Lethargy*, which offer no difficulty in the diagnosis, seem alike to arise from the effects of chronic inflammation, and probably differ only in the *seat* of the morbid lesion: in the former, the effusion being chiefly within the ventricles of the brain; in the latter, upon its surface.

1845. IV. Why is the *moral Treatment* so important? It is surely because it diminishes the violence of the maniacal condition, and so obviates its tendency to produce such morbid changes of structure, with its consequent hopelessness.

1846. Why is it so important to procure quiet, composed sleep? Obviously for the same reason. Sleeplessness, like mental effort, and the maniacal paroxysm, may induce morbid actions in the Encephalon, and these may lead to morbid changes.

1847. The evidence from the morbid anatomy is quite deficient for practical purposes, unless we are enabled thus to distinguish cause and effect; and I fear this point has not been sufficiently considered by those who have addicted themselves to this department of medical science.

II. CEREBRAL DISEASES RESULTING FROM VARIOUS AFFECTIONS OF THE SYSTEM.

1848. I now wish to draw my reader's attention to a series of morbid affections, which result from peculiar affections of the general system, or of various organs. They have been too much neglected by writers on diseases of the Encephalon. These are—

- I. Intestinal Irritation.
- II. Exhaustion from Loss of Blood.
- III. The Hydrocephaloid Disease.
- IV. Chlorosis.
- V. Excessive Study; Shock; Alcohol; &c.
 - I. Delirium Tremens.
 - II. Delirium Traumaticum.

VI. Affections of the Kidney ;

I. Dropsy.

II. Ischuria.

1849. Several of these affections are not seen in hospitals ; as it is in private practice only that we become acquainted with them. They are almost neglected by writers on diseases of the brain. Yet it is impossible that we can be prepared for practice without a due knowledge of these diseases.

I. INTESTINAL IRRITATION.

1850. The first of these affections consists of the irritation produced by indigestible food,¹ scybala, or other morbid contents of the stomach or bowels, excited into activity by some shock of the system or of the nervous system, such as a fall or other accident ; parturition ; &c.

1851. The symptoms are, rigor, frequently severe heat of surface, and violent pain of the head, and intolerance of light and of sound ; the symptoms, in a word, of the most acute encephalitis.

1852. The breath is tainted, the tongue loaded and swollen, the secretions morbid ; but it would still be difficult to establish a distinct and confident diagnosis without the criterion afforded by the effect of blood-letting in the erect posture, of which I shall speak presently.

1853. The first step to be taken, in a doubtful case, is very slowly to administer an enema of from three to three and a half pints of warm water,—and to examine the state of the fæces, and to observe the effect upon the disease and upon the system. If there be scybala ; if the symptoms be subdued ; and especially if there be faintishness ; the case is indubitably, not cerebral inflammation, but intestinal irritation.

1854. If the case still remain doubtful, the arm should be prepared, a vein opened, the patient placed upright, and the blood allowed to flow until the lips become pallid : if the case be encephalitis, an extreme quantity of blood will flow, even thirty

¹ See a paper by the late Dr. J. Clarke, in the Trans. of the College of Physicians, vol. v, p. 109.

or forty ounces, or more, before there is any appearance of syncope ; if it be intestinal irritation, syncope occurs before one fourth of that quantity of blood has left the circulating system.

1855. I have insisted so much upon the importance of a knowledge of this disease, and upon the nature of this diagnostic guard against the undue and inefficient blood-letting, in several works,¹ that I shall merely refer my reader to them for further information, which it would occupy me too long to repeat on this occasion.

1856. This affection sometimes assumes a far less acute form. I met with such a case very recently. It had been mistaken for encephalitis. The patient slowly but perfectly recovered from attacks of vertigo, &c., by maintaining a regular state of the bowels, diet, rest, and afterwards of gentle exercises, change of air, &c.

II. EXHAUSTION FROM LOSS OF BLOOD.

1857. I must refer my readers to the same works for information on this important subject.

1858. Throbbing ; pain of some part of the head ; a sense of pressure, as of an iron nail, of an iron hoop ; intolerance of sound, of disturbance ; sleeplessness ; a state bordering on delirium ; actual delirium, or even mania ; some convulsive affection, perhaps epilepsy itself ; are the affections which most frequently result from loss of blood.

1859. In other cases there are amaurosis ; deafness ; paralysis ; a state of dozing ; or slight coma,—the apoplexia ab inanitione.

1860. There are some observations upon this subject in a recent volume of the *Medico-Chirurgical Transactions*,² by Sir B. Brodie : sometimes after an injury of the head, it becomes doubtful whether the symptoms depended upon the original accident or upon the treatment. The plan was changed and the patient recovered. In the *Medical Gazette*³ there is an interesting case of *amaurosis* from loss of blood, by Professor Badham, of Glas-

¹ Commentaries on the Diseases of Females ; Researches on Blood-letting, &c

² Vol. xiv, p. 382.

³ Vol. xvi, 1835, p. 582.

gow, occurring in his own daughter. I believe there was much obscurity in the case until the Professor was shown my work upon the effects of loss of blood.

1861. I have known such cases treated upon antiphlogistic principles until there was the most imminent danger, when a change of plan has immediately induced a favorable change, and eventually restored the patient.

1862. Gentle stimulants, such as small quantities of brandy, the carbonate of ammonia; chalybeates; and a mild animal diet, are the principal remedies in such cases.

1863. I will conclude these brief remarks by observing that the first series of symptoms are entirely cerebral; those observed late in the disease conjoin with cerebral symptoms, symptoms which belong to the true spinal system; the half-closed eye-lid, a degree of stertor, an uncertain state of the sphincters, convulsions, are of this character. Eventually, in the very last stage, the ganglionic system suffers: mucus accumulates in the bronchia, and serum in the air-cells and cellular substance of the lungs; and flatus distends the intestines.

1864. After death, effusion is found to have taken place under the arachnoid at the surface and base of the brain, and into the ventricles; there is œdema of the lungs, the intestine, &c.

III. THE HYDROCEPHALOID DISEASE.

1865. [Dr. Hall has described in his lectures an affection known by this name, from its resemblance to true hydrocephalus. We shall give a short account of this complaint, partly derived from his lectures, and partly from other sources, especially from Dr. Joy's article "Spasm of the Glottis," in the London Cyclopædia of Practical Medicine.

1866. The Hydrocephaloid Disease, according to Dr. Hall, was first noticed by himself in a volume of "Medical Essays," published in 1825. It has since been described by Abercrombie and Gooch.¹

¹ [Dr. Abercrombie's work, in which this disease is described, was not published until 1828, but he had distinctly mentioned the affection in the Edinburgh Med. and Surg. Journal for November, 1818. See British and Foreign Quarterly for April, 1837.]

1867. This disease belongs to infancy, and is principally owing to exhaustion, which may be induced by loss of blood, as after leeching or bleeding, or from diarrhœa, or from over purging, which is apt to occur from cathartics at the time of weaning, or other change of diet.

1868. The affection has two stages ; the first that of irritability, the second that of torpor. In the first stage there are feverishness and sensibility to noises, or on being touched ; rapid breathing ; sighing and moaning ; flatulence and looseness of the bowels ; mucus and disordered evacuations.

1869. If the affection proceeds to the second stage the countenance becomes pale, the cheeks cool or cold ; the pupils immovable ; the breathing irregular and suspirious ; the voice husky ; cough makes its appearance, and, if the strength decline still farther, crepitus or rattling in the breathing ; the evacuations are usually green, and the feet are apt to be cold.

1870. The *Diagnosis* of this complaint is to be gathered from the history of the case, from the color and temperature of the cheeks, the general surface, and the extremities, the frequency of the pulse, and the characters of the breathing already mentioned.

1871. The *Treatment* consists in checking diarrhœa, when this is the cause of the morbid condition, by means of laudanum and chalk, followed by the pilula hydrargyri, rhubarb, and magnesia ; and in restoring the strength by means of stimuli and proper nourishment. Two or three drops of sal volatile may be given every three or four hours, and twice or thrice in the interval, five or ten drops of brandy, unless the last should produce pain. The child should be put to a young and healthy nurse, or if this is not practicable, be fed upon asses' milk. The warm bath is useful in the state of irritability, and a small blister or sinapism may be applied to the nape of the neck in coma. The extremities should be kept warm by flannel and frictions ; the erect posture should be carefully avoided, and the patient should be placed in a well-aired situation.]

IV. ON CHLOROSIS.

1872. The influence of the state of bloodlessness which occurs in Chlorosis, upon the encephalon, has not been duly noticed

by practical writers. I have already treated fully of this subject in reference to Chlorosis.

V. OF SHOCK, MENTAL AND PHYSICAL.

1873. The immediate result of Shock on the general system, but especially on the cerebral system, is of the most interesting character.

1874. The influence of *mental* Shock is frequently a state bordering on delirium or mania. Suicide is a frequent event at such a moment. There is a sense of weight or pain about the head, and sleeplessness. There is great danger of mistaking the symptoms for mere mental affliction. We ought to *treat* it as a serious malady. The timely use of the lancet would have prevented many an act of suicide ! But I will illustrate this point by a most interesting case.

1875. A. B——, aged forty, became ruined in character and fortune, and, when in the midst of his difficulties, experienced a sense of heaviness and pressure in the head, and passed sleepless nights. After several days he attempted suicide by dividing the muscles and blood-vessels of the arm deeply. He lost a large quantity of blood and became faint. On recovering from this state he said to his medical friend—"had you bled me a few days ago, I should not have done this act ; my feelings are altered, and I regard suicide with abhorrence ; had Sir Samuel Romilly been timely bled, he had still been alive !" From this time all the symptoms had subsided.

1876. To the same *class* of affections, doubtless, belongs the nervous delirium, or *delirium traumaticum*, described by Dupuytren as following serious accidents and operations.

1877. There are sleeplessness, delirium, jactitation ; the eyes are injected, the countenance flushed and animated, the forehead covered with profuse perspiration ; the patient is insensible to the pain of his accident or operation. There is no fever or constipation.

1878. This affection is frequent after attempts at suicide.

1879. The patient may fall asleep ; awake composed and rational ; relapse, &c. It is a short mania of five or six days. It is attended by great danger.

1880. There are no distinct traces of morbid change on examination. The brain and spinal marrow are found apparently healthy.

1881. The remedy recommended by Dupuytren is a small enema with five or six drops of tinctura opii, repeated three or four times, at intervals of six hours.

V. THE EFFECTS OF ALCOHOL.

1882. The preceding cases are obviously allied to *Delirium Tremens*, the result of drinking spirituous liquors. In this case there are wakefulness, delirium, and tremor, singularly combined.

1883. I. The *Symptoms* of delirium tremens may occur during the habit of taking alcoholic liquors ; or immediately after the wonted stimulus is withdrawn.

1884. The first symptom is tremor : this leads to sleeplessness ; and this to delirium. The delirium frequently consists in the imagined presence of objects which the patient is anxious to seize or to avoid. The tongue is white ; the breath tainted ; the surface moist ; the pulse becomes frequent.

1885. In the advanced stage, the delirium may be replaced by coma, the tremor pass into subsultus tendinum, the evacuations become involuntary.

1886. The attack of delirium tremens is very apt to recur. The first attack is rarely fatal ; but a second attack may terminate unfavorably.

1887. II. The *Morbid Appearances* observed,—usually after second attacks,—are the effusion of serum into the ventricles, and of serum, and even of lymph, under the arachnoid.

1888. III. *The Treatment*. I have known free blood-letting induce a degree of sinking, both in young and old, from which no means could restore the patient. Opium, with a strict attention to the diet, and the secretions, constitutes the most efficacious remedy. It becomes a serious question whether any stimuli should be allowed.

1889. There is an interesting fact in the *Précis d'Anatomie Pathologique* of M. Andral, t. ii, p. 770, illustrative of this latter question. A drunkard is cast into prison and put upon prison

diet: becomes affected with delirium; is allowed a certain portion of spirit and water; and immediately recovers.

1890. [Dr. Ware, of Boston, has published two Memoirs on the subject of Delirium Tremens, in which he advocates the opinion that opium, so far from being useful is actually injurious. In fifteen cases out of sixty-nine, opium was used as the principal remedy; of these six died, while of fifty-four in which opium was not used only five died. If the patient was in good health before the access and the attack is the immediate consequence of excessive use of liquor, Dr. Ware recommends only debarring the patient from ardent spirits, and if necessary a dose of salts, with infusion of valerian, wormwood or hops. If the health were previously deranged, other means must be employed; general bleeding if the patient is robust and vigorous and if there are cerebral symptoms; local bleeding in almost all cases, especially if there is dizziness, pain in the head, flushing of the countenance and heat of the head and face. A powerful emetic is proper if the secretions of the stomach are disordered, followed by a cathartic of calomel and some other purgative medicine. After this mild laxatives when indicated and nutritious liquids as diet will be sufficient.]

1891. It is obvious to us that no general rule of treatment can be considered sufficient for all cases. Few persons die of a first attack of delirium tremens, whatever may be the kind of treatment employed. But each subsequent attack is attended with increasing danger, the constitution being more impaired in proportion to the length of time in which intemperate habits have been continued, until at last the disease proves necessarily fatal. In the city jail of Boston it was the practice for some years to lock up common drunkards affected with this disease, and leave them to the resources of nature. We are informed by the truly respectable medical attendant, that in a vast majority of cases, this treatment was perfectly successful.]

1892. The three cerebral affections which I have thus briefly noticed, highly merit our best attention. I now pass on to two others, of a very different character. The first of these is a cerebral affection, which is apt to occur in the course of some

VI. DROPSIES.

1893. Dr. Wells, of St. Thomas's Hospital, was amongst the first to draw the attention of the profession to the frequent presence of albumen in the urine of patients affected with dropsies, preceded or unpreceded by scarlatina, in two most admirable papers published in the Transactions of a Society for promoting Medical and Surgical Knowledge; v. iii, p. 167 and p. 194. Dr. Wells's observations have been amply confirmed by Dr. Blackall, Dr. Bright, &c.

1894. In the midst of such a disease, the patient is not unfrequently attacked with symptoms denoting a cerebral or true spinal affection. There are delirium or coma; or convulsions;—apoplexy or meningitis.

1895. I have particularly noticed such an affection in children, in exanthematous dropsy. Dr. Wells mentions this affection, p. 177; Dr. Bright gives such a case in his Medical Reports, v. i, p. 97; there was, in this last case, "a slight serous effusion under the arachnoid." The subject is in need of renewed investigation.

VII. ISCHURIA.

1896. The next disease to which I must refer as intimately connected with the brain, is Ischuria, or suppression of the urine, to which may be added other morbid conditions of this secretion, besides that marked by the presence of albumen. Dr. Prout,¹ Dr. Abercrombie,² and Dr. Wilson,³ have lately treated this subject.

1897. There is frequently considerable disease of the kidneys. The suppression may be partial or complete. It leads to fever; thirst; a urinous taste in the mouth, and smell of the perspiration; nausea, vomiting, hiccough; delirium, coma, convulsions. [This affection usually occurs in elderly and corpulent persons. The *Treatment* consists in blood-letting, if indicated by the con-

¹ On the Urinary Organs; ed. 2, p. 303.

² The Edinb. Med. and Surg. Journ. v. xvii, 1821, p. 210.

³ The Medical Gazette, v. xi, 1833, p. 777.

dition of the system or of the cerebral functions; diaphoretics, diuretics, purgatives, and stimulants in the region of the kidneys.]

1898. It was necessary that I should enter into these brief details. Otherwise this *sketch* of my subject would have been incomplete. I now proceed to give some account of the morbid affections of the cerebral nerves.

III. ON THE DISEASES OF THE CEREBRAL NERVES.

I. PARALYSIS.

1. *Of the Sentient Nerves.*

1899. In an interesting case of a tumor, found at the anterior part of the base of the brain, the *olfactory* and *optic* nerves were destroyed, and with them the sense of smell and of vision.

1900. The *optic* nerve may be subjected to compression or disease in any part of its course, from its origin to its termination in the retina itself. In one case a partial loss of vision coincided with strabismus, the defective eye being drawn inwards. In another, there were, at the same time, defective vision and a spasmodic affection of the *seventh* nerve.

1901. Amaurosis may occur in affections of the brain. It is frequent in hydrocephalus; rare in paralysis. It occurs, as I have already stated, §1860, from extreme loss of blood.

1902. I shall shortly advert to the difference between the case of paralysis of sensation of the face in hemiplegia, or from division of the *fifth* in a part of its course *exterior* to the cranium, and that arising from the division or disorganization of this nerve *within* the cranium; see §1912. In the first two cases the eye is unaffected; in the last, this organ gradually perishes,—as I imagine, from the destruction of its ganglionic or nutritive nerve.

1903. This extraordinary fact was first ascertained by M. Magendie,¹ in experiments; it was then observed in the human subject by M. Serres.² It has since been witnessed by Dr. Alison,³ Mr. Stanley,⁴ and other observers.

¹ Journal de Physiologie, t. iv, p. 176.

² Anatomie du Cerveau, t. ii, p. 67.

³ Abercrombie on Diseases of the Brain, ed. 3, p. 424.

⁴ Ibid. p. 425.

1904. In M. Serres' case, the right eye and the right nostril were insensible ; the left sensible ; the gums scorbutic. On examination, the origin of the *fifth* pair of nerves, on the right side of the tuber annulare, was found diseased.

1905. Dr. Abercrombie observes—"A remarkable circumstance connected with the affections of the fifth nerve, is the tendency to inflammation and sloughing in parts which have lost their sensibility,—particularly in the eye. A very instructive case of this kind occurred to my friend Dr. Alison. The patient had loss of common sensation of the left side of the face, the left nostril, and the left side of the tongue, with insensibility of the ball of the eye, and occasional bloody discharge from the left nostril ; and was liable to attacks of pain, occasionally accompanied with fever, during which the pain was chiefly referred to the insensible parts. There were frequently attacks of inflammation of the left eye, with dimness of the cornea, which were relieved from time to time by the usual antiphlogistic means ; but at the end of two months, a line formed round the base of the cornea, which at length sloughed out, and the contents of the eye were entirely discharged. The muscles of the left side of the jaw were paralytic, and felt quite flaccid when the patient chewed or clenched the jaws ; but the motion of the muscles of the cheek was unimpaired. After the destruction of the eye, the paralytic symptoms remained stationary for a year or more ; there was then a violent return of headache, with fever, and death in a state of coma after an illness of a fortnight. On inspection, there was found considerable ramolissement of some of the central parts of the brain. The fifth nerve of the left side, on being traced backwards from the ganglion, was found, close to the ganglion, to be of a very dense texture, but beyond this it was much wasted, and at its junction with the tuber annulare, nothing but the membrane seemed to remain. In another case of Dr. Alison's, there was loss of sensation of the left side of the face, followed by inflammation and sloughing of the eyeball ; after which, the sensibility of the parts returned. The patient was, before the appearance of these symptoms, and has since continued, liable to severe headache and epileptic fits. The loss of sensibility continued about six months.

1906. "A remarkable combination of symptoms occurred in a case related by Mr. Stanley.¹ There was hemiplegia of the left side, without loss of sensation in the arm and leg, but in the left side of the face both sensation and motion were entirely lost. In the left side of the tongue, sensation was lost, but motion remained. The mucous membrane of the left nostril was always of a deep red color, and there were frequent discharges of blood from it. The conjunctiva of the left eye became deeply injected; this was followed by opacity and ulceration of the cornea, and at last by total disorganization of the eye. There was total loss of hearing in the left ear. There were frequent attacks of erysipelas, which were entirely confined to the paralytic parts of the face. The patient had been long affected with headache, and at last died, two months after the commencement of the paralytic symptoms. A tumor was found on the left side of the tuber annulare, which compressed the origin of the fifth and seventh nerves against the base of the skull. The tumor was of the size of a walnut, of firm consistence, and brown color, and extended into the left crus cerebelli."

1907. Paralysis of the *fifth* pair, in its exterior course, was first distinctly pointed out by Sig. Bellingeri,² in Italy, and afterwards by Sir Charles Bell and Mr. Shaw,³ in this country. The former of these writers has published a case, in his *Dissertatio Inauguralis*, 1818, of paralysis, I think, of the *fifth* and of the *seventh* nerves. The precise nature of the case is not, however, certainly known, the patient having happily recovered.

1908. The most interesting case of this kind which it has ever been my lot to witness, was that of Ruth Peters, aged sixty, who was repeatedly seen by my pupils during the last session: this person was taken with pain of the right temple, deafness of the right ear, partial paralysis of motion and of sensation on the right side of the face—the right eyelid being only slightly depressed on attempting to shut the eyes, and the mouth being drawn to the opposite side. These symptoms continued, and, in three

¹ Med. Gazette, vol. i.

² See the Medico-Chirurgical Review for October, 1834, p. 415.

³ Journ. Royal Inst. vol. xii, p. 231, 1821; vol. xiii, p. 120, 1822; Med. Chir. Trans. vol. xii, p. 105, 1822.

months, precisely similar events occurred on the left side, in a severer form, the mouth being drawn to the right.

1909. These phenomena continued for a very considerable period. At length a portion of the bone fell upon the upper surface of the soft palate, and was eventually dislodged and rejected by the mouth. It proves to be a portion of the sphenoid bone. The appearance of this bone affords an explanation of the interesting series of phenomena observed in this case. There was disease of the base of the brain, which interfered with the functions of the *fifth*, the *seventh*, and the *eighth* (*acoustic*) pairs of nerves.¹

1910. Loss of sensibility may arise from disease of the opposite hemisphere, or of the fifth nerve, within or without the cranium. The former case constitutes hemiplegia of the face; the latter cases have been particularly described by Sig. Bellingeri² and Sir Charles Bell.³ We have in these affections interesting calls upon our resources for the diagnosis.

1911. In hemiplegia the loss of sensation is rarely complete, and there is usually paralysis of the muscles of the face, and the susceptibility of the nostrils to irritants is unimpaired; this was the case in a patient whom I recently examined, by the kindness of Dr. Watson, in the Middlesex Hospital. In the case of disease of the fifth within the cranium, the loss of sensibility is frequently complete, the nostril has also lost its susceptibility to the impression of stimuli, and eventually the eye, not being nourished, shrinks and collapses; the power of the masticatory muscles is impaired, but the face is not distorted by any *apparent* paralysis.

1912. I need scarcely observe that the auditory nerve is liable to pressure or disease within the cranium or within the ear, and that deafness is the consequence. Paralysis of the seventh and that of the auditory not unfrequently exist together, as in the case which I have just related: this *coincidence* leads us to the conclusion that there is some *internal* disease.

1913. We must now fix our attention on the *glosso-pharyn-*

¹ Compare Mayo's Anat. and Phys. Com. No. II, p. 12—15.

² Dissertatio Inauguralis, 1818.

³ On the Nervous System.

geal nerve. It has long been disputed by physiologists, whether the sense of taste be situated at the *tip* or at the *root* of the tongue. On this question another depends, viz. whether the nerve of taste be a branch of the *fifth*,—long termed the gustatory,—or the glosso-pharyngeal, the former being distributed upon the tip, the latter upon the root of that organ. The celebrated Scarpa, in his splendid work on the Nerves,¹ has detailed some novel and interesting experiments, from which he concludes that the sense of taste is situated at the tip of the tongue. He observes—

1914. “It is abundantly proved, not merely by anatomy, but by experiments lately made on the human subject by Alex. Volta, Professor of Physics, that the sense of taste resides in the tip of the tongue, and in its margins, almost to the middle of its length; and that, beyond that part, as far as to the base of the tongue, there is either no sense of taste at all, or to a very feeble degree. He applied a plate of zinc to the tip or margins of the tongue, and a silver spoon to the back of that organ beyond the middle part; the handle of the spoon was then brought into contact with the zinc, when an exceedingly acid taste was immediately perceived in the tip or margin of the tongue, which continued so long as the metals were in contact; but there was no sense of taste in the base of the tongue. It must not, however, be supposed that silver is incapable of communicating the electric impulse and stimulating the tongue; for, upon inverting the application of the metals, so that the silver be applied to the tip or margins of the tongue, and the zinc to its base beyond the middle part, when they are brought into contact, an acrid, burning, bitter, alkaline taste is perceived in the tip or margin, but none at all in the base, where the zinc is applied: hence it is evident that the principal and exquisite sense of taste is situated in the tip and anterior margins of the tongue, from its middle portion forwards, but that the rest of the base and the root possess merely the common sense of touch. By means of this very simple process any one can prove, by his own experience, that the acuteness of the sense of taste is proportionably diminished as the

¹ Pages 16, 17.

zinc or silver is removed from the tip and margins, towards the back and root of the tongue."

1915. Dupuytren deduces the opposite conclusion, from experiments made by himself, with the view of an immediate application to a case of pathology :

1916. " He dissolved separately, in water, four substances of different savor, viz. sugar, sulphate of quinine, muriate of soda, and an acid. After these preparations, that the experiments might be conclusive, he began them upon healthy subjects. Pupils submitted to them : the tongue being held motionless, some drops of these substances were placed on its point ; scarcely any savor was perceived ; from whence the Professor concluded that their action upon this part is slight : then, the tongue being still held motionless, sapid bodies were placed on the middle and at the base of that organ ; the different savors were perfectly perceived."¹

1917. *Both* these authors conclude that the *fifth* is the nerve of taste ! Dupuytren proves by experiment that the sense of taste resides at the *posterior* part of the tongue ; it is well known to him that the *fifth* is distributed to the *anterior* part of that organ ; still he concludes that the fifth is the nerve of taste ! So difficult is it to divest ourselves of preconceived opinions.

1918. These questions have been very recently taken up by Professor Panizza. The interesting paper of that physiologist is given entire in the last number of the Edinburgh Medical and Surgical Journal (vol. xlv, No. for January, 1836, p. 70) ; and to it I must refer my reader, briefly stating that the conclusions to which its author is led, are—1, that the sense of taste resides towards the base of the tongue, in the filaments of the glosso-pharyngeal ; 2, that the sense of touch in the tongue resides near its point, in the filaments of the *fifth* ; and 3, that the hypo- or myo-glossal is the true motor of the tongue.

1919. The experiments of Professor Panizza appear to have been made with great care. An animal, in which portions of both glosso-pharyngeals had been removed, would be of constant physiological interest.

¹ Leçons Orales de Clinique Chirurgicale, t. i, p. 407.

1920. It will be difficult to confirm or correct these views from experiment by clinical observations. The glosso-pharyngeal is double; and if one part were compressed by a tumor, or destroyed by disease, the other would still partially supply the sense of taste to the tongue.

1921. There is an interesting case in point, however, in a note to the translation of Dr. Abercrombie's work, by M. Gendrin, ed. 2, p. 627, which is given in great detail, and which will be read with great interest. The nerve was atrophied by the pressure of a cyst. "The sensibility to touch of the tongue was preserved in all its extent; the pain produced by the prick of a needle was felt over all the surface of the atrophied half, as well as on that of the other half. Cold and heat produced also the same sensation in each half of that organ. Sapid substances, hydrochlorate of soda, acetic acid, and extract of colocynth, were applied successively to each half of the tongue; on the atrophied portion they produced only a very slight impression of savor, which was not perceived till seven or eight minutes after their application; whilst the sensation produced by the application of these bodies was acutely felt, after a minute or a minute and half, in the portion not atrophied."¹

1922. Lastly, the researches of Sir Charles Bell, M. Magendie, M. Müller, and Prof. Panizza, have distinctly proved that the *posterior* column of the spinal marrow is formed by the sentient nerves. When this column alone is disorganized, the sense of touch alone is impaired.

II. *Of the Voluntary Nerves.*

1923. Paralysis of the voluntary nerves is marked by loss of voluntary power over the muscles.

1924. When the third, or the oculo-motory, is diseased or compressed, we have various forms of *strabismus*, according as the affection involves more or less of its branches. Some defect of vision is frequently conjoined with it. The *strabismus* consists in a *defect* or *loss* of movement, which is permanent; and

¹ Pages 629, 630. Compare Mayo's Com. No. II, p. 14

in this it differs from *spasmodic* strabismus, from an affection of another system of nerves.

1925. When the *minor* portion of the *fifth*, or the *masticatory* nerve is paralyzed, the temporal, the masseter, and the buccinator muscles lose their voluntary powers, and eventually shrink and become emaciated. I may refer you to a case published by Sir Charles Bell.¹ Paralysis exists in the case in which the *fifth* is entirely destroyed or compressed *within* the cranium. The patient loses the power of mastication, and of blowing a trumpet, or of smoking a pipe, on the affected side. There is no *distortion*, as in the disease of the *seventh* or facial nerve.

1926. When this nerve is entirely paralyzed, the face is extremely distorted, especially in laughing, &c., and the orbicularis has lost its powers.

1927. Sir Charles Bell's work² is replete with the most spirited descriptions of the paralysis of the *fifth* and of the *seventh* pairs of nerves. But I must refer my reader to his admirable work itself.

1928. Sig. Bellingeri and Sir Charles Bell have run the same career of discovery in distinguishing paralysis of the *seventh* or facial nerve. The following case is copied from the former writer:—

1929. "A patient was lying at St. John's Hospital, under the care of Professor Geri, having been affected for a long time with an inflammatory tumor behind the right ear, which had extended both above and below the mastoid process, so as to compress the facial nerve, at its point of exit from the stylo-mastoid foramen; such was the decided opinion of the Professor, and of Drs. Gallo and Riberi. Meantime the patient presented almost entire paralysis of the muscles of the right side of the face, and distortion of the left side of the mouth. There was, in fact, complete paralysis of the frontal muscle, the supraciliary, the orbicularis palpebrarum, the elevator alæ nasi et labii superioris, the caninus, zygomaticus, the right side of the orbicularis labiorum, the triangularis and quadratus menti, and cutaneus colli. The motion of the temporal, masseter, buccinator, and pterygoid muscles, was per-

¹ On the Nervous System, 1830. p. cxiv.

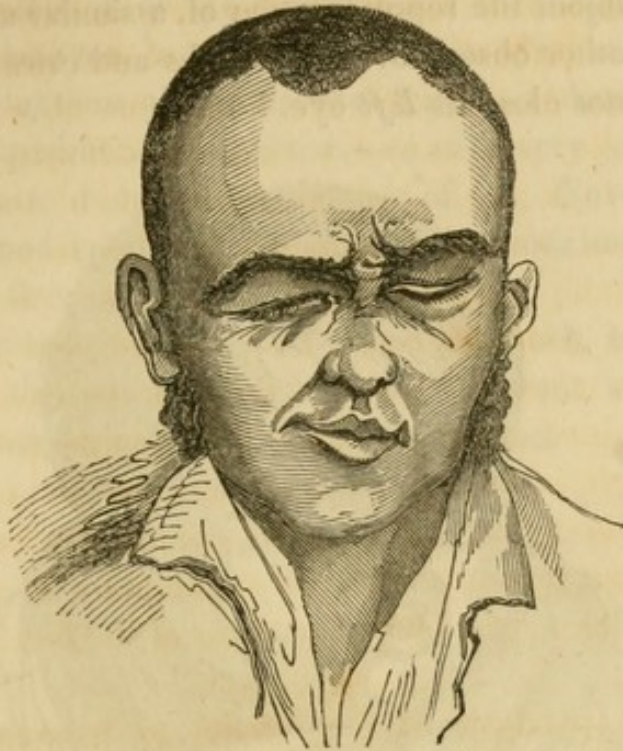
² Ibid.

fect, or nearly so ; of the digastricus we could form no opinion. The motion of the ball of the eye and of the upper eye-lid was free ; the vision of the right eye was, however, a little injured ; the tongue, also, was moved with some difficulty, yet was the taste proved to be unaffected on either side of the tongue ; the sense of touch was also uninjured in the face ; the hearing was considerably impaired in the right ear ; the abscess had opened in the external ear. The patient died in about two months. An effusion of pus was found in the cavity of the tympanum, contained in the aqueduct of Fallopius, and compressing the facial nerve in its course ; there was no pus or trace of inflammation about the stylomastoid foramen after death ; but marks of recent inflammation and suppuration in the right lobe of the cerebellum ; the fibres and trunk of the fifth pair were uninjured.”¹

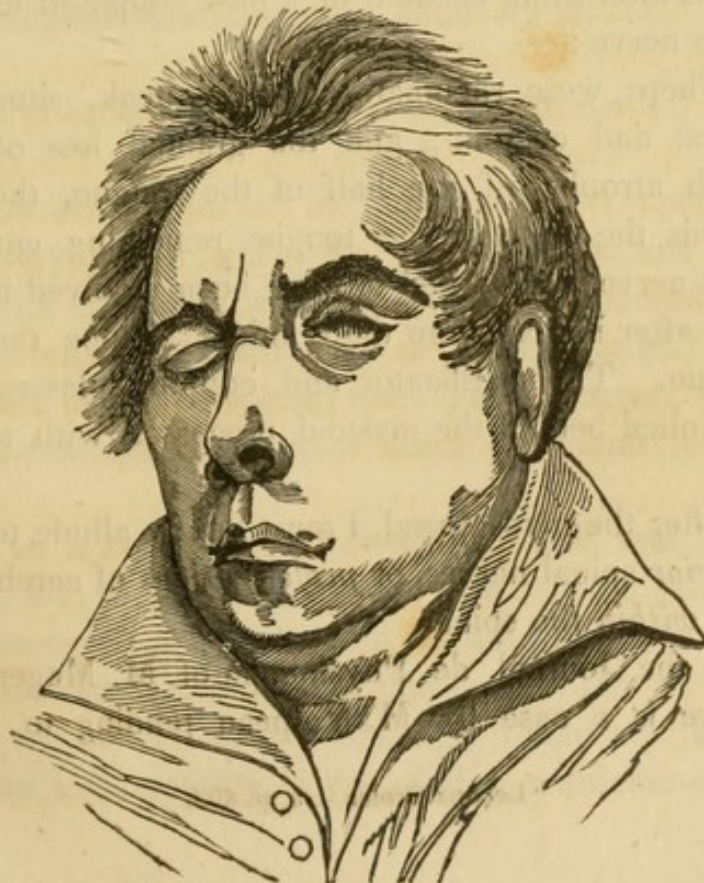
1930. The paralysis of the *seventh* in hemiplegia is partial only ; the voluntary portion is paralyzed ; whilst the branch which belongs to the excito-motory system is scarcely affected ; the eye-lid is closed by its sphincter, the orbicularis, during sleep. In *total* paralysis of the *seventh* from the pressure of a tumor, for instance, the orbicularis loses its power, and the eye remains exposed and becomes inflamed. The inference from these facts is, that the *seventh* is *more* than a cerebral nerve. Indeed, the function of the orbicularis, in sleep, so similar to that of the other sphincters, leads to the same conclusion. The question still, however, requires elucidation. In the mean time my reader will have a perfect conception of this distinction on comparing the two subjoined cuts :—

1931. The first represents the case of hemiplegic paralysis of the face : the eye-lids of the paralytic side are closed, though less firmly than those of the left.

¹ See Med. Chir. Review, for October, 1834, p. 419.



1931. This cut represents the seventh or facial nerve compressed by a tumor under the ear: the orbicularis is paralyzed, and the patient is incapable of closing the eye-lids.



1932. I subjoin the representation of a similar affection in an infant: its mother observed,—“it laughs and cries on the *right* side, and cannot close its *left* eye.”



1933. I now come to the myo-glossal nerve. Dupuytren gives a most interesting account of a case supposed to be paralysis of this nerve:¹—

1934. There were rheumatism of the neck, situated along the vertebræ and occiput; and the gradual loss of muscular power, with atrophy of one half of the tongue, the sense of taste towards the base of the tongue remaining entire. The myo-glossal nerve is supposed to have been involved in the disease at and after its exit from the cranium; hence the affection of the tongue. The scarificator and cupping glasses were repeatedly applied behind the mastoid processes, with satisfactory results.

1935. After the myo-glossal, I must briefly allude to paralysis of the *anterior* spinal nerves, or *prolongations* of cerebral voluntary nerves *within* the spine.

1936. In the *Journal de Physiologie* of M. Magendie, t. vi, p. 138, there is a case by M. Velpeau tending to prove the

¹ *Leçons Orales*, t. i, p. 403.

difference of function of the posterior and anterior spinal nerves. M. Velpeau observes, in conclusion—"the distinction between the different functions of the nervous roots—a distinction made so plain by experiments on animals—is still very obscure when pathological facts direct our judgment of it. Nevertheless, the remark contained in this note is the most conclusive that has been made in favor of this opinion."

1937. In every case of spinal affection it will be interesting to determine the degree in which the sentient and voluntary columns and nerves are involved in the disease.

II. AUGMENTED ACTION.

I. *Of the Sentient Nerves.*

1938. Opposed to *paralysis*, is *augmented action*. This induces, in reference to the sentient nerves, various kinds of *pain*, the principal of which are those which occur in—

- I. Inflammation ; Ulceration ; Tumors ; &c. of the Nerves.
- II. Neuralgia, or Tic Douloureux.
- III. Hemicrania Intermittents ; Brow Ague, &c.

1939. In reference to *inflammation of the nerves*, M. Descot observes,—

1940. "Acute idiopathic inflammation of a nerve must, I think, be very rarely met with. The nerves are sometimes affected with a chronic inflammation, and it is generally observed at their extremity in the stump of amputated limbs." "When the nerves are in this condition, the slightest contact causes the patients sufficient pain to induce them to submit to a second amputation.

1941. "In many cases of sciatica, I think that the sciatic nerve is the seat of the disease ; the pain follows, generally, the course of the nerve so exactly, and the adjacent parts are so free from all pathological appearance, that I think the nerve alone is the seat of the pain ; and the affection, it appears to me, must arise from an inflammatory action of the neurilemma (*νεύρον, α*

nerve, *λέμνα*, a coat), which terminates frequently in the exudation of a serous fluid." p. 195.

1942. The *subcutaneous tubercle* is attended with most acute pain, proceeding from one point, often extending along the course of the nerves, occurring in paroxysms, which take place spontaneously, or are occasioned by friction or other slight injury of the part, and which frequently disturb the night's repose. The case is distinguished by an examination of the part affected, when a small body, of the magnitude of about half a small pea, is felt under the integuments; this part is generally tender to the touch, especially during the paroxysm; and an acute pain is induced, and is extended along the nerves, by pressure.

1943. I published a case of this affection in the *Edinburgh Med. and Surg. Journal*, vol. xi, p. 466. It occurred in the thumb of a shoemaker, probably from a puncture of his awl. It was cured at once, after years of suffering, by excision.

1944. The pain of *tic douloureux* occurs in paroxysms, which are sudden, irregular in their occurrence, frequently more or less transient or momentary, induced by the act of eating or talking, or by the contact of external bodies with the acutely sentient extremities of the nerves.

1945. This disease is sometimes attended by that which the term *tic* means originally; viz. by a sudden contraction of several muscles, with distortion of the face. Its seat is various—in different parts of the face, of the limbs, and of other parts of the surface of the body.

1946. [*Treatment of Neuralgia*. If the painful affection is owing to inflammation of the nerve, evinced by tenderness on pressure and swelling, the proper remedies will be local bleeding and cataplasms or fomentations. If it is owing to a tumor or foreign body in the course of the nerve, it must be removed. If the disease have been produced by malaria, and assume the periodical form it will yield in all probability to arsenic or cinchona. If there exist any source of irritation which can be removed, whether local or general, as a decayed tooth, inflammation of a mucous membrane, derangement of the digestive functions, this should be attacked by the appropriate remedies. In cases which appear to be idiopathic, the three empirical

remedies whose utility is best established are the subcarbonate of iron, the oil of turpentine and the cicuta. The oil of turpentine has been found especially useful in sciatica. External applications are generally of little utility in cases of pure neuralgia. The endermic application of narcotics, however, deserves further trial. In case the obstinacy of the disease should require a surgical operation, excision of a portion of the nerve, or cauterization should be preferred to its mere division.]

1947. The *hemicrania intermittens* or *brow ague*, is apt to recur in spring or autumn, from exposure to the north-east wind: it prevails in damp or marshy districts, and it is frequently observed to accompany the epidemic influenza. It frequently exists as a complication of intermittent.

1948. This ague-pain occupies the brow, the temple, the forehead, the occiput, &c. it occurs in paroxysms frequently of considerable regularity; it is often excruciating, occasionally inducing delirium, and, still more frequently, redness of the conjunctiva. It may recur once or twice in the course of the day.

1949. This pain is almost certainly removed by the quinine or the arsenic.

1950. For a full account of these painful diseases, I refer my reader, with great satisfaction, to the works of Sig. Bellingeri and Sir Charles Bell; and to the still more recent works of Mr. Swan,¹ in this country, and of M. Descot,² in France.

II. *Of the Voluntary Nerves.*

1951. I have hitherto treated of paralysis of the cerebral sentient and voluntary nerves; I must now have drawn the reader's attention to certain spasmodic affections of the latter of these, if I had not my doubts whether the *cerebral* nerves, as distinguished from the *true spinal*, were affected with Spasm. This mere doubt will suggest an inquiry of the deepest interest, both in physiology and pathology.

1952. The substance of the brain;³ the olfactory nerve, the

¹ A Treatise on Diseases and Injuries of the Nerves, new ed. 1834.

² Dissertation sur les Affections Locales des Nerfs; Paris, 1825.

³ Flourens, Recherches sur le Système Nerveux, p. 17.

retina, the optic nerve, the auditory nerve;¹ the glosso-pharyngeal,² are *insensible* when wounded or pinched. Wounds of the cerebrum do not induce spasmodic contraction. No experiment has hitherto been made upon any purely *cerebral* voluntary nerve, with the view of determining whether, in such a case, there would be spasmodic action. Perhaps such a nerve does not exist free from the intermixture of *true-spinal* filaments. Is the *third*, or the *oculo-motory*, of this character? These, with many other questions, are still left for future inquiry.

IV. OF DISEASES OF THE CEREBELLUM.

1953. It remains for me to make a few remarks upon diseases of the cerebellum, before I pass on to the interesting subject of diseases of the spinal or excito-motory system.

1954. The experiments of M. Flourens,³ the experiments and clinical observations of M. Serres,⁴ and similar observations of M. Andral,⁵ are the principal sources of our knowledge of this subject.

1955. M. Flourens considers the cerebellum to be the organ of equilibrium in the movement of the animal frame, judging from experiments of the most interesting character.

1956. M. Serres's opinion is that of Dr. Gall, founded upon new experiments and cases,—that the cerebellum, and especially its median lobe, is the excitor of the genital organs. I think neither these experiments nor cases sufficiently isolate the functions of the cerebellum and of the upper part of the spinal marrow. The median lobe of the cerebellum can scarcely be diseased without affecting the medulla oblongata; and the experiments seem also to have involved an injury of that part of the nervous system, as we may judge from the following extract:—

1957. “In oxen knocked down by the blow of a hammer upon the posterior part of the occiput, I have found the cerebellum torn and fractured in its superior part, in those animals in

¹ Magendie, Journ. de Physique, t. v. p. 38.

² Panizza, Edinb. Med. and Surg. Journ. vol. xlv, p. 86.

³ Recherches, &c. p. 36.

⁴ Anatomie du Cerveau, t. ii, p. 601; Journ. de Phys. t. ij, pp. 172, 249.

⁵ Clinique Médicale, t. v. p. 658.

which there had been a very distinct oscillation of the penis during the experiment.

1958. "In a stallion, the leg of which had been crushed by a carriage, an amputation knife plunged above the middle lobe of the cerebellum, from the front to the rear, *till it reached the top of the spinal marrow*, produced a very distinct erection.

1959. "But this result has been especially established since the publication of these facts, by one of our talented physiologists, Professor Ségalas.

1960. "If, in a male guinea-pig, which has had the brain laid bare, says this physiologist, a stiletto be plunged into the cerebellum, *so as to arrive at the superior part of the spinal marrow*, erection is produced; if the stiletto be then carried into the vertebral column, as far as the lumbar region, *ejaculation* takes place, whilst the bladder, if full, no longer preserves its contents. The same phenomena are observed in decapitated guinea-pigs, when the same experiment is performed with a stiletto from above to below upon the spinal marrow.

1961. "This last experiment which I have repeated, and by which any one may satisfy himself, proves two things: first, that irritation of the cerebellum (?) produces erection; secondly, that the inferior part of the spinal marrow produces ejaculation, and acts more especially upon the secretory apparatus of the semen."¹

1962. M. Andral observes,²—"In the thirty-six cases which we are analyzing, the genital system is only mentioned three times. In one of these cases, a permanent erection of the penis was observed during the whole time that the patient was attended. There was, in a second, a compression caused by a tuberculous mass upon the right lobe of the cerebellum, and on the medulla oblongata."

1963. Diseases of the cerebellum, when they induce paralysis, usually affect the *opposite* side of the body, and the inferior more than the superior extremities.

1964. Convulsions are more frequent in diseases of the cere-

¹ Anatomie du Cerveau, t. ii, p. 605, 609.

² Op. cit. t. v. p. 735.

bellum than paralysis. They affect many parts, and resemble epilepsy ; or only one part. There can be little doubt that it is the adjacent medulla oblongata, which is really irritated so as to produce these phenomena.

1965. In some instances there has been a loss of balance, such as occurs in intoxication.

1966. Sometimes the sensibility has been affected,—exalted or impaired. In some cases there has been amaurosis.

1967. Vomiting sometimes occurs as a prominent symptom, as in many other diseases of the encephalon. This, as well as the affections of the genital organs, is obviously a result of irritation of the medulla. M. Andral observes¹ with great justice,—“The immediate cause of the effects produced by a lesion does not always reside in the seat of the lesion ; and, whether it be reflected to one or another point specially destined for the accomplishment of a certain act, it is the latter which will always be found deranged.”

V. DISEASES OF THE SPINAL MARROW.

1968. It is utterly impossible to understand the diseases of the spinal marrow, without a constant reference to its peculiar functions, as distinguished from those of the encephalon.

1969. Such disease of the spinal marrow as may materially affect its functions, induces, in the first place, paralysis of the cerebral nerves, sentient and voluntary, which run along its course, forming a part of its structure ; and, in the second, either an excited or paralyzed condition of its own peculiar functions. The symptoms combine, therefore, paralysis of sensation and voluntary motion in the parts below the disease, with spasm, and ultimately paralysis, resulting from the affection of the *True* Spinal marrow.

1970. In treating of diseases of the Spinal Marrow, I shall pursue the following order. I shall notice—

I. The Central Diseases, or Diseases of the True Spinal Marrow itself.

¹ Op. cit. t. v, p. 734.

II. The Centripetal Diseases, or Diseases excited through the Excitor Nerves.

III. The Centrifugal Diseases, or those of the Motor Nerves.

1971. Of these diseases, the first is

I. INFLAMMATION WITHIN THE SPINE,

and this, like encephalitis, § 1757, is to be distinguished into

I. Inflammation of the Membranes, or Spinal Meningitis.

II. Inflammation of the Substance, or Spinal Myelitis ;

1. Of the Cerebral, or Sentient and Voluntary Tracts.

2. Of the True Medulla ; and

3. Of its Principal Divisions.

1972. I. *The Causes* of inflammation within the spine, are, principally, blows or falls, violent muscular efforts, and exposure to damp or cold. One patient became affected with acute spinal myelitis from being long exposed to the rain and cold in an open boat. This affection has frequently occurred from the pernicious custom of lying upon the damp grass. Rheumatism seems occasionally to have led to this disease. The observations of M. Louis¹ have distinctly shown the connection between caries of the vertebræ and spinal myelitis.

1973. II. *The Symptoms*. It is rare that meningitis of the spine exists without meningitis within the cranium. It is equally rare for the membranes to be inflamed, or one of the cerebral tracts, without affection of the substance, or of the other portions of the Spinal Marrow. The distinctions between these affections are not, therefore, easily defined. Happily, they are not essential to the treatment. Those symptoms which point to such distinctions will be noticed, however, as I proceed.

1974. A much more interesting distinction arises from the various locality of the inflammation, according as it affects the medulla oblongata, or the cerebral, dorsal, lumbar, and sacral portions of the Spinal Marrow. A correct knowledge of the anatomy and physiology frequently enables us to define the

¹ Mémoires sur Diverses Maladies, p. 410.

region of the Spinal Marrow, which is the seat of the disease, and guides us at once in our prognosis, and in the local application of remedies, the most important part of the treatment.

1975. In general, the symptoms of meningitis are *more* those of *irritation* of the Spinal Marrow, or *spasm*; those of *myelitis*, *more* those of *destruction* of the organ, or *paralysis*. Both kinds of symptoms may exist, however, or follow each other, in both diseases.

1976. Diseases, especially those of the nervous system, are usually more complicated in actual patients, than as they are described in books. Hence a difficulty in the commencement of practice. We are led to expect impossibilities—diseases well defined in their simple forms. It will be well, in reference to our present subject especially, to become well acquainted with the anatomy and the physiology, and we shall then be able to interpret each symptom justly, as it appears.

1977. Amongst the first symptoms of spinal *meningitis*, is local *pain* in some part of the spinal column, augmented by the movements of the patient, and by percussion, but rarely, if ever, by pressure, along the spine. This pain sometimes extends along the back and limbs, in which there is then tenderness on pressure,—a symptom which may serve to distinguish meningitis from myelitis, in which there is usually loss of sensibility.

1978. The next important symptom is spasm, or various kinds of muscular contraction. The head, the neck, or the trunk is bent backwards; or there is trismus, torticollis, partial or complete opisthotonos, or contractions of the limbs,—constant, or recurrent, or exacerbated, in paroxysms, on moving, or being moved, &c., with extreme pain. Sometimes there are convulsions.

1979. The respiration is sometimes difficult. There is sometimes retention of urine and constipation.

1980. The symptoms will vary according as the meningitis exists at the base of the brain, at the upper, or at the lower part of the spine, principally.

1981. The symptoms of spinal *myelitis* are those of paralysis of sensation and voluntary motion: a sense of numbness, an impaired sensibility; a sense of feebleness, an impaired muscular

power ; at first observed singly or combined, in one or both of the inferior, or superior extremities.

1982. In some cases, probably of complication with meningitis, there is augmented sensibility. In other cases, there are spasmodic or convulsive affections.

1983. If the disease proceeds, the paralysis of sensation and voluntary motion gradually augments. Generally the paralysis affects first the inferior, and afterwards the superior extremities ; far more rarely it pursues a contrary course : occasionally the motions alone, and very rarely the sensations alone, are paralyzed.

1984. If the disease occupy the *upper* parts of the Spinal Marrow, the respiration, and even the action of the larynx and pharynx, become impaired, and we have difficulty or choaking in swallowing ; or asphyxia. There is sometimes the sensation of a cord-like tightness across the epigastrium. If the *lower* part of the spine is affected, the bladder, the rectum, and the sphincters, are variously paralyzed, and there may be retention of urine and constipation, or involuntary evacuations ; or retention and involuntary flow of urine may be combined. The condition of the bladder, and the condition of the rectum should be ascertained by proper examinations, *in every case*.

1985. In some instances there is perfect impotence ; or inertia of the uterus ; in others, the patient has become a father, or the uterus has been excited to expel the fœtus. On these points I refer my reader to the observations of MM. Chaussier,¹ Serres,² Brachet,³ &c.

1986. These differences, doubtless, admit of explanation by a reference to the *kind* of affection,—irritation, or destruction, and its *locality*,—in the cervical, dorsal, or lumbar portions of the Spinal Marrow.

1987. There is a valuable case of uncomplicated spinal *meningitis*, considered by M. Cruveilhier as affording a type of that disease by M. Dance, in M. Ollivier's work,⁴ p. 551. In

¹ Traite de la Moëlle Epinière, par M. Ollivier, ed. 2, p. 791.

² Anatomie du Cerveau, t. ii, p. 609.

³ Recherches du Système Nerveux Ganglionnaire, p. 246.

⁴ Traité de la Moëlle Epinière, ed. 2.

M. Louis's admirable "*Mémoires*" there is an interesting paper on the condition of the Spinal Marrow in caries of the vertebræ, in which we perceive the symptoms and morbid changes in *myelitis*; p. 410; and especially pp. 445—447.

1988. III. *The Morbid Anatomy* is in every respect similar to that of cerebral meningitis and myelitis, §1778. It is rare, indeed, that spinal meningitis occurs without a similar affection of the membranes of the brain; injection of the pia mater, and of the spinal vessels in general; effusion of serum, lymph, pus, and blood, under the arachnoid,—diffused, or in portions; perhaps softening of the adjacent medulla. The arachnoid itself is free from blood-vessels; the morbid changes supposed to take place in this membrane have their seat in the subjacent cellular membrane, or in the pia mater. In *chronic* meningitis there are sometimes membranous adhesions, and effusions of a cartilaginous hardness.

1989. The principal morbid change in myelitis is softening, which may occupy the whole, or any portion, either side, or the anterior or posterior part of the Spinal Marrow; it frequently affects the cervical or lumbar portions. There is, as in the same affection of the brain, a degree of tumefaction. Induration is the frequent result of *chronic* myelitis.

1990. IV. The most efficacious *Treatment* of inflammation within the spine, consists, I believe, in the application of cupping, in acute cases, and of issues and setons in the chronic.

1991. Cupping may be applied so as to involve the two principles of local depletion and counter-irritation; for this purpose the scarification should be applied deeply and crossed, and little blood should be drawn; the operation being repeated according to the violence of the disease, and the powers of the patient.

1992. In reference to the use of issues, M. Louis makes a very apposite remark, p. 447:—"Experience has demonstrated the utility of issues in Pott's disease, although this affection may be of long standing, and voluntary movement more or less seriously affected. A necessary consequence of this fact is, that the same means ought to be employed in simple or primitive softening of the spinal marrow."

1993. The administration of mercury in the acute cases, and

in the chronic cases, when these are uncomplicated with a tuberculous diathesis, is an important measure.

1994. The most moderate diet should be enjoined, the bowels should be kept free; the recumbent posture, with the utmost quiet, should be preserved. For further suggestions for the treatment, I may refer my reader to what I have said upon the treatment of encephalitis: see § 1781.

VII. CONGESTION; HÆMORRHAGE.

1995. I believe that little can be said of these forms of spinal disease. If they can ever be suspected during life, it can only be from the suddenness of the accession or attack of the symptoms; and the treatment must be the same as in acute inflammation within the spine.

VIII. CENTRAL CONVULSIONS, OR EPILEPSY.

1996. Any disease within the spine, effusion, tumor, exostosis, &c. may induce convulsions or epilepsy.

1997. Fright, or other sudden mental emotion, has induced convulsion; and this convulsion has been repeated, affording one of the most deplorable cases of epilepsy.

1998. It is well known that profuse hæmorrhage has led to convulsion. An interesting question presented itself to me upon this point: is the convulsion from hæmorrhage *cerebral* or *spinal* in its origin? It struck me that this question might be submitted to a decisive experiment.

1999. The sheep, when killed by opening the large vessels near the heart, becomes affected with convulsions. What is the effect, if the brain be previously separated from the spinal column? In August, 1835, I went, with my friend Dr. Heming, to submit this question to experiment. The large vessels were first divided in a sheep, and the instrument was then turned so as entirely to separate the head from the trunk, with the sole exception of the skin. We watched the effects of the flow of blood: at length the animal became violently convulsed, as in

ordinary circumstances of profuse hæmorrhage. In this case, then, the convulsion from the loss of blood was obviously *spinal*.

2000. I have already suggested, indeed, that *all* convulsive diseases are affections of the true spinal marrow.

2001. The cerebrum is obviously the seat of the mind: it is neither sentient itself, nor the originator of motions in itself.¹

2002. The true spinal marrow, on the contrary, is the term of certain excitements, and the source of certain motions,—the centre, in a word, of a peculiar series of excito-motory phenomena, physiological and pathological. Unlike the cerebrum, it induces, if stimulated, convulsive movements, in the organs appropriated to ingestion and egestion, and in the limbs.

2003. Diseases within the cranium, by irritating excitor nerves, or the medulla oblongata, induce convulsions or epilepsy,—too frequently of an incurable character.

2004. Disease within the spinal canal may prove the source of convulsion or epilepsy still more immediately. This form of epilepsy is also, for the most part, incurable.

2005. These cases are, for obvious reasons, frequently met with in hospitals, asylums, and work-houses.

2006. Hence the idea that epilepsy is not to be subdued by medicine, prevalent amongst those who draw their conclusions from observations made in these establishments.

IX. PARALYSIS AGITANS.

2007. I must now draw the reader's attention, very briefly, to another disease of the spinal marrow,—the Paralysis Agitans. Its symptoms have been well described by Mr. Parkinson;² but its morbid anatomy has not been traced. It is usually a disease of advanced life.

2008. Paralysis Agitans is either—

1. General; or
2. Hemiplegic.

2009. The first symptoms of this most *insidious* disease are

¹ Flourens, Recherches, &c. p. 17—23.

² An Essay on the Shaking Palsy, 1817.

weakness and tremor, of the head for instance, or of the hand, &c. In about a year, the other hand, or a lower extremity, is affected, or the patient loses his balance in walking. Generally no *cause* can be assigned.

2010. There is perpetual tremor, even when the part is supported: the head, the hand, the leg, are moved incessantly: reading and writing become impossible, and the patient cannot guide his hand to his mouth; at length he loses his balance, and there is a constant tendency to fall forwards, and, in order to avoid this, to run or move with a quicker pace, and on the toes.

2011. At a later period the tremor continues during sleep even, augmenting until the patient awakes. There is increased weakness, the trunk is bent forwards, the upright position can be no longer supported. The articulation becomes indistinct, mastication and swallowing imperfect. The bowels are all along torpid, then obstinate; at last the urine and fæces are passed involuntarily. In the last stage of all there is slight delirium or lethargy.

2012. The symptoms have, in several particulars, a marked resemblance to the effects observed by M. Serres, of diseases of the *tuber annulare*, and of the *tubercula quadrigemina*.¹

2013. Of the hemiplegic Paralysis Agitans, I have long had an interesting case under my care.

2014. — Macleod, aged 28, is affected by weakness and agitation of the right arm and leg, augmented on any occasion by agitation, and on moving: it is observed as he walks, or when he passes his cane from one hand to the other:—there is, besides, a peculiar lateral rocking motion of the eyes, and a degree of stammering and defective articulation. [The Treatment must be such as is likely to subdue the primary affection of the spinal marrow, if indeed this be within the reach of remedies.]

2015. Nearly allied to Paralysis Agitans is the

X. TREMOR MERCURIALIS.

2016. This disease affects workers in mercury, chiefly those employed in silvering mirrors.

¹ Anatomie du Cerveau, t. ii, pp. 634, 642, et seq.

2017. The symptoms are, at first, paralytic tremor and debility, and perhapsptyalism; afterwards convulsive agitation of the limbs whenever they are moved. The articulation becomes imperfect. The hands are so agitated, that a partly filled cup cannot be conveyed to the mouth¹ without spilling the liquid. On attempting to walk, the limbs dance and perform irregular movements. Whilst sitting still, the patient may remain free from chorea; but on every exertion of the volition, and on every occasion of mental agitation, the irregular movements are renewed. The sleep is disturbed: the patient awakes alarmed by terrific dreams; there are nervousness and debility; the bowels are constipated.²

2018. [*Treatment.* The patient must be removed from the influence of the cause, and freely exposed to the air. The bowels must be regulated by medicine. Sulphur, electricity, and the nitrate of silver have been recommended.]

XI. THE CENTRIPETAL DISEASES OF THE SPINAL MARROW.

I. ON CENTRIPETAL EPILEPSY.

2019. I now bring before my reader one of the most interesting subjects comprised in the class of diseases of the Nervous System,—that form of epilepsy which takes its source in the *excitor nerves* of the true spinal system, involving the axis of this system, and its motor nerves, in their turn,—functionally, however, not organically.

2020. The Centripetal Epilepsy is to be viewed as *curable*, however *difficult* of cure. By avoiding the exciting causes, its attacks are avoided, the susceptibility to returns subsides; these returns become less frequent, and less severe, and at length frequently cease altogether. Every thing depends upon rigid

¹ In a letter written from Venice by the learned Dr. Walter Pope, on the Miners of Mercury in Friuli, and published in the Philosophical Transactions, vol. i, for 1665, a case is detailed of a patient who “could not with both hands carry a glass full of wine without spilling it, though he loved it too well to throw it away.”

² See further, Bateman's Diseases of London, p. 162.

rules proposed by the physician, and strictly and perseveringly observed by the patient.

2021. In describing the *causes*, *symptoms*, and *treatment* of Centripetal Epilepsy, I must recall to mind all that I have said respecting the anatomy and physiology of the true spinal system. Every part of this system is distinctly, but exclusively, involved in the circumstances of this disease: if the encephalon suffer, it is only as an *effect* of the convulsive attacks.

2022. I. The principal *Causes* of Centripetal Epilepsy are,—1. the presence of indigestible food in the *stomach*; 2. the presence of morbid matters in the *intestines*; 3. *uterine* irritation. The first of these acts through the medium of the pneumogastric, the second and third through that of peculiar spinal nerves,—all *excitors* belonging to the true spinal system.

2023. I have so repeatedly known a patient, subject to this form of epilepsy, experience an attack within five minutes of eating some indigestible article of food,—or on experiencing a deranged condition of the bowels, or on every return of the catamenial period, as to leave no doubt upon my mind upon these important points. I have known the attacks prevented by a steady and cautious attention to rules in reference to these circumstances.

2024. In detailing the *Symptoms* of Epilepsy, I shall have to repeat all that I have said respecting the physiology of the true spinal system: every part, every function, which belongs to that system, is involved in the pathology of epilepsy: the functions of ingestion and egestion are precisely those affected in this disease; the *causes* act through the *excitor* nerves, the *symptoms* are manifested through the *motor* nerves of that system.

2025. The first thing observed is a varied *distortion of the eye-ball*, which is drawn from the axis of vision, generally upwards, and outwards, or inwards.

2026. The second symptoms are a forcible *closure of the larynx* and *expiratory efforts*, which suffuse the countenance, and probably congest the brain, with venous blood. In all these circumstances there is a most marked and important difference between epilepsy and hysteria, on which I shall insist hereafter.

2027. In the third place, we observe that the tongue is thrust

out of the mouth by the genio-glossal muscle, whilst the teeth close upon it by the action of the masseters, and it,—or the under lip,—is frequently severely bitten. Or, without the spasmodic protrusion and consequent injury of the tongue, there is grinding of the teeth.

2028. We next observe *convulsion*,—which is general, or of the whole muscular system, or hemiplegic, or confined to one side ; or it occurs in the form of trismus, torticollis, in one limb, &c.

2029. During these attacks, the *expulsors* of the *fæces*, the urine, the semen, sometimes act, and there is sometimes rigidity of the penis.

2030. It will be seen, from the brief account of the symptoms, how peculiarly an affection of the true spinal or excitomotor system epilepsy is. The previous arrangement of the functions of this system, in our minds, will enable us to explore the symptoms of this disease more accurately.

2031. We must now consider another set of *facts* as *causes*, and another set of *symptoms* as *effects*, of the paroxysm.

2032. Deep sleep ; broken sleep ; loss of rest ; passion ; vexation ; exhaustion ; inanition ; and especially rising with an empty stomach ; have frequently led to a paroxysm of epilepsy, and must, consequently, be carefully avoided in our rules of regimen for the cure of this disease. I may here allude to the relation of the *συνουσία* and epilepsy.

2033. I have known the act of washing the hands in cold water induce an attack of epilepsy ; I have known dashing cold water on the face prevent such an attack. These phenomena must be observed with accuracy.

2034. III. The *Effects* of the epileptic paroxysm, to which I have just alluded, are the venous congestion of the brain, and the consequent effusion of serum in repeated attacks,—effects so carefully to be avoided by the appropriate remedies, on account of the havoc produced by them on the mental faculties and cerebral functions.

2035. IV. *The Treatment*. Our task consists in preventing the attacks of epilepsy ; and, if this cannot be accomplished, in treating these attacks, and obviating their effects on the *cerebral*

system. We accomplish this task by cautiously avoiding the *causes*, by moderating the *paroxysms*, and by local means of subduing vascular action, and perhaps of depleting the vessels of the brain.

2036. The strictest rules must be laid down for the diet, for the state of the bowels, for conducting the catamenial periods. These last should be passed in bed, the feet and abdomen should be fomented, the warm water enema and the opiate enema should be administered.

2037. The immediate accession of the paroxysm may sometimes be prevented by dashing cold water on the face, or by exciting the nostrils by snuff, &c. In this manner the disposition to closure of the larynx, and expiratory efforts, is exchanged by sudden acts of inspiration.

2038. In the paroxysm, the patient must be prevented from injuring himself by falls or blows. In this danger of injury we have another marked distinction between epilepsy and hysteria.

2039. The stupor or coma induced by the paroxysm may require the administration of blood-letting, general or topical, according to its degree and duration, and probable effects.

2040. Besides the means to which I have alluded, other remedies have been proposed for the cure of epilepsy, in an empirical manner, without due attention to the *kind* of the disease. It is obvious that little attention can be paid to propositions and observations so vague and indefinite. These various remedies must be tried anew, after strict diagnosis. We shall then arrive at an approximation to the truth in reference to the value of these remedies respectively.

2041. The views which I have given of eccentric epilepsy are amply confirmed by these facts, that there is no constant morbid change observable in this disease, and that many patients, after long years of its attacks, have finally and fully recovered,—facts which ought to encourage us steadily to pursue the mode of treatment.

2042. A system of exercises; regulated sleep; the shower bath; tonic remedies, &c. &c., must be added to the other plans.

II. ON TETANUS.

2043. Tetanus has long been divided into the Idiopathic and the Traumatic. I propose to divide it into the *Central* and the *Centripetal*.

2044. Central Tetanus is that produced by disease within the spinal canal itself. Centripetal Tetanus arises principally from a wounded, lacerated, or punctured nerve, and possibly from other sources of eccentric, nervous and convulsive affection,—as deranged stomach, deranged bowels, worms, &c. It is, therefore, both traumatic and idiopathic.

2045. There is a predisposition to tetanic affection in hot climates; sudden changes of temperature, and exposure to cold and damp, are exciting causes. In hot climates infants are subject to Tetanus within nine days of their birth, as some have supposed, from the condition of the umbilicus.¹

2046. The spasms first affect the muscles about the neck; then those which approximate the maxillæ, and there is trismus; then the muscles of the pharynx, and the deglutition becomes difficult. The limbs and the whole frame become stiffened by spasm, which is still further augmented by the slightest touch, jar or excitement. There is constipation. No one can fail to see that these are affections of the true spinal system. The cerebral system is unaffected. Baron Larrey observes,²—"The functions of the brain remain unaffected until the last moment of life; so that the unfortunate patient who is attacked with this disorder is conscious he is dying."

2047. One fact is observable. The influence of the lesion of the nerve is not only carried by excitor nerves to the spinal axis, and *reflected* upon motor nerves, but it frequently pursues a *retrograde* course along the spinal marrow: a wound of the foot, not less than the wound of the hand, leads to trismus. A similar event occurs in experiments on the decapitated turtle: if one of the lateral nerves be laid bare and pinched continuously, the

¹ See Cleghorn on the Diseases of Minorca, vol. 5, p. 36.

² Mémoires de Chirurgie Militaire, t. i, p. 238.

muscles of the upper extremities, as well as lower, are forcibly contracted. This is, in my mind, the very *type of Tetanus*. The same retrograde action is produced, if in a decapitated frog the spine be divided, and the lower end of the upper portion of the spinal marrow be pinched with the forceps.

2048. As in epilepsy, no constant morbid appearances have been found in the cranium or spinal canal.

2049. In an interesting case of Tetanus, given by Dr. Reid, in the Transactions of the Association of Physicians in Ireland, vol. i, p. 113, great vascularity and an effusion of blood were found round the spinal marrow. In another case, detailed by Mr. Brayne, of Banbury, in the London Medical Repository, vol. xiv, p. 1, two or three inches of the inferior dorsal portion of the spinal marrow were suffused by a continuous blush of inflammation, and three small, hard, white laminæ were seen between the arachnoid and the pia mater. M. Ollivier, on the other hand, shows that such morbid appearances are by no means constant; Dr. Abercrombie and M. Gendrin come to a similar conclusion.¹ [In a case in the Massachusetts Hospital there was softening of the spinal cord.]

2050. The treatment of Tetanus is generally unavailing. Considering the *cause* of this malady, and its mode of operation, we should be naturally led to propose the division of the injured nerve, or amputation. There is a successful case of the former operation in the Medical Gazette, vol. xi, for 1832-3, p. 623.² In reference to the latter, Baron Larrey observes in his account of the campaign in Russia,³—"With one exception, all who were seized with this cruel disease, died. That one, who was wounded in the foot, owed his safety to the amputation of the leg, performed as soon as the first symptoms of Tetanus supervened. The removal of the arm and the amputation of the leg were generally unsuccessful." These plans have not succeeded in the hands of other surgeons.

2051. I wish I had space for M. Dupuytren's admirable observations, in his *Leçons Orales*, t. ii, p. 599-612; they are

¹ On the Brain and Spinal Cord, 2d French ed. p. 574, 575.

² See also p. 848, and vol. xii, p. 15.

³ *Mémoires de Chirurgie Militaire*, t. iv, p. 168.

full of interest. He advises that half-divided nerves should be completely divided. He is opposed to amputation as inefficacious, when Tetanus has actually commenced. He adds,—“The symptoms and post mortem examinations concur to demonstrate, that Tetanus is an essential and nervous affection, unaccompanied with any peculiar organic lesion.”

2052. Blood-letting, opium, the hydrocyanic acid, tobacco, mercury, antimony ; local depletion ; purgative medicines ; have been tried, with but occasional success. The cold bath has proved immediately fatal.

2053. The *principles* of treatment would appear to be—1, to divide the injured nerve ; 2, to subdue the spasmodic affections, by such remedies as the hydrocyanic acid ; 3, to prevent organic changes in the nervous system by depletion, general and local ; 4, to remove all sources of irritation, as scybala in the bowels, &c. ; and 5, to avoid all sources of augmented spasm, such as shocks, noises, &c.

III. ON HYDROPHOBIA.

2054. Another terrific disease of the nervous system, arising from causes acting at a distance from the nervous centres, is Hydrophobia.

2055. I. A wound inflicted, a poison inserted, probably in the substance of the fine fibrillæ of excitor nerves, is the *Cause* of this disease.

2056. II. After a variable interval, the peculiar *Symptoms* of Hydrophobia display themselves. All these symptoms obviously belong to the true spinal or excito-motory functions : they consist in a peculiar spasmodic and terrible *dysphagia* and *dyspnœa*. The parts immediately affected are those which preside over ingestion.

2057. The fifth nerve in the face, and in the fauces, and the pneumo-gastric nerve in the larynx, appear to be most unduly impressible. The impression upon these nerves is reflected upon the muscles of the pharynx and larynx, and the sense of dysphagia, or of dyspnœa, is overwhelming. The slightest motion in the atmosphere, the application of a glass or cup to the lips,

the sight or idea of water or other fluids are attended by an agony of suffering,—of mingled spasm, choaking, strangulation, and terror.

2058. There are, from the first, extreme anxiety of the countenance and inquietude of manner, and a peculiar aggravation of these appearances at the sight of fluids, or on feeling a gust of air pass over the face, and still more on attempting to drink: by any of these causes, an expression of horror, a sense of suffocation, with constriction about the throat, and convulsive movements, are produced, which are terrible to witness and beyond description. Independently of these causes, there are similar symptoms, only in a minor degree. Later in the disease, the agony of expression and suffering is extreme; viscid saliva forms and collects in the mouth, and is removed with impatience and horror, and spasm about the throat; the mind begins to wander with a terrible delirium; the limbs are moved with continual spasm and agitation. At length the powers of life and of the disease sink together.

2059. M. Gendrin, in a note to his translation of Dr. Abercrombie's work, ed. 2, p. 578, observes,—“I have seen many cases of Hydrophobia, and I have been present at the dissection of the bodies of still more. A few months only have elapsed since I watched this frightful disease, from its incipient symptoms to its fatal termination. I have not seen the least trace of inflammation or of any lesion whatever in the encephalo-rachidian organs, or in the ganglionic nerves. The only disorganization that I have met with is a considerable development, mostly inflammatory, of the mucous cryptæ at the base of the tongue, the pharynx, and the upper opening of the larynx. Death in hydrophobia arises from asphyxia. On dissection, we find in this disease, as well as in tetanus, congestion, pretty well marked, of the pulmonary veins, and a general state of congestion of the principal viscera, particularly of the brain, and the blood in a liquid state, and of a dark-red color, in the vessels.”¹

2060. III. *The Treatment* of Hydrophobia has hitherto been abortive. Every remedy which the terrors of the disease, or the

¹ Abercrombie, p. 578.

ingenuity of physicians could suggest, has been tried in vain. Dr. A. T. Thomson's case was apparently mitigated by the hydrocyanic acid. Mr. Mayo has ingeniously suggested the propriety of tracheotomy. If a case were committed to my charge, I would combine these two modes of treatment. The strychnine might induce tetanus or Hydrophobia, but can never cure it, except upon a principle of *similia similibus*.

2061. But the most important point in practice is to excise the part on which the bite has been inflicted, early, nay immediately, if possible, but late rather than not at all : indeed it is not too late if the symptoms have not yet appeared.

THE CROUP-LIKE DISEASE.

2062. [This affection was not distinctly described and well understood until of late years. It has received various names, among which are Spasmodic Croup, Laryngismus stridulus, Child-crowing and Thymic Asthma. Dr. John Clarke, who gave one of the first good descriptions of this disease, spoke of it as "a peculiar species of convulsion."

2063. *History.* This disease rarely appears after the age of 12 or 13, and generally before the completion of the first dentition. It is sometimes observed in several members of the same family. A cold and damp climate and season is a powerful predisposing cause. Bad diet and a scrofulous constitution are thought also to favor its development.

2064. *Symptoms.* The child awakes suddenly in a state of alarm and agitation, struggles for breath, and after repeated efforts recovers from the paroxysm with a long and sonorous inspiration usually called by nurses whooping or crowing. The face is swollen and purplish, the head thrown backwards, the spine is often bent, as in *opisthotonus*. After the fit the child cries, is exhausted and often falls asleep. Sometimes, but not frequently, the child dies in one of these paroxysms. The attacks which first come on during sleep, as the disease advances, make their appearance while the child is awake, sometimes without apparent cause, at other times when it is vexed and about to cry, or from straining or exercise. If neglected, it may go on

recurring for two or three months, and at last be attended with general convulsions. In its more advanced stages the hands and feet are apt to become swollen with rigid contraction of the muscles of the toes and fingers.

2065. Dr. Hall in his lectures considers this disease as an affection of the true spinal or excito-motory system. It originates, he says, in

- I.
 - a. The Trifacial, in teething.
 - b. The Pneumo-gastric, in over—or improperly fed infants.
 - c. The Spinal Nerves, in constipation.

These act through the medium of

- II. The True Spinal Marrow, and
- III.
 - a. The Superior Laryngeal, the constrictor of the larynx ;
 - b. The Intercostals and Diaphragmatic, the motors of respiration.

2066. A similar remark is applied to convulsions generally ; namely that they are all affections of the excito-motory system, although they may *originate* elsewhere, as from counterpressure or irritation of the brain, or from exhaustion. The remarks of Dr. Hall upon the croup-like disease he considers applicable to eccentric convulsions in children generally which are principally owing to

1. Dental Irritation.
2. Gastric Irritation.
3. Intestinal Irritation.

2067. The *Treatment* is therefore in all these cases to be directed to the source of disturbance. The various causes of irritation of mind or body liable to be the immediate cause of a paroxysm must be avoided. The gums should be freely lanced ; the stomach and bowels evacuated. A copious enema of warm water may be administered. If there is great threatening of an attack, cold water may be dashed on the face, the nostrils and fauces irritated and the patient placed in a warm bath.

2068. To guard against the effects of the attacks it may be

proper to apply cold water to the head or use local depletion. Frequent lancing of the gums, change of air, tonics, mild mercurials, warm sponging with salt water and attention to the diet will also be proper.

2069. Dr. Ley, in his recent work on *Laryngismus stridulus*, attributes the disease to the pressure of enlarged glands upon the recurrent nerves which supply the dilator muscles of the glottis.

2070. Several recent German writers have ascribed the same affection to enlargement of the thymus gland, whence they have named it *Thymic Asthma*. The therapeutic indications which would arise from the adoption of either of these opinions are, the resolution of the enlarged glands of the neck, or the reduction of size in the thymus, as far as practicable by the removal of all causes of irritation or congestion in these parts, and the employment of iodine or other means of producing absorption.]

XII. DISEASES OF THE SPINAL MOTOR NERVES.

2071. Spasmodic affections may arise from causes affecting the *excitor* nerves, the *spinal axis*, or the *motor* nerves of the true spinal or excito-motary system: the first and second have been noticed already. It now remains for me to treat of the third.

I. SPASMODIC STRABISMUS.

2072. I have already noticed the *Strabismus* which arises from *paralysis* of cerebral and voluntary nerves, and some of the muscles of the eye-ball; §1924. I now wish to draw the reader's attention to another form of *Strabismus*, not hitherto distinguished from the former, and which I believe to be an affection of the motory nerves of the true spinal system.

2073. In the former case, the patient can frequently move the eye-ball fully, in every direction except one; at a certain point the eye-ball stops, although the other eye continues to pursue an object placed and moved before it. This is the case with a patient at this moment under my care for attacks of sickness, with defective vision and motions of the eye.

2074. In *Spasmodic Strabismus*, the motions of the eye may

be perfect, except on certain occasions of excitement, or of disorder, or of intense application or of employment of the eye; the Strabismus then becomes apparent, the eye-ball obviously is *drawn* in one particular direction.

2075. In a little girl, aged about three years, the Strabismus came on whenever a stranger came into the room, whenever she was asked to read, &c.

II. SPASMODIC TIC.

2076. The next of these nerves is the *seventh* or *facial*. So long ago as the year 1817, I published in the *Edinburgh Medical and Surgical Journal*,¹ a case, which is plainly one of spasmodic affection through this nerve:—

2077. Miss Inman, aged nineteen. Two years ago, in the winter season, the face became affected, during the course of one night, in the following manner: all the muscles of the right side of the face were drawn into a state of spasmodic contraction; the sensibility of the skin became much impaired, the contact of an external object inducing a feeling of numbness; there were a degree of swelling, and considerable pain; and a sense of rigidity was felt in the muscles of the right side of the neck.

2078. The muscular contraction was permanent, and very considerable: the right angle of the mouth was drawn downwards; the retraction of the integuments, the effect of muscular action, and usually observed extending from each nostril obliquely downwards, is, on the right side very deeply marked; on the left, it is seen in its natural state. The tongue, when protruded, is drawn a little towards the right side; the point of the nose is considerably so. The right eye-brow is drawn a little lower down than the left; and two small dimples, the effect and evidence of muscular contraction, are seen immediately above it. A dimple in the chin is also distinctly marked, and is drawn considerably to the right of the mesial plane of the face. Articulation was, at first, very indistinct, and is still so in some degree; the letter *S*, especially, is pronounced with difficulty, and par-

¹ Vol. xiii, p. 63.

ticipates in the soft sound of *th*. There is no difficulty in deglutition ; but considerable inconvenience occurs during mastication, from a tendency of the bolus of food to pass and collect in the right side of the mouth. On closing the right eye, a degree of tightness is induced and felt at the right angle of the mouth ; this tightness is *seen*, even, when the patient speaks with the right eye perfectly closed. On drawing down the right angle of the mouth, by an effort of the muscles of this part of the face, the upper eye-lid of the right eye is also drawn sensibly downwards, and the eye is partially closed. In the first instance the eye was closed with difficulty.

2079. The state of contraction of the muscles is seen much more distinctly, and the deformity induced is much greater, on speaking or laughing, than when the patient is in a state of tranquillity.

2080. At present, the contraction of the muscles is much less than at first. The sensibility is perfectly restored. The diminution of the symptoms took place during the administration of electricity, the operation of blisters, and the exhibition of an emetic, followed by purgative medicines.

2081. This affection was considered by the patient as an effect of cold. The swelling and pain were deemed an attack of tooth-ache ; but without reason, as there is no decay of any of the teeth. Before and about the period of attack, pains were experienced in both arms and wrists, and were considered rheumatic. During two years previously to the accession of the affection described, this young lady had experienced some general indisposition, having been feeble, nervous, and subject to difficulty of breathing, and palpitation of the heart. The catamenia had been somewhat irregular. The ankles were affected with œdematous swelling in the evening of each day.

2082. This case is deemed particularly interesting, as it establishes a distinct diagnosis between a *spasmodic affection*, and a case, very similar in appearance, consisting of *paralysis* of one side of the face ; a distinction which, it is thought, has been sometimes neglected. A further diagnosis, to which the practitioner must attend, consists in the distinction between a primary paralysis of the muscles of one side of the face, occasioned by

the agency of internal causes ; and a secondary paralytic affection, the consequence of pressure external to the brain.

2083. In the *Annuaire Medico-Chirurgical des Hôpitaux*, published in 1819, there is (p. 406) an interesting case of a wounded facial nerve :—

2084. “On the 27th of February, 1814, Charles Leroux was wounded at the battle of Bar-sur-Aube. The ball struck him, from the distance of fifteen paces, on the left side of the face.

2085. “He felt but slight pain at the instant he received the wound. The only consequences which followed, were a trifling swelling of the cheek, with a slight alteration in the vision, shooting pains in the eyes, and a peculiar sensibility accompanying the act of mastication. Twelve days after the accident the wounds were completely cicatrized.

2086. “The most extraordinary circumstance of this case is, that when this man attempts to speak, laugh, or eat, in fact, whenever it is necessary to move the jaws, the sub-labial muscles contract involuntarily, and as if by sympathy. While the jaws are at rest, these muscles appear to be in their natural state, and the face offers no traces of change ; but no sooner are the jaws moved, though very slightly, than the act is accompanied with the most frightful grimace, of which the patient is unconscious. The countenance changes and becomes hideous, and it is hardly possible to recognise it. This alteration of the features is much greater on the left than the right side of the face. This phenomenon may, I think, be explained by the lesion of the sub-orbital nerve. With regard to the sensibility accompanying the mastication, which, a month after the accident, was still felt, it must be attributed to the passing of the ball through the sub-maxillary alveoli, and to the shock resulting from it.”

2087. For my own part, I do not pretend to have understood the case, which I have given, § 2077, and which I observed and detailed merely as one of clinical observation and diagnosis. M. Beauchêne, the author of the second case, is absolutely in error in considering it as an affection of the sub-orbital nerve.

2088. I now lay before the reader a sketch which must be compared with those given, pp. 453, 454 :



2089. In this case the countenance is also drawn to the right side ; but it is the eye of the *same* side which cannot be closed. It is distinguished by this circumstance. In the former case there is *paralysis* of the facial nerve of the left side. In this there is a *spasmodic* affection of that nerve on the right side. It is a peculiar affection not discriminated from the former, and will be illustrated by the following case :

2090. George Jefferson, aged forty, formerly a lamp-lighter, now a seller of fruit in the streets, was affected three years ago with general rheumatism, in the midst of which this singular affection of the muscles of the face came on.

2091. The two sides of the face are not alike ; the left is nearly natural, but the right is affected with spasmodic contraction : the chin is drawn to one side and dimpled ; the right angle of the mouth is drawn downwards ; the right eye-brow is higher

than the left. Sometimes there is a little rapid spasmodic action of the muscles.

2092. When he is told to shut the eyes promptly and forcibly, the distortion is tenfold : the right eye is drawn and only partially closed ; the right angle of the mouth is drawn spasmodically downwards ; the nose and the chin are drawn to the right side.

2093. He laughs, and bites, perfectly, on the left side. On attempting to open the mouth wide, it is obviously *tied* by the muscles of the right side. He cannot whistle ; in the attempt to do so, the mouth is drawn to the right side.

2094. He takes snuff through both nostrils indifferently ; on sneezing, the left side of the face is chiefly distorted.

2095. The right side is a little benumbed in feeling. It is also colder, after exposure to cold, than the left.

2096. Besides these two cases, I have seen several others : in one there was a defect of vision, with the Spasmodic Tic ; in another, the tic was confined to the outer portion of the orbicularis. The former was of the most extreme character, the face being exceedingly distorted on each spasmodic attack. The latter was comparatively slight. The former probably arises from disease of the facial nerve *within* the cranium ; the latter appears confined to that branch of the facial, *exterior* to the cranium, which supplies the orbicularis.

2097. The remedies for this disease are unknown. In the severer case just mentioned, aperients and mercury have been fully tried, in vain. I have proposed local depletion and counter-irritation, by means of the cupping instruments.

III. SPASMODIC TORTICOLLIS.

2098. This spasmodic affection of the sterno-cleido-mastoid muscle has long been known to physicians. It is obviously of the same character as the spasmodic strabismus, and spasmodic tic—an affection of the *true spinal motor* nerves.

2099. Sometimes the head is drawn to the shoulder ; sometimes it is moved to and from one side with a rocking motion.

2100. The treatment is that of local inflammation,—leeches,

counter-irritation, mercurials, aperients. It may be a question whether the branches of the accessory going to the muscle, might be divided. [The sterno-mastoid muscle itself has been frequently divided in obstinate cases of torticollis of late years.]

IV. SPASM OF THE RESPIRATORY MUSCLES.

2101. I have recently attended a patient, a young gentleman, aged about twenty, who experiences attacks of a peculiar affection of the movements of *respiration*; he lost the power of articulation; on attempting to speak, he was suddenly seized with a spasmodic action of the diaphragm, which induced a sudden *inspiration*, with a hissing noise as the air entered through the lips, and pain in the points of attachment of the diaphragm. This affection yielded to attention to diet and to the state of the bowels.

2102. The following sketch is taken from Sir Charles Bell:¹—

2103. “The condition of this woman is very peculiar: in her, common breathing inspiration is performed with a sudden spasmodic action: but she is also affected at intervals] with more violent spasms, and her respiration is then hurried and distressing. On the commencement of a paroxysm, she bends her body slightly forwards, and thus prepares herself, as it were, for the attack: her nostrils are dilated widely, the angles of her mouth are dragged forcibly downwards, there is a constriction of the throat, and the shoulder and chest rise convulsively, as when a person has cold water poured upon the head; the inspirations are deep and violent, and are attended with a snuffing of the nostrils, the air being inhaled through them only, and not through the mouth. The fibres of the platysma myoides start into view, and there is quick rising and falling of the *pomum Adami*; the sterno-cleido-mastoideus and trapezius, on both sides, act powerfully, fixing the head and elevating the shoulders.

2104. “The spasmodic action of these muscles exists to a considerable degree constantly, yet it increases in paroxysms which last so severely for a few minutes that she is deprived of

¹ The Nervous System, p. cxl.

the power of speech, and seems to be almost suffocated. These paroxysms recur at irregular intervals. It was observed by the attendants, that when she was excited by walking about the ward, or by replying to our questions, they returned more frequently.

2105. "She could move her head with perfect freedom when we requested her, but still the spasmodic action continued. She also raised either shoulder, or twisted her face to one side, when she was desired. This woman continued under the care of the physician for about a month, and was discharged cured."

2106. These, and other affections of the true spinal *motor* nerves agree in several particulars:—1. they are usually suspended during sleep; (in this they differ from *similar* affections *excited* through the true spinal *excitor* nerves, which frequently come on during sleep :) 2. they are redoubled by any cause of mental hurry or excitement.

2107. Notwithstanding what has been said, I consider it still a question important to determine, whether any, and which, of these diseases have their origin in the excitor nerves, or in the true spinal axis?

2108. An intra-uterine affection of this part of the nervous system, is, probably, the disease called *club-foot*.

XIII. ON DISEASES OF THE GANGLIONIC NERVES.

2109. Little is known of the diseases of the Ganglionic Nerves.

2110. I have already brought before the reader the facts relative to the effects of the division of the *fifth* within the cranium, as discovered by M. Magendie, § 1911. These facts are sufficient to prove that the *fifth*, as a Ganglionic Nerve, is the organ of nutrition of the eye, the gums, &c.

2111. The effects of the division of the pneumo-gastric on the lungs and the stomach, as demonstrated by the experiments of Dr. W. Philip and Sir Benjamin Brodie, prove this to be a secretory nerve. There are no cases on record, I believe, with the exception of a very defective one by M. Gendrin¹ in which

¹ Translation of Abercrombie, ed. p. 109.

the pneumo-gastric was distinctly affected, and in which the influence of its disorganization upon the lungs, stomach, and other internal organs was traced.

2112. There is *still* an interesting inquiry open to us relative to the defective development and nutrition of the *internal organs* and *external limbs*, &c. from diseases of the internal and external ganglionic systems.

2113. Some diseases are obviously affections of the internal Ganglionic Nerves: we have *augmented action*, for instance, of the liver and kidney, in the cholera Europæa, and enuresis; we have *paralysis* of the same organs in the cholera Indica,—in some cases of icterus, and in ischuria.¹

2114. With these effects of deranged ganglionic function, I beg my reader to compare the statements, § 1637, 1652, 1790.

¹ For the influence of the Spinal Marrow on the Secretion of the Urine, see Prout's Inquiry into Affections of the Urinary Organs, ed. 2, p. 180; Ollivier, Traité de la Moëlle Epinière, ed. 2, p. 118; Mr. Stanley, on the Medico-Chirurgical Transactions, vol. xviii, p. 271.

CHAPTER II.

ON THE DISEASES OF THE RESPIRATORY SYSTEM.

2115. THE organs of respiration consist of the larynx, the trachea, the bronchia,—the air cells,—the cellular substance of the lungs ;—the lining mucous membranes,—the nerves,—the muscular tissue,—and the investing serous membrane or pleura, —lastly, the vessels of the arterial and of the venous circulation.

2116. For the pathological character or disposition of the different tissues, I may refer to the observations made § 489—540 ; and for the condition of the arterial and venous systems, in the lungs and some other organs, I may refer to § 464—485. There is a part of the anatomy and physiology to which I shall have to advert, almost for the first time, in this chapter, viz. that of the muscular tissue. In the nerves (the excito-motory system), and in the muscular tissue, we have, I believe, the seat of *true Asthma* ; a complaint scarcely understood hitherto, but on which I hope to throw a little light as we proceed.

2117. The diseases of the Respiratory System could scarcely be said to be understood until the ERA at which Laënnec's incomparable work appeared : the combination of auscultation and percussion constitutes the basis of the *Diagnosis* ; and the pathology is scarcely less indebted to that extraordinary man.

2118. [For an account of the physical and rational signs of diseases of the respiratory organs, the reader is referred to the second chapter of this volume, by the editors.]

2119. The anatomy of these organs should be constantly

borne in mind whilst we are pursuing their pathology. It presents us with a natural mode of arranging pulmonary diseases. But a still more practical mode of arrangement flows from viewing these diseases as *Acute*, *Chronic*, and *Insidious*; to this, the former is very properly made subsidiary.

I. THE ACUTE.

I. LARYNGITIS AND TRACHEITIS.

1. Injection. 2. Tumidity. 3. Exudation.

II. BRONCHITIS. INFLUENZA.

1. Redness. 2. Slight thickening.
3. Augmented and altered Secretion.

III. PNEUMONIA.

1. Diffused.
2. Lobular.
3. Central.
 1. Congestion.
 2. Hepatization.
 3. Purulent Infiltration.
 4. Abscess.
 5. Œdema.

IV. HÆMORRHAGE.

I. BRONCHIAL HÆMORRHAGE.

II. PULMONARY HÆMORRHAGE OR APOPLEXY.

V. PLEURITIS.

1. Of One Pleura.
2. Of Both Pleuræ.
3. Partial.
4. Pleuro-pneumonia.
 1. False Membranes.
 2. Serous, Puriform, Hæmorrhagic Effusion.

VI. GANGRENE (DIFFUSED.)

II. THE CHRONIC.

I. LARYNGITIS AND TRACHEITIS.

II. [CROUP.]

III. BRONCHITIS.

1. Mucous ; Dilatation of the Bronchia.
2. Pityuitous.
3. Dry ; Emphysema ; Asthma.
4. Symptomatic.

IV. HAY-ASTHMA.

V. PNEUMONIA.

VI. PLEURITIS.

1. Serous, flocculent, or puriform Effusion.
2. Effusion, with dilatation of the Chest.
3. Absorption, with Contraction of the Chest.
4. Displacement of the Heart.

VII. GANGRENE (CIRCUMSCRIBED.)

VIII. EMPHYSEMA.

1. Vesicular. 2. Interlobular.

IX. ASTHMA.

X. ŒDEMA.

XI. HYDROTHORAX.

1. Idiopathic. 2. Symptomatic.

XII. PNEUMOTHORAX.

III. THE INSIDIOUS.

I. ULCERATION OF THE LARYNX, TRACHEA, OR BRONCHIA.

II. PHTHISIS.

III. MELANOSIS.

IV. ENCEPHALOSIS.

V. SCIRRHUS.

VI. CYSTS, HYDATIDS, ETC.

VII. SYMPTOMATIC AFFECTIONS.

I. THE ACUTE DISEASES.

I. LARYNGITIS AND TRACHEITIS.

2120. The profession are chiefly indebted for the knowledge of this disease, as it occurs in *adults*, to the late Dr. Baillie,¹ and to Dr. Farre.²

2121. I. *The History*. This perilous affection comes on rather insidiously, with the feelings and appearances of slight sore throat, from exposure to wet and cold. Of the three cases given by Dr. Baillie, two occurred in the persons of eminent physicians, viz. Dr. David Pitcairn and Sir John Macnamara Hayes. "They had both been more or less subject to inflammation of the thorax." Both cases, with a third, and with other slighter cases, "occurred in one season and near each other."

2122. II. *The Symptoms*. With a blush of inflammation about the fauces, there is, very soon, a sense of stricture about the larynx, and a sonorous yet hoarse respiration, voice, and cough, the inspirations being long and difficult. After another short interval, there is increased dyspnœa, with the imminent danger of suffocation, restlessness, great distress, starting of the eyes, and perhaps delirium; with these symptoms, referrible to the larynx or trachea, there are a small pulse, paleness of the face, dilated pupils, and obvious danger of sinking of the powers of life. When the disease is seated about the rima glottidis, there is dysphagia; when lower down in the larynx, there is still hoarseness or loss of voice; symptoms which are absent in Tracheitis, when distinct from affection of the larynx. Generally the patient can lay his finger on the seat of the stricture and of dyspnœa.³

¹ Trans. of a Soc. for the Imp. of Med. and Surg. Know. vol. iii, p. 275, 1809; Works by Wardrop, vol. ii, p. 54.

² Med. Chir. Trans. vol. iii, p. 84, and p. 323; 1812.

³ Dr. Pitcairn "had an uneasy feeling in the larynx, and wrote on a piece of paper that his complaint was croup." Dr. Farre's patient answered his inquiry respecting the seat of his suffering, "by putting his finger on the superior part of the thyroid cartilage."

2123. III. *The Morbid Anatomy.* In acute laryngitis the velum and tonsils are somewhat inflamed; the epiglottis thickened; the lining membrane of the larynx inflamed, thickened, and with puriform fluid in the sacculi; that of the trachea being also, but less, inflamed. These appearances were seen in the cases of Dr. Baillie and Dr. Farre.

2124. Such is a general view of the symptoms, &c. in Acute Laryngitis; to this view I think it most important to add an abstract of the two cases detailed by the accurate pen of Dr. Baillie:—¹

2125. Case I.—D. P. had been subject to quinsy, which had readily yielded to bleeding, purging, and abstinence. On April 13th, 1809, he had sore throat, which appeared slight; he was worse on the 15th, and confined to bed on the 16th. “I was *sent for*,” says Dr. Baillie, “at 10 P. M.; he spoke thickly in his throat, his skin was hot, his pulse frequent; he was bled by his own desire, and the blood proved buffy; he had taken opening medicine and applied a blister. *There was no suspicion of danger.* During the night the symptoms became more violent, and many leeches were applied to the throat. At 11 P. M. on the 17th, he was sitting up, but he was pale, his pulse feeble and unequal, and his voice almost lost; there was some dyspnœa, but this was without noise or spasm; he had, however, an uneasy feeling in his throat, and wrote down on a piece of paper, that his complaint was to be considered as croup; the tongue and velum were much swelled; there was great dysphagia. About 4 P. M. he was in bed, his pulse regular and not weak or frequent; he was breathing with difficulty, and was a little drowsy. *He appeared better.* About 8 P. M. he became suddenly worse, and in less than half an hour expired.

2126. “On the 19th of April, the second day after his death, about twelve o’clock, the body was examined by Mr. Brodie, in the presence of Dr. Wells, Mr. Home, and myself. The tongue was found still considerably swelled, but not in the same degree as during life, and its under surface was of a red color. The posterior and upper surface of the tongue was also red, but in a

¹ Trans. of the Soc. for the Imp. of Med. and Surg, Know. v. iii, p. 276—284.

less degree. The velum pendulum palati, and the tonsils, were inflamed, but were not much swelled. The tonsils contained no pus. The epiglottis was at least twice as thick as it is in health, and stood more erect than usual. When the inner surface of the larynx was examined, the membrane which lines it was found to be much inflamed, and somewhat thickened, and a small quantity of a thick purulent fluid was found in the sacculi laryngis. The inner membrane of the trachea was likewise found to be inflamed, but not in the same degree as the inner membrane of the larynx. The lungs were sound, but did not collapse upon taking off the sternum, and the anterior extremities of the ribs. Some slight marks of disease were found in the coats of the aorta, but these had no connection with the disorder of which the patient died."

2127. Case II.—I. M. H. was taken ill on July 16th, 1809, called on Dr. Baillie and complained of uneasiness in the larynx; the uvula and arch of the palate appeared slightly redder than natural. The patient, however, was a good deal anxious about himself, because he had labored under an inflammation of his throat about fifteen years before, which had nearly proved fatal. Seven leeches were applied, and an aperient given. The next day he was a little worse; but he was without dyspnœa, and the pulse was little accelerated. Twelve ounces of blood were taken from the arm, and a blister applied. During the day he was bled, at his own desire, three times, and lost between thirty and forty ounces of blood. In the evening he was still worse; his breathing was becoming laborious, and attended with a noise referrible to the larynx. An emetic, &c. were prescribed. On the morning of the 18th, he was still worse; in the evening, at six P. M. worse still, with dyspnœa and threatenings of suffocation. Ninety drops of laudanum and the warm-bath were administered during the evening. Tracheotomy was proposed. At ten he was easier. In the night time, the patient becoming much worse, Mr. Tegart, who scarcely ever left him either day or night, sent for Mr. Home and Mr. Wilson to perform the operation of bronchotomy. Mr. Wilson was out of town upon professional business, but Mr. Home came about four in the morning. The patient, however, was beginning to sink, so that

no advantage from an operation was now to be expected. I was called up at five, and found the patient in a dying state. He expired at six o'clock in the morning of the 19th of July.

2128. "Early on the 20th, the body was examined by Mr. Home, Mr. Wilson, Mr. Tegart, Mr. Brodie, and myself. The posterior part of the upper surface of the tongue was a little red, but the tongue was not increased in thickness. The tonsils, and the velum pendulum palati were slightly inflamed. The epiglottis was much thickened, and stood erect, so as to leave the cavity of the larynx altogether uncovered. The inner membrane of the larynx was much inflamed and thickened, and there was a little thick purulent fluid in the sacculi laryngis. When the cut edges of the larynx, which had been slit behind, were brought in contact with each other, the cavity of the glottis was found to be almost obliterated, by the thickening of the inner membrane of the larynx at that part. The inner membrane of the trachea was likewise inflamed, but in a less degree. The lungs did not collapse upon opening the chest, but were sound in their structure."

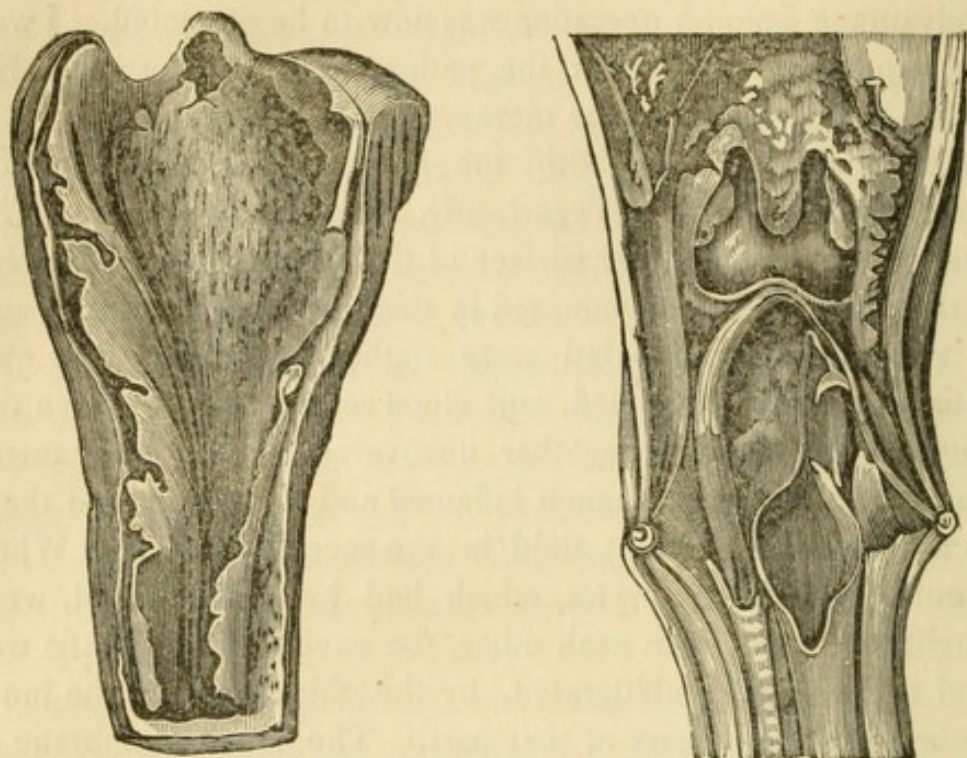
2129. These cases are replete with interest and instruction; they teach us how insidious this terrible malady may be, and how prompt we should be in having recourse to the only mode of arresting death.

2130. Such is, perhaps, the most common form of Laryngitis and Tracheitis in *Adults*. But there are other forms which must be mentioned in this place. In different instances there are:—

2131. 1. Œdema of the Glottis. [In this form of disease inspiration is difficult and sonorous, or sibilant, while expiration is free and easy. There is hoarseness or aphonia, and the patient feels as if a foreign body were lodged at the upper part of the larynx.]

2132. 2. The effusion of mucus, of a puriform fluid, or of a concrete layer of lymph from the lining membrane of the larynx or trachea.¹ The last is shown by the subjoined sketches:—

¹ Laryngitis has been distinguished by M. Bland into three kinds or degrees, which he has designated by three terms, significant enough, if they were necessary, viz. myxogene (μύξα, *mucus*), puogene πύον, *pus*), and meningogene, (μηνίγξ, *a membrane*.)



2133. 3. A layer of lymph lining the nostrils, the soft palate, the tonsils, the pharynx, the larynx, the trachea. The cases detailed in the valuable Memoir of M. Louis,¹ were of this kind.

2134. 4. A *sloughy* condition of the fauces—the velum, the tonsils, &c.—an insidious and terrible disease occasionally seen in *children*.

2135. IV. *The Treatment*. In the pure form of Laryngitis and Tracheitis, we must *first* bleed promptly to incipient syncope, watching the effects and being guided in our future proceedings by the quantity of blood which has flowed : we must *next* administer mercury in such form and manner as may most speedily induce free ptyalism ; the pilula and the unguentum must be administered, the former with the pulvis antimonialis : in the *third* place, we must employ local blood-letting, with fomentations.

2136. In the midst of this treatment we must be prepared to perform the operation of *tracheotomy* : this operation, to be either safe or effectual, must be performed *early*. It is *too late* when

¹ Mémoires, p. 201—252.

the countenance is pallid, livid, and cold, and the pulse sinking.

2137. In œdema of the glottis the most prompt depletive measures are required. *Tracheotomy* may be necessary.

2138. In the case of a deposit of a layer of coagulable lymph, this is sometimes expectorated through the natural opening of the larynx, sometimes through that made by the operation into the trachea.

2139. The cases detailed by M. Louis, § 2133, occurred principally in the course of other diseases, viz. typhus, phthisis, chronic pleuritis, "gastro-enterite." Its treatment depends consequently upon that of the original disease. The affection was constantly observed to proceed from *above, downwards*; so that it would be most important to arrest its course by such applications as the nitrate of silver. In spite of local bleeding by leeches and mercury, one out of eight patients only survived.

2140. In the cases of *slough*, I am led, by a recent case, to think that the quinine, promptly followed by mercury, is the remedy which affords us the greatest degree of hope of cure.

II. CROUP.

2141. [The form of disease commonly denominated croup, and called by Dr. Good *bronchlemmitis*, occurs mostly in children under the age of twelve years. It partakes of the anatomical character of the preceding and of the following disease, being an inflammation of the mucous membrane of the trachea, extending to the bronchia on one hand, and to the larynx and very frequently the fauces on the other.

2142. *The Symptoms.* Croup sometimes commences suddenly, at other times insidiously with symptoms resembling those of common catarrh. The development of the disease is usually announced by a peculiar harsh, dry, sonorous, ringing cough, which is easily recognised by those who have once heard it. At the same time a wheezing, or somewhat sibilant sound is heard in the breathing, conveying to bystanders the impression that the child breathes through a contracted orifice, and with some difficulty. There is heat, thirst and quick pulse. The voice is

frequently hoarse, or harsh. As the disease advances the distress for breath becomes urgent, the patient throws his head backward and exerts to the utmost the accessory muscles of respiration. The cough becomes less loud, and more wheezing. The face, which is at first flushed, becomes afterwards pale, or livid, and covered with perspiration from the exertions of the patient. On inspection of the fauces they are sometimes natural, at others red, at others the tonsils, &c. are covered with a whitish false membrane, which last appearance is a very bad omen. In auscultation a sibilant or sonorous, and sometimes a mucous râle is heard. When portions of loose membrane are partially detached in the air passages, a flapping or valvular sound is transmitted to the ear. Remissions sometimes occur for a few hours, affording a fallacious hope of recovery, after which the disease returns with increased violence, the respiration grows excessively laborious and is attended with noise, the pulse becomes small and very frequent, the lips purple, and the patient dies in most instances of asphyxia.

2143. The disease terminates in some cases within twenty-four hours, more commonly it lasts two or three days, and in rare cases it continues for a week and upwards. In favorable cases the cough becomes more loose and less frequent, the breathing easy, and the heat and pulse less. But we cannot account the patient safe, until he has passed a night without a return of the symptoms.

2144. The *morbid anatomy* of croup consists essentially in an inflammation of the mucous membrane of the larynx, trachea and bronchia. In a majority of cases a complete false membrane is deposited, lining the trachea and extending to the bronchia and fauces as seen in fig. on page 494. We have known this membrane in two instances to be coughed up and temporary relief to follow. But in both cases the membrane was reproduced and death ensued. We have witnessed several cases of fatal croup, in which there was no false membrane, but the mucous coat was injected and reddened, and covered with a viscid or puriform secretion. Those who die of croup generally exhibit a high degree of congestion of the lungs and also of the vessels of the brain.

2145. The *treatment* of croup consists in the administration of a prompt and active emetic. This alone is sufficient in mild cases. But if the character of the cough and breathing are not changed when the emetic has finished its operation, we should lose no time in abstracting blood. This in children is most conveniently done by opening the jugular vein, and allowing the blood to flow till there are slight signs of syncope. Leeches may also be employed, and calomel in full doses. A plaster of tobacco snuff may be applied for short periods to the chest, to be removed if narcotic symptoms appear.

2146. Tracheotomy has been proposed and repeatedly performed as a last resource in croup. We have repeatedly known it performed without benefit. No advantage is to be expected from it where the inflammation extends, as is commonly the case, to the bronchial tubes.]

III. BRONCHITIS.

2147. I. *The History.* This disease usually succeeds to exposure to damp and cold. There is generally, at first, a state of coryza affecting the eyes and nostrils.

2148. II. *The Symptoms.* In the *mucous* form of the disease, there is a sense of irritation about the larynx and bronchia, with a dry, harsh cough; afterwards there is considerable expectoration, raised by fits of coughing; this is at first pituitous, sometimes mingled with black pulmonary matter; and afterwards, still more copious, viscid, opaque, yellowish, or greenish, and perhaps striated with blood; there is pain [or rather soreness] more or less diffused over the chest.

2149. The thorax sounds well on percussion.

2150. The degree and extent of the disease are readily ascertained by the stethoscope, being denoted by the kind and diffusion of the bronchial râles, which pass from the sonorous to the mucous; and by the temporary diminution or partial suspension of the respiratory murmur, by the obstruction of a bronchial branch.

2151. M. Louis observes,¹ "when catarrh is accompanied by

sub-crepitant râle, this râle is always situated, *at the first* at least, at the *base* of the lungs,—that is, in a part opposed to that which is the first seat of tubercles.” This is the case not only in simple catarrh, but in that form of catarrh which occurs in the course of *typhus*, *rubeola*, *emphysema*, &c. The fact affords a source of Diagnosis between these cases and phthisis, of the utmost value.

2152. III. *Varieties*. Besides the ordinary forms of acute bronchitis, some writers, in their fondness for subdivisions, have enumerated the following varieties :—

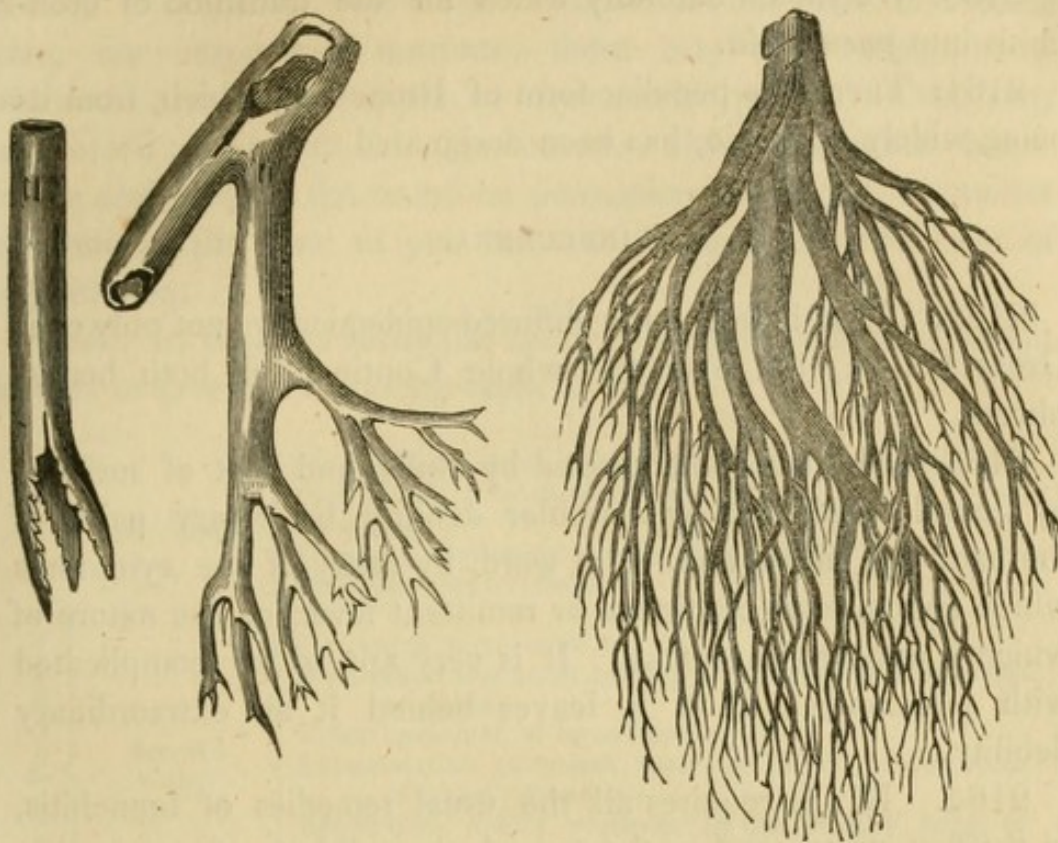
1. The Dry.
2. The Pituitous.
3. The Suffocating.

2153. The first and second are observed at the commencement and termination of ordinary bronchitis, and are therefore *stages*, rather than distinct forms of this disease ; and the last occurs from the great extent of the disease, and the accumulation of the mucous secretion, especially, but not exclusively, in infants, and in old age.

2154. IV. There is a far greater susceptibility to the effects of blood-letting in bronchitis than in laryngitis or in the other divisions of this sub-section.

2155. V. *The Morbid Anatomy* consists in redness, and slight thickening of the mucous membrane of the bronchia, with accumulation of its altered secretions, which retain the mucus, or assume a puriform character, or even that of solid lymph. This last appearance is represented in the subjoined cuts :

¹ Examen, p. 78.



2156. VI. *The Treatment of Bronchitis* consists—*first*, in the administration of emetic or nauseating doses of ipecacuanha, and, *secondly*, in the application of leeches, fomentations, and blisters to the thorax. The bowels should also be relieved by the oleum ricini, or the enema of warm water.

2157. General blood-letting is not, in my opinion, of great efficacy in Bronchitis; nor is it well borne. In cases in which the dyspnœa is considerable, and the patient young, we may bleed once to incipient syncope, in the erect position, and judge of the effects of the remedy on the disease, and on the patient.

2158. Squills, the balsam of copaiba, the lobelia inflata, &c. are useful auxiliary remedies.

2159. The patient should remain in bed; the atmosphere should be maintained at a moderate temperature, and free from changes or draughts, and the sole diet should be barley-water, tea, weak beef-tea, &c. [A large portion of cases of bronchitis require no treatment beyond low diet for a day or two, an aperient and a foot-bath. Total abstinence from liquids is sometimes found to cure the disease very speedily.]

2160. We should carefully *watch* for the transition of bronchitis into *pneumonia*.

2161. There is a peculiar form of Bronchitis, which, from its being widely epidemic, has been designated

INFLUENZA.

2162. I. It is frequently diffused epidemically, not only over Great Britain, but over the whole Continent in both hemispheres.

2163. II. It is characterized by chills, and heat of surface; by frontal headache, by muscular debility, by weary pains of the back and limbs, and, in a word, by many of the symptoms which characterize continued or remittent fever, of the nature of which it appears to partake. It is very apt to be complicated with pneumonia. And it leaves behind it an extraordinary debility.

2164. III. It requires all the usual remedies of bronchitis, in the first stage; and in the second, the sulphate of quinine.¹

IV. PNEUMONIA.

2165. I. *The History.* The principal *cause* of Pneumonia, like that of laryngitis, bronchitis, &c. is exposure to wet and cold. Pneumonia is very obscure in its *first* stage.

2166. II. *The Symptoms* are obtuse, deep-seated pain, labored or frequent respiration, and cough, and a *peculiar* glutinous expectoration, highly characteristic: this expectoration is frequently such, that the vessel in which it is contained may be inverted without its falling out; its color is various, but frequently that of the *rust of iron*.

2167. But the chief sources of the diagnosis are auscultation and percussion:—1. The *crepitous* râle is the invariable pathognomonic sign of the first stage; its extent marks that of the disease; the respiration is still heard; the chest still

¹ I may refer my reader, for a full account of this singular malady, to the Medical Observations and Inquiries, v. ii, p. 187, and v. vi, p. 340; to the Transactions of the Royal College of Physicians, v. i, p. 437, v. iii, p. 54, &c. &c. See also Willan, op. cit. p. 343; Blane, op. cit. p. 227; and, lastly, the Pathologie Interne, of M. Andral, t. i, p. 321—324; &c.

sounds well; 2. in the stage of *hepatization*, there is neither râle, nor respiratory murmur; there may be bronchophony when the root, or the upper, or any exterior portion of the lung is affected; and with this sign there are always bronchial respiration and cough; the sound on percussion is dull; 3. a mucous râle marks the flow of pus into the bronchia, in the case of suppuration.

2168. In order to assist the medical student, I have thought it well to give the following table of the

Signs of Pneumonia.	First Stage.	{ Chest still sonorous, [but a little less so than naturally.] Pain of side, if with pleuritis. Dyspnœa Vesicular respiration becoming crepitant. Mucous expectoration.
	Second Stage.	{ Flat sound on percussion. Respiration absent, or passing from the crepitant to the bronchial. Voice bronchial, or bronchophony. Expectoration yellowish, rusty, or tinged of the color of blood; tenacious. Respiration loudly vesicular in the healthy lung, or healthy part of the lung. Posture on the back.
	Third Stage.	{ Flat sound, as in the second Bronchial respiration replaced by subcrepitous or mucous râle.
	Latent in	{ Central } pneumonia. { Lobular }

2169. III. *The Complications.* The brain and its membranes are frequently congested in pneumonia; and there may be delirium or coma; the latter symptom frequently leads to a fatal termination in persons of advanced age.

2170. IV. *The Morbid Anatomy* consists of

1. [Serous Infiltration.]
2. Red Hepatization.
3. Grey Hepatization, or Purulent Infiltration.
4. Abscess.
5. Gangrene.

2171. In the first of these there is much exudation of spumous fluid on incision, but no softening; in the *second* and *third*, there is much softening of the tissues of the lungs; this is so

great, indeed, in the *third* case, that the pressure of the finger has frequently produced an appearance, which has been mistaken for *abscess*. Real abscess and gangrene of the *lung* are extremely rare.

2172. The disease may be circumscribed or diffused: it is frequently confined to a lobe, to the root of the lung, to lobules, &c.

2173. During the *resolution* of pneumonia, the symptoms cease in an inverted order: the normal sound on percussion, the crepitous [or rather subcrepitous] râle, and then the vesicular respiration, return.

2174. If *abscess* open into the bronchia, there are pectoriloquy, cavernous respiration, cough, and rattle, and perhaps the "souffle voilé." If *gangrene* take place, there is expectoration of a sanious fluid, of an extremely fœtid odor; the same odor is also frequently diffused in the atmosphere, and becomes highly diagnostic.

2175. Sometimes pneumonia does not terminate by resolution, but gradually yields to a state of *œdema*. The symptoms are then dyspnœa, obscure respiration, and a sub-crepitous râle.

2176. V. *The Treatment*. Pneumonia is one of those diseases which exemplify the doctrine which I have stated at large, § 823, et. seq. respecting the employment of blood-letting. If this remedy be adopted *early* in Pneumonia,—if the patient be placed *perfectly* upright and bled to *incipient* syncope,—much blood flows and much benefit follows.

2177. The quantity of blood taken, the effect on the disease and on the patient, must be taken into consideration before we can determine whether in *eight*, or *twelve*, or *twenty hours*, the remedy should be re-instituted.

2178. [M. Louis, in his "Researches on the Effects of Bleeding in some Inflammatory Affections," arrived at the conclusion that the power of this remedy over the duration, mortality and violence of pneumonia is very limited. The quantity of blood drawn was from ten to fifteen ounces each time in the first series of cases and a little more in the second series; the operation was in general performed twice or oftener. M. Bouillaud, who bleeds much more copiously and frequently (*coup sur coup*) claims for this method a very great degree of success.]

2179. Blood-letting holds, certainly, the *first* rank amongst the remedies of Pneumonia. The *tartrate of antimony* probably holds the *second*; see particularly § 391, et seq. The latter remedy is also extremely useful when there are some remnants of Pneumonia, after blood-letting has been carried to its full extent; and when the disease supervenes upon some other affections, such as *typhus*, *variola*, &c.

2180. Ipecacuanha in nauseating doses; the squills; lobelia inflata, &c. are auxiliary remedies.

2181. But we possess still more important remedies in local cupping, leeches, blisters, and cataplasms or fomentations. These may be prescribed after the *general* remedies have been employed, but have failed to subdue the disease.

2182. Lastly, if some part of the disease still lingers, a sharp liniment should be employed night and morning for some months; see § 591.

2183. It may be useful to add to the value of each of these remedies by a change of climate, by a sea voyage, &c. We may thus prevent the formation of tubercles. Not less important is—a mind at ease.

2184. [The characters of pneumonia in children of more than six years old, resemble those of the same disease in adults. But in younger children it presents some remarkable peculiarities, among which are the following, according to Dr. Gerhard.

2185. 1. It is usually the sequela of some other affection, as bronchitis, eruptive fevers, &c.

2186. 2. It affects isolated lobules of the lungs, and almost always exists on both sides.

2187. 3. The duration of the disease is much more indefinite than in adults.

2188. 4. In consequence of both sides being affected, the comparative results of percussion are not to be depended upon, but the degree of sound must be compared with the healthy standard.

2189. 5. Instead of the crepitous râle there is commonly a subcrepitous or mucous râle, with large bubbles; sometimes no râle exists.

2190. 6. The bronchial respiration is short, rough, blowing, without vesicular murmur.

2191. 7. Bronchophony is much less distinct than in adults, consisting in a vibratory or murmuring sound, produced by the cry.¹]

V. HÆMORRHAGE.

2192. There are several sources of Hæmorrhage from the lungs, or *Hæmoptysis*:—1. blood is frequently expectorated in bronchitis; it is then seen in *streaks* mingled with mucus: 2. blood is frequently expectorated in pneumonia; it is, in this case, so intimately blended with the fluid rejected by coughing, as to give it its peculiar yellow, rusty, or sanguineous hues: 3. blood is frequently expectorated in distinct portions, of various magnitude, from that of a mere *dot* or *streak*, to that of a teaspoonful, or a much larger quantity, as one of the earliest and most formidable symptoms of pulmonary tubercle.

2193. The forms of Hæmorrhage which are to occupy us here, are those denominated *Bronchial* and *Pulmonary*.

I. BRONCHIAL HÆMORRHAGE.

2194. I. *The History*. The exciting *causes* of Bronchial Hæmorrhage are muscular efforts, especially of the voice,² and of the respiration: other causes assigned are the suppression of a habitual hæmorrhage, of the catamenia, &c.

2195. II. *The Symptoms*. Bronchial Hæmorrhage is denoted by the rejection of a moderate quantity of spumous, and sometimes subsequently coagulated blood. The chest sounds well; there is a *mucous* râle.

2196. III. *The Morbid Anatomy*. The bronchia are found to contain more or less of blood, and to be tinged by imbibition.

II. PULMONARY HÆMORRHAGE OR APOPLEXY.

2197. I. *The History*. The causes of Pulmonary Hæmorrhage are the same, generally, as those of bronchial hæmorrhage.

¹ [See Gerhard on Diseases of Chest, and Amer. Jour. of Med. Sciences for the year 1834.]

² It is said that Talma usually experienced a bronchial hæmorrhage after performing "*Les Fureurs d'Oreste*."

Exposure to excessive heat or cold is a frequent cause of the immediate attack. But this disease frequently occurs in the most sudden and unexpected manner. It is also sometimes coincident with hæmorrhage in other organs.

2198. II. *The Symptoms* are oppression at the chest, cough, with much irritation of the larynx, and the rejection of a considerable, perhaps an enormous quantity of florid spumous, or coagulated blood, with a frequent vibrating pulse, and the bellows sound of the heart and arteries. The countenance is either flushed or pale; the skin is natural, the feet may become cold.

2199. The stethoscope affords *two* important signs of pulmonary hæmorrhage: the *first* is the absence of respiration in some part of the chest, [which is replaced by bronchial respiration with bronchophony]; the *second*, a mucous or subcrepitous râle surrounding this part.

2200. III. *The Morbid Anatomy* of pulmonary hæmorrhage consists in solidification of the lung. This solidification is as great as that of the hepatization of pneumonia; but it is usually more partial and more distinctly and abruptly circumscribed; and it is uniformly of the deep hue of venous blood.

2201. IV. *The Treatment* consists in the use of the remedies prescribed for pneumonia, only in milder forms and measures.

2202. One remedy, particularly useful in Hæmorrhage, is the application of an alcoholic lotion, extensively, across the chest.

2203. The sulphuric acid; the acetate of lead; and the secale cornutum have been prescribed. [Repose, rigorous diet, and silence should be enjoined.]

2204. [NOTE. The occurrence of a considerable hæmorrhage from the lungs, unless it follow some external shock, or suppression of the menses, affords, according to Louis, an almost certain sign of the existence of tubercles.]

VI. PLEURITIS.

2205. I. *The History*. Pleuritis, in its acute form, usually occurs rather abruptly, from exposure to wet and cold. The very first symptoms are frequently pain and a checked respiration.

2206. II. *The Symptoms*. The pain of Pleuritis is usually

greatest in the spot denoting the seat of inflammation. It is produced or augmented by free inspiration; and it produces modifications in the movements of respiration which are highly peculiar and characteristic; the thorax, the affected side, or part of the thorax, is unmoved, the respiration being either diaphragmatic or only partially thoracic. I have frequently been able to detect the side, or the part affected, by watching the movements of the chest in respiration, and especially in a deep inspiration.

2207. As the usual speedy effect of Pleuritis is effusion, there is a dulness or the entire absence of sound on percussion, and there is a diminution of respiration under the ear, or stethoscope; the degree of effusion is measured by the degree of diffusion of these two physical signs, which are usually greater than in pneumonia; there is another stethoscopic sign of effusion, viz. ægophony, which is heard when the quantity of the effusion is moderate, varying in its situation with that of the upper thin layer of the fluid, and consequently with the position of the patient. [See § 120].

2208. [When the effusion consists of coagulable lymph, with little fluid, it is common to find the sound of friction. This occurs, in general, either in the early stage of the disease, before much liquid effusion has occurred, or in the later stages, when absorption has taken place.]

2209. III. *The Varieties.* Pleuritis may exist

1. In one, or
2. In both Pleural Sacs, or
3. In one part only, as
 1. Between the Lung and Diaphragm.
 2. Between the Pulmonary Lobes, &c.
 3. In the Mediastinum.
4. With Pneumonia.
5. With Phthisis.

2210. When one side of the chest is affected, the symptoms are confined to that side; when both sides are affected, percussion and the ear discover the want of sound, and of respiration, on both sides.

2211. In partial Pleuritis, the seat of the pain and the ab-

sence of equal movement in respiration, combined with dulness of sound on percussion, and want of respiration under the ear or stethoscope, denote the particular seat of the disease. Diaphragmatic Pleuritis is denoted by a thoracic respiration and by augmented pain on calling the diaphragm into play. Partial Pleuritis is denoted by absence of sound and respiration, preceded by acute pleuritic pain. Pleuro-pneumonia unites the symptoms of pleuritic and pneumonic inflammation.

2212. [Pleurisy is sometimes *latent*. We occasionally meet with patients who are able to pursue their accustomed employments without pain, and who, perhaps, have only noticed a little weakness and dyspnœa, and in whom the physical signs indicate extensive effusion, and compression of one lung.]

2213. IV. *The Morbid Anatomy* consists of the effusion

1. Of Organizable Lymph. *See the wood-cuts*, p. 127.
2. Of Serous, Puriform, or Sanguineous Fluid.

2214. From pleuritis it is highly important to distinguish the different forms of *Pleurodyne*: these are—

1. Dyspeptic ;
2. Chlorotic ;
3. Hysterical ;
4. Rheumatic ;
5. That of Herpes Zoster, &c.

2215. The diagnosis is founded upon the history and general symptoms of these affections respectively ; and upon the absence of those of Pleuritis, and of its stethoscopic signs.

2216. The *Pleurodyne* of the Herpes Zoster precedes the eruption several days, and is often sufficiently puzzling : it is characterized by being burning, stinging, and shooting, and by being recurrent ; it is unaltered by a deep inspiration, motion, &c.

2217. IV. *The Treatment* of Pleuritis is the same as that of pneumonia, § 2176—2183, except that mercury occupies the important place as a remedy for this inflammation of a serous membrane, which the tartrate of antimony does for that of the lung itself.

2218. If all the other remedies have failed, it may be a question whether paracentesis thoracis should be performed.

VII. GANGRENE (DIFFUSED.)

2219. I. *The History.* Gangrene of the lungs is either *diffused* or *circumscribed*. In the former case, it is a disease of acute form and rapid progress. It is of rare occurrence, and generally allied to other gangrenous diseases rather than to inflammation.

2220. II. *The Symptoms* are extreme general debility and sinking, with great oppression and a frequent, feeble pulse; there is a mucous or subcrepitous râle, with a peculiar and even pathognomonic expectoration of a *gangrenous fœtor* and dingy green color; the râle rapidly augments, and the patient dies from accumulation in the bronchia and sinking of the powers.

2221. III. *The Morbid Anatomy.* The substance of the lung is congested, easily torn, of the various, greenish, brownish, or blackish hues, and of the excessive fœtor, which is found in other parts in a state of gangrene.

2222. [Circumscribed gangrene occupies but a small part of the lung. Its signs resemble those of abscess in the lung, but are characterised by the gangrenous fœtor of the sputa.

2223. Gangrene of the lung occurs more frequently in some years than in others; it happens at all ages; and is fatal in about half the cases. It appears to be an idiopathic affection, rarely occurring in the course of pneumonia or pleurisy.¹ When the part softened by mortification has been expectorated, it leaves a cavern, and, consequently, gives rise to cavernous respiration, gurgling, and pectoriloquy.

2224. When a cure takes place, the stethoscopic signs gradually diminish, but the respiration never recovers its original strength. Dr. Gerhard has observed a peculiar aspect of the skin in this affection; a dirty yellow or bronzed aspect, a shrunken and less than naturally vascular condition, with pale, greenish, or livid discoloration of the tissues in general after death.]

¹ Chomel mentions, however, that he has seen it occur several times in the course of pneumonia. Andral has given several cases of this kind. Clinique Tom. III, 470—497.

METASTATIC ABSCESS.

2225. [This affection usually follows surgical operations, or occurs during the existence of suppurating wounds or phlebitis.

2226. *Morbid Anatomy.* The first change consists in a livid red or purple color, attended with condensation and friability of the diseased lobules. Purulent points then appear scattered through it, and subsequently it becomes infiltrated with pus, or liquid of a strong gangrenous odor. The diseased portion becomes surrounded by a distinct false membrane. Pleurisy, with membranous and liquid effusion, frequently supervenes.

2227. *Symptoms.* These consist in chills, followed by cough, expectoration of viscid reddish sputa, profuse sweating; a subcrepitous râle appears at the point of disease, and should then pleurisy attend the affection, there will be flatness on percussion and ægophony.]

II. THE CHRONIC DISEASES.

I. LARYNGITIS OR TRACHEITIS.

2228. I. *The History.* Chronic Laryngitis is sometimes insidious, sometimes the sequel of laryngitis in the acute form.

2229. II. *The Symptoms* in Chronic Laryngitis are difficult and hoarse or sonorous respiration, a croupy cough, and dysphagia; there is a sense of stricture or of soreness distinctly referred to the larynx; and there is, at length, the remarkable symptom of inability of snuffing up the nostrils, or of drawing the alæ nasi together by quick inspiration.

2230. Tracheitis is distinguished by the absence of dysphagia, and by the seat of stricture and uneasiness.

2231. I must exemplify this interesting subject by a case which occurred to me in the year 1817, and was published in the Medico-Chirurgical Transactions, vol. x, p. 166.

2232. Mrs. Ann Hatton, aged fifty-three, became affected, in the latter end of September, 1817, with hoarseness, and a hard, dry cough. These two affections continued to augment in severity, without any additional symptom, during two months;

when, about the 13th of November, a degree of difficulty in breathing, referred by the patient to a "tightness in the throat," was superadded to them, and she discovered that she was unable to "snuff up" through the nose in inspiration, in the ordinary way. During two subsequent months the hoarseness, cough, and dyspnœa continued and increased; and about the commencement of February, 1818, she began to experience, in addition, a degree of difficulty in swallowing. In the beginning of March she observed a swelling, rather diffused, but said to have been of the size of a pigeon's egg, over the upper part of the thyroid cartilage, with an increase of the dyspnœa and dysphagia. A liniment was employed for this tumor, by which it was reduced in size, and the difficulty in breathing and in swallowing was diminished. In a short time, however, these symptoms became again aggravated, and they continued to augment until the month of August.

2233. During the course of this affection, Mrs. Hatton constantly referred the seat of the difficulty of breathing to a tightness at the upper part of the larynx. She has always been affected with cough, accompanied by a peculiar, harsh, croupy sound in the throat, at first hard and dry, but more recently attended with the expectoration of viscid mucus, tinged with blood. The dyspnœa had been constant, and lately much aggravated, precluding sleep, or putting a period to sleep by inducing a sense of impending suffocation, and rendering a raised position in bed absolutely necessary. Lately too she had suffered from fits of increased dyspnœa, threatening suffocation, obliging her to run for relief to the open window, and causing great anxiety and urgent distress.

2234. Mrs. H. applied to me on the 15th of August, 1818. She was then affected with a degree of hoarseness, which rendered the voice scarcely audible. There was a perpetual dyspnœa referred by the patient, by the noise in breathing, and by the sound of the cough, to the upper part of the larynx. She swallowed with great difficulty and effort. There was an obvious general tumefaction of the upper parts about the larynx, occupying the left rather more than the right side. She stated that she experienced great difficulty in walking up a hill, or pair

of stairs. She described the impossibility of snuffing up the nostrils, an effect, I suppose, of the partial closure of the larynx; for to produce this snuffing, it is necessary that a certain *quantity* of air should be drawn through the nostrils with a certain *velocity*; and, in the present instance, the *quantity* of air admitted appears to have been too small. The patient experienced increased uneasiness on drawing the head backwards. A bougie was passed into the œsophagus, but met with no resistance.

2235. On the 15th of August, I recommended five grains of the pil. hydrarg. to be taken every night and morning, half an ounce of the sulphat of magnesia twice in the week, four leeches to be applied over the larynx every other day, and a lotion constantly, when the leech-bites were not bleeding.

2236. On the 22d of August, I again saw Mrs. H. The symptoms were unabated. The mercurial had produced no effect on the gums. Mrs. H. was now induced to remain under my immediate care. There was a degree of emaciation and debility; the pulse was rather frequent and feeble; the appetite impaired. The pil. hydrarg. was continued three times a day.

2237. On the evening of the 24th, Mrs. H. was seized with an alarming fit of dyspnœa, to which I was witness. There was the greatest anxiety of countenance and manner; and, in the breathing, every auxiliary muscle of respiration was called into exertion, and there was every appearance of impending suffocation. The dyspnœa had abated somewhat in violence, and there had been similar fits of dyspnœa before, or I should have immediately recommended the operation of laryngotomy. The difficulty of breathing abated gradually, and I left my patient in her usual state of dyspnœa.

2238. In consultation with Mr. Oldknow, a most skilful surgeon of this town, it was concluded that the operation of laryngotomy was necessary to avert the danger of suffocation, incurred during the fits of dyspnœa. The operation was therefore performed on the 25th instant.

2239. This operation afforded immediate relief to the respiration, and Mrs. H. slept soundly through the ensuing night, for the first time for a long period. Deglutition continued difficult, and always induced coughing during five or six subsequent days.

The cough raised some viscid mucus, which was forced through the orifice made by the operation. The voice was quite lost.

2240. On the day of the operation the ung. hydrarg. was prescribed to be rubbed in, in the quantity of half a drachm morning and evening. The ol. ricini was ordered, to open the bowels.

2241. On the 28th the mouth became sore. Mrs. H. soon afterwards experienced a mitigation of the difficulty in swallowing; and, on applying the finger to the opening into the larynx, she found, in a short time, that the tightness in the respiration was also diminished, and that she could breath with greater facility than before the operation, and, as she expresses it, more freely through the nose.

2242. This amendment continued progressive, and on the 5th of September, the orifice into the larynx so far closed, after an attack of sickness and retching, induced by the ol. ricini, that the air only passed through it during respiration. On the 11th, the orifice closed finally; the respiration, however, was free, the swallowing easy, and there was a slight return of voice even. On the 13th, I again heard from Mrs. H., who had returned home; the amendment continued; the mouth was extremely sore. The ung. hydrarg. was ordered to be used more sparingly.

2243. On the 22d, I paid Mrs. H. a visit. She was sitting up in bed. She breathed with perfect freedom, and had no paroxysm of augmented dyspnœa since the time of operation; she swallowed without uneasiness or effort, and, as she said, as well as ever; the whisper had advanced to a hoarse voice; and she could snuff up the nose with the usual force. Speaking, however, still required much effort, from the remaining hoarseness; and, in swallowing, the skin just above the cicatrix was drawn into wrinkles, being raised by its adhesion to the thyroid cartilage. The tumefaction about the larynx had disappeared. There was scarcely any cough, and but the scanty expectoration of a little mucus. The general appearance, strength, and appetite, were improved. She could lie down, and slept the night through. The mouth was better, but still affected by the mercury.

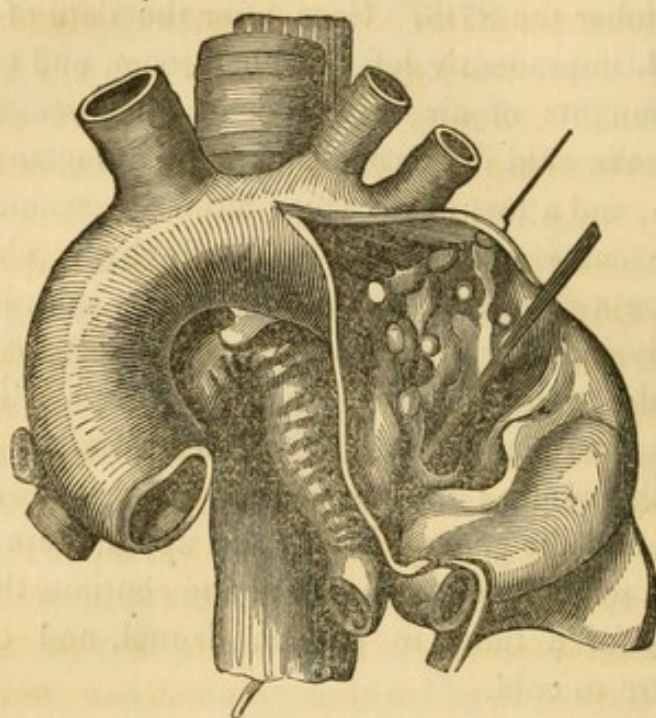
2244. October the 27th. Soon after the date of the last report, Mrs. H. imprudently left her bed-room, and exposed herself to the draughts of air in a room with three doors. She appeared to take cold in consequence, and a degree of difficulty of deglutition, and a loss of the voice formerly regained, were the effects. She came once more to Nottingham; she was once more put upon a course of the ung. hydrarg.; and, in proportion as this remedy induced ptyalism, the dysphagia disappeared entirely, and the voice became again improved. To-day, two months after the operation, she only suffers from the effect of the mercury on the mouth; the respiration and the swallowing are quite natural, and the general health and appetite are good. She returns home, with the recommendation to continue the use of the ung. hydrarg. for a time, to put on flannel, and cautiously to avoid exposure to cold.

2245. This state of amendment still continued on the 16th of December, and on the 29th of April, 1819, when Mr. H. called to give the most satisfactory account of Mrs. H.'s recovery and general health.

2246. III. *The Diagnosis.* It is important to bear in mind that Chronic Laryngitis or Tracheitis may be supposed to exist when, in fact, the case is *Hysteria*, or the trachea is compressed by

1. A Tumor,
2. An Abscess, or
3. An Aneurism.

2247. This will be understood by inspecting the relative position of the parts in the subjoined wood-cut, [representing an aneurism of the aorta, together with the trachea and œsophagus].



2248. The young physician, being aware of the danger of this mistake, will seek the diagnosis in the symptoms peculiar to these diseases.

2249. IV. *The Morbid Anatomy* consists in thickening of the mucous membrane lining the larynx or trachea, sometimes with effusion from its surface, or œdema of the subjacent cellular substance. This is frequently increased bronchial secretion, or pulmonary œdema.

2250. Chronic Bronchitis is sometimes, although far less frequently than Ulceration of the Larynx, associated with *Tubercles*.

2251. V. *The Treatment* is admirably illustrated by the case detailed § 2232,—speedily to affect the mouth with *mercury*. *Tracheotomy* must be performed *early*, if there be suffocative attacks of dyspnœa. Leeches, blisters; ipecacuanha, or antimony; the hyoscyamus; the oleum ricini as an aperient; will be valuable auxiliary remedies. Fomentations and cataplasms, and the inhalation of the vapor of hot water, also relieve exceedingly.

2252. Moisture, with a regulated temperature in the atmosphere; demulcent fluids for diet, &c. are also important remedies.

II. BRONCHITIS.

2253. I. *The History.* Chronic Bronchitis is usually the consequence or issue of an acute attack of this disease. It may exist with, or without, fever. It is a frequent disease of old age ; sometimes its simple effect.

2254. II. *The Symptoms* are those of ordinary bronchitis protracted : there is the absence of the pectoriloquy and cavernous respiration of phthisis ; the sound of the chest is unimpaired. There is a degree of pallor, and frequently weakness and emaciation ; dyspnœa is easily induced by exertion, or there may be confirmed dyspnœa.

2255. The expectoration is very various, in different cases and at different periods of the same case : generally copious, it is sometimes so much and so suddenly so as to lead to the erroneous idea of a ruptured abscess ; it is frequently opaque, and greenish from the admixture of black pulmonary matter ; occasionally it is fœtid, and more of a gangrenous odor ; it is sometimes mixed with blood.

2256. III. *The Varieties.* Besides the common or mucous form of Chronic Bronchitis, there are several others to which it is necessary to advert briefly in this place : they are—

1. The Puitious.
2. The Dry.
3. That with Dilated Bronchia.
4. That with Dilated Air-cells, or Emphysema.
5. The Symptomatic.

2257. The first of these is distinguished by the peculiar expectoration ; the second by the want of it, with peculiar sonorous râles ; the third by bronchial respiration and bronchophony. The symptoms of emphysema, and of the diseases of which Bronchitis may be sympathetic, will be detailed hereafter.

2258. The sympathetic forms are traceable to other diseases, of the *lungs*, of the *heart*, of the *liver*, &c.

2259. Besides these forms of Bronchitis, there are others still,

which I need but to enumerate in this place: they are those attended with

1. Polypi.
2. Ulcers.
3. Diseased Cartilages.
4. Diseased Bronchial Glands.

2260. IV. *The Morbid Anatomy* is similar to that of acute bronchitis: the bronchia and the air-cells are sometimes dilated.

2261. V. *The Treatment* of Chronic Bronchitis consists in the administration of mercurials, antimonials, the balsam of copaiba, &c. I have experienced great advantage from pills containing a grain of ipecacuanha, three of the pilula aloës et myrrhæ, and of the pilula scillæ, and of the extractum hyoscyami, given every night, or night and morning. The *persevering* use of fomentations, and especially of liniments, applied to the anterior and posterior parts of the thorax, is also extremely valuable.

III. HAY-ASTHMA.

2262. There is a form of Chronic Bronchitis which occurs in the hay-season, or at least in summer, which has been termed *Hay-Fever*, or *Hay-Asthma*, and by Dr. Bostock, who has suffered himself from this malady, *Catarrhus Æstivus*.

2263. It consists in an inflammatory state of the conjunctiva, and the mucous membrane lining the nostrils, and the air-passages in general. It is attended by sneezing, cough, dyspnœa, &c. in exacerbations.

2264. It is relieved chiefly by change of air, especially that by the sea-coast. Ordinary remedies have little efficacy in subduing this disease.¹

IV. PNEUMONIA.

2265. [Chronic pneumonia, as an idiopathic affection, is extremely rare. Andral states that during five years of observation

¹ There is a full account of this singular affection, by Dr. Bostock, in the Transactions of the Medico-Chirurgical Society, vol. 10, p. 161, and vol. xiv, p. 437.

at La Charité, he found very few instances of red or grey hepatization of more than two months duration. He quotes from Bayle, however, a case of complete red hepatization of the right lung, which had lasted nearly four months, and been taken for a tuberculous affection.

2266. Chomel only saw two cases which he considered as chronic pneumonia during sixteen years of pathological research, in which he was present at two hundred autopsies at least every year.]

V. PLEURITIS.

2267. I. *The History.* Chronic pleuritis or pleurisy, far more common than chronic pneumonia, occurs in feeble or cachectic subjects, and may possess its chronic form from the beginning; or it may be the sequel of acute pleuritis.

2268. II. *The Symptoms.* In Chronic Pleuritis the symptoms are generally such as denote a profuse effusion; there is the want of sound on percussion and of respiration under the ear or stethoscope; pleuritic pain is rare; [ægophony and the sound of friction are sometimes observed;] enlargement of the side of the thorax is not uncommon. There are fever, emaciation, and cough, with mucous or even puriform expectoration.

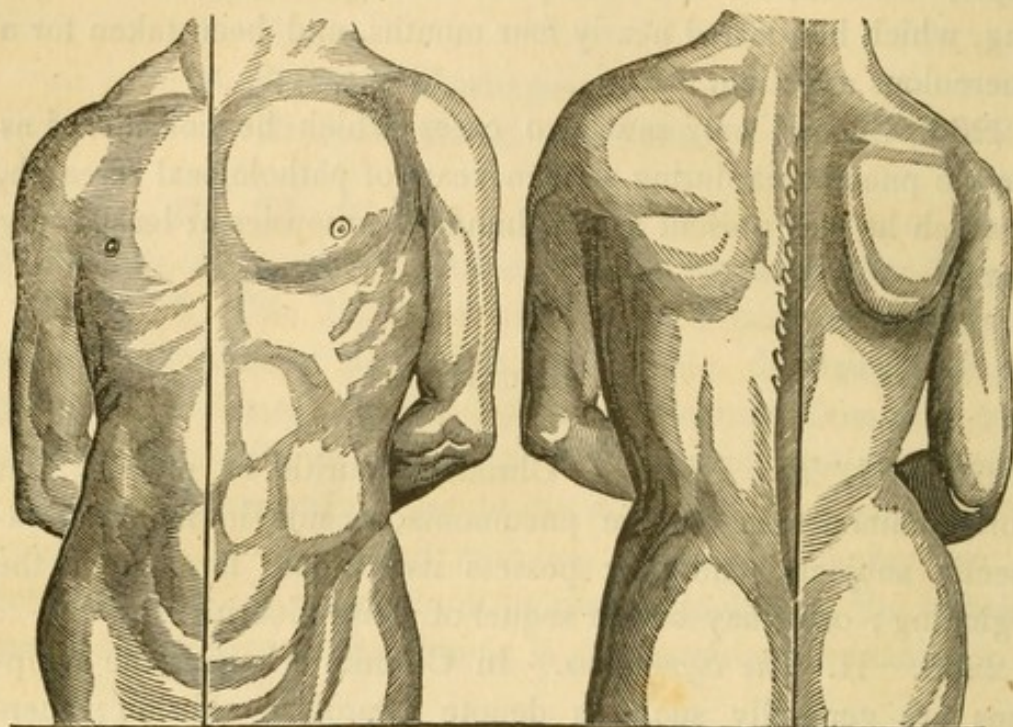
2269. III. In the course of this affection, when it proves fatal, the following *Complications* may occur:—

1. Congestion or Effusion within the Head.
2. Anasarca; especially of the Arm, and Leg, of the side affected.

2270. IV. *Varieties.* In the case which has been described, there is, when the effusion is very great, *dilatation of the thorax*: in other instances, the effusion is slowly absorbed, but the lung, bound down by strong layers of lymph, does not expand; *the thorax is, therefore, contracted.*

2271. Both these states are determined by the eye, and by

admeasurements. Contraction of the thorax is well depicted in the subjoined wood cuts, taken from Laënnec:—



In a third case, the *heart* is *pushed* or *drawn* from its natural position.

2272. V. *The Morbid Anatomy* is similar to that of acute pleuritis: the effusion is generally more abundant; frequently flocculent, or puriform; and sometimes of a slightly disagreeable odor. In contraction of the chest the lung is bound down by lymph, and carnified.

2273. VI. *The Treatment* of Chronic Pleuritis consists almost entirely in *topical* applications to the affected side,—a seton, a liniment, fomentations, cataplasms, the occasional application of leeches or of the cupping instrument.

2274. To these remedies, mercurials must be cautiously added.

2275. *The remedy*, par excellence, as in so many other diseases of the chest, is a voyage to the West Indies.

VI. GANGRENE (CIRCUMSCRIBED).

2276. I. *The History*. Diffused gangrene is rapid, the circumscribed very slow in its course.

2277. III. *The Symptoms.* The peculiar greenish or brownish expectoration, of gangrenous odor, is the pathognomonic symptom. With it there are, pectoriloquy, and cavernous respiration, râle, and cough.

2278. III. *The Morbid Anatomy* is similar to that of diffused gangrene; it is circumscribed, sometimes affecting a tuberculous cavity; sometimes involving and destroying the pleura and opening a communication with its cavity.

VII. EMPHYSEMA.

1. *Vesicular Emphysema.*

2279. I. *The History.* [The causes of this disease are often obscure. The influence of hereditary tendency, first noticed by Jackson, is admitted by Louis, in his Essay on Emphysema, but he leaves the other causes undetermined.] It frequently constitutes the disease termed *asthma*; and, in its turn, it frequently causes hypertrophy or dilatation of the heart.

2280. II. *The Symptoms.* Emphysema is the most frequent of the varied forms of disease to which the designation of *asthma* has been given: its principal symptom is, as that name imports, great dyspnœa; this dyspnœa recurs in paroxysms and becomes more and more habitual or permanent; there is a dull-sounding cough, at first dry, afterwards with expectoration of frothy liquid or mucus: the chest is large and elevated; the complexion becomes dingy, the lips livid.

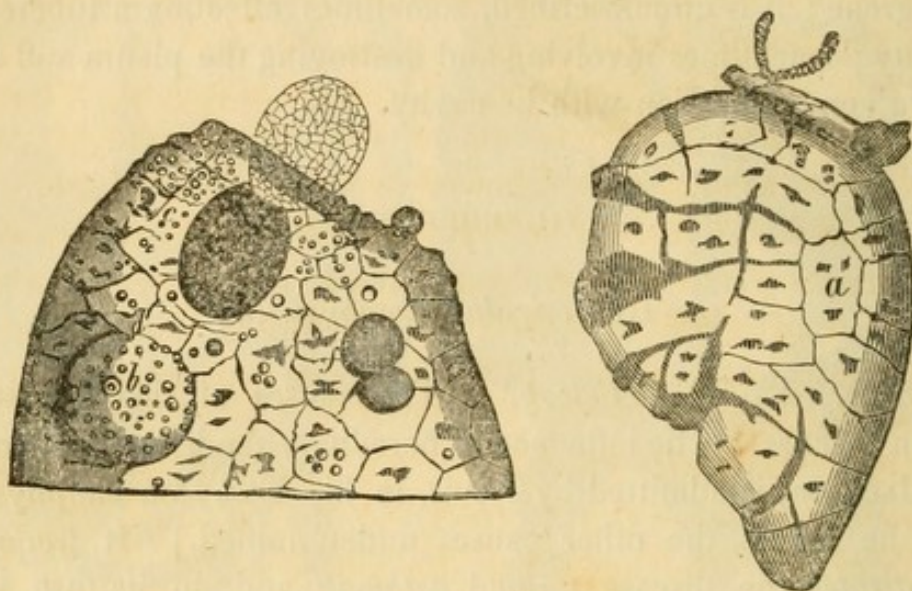
2281. These symptoms may well lead to the suspicion of Emphysema; the pathognomonic signs are afforded by percussion and auscultation: the chest sounds remarkably well; the respiration is scarcely audible; there is sometimes a subcrepitous râle, not constant, but during short spaces of time.

2282. Vesicular Emphysema may be extended to both lungs, or confined to one.

2283. III. *The Morbid Anatomy* consists in the dilatation of the air-cells; this is sometimes visible, sometimes invisible, externally; sometimes the dilated cells are prominent, and sometimes even globular, with a narrow attachment only. Sometimes

the textures break, and there is emphysema of the cellular membrane, or interlobular emphysema.

2284. The vesicular and interlobular Emphysema are represented and contrasted in the subjoined wood cuts:—



2285. *The Treatment.* Much relief is obtained from the remedies prescribed for chronic bronchitis, § 2261.

2. Interlobular Emphysema.

2286. This form of the disease arises from violent efforts, consists in the ruptured cells of the lobules, and true *interlobular* Emphysema, and is denoted by the crepitous râle, “a grosses bulles,” and by the noise of ascending and descending friction against the adjacent pleura; there is sometimes external Emphysema.

VIII. ASTHMA.

2287. Besides those forms of dyspnœa consequent upon the dry bronchitis, and attendant upon emphysema (§ 2279), there is a morbid affection which more distinctly claims the designation of *Asthma*.

2288. I. *The History.* This affection occurs generally in

the recluse and sedentary : college and studious habits induce it ; so do the modes of life of tailors, shoemakers. &c. It is usually conjoined with symptoms of the acute dyspepsia. One gentleman experienced attacks of dyspnœa on inhaling the atmosphere in which a vial of ipecacuanha had been merely opened. Another has his attack, if he attempts to sleep in a room higher than the ground-floor.

2289. II. *The Symptoms.* There are *attacks* of extreme and urgent dyspnœa, recurrent at, or soon after midnight : strong, brief efforts to inspire are followed by longer, labored, and wheezing expirations ; there is a dry, sounding cough, at first without expectoration ; there is no fever, pain, or frequency of the pulse ; but great anxiety and distress ; the breath is tainted, and there is generally much flatus. [The paroxysm usually ends with free expectoration.]

2290. III. *The Treatment.* An emetic of ipecacuanha, the warm water enema, § 917, 1084, and fomentations, afford relief in the attack. Galvanism has also proved useful.

2291. Several patients have recovered by attending to the general health, and have been for years free from Asthma. The remedies mentioned § 2258, are again useful.

IX. ŒDEMA.

2292. I. *The History.* Œdema is rarely an *idiopathic* disease. It is, on the contrary, generally a *complication or sequel* of

1. Protracted Fevers.
2. Disease of the Heart.
3. Pneumonia.
4. Bronchitis, especially the Pituitous.
5. Other Dropsies, &c.
6. Loss of Blood.
7. Chlorosis.

2293. II. *The Symptoms* are dyspnœa, slight cough, and aqueous expectoration. The stethoscope affords two signs of

this disease ; a diminished respiration, and a subcrepitous râle.

2294. III. *The Morbid Anatomy.* The lung is dense, and at once crepitant and retaining the impression made by the finger ; on making an incision, there is a copious flow of limpid fluid.

2295. IV. *The Treatment* consists in gentle tonics and stimulants, alteratives, diuretics, and a sea voyage.

X. HYDROTHORAX.

1. *Idiopathic Hydrothorax.*

2296. [This name is given to the effusion of serous fluid into the cavity of the pleura, without the marks of inflammation, which constitute pleurisy. The existence of idiopathic hydrothorax has by some been doubted, since the marks of inflammation may have preëxisted, although wanting after death.] This affection is extremely rare. It usually exists on one side alone, and then this side is larger than the other. The symptoms are precisely detailed § 2266, as denoting effusion in pleuritis.

2. *Symptomatic Hydrothorax.*

2297. This affection is as common as the idiopathic is rare. It may be the effect of all diseases, towards their close, acute or chronic ; but it is chiefly so, of

1. Diseases of the Heart.
2. Diseases of the Lungs.
3. Diseases of the Liver.

It frequently exists on both sides of the thorax. Its symptoms are similar to those described § 2207, 2268.

2298. *The Treatment* consists in remedies for the original disease, diuretics, paracentesis (?), &c. This last remedy is

adopted only when absolutely necessary from the urgency of the dyspnœa.

X. PNEUMOTHORAX.

2299. Pneumothorax [or effusion of air into the cavity of the chest] may exist under the following forms :—

1. The Simple.
2. Complicated with Pleuritic Effusion.
3. Complicated with a Fistulous Communication with the Bronchia.
4. The Double.

2300. I. *The History.* This disease, when simple, most frequently occurs with pleuritis, in cases of phthisis. It may be simple, or complicated with effusion, or with a communication with the bronchia by means of a softened tubercle. It may be the result of the effusion and decomposition of blood, or the consequence of circumscribed gangrene. [The existence of the latter forms of pneumothorax is doubted. The disease generally, if not always, results from perforation of the pleura by a fistulous opening from the bronchia.]

2301. II. *The Symptoms.* There is dyspnœa, and the side affected is much enlarged. But the true diagnostics are derived from a comparison of the effects of percussion and of auscultation. The affected side of the thorax sounds tympanitic on percussion, whilst the respiration is inaudible, except at the root of the lung, being audible at the healthy side. When effusion of liquid is added to pneumothorax, there is dulness on percussion of the lowest part of the chest, and a fluctuation is heard when the patient changes his posture rapidly, or on succussion. If there be a fistulous communication with the bronchia, there is metallic tinkling, or amphoric [sound, when the patient coughs, speaks, or makes a forced inspiration.]¹

¹ [See some remarks on Pneumothorax by Dr. Bigelow, in the American Journal of Medical Sciences, Philadelphia, 1838.]

III. THE INSIDIOUS DISEASES.

I. ULCERATION OF THE LARYNX, ETC.

2302. I. *The History*. This affection is of the most insidious character, and generally occurs [as an attendant on phthisis or syphilis].

2303. II. *The Symptoms* of Ulceration of the Larynx are hoarseness, and hoarse cough, with the expectoration of mixed, limpid, and puriform mucus, frequently dotted or streaked with blood. The hoarseness, cough, and expectoration augment. Difficulty or imperfection in swallowing is added to the other symptoms: the patient frequently becomes choaked in the act of deglutition, or the food is propelled through the nostrils.

2304. Hectic and emaciation eventually take place, frequently with all the symptoms of phthisis.

2305. III. The most important *Diagnosis* in practice is that between ulceration and chronic inflammation of the larynx. The former is always *tuberculous*,—or syphilitic. In ulceration, there are loss of voice, hoarseness, hoarse cough, imperfect deglutition, frequent pulse, *hectic*: in inflammation, a sense of constriction, croupy cough, attacks of dyspnœa, &c.

2306. IV. *The Morbid Anatomy* combines ulcerative destruction of some parts of the larynx, with tubercles of the lungs and frequently of other organs.

II. PHTHISIS.

2307. [Phthisis, or pulmonary consumption, is a specific disease, arising from tubercles in the lungs. It is chronic in its nature and frequently insidious in its progress and termination. Under the head of *Tubercle* an account has already been given in chapter VI, of its nature and general characteristics.

2308. Phthisis is one of the most prolific sources of mortality to the human race. It is estimated in different places and countries, that from one third to one sixth of the annual number of deaths takes place from this disease. It is not confined to the

human race, but appears also in various species of animals, especially in those which are deprived of liberty and fresh air.

2309. Pulmonary consumption has been usefully considered by dividing it into three stages, with reference to its symptoms, and the anatomical changes which take place.

2310. The first stage is that of the grey granulations and tubercles already described § 614, 617, &c. These tubercles afterwards continue to grow, until they occupy a considerable part of the lungs, and compress a portion of the remainder. The vessels are slowly obliterated and the bronchi contracted, or their texture finally blended with that of the tubercles. The parts of the lung, adjacent to the tubercles, are gradually solidified by slow inflammation.

2311. During the first stage the symptoms consist of a dry slight cough, chiefly in the morning and evening ; with perhaps a slight pain or sense of stricture across the upper part of the chest. The sputa, if any, are small in amount, and transparent. The breathing is slightly labored on going up stairs, or similar exertions. The pulse is somewhat greater than natural towards evening, and after meals. A slight chilliness is occasionally perceived in the afternoon, with subsequent heat felt in the cheeks, palms of the hands, and soles of the feet. This is the commencement of *hectic*. There is usually more or less general paleness and emaciation. These symptoms occasionally remit, and there is often a considerable improvement in warm weather.

2312. Hæmoptysis, or expectoration of liquid, frothy, fluid blood, frequently occurs in this stage. When it exceeds a drachm in amount, it is generally considered to indicate the presence of tubercles, except when it results from violence, or attends on catamenial irregularities.

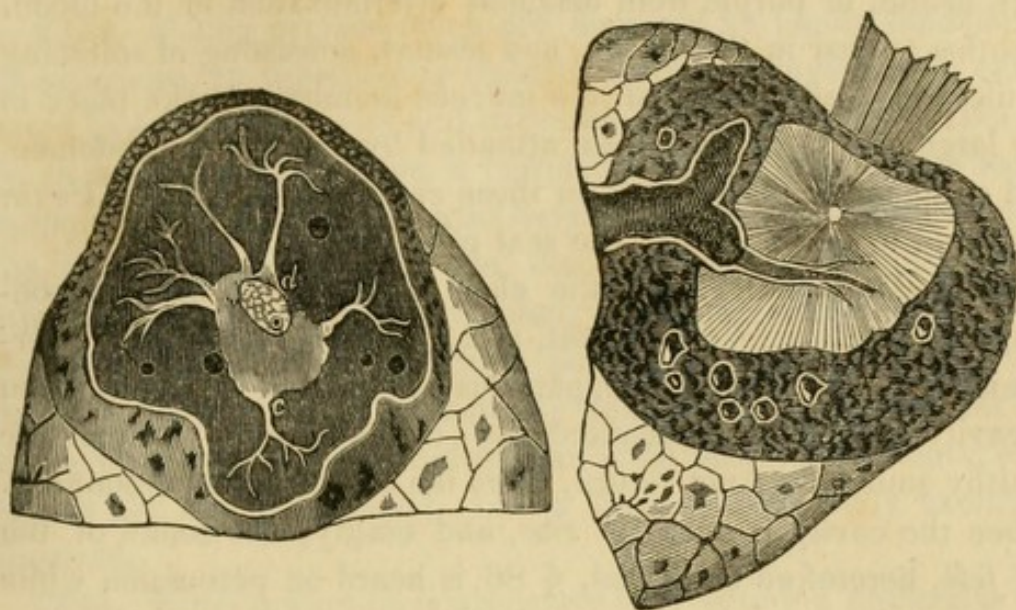
2313. The physical signs in the most early stage of tubercular formation, are inappreciable. But when the tubercles have become sufficiently large and numerous to communicate a certain increase of solidity to the lung, the usual phenomena of that state will be apparent in the affected part. These are dulness of percussion, rude or bronchial respiration, and increased resonance of voice. The place at which these signs are to be sought for is at the summit of the lungs, which is the most common seat of tuber-

cles. The results of percussion and auscultation should be carefully compared, anteriorly, above, upon and below the clavicles, and posteriorly above the spine of the scapulæ, and between the scapula and spine. Sometimes there is increased feebleness of respiration in the seat of tubercles. A prolonged bronchial expiration, pointed out by the late Dr. J. Jackson, jr., is a common indication of tubercles.

2314. The second stage of phthisis is attended with a still greater frequency of pulse and of respiration. Debility and emaciation go on increasing. A flushing occurs mostly in the afternoon, and is followed during sleep with the regular perspirations of hectic fever. There is often pain in the chest or side, which latter becomes acute if the pleura is affected by inflammation. The patient often finds it necessary to sleep on one side, or perhaps with the shoulders raised. The cough becomes more frequent and troublesome, and the expectoration, hitherto transparent and frothy, begins to contain specks of opaque, curdy, yellowish matter, and occasionally of pus.

2315. During this period the tubercles soften at the centre; the softened portion goes on increasing until it reaches some part of the bronchia, through which it is discharged and expectorated. A cavity remains surrounded by a cartilaginous texture, in which state it has been called a *vomica*. The small cavities gradually communicate and form large irregular cavities, often traversed by bands containing the vessels which had longest resisted ulceration. The ulceration finally obliterates the vessels, and in this way prevents fatal hæmorrhage, which would take place if the vessels were left open, like the ulcerated bronchia. The cavities go on enlarging indefinitely, but in certain cases they cicatrize. The pleura becomes inflamed over diseased portions, adhesions are formed, and these changes are attended with pain in the side and upper parts of the chest.]

2316. The usual appearances of the cavity in phthisis, and of the subsequent cicatrix when this cavity happily closes, are given in the subjoined wood cuts.



2317. [The physical signs of the second stage are such as indicate the extension of tuberculous growth, and the formation of cavities. Percussion about one or both clavicles becomes more extensively and decidedly dull. Respiration becomes more bronchial at the top of the chest, and the lower parts of the lungs occasionally exhibit the same signs in different portions. A crackling inspiration (*craquement*) is heard, especially after cough, at the posterior, and sometimes anterior parts of the summit of the chest. Puerile respiration begins to be distinct in the unaffected parts. Bronchophony, in a greater or less degree, is heard over the indurated portions of lung, and sometimes there is a thrill perceptible to the hand, in the same places, when the patient speaks. Occasional râles, mucous and subcrepitous, are perceived in various parts of the chest. As the cavities enlarge, cavernous râle, gurgling and pectoriloquy become cognizable.

2318. In the third stage of phthisis, the lungs become still farther disabled by the extension of cavities, and the spreading of tuberculous infiltration. The dyspnœa becomes urgent, and cough and pains in the chest increase. The general system yields under the disease, hectic increases, and the night perspirations become profuse; emaciation, weakness, and irregularity of various functions progressively increase. The extremities become œdematous, the countenance at times pale, at others flushed

with hectic, or purple from deficient arterialization of the blood. Aphthæ appear in the mouth, and lesions, consisting of softening or ulceration of portions of the mucous membrane, take place in the large and small intestines, attended by pains in the abdomen, and colliquative diarrhœa. In these cases the patches of Peyer are found to be frequently the seat of tubercles.

2319. During this stage the chest grows more flat and contracted, the clavicles prominent, and the shoulders raised. Percussion over the tuberculous parts is still dull or flat; but when a cavity has been evacuated by expectoration, though the healthy sound does not return, there is a sort of hollow resonance. When the cavity is near the ribs, and empty, the sound of the *pot fêlé*, heretofore described, § 86, is heard on percussion while the patient's mouth is open.

2320. Cavernous respiration takes place in cavities of moderate size; amphoric in those of large extent, and gurgling is heard in both, when the fluid has accumulated and is disturbed by the transmission of air in respiration. Pectoriloquy is also produced in cavities of moderate size when empty.

2321. In the variety called by Louis *acute phthisis*, the tubercles are more generally and equally disseminated in the lungs, and the patient often dies before they have attained a large size. This form of the disease is difficult to detect by physical signs.

2322. Phthisis is sometimes *latent*. Tubercles in this case pass through their whole course of growth, softening and excavation, without much cough or fever, or other symptoms sufficient to make their existence suspected. In such cases their presence can be known only by the physical signs.

2323. *Treatment*. On this subject some remarks have already been made under the head of *tubercle*, § 670. Notwithstanding the great mortality which attends this disease, there is no doubt that many patients recover from the incipient stages, or that many persons pass long and useful lives, with tubercles in a dormant and stationary state. Not only are tubercles prevented from passing into the advanced stages, but dissections show that actual cavities in the lungs have, in certain instances, become cicatrized.

2324. Young persons, who are disposed by family tendency, or otherwise, to tuberculous disease, should, if possible, be educated to habits of activity and exposure. Sedentary occupations, on such constitutions, have a pernicious influence. It has been remarked that few persons who have been bred to an agricultural life, die of consumption. On the other hand, the disease is attended with great mortality among students, accountants, professional men, and particularly among females of sedentary habits. Vast injury is continually done by the confinement of young persons in schools and similar situations, where mental exertions are over-stimulated, and a distaste for bodily exercise acquired.

2325. Much discretion is necessary in selecting a profession or employment for young persons predisposed to phthisis. It is a great error to suppose that weakly invalids, who are incapable of laborious exercise, should therefore be trained to employments which are called *easy*, because they call for little muscular exertion. Although such individuals may never be capable of performances which require great strength, nevertheless they are by no means incapable of pursuing active and useful occupations, a great part of which shall be in the open air. In many cases, a tuberculous diathesis has been corrected, and its formidable consequences indefinitely postponed, by a sea life, a military life, by exercise on horseback, and by the pursuits of a traveller, of an engineer, of a farmer, or of an out-door mechanic.

2326. Abundant experience has shown that a milk and vegetable diet is best suited to consumptive patients, especially while there is any present or recent exacerbation of the disease. But while the complaint is in a stationary state, without much arterial excitement, or local distress, a diet of animal food, as heretofore stated, may be allowed, especially if the patient can take exercise freely at the same time.

2327. The cold of winter, and the east winds of spring, are unfavorable, in northern climates, to the welfare of consumptive patients. A timely resort to a warmer latitude in these seasons has preserved many persons. But as no situation in the United States is exempt from a certain period of cold and rainy weather,

it is desirable that the patient should not stop short of the tropics. The West India Islands, on account of the salubrity of their climate in winter, are favorite places of resort for the consumptive.

2328. In regard to particular remedies, *blood-letting*, general or local, may be required during the early part of the disease, especially if the patient be strong, and the invasion of active symptoms be sudden and violent. Hæmoptysis and pleuritic complications are most benefited by this remedy. Leeches and small blisters may be usefully applied over the spot in which tubercles are detected by examination.

2329. *Emetics*, frequently administered, have had the concurrent testimony of many writers in their favor, and the practice of employing them has been recently revived by those who consider that the original deposit of tuberculous matter is made on the free surface of mucous membranes.

2330. *Digitalis*, forty years ago, was considered a specific for this disease, but has now gone into disuse except as a palliative. *Iodine* has had a more recent celebrity, but our own experience does not justify a very strong reliance on its powers.

2331. Among the *external remedies*, local bleeding is one of the most effectual; by cupping or leeches. Of the counter-irritants, besides blisters, already mentioned, the tartar emetic ointment and the croton oil, which produces a slighter eruption than the former, may be useful. Issues and setons are thought to be indicated in full, gross habits of body, of little sensibility, especially if the patient has been subject to cutaneous diseases or ulcers. But in irritable, sensitive, or spare persons, with a thin skin, they will prove harassing and of little use. All counter-irritants are injurious, if they occasion much constitutional irritation.

2332. The inhalation of the vapor of tar and of chlorine, may be of advantage as palliatives, but must not be relied upon for the cure of the disease. When the bronchial membrane is rendered irritable by the dryness of the air in the room, a basin of warm water may be placed near the patient, the vapor of which will diffuse itself through the air, and produce a soothing effect, without the inconvenience of inhalation.

2333. We shall add a few remarks on the remedies adapted to particular symptoms.

2334. *Cough*. If cough is depending on bronchial irritation, leeches, rubefacients, or blisters may be applied to the upper part of the chest. If connected with gastro-hepatic irritation and congestion, leeches to the epigastrium, and a few alterative doses of mercury, with laxatives, may be of use. Opium should be used sparingly, deferred as long as possible, and its preparations varied. An emetic affords relief when there is an accumulation of mucus in the bronchia, with difficulty of expectorating.

2335. *Hæmoptysis*. Venesection or leeches, according to the necessity of the case, may be used when the hæmoptysis is urgent. The combination of tartar emetic and nitre, ipecacuanha, saline aperients, are among the internal remedies. Iced water, or small pieces of ice, may be given during the attack; and after the cessation of the hæmorrhage, mild astringents, such as the sulphuric acid. If the hæmoptysis is chronic, and attended with a relaxed or debilitated state, the preparations of iron, with a tonic diet, are the best remedies. The pulmonary circulation, and the state of the chylopoietic viscera must be carefully attended to in cases where hæmoptysis has occurred.

2336. *Pain in the Chest*. Sinapisms are the most convenient and efficient local applications. If the skin be very irritable, a warm poultice of linseed meal, with a small proportion of mustard; friction, with stimulating or opiate liniments, or the application of ether, may be had recourse to with advantage.

2337. *Dyspnæa*. A combination of ether and opium; the inhalation of ether; the extract of stramonium, in doses of a quarter or half a grain daily; small bleedings in some cases; sinapisms; emetics, if there is an accumulation of mucus, are the remedies advised.

2338. *Nausea and Vomiting*. Mild diet; taking the food in small quantities; prussic acid; lime water, or soda water, are useful in different cases.

2339. *Hectic fever*, in the early stages, if attended with much pain or tightness of the chest, may require venesection; in general, tartarized antimony and nitre, in combination, form a

useful remedy. The extremities may be sponged with tepid spirit or water during the hot fit, and the violence of the chill abated by keeping in bed until the period of attack has passed, if this be periodical. In the chronic forms of hectic, chalybeates or Griffith's mixture may be employed with advantage. The diet must be light and well regulated.

2340. *Perspiration.* To combat this symptom, if it require interference, the sulphuric acid alone, or with sulphate of quinine; acetic acid; with a regulated diet and avoiding of warm fluids, in any great quantity, towards night, are advised. The night clothing should be thin, if the perspirations are very copious, changed as often as they are wet; and the patient should be rubbed dry with warm flannels. Night perspirations may be much diminished by wearing night linen which has been dipped in salt water and dried.

2341. *Diarrhœa.* If it occur in the early stages, from mere irritation, a mild aperient, as rhubarb, with carbonate of soda or magnesia, an emetic, if the stomach is much oppressed, and strict attention to diet, will generally be sufficient. In the latter stages of phthisis diarrhœa almost always depends on ulceration in the intestines; it therefore requires mild treatment, such as a diet of arrow-root, sago, or rice, the compound powder of ipecac, and opium, the chalk mixture, enemata of starch and opium. The sulphate of copper is occasionally useful. Stimulating and opiate liniments will often relieve the uneasy sensations left after an evacuation, and carriage exercise tend to abate the irritability of the bowels, which exists in chronic diarrhœa.]

III. MELANOSIS.

2342. The *general Symptoms* of Melanosis have been noticed, § 719. Instead of the *hectic* and *emaciation* of pulmonary tubercles, there is a disposition to *cachexia* and *anasarca*.

2343. The stethoscopic *signs* are the same as those of unsoftened tubercles: cavities are rarely formed in Melanosis.

IV. ENCEPHALOSIS.

3244. The *general Symptoms* of this disease have been detailed, § 735.

2345. The *local Symptoms* are dyspnœa and cough, sometimes with expectoration. This disease generally occasions death by pressure and suffocation, before any extraordinary emaciation is induced. There are frequently emaciation and dropsy.

2346. The case may be taken for tracheitis, or bronchitis, when the tumor presses upon the windpipe or bronchia; or for aneurism, when it is seated so as to receive an impulse from an adjacent artery.

2347. When the tumor has attained a certain size, there is the absence of respiration under the stethoscope, and of sound on percussion

V. SCIRRHUS.

2348. It is only necessary to refer to the general symptoms of Scirrhus, given § 792.

VI. CYSTS, ACEPHALOCYSTS, ETC.

2349. The *Symptoms* of Cysts, or of Hydatids, are dyspnœa and cough; when these bodies are near the surface of the lung, there is absence of sound on percussion, and of respiration under the stethoscope.

IV. SYMPTOMATIC AFFECTIONS.

2350. Before I dismiss the subject of the Diagnosis of Diseases of the Chest, I must once more advert to the several *symptomatic* affections which require to be distinguished from them: they are

1. Hysteric Croup.
2. Hysteric Pleurodyne.
3. Chlorotic Pleurodyne.
4. Dyspeptic Asthma.

2351. *Hysteric Croup* is so similar, in some instances, to acute laryngitis, and suffocation has been apparently so imminent, that the surgeon has been on the point of performing the operation of tracheotomy! This operation is particularly noticed by Sir Chares Bell, in his "Reports," which it is much to be regretted that he has left unfinished. By *waiting* and *watching*, the case is unveiled by the occurrence of some unequivocal symptoms of hysteria.

2352. *Hysteric Pleurodyne* is amongst the most acute pains of the chest. The surface of the skin is even sensitive to the touch. It is distinguished by the character of hurry, and other symptoms of hysteria. It is only necessary to put the young physician on his guard in relation to it.

2353. *Chlorotic Pleurodyne* is sometimes so like chronic pleuritis, that I have known patients to be bled and blistered for the *twentieth* time, under this erroneous impression. In this case, the history, the general symptoms, and the stethoscope, with percussion, will enable the *attentive* practitioner to institute the due diagnosis.

2354. *True Asthma* arises, I believe, generally, from dyspepsia. It is distinguished by the history, and general symptoms, by its peculiar sudden attack, and by being unpreceded by dry bronchitis, or other diseases within the thorax.

CHAPTER III.

OF THE DISEASES OF THE CIRCULATING SYSTEM.

2355. IN treating of the Diagnosis of the Diseases of the Heart and large Arteries, it will be my object to select the really important and practical distinctions, and avoid the useless minutiae with which this subject has been encumbered.

2356. The most frequent diseases of the heart itself are *dilatation* and *hypertrophy* of the *ventricles*, *single* or *variously combined*.

2357. The diseases of the heart next in frequency, are *ossification*, or excrescences, [vegetations], of the *valves*: these generally induce, eventually, *hypertrophy*, or else *dilatation* of the ventricles.

2358. Next follows *hypertrophy*, or *dilatation* of the *auricles*, of still more rare occurrence, and usually consecutive to disease of the valves or ventricles.

2359. This abstract will enable the young student to form distinct ideas of the diseases of the heart of most usual occurrence: *pericarditis* and *hydropericarditis*, and *aneurism of the aorta* and *large arteries*, must be added, and the list of diseases of the heart and large vessels is nearly complete.

2360. One of the most important applications of the stethoscope is to ascertain the condition of the *heart* and *large vessels*. The beat of the heart must be examined in regard—1, to its *diffusion* over the thorax; 2, to its *impulse*; 3, to its *sounds*; and 4, to its *rhythm*.

2361. In the healthy state, the sound of the heart is most dis-

tinctly heard in the space between the cartilages of the *fourth* and *fifth* ribs of the left side, and at the bottom of the *sternum* ; in which points the left and right sides of the heart are heard respectively. In thin persons and children it is heard under the clavicles.

2362. When the extent of the beats of the heart is augmented, they are heard in the following spaces :—1, along the *left* side of the chest from the axilla downwards ; 2, along the *right* side ; 3, along the *back* of the *left* side ; 4, along the *back* of the *right* side.

2363. The *impulse* of the heart is inversely as the diffusion of its beat, and directly as the *thickness* of the organ. Augmented impulse is, therefore, the sign of *Hypertrophy* ; diffusion of the sound, with diminution of impulse, may attend *Dilatation*.

2364. The *sound* of the heart is double, consisting of a *first* sound, which is dull and prolonged, coinciding with the contraction of the ventricles, and a *second*, which is short and distinct, coinciding with their dilatation.

2365. Of all the theories of the sounds of the heart, that of M. Rouanet appears to me the most probable. According to this author—

2366. The *first* sound of the heart is owing to the sudden closure of the auriculo-ventricular valves on the contraction of ventricles ; [a more prevalent opinion is that the first sound is, in a great measure, due to the contraction of the ventricles. See § 142.]

2367. The *second* to the sudden closure of the sigmoid valves of the aorta and pulmonary artery.

2368. The following is the healthy *rhythm* of the heart :—the first sound is synchronous with the impulse and the beat of the pulse ; the second speedily succeeds ; and, after a rather longer interval, the first is repeated. [See § 142.]

2369. In *Hypertrophy* the first sound is more obscure and prolonged ; in *Dilatation* the first sound is louder, more like the second.

2370. The next subject to be noticed is that of *unnatural sounds* of the heart. These are: *the bellows' sound* and the *cat's purr*, [the sound of the *rasp*, *file*, *saw*, &c.]

2371. These sounds vary exceedingly, as do also the morbid conditions in which they exist. These are, contraction of the valves; hysteric and nervous affections; the state of inanition from loss of blood, &c.

2372. These diseases may be thus presented in a tabular form :—

I. DISEASE OF THE HEART IN GENERAL.

II. PERICARDITIS.

III. ENDOCARDITIS.

IV. CARDITIS.

V. DISEASE OF THE VALVES.

VI. HYPERTROPHY.

[1. Simple.

2. Eccentric.

3. Concentric.]

VII. DILATATION.

VIII. ANEURISM OF THE AORTA.

IX. THE SYMPTOMATIC AFFECTIONS.

1. Deficient Action of the Heart.

2. Palpitation. Bruit de Soufflet.

3. Angina Pectoris.

4. Pulsation in the Epigastrium.

I. DISEASE OF THE HEART IN GENERAL.

2373. I. *The History*. [The *causes* of disease of the heart sometimes consist in hereditary predisposition, or in some antecedent disease, which deranges its action. Its inflammatory affections may arise under the influence of the ordinary causes of inflammation.]

2374. To these causes are to be added muscular efforts and mental emotions. And to these, it is said, the congenital disproportion between the size of the heart and the calibre of the aorta, and the congenital unusual thickness or thinness of the ventricles.

2375. There is still another addition to be made to the list of causes of disease of the heart, of an important kind : it is that of

The Metastasis of Rheumatism.

The reader may turn to § 1370.

2376. II. *The Symptom* of Disease of the Heart, in its early stage, is *dyspnœa*, uniformly induced, or aggravated, by muscular effort or exertion ; in its later stages, various effects of derangement of the *capillary circulation* are superadded. See particularly § 464.

2377. 1. Disease of the Heart, even in its early stages, is characterized by the invariable aggravation of the *dyspnœa*, on making the patient walk quickly, or run up stairs : the beat of the heart becomes violent or tumultuous, and there is a sense of oppression, or of suffocation. The sleep is disturbed by frightful dreams.

2378. In the later stages and more aggravated forms of Disease of the Heart, the *dyspnœa* and oppression are permanent, perhaps extreme : not only muscular effort, but the horizontal posture becomes insupportable.

2379. The countenance, at first of a dingy paleness, becomes tumid, and livid, or of a purple hue, especially the lips ; the posture is raised, by successive additions of pillows, until it becomes perfectly upright, and eventually the patient may require to have the feet placed low, whilst his head and shoulders are raised, and the shoulders or elbows are supported. The *dyspnœa* and oppression augment ; the various *Complications* to be immediately enumerated, with their appropriate symptoms are gradually superadded.

2380. The symptoms and signs of each particular disease of the heart will be detailed under their respective heads.

2381. III. *The Complications* of Disease of the Heart form, with that disease, and its most frequent causes, a series or chain of organic lesions of the most interesting character. The causes have been already enumerated ; the *effects* are the following :—

1. Cerebral Apoplexy.
2. Bronchial, and
3. Pulmonary Hæmorrhage.
4. Congestion of the Liver, &c.
5. Congestion of the Membrane lining the Ventricles and the Aorta.
6. Congestion of the
 1. Subserous,
 2. Submucous, and
 3. Subcutaneous Tissues.
7. Effusion into the
 1. Ventricles ;
 2. Pleura ; Hydrothorax.
 3. Pericardium.
 4. Peritonæum ; Ascites.
 5. Cellular Membrane :
 1. Of the Lungs ; Œdema.
 2. Of the Intestines.
 3. Of the Integuments : Anasarca.

2382. IV. *The Effects of Remedies.* There is a great degree of relief from blood-letting, and from digitalis, not observed in nervous affections of the heart.

2383. V. *The Treatment* consists in subduing the action of the heart by small blood-lettings, by digitalis, by extreme quiet of mind and body, by the most rigid abstinence. These remedies, carefully, judiciously, and perseveringly administered, have seemed sometimes to subdue the symptoms, even of organic disease of the heart, for a time.

II. PERICARDITIS.

2384. [The *causes* of inflammation of the pericardium are similar to those which produce other thoracic inflammations, but one of the most common is metastasis of rheumatism.

2385. The *symptoms*, in the incipient stage, are difficult of recognition. There is sometimes slight soreness of the cardiac and epigastric regions, the pulsations of the heart are abrupt and

sometimes irregular, with a slight bellows sound. The functional signs are various, but there is frequently dyspnœa, anxiety and oppression, sometimes pain and palpitation.

2386. When lymph only is effused on the interior surfaces, there is a sound of friction, resembling the rustling of paper, or the creaking of new leather, and synchronous with the pulsations.

2387. When serum is effused in considerable quantities, the impulse of the heart becomes obscure, or wanting, percussion becomes dull over a greater extent than is due to the heart itself, respiration is not heard so low down as in the healthy state of the organ, the sounds of the heart are distant, obscure, and often irregular, and there is more or less prominence of the præcordial region.]

2388. III. *The Morbid Anatomy* consists of

1. [Partial redness, injection or dotting of the pericardium.]
2. The effusion of Serum, with or without Lymph, Pus, or Blood.
3. The formation of a False Membrane over the Surface of the Heart or Pericardium, as represented in the subjoined wood cut.



4. Adhesions ; sometimes Ossifications.

2389. [The *treatment* consists, if the disease be violent, in blood-letting, general or local, in the early stage, followed by purging, digitalis, calomel, and cream of tartar. A much larger portion of the subjects of this disease recover, than was formerly supposed.]

III. ENDOCARDITIS.

2390. [This is an inflammation of the endocardium, or lining membrane of the cavities of the heart. It may arise from various exposures or excess, or from rheumatic affections.

2391. According to M. Bouillaud, by whom this disease is described, percussion gives a dull sound over a surface of four, nine, or even a still greater number of square inches. This he attributes to the inflammatory turgescence of the heart, and to engorged state of its cavities. There is usually a bellows sound attending the pulsations. The sensation at the region of the heart is one of oppression and anxiety, rather than of pain. The absence of the signs of other diseases of the heart must assist our diagnosis.

2392. The *morbid anatomy* of this disease shows a punctated, reddened, or granulated appearance of a portion of the lining membrane of the heart. A thickening of the endocardium may be produced about the roots of the valves, and sometimes effusion of lymph, induration and vegetation in these parts.]

IV. CARDITIS.

2393. I. *The Causes* of Carditis, or inflammation of the heart, are exposure to atmospheric inclemencies, to cold and damp, &c. Carditis is frequently a complication of *Rheumatism*.

2394. II. Carditis is almost always complicated with Pericarditis (περι, *around*, καρδία, *the heart*), Endocarditis (ενδον, *within*, καρδία, *the heart*), or both.

2395. III. *The Morbid Anatomy* consists in—

1. Softening ; Diffused Suppuration ; Abscess.
2. Ulceration ; an Aneurismal Sac ; Perforation.
3. Induration.¹

2396. IV. *The Treatment* of Carditis, in all its acute forms, consists in the application of antiphlogistic remedies in an energetic yet cautious manner ; but *blood-letting*, general and local, with *mercury*, are our principal means of cure.

V. DISEASE OF THE VALVES.

2397. [When there is considerable disease of the valves, the application of the hand often gives the sensation described by Covisart as a thrill or an undulation, and by Laënnec in the terms which have been translated purring thrill, or tremor. It makes known also the different irregularities in the heart's action.

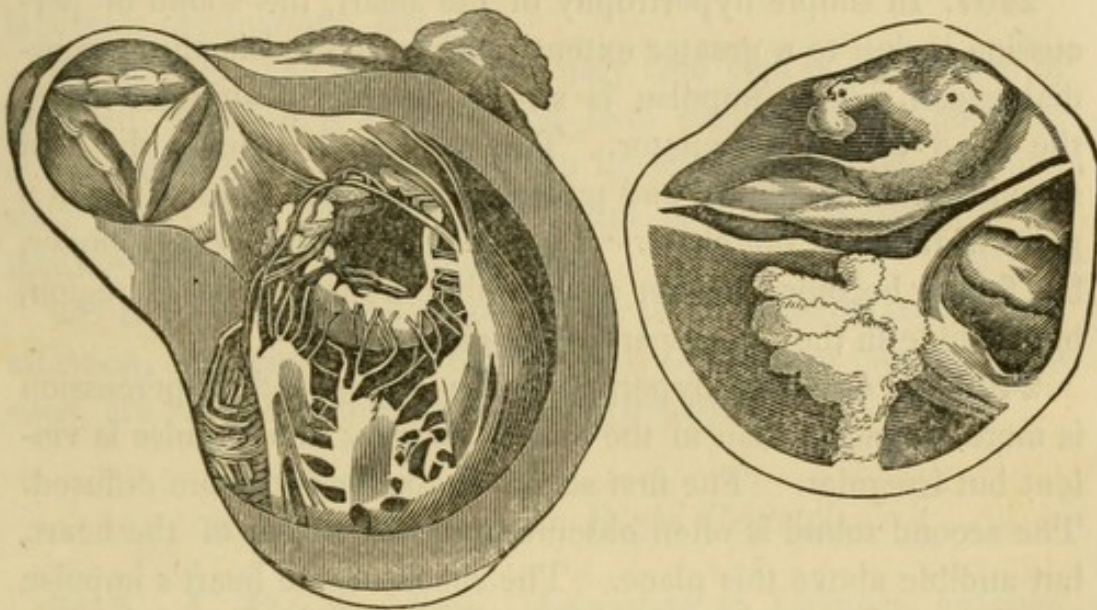
2398. Percussion can only reveal the existence of complications of the primitive disease, the different forms of hypertrophy and dilatation.

2399. Auscultation shows the presence of some of the modifications of the bellows, rasping, or sawing sound. M. Bouillaud insists on the constancy of this phenomenon. In more than a hundred cases of disease of the valves, he says, there was only one where he did not find it ; and more careful and frequent examinations, he believes, would have detected it even in that instance. The sound which presents one of the characters mentioned may be single or double, sudden or prolonged, feeble, or of sufficient intensity to be heard at a certain distance from the chest. The general conclusion of M. Bouillaud, with regard to the diagnosis, is as follows. "When we find a permanent bellows, or rasping, or sawing sound, and the vibrating thrill over the præcordial region ; if palpitations, or tumultuous, irregular, intermittent pulsations of the heart exist also, it is almost certain (provided that the disease have lasted several months or years), that there is induration of the valves, with contraction of one or more orifices." Drs. Graves and Stokes have recently dis-

¹ The signs of *induration* of the heart are similar to those of hypertrophy ; those of *softening*, are defective impulse and sound, occurring simultaneously.

puted the certainty of the physical signs of valvular disease ; maintaining that the sounds may exist without the lesion, and the lesion exist without the unnatural sounds.]

2400. II. *The Morbid Anatomy.* The mitral valve and the sigmoid valves of the aorta become ossified, or assume a cartilaginous hardness, as is beautifully portrayed in these sketches from Meckel :



They are then thickened and altered in form, and frequently partially closed, so that the course of the blood is impeded, [or they are prevented from closing with accuracy, so that a part of the blood takes a backward direction.

2401. Disease of the valves increases the muscular labor of the heart, and lays the foundation of hypertrophy.

2402. For further remarks on disease of the valves, see § 147.]

VI. HYPERTROPHY.

2403. [Hypertrophy of the heart is a disease in which the walls of that organ, or of some one or more of its cavities, are enlarged or thickened beyond their natural dimensions. It may affect both the ventricles and auricles, but most commonly the

former. M. Bertin has very properly divided hypertrophy of the heart into three varieties. These are

2404. 1. *Simple hypertrophy*, in which the thickness of the walls increase, while the cavity remains stationary.

2405. 2. *Eccentric hypertrophy*, in which the walls increase in thickness, and at the same time the cavity enlarges.

2406. 3. *Concentric hypertrophy*, in which the walls thicken and the cavity diminishes.

2407. In simple hypertrophy of the heart, the sound of percussion is dull to a greater extent than is natural in the præcordial region. The impulse is strong, forcibly pushing or lifting the head of the auscultator. The rhythm is regular, the first sound somewhat duller and prolonged, and not transmitted to a great distance in the chest. The second sound is at first louder, but finally becomes weaker or inaudible in the præcordial region, but audible in the upper part of the chest.

2408. In eccentric hypertrophy the dull sound on percussion is more extensive than in the former variety; the impulse is violent but irregular. The first sound is louder and more diffused. The second sound is often obscure upon the region of the heart, but audible above this place. The shock of the heart's impulse is sometimes communicated to the whole chest, and even to the whole trunk.

2409. In concentric hypertrophy, the sound of percussion is extremely dull on the heart itself, but hardly extends to any distance beyond it. The impulse is strong, but limited to a less space than in the former cases. The first sound is very dull and prolonged, and the second feeble in the region of the heart.

2410. In all the varieties of hypertrophy there may be prominence of the præcordial region, especially if the disease is far advanced, also dyspnœa, anasarca, and other forms of dropsy, a livid countenance, and violet-colored lips, especially in the paroxysms. But the latter symptoms in a great measure depend on co-existing disease of the valves.

2411. The heart in this disease often attains an enormous size, displacing the adjacent viscera, and acting with extreme violence.]

VII. DILATATION.

1. *Dilatation of the Left Ventricle.*

2412. I. *The History.* This form of disease of the heart occurs most frequently in women, who have naturally a heart of thinner parietes than men. Its *causes* are ossification of the valves, congenital tightness of the aorta, diseases of the lungs, laborious occupations, &c.

2413. II. *The Signs.* The only true sign of Dilatation of the Left Ventricle is a clear and loud sound, heard under the ear or stethoscope, chiefly between the cartilages of the fifth and sixth ribs. The extent to which this sound is diffused, is the measure of the degree of dilatation.

2414. [Simple dilatation of the heart is a comparatively rare affection, and many of the cases which have been considered as such, are referrible to eccentric hypertrophy.]

2. *Dilatation of the Right Ventricle.*

2415. I. *The Symptoms.* According to Laënnec, *habitual swelling*, without perceptible pulsation, of the *jugular veins*, is the most constant, yet still an equivocal, symptom of dilatation of the right ventricle.

2416. II. The only pathognomic *Sign* is the loud sound of the heart under the lower part of the sternum.

VIII. ANEURISM OF THE AORTA.

2417. I. *The History.* No disease is more insidious than Aneurism of the Aorta. It sometimes exists, and even proves suddenly fatal, unsuspected, in persons apparently the most healthy; and, until it induce some symptom of the compression of adjacent parts, it may be undetectable.

2418. In other cases, morbid growths take place from the surface or borders of the valves.

2419. II. *The Symptoms.* Aneurism of the Aorta is shown by simple, forcible, pulsations, perceptible over a circumscribed spot of the anterior parieties of the thorax, or along the spine, under the ear, and finger. These pulsations are more forcible than those of the left ventricle. It is frequently extremely difficult to distinguish such aneurismal pulsations from those of a tumor situated over or upon the artery. In both cases the sound emitted by percussion is obscure.

2420. [The following are the physical signs described by Dr. Hope, as characterizing this affection.

2421. The resonance on percussion, is seldom impaired unless the tumor be very large.

2422. The pulsations may be either single or double.

2423. The characteristic signs are,

2424. 1. Loudness of the first sound, (if double).

2425. 2. This loudness of the first sound decreases as we approach the cardiac region.

2426. 3. The loudness of the second sound, on the contrary (which is only the second sound of the *heart* transmitted to the region of the tumor), increases as we approach the præcordial region.

2427. 4. In addition to loudness, the characters of the aneurismal sound are its hoarseness, resembling that of rasping a sounding board, its abrupt beginning and end, and its short duration.

2428. 5. The purring tremor above the clavicles, is valuable as a sign of dilatation of the arch, but unfrequent and imperfect in sacculated aneurisms.

2429. 6. Pulsation at the points corresponding to the tumor.

2430. The author remarks, that the sacculated aneurism of the abdominal aorta is comparatively so easy of detection that he has not thought it necessary to enter into detail respecting its signs. He does observe, however, that it is to be recognised by a constant, strong impulse; by a loud, brief, abrupt bellows sound, not so hoarse as that of aneurism in the chest, sometimes audible in the back. The pulsations are single, and we may sometimes, by forcing the stethoscope in different directions down upon the tumor, obtain an idea of its position and dimensions.]

2431. III. *The further Symptoms* of Aortic Aneurism, are, in fact, those of its effects upon contiguous parts, or organs, which may be arranged in the following manner:—

1. Compression of the Trachea, or Bronchia.
2. Compression of the Œsophagus.
3. Compression of One of the Subclavian Arteries.
4. Protrusion and Wearing of the Ribs or Sternum.
5. The Wearing of some Part of the Vertebral Column.

2432. 1. Compression of the trachea or bronchia induces symptoms similar to those of chronic tracheitis, or bronchitis. The stethoscope should, therefore, be carefully applied in every case of these latter diseases. [If the cause of compression be the heart, or a pulsating tumor, the entrance of the air, as well as the vocal resonance, are jerking and interrupted.]

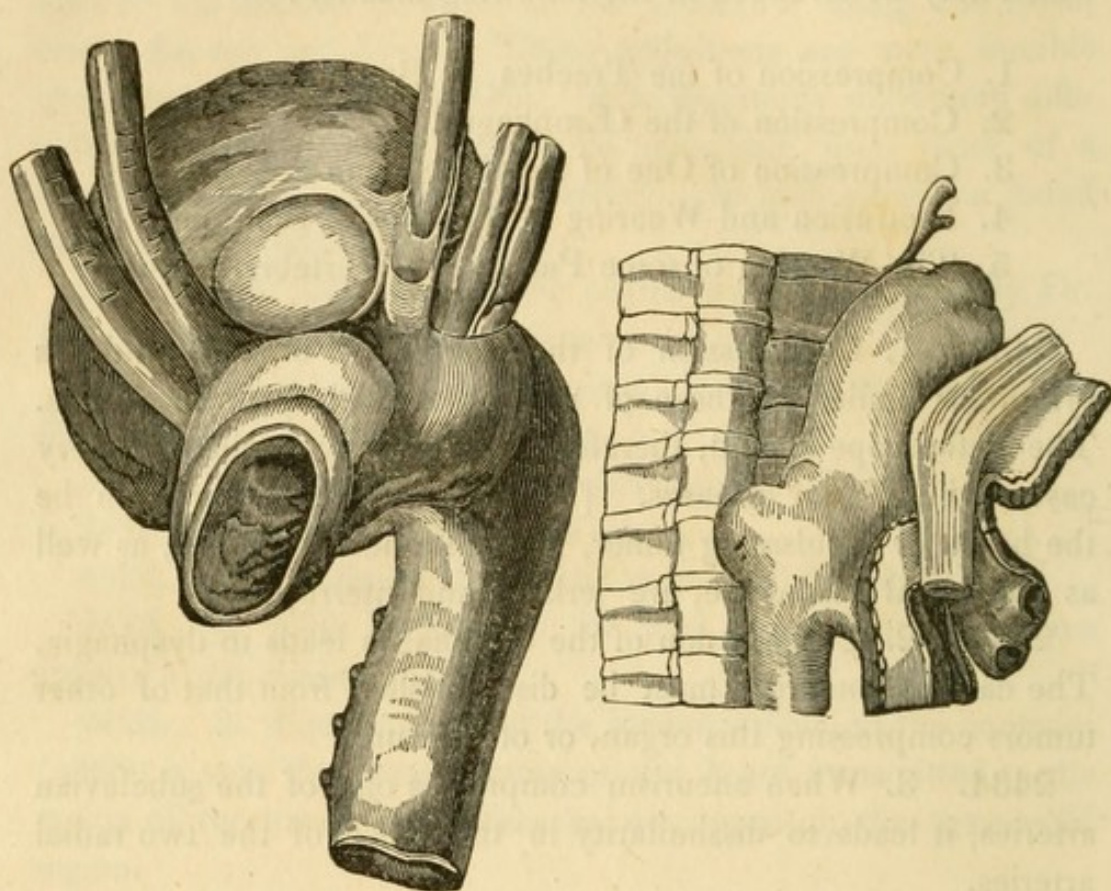
2433. 2. Compression of the œsophagus leads to dysphagia. The case of Aneurism must be distinguished from that of other tumors compressing this organ, or of stricture.

2434. 3. When aneurism compresses one of the subclavian arteries, it leads to dissimilarity in the pulse of the two radial arteries.

2435. 4. Protrusion and wearing of the ribs or sternum will be attended by the simple pulsation of the Aneurism. The case must be distinguished from that of a tumor, moved by the subjacent artery.

2436. 5. Wearing of the vertebral column is attended by pains described as resembling those of *rheumatism*, or as being of a gnawing, tearing, or lacerating nature. The stethoscope must be called in aid of the Diagnosis.

2437. These various *effects* may be readily understood on an inspection of these sketches:—



The *symptoms* will depend entirely upon the *direction* taken by the aneurismal tumor, and the *part* or *parts* compressed by it. I need scarcely advert to the well-known fact of *perforation*, or *rupture*, of the aneurismal sac ; but it may be important to observe that *sudden death* occurs both *with* and *without* this event.

2438. As subjects of anatomical interest, I may present my reader with the following sketches. [Fig. 1 presents a view of ruptured aortic valves. Fig. 2 shows a common appearance of ossification of the large artery. Fig. 3 is a chain of *phlebolithes* ($\varphi\lambda\iota\psi$, a *vein*, and $\lambda\iota\theta\omicron\varsigma$, a *stone*.) These are stony concretions with concentric layers, which are commonly met with in the veins of the pelvis. They are usually connected or enveloped by fibrine, out of which they appear to be formed.]

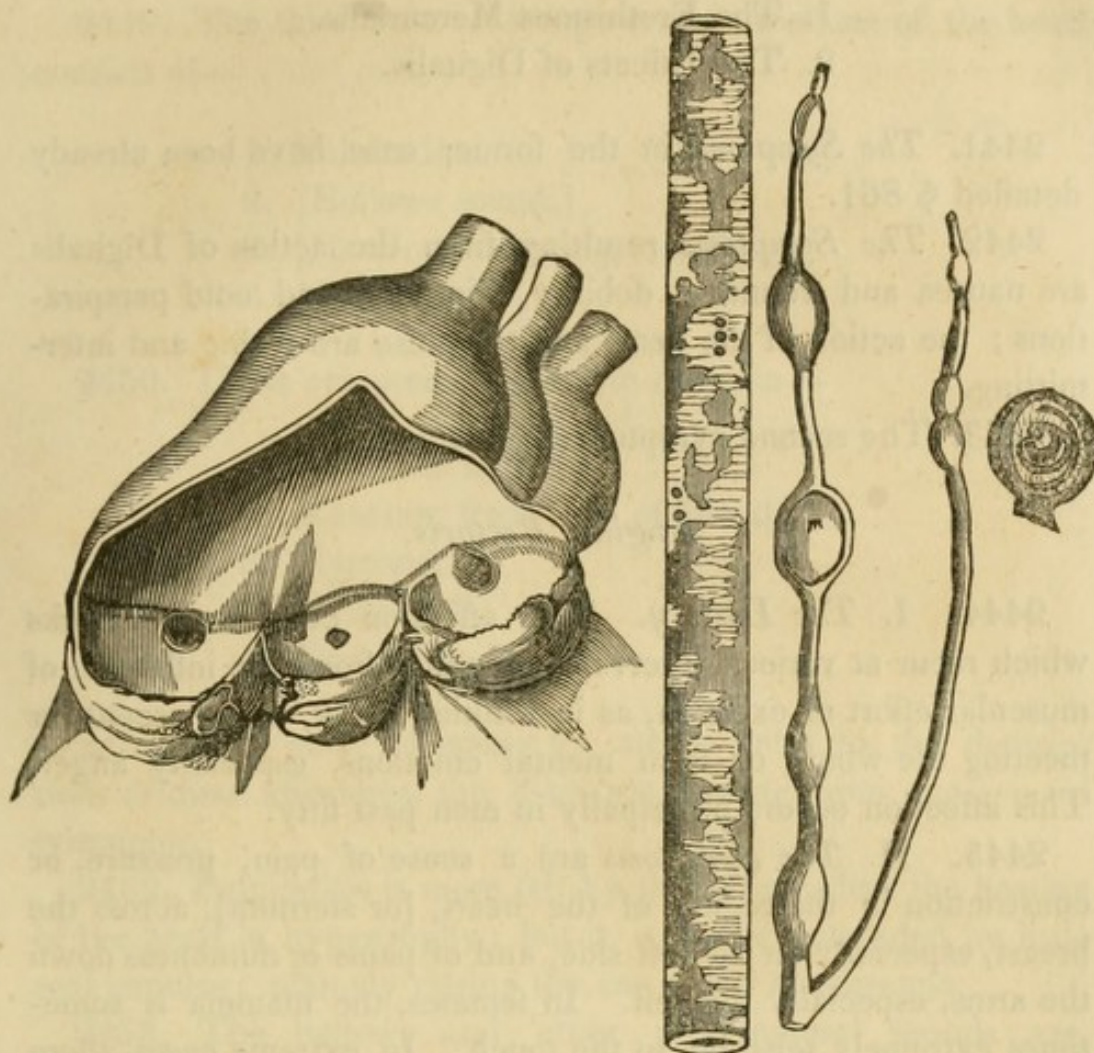


Fig. 1.

Fig. 2.

Fig. 3.

2439. Before I leave this subject, I must state that when the circulation is interrupted by disease—inflammation, ossification, &c.—of the *arteries* of a limb, especially of the lower extremity, gangrene is apt to supervene; this constitutes, in aged persons, the disease termed *gangræna senilis*: when, on the contrary, the circulation through a principal *vein* is interrupted, œdema, anasarca, or a dense white tumefaction, is the consequence, as in *phlegmasia dolens*, a similar disease unconnected with the puerperal state, &c.

IX. THE SYMPTOMATIC AFFECTIONS.

2440. The first Symptomatic affections of the Heart are those in which the action of this organ are too feeble: [among] these are—

1. The Erethismus Mercurialis.
2. The Effects of Digitalis.

2441. *The Symptoms* in the former case have been already detailed § 861.

2442. *The Symptoms* resulting from the action of Digitalis are nausea and vomiting, debility, faintness, and cold perspirations; the action of the heart and the pulse are feeble and intermitting.

2443. The second symptomatic affection is the

Angina Pectoris.

2444. I. *The History.* This affection consists in attacks which recur at various intervals, generally from the influence of muscular effort or exertion, as in walking quick, up an ascent, or meeting the wind; or from mental emotions, especially anger. This affection occurs principally in men past fifty.

2445. II. *The Symptoms* are a sense of pain, pressure, or constriction in the region of the heart, [or sternum], across the breast, especially on the left side, and of pains or numbness down the arms, especially the left. In females, the mamma is sometimes extremely sensitive to the touch. In extreme cases, there are palpitation, or syncope, and suffocating dyspnœa, and the apparent danger of dissolution. It is sometimes suddenly fatal.

2446. At first, the intervals are long, and free from indisposition; afterwards, they become shorter, and the Angina is far more readily excited, if not in some degree constantly present.

2447. III. *The Morbid Anatomy.* Heberden observes—“Inciso cavavere hominis, qui hoc morbo subito perierat, exquisitissimus anatomicus nullum vitium deprehendere potuit in corde, aut valvulis, aut in arteriis, venisve, vicinis, præter exigua rudimenta ossea in aorta.” Laënnec is of opinion that the angina pectoris, although it may be accidentally associated with diseases of the heart, does not, as Parry supposed, necessarily depend upon it.

2448. IV. *The Treatment* is that for Disease of the Heart in general, §2383; and that for Dyspnœa, § 1471, or other primary morbid affection.

2449. The third class of symptomatic affections of the heart consists of—

1. Palpitation.
2. [Bellows sound.]
3. [Rasping or sawing sound.]
4. [Purring.]

2450. These symptoms are apt to occur in—

1. Intestinal Irritation.
2. Reaction from Loss of Blood.
3. Hysteria.
4. Chlorosis.
5. Dyspepsia.

2451. It is only necessary for me to refer to the descriptions of these affections, the diagnosis flowing from the general symptoms.

2452. Palpitation is more felt by the patient than the beating of the heart in hypertrophy ; but it is, in fact, attended by little real impulse ; scarcely raising the ear or the stethoscope.

2453. The bellows and other preternatural sounds are, like palpitation, frequent symptoms in some nervous affections. They attend the reaction from loss of blood, and may be produced in a dog very readily, as I have shown in a recent Essay.¹ They are observed most distinctly in Chlorosis.

2454. The last symptomatic affection which I shall notice in this place is

Pulsation in the Epigastrium, &c.

2455. This affection seems, like palpitation, to be dependent on nervous causes, and is distinguished, like that symptom, by occurring in paroxysms, in dyspeptic persons, from mental emotion, &c.² Sometimes aneurism is imitated still more accurately

¹ See Med. Chir. Trans. vol. xvi.

² See an interesting account of this malady by Dr. Baillie, in the Trans. of the Col. of Phys. of Lond. vol. iv, p. 271.

by the pulsation being communicated to an apparent tumor, formed by gas pent up, or fæculent matter detained, in folds of the colon.¹

2456. Pulsation, the sense of purring, the "*bruit de soufflet*," the "*bruit de scie*," occur along the abdominal aorta, in the carotid, and even in the radial artery, from similar nervous causes.

¹ An interesting case of this kind, in which both Bayle and Laënnec were deceived, is detailed by the latter able writer, in his *Treatise de l'Auscultation*, ed. 2, t. ii, p. 659.

CHAPTER IV.

OF THE DISEASES OF THE ALIMENTARY CANAL.

2457. THE Alimentary Canal comprises the stomach, the duodenum, the jejunum, the ileum, the colon, and the rectum. Each of these portions is liable to its peculiar diseases, and is, therefore, of great interest in a medical point of view.

2458. Each division of the Alimentary Canal may be viewed as consisting of a serous and of a mucous membrane, of a muscular coat, and of a cellular tissue. Each of these textures is subject to its peculiar morbid actions and lesions.

2459. It may be observed, in general, that inflammatory affections of the peritonæum do not necessarily disturb the functions of the stomach and intestines; those of the muscular coat, on the contrary, are apt to be attended by sickness, severe pain, and obstruction; whilst those of the mucous membrane are usually associated with pain of a less severe kind, and increased discharges. We may readily judge of the character of the first by what we witness in the familiar example of Peritonitis, of that of the second by what occurs in Hernia, and of that of the third by the symptoms observed in Dysentery.

2460. Of affections of a nature different from inflammation, some are attended with obstruction and distention, whilst, in others, to these symptoms are added an inverted or antiperistaltic action, and vomiting, perhaps of fæculent matters.

2461. The diseases of the Alimentary Canal admit of a practical division, into the Acute, the Chronic, and the Insidious: the last mentioned term being used to distinguish those diseases

which are usually progressively, though slowly, fatal. To this list, the symptomatic affections must be subjoined.

2462. It is in these different aspects that the subject is to be viewed in this work, and the disease of the entire Alimentary Canal may be presented in the following tabular form:—

I. THE ACUTE DISEASES.

I. PERITONITIS.

1. Diffused. 2. Partial.

II. OBSTRUCTIONS OF THE INTESTINES.

1. Hernia, External, Internal.
2. Intus-susception.
3. Compression.
4. Internal Obstruction.

III. ILEUS ; COLIC.

IV. COLICA PICTONUM.

V. IRRITATION.

VI. CHOLERA ;

1. Europæa.
2. Indica.

VII. GASTRITIS ; CORROSIVE POISON.

VIII. ENTERITIS.

1. Membranous.
2. Follicular.

IX. DYSENTERIA.

X. HÆMORRHAGE.

XI. PERFORATION.

1. Of the Stomach.
2. Of the Intestine, &c.

XII. INFLAMMATION IN THE ILIAC REGION.

- I. Of the Caput Cæci.
- II. Of the Appendix Vermiformis.
- III. Of the Appendages of the Uterus.

II. THE INSIDIOUS AND PROTRACTED DISEASES.

I. PERITONITIS.

II. TUBERCLES.

1. Of the Peritonæum.
2. Of the Intestines.
3. Of the Mesenteric Glands.

III. GASTRITIS.

IV. ENTERITIS.

V. SCIRRHUS.

I. Of the Stomach ;

1. Of the Cardia,
2. Of the Stomach,
3. Of the Pylorus.

II. Of the Intestine ;

1. Of the Ileum,
2. Of the Colon,
3. Of the Rectum.

VI. ENCEPHALOSIS, ETC.

VII. DISEASES OF THE RECTUM.

III. THE CHRONIC AFFECTIONS.

I. DYSPEPSIA.

II. INTESTINORUM TORPOR.

I. THE ACUTE DISEASES.

I. PERITONITIS.

1. *Diffused.*

2463. 1. *The History.* The attack of acute Peritonitis is generally prompt or sudden, after exposure to wet and cold, and after rigor.

2464. II. *The Symptoms* arise out of acute pain and tenderness in the abdomen: the countenance has a peculiar expression; the upper lip is drawn upwards and bound tightly over the teeth; the posture of the patient is not less peculiar: he generally lies still, upon the back, every motion being attended by augmented pain; the head cannot be raised from the pillow, nor the trunk moved, without exciting pain and its expression in the countenance and manner; the respiration is thoracic, the diaphragm being kept unmoved; the knees are frequently raised so as to remove the pressure of the bed clothes.

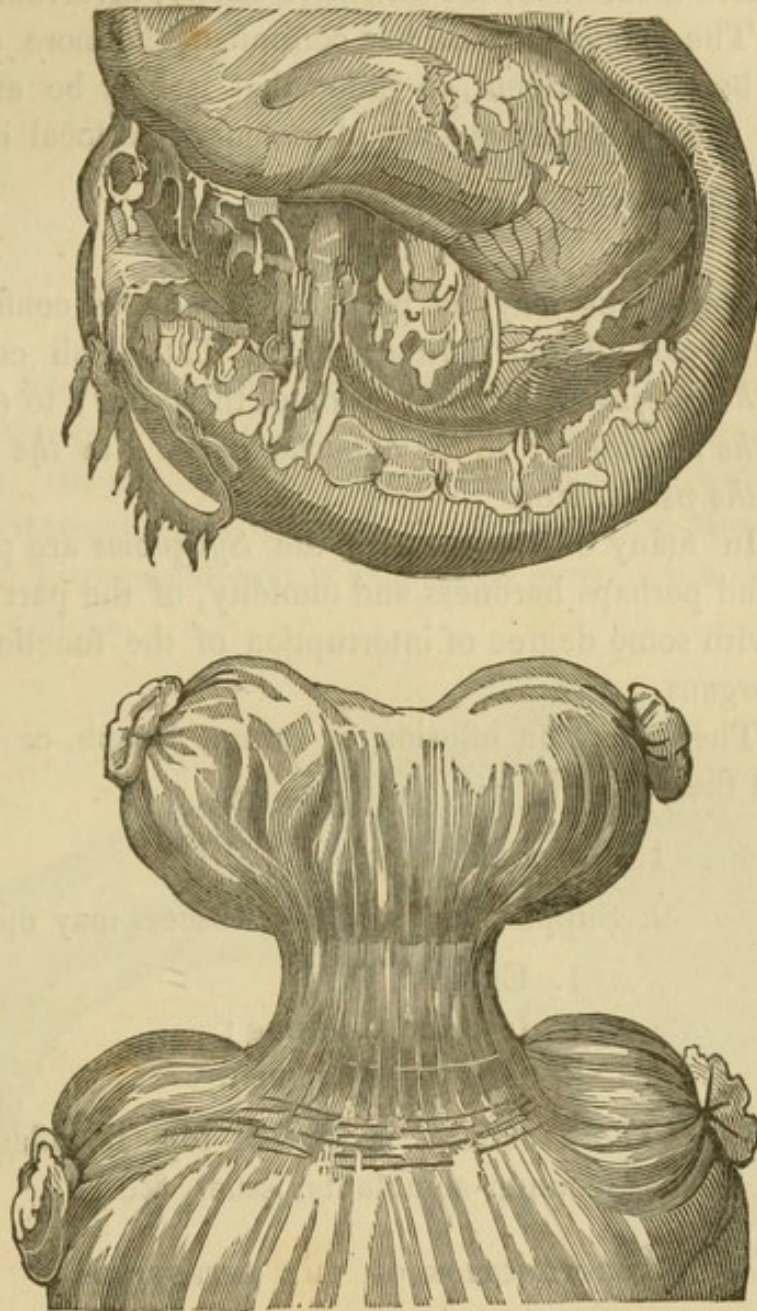
2465. A careful examination of the abdomen should be made daily: in this manner we detect the part which is the principal seat of inflammation, and even some part of the morbid changes, as the effusion of serum [by its fluctuation,] and perhaps of lymph, by the pain and tenderness experienced, and the tension and doughy state observed on pressure.

2466. The functions of the stomach and bowels are [commonly but] not always materially affected; there may be no vomiting, nor constipation.

2467. The skin is usually of very moderate heat; the pulse very moderately quick.

2468. III. *The Effects of Remedies.* There is, in this, as in all cases of inflammation of the serous membranes, great tolerance of loss of blood; and this fact becomes an important diagnostic and guide in the treatment of the disease.

2469. IV. *The Pathology.* The morbid changes consist principally of the effusion of serum, mingled or not, with flakes of lymph, puriform, or sanguineous; or of lymph, by means of which adhesions are contracted between the peritoneal surfaces, or the folds of the intestine, as is represented in the following sketches. [The first figure represents shreds and flakes of false membrane adhering to the peritoneal surface; the second figure shows a portion of the small and of the large intestine connected together by a neck or bridge of effused lymph.]



2470. V. *The Treatment* is nearly similar to that of Pleuritis, § 2217. Blood-letting, instituted on the plan explained, § 823, and repeated according to its effect upon the disease and the general system ; mercury administered, especially by friction, so as promptly and effectually to induce ptyalism ; leeches ; antimonial powder ; enemata of warm water ;—such are the principal remedies in this terrible disease, in which, as in all inflammatory affections, we should be continually revolving in our

minds, what may, at the moment, be the probable condition of the extensive membrane, the extensive cavity, involved.

2471. The longer the case has continued, the more persevering must be our treatment, in order that it may be effectually subdued; and especially our use of mercury and local measures.

II. *Partial Peritonitis.*

2472. Peritonitis may be partial. It *may be* confined, indeed, to *any* part of the peritonæum, as that which covers *the stomach, the intestines*, or any portion of the latter; to *the omentum*; to *the mesentery*; to *the hypochondrium*; to *the iliac region*; to *the pelvis*, &c.

2473. In many of these cases, the *Symptoms* are pain, tenderness, and perhaps hardness and tumidity, of the part affected, together with some degree of interruption of the function of the adjacent organs.

2474. There may be effusion of serum, lymph, or puriform fluid; and there may be —

1. Resolution; or,
2. Suppuration, and the Abscess may open
 1. Externally
 2. Into the Intestine;
 3. Into the Abdomen.

2475. VI. *The Treatment* is that of topical inflammation, [including leeches, counter-stimulants, issues, &c.]

II. OBSTRUCTION OF THE INTESTINES.

2476. The different forms of Obstruction are —

1. External Hernia.
2. Internal Hernia.
3. Intus-susception.
4. Compression.
5. Internal Obstruction.

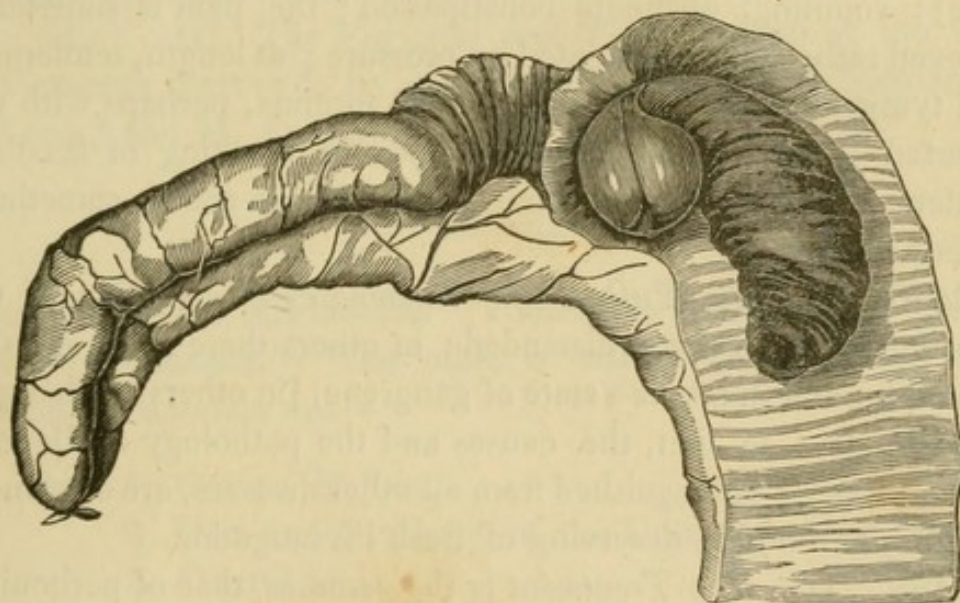
2477. The first of these is principally

1. Inguinal. 2. Femoral. 3. Umbilical.

2478. The second is hidden, being

1. Diaphragmatic ;
2. Mesenteric ;
3. Omental, &c. ; or
4. Formed by the passage of a fold of Intestine between a Loop of Intestine adherent after Inflammation.
5. Vaginal, &c.

2479. *Intus-susception* generally consists of the descent of a higher portion of intestine into a lower one,—of the ileum into the colon. In this case there is sometimes, with the usual symptoms of Obstruction, a tumor of an extended form along the part affected. *Intus-susception* is beautifully given in this sketch from Dr. Carswell :—



2480. *Compression* is the consequence of a tumor external to the intestines ; *Internal Obstruction* is the effect of calculus, or perhaps of impacted feces. In all these cases a tumor will be discovered on examination.

2481. I. *The Symptoms.* There is less tenderness, at first, but more sickness and vomiting, than in enteritis, and the obstruction of the bowels, under the influence of purgatives and enemata, is complete. *Such symptoms should always lead to the most attentive search for the source of Obstruction.*

2482. There is great anxiety. The sickness and vomiting

increase ; the abdomen becomes tender and tumid ; the Obstruction is obstinate, the action of the bowels perhaps antiperistaltic, so as to lead to stercoraceous vomiting.

2483. II. *The Morbid Anatomy.* Besides the effect of strangulation upon the part more immediately involved in it, as inflammation, gangrene, &c., the intestine above this part is apt to be distended, to a greater or less extent, in the whole, or in parts, of its extent, according to the acute or more chronic character of the disease.

III. ILEUS OR COLIC.

2484. The disease is very obscure. It sometimes proves fatal without leaving any traces of inflammation ; and I confine the terms to cases uncomplicated by other diseases.

2485. I. *The Symptoms* are generally twisting pains of the bowels, chiefly round the umbilicus [alternating with intervals of ease] ; vomiting, obstinate constipation ; the pain is sometimes relieved rather than augmented by pressure ; at length, tenderness and tympanites are superadded to the tormina, perhaps with the inverted action of the intestines and the vomiting of fæculent matters. There are great anxiety, little febrile action, sometimes speedy sinking.

2486. II. *The Pathology.* In some cases a portion of the intestine is found much distended ; in others there is the effusion of lymph ; and in others a state of gangrene, [in others no change.]

2487. But, in fact, the causes and the pathology of Ileus or Colic, properly distinguished from all other diseases, are extremely obscure, and highly deserving of fresh investigation.

2488. III. *The Treatment* is the same as that of peritonitis, with the addition of cathartics (?). [In cases of violent spasmodic colic, opiates in large doses, repeated every half hour till the pain is relieved, and afterwards followed by purgatives, constitute the best treatment.]

IV. COLICA PICTONUM.

2489. I. *The History.* This affection arises from exposure to the influence of lead. It is sometimes a very acute, at others a more chronic, disease.

2490. II. *The Symptoms* are extreme pain of the abdomen, unaugmented, perhaps relieved, by pressure ; vomitings, obsti-

nate constipation, retraction of the abdomen towards the spine; generally *without* fever,—chills, heat, or perspiration, with quickness of pulse, whiteness of the tongue, &c.; symptoms which are frequently promptly relieved by large doses of emetics and purgatives.¹ There are frequently pain of the limbs, especially of the arms, great distress, sleeplessness, and restlessness.

2491. Sometimes the disease is *less acute*, and the pains are at one period dull, at another, extreme. The attacks may continue several days, or even a month pass off, and return after various intervals.

2492. After a varied duration of this disease, there is usually the accession of *pain*, and of a *peculiar paralysis of the muscles of the hands*, but also of the arms, and sometimes of the legs; the thumb and fingers frequently forcibly flexed or distorted. The character of this disease, whether in the abdomen or in the limbs, seems to be that of paralysis united with pain.

2493. III. *The Varieties and Complications* of the Colica Pictonum deserve to be distinctly enumerated. Heberden,² M. Louis,³ and M. Andral,⁴ mention

Sudden Death

as an event in this disease. The former speaks of lead as ‘*nervis inimicissima*.’ The other events or complications of the Colica Pictonum are—

1. Coma; Delirium.
2. Pain and Paralysis, of the Legs as well as the Arms.
3. Convulsions.

2494. The adductor pollicis shrinks, and sometimes a tumor of the size of a nut is seen occupying the beginning of the metacarpal bone of the middle finger.

¹ These constitute the ‘*traitement de la Charité*.’

² *Commentarii*, ed. 1807, p. 330.

³ *Recherches Anatomico-Pathologiques*, pp. 483—491.

⁴ *Médecine Clinique*, ed. 2, t. vi, p. 153.

2495. IV. *The Morbid Anatomy.* The most recent researches of M. Andral, M. Louis, and others, confirm the opinion of Heberden, that there is no morbid appearance peculiar to this disease.¹

2496. The seat of the disease is [possibly] the spinal marrow, in which organ we should look for morbid appearances.

2497. V. *The Treatment*, which is, according to M. Louis² and M. Andral,³ almost invariably successful, consists in active emetics and drastic cathartics. The oleum ricini, the oleum crotonis tigllii, are valuable remedies in this disease.

2498. The strychnine has been employed for the paralysis of Colica Pictonum with doubtful success.

V. STOMACHAL AND INTESTINAL IRRITATION.

2499. It is only necessary to refer, in this place, to § 768, and to request the reader's attention to the importance of the distinction between these diseases, and especially to the diagnosis afforded by the effects of the loss of blood.

VI. CHOLERA.

1. *Cholera Europæa*, [or *Cholera Morbus*.]

2500. I. *The History.* This disease usually arises rather suddenly from the influence of heat, in the [summer and] autumn.

2501. II. *The Symptoms* are violent abdominal pains, with bilious vomiting and purging. The face and surface are often cool, the extremities cold, and perhaps clammy and livid, and the pulse small. To these symptoms are frequently added severe cramps, and sometimes even convulsions.

2502. III. *The Pathology.* There is frequently not the slightest trace of morbid change of structure, on examination, after death. In protracted cases, red, brown, or black patches, and

¹ "Inciso cadavere hominis hæc colica perempti, nullum vitium intus in corpore deprehensum est, quod ad hunc morbum pertinere, mortemque inferre potuisset." Heberden, p. 330.

² Mémoires, p. 489.

³ Clinique, t. iv, p. 156.

even gangrenous points, have been formed in some parts of the intestines, and the liver has been much congested.¹

2503. IV. *The Treatment* consists principally in opiates for pain, and stimulants if there should be extreme debility.

2504. Ipecacuanha, as an emetic, has appeared to mitigate the violence of the disease. Mild saline aperients have also appeared to do good, administered before the commencement of the opiates. Soda water; fomentations to the epigastrium, and to the legs and feet; mitigate the sickness and cramps.

2. *Cholera Indica.*

2505. I. *The History.* This terrible disease [commonly known by the names of *Asiatic* and *spasmodic* cholera] is epidemic or sporadic. In the former case it is of dreadful fatality. When sporadic, it is less so. Its causes are very obscure. [It has long been known as a most formidable epidemic in the hot climate of India, and has since been equally fatal in the heart of winter in Russia. Not many years ago it appears to have made an entire circuit of the globe, and subsequently to have disappeared without known cause.]

2506. II. *The Symptoms.* The *early* symptoms are mere diarrhœa, perhaps unattended by pain or spasm; the evacuations are copious, liquid, almost inodorous, and usually compared, in appearance, to rice-water, [or to pure spring water with a slight sediment.]

2507. *Afterwards*, the same sort of fluid is rejected by vomiting and passed by stool, in amazing quantities, variously attended by pain, anxiety, and cramps, but speedily followed by collapse and sinking, the countenance being livid, cold, and clammy, the arms livid, cold, clammy, and pulseless, the voice husky; there is complete suppression of urine.

2508. In the worst cases, there are early blueness, pallor, and collapse of the countenance; loss of voice, loss of pulse; a cold, clammy, and livid state of the extremities; speedy sinking, or asphyxia.

¹ Rostan, Cours de Médecine Clinique, ed. 2, t. ii, p. 506.

2509. III. *The Morbid Anatomy* consists in intestines replete with fluid like rice-water, in a gall-bladder replete with bile ; and in a urinary bladder empty and collapsed. The mucous membrane of the intestines is apt to be injected, and even gangrened, and the clustered and isolated glands are frequently enlarged ; but none of these appearances are constant.

2510. IV. *The Treatment*. I do not venture to give an opinion upon the treatment of the Indian Cholera ; but I incline to recommend doses of a grain of the hydrargi submuriæ every half hour. M. Louis gave opiate enemata apparently with good effect. [This disease has totally baffled the curative efforts of the medical profession in Europe and America, as the records of its mortality abundantly show. No one can think otherwise who has seen much of the disease, unless in its most favorable and imperfect forms.]

VII. GASTRITIS.

2511. Gastritis, in its simple form, as an acute disease, is extremely rare ; yet, I believe I have witnessed several instances of such an affection.

2512. I. *The Symptoms* consist in pain, or weight, or dragging, in the region of the stomach, very shortly after eating, and after taking the mildest medicines, sometimes amounting to a paroxysm of suffering, and only terminated by vomiting, and recurring after each repetition of the cause. With these symptoms there are debility and emaciation.

2513. Similar symptoms have appeared to me to arise in *inflammation of the duodenum*, with the addition of icterus, and a tender and somewhat enlarged condition of the liver.

2514. Acute Gastritis occurs in one very unequivocal case, that of the administration of

CORROSIVE POISON.

2515. I. *The History*. As concealment is frequently attempted in this case, it is very important to be aware of every possible means of discovering the fact of poison administered.

2516. II. *The Symptoms* which should excite suspicion are, a *sudden* attack of pain, of vomiting, and, perhaps, of diarrhœa. The matters rejected, and passed, should of course be carefully examined. The history and acts of the patient, of the persons near or present; the articles in the room, &c. are so many sources of diagnosis.

VIII. ENTERITIS.

1. *Membranous.*

2517. A state of inflammation of the mucous membrane of the intestine seems to be the cause of many forms of *Diarrhœa*, especially those attended by *mucous* discharges.

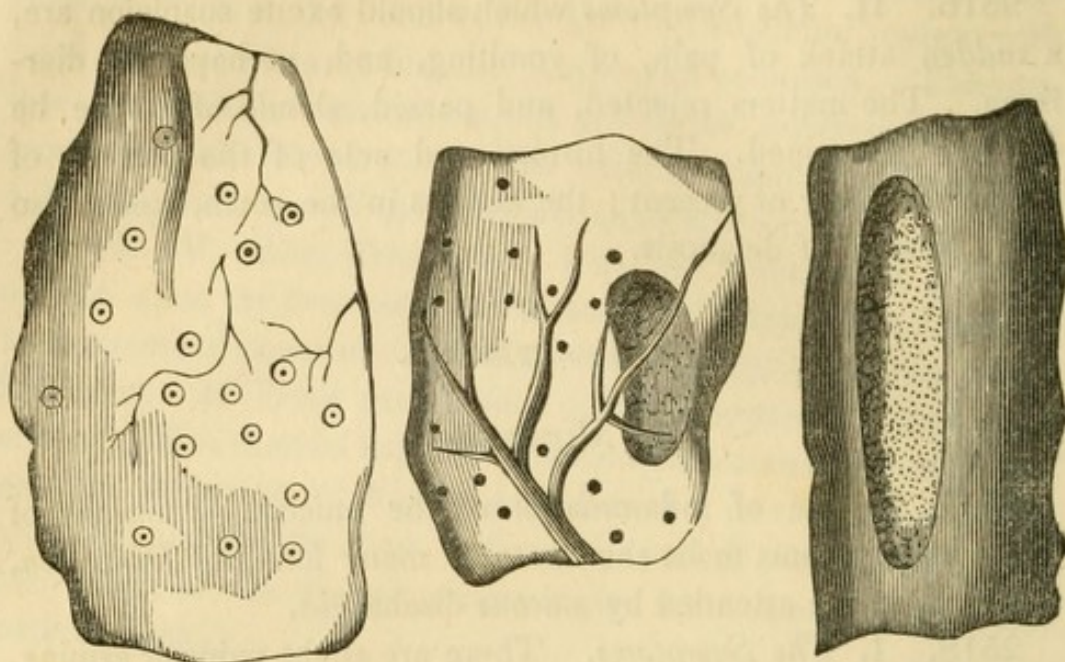
2518. I. *The Symptoms.* There are slight pains or griping, tenderness on pressure, and sometimes, but not always, frequent evacuations. The countenance is pale, perhaps icterode; there are emaciation, and considerable debility. The affection is extremely apt to pass into the chronic form.

2519. II. *The Morbid Anatomy* consists in injection, softening, and ulceration of the mucous membrane. The last effect is represented in the sketches given p. 129.

2520. III. *The Treatment* consists in leeches applied to the epigastrium and umbilicus, mild opiates, or opiate enemata, abstinence from food, fomentations of the abdomen and feet; warmth. The patient should remain in bed, in perfect quiet, and free from every kind of exposure.

2. *Glandular.*

2521. This term expresses the tumidity and ulceration of Peyer's and Brunner's glands, already mentioned as occurring, in the *acute* form, in Typhoid fever, and in the *chronic* form in Phthisis. 2. To the sketches given, p. 245, I beg here to add several from M. Andral:—



IX. DYSENTERIA.

2522. I. *The History.* I have witnessed this disease, in its *epidemic* form, in the summer and autumn of three successive years. It also occasionally occurs sporadically. Is it ever contagious?

2523. II. *The Symptoms* are griping, with frequent mucous, sanguineous stools, and constant tenesmus.

2524. There is frequently sickness, and pain and tenderness of the epigastrium, and over the course of the colon, especially in the left ileum. The “*desidendi cupiditas*” and the tenesmus are quite terrible. The pain, anxiety, and distress are frequently extreme.

2525. This affection may pass suddenly into the sinking, or slowly into the chronic, state.

2526. III. *The Morbid Anatomy* consists of injection, thickening, and ulcerations of the mucous membrane of the colon and rectum. In severe cases, the morbid changes are still more deeply seated, and the tumefaction is such as to thicken the textures of the intestine, whilst it contracts its calibre; the ulcerations are of irregular forms, but, generally, I think, transverse, and they are often frightfully deep.

2527. IV. *The Treatment* is that which I have described for gastritis and enteritis, § 2420. The leeches must be applied in the iliac region and over the colon; mild opiates; arrow-root in water, for the sole diet; fomentations; warmth, and repose, are the chief remedies. Exposure to cold or heat must be avoided. All violent remedies appear to me (and, as I have stated, I have watched a severe epidemic in three successive years) to do harm. [Large and repeated opiates are sometimes required.]

X. HÆMORRHAGE.

2528. Hæmorrhage may take place from the surface of the gastric and intestinal mucous membrane congested from any cause, and the blood may be rejected by vomiting or passed per anum, constituting *hæmatemesis* or *melæna*. This event is frequently, if not chiefly, induced by the loaded condition of the bowels observed in Dyspepsia, Chlorosis, &c.

2529. This affection has been cured in many instances which I have witnessed: but I suppose it may be attended by that state of the intestine which has been designated and depicted as the hæmorrhagic, and then prove less remediable. It is well known that hæmorrhage from the stomach and bowels is a consequence in many diseases, as fever, purpura, ulcers, cancer, &c. and of obstruction of the vena portæ, occasioned by the pressure of an external tumor, or by the obstruction of internal concretions of lymph,—and is then serious in the degree in which the original malady is so.

2530. *The Treatment.* I have seen so many cases of dyspeptic hæmatemesis and melæna cease on giving frequent mild doses of the pilula, and submurias, hydrargyri, and ample injections of warm water, daily, or twice a day, that I beg to recommend this mode of treatment in the strongest terms.

2531. The warm water injection, to be effectual, should amount to *three pints* on an average; it should be injected as slowly as possible, the object being first effectually to *fill*, and then gently to *distend* the large intestine. It returns freely and immediately upon this stimulus of distension, proving literally a

lavement or washer of the intestine. [Castor oil, followed by the acetate of lead, is one of the most effectual modes of treatment in this affection.]

XI. PERFORATION.

2532. I have already had occasion to allude to *three* cases of perforation in this work :—§§ 2395, 2437, 2474. I shall now observe that perforation may take place wherever *abscess*, and especially *tuberculous abscess*, forms, or scirrhus spreads its ravages ; it is ultimately the effect of *ulceration* or *laceration* ; [its effects are often] prevented by the formation of *adhesions* between contiguous surfaces, or the deposit of *firm lymph* upon a single surface ; it may take place from *any organ*, and penetrate into,

1. An adjacent Cavity.
2. An adjacent Canal.
3. Externally.

2533. The principal situations in which Perforation has occurred from *ulceration* are—

1. The Lungs.
2. The Stomach.
3. The Ileum.
4. The Uterus and Ovarium.

The case of Perforation from *abscess* occurs in that of the *Liver* principally ; that from *Laceration* has taken place in the *Gall-bladder*. It is almost unnecessary to add, that any hollow viscus, or an encysted tumor, wherever it may be situated, may also be perforated by over-distention, by a blow, a fall, &c.

2534. Perforation of the intestine has occurred principally under the following circumstances :—

1. Softening of the Mucous Membrane.
2. Ulceration of Peyer's or Brunner's Glands, in
 1. Typhus ;
 2. Phthisis ?
3. The separation of an Eschar, the effect of poisoning by Sulphuric Acid.

4. Gangrene induced by Strangulation.
5. Ulceration in dysentery.
6. Rupture in Cancer and other diseases.

2535. II. *The Symptoms* are those of the most sudden peritonitis or enteritis: violent pains of the abdomen, exceedingly augmented by pressure; nausea and vomiting; a dreadful change in the countenance, in the powers, and in all the vital functions; a rapidly sinking pulse; a cold, clammy state of the face and of the extremities.

XII. INFLAMMATION OF THE ILIAC REGION.

2536. I have already adverted to the interesting fact of *Partial Peritonitis*, § 2467. I must now draw my reader's attention to some other cases of Topical Inflammation within the Abdomen. They are principally—

- I. Of the Caput Cæci.
- II. Of the Appendix Vermiformis.
- III. Of the Appendages of the Uterus.

To which may be added, in a diagnostic point of view, the occasional tumor in the *iliac region* from—

Psoas, or Lumbar, Abscess.

2537. I. The *first* of these cases is well described by Dupuytren:¹ pain, tenderness, and tumor, in the right iliac fossa; symptoms of obstructed intestine,—vomiting, colic, constipation, &c.; issuing either in *resolution*, or *inflammation* extending to the peritonæum, or *abscess* opening—1, into its cavity, or 2, into the intestine, or 3, pursuing its course variously along the cellular membrane into the *groin*, the *perinæum*, &c.

2538. [M. Grissolle has recently published a very interesting paper in one of the French journals, upon abscesses of the iliac regions.

2539. Of seventy-three cases observed by himself or recorded

¹ Leçons Orales, t. iii, p. 330.

by authors, fifty-three were on the right, and twenty on the left side. The greater frequency in the right iliac region he attributes to faecal matters in the cæcum ; the liability of this part to disease, and the extent to which it is destitute of peritonæum.

2540. Of twenty-seven cases occurring in women, seventeen were of puerperal origin. The last differ little from the other cases, except that they seem to take their departure from one of the broad ligaments of the uterus, the cellular tissue of which communicates with that of the iliac fossæ. Of the seventeen puerperal cases, six were on the right and eleven on the left side.

2541. Of fifty-six non-puerperal cases, forty-six were in men and ten in women. The ages in the non-puerperal cases were as follow :

Number of Cases.	Age.
7	from 11 to 20
27	“ 20 “ 30
12	“ 30 “ 40
5	“ 40 “ 60

2542. *Constitution.* Of thirty-four patients, twenty-three were robust, and eleven delicate or tuberculous. M. Grisolle thinks the affection is rarely caused by an extension of inflammation of the mucous membrane, as has been supposed. It may be owing to inflammation of some neighboring parts, as the synovial capsules of the psoas and iliacus muscles ; perhaps of the kidneys. Traumatic causes ; imperfect lactation, in the puerperal state, may give rise to it, as may foreign bodies or indurated fæces retained in the part.]

2543. The remedies are those for local inflammation, combined with the lavement and other effectual means of relieving the bowels

2544. II. The *second* of these affections arises from some substance impacted in the appendix vermiformis : in one case it was a pin encrusted with a calculous deposit ; in a second it was a cherry stone ; in a third it was a tooth which had, doubtless, been swallowed.

2545. *The Symptoms* are those of *local inflammation* and, perhaps, of intestinal affection. The *Treatment* is that proper for

inflammation ; but the patient has appeared to me to bear depletion ill, and speedily sinks under the influence of this generally irremediable disease.

2546. [*Gangrene* of the *appendix cæci*, tending, of course, to perforation, appears to be not an unfrequent occurrence. Within about three years, half a dozen cases of this lesion have been observed in Boston and the vicinity. By the kindness of Dr. J. B. S. Jackson, by whom the autopsies were made, we are enabled to give the following abstract of these cases.

2547. 1. This was a man 27 years years of age. He was attacked after eating a hearty meal of bacon, sausages, and minced pie. The symptoms were vomiting, severe pain in the abdomen,—mostly in right iliac region ; the duration of the disease, three days and a half. General acute peritonitis, inflammation and sloughing of the *appendix cæci*, were found, upon examination. The cavity of the *appendix* contained a soft solid mass supposed to be *faeces*.

2548. 2. A girl aged 15. Attacked after a meal of lobster, baked beans, etc., before going to bed. Vomiting was the principal symptom ; there were also soreness, tumidity, and severe pain in the abdomen, and constipation during the four first days. She was sick between seven and eight days. The post mortem appearances were general intense peritonitis, acute inflammation, perforation, and extensive *sphacelus* of the *appendix cæci*, the cavity of which contained a mass of very hard *faeces*.

2549. 3. A man aged 22. Symptoms came on after eating a great number of pea-nuts ; consisted in vomiting, constipation, and intense pain in the abdomen. He died after six days. The appearances observed, after death, were peritonitis, not universal, shown by the effusion of lymph without serum, *sphacelus* and perforation of the *appendix cæci* ; its interior surface was ulcerated, and in its cavity was found a pea-nut, with some pus. An abscess capable of holding two drachms of fluid was found external to the *appendix*, and formed by adhesions of the peritonæum.

2550. 4. A boy aged 10. The symptoms were, vomiting, pain in abdomen, and constipation ; not violent in their character. They lasted about a week. On examination, an abscess was

found about the region of the cæcum, but the peritonæum was generally healthy. The appendix cæci was generally inflamed, gangrenous and perforated ; no foreign body existed in its cavity so far as known.

2551. A woman aged 22, attacked after two successive and hearty meals of baked beans. The symptoms, which lasted a week, were vomiting, constipation, and severe pain in the abdomen. The lesions found were, universal, acute, peritonitis, extensive gangrene of the appendix cæci, which, however, was ascertained by careful experiments not to be perforated ; the part presented the appearances of acute inflammation, and contained a hard calculus in its cavity.

2552. For the following case we are indebted to Dr. Charles Ware. I. T. had been subject to epileptic fits, but otherwise healthy to the time of attack. Symptoms, vomiting, pain, fullness and tenderness of the abdomen, &c., generally resembling those of strangulated hernia. Respiration, thoracic. On examination, at an inch from the end of the appendix cæci, was a slough about two lines in length encircling the appendix, and in contact with a small fæcal mass, of the size of a cherry-stone. There was extensive peritonitis.]

2553. III. The *third* occurrence is one of extreme interest. It usually succeeds to parturition or abortion. It consists of inflammation of the ovarium, or adjacent ligaments, or peritonæum.

2554. *The Symptoms* are local tenderness and tumor, and perhaps fluctuation ; sometimes the bladder, or its cervix, or the rectum, is compressed, and the tumor is felt on an examination per vaginam. The case sometimes terminates by resolution, sometimes by suppuration, the pus having its issue in the iliac region, into the intestine, in the perinæum, &c.

2555. *The remedies* are those proper for *local inflammation* : leeches or cupping ; a *seton* ; mercurial inunctions ; warm water enemata, &c.

II. THE INSIDIOUS DISEASES.

I. PERITONITIS.

2556. I. *The History.* Chronic Peritonitis may originate in the acute form, or be chronic from its commencement. It may require great attention for its detection.

2557. II. *The Symptoms.* There is sometimes little or no pain, tenderness or tumor of the abdomen, although a careful examination generally detects some degree of one or other of these symptoms. There is frequently, also, some degree of vomiting and diarrhœa. But the principal symptoms consist of hectic fever and emaciation.

2558. In the course of the affection, various effusions of serum or lymph take place, and the elasticity of the abdomen is diminished, generally or partially, so as to constitute diffused or partial hardness, or tumor, or even suppuration; or a state of ascites is established.

2559. III. *The Varieties and Morbid Anatomy.* This affection, frequently obscure in itself, is rendered still more so by its varied forms and complications: these arise principally from the

1. Effusion of serum, when it resembles Ascites.
2. The effusion of coagulable Lymph, when it assumes the form of abdominal Tumor or Tumors.
3. The Supervention of Inflammation, or Ulceration, of the Mucous Membrane of the Stomach, or Intestines, or the Mucous Glands.
4. The Deposit of Tubercles.

2560. [According to Louis, Chronic Peritonitis when not consequent upon the acute, is always tuberculous.]

2561. IV. *The Treatment* consists almost entirely in the effectual and persevering use of the unguentum hydrargyri; regulation of the diet, the bowels, the temperature of the patient's room, &c., and applying leeches, cataplasms, and other local remedies, as they may be indicated by the existence of tumor, pains, &c.

II. TUBERCLES.

2562. *The History* and the *general Symptoms* have been already detailed, § 579. It only remains to trace, in this place, *the local Symptoms* of this disease.

2563. I. *The History.* Compared with chronic peritonitis, tubercles of the abdomen form a far more insidious disease;

and it rarely, if ever, puts on an acute form at its commencement, in its progress, or at its termination.

2564. II. *The local Symptoms* are, at first, obscure and deep-seated pain in the abdomen and generally in the right iliac region. This pain is sometimes aggravated for a day or two. At a later period, a degree of tension, and finally of tumor, is added to the tenderness. The bowels are uncertain : frequently there are copious, white, alvine evacuations.

2565. III. *The Morbid Anatomy* consists in

1. Tubercles and Tuberculous Adhesions diffused over the Peritonæum.
2. Masses of Tubercles and Intestines inextricably matted together.
3. Ulcerations of Peyer's and Brunner's Glands, and Tuberculous Enlargement of the Mesenteric Glands.
4. Various Tuberculous Masses and Cavities, especially in the right Iliac Region, sometimes communicating with the Intestines.

III. GASTRITIS.

2566. I. *The History.* Gastritis is far more frequently an insidious and protracted than an acute disease.

2567. II. *The Symptoms* are such as have been detailed § 2511, in a protracted or repeated form : food and medicine, even of the mildest kind, are apt alike to disagree, inducing pain sickness, vomiting, a sense of weight, or of dragging, &c. The evacuations are frequently pale and without bile. The strength and the flesh fail.

2568. A careful examination of the epigastrium, and a careful observation of the effects of food and of medicines, the recurrent nature of the attacks of pain and suffering, the condition of the bowels, &c. are the chief diagnosis of this disease, which is, I think, little known.

2569. I have already expressed, § 2513, my opinion that icterus is apt to be formed when the duodenum is involved in this disease. I know, however, that M. Rostan¹ is incredulous

¹ Cours de Médecine Clinique, t. ii, p. 447.

upon this point. With the icterus, tenderness and enlargement of the liver (from bilious congestion?) are apt to take place, with a disposition to anasarca.

2570. III. *The Morbid Anatomy* consists in softening, thinness, and perhaps destruction of the mucous membrane of some part or parts of the stomach, or this membrane becomes mammillated.

IV. ENTERITIS.

2571. I. *The History*. This disease, like gastritis, generally occurs in an insidious and protracted form.

2572. II. *The Symptoms* are intestinal pains and tenderness, and generally diarrhœa. The evacuations, carefully inspected, frequently display appearances of mucus, or pus, or even blood. There are slight fever, debility, and wasting of the flesh.

2573. III. *The Morbid Anatomy* consists of injection, discoloration, softening, and perhaps ulceration of the mucous membrane of the intestine, in various parts of its course.

2574. IV. *The Treatment*. Enemata of warm water afford great relief, and constitute one of our chief resources in this disease. The application of leeches, and a diet confined to arrow-root prepared in water; a regulated temperature, and rest in bed, and the other remedies.

V. SCIRRHUS.

2575. I. *The History*. No disease can be more insidious than Scirrhus of the Stomach, unless it be so situated as to interfere with the ingress or egress of the food. It usually occurs in the *middle* periods of life, being rarely seen in early youth or extreme age. It can seldom be traced to any particular cause.

2576. II. *The general Symptoms* have been slightly sketched § 735. They consist in a peculiar pale, sallow, worn countenance, expressive of suffering, usually with a gradual emaciation.

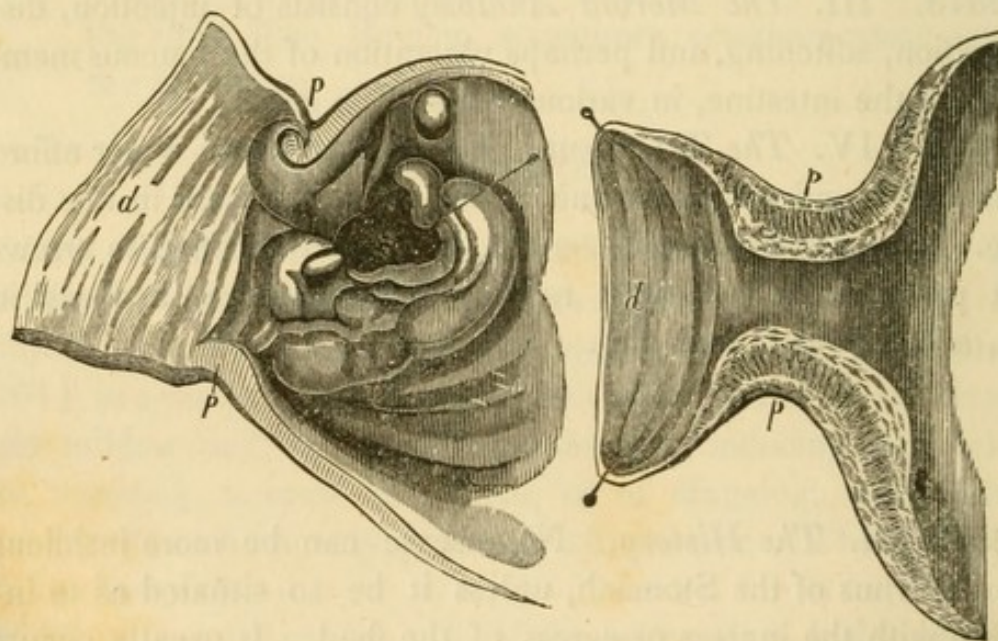
2577. III. *The local Symptoms* depend entirely upon the situation and mechanical effect of the disease. Its principal seats in the stomach are—

1. The Cardia,
2. The Pylorus,
3. The Body of the Stomach,

with impediment to the entrance, or exit, of food, in the two former cases.

2578. 1. Scirrhus of the cardia induces pain and difficulty in swallowing, which slowly but daily increase. The food is apt, late in the disease, to accumulate in the lower part of the œsophagus, and to be rejected, by a peculiar effort, not dissimilar in mechanism, to that of vomiting,¹ without having ever reached the cavity of the stomach,—together with much mucous or glairy fluid.²

2579. 2. Scirrhus of the pylorus is represented by the subjoined wood cuts:—



¹ See a Memoir by the Author, in the Journal of the Royal Institution for June, 1828; and the Medical Gazette for 1833.

² April 2, 1834. I have this day examined a patient of Dr. Heming, who died of total incapacity of swallowing. Fluids would pass to the cardia, distend the œsophagus, and be rejected by vomiting; the fæces were pale and resembled chyle; a tumor was felt, during life, in the left iliac region. There was no disease of the cardia; the caput coli was distended by masses of indurated fæces. The contents of the œsophagus and of the stomach were totally dissimilar, the former being like liquid food, the latter a dark olive-green fluid; the gall-bladder was distended with bile. The patient was a female, aged 21.

It is denoted by an accession of pain, oppression, and other inconvenience, some time after eating, which increase gradually until the stomach relieves itself by vomiting. The mornings are comparatively easy, and the evenings full of suffering, from the alternate, empty, or replete condition of the stomach.

2580. 3. In Scirrhus of the body of the stomach, which is usually seated at the small curvature, there are only the general symptoms of disease and of Scirrhus, with ardor, gastrodynia, uneasiness, &c. at various periods after eating.

2581. Besides the symptoms already detailed, it is important to notice the condition of the matters rejected from the œsophagus or stomach; these are mucus, pus, sanies, blood, &c. sometimes of extremely foetid odor. It is also important to examine carefully and repeatedly for *tumor*.

2582. After these different parts of the stomach, the following are the principal seats of Scirrhus in the intestines:

1. The Ileum.
2. The Colon, especially the ascending and descending.
3. The Rectum.

2583. Rarely seen in the first, much more frequently in the second, this disease occurs most frequently in the last of these situations.

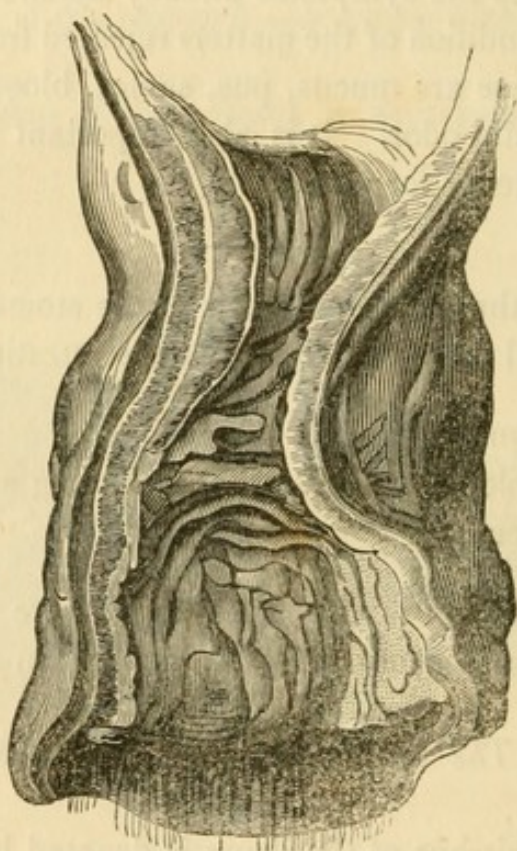
2584. IV. *The local Symptoms* vary with the seat of the disease:—

2585. 1. Scirrhus of the ileum is denoted by local pain, tenderness, and tumor, augmented some time after eating, and eventually attended by vomiting, paroxysms of pain, and symptoms of obstruction. The sufferings are usually augmented after eating, or towards evening.

2586. 2. Scirrhus of the colon is attended by similar symptoms, and by pains of the kind designated by the term *colic*; whilst the sense and symptoms of obstruction are more distinct, and the evacuations are more marked by mucus, pus, or blood. The bowels become more and more constipated—obstructed. The symptoms are apt to be aggravated in paroxysms of aug-

mented obstruction. The course of the colon, and especially the ascending and descending portion, must be carefully and repeatedly examined for *tumor*.

2587. 3. Scirrhus of the rectum is accompanied by *similar* symptoms, which, even when alone, should lead to an examination *per anum*. There are afterwards local pains, great difficulty in passing the fæces, gradually augmented; discharges, at first of mucus, and afterwards of fœtid sanies, pus, or blood; tumors at



the verge of the anus, &c. the occurrence of any one of which should also lead to an attentive examination.

2588. V. *The Morbid Anatomy* of Scirrhus consists, according to M. Andral, in hypertrophy of the cellular membrane. The part affected is indurated, thick, and traversed by hard, white bands, which separate the muscular fibres. At length the mucous membrane and the peritonæum are involved in a change of structure which was originally confined to the cellular membrane. Eventually, ulceration takes place, and an open cancer

is formed, with rugged surfaces, fungous growths, frightful chasms, &c.

2589. IV. *The Treatment* can only be palliative: the bowels must be relieved by the mildest measures, as an enema of barley-water or linseed tea, and the pain and irritation are to be relieved by opiates, either swallowed or administered per rectum.

VI. ENCEPHALOSIS.

2590. I. *The History.* This disease is scarcely attended by any symptoms until it manifests itself by a tumor, perceptible on examination, or by its effect upon adjacent organs. § 735.

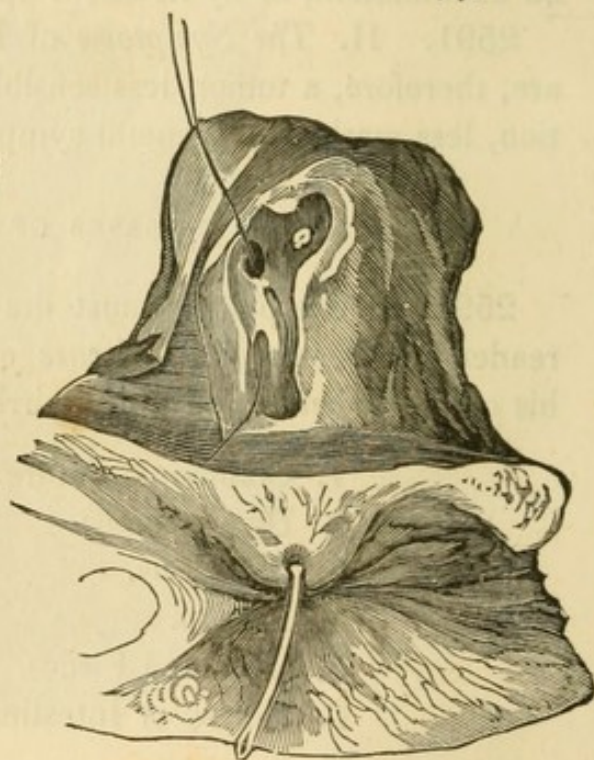
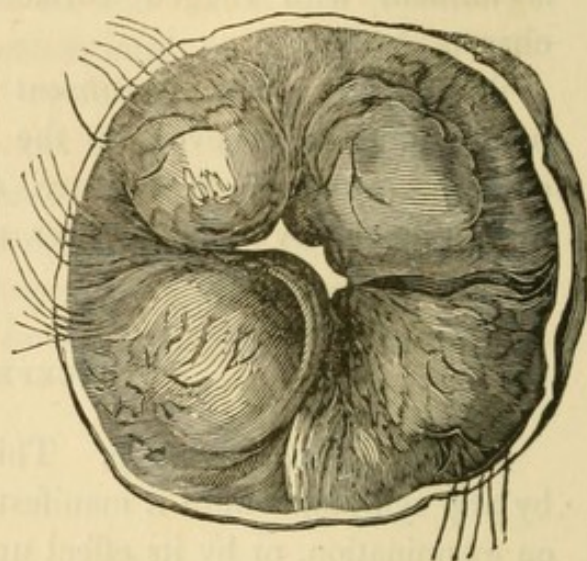
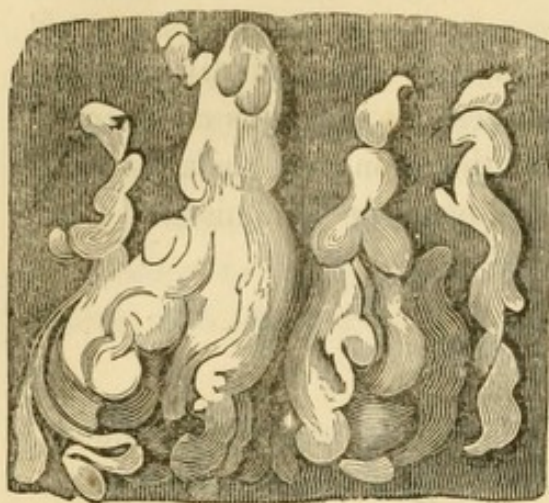
2591. II. *The Symptoms* of Encephalosis of the abdomen are, therefore, a tumor, less sensible on pressure than inflammation, less marked by general symptoms than tubercles.

VII. DISEASES OF THE RECTUM.

2592. In this place I must draw the attention of my young reader to other cases of *disease of the rectum*, which it will be his office to distinguish from Scirrhus:—

1. Common stricture.
2. Hæmorrhoids.
3. Prolapsus.
4. Fistula.
5. Impacted Fæces.
6. Biliary or Intestinal Calculus, &c.

2593. The case of Hæmorrhoids and that of Fistula are represented in the following sketches, taken from Baillie and Dr. Carswell—



2594. These diseases are distinguished by a careful *examination*.¹

¹ In one case the *sphincter ani* was so contracted that the finger could scarcely be introduced, or the *fæces* rejected. On passing the catheter, it was found that a calculus was fixed in the urethra, near the *vesicæ*. The *cervix stricture* ceased when this was removed!

There is a singular affection of the rectum which I have not seen described: in the case to which I allude, a severe pain usually awakes the patient out of his first sleep; it ceases on making *forcible* efforts as if to evacuate the rectum, during the space of about five minutes.

2595. But I am sorry to say that it has become necessary to distinguish diseases of the rectum from *no disease of the rectum!* A friend of mine—and I have heard of similar events—had a rectum bougie passed daily, whilst at Bath, from suspicion of stricture or other disease of the rectum. I was persuaded that there was *no disease*. I took him to Sir C. M. Clark, who confirmed my opinion. The bougie was omitted, and all the symptoms vanished, with much of real distress, and much more of groundless and unnecessary apprehension.

III. THE CHRONIC DISEASES.

I. DYSPEPSIA.

2596. I propose, in this place, merely to call the attention of my readers to several prominent forms of dyspepsia. They are principally,

1. Gastrodynia,
2. Pyrosis.

2597. 1. *Gastrodynia* may occur either with an empty stomach or after eating: in the former case, it is usually conjoined with acidity; in the latter, it follows almost immediately on taking food. In both cases it is chronic, and distinguished from gastritis, by producing little effect on the general system.

2598. 2. *Pyrosis* consists in the sudden rejection of a quantity of a saltish fluid from the stomach, accompanied by ardor, or acidity. Like gastrodynia, it is chronic, and induces little effect on the system at large.

2599. *The Treatment* consists in regulating the diet, the bowels, the exercises, &c. The white oxide of bismuth, and the hydrocyanic acid, afford relief.

II. INTESTINORUM TORPOR.

2600. By this term I wish to designate a strange disposition in the large intestines to form scybala and to retain them in its cavity, whilst there may be constipation, or a daily insufficient evacuation of the bowels. The effect of this disposition in inducing a variety of ailments is very imperfectly understood.

2601. The principal remedy is a daily aloëtic pill, and warm water enema, [or a laxative diet and increased exercise.]

CHAPTER V.

OF THE DISEASES OF THE LIVER, PANCREAS, AND SPLEEN.

2602. FEW diseases require the attention of the physician more than those of the Liver; the diseases of the Spleen, and especially of the Pancreas, are too obscure to possess equal interest.

2603. The Liver is the central organ of so many systems,—the hepatic artery, the vena portæ, the biliary ducts; the hepatic vein;—that its diseases, minutely considered, must be equally various and important. The profession possesses a treatise on this subject, of great value and novelty, by Mr. Kiernan, who has made many interesting discoveries in the minute anatomy and pathology of this organ.

2604. The *Lungs* subsist, as a part of the general circulation, between the right and left sides of the heart; M. Andral has considered the *Spleen* in a similar manner;¹ the *Liver* certainly deserves such a place much more preëminently; its function seems to be subsidiary to that of the lungs, as a depurator² of the blood, and the whole of the blood accumulated in the vena portæ circulates through its substance.

2605. The liver, like every other organ, is subject to inflammation. It is exposed to venous congestion from the interrupted return and flow of blood in diseases of the heart, § 464; and it is

¹ Précis d'Anat. Path. t. i, p. 416.

² The lungs serve to purify the blood with the evolution of heat; the liver performs the same office without that evolution; the difference of combination of these two organs seems to lead to the constitution of the different classes of animals with warm or cold blood, and with low and high irritability.

subject to bilious congestion from obstructed gall-ducts. This organ is also liable to other diseases, which are common to it with several other viscera, as encephalosis, scirrhus, tubercles, hydatids; and it is exposed to others, peculiar to itself, viz. those termed the *fatty liver* and the *cirrhosis*.

2606. M. Andral correctly observes—"There is scarcely any affection of the Liver which has not been designated hepatitis. In my opinion, there is scarcely any which has not arisen from an injury which has first induced a state of hyperæmia. For example—four persons are exposed to a blow over the liver: one has an abscess; a second, cancer; a third, hydatids; a fourth, hypertrophy."¹ M. Cruveilhier makes a similar observation.²

2607. No organ is so susceptible of changes of size and form. Under the influence of the compression from acites, the Liver sometimes shrinks greatly; and it is sometimes marked by the tight lacing of stays. In case of enlargement, it may encroach upon the thorax, the left hypochondriac, or the right iliac, region.

2608. To the preceding list must be added obstruction of the gall-ducts, and it is complete for all practical purposes.

2609. The diseases of the Spleen and Pancreas require but a cursory notice. The former organ is apt to be enlarged in intermittent fever, § 1074, 1076. The diseases of the Pancreas are very obscure.

I. DISEASES OF THE LIVER.

I. INFLAMMATION.

1. Injection.
2. Softening.
3. Induration.
4. Enlargement.
5. Abscess.

1. Solitary. This may open
 1. Externally.

¹ Anat. Path. t. i, p. 606.

² Anat. Path. iii^e livraison.

2. Into the Gall-bladder or Ducts.
3. Into the Stomach or Intestines.
4. Into the Bronchia.
5. Into the Abdomen.
6. Into the Pleura.
7. Into the Pericardium.

2. Numerous.

II. CONGESTION.

I. Venous.

1. Causes.
2. Effects.

II. Bilious.

1. Causes.
2. Effects.

III. ENCEPHALOSIS.

1. Solitary. 2. Diffused.

IV. SCIRRHUS.

1. Solitary. 2. Diffused.

V. TUBERCLES.

VI. HYDATIDS. They may escape—

1. Through the Abdominal Parieties.
2. Through the Stomach or Intestine.
3. Through the Bronchia.
4. Into the Peritonæum.
5. Into the Pleura.

VII. FATTY LIVER.

VIII. CIRRHOSIS.

II. DISEASES OF THE BILIARY DUCTS.

OBSTRUCTION.

1. By Inflammation.
2. By Calculi.
3. By External Pressure.

III. DISEASES OF THE PANCREAS.

IV. DISEASES OF THE SPLEEN.

I. DISEASES OF THE LIVER.

I. INFLAMMATION.

2610. I. *The History.* Inflammation of the Liver may arise from ordinary causes, as exposure to wet and cold; from blows or falls; and from constitutional causes, as disease of some other organs.

2611. II. *The Symptoms* consist in local pain, augmented by pressure, and by percussion; sometimes the border of the organ can be felt; sometimes there is jaundice, ascites, or anasarca. There may be little febrile action; pain of the right shoulder does not belong to hepatitis; but the condition of the stomach and bowels is generally deranged, and there are anorexia, nausea, sickness, constipation, and a colorless state of the fæces, and the urine is yellow or high-colored.

2612. III. There is considerable tolerance of loss of blood, and this becomes a useful diagnostic.

2613. IV. *The Morbid Anatomy* consists of

1. Injection.
2. Softening.
3. Induration.
4. Enlargement.

But, besides these states, there is a fifth, which requires particular notice. This is

5. Abscess.

2614. [It is by no means evident that enlargement of the Liver is always due to inflammation. We are obliged to admit among the lesions to which this organ is subject, the state of simple hypertrophy. Other changes may accompany this condition. Thus the fatty liver of phthisis, usually accompa-

nies some augmentation of its size. Hypertrophy of the liver, according to Andral, may coincide with different shades of color and degrees of consistence. Thus it may be extremely pale, or redder than usual, grey, or green, or brown; it may be of natural consistence, or hardened, or softened. The liver is also liable to atrophy, with increased or diminished consistence; and to changes of consistence without other lesions.]

1. *Solitary Abscess.*

2615. *The Symptoms* of this termination of heptatis occasionally resemble those of *Intermittent Fever*; but in other cases they are very obscure, and the occurrence of suppuration is not suspected until the abscess points, or the pus appears externally. The pus may issue by an opening—

1. In the Hepatic Region.
2. Into the Gall Ducts.
3. Into the Stomach or Intestines.
4. Into the Brouchia.

2616. This appearance of pus is known to arise from hepatic abscess, by being associated with the previous history and symptoms. The abscess sometimes bursts into—

1. The Peritonæum,
2. The Pleura, and
3. The Pericardium;

an event which can only be conjectured from the occurrence of some sensation, as of rupture, and by the appearance of symptoms of inflammation of one or other of these several membranes.

2. *Numerous Abscesses.*

2617. This form of Hepatic disease occurs, like similar abscesses in other parts, in cases of *Phlebitis*

2618. *The Treatment* of Inflammation of the Liver consists in the administration of blood-letting, general and local, of mercury, internally and externally, of saline aperients, most actively and

energetically, in the acute form, and more mildly but perseveringly, in the more chronic form of disease.

2619. In its chronic stage, the alcoholic lotion, or a seton, is of great advantage. With these remedies, a course of Harrowgate, or of the Cheltenham, water, or a *similar* remedy at home, may be conjoined.

2620. The full warm-water enemata, given night and morning, or every morning, is a remedy of great efficacy in all diseases of the Liver.

II. CONGESTION.

1. *Venous.*

2621. Venous Congestion of the Liver usually arises from disease of the heart impeding the flow of blood from the hepatic vein. It leads to enlargement of the Liver, to dropsy, and perhaps to icterus. See case, § 465.

2622. The most vivid light has been thrown upon the *forms* assumed by congestion of the Liver, by the labors of Mr. Kiernan. As congestion usually exists in the *hepatic vein*, and this in the *centre* of each lobule or acinus, its *first* stage is denoted by *circular* spots of redness round that centre, and its *second* stage by these variously coalescing together, appearances which are shown very beautifully in Mr. Kiernan's drawings.

2623. The appearances produced by congestion of the portal vein may be produced artificially, by injecting this vein forcibly in the dead subject.

2624. [The treatment of Congestion of the Liver arising from disease of the heart must be that of the principal affection. The influence of purgatives and of leeches applied around the anus, will be more likely to relieve this congestion than most other consequences of diseased heart, since these remedies act more directly upon the engorged system of the vena porta.]

2. *Bilious.*

2625. Bilious Congestion of the Liver arises from obstructed gall ducts, and leads to enlargement of the Liver, to dropsy, and emaciation, and is attended by icterus.

III. ENCEPHALOSIS.

2626. I. *The History.* This disease is extremely insidious, and ultimately induces symptoms by its size and pressure.

2627. II. These *Symptoms* are uneasiness and oppression in the epigastric and hypochondriac regions, augmented by food, relieved by purgatives. The countenance is *pallid* and thin, and there is general and progressive emaciation, with ascites and anasarca, and very frequently with icterus. The enlargement of the Liver, and, at length, even its irregularities of surface, are felt on a careful examination.

2628. *The Symptoms* are sometimes merely those of hypochondriasis. A careful examination should be made in every such case.

2629. III. *The Morbid Anatomy* consists in the presence of Encephaloid Tubera, which may be few in number, and confined to the Liver, or, what is more frequent, *diffused* over this and various other organs. These tumors compress, in different instances, a large blood-vessel, a large gall duct, the vena portæ; inducing, respectively,—

1. Partial Atrophy.
2. Icterus.
3. Ascites; Anasarca.

2630. The ascites is probably occasioned, in some instances, by irritation of the portions of the peritonæum adjacent to the hepatic tumor or tumors; and effusion into the thorax has arisen in the same manner. Other diseases, as of the heart and of the lungs, are also occasionally induced by hepatic encephalosis, besides the occurrence of the same morbid change in various organs. In fact, few diseases, as I have observed already, are single or simple.

IV. SCIRRHUS.

2631. *The Symptoms* of Scirrhus of the Liver are similar to those of Encephalosis of this organ. The countenance is rather

sallow than pallid, and there is earlier emaciation. The hepatic tumors are usually smaller than those of Encephalosis.

V. TUBERCLES.

2632. Tubercles of the Liver are characterized by no symptoms except those of Tubercles, and of disease of the Liver in general.

VI. HYDATIDS, OR ACEPHALOCYSTS.

2633. This affection may be suspected when there is enlargement of the Liver, unequally developed, perhaps circumscribed, and then perhaps fluctuating. Icterus, ascites, anasarca, may be superadded.¹

2634. Hydatids of the Liver may be expelled through—

1. The Intestinal Canal,
2. The Bronchia ;

or they may escape into

1. The Peritonæum,
2. The Pleura ;

and then there is sudden acute inflammation.

2635. *The Morbid Anatomy* consists of the various distortion and enlargement of the Liver by cysts and hydatids.

2636. [The organic diseases of the Liver, which have been described, are incurable in their nature, so far as we know them, with the exception of the last, hydatids. Both nature and art have sometimes succeeded in getting rid of these bodies, and thus restoring the patient to health. An instance of the last is mentioned by M. Piorry, in his *Procedé Operatoire*. In this case M. Recamier opened a cyst full of hydatids, and the patient recovered. Two instances of natural cures are reported in the ar-

¹ In this and similar cases, a puncture may be made by a minute trocar, in order to ascertain the nature of the contents of the tumor. This manœuvre was recommended, in external tumors, by the late Mr. Hey of Leeds. I believe I was the first to propose it as a diagnostic in effusion into the thorax.

ticle 'Hydatids,' of the London Cyclopædia of Practical Medicine.]

VII. THE FATTY LIVER.

2637. In this case the liver is enlarged, leaves a layer of oily substance on the scalpel, renders paper oily and transparent when warmed, and burns in the flame of a candle when its aqueous particles are evaporated; it sometimes swims upon water. It is unattended by icterus. It occurs principally in *Phthisis*.

III. CIRRHOSIS.

2638. This disease consists of diminution and deformity of the Liver, which is found to be dense, granular, wrinkled, and, as its name imports, of a yellow color. It is uniformly attended by ascites, § 1662; II; but without icterus. [This is not always true. We have seen strongly marked icteric affection of the skin and conjunctiva, attend as a concomitant of dropsy, on disease of the liver, which proved to be well marked cirrhosis.]

II. DISEASES OF THE BILIARY DUCTS.

2639. The only disease of the Biliary Ducts which can be detected during life is

OBSTRUCTION;

and this may arise from a great variety of causes, as

1. Thickening of the Ducts themselves.
2. Calculi; or viscid Bile.
3. Compression by Hepatic Tumors.
4. Compression by a tumor of some adjacent Organs.
5. Inflammation of Duodenum.
6. A loaded state of the Colon.

2640. *The Symptom common to all these cases is Icterus; those peculiar to each have been already detailed, with the exception of*

BILIARY CALCULI.

2641. I. *The History and Symptoms.* Biliary Calculi induce no symptoms, except when they obstruct the hepatic or the cystic ducts; they may long exist in the gall-bladder or cystic duct without [giving trouble. But if they obstruct the duct,] they may induce *sudden paroxysms*, or confirmed suffering, of the kind about to be described.

2642. The paroxysm consists of the most excruciating pain, and perpetual sickness and vomitings; these are frequently *preceded* by *rigor*, and *followed* by *icterus*; the bowels are constipated, the *æces* pale, and the urine scanty and deep-colored.¹

2643. II. *The Treatment* consists in a free state of the bowels, kept up by the oleum ricini and warm water enemata; opiates for the pain; local bleeding for inflammation, &c. [Emetics have been recommended to hasten the passage of gall-stones through the ducts into the intestine.]

2944. The *continued pain* is attended by tenderness, extending from the region of the gall-bladder over the hepatic region, and by *icterus*; and eventually the liver itself becomes affected with inflammation, bilious congestion, and enlargement.

2645. There is a fact, a reference to which is essential to the completion of the diagnosis of diseases of the liver and its appendages; it is that of

Rupture of the Gall-Bladder.

2646. Such cases are mentioned by many authors, and recently by M. Cruveilhier and M. Andral, and such a case lately occurred in the practice of my friend Mr. Cox.

2647. *The Symptoms* are those of the most sudden and acute *Peritonitis*: excruciating pain and tenderness; sickness; sinking, &c. and, in a word, the symptoms observed in the perforation of the stomach or intestine, § 2532.

¹ It is extremely important to remark that precisely similar symptoms have originated from a disordered and loaded state of the colon.

III. DISEASES OF THE PANCREAS.

2648. The Pancreas is sometimes found of a redder color, and denser texture, than natural, or affected by suppuration. It may be scirrhus, or compressed by scirrhus. It may contain tubercles or calculous concretions. But *the Symptoms* are unknown, and, to this day, the diseases of the Pancreas are of as little moment in a therapeutical point of view, as they are rare in their occurrence.

2649. [Dr. Bright has given the account of some cases in which malignant disease of the pancreas was attended by a fatty or oily discharge from the bowels. (Med. Chir. Trans. vol. xviii.) A case is given by Mr. Lloyd, in the same volume, where fatty matter was ejected from the stomach, and passed from the bowels; a part of the pancreas being slightly indurated, and its duct obstructed. This volume contains also some remarks of Dr. Elliotson, from which it appears that the same symptom may accompany disease of the liver. In one case the pancreatic duct was filled with white calculi.]

IV. DISEASES OF THE SPLEEN.

2650. The diseases of the Spleen are exceedingly obscure: they may be viewed as only forming a part of a previous disease, as

1. Typhus.
2. Intermittent.
3. Purpura, &c.

or as constituting a primary disease, as

I. INFLAMMATION, inducing

1. Changes in volume, consistency, color;
2. Suppuration.
 1. Diffused.
 2. Abscess.

II. ORGANIC DISEASE.

1. Tubercles.
2. Encephalosis.
3. Cysts.
4. Hydatids, &c.

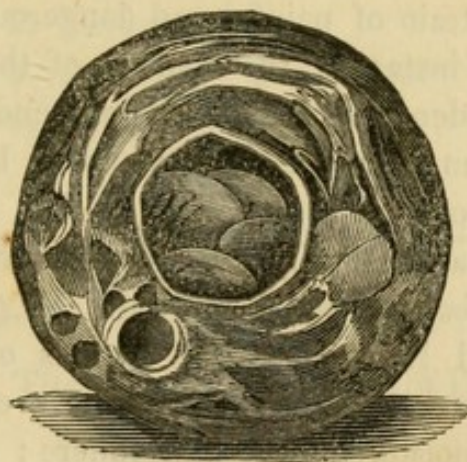
I. INFLAMMATION.

2651. Inflammation of the Spleen is usually attended by obscure pain and scarcely any symptoms. It has been supposed to give origin to phenomena of an *aguish* or *intermittent* character. It is principally to be detected by a careful *examination*: there is sometimes tenderness, sometimes a perceptible tumor; sometimes without tumor, the sound of the posterior and lowest part of the left side of the chest is dull, though the respiration is perfect. The *Treatment* is that of topical inflammation.

II. ORGANIC DISEASE.

2652. Organic Disease of the Spleen is easily detected when there is enlargement, by which alone, indeed, it seems to affect the general system.

2653. I may here insert a sketch of Hydatids taken from Baillie:



CHAPTER VI.

OF THE DISEASES OF THE URINARY ORGANS.

2654. FEW diseases are more frequent, or more practically important, than those of the Urinary Organs, viewed as primary and as secondary ; or as causes, and as effects, of other diseases.

2655. Organic disease of the kidney sometimes leads to the suppression of its secretion, and this to comatose and other diseases ; in other cases, such disease leads to albuminous urine and to dropsy.

2656. Derangement of the stomach equally leads to derangement of the functions of the kidney, and to the deposit of various calculi, and their train of painful and dangerous effects.

2657. In other instances, the function of the kidney becomes deranged, independently of previous derangement of other organs, or of organic change in the kidney itself, but probably from hereditary predisposition, as in Diabetes.

2658. All diseases modify the secretion of the urine, from Fever to those affections which must still be acknowledged, and which are termed Nervous. The periods of digestion ; each kind of diet, of beverage, and even of water ; each change of the temperature and moisture of the atmosphere ; has its effect upon the secretion of the kidney. Bodily exercise and certain mental emotions also have an obvious and immediate influence in diminishing or augmenting the secretion of urine.

2659. It can no longer, therefore, be matter of surprise that nephritic affections are so frequent ; and we have still to add to the list those which affect the bladder, the prostate, and the urethra, and the general mucous lining of the urinary organs.

2660. All these are affections of one system, and one with the general system.

2661. It will be my object, as usual, in this chapter, to disencumber the subject of useless, or almost useless, refinements, and to present to the young practitioner as simple and practical a view of the subject as possible; referring to the incomparable treatises of Dr. Prout and Sir B. Brodie for further information of a minuter kind.

2662. It is interesting to remark the influence,—1, of disease of one part of the urinary organs over the functions, and, ultimately, over the structure of others; 2, of diseases of the spinal marrow over the secretion of the kidney; and 3, of affection of the urinary secretion over the state of the brain. See §§ 1848—1898; p. 486, note, &c.

I. THE DISEASES OF THE KIDNEY AND URETER.

I. THE ORGANIC.

I. INFLAMMATION.

1. Injection.
2. Enlargement.
3. Softening: Induration.
4. Suppuration.

1. Abscess.

2. Purulent Infiltration.

II. GRAVEL AND CALCULUS.

I. The Diathesis and kinds of Deposit and Gravel.

1. The Lithic.
2. The Phosphatic.

II. The different kinds of Calculus.

III. GRANULATED KIDNEY.

Effects:

1. Albuminous Urine.
2. Dropsy; &c.

IV. ORGANIC DISEASES.

1. Cysts.
2. Encephalosis.
3. Tubercles.
4. Hydatids.
5. Matière Colloïde.

II. THE FUNCTIONAL.

I. SUPPRESSION OF URINE.

1. Causes.
2. Effects.

II. DIABETES.

III. MORBID SECRETIONS.

1. Albumen.
2. Excess of Urea.

IV. MORBID ADMIXTURES.

1. Mucus.
2. Pus.
3. Blood.

II. THE DISEASES OF THE BLADDER, PROSTATE, AND URETHRA.

I. OF THE BLADDER.

I. INFLAMMATION.

1. Injection.
2. Ulceration.

II. CALCULUS.

III. NERVOUS AFFECTIONS.

1. Irritability.
 1. Immediate.
 2. Sympathetic.
2. Paralysis.

IV. RETENTION OF URINE.

II. OF THE PROSTATE.

I. INFLAMMATION.

1. Tenderness.
2. Enlargement.
3. Abscess.

II. CALCULUS.

III. OF THE URETHRA.

I. STRICTURE.

Effects.

II. SYMPATHETIC STRICTURE.

I. THE DISEASES OF THE KIDNEY AND URETER.

I. THE ORGANIC.

2663. I. *The History.* The *causes* of Nephritis may be constitutional, as *gout* or *rheumatism* ; seated in the kidney itself, as *calculus* ; external violence, as a fall, a blow, violent riding ; or exposure to wet and cold ; some medicines, as turpentine ; &c. The attack of Nephritis may be acute, insidious or chronic ; a frequent *effect* is the formation of *calculus* ; and, through its medium, *gout* and *calculus* are frequently connected.

2664. II. *The Symptoms* are, local pain and tenderness. These are felt on pressure, or percussion ; or, if the patient makes a quick movement, or experiences a shock, as in making a false step in walking.

2665. The examination is best made by placing the patient accurately on the back, and pressing the fingers between the short ribs and the ilium, the thumb being opposed to them upon the corresponding part of the abdomen ; in this manner, the kidney is really between the thumb and the fingers, and can be exam-

ined most distinctly, and sensibility and tumor are readily detected ; if the patient be not in bed, pain and tenderness are frequently detected by *percussion*.

2666. With these symptoms are usually conjoined, fever ; nausea and sickness, retching and vomiting ; colicky pains, constipation ; pain in the loins, extending into the iliac region, in fact, along the ureter ; symptoms of irritation of the bladder or cervix ; various morbid appearances of the urine, as deep color, fœtor, deposits, mucous, puriform, sanguineous admixtures.

2667. [M. Rayer gives the name *Nephritis* to inflammation of the cortical and medullary portions of the kidney. By the term *Pyelitis*, he designates inflammation of the mucous membrane lining the calyces and pelvis. The term *Perinephritis* he applies to inflammation of the tunical and extra renal adipose tissues. These distinctions are considered analogous to those of pneumonia, bronchitis and pleurisy, in the case of the lungs, and like those, two or more of them may coexist.]

2668. III. *The Organic Changes* in inflammation of the kidney are—

1. Injection ;
2. Enlargement ;
3. Softening, or Induration ;
4. Suppuration, assuming the forms of—
 1. Abscess,
 2. Infiltration.

2669. *The Symptoms of Abscess* are rigors, fever, and perspiration, in irregular paroxysms, resembling *Intermittent*, or *Hectic*. Mucous or puriform sediments are observed in the urine, which is frequently deep-colored, and of an ammoniacal odor ; and there is great irritation of the bladder and urethra.

2670. Nephritic Abscess may point and burst externally ; or it may penetrate and open into the abdomen, and induce sudden, severe, and fatal peritonitis.

2671. Nephritis, however, confined to one kidney at first, usually invades both in its course.

2672. IV. *The Treatment* consists in *general*, but especially

in *local, blood-letting*, repeated according to the degree and urgency of the symptoms: the mode of blood-letting already recommended, § 805, may be adopted; the result will teach us how to proceed. The *cupping* instrument should not be applied immediately over the kidney; but a little above and below, otherwise the *mechanical* injury does harm; see § 1655. The general or local remedy must be repeated according to its effect on the symptoms of the disease and the condition of the system.

2673. Fomentations and poultices applied over the region of the kidney are extremely useful. Castor oil is the best aperient. The diet should consist of barley-water, or other mucilages. The warmth of bed; perfect quiet and rest, are very essential.

II. CALCULUS.

2674. I. *The History.* Calculus is frequently the *cause*, and as frequently an *effect*, of the disease last noticed; it is the latter especially, when *Gout* or *Rheumatism* is the cause of Nephritis.

2675. But Calculus is apt to be formed in the kidney, in the circumstances of those constitutional derangements which have been denominated the *calculous Diathesis*, of which the principal are—

1. The Lithic.

1. With Yellow, Red, or Lateritious, or Pink Deposites of Lithate of Ammonia.
2. With the formation of Red Gravel, or Crystals of Uric or Lithic Acid.

2. The Phosphatic.

1. With the formation of White Gravel, or Crystals of Phosphate of Magnesia and Ammonia.
2. With the White Sediment of the MIXED Phosphates of Magnesia, and Ammonia, and of Lime.

2676. 1. The *first* of these is associated with high living, dyspepsia and gout; and is denoted by an acid state of the

urine, readily detected by litmus paper, red, lateritious, or pink deposits of lithate of ammonia, and afterwards by the appearance of crystals of uric or lithic acid, or the *red gravel*. This diathesis prevails in childhood, and about the age of forty.

2677. There is a constant disposition to change from the lithic to the phosphatic diathesis; the urine becomes pale; there is a disposition, from slight causes of disorder, to deposit mixed lithic and phosphatic sediments, or an iridescent *pellicle* of triple phosphate forms upon its surface. At length the urine becomes *alkaline*, and crystals of the triple *phosphate of magnesia and ammonia* are formed, constituting the *white gravel*.

2678. Under the influence of these two diatheses, the lithic acid calculus and the triple phosphate calculus are formed. But, besides these, there are two other kinds of diathesis and of calculus to be briefly noticed in this place:—

2679. 1. The crystals of the triple phosphate are apt to be changed for a pulverulent deposit of that phosphate mixed with the phosphate of lime; and the same mixture constitutes the *fusible calculus*. The constitutional and nephritic symptoms are extremely severe; the urine soon putrefies, with the evolution of ammonia. A fall upon the back, an injury done to any part of the urinary organs, may excite this diathesis and its effects; and all the other forms of calculous diathesis tend to pass into this.

2680. 2. The other form of diathesis is that in which the *mulberry calculus*, or that consisting of *oxalate of lime*, is formed.

2681. II. *The Symptoms* of Nephritic Calculus, independent of Inflammation, are excruciating pain in the region of the kidney and along the ureter; incessant nausea, vomiting, and retching; pain and retraction of the testis; pain in the inside of the thigh; dysury; strangury. The urine is high-colored, acid or alkaline, mixed with mucous, puriform, or sanguineous deposition.

2682. The paroxysm is of various severity and duration: gravel or a small calculus may pass, with perfect relief; or there may be the transition from *irritation* into *inflammation*.

2683. III. *The Varieties* of Calculus may be thus enumerated and arranged for practical purposes:—

1. The Lithic or Uric Acid ; or the Light-Brown.
2. The Triple Phosphate of Magnesia and Ammonia ; or the White.
3. The Mixed Phosphates of Magnesia and Ammonia, and of Lime ; or the Fusible.
4. The Oxalate of Lime ; or the Mulberry.
5. The Alternating.

2684. The last of these is the most interesting, in a pathological point of view : the *nucleus* in such calculi is most frequently lithic acid, rarely the phosphates ; these, on the contrary, generally form upon some nucleus, and are seldom covered by other depositions. Indeed, Dr. Prout has deduced, from his accurate observations, the following *Law*, upon this subject : “ that a decided deposition of the mixed phosphates is not followed by other depositions. The *tendency*, in the *diathesis*, in deposits of gravel, and calculous depositions, is always *from* the lithic to the phosphatic.

2685. IV. *The Treatment* depends upon the *Diathesis* :

2686. 1. The *lithic acid* diathesis, §§ 2675, 2676, requires mild *ant-acid* remedies ; potass, soda, and magnesia have been used principally ; potass is to be preferred to soda, because its combinations with the lithic or uric acid are more *soluble* than those of soda ; ten grains of the *carbonate* may be taken three or four times a day, until the deposits or symptoms disappear ; the diet, see § 2676, should be of the mildest kind, and in moderate quantity.

2687. 2. The *Phosphatic* diathesis, § 2677, requires an opposite mode of treatment : mild acids, as very dilute muriatic acid ; acidulous vegetables, as apples, oranges ; a vegetable diet, are to be prescribed ; watching the effect upon the urine and symptoms.

2688. [Dr. Willis mentions three instances in which patients affected with calculi, and in each instance with a different diathesis, were completely cured by means of solvent injections into the bladder, combined in one instance with only alkaline remedies, administered by the mouth.]

III. GRANULATED KIDNEY.

2689. I think it important to refer, once more, in this place, to the important researches and discoveries of Dr. Bright on this disease and its consequences : viz.—

1. Albuminous Urine.
2. Dropsy, &c. See § 1644.

2690. [The existence of this important disease was first announced by Dr. Bright in the year 1827, and its history has been further elucidated by Drs. Christison, Gregory, and Osborne, in England, and by Messrs. Rayer, Martin Solon, Sabatier, and others in France. It has received a variety of names from different writers, although it had none given to it by Dr. Bright. Dr. Christison styles it *granular degeneration of the kidneys*; M. Rayer *albuminous nephritis*, while M. Solon terms the primary disease *albuminuria*. Although it escaped the notice of pathologists until a comparatively late period, yet it is now admitted to be of very frequent occurrence, so as to occupy a prominent position in the catalogue of human ills.

2691. When this disease was first described, it was held to be merely subsidiary to dropsy, but it now appears that dropsy is no more than one of its symptoms, or rather one of its secondary affections. The pathological relations of this disease are very numerous, and, according to Dr. Christison, there is no “chronic disease of the viscera, except pulmonary consumption, which presents features of more importance, either in itself, or on account of its intricate connection with a host of common disorders.”

2692. “This disease, in its nature, is essentially chronic; the morbid deposit appears to be thrown out gradually and slowly. It is attended by irritation of the kidneys of that kind which is characterized by the excretion of blood, or of its albuminous portion. It tends to diminish or suppress the excretion of the solids of the urine, in the early stage, by causing functional disturbance, and in the advanced stage, by inducing derangement of organic structure. It tends singularly to impoverish the blood, by depriving it of a large proportion of its coloring matter.

2693. "Ultimately its intrinsic result is to overwhelm the functions of the brain, probably in consequence of the blood, the proper stimulant of that organ, being on the one hand poisoned by the accumulation of urea, and deprived, on the other hand, of its coloring matter. It also engenders in the constitution a certain infirmity or susceptibility, which, while indicated in some measure by a proneness to diseases at large, is more peculiarly characterized by a liability to serous effusions, as well as inflammation of the serous membranes and internal viscera."

2694. The symptoms, anatomical character and treatment of this disease have already been described under the head of *nephritic dropsy*, § 1644.]

IV. ORGANIC DISEASE.

2695. The principal organic diseases of the kidney are—

1. Encephalosis.
2. Scirrhus.
3. The Matière Colloïde.
4. Cysts.
5. Hydatids.

2696. *The Symptoms* consist in some degree of tenderness; in tumor; in various *irritative* effects upon the bladder and the act of micturition; and in deranged appearances of the urine.

II. THE FUNCTIONAL DISEASES.

I. SUPPRESSION OF URINE.

2697. I. *The History* involves that of some antecedent disease, of which this is, in truth, but a *symptom*, yet so serious and fatal a symptom, as to deserve peculiar attention. That disease is inflammation, or calculus, with their effects; and perhaps any form of organic disease of the kidney.

2698. II. *The Symptoms*. The suppression may be partial or complete; its existence, its degree, and its distinction from *retention*, are determined, at once, by the *catheter*.

2699. From whatever cause it may arise, suppression of urine, if continued, speedily induces serious symptoms. There are fever, thirst, a taste of urine in the mouth, and the smell of urine in the perspiration; to these, nausea, vomiting, sometimes of matters having a urinous odor, and hiccup succeed; and to these dyspnœa, delirium, and eventually coma, and convulsions. See § 1896.

2700. Having ascertained the existence of suppression, the next point in the *diagnosis*, that which directs the mode of treatment, is the identification of the original disease. This is to be done upon the principles detailed in the former part of this chapter.

2701. III. *The Morbid Anatomy* consists in those morbid changes which constitute the *causes* of this affection, and its *effects*, especially congestion, or effusion into the ventricles of the brain.

2702. IV. *The Treatment* is that of the original disease, and of the threatening affection of the head: local blood-letting, at the temples, and over the kidney, is the chief remedy; diuretics; aperients; mercury; are important auxiliaries.

2703. [Dr. Willis¹ mentions two forms of this affection belonging to children and to people in the decline of life; the *urodialysis neonatorum*, and *urodialysis senum* of Schönlein. The symptoms of the first are the deep reddish color of the urine, which is voided in very small quantities, and with great pain; a febrile state of the system, with cutaneous eruptions, sometimes pustular, and followed by troublesome sores. The second affection, the *urodialysis senum*, is similar in character.]

II. DIABETES.

2704. I. *The History*. This disease seems to be hereditary. Its accession is highly insidious, the first symptom which excites attention being the augmented secretion of urine.

2705. II. *The Symptoms*. The pathognomonic symptom of Diabetes, is a saccharine state of the urine: the urine itself has a peculiar sweetish taste and smell; and, if dropped and dried

¹ Urinary Diseases and their Treatment. London, 1838. Chap. ii.

upon linen or paper, it is glutinous and adheres to the fingers. There is urgent thirst, and the appetite for food is excessive; [the quantity is generally, though not always, much increased,] the mouth is clammy or parched, the tongue clean; the skin is harsh and dry, and without perspiration; the bowels constipated. There are pain and weakness across the loins; frequent micturition; diuresis; irritation of the orifice of the urethra; anaphrodisia. There are debility and emaciation; œdema, &c.

2706. *The Complications.* If these symptoms be not checked there succeed—

1. Hectic;
2. Phthisis;
3. Dropsy;
4. Apoplexy.

2707. IV. *The Morbid Anatomy* is still very imperfectly known.

2708. V. *The Treatment* of Diabetes is very imperfectly known: repeated small blood-lettings; a strictly animal diet; opium; the bi-chloride (oxy-muriate) of mercury; have been recommended. *Local* blood-letting deserves a fair trial.

III. MORBID SECRETIONS.

2709. Dr. Prout describes the albuminous character of the urine as being of two kinds: the *chylous* and the *serous*; the former being far more frequent than the latter; but the *mixed* most frequent of all.

2710. 1. In the *Chylous* variety, the albumen is greater after meals. There is frequent micturition, and increased secretion or *diuresis*. There are craving for food, and other of the symptoms of Diabetes.

2711. 2. The *Serous* variety of this affection seems to be connected with augmented action in the system: the urine is not only albuminous, but occasionally mingled with blood itself; it is, in such cases, frequently associated with dropsy, and apt to terminate in apoplexy. See § 1630.

Excess of Urea.

2712. From the discovery of this form of disease, we are indebted to Dr. Prout. There is *diuresis*, and the case has been termed *diabetes insipidus*. The urine is generally pale and without sediment, and is only characterized by the deposit of crystals of urea on the addition of nitric acid.

2713. There is a constant desire to void urine, both by night and day; there is sometimes dull pain in the back; at others, occasional irritation at the neck of the bladder and along the urethra. There is no affection of the skin, or pulse, no thirst, or inordinate appetite or constipation. This affection seems, according to Dr. Prout, to be allied to those in which the urine is albuminous, or saccharine, or deposits the phosphates.

2714. [Languid feelings, loss of strength, emaciation are mentioned by Dr. Willis,¹ as the symptoms of this affection, which requires general and local bleeding and attention to the general health.]

2715. [*Anaztouria* is the term applied by this writer to a state in which there is deficiency of urea. The urine is limpid, pale, abundant, of faint odor, and becomes covered with a thin pellicle of the ammoniaco-magnesian phosphate. The symptoms are thirst, gnawing sensations at the pit of the stomach, white furred tongue, constipation, parched state of the skin, emaciation, loss of strength, and depression of spirits. The treatment is directed to the state of the stomach, bowels and skin, to the excited state of the kidney, and to the general health.]

IV. MORBID ADMIXTURES.

2716. The Morbid admixtures with the urine are—

1. Mucus,
2. Pus, or
3. Blood.

¹ Urinary Diseases and their Treatment, c. i, s. 3.

They must be regarded merely as *Symptoms*, and denote inflammation, or irritation, of the—

1. Kidney,
2. Bladder, or
3. Prostate.

2717. The *source* of these admixtures with the urine is determined by the other *symptoms* in the first two cases, and by a careful *examination* in the third. If the symptoms be principally *nephritic*, § 2664, and the blood be diffused through the urine, the kidney is the probable seat of the morbid secretion or effusion ; if *vesical*, § 2721, with the discharge of blood only partially mixed with the urine, and towards the end of micturition, the bladder is probably that source.

2718. But, besides these cases, *Hæmaturia* occurs in some other circumstances : it is frequent, for instance, in—

1. Typhus,
2. Purpura,
3. Scorbutus.

2719. In one case, the patient discharged large quantities of dark-colored blood, perfectly mingled with the urine, on every exposure to cold ; the flow was as certainly arrested by the genial influence of warmth.

II. DISEASES OF THE BLADDER, PROSTATE AND URETHRA.

I. OF THE BLADDER.

I. INFLAMMATION.

2720. I. Acute Inflammation of the Bladder is rare. The repulsion of gonorrhœa sometimes induces this disease, as, in other instances, it excites inflammation of the prostate or of the testis. Chronic Inflammation of the Bladder may arise from—

1. Stricture of the Urethra.
2. Disease of the Prostate.

2721. II. *The Symptoms* are a frequent desire to void urine, even when the bladder is empty, or strangury ; and pain in the

region of the bladder, especially on or after micturition. There is fever, with a frequent pulse, and a furred tongue. The urine deposits a mucous sediment, suggesting the designation *catarrhus vesicæ*; it adheres to the vessel, and is alkaline.

2722. III. *The Morbid Anatomy* consists in redness and dark-color, and thickening of the mucous membrane, sometimes extending along the ureters and to the pelves of the kidneys, which are apt to be dilated, and to the substance of these organs, which are then enlarged, and perhaps become the seat of abscess or other disease. The internal membrane of the bladder is sometimes ulcerated. The bladder is sometimes perforated like the stomach, and the urine flows into the cavity of the peritonæum, or through a fistula into the rectum, or by an external opening.

2723. IV. *The Treatment*. In the *acute* form of this disease, local blood-letting, fomentations and cataplasms, and a diet and beverage restrained to linseed tea; the warmth and quiet of bed; the pulvis antimonialis; the oleum ricini; and warm-water enemata; are the principal remedies. In the *chronic* form, the uva ursi, the pareira brava, the buchu, have been added with advantage.

II. CALCULUS.

2724. I. *The History*. Vesical Calculi may be viewed in two points of light: that of—

1. The Nucleus.
2. The Exterior Portion.

The most common *nucleus* is a nephritic calculus, which has passed through the ureter. But any foreign substance introduced into the bladder may become the nucleus of calculus: thus a hazel-nut, or a portion of a bougie, has formed the centre of calculous deposition. The exterior portion is most frequently the triple phosphate, or the mixed phosphates. The phosphates are frequently deposited by the influence of the alkaline mucus of the bladder, when this is very abundant, mingling with the urine.

2725. II. *The Symptoms* vary in intensity exceedingly, according to—

1. The Size and Surface of the Calculus ;
2. The Condition of the Bladder ;
3. The Condition of the Urine.

It is obvious, that a small, smooth calculus must induce less uneasiness than one that is rough and large ; the same calculus will induce very different effects upon a healthy and upon an inflamed vesical surface : acid, and especially alkaline urine, adds another source of irritation to that of the calculus itself.

2726. 1. In the *milder* forms of this disease, there is a slightly increased desire to pass water, and this act is followed by slight irritation of the cervix or along the urethra ; the flow of urine is sometimes suddenly stopped, the calculus closing the orifice of the urethra ; the urine is apt to be bloody after riding, or other shaking exercise.

2727. 2. In the *severe* forms of calculus, the calls to make water become sudden, frequent, urgent, and irresistible, and liable to be induced by any change of position. There is a characteristic sympathetic pain, on voiding urine, at the termination of the urethra and glans penis. There is pain in the region of the bladder, in the groins, &c.

2728. The symptoms are aggravated still further, as the calculus enlarges, as the bladder inflames, and as the urine becomes alkaline. The desire to make water becomes urgent and incessant ; the pains are extremely augmented, and the urine becomes ammoniacal, mucous, and sanguineous. There is sometimes spasmodic stricture of the urethra.

2729. These symptoms, and indeed any one or more of them, will lead to the use of the *sound*, by which alone the existence of calculus is rendered *certain*, and its *size* and *character*, are, in some degree, ascertained : if the calculus be of recent formation, and the urine acid, we have further reason to conclude that it consists of lithic acid ; if, on the contrary, the symptoms have existed long and are severe, and the urine is alkaline, we may conclude that the phosphates have begun to be deposited.

2730. III. *The Morbid Anatomy* of Calculus relates principally to—

1. The Bladder itself ;
2. The Kidney ;
3. The Prostate.

2731. 1. There are the usual appearances of inflammation in the mucous membrane of the bladder.

2732. 2. The pelvis of the kidney and the ureter are frequently augmented in size, and the kidney itself suffers variously from inflammation and other morbid changes.

2733. 3. The prostate is sometimes enlarged ; in a few cases it has become ulcerated, and then the sufferings of the patient are extreme.

2734. IV. *The Treatment* in these cases comprises that of Calculus, § 2686, 2687, and that of Inflammation, § 2723, combined ; in addition to which, opiates and opiate enemata must be administered for *pain*, with warmth, rest, and quiet.

III. NERVOUS AFFECTIONS.

1. *Irritability.*

2735. In some cases there is an irritability of the bladder which is entirely *mental* : the attention is directed to this organ, and the necessity for emptying it, however imaginary, becomes imperative ; it is repeated ; it becomes constant. The patient cannot travel, cannot visit, on account of this mental irritability in regard to the bladder.

2736. In other instances, the urine becomes acid, or alkaline ; the bladder is unusually stimulated, and becomes irritable.

2737. Irritability of the bladder occurs in nervous patients, and in old persons, without disease.

2738. Irritability of the bladder is not unfrequently a *sympathetic* affection in—

1. Disease of the Kidney.
2. Gonorrhea.
3. Paralysis.

2739. Paralysis of the bladder occurs from disease or injury of the brain and spinal marrow ; in typhus ; in the sinking state ; in old age. It leads to—

IV. RETENTION OF URINE.

2740. When Retention occurs from paralysis, it is very frequently accompanied by incontinence of urine, the cervix as well as the body of the bladder being affected. The region of the bladder should be carefully examined, and [if there is tumor or dulness on percussion] the *catheter* should be passed. Retention may also arise from—

1. Stricture.
2. Disease of the Prostate, &c.

II. DISEASES OF THE PROSTATE.

I. INFLAMMATION.

1. Acute.
 1. Swelling.
 2. Abscess.
2. Chronic.

2741. I. *The History.* In the *young*, the prostate is sometimes the seat of Acute Inflammation, with or without the repulsion of gonorrhœa. In the *old*, the gland becomes the seat of Chronic Inflammation.

1. *The Acute.*

2742. II. *The Symptoms* of the *Acute* Inflammation of the Prostate, are pain and uneasiness, and a sense of fulness at the cervix vesicæ, in the perinæum, and in the rectum; frequent desire to void the bladder, with more or less of obstruction, strangury, and tenesmus. There is distinct tenderness on pressure by the finger introduced into the rectum, with some enlargement; the bougie determines the absence of stricture.

2743. If *Abscess* forms, these symptoms continue; the tenderness and swelling increase, and at length the abscess opens externally, into the urethra, &c. Meantime the dysury increases, with perpetual calls to make water, and there are rigors, fever, quickened pulse, hot skin, furred tongue, &c. With this affection there is frequently extensive

Disorganization of the Kidneys.

2. *The Chronic.*

2744. III. *The Symptoms* in Chronic Enlargement of the Prostate are, irritability of the bladder, and some obstruction to the passage of the urine through the urethra. There are frequent calls to void urine, and some difficulty in doing so, and it perhaps dribbles away, especially during sleep, and is, at best, but imperfectly expelled. From various causes, the symptoms may be aggravated, and the difficulty of passing urine becomes extreme, or there is complete *retention*. In extreme cases, the vesical mucous membrane may slough; the powers of life fail, the tongue becomes dry and black, and there is complete and fatal coma.

2745. V. The following *Complications* of this disease are apt to take place:—

1. Abscess or Ulceration of the Prostate.
2. Inflammation of the Bladder.
3. The Formation of Vesical, or Prostatic, Calculi.
4. Disease of the Kidney.

These affections seem to be sometimes continuous from, at others, excited by, the disease of the prostate. The urine may be augmented or diminished in quantity, *suppressed* or *retained*,¹ with the usual formidable or fatal symptoms, §2698. The bladder is very often marked by hypertrophy of the muscular fibres.

2746. IV. *The Treatment* consists in local blood-letting, opiate and warm-water enemata, &c. It is, indeed, nearly the same as that for Cystitis, or Calculus.

II. CALCULI.

2747. Calculi of the Prostate produce similar symptoms. They are sometimes detected on examination with the finger or sound; sometimes fragments are discharged, and they are identified by their chemical composition, which consists principally of *phosphate of lime*, with animal matter.

¹ Sir B. Brodie has treated this subject in the fullest and most able manner, in his Lectures on the Urinary Organs; Lecture V.

III. DISEASES OF THE URETHRA.

I. STRICTURE.

2748. Stricture may be suspected, whenever there is difficulty in passing the urine, and this flows in a diminished, flattened, spiral, or split stream ; it is ascertained, with its situation and extent, by means of the *bougie*, &c.

2749. The principal *Effects* of Stricture are—

1. Irritability of the Bladder.
2. Retention of Urine.
3. Abscess in Perinæo.
4. Dilatation of the Urethra.
5. Disease of the Prostate.
6. Inflammation of the Bladder.
7. Hypertrophy of the Muscular Coat of the Bladder.
8. Disease of the Kidneys.
9. Disease of the Testis.

II. SPASMODIC STRICTURE.

2750. This affection may take place from exposure to cold, excess in wine, &c. There is difficulty or inability of micturition. This comes on suddenly, and sometimes goes off under the influence of sudorific and anodyne remedies. By repeated returns, it may lead to permanent stricture.

CHAPTER VII.

OF THE DISEASES OF THE UTERINE ORGANS.

2751. As the kidney, the bladder, the prostate, form a series or system of organs, the diseases of which mutually induce or aggravate each other; so do, in an especial manner, the uterus, the ovarium, the mammæ, &c. It is still an important inquiry how far remedies applied to one part of the series may relieve disordered actions in another. And the bond of connection which binds these several organs amongst each other, and with the whole system, still affords a subject of deep interest for renewed inquiry. There is no question that the head is frequently affected by the condition of the uterine system. This is seen in nymphomania. On the other hand, phthisis disposes to conception, and this frequently checks the progress of phthisis. And cancer occurs simultaneously in the mamma and in the uterus. These connections are still more readily traced in the physiology of the uterine system.

2752. I shall take this opportunity of relating a characteristic anecdote of the late Dr. Gregory, for which I am indebted to Dr. Paterson. Dr. Gregory was consulted, in the town of Ayr, in the case of a lady who had repeatedly miscarried, with dreadful hæmorrhage, in spite of every remedial means which could be devised by the first medical authorities in Scotland. Dr. Gregory saw the patient on one of these occasions; he prescribed for the hæmorrhage, and, when this had been arrested, and the patient had sufficiently recovered, he examined the state of the mammæ, found them distended with milk, and directed a lusty infant to be applied, and nursed for nine months. The course of the

uterine blood was directed into another channel. The lady became pregnant, the mother of a living child, and ultimately of a numerous family, her labors being unattended by hæmorrhage.

2753. This fact itself is full of interest, and perhaps of more extensive application than may appear at first sight. May not the disposition to uterine hæmorrhage, in other instances, be prevented by attention to the due adjustment of the mode and period of lactation?

2754. I have throughout these sketches called the attention to one important principle—that the diseases are not simple—not the affections of single organs—but of *systems*; and I again take the liberty of repeating this remark in connection with the diseases of the uterine organs.

I. THE DISEASES OF THE UTERUS.

I. THE ORGANIC.

I. INFLAMMATION.

1. Peritonæal.
2. Parenchymatous.
 1. Injection.
 2. Softening.
 3. Induration.
 4. Enlargement.
 5. Suppuration.
 1. Abscess.
 2. Infiltration of Pus.
 3. In the Uterine Cavity.
3. Of the Mucous Membrane.
 1. Amenorrhœa.
 2. Dysmenorrhœa.
 3. Formation of a False Membrane.
 4. Obliteration of the Uterine Orifices.
 5. Leucorrhœa.
4. Of the Cervix Uteri.

II. THE IRRITABLE UTERUS.

III. FIBROUS TUMORS.

1. Under the Peritonæum.
2. In the Substance of the Uterus.
3. Under the Mucous Membranes.

IV. CYSTS OR ENCYSTED TUMORS.

V. SCIRRHUS—CANCER.

1. In the Cervix Uteri.
2. Involving the Cervix Uteri, and the Rectum, or the Bladder.

VI. CORRODING ULCER.

1. Of the Cervix Uteri.
2. Involving the Cervix and the Rectum, or the Bladder.

VII. ENCEPHALOSIS—CAULIFLOWER EXCRESCENCE.

VIII. POLYPUS.

IX. INVERSION.

X. PROLAPSUS.

XI. ELONGATED CERVIX.

XII. ANTEVERSION.

XIII. RETROVERSION.

XIV. HYDATIDS, ETC. distinguished from PREGNANCY and its Complications.

II. THE FUNCTIONAL.

I. AMENORRHŒA.

II. DYSMENORRHŒA.

III. MENORRHAGIA.

IV. LEUCORRHŒA.

III. DISEASES OF THE OVARIA.

I. INFLAMMATION.

1. Injection.
2. Suppuration.

II. CYSTS OR ENCYSTED TUMOR, distinguished from ASCITES.

III. FIBROUS AND OTHER TUMORS.

IV. ENCEPHALOSIS.

IV. THE DISEASES OF THE MAMMA.

I. INFLAMMATION.

1. Tenderness and Tumor.

2. Abscess.

1. Several.

2. Deep-seated.

3. Lacteal.

4. Chronic.

II. TUBERCULOUS SWELLING.

III. THE IRRITABLE MAMMA.

1. With Tumor.

2. With Ecchymosis.

IV. CHRONIC MAMMARY TUMOR.

V. ENCYSTED, HYDATID, AND OTHER TUMORS.

VI. ENCEPHALOSIS.

VII. SCIRRHUS—CARCINOMA.

1. Of the Mammary Gland.

2. Of the Nipple.

3. Of the Skin.

4. Of the adjacent Lymphatic Glands.

5. Ulceration ; Cancer.

I. DISEASES OF THE UTERUS.

I. ORGANIC DISEASES.

I. INFLAMMATION.

1. *Peritonæal*.

2755. Inflammation of the Peritonæal Coat of the Uterus is denoted by pain, and tenderness on pressure, and, if it be confined to this texture, by the absence of other symptoms.

2. *Parenchymatous.*

2756. I. *The History.* Inflammation of the Parenchymatous Substance of the Uterus is very apt to be overlooked : it is sometimes induced by the sudden repression of the catamenia, from exposure to fatigue, wet or cold ; by marriage, &c.

2757. II. *The Symptoms* are pain and tenderness in the region of the uterus, aggravated by pressure, and in paroxysms, and at each return of the catamenial period. There are a sense of fulness,—bearing down ; *strangury* or frequent calls to pass water ; some degree of *tenesmus*, or uneasy feeling about the rectum. There is pain in the back and round the ilium, augmented by coughing, straining, or walking. Great relief is afforded by quiet, and the horizontal position.

2758. III. *The Morbid Anatomy.* Besides these forms of Inflammation of the Uterus, this organ, in acute cases, undergoes a change of texture which leads to—

Softening ;

in more chronic cases, there is—

Induration ;

and, in other instances, there is—

Suppuration.

The pus may exist in—

1. A distinct Abscess ;
2. The state of Infiltration.
3. The Cavity of the Uterus ;
4. The Adjacent Veins ;

and may escape—

1. Per Verginam ;
2. Per Rectum.
3. Into the Abdomen ; &c.

3. *Of the Mucous Membrane.*

2759. Inflammation of the Mucous Membrane of the Uterus assumes several forms, which are respectively denoted by—

1. Amenorrhœa ;
2. Dysmenorrhœa ;
3. The Formation and Expulsion of a False Membrane ;
4. Obliteration of the Uterine Orifices ;
5. Leucorrhœa.

2760. 1. There seems to be no doubt that Amenorrhœa, which is a *symptom* in Chlorosis, Tubercle, and so many other diseases, may arise from Uterine Inflammation. The history and other symptoms establish the diagnosis.

2761. 2. Dysmenorrhœa is also, I am persuaded, a frequent effect of Inflammation of the Mucous Membrane of the Uterus.

2762. 3. The False Membrane, sometimes periodically formed and expelled by the Uterus, can only be compared to that observed in Croup, and in some cases of Enteritis.

2763. 4. Obliteration of the Uterine Orifices may result from Inflammation, and prove the source of sterility.

2764. 5. Lastly, one form of Leucorrhœa seems also to have its origin in Inflammation of the Mucous Membrane of the Uterus.

2765. IV. *The Treatment* consists in *local blood-letting*, cupping over the sacrum, and leeches to the pudenda or os uteri ; warm-water, and opiate, enemata ; mercury ; the mildest nutritious diet, the mildest aperients ; the most perfect rest in the recumbent posture ; warmth, with the most assiduous care to avoid excitement and exposure to cold draughts, &c. It is astonishing what perseverance in these measures will effect.

4. *Inflammation of the Cervix Uteri.*

2766. I. *The History.* This affection is induced by the same cases as Inflammation of the Uterus itself.

2767. II. *The Symptoms* consist in an exudation of *white mucous* from the cervix uteri, and tenderness *on examination* per vaginam, without tumefaction, or ulceration. The catamenia may be unaffected ; or there may be dysmenorrhœa ; or conception may be prevented. The act of passing indurated fæces, the

shaking of riding, give pain. There may be some degree of irritation about the rectum, but more especially about the bladder, and there is frequently pruritus of the pudenda.

II. THE IRRITABLE UTERUS.

2768. I. *The History.* Dr. Gooch has described an interesting case of Uterine affection under this designation, neither inflammatory in its nature, nor tending to disorganization in its course.¹ It seems to arise from causes similar to those enumerated § 2756. It is very apt to be of a *protracted* character.

2769. II. *The Symptoms* consist in pain in the region of the uterus, aggravated by every movement of the body, and relieved by quiet and the recumbent position; and in exquisite tenderness of the os uteri. There is irritability of the general system.

2770. III. *Effects of Remedies.* There is great intolerance of loss of blood.

2771. IV. *The Morbid Anatomy.* This affection does not tend to disorganization. The os uteri is only slightly swollen.

2772. Attention to the general health, with rest, quiet, and opiates, constitutes the *Treatment* in this disease. Leeches applied to the os uteri afford great relief.

III. FIBROUS TUMORS.

2773. I. *The History.* The Fibrous Tumor is generally slow in its progress, and unattended by constitutional symptoms.

2774. II. *The Symptoms* are very obscure; but this disease is a frequent cause of *menorrhagia*,² even when long continued, a fact important to be generally known. In the progress of the disease, the tumors become detectible on external examination, or on examination per vaginam and per rectum.

¹ This affection may be compared to the *Irritable Breast*, the *Hysteric Affection of the Joints*, &c.

² In one case, there was profuse menorrhagia during twelve years of unfruitful marriage; the patient then became pregnant; the tumors were distinctly felt in the parietes of the distended uterus; parturition was accomplished well; but the fibrous tumors became inflamed and suppurated; and this led to a fatal puerperal disease.

2775. III. *The Morbid Anatomy.* A fibrous texture sometimes occupies a great part of the uterus ; the fibrous tumor may occur—

1. Immediately under the Peritonæum ;
2. In the Substance of the Uterus ;
3. Under the Mucous Membrane.

IV. CYSTS OR ENCYSTED TUMORS.

2776. This disease can only be ascertained when, by its size, it compresses some adjacent organ, as *the intestine*, or *the bladder*, and so leads to a careful examination of the hypogastric region and per vaginam. It is unattended by constitutional symptoms. It is occasionally attended by a sense of *fluctuation*.

V. SCIRRHUS ; CARCINOMA.

2777. I. *The History.* This terrible disease usually occurs after thirty or forty. It is extremely insidious.

2778. II. *The Symptoms* are *lancinating* pain, and local pains extending round the ilia and to the back, and even the loins ; strangury ; a sanguineous discharge ; perhaps repeated abortion ; and some obvious inroads made upon the general health,—especially the complexion, the strength, the flesh, &c. See § 735. Such circumstances should invariably lead to a careful examination *per vaginam*.

2779. All the symptoms become aggravated daily ; the discharge becomes sanious, sanguineous, fœtid ; the pains severer ; the complexion paler, yellower ; the loss of flesh and loss of strength greater ; and a disposition to anasarca, and pains like those of rheumatism, supervene.

2780. On examination, the os uteri is found swollen, hard, irregular in form, open and circular ; afterwards, it is jagged from ulceration. The real state of things is, however, only to be correctly known by means of *the speculum*.

2781. The *contiguous parts* are gradually involved in the disease, and a communication may be formed with *the rectum* or *the bladder*.

2782. *The Treatment* of this disease consists in quieting inflammatory action, and in lulling pains ; local blood-letting, but especially opiates, with a regulated diet, a regulated state of the bowels, &c.

VI. THE CORRODING ULCER¹ OF THE CERVIX UTERI.

2783. This disease occurs unaccompanied by tumor, hardness, or other appearances of scirrhus. There is a sensation of heat or burning. The catamenia yield to a yellow, or sanguineous sanies. There is none of the lancinating pain observed in scirrhus. There are great pallor, debility, emaciation. The state of disease of the cervix is accurately ascertained only by the finger and the speculum *conjointly*.

2784. Like scirrhus and carcinoma, the corroding ulcer sometimes penetrates into the rectum, or the bladder, affording an exit to fæces, or urine, through the vagina.

VII. ENCEPHALOSIS—CAULIFLOWER EXCRESCENCE.

2785. This disease may affect the *body* or the *cervix* of the uterus. In the former case, it occasions a tumor, perceptible in the hypogastric region, which is rather rapid in its progress, and not unattended by constitutional symptoms. In the latter case, it probably constitutes the disease which has been designated

The Cauliflower Excrescence.

2786. I. This affection was first noticed by the late Dr. Clarke, and is described by Sir C. M. Clarke. It has been recently considered more fully by the late Dr. Gooch, who considers it as fungus hæmatodes, or Encephalosis.

2787. II. The disease is the source of a watery discharge, and of frequent hæmorrhages ; it grows from the cervix uteri by a broad base, has a rough surface, and is insensible : if tied by a ligature, it returns. In one case it was readily removed in portions by the finger, without augmented hæmorrhage. It destroys life by

¹ Sir C. M. Clarke, *Diseases of Females*, vol. i, p. 185. Baillie's *Morbid Anatomy* ; Malignant Ulcer ; Ed. by Mr. Wardrop, vol. ii, p. 323. Andral, *Précis d'Anatomie Pathologique*, t. ii, p. 683 ; &c.

its malignant influence upon the constitution and by the loss of blood. The patient becomes pallid and feeble, and gradually, or suddenly, sinks. The examination with the finger should be aided by that by means of the *speculum*.

VIII. POLYPUS.

2788. The first *Symptom* of Polypus is an alternate discharge of blood and serum only, usually mistaken for *menorrhagia*, or *leucorrhœa*, without local pain.

2789. In *all* such cases, an examination should be made *per vaginam*. In Polypus, a round, smooth, firm, *insensible* tumor is felt. The next object is to ascertain its *attachment*: this is—

1. At the Fundus ;
2. Beyond the Cervix ;
3. Upon the Cervix.

In the *first* case, the finger may be passed round the stalk ; in the *second*, it can be passed half round only ; in the *third*, its origin is distinctly felt.¹

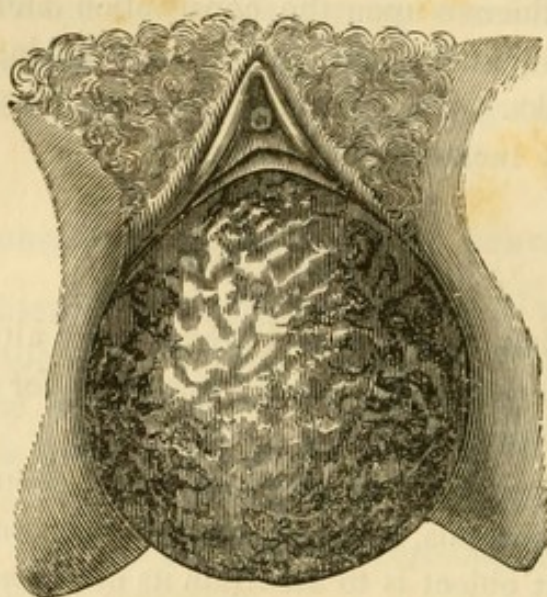
2790. The *Remedy* is a *ligature*.

IX. INVERSIO UTERI.

2791. I. It occurred to Dr. W. Hunter, and it has occurred to others, to apply a ligature to the Inverted Uterus, mistaking it for Polypus. It occurred to Dr. Denman, and it occurred in Bartholomew's Hospital, to include a portion of the uterus in the ligature of a Polypus.

2792. II. Inversion of the Uterus, in its *simple* form, is distinguished by its occurrence immediately after parturition, and by its *sensibility*.

¹ Much of the character and diagnosis of Polypus may be learnt by the use of the speculum—by means of which, the operation for its removal has become of infinitely greater facility and safety than before.—See the translation of the work of M. Dougès and Mme. Boivin, with additions.



2793. III. When complicated with polypus, it is still distinguished by its *sensibility*; and if a ligature should ever give extreme *pain* or induce *vomiting*, it should immediately be removed, on the supposition of its having involved, or at least irritated, the uterus itself.

2794. If it cannot be reduced otherwise, bleeding to syncope should be tried, and reduction attempted during the syncope.

X. PROLAPSUS.

2795. Prolapsus is distinguished by observing that the os uteri occupies its lowest part; by ascertaining that the tumor is *sensible*; and by the fact that it may be returned into its proper situation. [The other symptoms of prolapse of the womb are a sensation of dragging or bearing down, aggravated in an erect posture; leucorrhœa, also mechanical obstruction of the urine when the womb descends so low in the vagina as to compress the urethra. The best treatment consists in rest in a horizontal posture, and when the patient takes exercise, the perinæum should be supported by a strap and firm cushion, connected with a belt round the hips.]

XI. THE ELONGATED CERVIX.

2796. The existence of this form of Uterine Disease, pointed out and figured by Lobstein and M. Cruveilhier, has been particularly noticed by Dr. Heming.

2797. The os uteri is discovered upon the most protuberant part of the tumor, through which a probe may be passed six inches or more into the uterus. The elongated neck of the uterus may be traced with the finger. This form of disease occurs—

1. In Pregnancy ;
2. In hernia of the Bladder ;
3. In Hernia of the Rectum ;
4. In Ascites, &c.

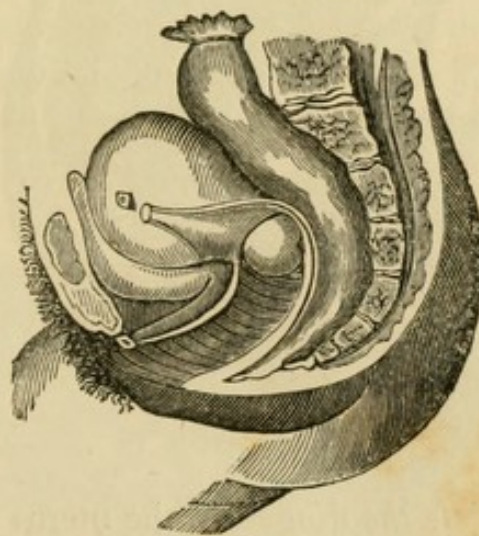
apparently from the influence of mechanical causes.

XII. ANTEVERSION.

2798. I. *The History.* Anteversion of the Uterus arises generally from augmented fulness of the blood-vessels in some forms of Inflammation. Its exciting cause is frequently fatigue, effort, &c.

2799. II. *The Symptoms* consist in obstruction to the evacuation of the bladder and of the rectum.

2800. III. On *examination*, the os uteri is found pressing backwards upon the intestine, the fundus being thrown forwards upon the neck of the bladder.



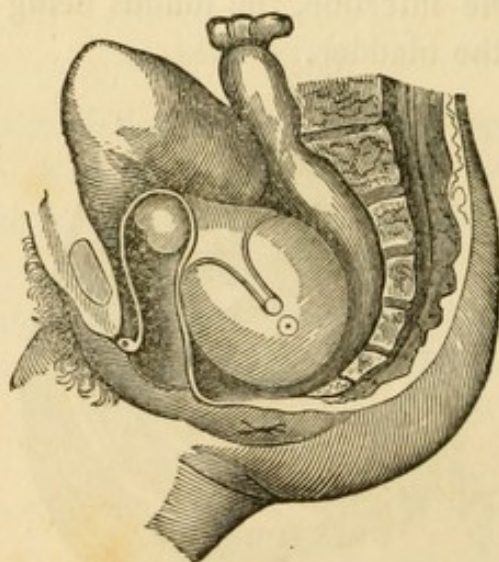
2801. Anteversion of the uterus may exist with far less inconvenience than Retroversion, and has, therefore, been far more frequently overlooked.

XIII. RETROVERSION.

2802. I. *The History.* Retroversion most frequently occurs from the *third* to the *fourth* month of pregnancy. It may also occur from enlargement of the uterus from other causes; as polypus. It is frequently induced by effort, blows on the loins, &c. It is generally sudden in its accession.

2803. II. *The Symptoms* are retention of urine, obstruction of the intestine, pain in the groins and loins, diminished hypogastric tumor; augmented symptoms of retention of the urine and of the fæces, &c.

2804. III. On *examination per vaginam*, the finger, passed upwards anteriorly, can scarcely reach the os uteri; posteriorly its fundus is felt pressing upon the rectum and sacrum. On passing the finger into *the rectum*, the fundus uteri is felt still more distinctly pressing upon the intestine. It is sketched and contrasted with anteversion, § 2804, in the accompanying wood cuts;—



2805. To *complete the diagnosis*, the uterus must be replaced. The *catheter* must be introduced; the rectum must, if possible, be relieved: the fingers are then to be introduced into the vagina or rectum, and the fundus uteri pressed gently upwards. The symptoms then cease.

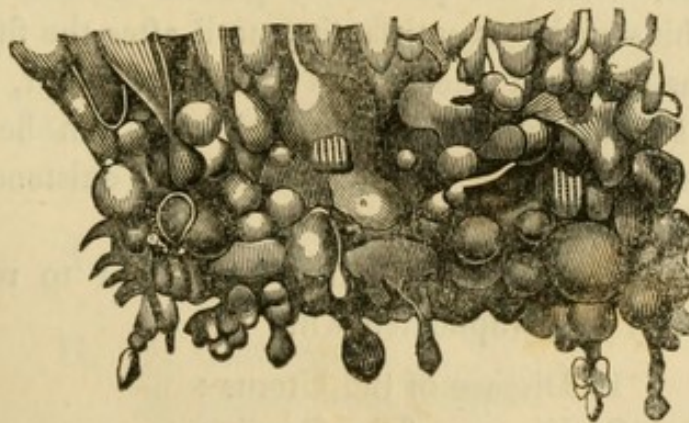
XIV. HYDATIDS, ETC.

2806. The cavity of the uterus is sometimes distended by substances foreign to it in its natural state: these are—

1. Hydatids.
2. Aqueous Fluid.
3. Air.
4. Calculus.
5. A Bony Mass.
6. A Dead Fœtus, &c.
7. Retained Catamenia.

2807. *The Symptoms of Hydatids* may be given, instar omnium. There is a tumor in the region of the uterus, without *tenderness*, and without regularity in its progress. At length, with contractile uterine pain, a portion of the Hydatids, or, in other cases, of fluid, of air, &c. is expelled, and the disease is made manifest. There are, in the mean time, neither the constitutional symptoms of inflammatory, nor those of malignant disease: the pulse, the flesh, &c. are unaffected.

2808. It is chiefly important to notice this disease, in order to institute a comparison between it and pregnancy, the subject to be shortly noticed. It is represented in the following wood cut. [These morbid productions often coincide with pregnancy, and are supposed by some to be merely a diseased ovum.]



XV. PREGNANCY

2809. Is denoted by the suppression of the catamenia, by sympathetic sickness, by gradually increasing tumor, first in the hypogastrium, then of the lower part of the abdomen, by a tumid and harder condition of the mammæ, with the development of the areola and follicles round the nipple, and by the movements of the fœtus.

2810. It is by this *assemblage* of symptoms that pregnancy is ascertained: the sudden suppression of the catamenia; the sudden attacks of morning sickness; the regularly increasing *hypogastric* tumor; the peculiar change in the mamma and areola; can scarcely occur together without pregnancy.

2811. When, in addition to these symptoms, a tumor begins to be felt above the pubes; when the umbilicus, from being concave, becomes convex; when the movements of the fœtus are distinctly felt by the hand applied to the epigastrium; the existence of pregnancy is certain.

2812. When, on examination per vaginam, the cervix uteri becomes less and less distinct, and then obliterated; when the body of the uterus is felt enlarged; when, the patient being in the erect position, the uterus raised quickly by the finger, and fœtus made to float in the liquor amnii, its fall is felt, there is no remaining doubt of pregnancy, even though the other criteria were obscure. The last sign of pregnancy, which has been designated "ballotement" or *repercussion*, is also obvious in the *hypogastrium*, when the patient is placed on the elbows and knees. [This sign is not satisfactory until after the fifth month.]

2813. Lastly, when the beat of the fœtal heart, [known by the double sound,] and the placental rush, can be heard by means of the stethoscope, the evidence of the existence of pregnancy is complete.

2814. *The Complications.* It is important to remark that Pregnancy may be complicated with

1. Disease of the Uterus;
2. Disease of the Ovarium;
3. Pelvic Tumors;

4. Retention of Urine ;
5. Ascites.

It will require the utmost attention to establish the full diagnosis in these complicated affections, since the distinction, when they occur in an isolated form, is not always perfectly easy.

XVI. PELVIC TUMORS, ETC.

2815. Tumors may form in any part of the pelvis, and may complicate Pregnancy, or any of the preceding or subsequent forms of disease: in Pregnancy itself, the fœtus may die and yet be retained for a time: the diagnosis may thus be very obscure; it can, indeed, only be perfectly established by the most careful examination, *per vaginam*, *per rectum*, &c. with the precaution of previously emptying the bladder by the *catheter*, and the rectum by large *enemata*. It would be encumbering this work to *imagine* every possible case of such complications, and to lay down *Rules* for the diagnosis of *each*. Anatomical and pathological knowledge, and *good sense*, must guide us.

II. THE FUNCTIONAL AFFECTIONS.

2816. The cases which I have enumerated as Functional Affections, are rather *symptoms* than real *diseases*, and ought, therefore, to be noticed in that relation. It may not be amiss, however, to state, in this place, under what circumstances they are most apt to occur.

I. AMENORRHŒA.

2817. [Amenorrhœa, or absence of the catamenial discharge,] occurs principally in—

- I. 1. Febrile,
2. Inflammatory, Diseases.
- II. 1. Chlorosis.
2. Tuberculous Disease.
3. Inflammation of the Uterus.

- III. 1. Defective Uterine Development.
2. Pregnancy.
3. Lactation.

2818. Amenorrhœa is also a well-known sudden effect of exposure to damp or cold, or to mental emotions, during the flow of the catamenia, [in which case it is to be treated by purgatives, leeches, pediluvium, and if it becomes chronic, by exercise on horseback and otherwise.]

II. DYSMENORRHŒA.

2819. This affection, [consisting in difficult and painful menstruation,] results principally—

1. From Inflammation of the Uterus.
2. From Scybala retained in the Colon and Rectum.

2820. In the *former* case there is occasionally the formation and expulsion of a layer of lymph, § 2759. The *latter* is a frequent form of this painful malady. It yields to the daily employment of aperients and enemata.

2821. [The first, or inflammatory form, is attended with severe pain in the loins and hips, at the commencement of the catamenial period, accompanied with forcing efforts, like those of labor. The discharge is sparing, and accompanied with coagulated and shred-like substances. Females affected with dysmenorrhœa are commonly, but not always, barren. See § 2829.]

III. MENORRHAGIA.

2822. The profuse flow of the catamenia depends chiefly upon two causes : the irritation of—

1. A Fibrous Tumor of the Uterus.
2. Scybala in the Colon or Rectum.

2823. The recurrence of the flow is frequently induced by fatigue or harass, bodily or mental. [It is restrained by avoidance of its causes, and by mineral acids and chalybeates.]

IV. LEUCORRHŒA.

2824. This morbid affection, [commonly called *whites*, consists in a chronic mucous discharge, mostly of a yellowish-white color, from the vagina. It may be]—

1. Uterine.
2. Vaginal.

2825. The *former* case may depend upon—

1. Uterine Disease.
2. Constitutional Debility, or Exhaustion.

2826. The first is of various kinds, already noticed. The second is frequently induced by fatigue and harass, but by no cause so frequently as *undue lactation*. It may be conjoined, or may follow, or be followed by, sanguineous discharge. It frequently alternates with menorrhagia.

2827. Vaginal Leucorrhœa may arise from—

1. Inflammation.
 2. Inflammation of the Cervix Uteri.
 3. Polypus, &c.
 4. Hæmorrhoids.
 5. Ascarides.
-

2828. These various affections must be treated according to their nature or cause: local blood-letting for inflammatory action, a sustained mercurial course in dysmenorrhœa; the ergot in those forms of menorrhagia or uterine leucorrhœa arising from debility or exhaustion; astringent injections for vaginal leucorrhœa, are the principal remedies.

2829. [Some other remedies are entitled to notice in this place. Among the most remarkable is the mechanical dilatation of the os uteri by means of a probe, or a bougie, recommended by the late Dr. Mackintosh, in cases of amenorrhœa, and more especially, of dysmenorrhœa. Dr. Mackintosh mentions several successful instances of the employment of this remedy in the first

of these affections, and asserts that he has obtained a permanent cure in eighteen cases out of twenty, of dysmenorrhœa, since the year 1826. It is a remedy, however, to which there are some obvious objections.

2830. The hip bath is useful in many cases of suppressed or painful menstruation.

2831. The tincture of cantharides, in doses of thirty drops, three times a day, sometimes combined with injections of the acetate of lead, is spoken of by Dr. Dewees, as of great efficacy in the cure of leucorrhœa. The ammonated tincture of guaiacum is recommended in dysmenorrhœa.]

II. THE DISEASES OF THE OVARIUM.

I. INFLAMMATION.

2832. Inflammation of the Uterine Appendages has been already noticed, § 2536. That of the Ovarium is denoted solely by local pain and tenderness, the general system and the functions of other organs being scarcely influenced by this affection.

II. ENCEPHALOSIS, ETC.

2833. As inflammation of the Ovarium is merely characterized by *local* pain and tenderness, the present and other morbid growths are denoted by *local tumor*, detected by a careful *examination*, and the effect of *compression* on adjacent organs.

III. ENCYSTED TUMOR, ETC.

2834. This case includes—

1. Cysts ;
2. Numerous Cysts ;
3. Hydatids.

2835. It is distinguished by *tumor*, originating in the situation of the Ovarium, on *one side* of the abdomen, gradually enlarging and leading to a tumor with *fluctuation*, of considerable, and even enormous, magnitude.

2836. This affection is distinguished from *Ascites*, by the following signs: 1, it is generally *more tense*, and, when of moderate magnitude, *more protuberant, more defined*; 2, the sound is dull on percussion at the *prominent* part of the abdomen, whereas in *Ascites* it is sonorous at this part, from the floating of the intestines, whilst it is dull nearer the spine; 3, it is less changed by *posture*, whilst in *Ascites* the effusion falls to the lowest part of the abdomen in the erect, and to the anterior or posterior parts, in the prone or recumbent positions.

2837. Ovarian cysts generally arise without any assignable cause; but *Ascites* usually depends upon some preceding organic affection, the diagnosis of which is, in itself, important: the principal of these are—

1. Peritonitis;
2. Disease of the Heart;
3. Disease of the Liver;
4. Disease of the Kidney, &c.;
5. The loss of Blood;
6. Inveterate Chlorosis;
7. The Cachexiæ, &c. &c.

See Chapter VI, p. 594.

III. THE DISEASES OF THE MAMMA.

I. INFLAMMATION.

1. *The Acute.*

2838. I. *The History.* Inflammation of the Mamma may occur from a blow, or similar external causes; but its most frequent source is that change which is wrought for the secretion of milk, after parturition, left unrelieved by the too tardy application of the infant to the breast.

2839. II. *The Symptoms* consist in swelling, tenderness, and pain, sometimes preceded by rigor and attended by fever. These symptoms may subside, or become attended by throbbing and augmented hardness, and tenderness, and eventually by glossy

redness, [softness,] and fluctuation, denoting the occurrence of *suppuration*. The most tender part at length *ulcerates*, unless the pus be allowed to escape through an artificial opening.

2840. III. *The Varieties*. Sometimes there are several successive abscesses, with much suffering, fever, and perspiration. Sometimes an abscess is formed very deeply, burrows, and forms several sinuses, requiring successive punctures by the lancet. In other, rarer cases, pus forms in contact with the ribs, leading to exfoliations of bone.

2841. IV. *The Treatment* consists in the prompt administration of an emetic, or a purge, of local blood-letting by leeches; and of freely relieving the mamma by suction. [If suppuration takes place, poultices, and emollient and anodyne fomentations are required. The abscess should not be prematurely opened.]

2842. [When it is evident that matter is forming, it will be proper to apply emollient poultices. Sir Astley Cooper recommends to leave the abscess to open of itself when it is rapid in its progress, seated on the anterior surface of the mamma, and not attended with much suffering. In the opposite circumstances, and when there is much fever, he recommends an opening to be made at the most superficial part. If there are sinuses, they must be opened. Mercurial and iodine frictions are sometimes used as means of removing the subsequent induration.]

2. *Lacteal Abscess.*

2843. This affection is not preceded by the symptoms of acute abscess; but a sense of tension is experienced, and a fluctuating tumor is felt, extending from the nipple towards the circumference of the Mamma. The tumor is confined to this part. Its tension is augmented by the rush of milk when the infant is put to the breast. The cutaneous veins are large. If a puncture be made, several ounces of milk are discharged; and if this opening be small, the cavity is speedily filled again. Sometimes the skin ulcerates, and an opening is made, through which the milk flows during each act of suckling. This affection resembles *Ranula* in its nature.¹

¹ Sir Astley Cooper on the Diseases of the Mamma, p. 16.

2844. [If the child is to be weaned, it will be sufficient to make a small puncture, otherwise a larger one will be necessary. When the child is weaned, the secretion of milk may be stopped by purgatives, and abstinence from liquids.]

3. *Chronic Abscess.*

2845. Sometimes pus is formed slowly, without previous redness, tenderness, pain, heat, rigor, or fever. In such a case the operation for removing the mamma has been begun, and the pus has been accidentally evacuated by the scalpel. A careful examination may, in doubtful cases, detect fluctuation, and a puncture (p. 589, note) would make the nature of the case obvious.

II. TUBERCULOUS SWELLING.

2846. This disease is slow in its progress, unattended by pain, distinctly circumscribed, generally, though not always, solitary; it is usually accompanied by enlarged cervical glands.

III. THE IRRITABLE MAMMA.

1. *Without Tumor.*

2847. In this case the Mamma, or one or more of its lobules, becomes exquisitely tender and painful. The pain is often extended to the shoulder, axilla, inner side of the elbow, and the fingers, and sometimes along the side of the hip. The slightest examination augments the pain, which is sometimes such as to render the weight of the breast, or the position of the side affected, equally insupportable.

2848. This affection is augmented on the approach, and diminished on the recession, of the catamenia, which are generally irregular, deficient or profuse.

2849. There is sometimes an alternate sensation of heat and cold, or darting, like that of the *tic douloureux*. Sometimes both *mammæ* are affected.

2. *With Tumor.*

2850. In some instances the pain and tenderness are situated in a small, movable *tumor*, varying from the size of a pea to that of a marble.

2851. This tumor is solid and semi-transparent, interwoven with fibres.

3. *With Ecchymosis.*

2852. With exquisite tenderness of the mamma, and pain down the inner side of the arm, there is, in this case, a degree of ecchymosis before and at each catamenial period. It exists in one large spot, whilst smaller and less vivid spots appear in other parts of the mamma. It declines at various periods after the cessation of the catamenia. It occurs in the young, and frequently in those in whom the mamma is large, and the constitution irritable.

2853. *The Treatment* consists in allaying the irritability of the system and of the organ affected, by mild aperients, tonics, opiates, diet, exercises, &c.

IV. CHRONIC MAMMARY TUMOR.

2854. I. *The History.* This affection, like that last mentioned, has a strict connection with the catamenia, being probably induced, and certainly aggravated, by sympathy with the uterine organs at the catamenial periods. It occurs principally in the young, single, or childless.

2855. II. *The Symptoms.* This tumor grows upon the *surface* of the mamma, either the anterior or posterior; it is movable over that surface, and lobulated to the touch; it begins, and often continues long, without pain; but it is sometimes painful, the pains extending to the shoulder, resembling the aching of rheumatism; it is generally, but not always, free from tenderness to the touch. Its growth is slow; its weight usually from one to four ounces; but it is sometimes larger.

2856. III. *The Morbid Anatomy.* The structure of this tumor is lobular, and it is enveloped in a membrane, both *similar* in appearance to those of the mamma itself.

V. CYSTS, HYDATIDS, ETC.

2857. These affections are distinguished by tumors, without pain or tenderness, but with tension, and, eventually, with fluctuation.

Their accession and progress are slow. There are no constitutional symptoms. The disease gives no real uneasiness, until, becoming large, it is inconvenient from its bulk and weight. The external veins enlarge. The tumor is movable upon the ribs and under the integuments.

2858. Cysts and Hydatids sometimes induce inflammation and ulceration. The system then suffers.

2859. The most certain criterion of the Encysted or Hydatid tumors, is *a puncture*. The escape of a limpid fluid satisfies the doubts of the surgeon, and allays the fears of the patient. Both diseases are local, and free from malignancy.

2860. Cysts generally occur in *clusters*. Hydatids are distinguished by *containing* others produced by their internal surface.

2861. The preceding diseases are all free from malignancy in their character and tendency. Those which are next to be noticed are frightfully malignant and destructive, and arise from, or lead to, constitutional contaminations.

VI. ENCEPHALOSIS.

2862. I. *The History*. This disease occurs earlier in life than the terrific disease next to be noticed.

2863. II. *The Symptoms*. It is distinguished from it, by its rapid growth, its irregular form, its soft, doughy feel, its tendency to ulceration, the formation of fungus. At first, it is even and smooth on its surface, free from pain or tenderness, or discoloration, but soft and fluctuating. It soon acquires a fearful size and aspect; the surface is then uneven and discolored, the feel quaggy. The system suffers; the patient has pallid prolabia, and is feeble and restless.

2864. The adjacent lymphatic glands, or some more distant part, internal or external, may be simultaneously affected.

VII. SCIRRHUS. CARCINOMA.

2865. I. *The History*. Scirrhus frequently occurs about the period of the cessation of the catamenia. It may be appar-

ently spontaneous ; or it may arise from a blow, or from the change in form and character of some other mammary disease.

2866. II. *The Symptoms.* This disease is circumscribed at first, little augmented in size, of singular hardness, somewhat tender, and accompanied by a peculiar lancinating pain. In its progress,

2867. 1. *The Nipple* frequently becomes fixed and drawn inwards ;

2868. 2. *The Skin* becomes adherent and tuberculated ;

2869. 3. The adjacent *lymphatic vessels and glands* become enlarged and hard ;

2870. 4. Eventually, the skin *ulcerates*, and presents the appearance of frightful chasms, and perhaps fungous growths, and there is extreme suffering, and extreme acrimony and fœtor of the discharges ;

2871. 5. The *whole system* is worn, and hectic ; the complexion is “jaune paille,” and there is great emaciation.

2872. III. *The Treatment* consists in *excision*, or *opiates*.

CHAPTER VIII.

OF PUERPERAL DISEASES.

2873. IN the early period of pregnancy, we witness the effects of a singular sympathy between the uterus and the stomach—a disease of *irritation*—under the form of sickness and vomiting.

2874. In the later periods of pregnancy, we have to witness the effects of plethora, and of compression upon the abdominal viscera and vessels. The enlarged gravid uterus occupies great space ; and, in addition to this, the colon is frequently somewhat obstructed and becomes loaded.

2875. At the latest period of pregnancy, and during parturition, there is frequently great fear of an affection of the brain, or spinal marrow, apoplexy or convulsions.

2876. After parturition, we encounter other circumstances, the effects of which are not less to be feared ; the *immediate* effects of hæmorrhage ; sometimes convulsions.

2877. Nor are we secure, even when the immediate effects of parturition have passed away : the contracted uterus is more vascular than natural, and augmented in size ; it is in a state *bordering* on inflammation : it is very apt, with its peritonæal covering, and its appendages, to take on actual inflammation : its internal surface is *exposed*, and the veins and lymphatics which take their origin or course from it may become inflamed ; but, besides these events, we are frequently, very frequently, called to witness others which result from a state of intestinal load and irritation : nor do these complete the list ; for, although the *immediate* effects of hæmorrhage may have ceased, others, *later* in their period of occurrence, and of a widely different character,

frequently occur, and present some very formidable cases of puerperal disease.

2878. There is, besides, a series of *mixed* cases, to which I would very particularly draw the attention of my young readers.

2879. There is still another point to which I must draw the attention of the reader: there are *doubtful* cases, as well as *mixed* cases; and there will often be great difficulty, anxiety, and danger, in determining the question of general blood-letting. In every case in which it is decided that a vein is to be opened, let it be done in the erect position, the eyes turned to the ceiling of the room. In this manner, frequently *much less*, and frequently also, *much more*, blood will be taken, than it was previously contemplated to take: for the case may partake more of the nature of irritation, or of inflammation, than was supposed. The physician will derive much information, and the patient will be preserved from much danger, by adopting the plan which I have proposed. I am astonished to see how so plain, so simple, and so important a rule is either disregarded through supineness, or attempted to be put aside from motives which I forbear to mention. The plan which I have so often enforced is one of great safety, and replete with diagnosis.

2880. I shall now endeavor to present such an arrangement of Puerperal Diseases, in the order of their importance and frequency, as I have formed from long attention to the subject,—not in *hospitals*, which present a very unfair view of the subject, but in *private practice*,—not amongst the poor only, but amongst the middling and higher classes of society.

I. INFLAMMATION OF THE PERITONÆUM.

1. Of the Uterine Peritonæum.
2. Of the Uterine Appendages.
3. Of the Pelvic Peritonæum.
4. Of the Diffused Peritonæum.

II. INTESTINAL IRRITATION.

1. With Affection of the Abdomen.
2. With Affection of the Head.

III. EXHAUSTION FROM LOSS OF BLOOD.

1. With Reaction.
2. With Sinking.

IV. MIXED CASES.

Puerperal Mania, &c.

V. SOFTENING OF THE UTERUS.

VI. INFLAMMATION OF THE LYMPHATICS.

1. Usually with Peritonitis.
2. Without Peritonitis.
3. With Pleuritis.

VII. INFLAMMATION OF THE VEINS.

1. Adhesive.
 1. Uterine.
 2. Crural.
2. Suppurative.
 1. Usually without Peritonitis.
 2. With Abscesses of the Brain, Lungs, Liver, Spleen, &c. the Joints, Cellular Membrane, Eye, &c. &c.

2881. Before I proceed to detail the prominent symptoms of the morbid affections which have been thus enumerated, I would particularly impress upon my reader the importance of an accurate acquaintance with the

PUERPERAL STATE.

when unattended by actual disease.

2882. There is frequently a degree of febrile action and of perspiration; yet, in some cases, carefully noted, there was *no* frequency of the pulse, *no* tenderness of the uterus: a degree of acceleration of the pulse, however, and a degree of uterine tenderness *may* occur, and subside; but *either* of these symptoms should lead us to watch the patient with care, not to say anxiety. The physician should also make himself intimately acquainted

with the ordinary *feel* of the *uterus*, and with the *appearances* of the *lochia*, at various periods after parturition; and he should carefully study the phenomena, constitutional and local, of the effort to establish the secretion of the milk, and of the office of lactation.

2883. I now proceed to treat of

I. INFLAMMATION OF THE PERITONÆUM.

1. *Acute.*

2884. I. *The History.* Puerperal inflammation within the abdomen [Puerperal fever] is usually introduced by rigor; but by no means always; neither are heat of skin, and headache, *essential* symptoms in this disease. [They are, nevertheless, quite common, especially the latter.]

2885. II. *The Symptoms* vary somewhat with the *seat* and *extent* of the inflammation. This begins and may be nearly confined to—

1. The Uterine Peritonæum,
2. The Uterine Appendages,
3. The Pelvic Peritonæum;

but it may be diffused over

4. The Abdominal Peritonæum.

2886. These circumstances are only to be determined by a careful examination of the abdomen, and especially of the hypogastric and iliac regions. With the pain, there is tenderness on pressure, more or less *confined*, at first, to the former of these regions, and diffused afterwards, perhaps, over the abdomen, and varying in *degree*.

2887. The movements of the body, and of respiration, are more or less repressed; and there are frequently sickness and vomiting. The pulse quickens and frequently becomes small. [The secretion of milk is suppressed, and the breasts often become flaccid.] The lochia become scanty, or suppressed, and lose their healthy color.

2888. III. *The Effects of Remedies.* We learn much of the nature of the disease, or of the extent and degree of the inflammation, and of the strength of the patient, by observing the effect of blood-letting in the perfectly erect position: in acute and extensive serous inflammation, much blood flows before syncope is induced: in some other diseases, and in other forms of inflammation, there is comparatively great susceptibility to the effects of loss of blood. In no case is this criterion more important than in the *puerperal* forms of disease.

2889. IV. *The Morbid Anatomy* consists in the effusion of *serum*, *lymph*, or *pus*, in various quantity, and over a various extent of surface.

2890. V. *The Treatment* is that detailed § 2470, modified according to the state of the system and degree of the disease.

2. Chronic.

2891. The Chronic form of Puerperal Peritonitis is usually confined to the uterine appendages, or to the pelvic peritonæum. The former case has been already characterized, § 2553; the latter may induce a fulness in some part of the pelvis, perceptible on an examination per vaginam, with compression and interrupted function of the bladder and rectum, and constitutional fever. The Treatment is that pointed out § 2555.¹

II. INTESTINAL IRRITATION.

2892. I. *The History.* This affection, *the most common of puerperal diseases*, in its milder or severer forms, is not unfrequently ushered in by *severe* rigor: this is followed by febrile heat and the symptoms about to be mentioned.

1. With Affection of the Abdomen.

2893. II. *The Symptoms* in this case are diffused pain and superficial and diffused, but often extreme, tenderness: the

¹ In a case of this affection, in which I recently attended with Mr. Doubleday, there was a distinct hardness, with tenderness in the region of the right ovary, felt in the hypogastrium and per vaginam, with frequent calls to void the bladder, and a deposit of uric acid in the urine. A cure was effected, chiefly by means of a seton.

uterine region is not usually more tender or painful than the rest of the abdomen. There is frequently general tumidity, as well as tenderness.

2. *With Affection of the Head.*

2894. In this case there is great pain of the head, frequently with great intolerance of light and of sound, throbbing of the temples, and occasionally delirium.

2895. These two affections are not unfrequently combined in the same case, at the same, or at subsequent periods.

2896. In addition to these principal affections, there is also, in some instances, severe *pain* along the course of the *scalene muscles*; or of one side of the thorax, resembling *pleuritis*.

2897. The reader may consult further, § 773.

2898. III. *The Effects of Remedies.* In this affection there is, compared with inflammation of the peritonæum, a characteristic and diagnostic susceptibility to the effects of loss of blood, denoted by early syncope on withdrawing blood in the erect position.

2899. I have only twice had an opportunity of examining the body after this disease: there was no discoverable morbid change of structure or effusion.

2900. IV. *The Treatment* is pointed out, § 780.

III. EXHAUSTION FROM LOSS OF BLOOD.

2901. I. *The History* is sufficiently marked by the previous occurrence of hæmorrhage. It is only important to bear in mind that the symptoms of Exhaustion do not always arise from *profuse* hæmorrhage, but occasionally, in the susceptible, from a *moderate* loss of blood; and that they do not always form immediately.

2902. II. *The Symptoms*:

1. *Of Reaction.*

2903. In this case there are excessive pain and throbbing of the *head*, palpitation of the *heart*, fulness and throbbing of the pulse, &c. with a disposition to faintishness.

2904. The affection of the head is sometimes violent in the extreme ; there are severe pain, a sense of pressure, intolerance of sound, perhaps delirium.

2905. The affection of the heart consists in equally violent palpitation, perhaps with a disposition to syncope.

2. *Of Sinking.*

2906. In this case the violence of the symptoms subsides : there is frequently delirium ; the breathing becomes noisy, like that of a person out of breath—always a fearful symptom ; a crepitus is heard in the extreme branches of the bronchia, on applying the ear to the chest ; the pulse loses its throb, but not its frequency. See further § 800.

2907. *The Effects of Remedies.* There is a disposition to syncope, even on moving the bowels.

2908. IV. *The Morbid Anatomy.* There is doubtless, a disposition to effusion within the head.

2909. V. *The Treatment* is sketched in § 799.

IV. MIXED CASES.

2910. It most frequently happens that Inflammation, Irritation, and Exhaustion, are mixed in the same *puerperal* case. It becomes, therefore, more than ever necessary to adopt any precautions in the use of blood-letting which can conduce to the safety of the patient or the diagnosis of the disease. See § 826 ; 828.

2911. But in this place I am particularly anxious to draw the attention of my reader to the subject of

PUERPERAL MANIA.

2912. I. *The History.* This disease generally involves—

1. Intestinal Irritation ;
2. Exhaustion, and perhaps
3. Inflammation ;
4. Uterine Irritation.

2913. Its accession is usually rather sudden, perhaps after some mental excitement. It occurs at various periods after de-

livery ; sometimes even from protracted lactation ; and generally in those in whom there is an hereditary disposition to mania.

2914. II. *The Symptom* is some form of mania, and, in the case of uterine irritation, sometimes that termed nymphomania.

2915. In every case of Puerperal Mania, the state of the bowels, the condition of the system, and especially that of the uterus and its appendages, should be carefully ascertained.

2916. III. *The Treatment* involves every mode of insuring *mental* and *bodily* quiet ; the diet, the state of the bowels, must be strictly attended to ; the room must be darkened, visitors excluded, &c. But the principal remedy which I would here enforce, is an immediate, mild, but efficient, *mercurial course*. Leeches may be required, applied in *small* number, to the temples, or region of the uterus. A cold spirit lotion must be kept upon the head, previously shaved.

CONVULSIONS.

2917. [One of the most dangerous affections attending the puerperal state is *convulsions*. They may occur during pregnancy, and during or after parturition. They are generally preceded by some cerebral symptoms, as headache, ringing of the ears, giddiness, &c. They are characterized by violent spasms of the face, limbs, and even the body, sometimes affecting one side more than the other ; insensibility ; flushing or lividity of the countenance ; protrusion of the tongue ; hurried and then interrupted breathing, attended with a peculiar hissing sound, and frothing at the mouth ; the pulse, at first full, becomes rapid and small, and there are sometimes involuntary discharges.

2918. The treatment consists in the most copious blood-letting from the arm or the jugular vein, cold applications to the head, purgatives, blisters ; in cases of labor, rupture of the membranes, and artificial delivery, when the os tunicae admits of dilatation.]

V. SOFTENING OF THE UTERUS.

2919. I. *The History and Symptoms*. When, after rigors and fever, with pain in the hypogastrium, and suppression of

the lochia, there are symptoms like those of the *sinking state*, softening and destruction of the substance of the uterus may be suspected ; the countenance becomes pallid, cold, and collapsed ; the pulse extremely frequent and small ; there is a hurried state of the respiration, anxiety, prostration, and other *typhoid* symptoms.

2920. II. *The Morbid Anatomy* consists in a softened, broken texture of the substance of the uterus, with a foetid sanious exudation from incisions made into it.

VI. INFLAMMATION OF THE LYMPHATICS.

2921. *The general Symptoms* in this formidable disease are *typhoidal*, and very similar to those just detailed. There is *usually peritonitis*, and *sometimes, pleuritis* ; but there are not the secondary abscesses, &c. observed in phlebitis.

VII. PHLEBITIS.

2922. The important distinction in regard to uterine as in the other forms of Phlebitis, is between—

1. The Adhesive, and
2. The Suppurative.

2923. In the *former*, the effects are *localized*. *Uterine Phlebitis* of the adhesive character, is attended by local pain and tenderness. The occurrence of *Crural Phlebitis* seems to constitute the disease formerly termed the

PHLEGMASIA DOLENS.¹

2924. This disease is distinguished by pain in the situation of the iliac and inguinal veins, with tension and swelling [of the whole limb. Pain is particularly apt to be felt in the calf of the leg.] The femoral vein is sometimes felt like a cord, and the swelling is white, tense, elastic, painful and tender. Its treatment consists in local blood-letting in the course of the inflamed vein,—a strict attention to the diet, bowels, &c.

¹ For the elucidation of this subject, the profession is deeply indebted to Dr. D. D. Davis and to Dr. Robert Lee.

2925. The suppurative phlebitis is a far more formidable and fatal disease. It is denoted by the occurrence of terrific *typhoid* symptoms, and by external suppurative inflammation of the integuments, or of the eye;¹ whilst abscesses form internally in the brain, the *lobules* of the lungs and liver, in the spleen, in the joints, in the muscular substance, &c. It is usually unattended by peritonitis.

¹ See a Paper published by Mr. Higginbottom and myself upon this subject in the Trans. of the Med. Chir. Soc. vol. xiii, p. 189.

III. ON SOME TOPICAL DISEASES.

CHAPTER I.

OF DISEASES OF THE FACE.

2926. It is admitted to be impossible strictly to define and separate the objects of physic and surgery. The same disease may, at one period, belong to the former, and in a subsequent period, to the latter department of the healing art. There is a province, which *both* physicians and surgeons should equally investigate, and which may be denominated *Medical Surgery*. To this, most of the subjects to be treated of in the present section belong.

2927. This remark is especially true in reference to certain diseases of the Face, which it is my present object to bring before my readers.

2928. These diseases consist chiefly in eruptions, ulcerations, or changes of texture, in some of the structures constituting the different parts of the face, having their origin in constitutional circumstances or local irritations. It is highly important to be intimately acquainted with the *early* appearances of these affections, some of which are inexpressibly terrible.

2929. One of these diseases, the *porrigo favosa*, although of a frightful aspect, is nevertheless superficial and often heals without a scar ; another assumes a phagedenic character, and erodes through the part affected ; a third, the *lupus*, begins with a tubercle which penetrates deep, and is afterwards itself destroyed

by ulceration ; a fourth early assumes the appearance of a cancerous ulcer.

2930. The *forehead*, the *eye-lids*, the *cheeks*, the *nose*, the *lips*, the *chin*, are the parts principally affected by these diseases, which may be thus arranged :—

- I. ERYTHEMA NASI.
- II. ACNE ROSACEA.
- III. PORRIGO FAVOSA.
- IV. LUPUS.
- V. SCROFULA.
- VI. CARCINOMA.
- VII. SYCOSIS MENTI.
- VIII. OZÆNA.
- IX. PAROTID FISTULA.
- X. GANGRENE.
- XI. DISEASE OF THE ANTRUM.

I. ERYTHEMA NASI.

2931. There is a peculiar and distressing recurrent form of Erythema or Erysipelas of the *Nose*, dependent on a deranged state of the digestive organs : it is readily recognised, and it is cured by a persevering use of mild, warm, purgative medicines. See § 1445.

II. ACNE ROSACEA.

2932. I. *The History*. This disease usually occurs after the age of forty, and is apt to be induced by long-continued excess in spirits.

2933. II. *The Symptoms*. It is denoted by extreme redness, first observed upon the end of the nose, and gradually extending over the sides of the nose, and to the cheeks : these parts are rough, beset with small suppurating tubercles, and perhaps even fissured. The forehead, cheeks, and even the chin, may become affected. The nose sometimes enlarges and becomes

fiery or deep red ; and the tubercles, on suppurating, may ulcerate unfavorably.

2934. III. *The Treatment* consists in regulating the habits, in restoring deranged functions, &c. The liquor potassæ and the sarsaparilla have been useful.

III. PORRIGO.

2935. The *Porrigo Favosa*, when it affects the nose and face, assumes a frightful aspect. It nevertheless frequently heals without leaving a scar. It must be distinguished from *Lupus*, the disease to be next described, and from the *Ecthyma* and *Sycosis*.

2936. This disease is characterized by an eruption of large, soft, straw-colored pustules, without previous inflammation ; these pustules are somewhat flat, with an irregular edge. When seated on the face, they become confluent, discharge a viscid humor, form scabs, and are surrounded by inflammation, and perhaps by other more distinct pustules highly characteristic of this disease.

2937. This disease requires alteratives at first, and then cinchona and chalybeates.

IV. LUPUS.

2938. This disease originates in tubercles, which enlarge, red-den, and ulcerate. The ulcerations coalesce, and gradually destroy the parts upon which it is seated. These are principally the *nose*, the *lips*, the *cheeks*, the *forehead*, the *eye-lids* ; but far most frequently the *nose*.¹

¹ The various ulcers which come under the denomination of *Lupus*, *noli me tangere*, &c., have not yet been fully distinguished and described. Dr. Bateman is in error, in thinking that M. Alibert's plate 21 represents this affection. I have noticed several forms of ulcer, about the nose especially, distinct, but not distinguished from *Lupus*. One of these is without redness, and erodes through the ala nasi. Another is

Syphilitic,

as ascertained by its history, the concurrence of other secondary symptoms, and its cure by mercury.

Representations of the earliest stage of these diseases would constitute a valuable addition to the diagnosis.

2940. In the last situation, the ulcer is apt to spread, destroying the apex, alæ, and septum of the nose, and portions of the cheeks, and inducing dreadful deformity.

2941. Alteratives; the liquor arsenicalis; and a regulated system of diet and exercises, have been useful; to which remedies must be added, the application of the nitrate of silver, the nitric acid, or a powder composed of *ninety-six* parts of the chloride of mercury (calomel) and *four* of the white oxide of arsenic, as recommended by Dupuytren,² to the ulcer itself.

2942. [Dr. Canquoin, of Paris, in a paper addressed to the Royal Academy of Medicine of Paris, brought into notice the properties of the chloride of zinc as a caustic. He asserts that its employment is without danger, and that it so modifies the tissues around the spot where it is applied, that cancerous disease is not liable to return in the same spot, and therefore may be cured, unless there is a cancerous diathesis. He refers for confirmation of his statements to several of the most distinguished Parisian surgeons. This substance, which is described as of peculiarly easy management, seems particularly adapted to the malignant diseases of the face, which require extirpation.]

V. SCROFULA.

2943. This affection of the face consists, chiefly, in a tumid state of the upper lip, frequently with a deep crack and perhaps ulcer. There is also a peculiar, frightful, diseased ulceration, which passes over the nose and cheeks, which belongs to this disease.

VI. CARCINOMA.

2944. This disease, when it attacks the face, is usually seated upon the *lower lip*; but it may occur upon the *forehead*, the *eye-lid*, the *cheek*, &c.

2945. It begins obscurely, frequently *without scirrhus*, in a merely scaly, tubercular, or slightly thickened condition of the skin, which is succeeded by ulceration, which spreads progressively with everted edges, frightfully destroying and deforming the part in which it is seated. It is, unlike *Lupus*, without surround-

¹ Leçons Orales, t. iv, p. 475.

ing redness. It is attended with pain, and eventually with the pale, sallow hue of the complexion peculiar to cancer. Its progress is very various,—slow, arrested, or rapidly progressive. Excision is the only remedy.

VII. SYCOSIS.

2946. This disease is peculiar to those parts which are covered with hair; it occurs principally upon the bearded part of the upper lip and chin, and on the head. It is almost, but not quite, confined to the male sex.

Sycosis Menti.

2947. The Sycosis of the face is distinguished by slowly suppurating tubercles, the centre of each of which is occupied by a hair. The part becomes inflamed, indurated, red, tender, encrusted, in distinct or coalescent spots, matting the beard together, and preventing shaving. Its progress is very various. It is sometimes long continued.

2948. Alteratives, chalybeates, cinchona, sarsaparilla, may be given in turns; and poultices, and the unguentum hydrargyri nitratis, may be applied.

VIII. OZÆNA.

2949. This term has been employed to denote various diseases, within the nostrils, attended by ulcerations, fœtid discharges, caries, &c. The *extent* of the disease is ascertained by an examination: its *origin*, by an attention to the history of the case. It is chiefly connected with—

1. Cachexia; or
2. Syphilis.

It is distinguished, by a careful inspection, from

Polypus.

2950. [The most effectual treatment for ozæna which we have found, consists in the persevering use of corrosive sublimate, in as large doses as the stomach will bear with impunity.]

IX. PAROTID FISTULA.

2951. This disease is readily distinguished by the flow of saliva externally through the perforated cheek, which is continual during the hours of fasting, but greatly augmented during eating. One case was cured by Mr. Higginbottom, by means of the sulphuric acid, after the nitrate of silver had failed.

X. GANGRENE.

2952. Gangrene sometimes attacks the cheek or the jaw after acute diseases, especially in the young. I have principally observed this disease in infants; but it occurs occasionally in youth and in adults. [It sometimes follows the undue use of mercury.]

2953. The part becomes tense and pale; an eschar is discovered occupying the internal or external part of the cheeks or gums. It frequently destroys a part of the cheek, or of the alveolæ.¹ A similar affection attacks the pudendum in female children.

XI. DISEASE OF THE ANTRUM.

2954. This disease is denoted by *fixed pain*, and an inflammatory swelling over the seat of the Antrum of Highmore. It can only be *suspected* until it is fully ascertained by the surgeon,—but it should be *suspected* when these symptoms occur.

¹ Compare the Edinb. Med. and Surg. Journ., vol. xv, p. 547, and the Trans. of the Med. Chir. Soc., vol. vi, p. 84. [This affection has been described under the name of Gangrænopsis.]

CHAPTER II.

OF THE DISEASES OF THE MOUTH, THROAT, AND ŒSOPHAGUS.

2955. THE diseases of the Mouth, Throat, and Œsophagus are highly interesting both to the physician and the surgeon, and constitute, in some of their forms, an important branch of Medical Surgery. Inflammation, Scirrhus, and Syphilis present us with illustrations of this observation.

I. THE DISEASES OF THE GUMS.

- I. TUMIDITY.
- II. SHRINKING.
- III. CIRCULAR ULCER.
- IV. CANKER.

II. THE DISEASES OF THE TONGUE.

- I. RANULA.
- II. TUMOR, WITH SLOW SUPPURATION.
- III. ULCER FROM IRRITATION.
- IV. SCIRRHUS. CARCINOMA.

III. THE DISEASES OF THE FAUCES.

I. INFLAMMATION.

1. Of the Velum.
2. Of the Tonsils.
3. Of the Pharynx.
4. Of the Posterior Nares.

- II. ELONGATED UVULA.
- III. ENLARGED TONSILS.
- IV. SCARLATINA.
- V. HERPES.
- VI. APHTHÆ.
- VII. ULCERATION.

- 1. Syphilitic.
- 2. Psuedo-Syphilitic.
- 3. Mercurial, &c.

IV. THE DISEASES OF THE ŒSOPHAGUS.

- I. INFLAMMATION.
- II. STRICTURE.
- III. SCIRRHUS. ENCEPHALOSIS.
- IV. INTERNAL TUMORS, POLYPI, ETC.
- V. EXTERNAL TUMORS, ANEURISM, ETC.

I. THE DISEASES OF THE GUMS.

I. TUMIDITY.

2956. Tumidity of the Gums sometimes occurs in so marked a form as to constitute an actual disease. The gums grow up, in front, between the teeth, and, in the posterior part of the mouth, so as to cover some of the molares. This disease is usually induced by the loaded state of the colon, and is apt to be aggravated by taking cold. Purgatives, followed by mild aperients and gentle tonics, constitute the general, and excision the surgical, treatment. [Astringents may be of limited utility.]

II. SHRINKING.

2957. Instead of tumidity, the gums sometimes experience a degree of shrinking. The teeth are left exposed, frequently become loose, and fall out, even in the young, without the least appearance of decay. Scarification is the best remedy.

III. CIRCULAR ULCER.

2958. The gums, the inside of the lip or cheek, the point or edge of the tongue, are liable to an affection consisting of one, two, or more minute circular spots of inflammation, which gradually pass through the stages of sloughing and ulceration, with extreme tenderness. This affection arises from, and denotes, a deranged state of the stomach, and occupies a space of eight or nine days. It is promptly relieved by being touched with the nitrate of silver.

IV. CANKER.

2959. This peculiar disease occurs principally in children, and consists of a diffused ragged ulceration, with offensive discharge, occupying the edge of the gums, and inducing looseness and decay of the teeth. The inside of the cheek is generally affected in a similar manner.

2960. This affection must be distinguished from the ptyalism of mercury, scorbutus, aphthæ, &c. and from the disease described § 2952. Its remedies are aperients, alteratives, and cinchona.

II. THE DISEASES OF THE TONGUE.

I. RANULA.

2961. This disease consists in distention of a salivary duct. It must be carefully distinguished from—

1. A Serous Cyst.
2. An Abscess.
3. A Tumor.
4. Calculus.

2962. These affections have frequently a similar seat at the *under surface* of the tongue. The distinction is most readily made by means of a puncture with a couching needle. [The treatment of permanent cases consists in a surgical operation.]

II. TUMOR, WITH SLOW SUPPURATION.

2963. This affection, of which I have witnessed several instances, is usually situated in the *upper surface* of the tongue. It is at first a hard tumor, slightly tender on pressure; this slowly suppurates; after which it presents the appearance of a deep ulcer. It usually arises from derangement of the bowels, and is cured by emetic and purgative medicines, with the local application of the nitrate of silver.

III. ULCERATION, FROM IRRITATION.

2964. The principal cause of this affection is a jagged, decayed tooth: it therefore occurs usually at the *edge* of the tongue. There are hardness, tenderness, and ulceration. [The remedy consists in filing or removing the tooth.] It must be distinguished from—

IV. SCIRRHUS, AND CARCIMONA.

2965. This disease of the tongue has no special seat; it has no obvious cause. It is denoted, first, by scirrhus hardness, then by irregular ulceration; it is not acutely tender; but it is accompanied by lancinating pain, and, in a short time, by a pale sallowness and emaciation. [The remedy consists in the removal of the diseased part.]

III. THE DISEASES OF THE THROAT.

I. INFLAMMATION.

2966. This disease is denoted by redness and tenderness, and therefore by pain on swallowing. Its seat is determined by that of the pain, and by a careful examination, and is usually—

1. The Velum Palati.
2. The Tonsils.
3. The Pharynx.
4. The Posterior Nares.

In one form of this disease, there are great laryngeal irritation and violent *cough*, which are removed by passing the nitrate of silver along the border of the velum. [Inflammation of the tonsils is the most common form of sore throat. It is treated by purgatives, local depletion, counter-irritation and astringent or iced gargles. If suppuration commences, warm gargles and steam should be used.]

II. ELONGATED UVULA.

2967. By repeated inflammation, the uvula is sometimes left elongated; and, descending upon the posterior part of the tongue, it frequently excites a troublesome *cough*, which is cured by removing a portion of the elongated organ.

III. ENLARGED TONSILS.

2968. In other cases, inflammation [or scrofula produces a permanent] enlargement of the tonsils; the deglutition and the speech are somewhat affected, [and respiration during sleep is impeded.] The nature and extent of the disease are determined on examination. A portion of the tonsils must be removed by an appropriate instrument.

IV. DYSPEPTIC SORE THROAT.

2969. This form of Sore Throat occurs in the acute or protracted dyspepsia. It is continued, or removed, with the original disease.

V. SCARLATINA.

2970. This affection is frequently *confined* to the throat. It is distinguished by a peculiar scarlet hue, and by occurring during the prevalence of scarlatina in those exposed to its contagion. [It particularly affects adults.]

VI. HERPES.

2971. With, or without, a cluster of vesicles, or Herpes, on the lip, there is, occasionally, a diffused Herpes of the velum and

palate, readily detected and discriminated on a careful examination.

VII. APHTHÆ.

2972. The velum and palate are frequently beset with the tongue, the inside of the lips and cheeks, and perhaps the pharynx and œsophagus, with diffused inflammation,—partly denuded,—and partly covered with ragged portions of lymph, or Aphthæ. [The treatment consists in regulating the digestive function, and touching the aphthæ with nitrate of silver, hydrochloric acid, borax, &c.]

VIII. ULCERATION.

2973. Ulceration of the Throat is seen in the Tonsils, the Uvula and Velum, and the Pharynx. It is—

1. Syphilitic.
2. Pseudo-Syphilitic.
3. Mercurial, &c.

2974. [Syphilitic ulceration is generally thought to require the exhibition of mercury. The pseudo-syphilitic diseases generally are ill defined, and must be treated according to the condition of the part and the state of the constitution. Mercurial ulceration requires the suspension of this remedy, tonics, sarsaparilla, &c.]

2975. The profession is still greatly in need of *representations* of these morbid affections of the Throat.

IV. DISEASES OF THE ŒSOPHAGUS.

I. INFLAMMATION.

2976. This disease of the œsophagus is rare, and can only be indicated by the pain and difficulty in swallowing. It is the source of thickening and of

II. STRICTURE.

2977. Stricture, in its simple form, usually occupies the superior portions of the œsophagus. The *seat* of the disease may be

conjectured by the quantity of fluid which may be made to disappear before it is regurgitated, being lower as this is greater : it is ascertained by the bougie, by means of which, with purgatives and leeches, it is cured.

III. SCIRRHUS, ETC.

2978. Scirrhus is, more frequently than simple stricture, found in the lower parts of the œsophagus, or at the cardia itself. It is distinguished by the constitutional affection, by watching the efforts to swallow, and by the bougie. I have seen a small basinful of cocoa swallowed, retained for a time in the œsophagus, and then rejected by an effort precisely like that of vomiting.

IV. INTERNAL TUMORS, ETC.

V. EXTERNAL TUMORS, ETC.

2979. The former of these scarcely admit of diagnosis from stricture or scirrhus ; the latter are to be discriminated only by a careful examination.

CHAPTER III.

OF CUTANEOUS DISEASES.

2980. I HAVE reserved for this chapter such of the Cutaneous Diseases as do not possess the degree of importance of the eruptive fevers, and yet require great care and attention for their diagnosis and treatment. My account of them will be as short as possible to be useful.

2981. Cutaneous Diseases gradually pass from the acute into the chronic forms ; and even the same cutaneous disease frequently assumes, in its course, both these characters successively. The arrangement of these morbid affections, which is at once most natural and best adapted to set forth their diagnosis, is that which begins with their acute forms and gradually descends to the chronic. Every artificial arrangement, not excepting the elegant classification of Willan, must dissociate similar and associate dissimilar diseases ; for example, ecthyma and rupia, although probably different forms of the same disease are found arranged in the distinct orders of Pustulæ and Vesiculæ. Many other equally injurious distributions of cutaneous diseases in Dr. Willan's classification might be pointed out.

2982. In portraying the diagnosis of Cutaneous Diseases, I shall be anxious, as usual, to simplify the subject, and not to admit of subdivisions which are mere refinements, and not marked by practical utility.

I. ROSEOLA.

II. SCARLET RASH.

III. URTICARIA.

IV. ERYTHEMA.

V. LICHEN.

VI. PRURIGO.

VII. MILIARIA.
 VIII. HERPES.
 IX. ECZEMA.
 X. IMPETIGO.
 XI. SCABIES.
 XII. PORRIGO.
 XIII. SYCOSIS.
 XIV. ACNE.

XV. ECTHYMA.
 XVI. RUPIA.
 XVII. PEMPHIGUS.
 XVIII. POMPHOLYX.
 XIX. LEPRA.
 XX. PSORIASIS.
 XXI. PITYRIASIS.
 XXII. ICTHYOSIS.

I. ROSEOLA.

2983. I. *The History.* The Roseola is either induced by inclemencies of the atmosphere, or occurs *symptomatically* in other diseases, and principally—

1. In the Synochus and Typhus.
2. In Variola and Vaccinia.
3. In Gout and Rheumatism.
4. With Miliaria.

2984. II. *The Symptoms* consist in a rash, generally figured, at first red, afterwards more or less of a rose color, usually beginning at the extremities and terminating on the face and trunk of the body, of several days' duration, and apt to be recurrent.

2985. It is important to notice this affection, chiefly with the view of distinguishing it from Scarlatina, Rubeola Erythema, Urticaria, &c. The forms of Roseola enumerated by Dr. Willan, are—

- | | |
|------------------------|-----------------------|
| 1. Roseola æstiva. | 5. Roseola variolosa. |
| 2. Roseola autumnalis, | 6. Roseola vaccinia. |
| 3. Roseola annulata. | 7. Roseola miliaris. |
| 4. Roseola infantilis. | |

The only forms of this disease requiring notice in this place are—

1. *Roseola Æstiva.*

2986. I. *The History.* This form of Roseola occurs chiefly in females of irritable constitutions, from exposure to heats and

chills in summer ; it is sometimes associated with the local complaints of the season.

2987. II. *The Symptoms.* It is proceeded by fever and accompanied by itching and tingling. It is distributed in patches of various figure, not crescentiform, larger, more irregular, and paler than rubeola ; at first red, it soon assumes its peculiar roseate hue. The fauces are affected with a similar efflorescence. The rash continues vivid on the second day, but declines on the third, and has disappeared on the fifth. It is sometimes partial and longer continued, or it recedes and returns.

2. *Roseola Annulata.*

2988. This form of Roseola appears on every part of the body, in rose-colored rings, with central areas of the natural color, which gradually dilate, from one or two lines to half an inch in diameter. This affection is either attended with fever and short in its duration, or it is without fever and more protracted.

2989. Roseola is distinguished from Rubeola by the absence of all evidence of infection, of catarrhal symptoms, and of the characteristic appearance of the rash first upon the face, and then on the other parts of the body, with its peculiar crescentic forms.

2990. III. *The Treatment* of Roseola consists in maintaining a free state of the bowels, in imposing a diet of mild diluents, and in avoiding all exposure to cold or damp, fatigue, &c. Mild mercurials and antimonials, and the carbonate of potass, are also useful.

II. SCARLET RASH.

2991. A cutaneous disease, of which I believe I have seen several instances, *resembling Scarlatina*, in its appearance, is described by Dr. Maton.¹ It is highly interesting in a diagnostic point of view.

2992. I. *The History.* It appears to be contagious. But the contagion is latent for a longer period than *Scarlatina*, in the proportion of three weeks to one.

¹ Trans. of the Royal Col. of Phys., vol. v, p. 143.

2993. II. *The Symptoms.* There are rigor, and shortly afterwards, the appearance of the rash; this is distinguished from scarlatina by much tingling, by the absence of enlarged papillæ of the tongue, and of the degree of sore throat observed in scarlatina, and of the desquamation of the cuticle which follows it.¹

2994. III. *The Treatment* is that pointed out § 2990.

III. URTICARIA.

2995. I. *The History.* Urticaria, or Nettle rash, is generally excited by some improper article of food, or other source of indigestion. It assumes various forms, which are thus enumerated by Dr. Willan:—

- | | |
|------------------------|--------------------------|
| 1. Urticaria febrilis. | 4. Urticaria conferta. |
| 2. Urticaria evanida. | 5. Urticaria subcutanea. |
| 3. Urticaria perstans. | 6. Urticaria tuberosa. |

The following description will be sufficient for the diagnosis.

2996. II. *The Symptoms.* Urticaria consists of elevations of the skin, of greater or less circumference, of various forms, flat at the upper surface, and generally denominated *wheals*. [They appear suddenly, and vanish, leaving the skin entire, unless it has been broken by scratching. The elevations are white, often surrounded by red patches, and resemble the stings of wasps or of nettles.] There is no tenderness or disposition to suppuration; but there is excessive itching or tingling. [Redness of the conjunctiva attends on some cases.]

2997. In the *febrile* Urticaria, there is a diffused efflorescence as well as numerous wheals. The case must be distinguished from scarlatina; but the diagnosis only requires the most ordinary caution.

2998. The other forms of Urticaria are sufficiently expressed

¹ The Rash bears the same similarity to Scarlatina which Roseola does to Rubella; the diagnosis is of great importance in determining the question of the possibility of the recurrence of Scarlatina and Rubella in the same person.

by their several *epithets*,¹ and really present little difficulty in the diagnosis.

2999. III. *The Treatment* is that pointed out § 2990 sometimes preceded by a gentle emetic dose of ipecacuanha.

IV. ERYTHEMA.

3000. I. *The History*. The Erythema is generally *symptomatic*.

3001. II. *The Symptoms*. This affection consists of diffused patches of efflorescence. It is frequently seen upon the face, neck, chest, and arms; and in conjunction with œdema, upon the legs. In the last situation, it may terminate in gangrenous ulceration. Dr. Willan enumerates the following varieties of Erythema:—

1. The Erythema fugax.
2. The Erythema læve.
3. The Erythema marginatum.
4. The Erythema papulatum.
5. The Erythema tuberculatum.
6. The Erythema nodosum.
7. The Erythema intertrigo.

3002. None of these forms require particular notice, except the *sixth*. The Erythema nodosum is common in chlorosis and the similar affections of younger patients. It occurs in the form of red nodes under the skin, along the anterior part of the leg, which are slightly tender, and painful, but do not suppurate.

3003. There is another form of Erythema not noticed by Dr. Willan. See 2931.

V. LICHEN.

3004. I. *The History*. Lichen generally arises from internal disorder. It occurs, according to Dr. Willan, under the forms:—

¹ I have carefully preserved the epithets of Dr. Willan, on account of their utility in the diagnosis of their different forms, although they are frequently but too minute as grounds of subdivision and arrangement.

- | | |
|---------------------------|--------------------------------|
| 1. Lichen simplex. | 5. Lichen lividus. |
| 2. Lichen pilaris. | 6. Lichen tropicus. |
| 3. Lichen circumscriptus. | 7. Lichen urticatus. |
| 4. Lichen agrius. | 8. [Lichen gyratus, (Bielt.)] |

The principal of these forms are the—

1. Lichen simplex ; and
2. Lichen agrius.

The Lichen pilaris is only peculiar from occupying the roots of the hairs ; the Lichen circumscriptus, from the *clustered* arrangement of the papulæ ; the Lichen urticatus from its combining the character of Lichen and Urticaria ; and the Lichen lividus from combining those of Lichen and of Purpura.

3005. II. *The Symptoms* :—

1. *Lichen Simplex.*

This affection consists of red, inflamed papulæ, first appearing on the face and arms, and then on the trunk and limbs, preceded by fever and attended by tingling, especially in the night. In about a week, the redness fades and the papulæ decline into scurf, most and longest seen at the flexures of the joints, and especially of the arm. It may pass into Psoriasis.

2. *Lichen Agrius.*

3006. This severer form of Lichen is ushered in by fever. The papulæ occur in large patches, of a high red color, with diffused inflammation : there are much itching, heat and tingling, which are exasperated by heat, or any irritation, and after dinner. Small vesicles, filled with a straw-colored fluid, are occasionally intermixed with the papulæ. If this affection be long continued, the skin becomes harsh, thickened, and cracked, and there is exquisite pain if it be rubbed. After repeated attacks, it may assume the character of Impetigo.

3007. *The Treatment* consists in mild mercurials and antimonials, followed by quinine, chalybeates, the liquor arsenicalis, or the dilute sulphuric acid. Gruel, applied by means of a

camel's hair pencil, relieves the irritation of *Lichen agrius*. A moderately warm bath is also useful.

3008. [Under the term *Lichen strophulus*, M. Biett describes a papular eruption, common in children at the breast. It is the *Strophulus* of Willan, and is well known to nurses under the name of *red gum*. It is attended with violent itching, increased by the heat of the bed. The papulæ are sometimes red, in which case they appear under three forms.

1. Scattered, and mingled with erythematous spots. *Strophulus intertinctus*.
2. Smaller, more numerous, more confluent. *Strophulus confertus*.
3. In rounded groups on different regions. *Strophulus volaticus*.

Sometimes they are white; in this case, when small and surrounded by an inflamed areola, they constitute the *Strophulus albidus*. If larger and uninflamed at their base, they constitute *Strophulus candidus*.

3009. The different forms of this eruption accompany dentition, and sometimes an internal inflammation; they last three or four weeks, and are not dangerous. Warm baths for the infant, and cooling medicines for the nurse, are all that is usually required.]

IV. PRURIGO.

3010. This disease is denoted by severe itching, increased by exposure to heat, affecting either the whole surface of the skin, or a part only; in some instances, without any apparent eruption; in others, accompanied by an eruption of papulæ, generally larger than those of lichen, and nearly of the same color with the adjoining cuticle.

3011. Dr. Willan describes three forms of *Prurigo* :—

1. *Prurigo mitis*.
2. *Prurigo formicans*.
3. *Prurigo senilis*.

3012. The *first* of these occurs in the young. The *second* is distinguished by its obstinacy and severity, and its peculiar

sensations of itching, stinging, creeping, &c. If the second form of Prurigo be obstinate, the *third* is inveterate, and often destroys the comfort of the patient, by its incessant itching and stinging, for the rest of life.

3013. [Prurigo may be distinguished from lichen, by its larger size, by the greater itching with which it is accompanied, and the presence of black points, occasioned by the coagulated blood on the summits of the papules abraded by scratching. Prurigo is accompanied with more severe itching than *scabies*, it presents a papular instead of a vesicular eruption as its primary lesion, and affects the surfaces of extension, while *scabies* is usually seated on the surfaces of flexion.]

3014. *The Treatment* consists in mercurials, antimonials, and aperients ; the Harrowgate waters, and warm baths ; and various local applications, as ablutions, lotions, &c.

VII. MILIARIA.

3015. I. *The History.* The Miliaria is always *symptomatic*. It may occur in any febrile disorder ; but it is chiefly observed when the skin is excited to profuse perspiration. I have seen it in typhus, rheumatism, &c. and it was formerly a frequent attendant on the puerperal state. [This affection is seen not unfrequently on the body after death, having occurred during the last period of life.]

3016. II. *The Symptoms.* It consists of an eruption of minute, round vesicles, of the size of millet-seeds, transparent at first, afterwards very slightly opaque. This eruption occurs upon every part of the surface, but chiefly on the throat, neck, and face, diffused or in patches.

3017. The Miliaria can scarcely be confounded with any other cutaneous affection.

VIII. HERPES.

3018. I. *The History.* Herpes is generally the result of exposure to cold under constitutional derangement. It observes a regular course of eruption, scabbing, and desiccation, which occupies nine or ten days.

3019. II. *The Symptoms.* This affection consists of *clusters* of vesicles, which vary much in form, seat, and extent, giving origin to the following varieties of the disease :—

- | | |
|-------------------------|------------------------|
| 1. Herpes labialis. | 4. Herpes circinatus. |
| 2. Herpes zoster. | 5. Herpes iris. |
| 3. Herpes phlyctænodes. | 6. Herpes præputialis. |

1. *Herpes labialis.*

3020. This form of Herpes has been already described, § 2971.

2. *Herpes zoster.*

3021. This form of the disease consists of successive clusters of vesicles, with surrounding redness, spreading directly or obliquely across the waist or thorax, in the manner of a sash or sword-belt. Its vulgar designation is *Shingles*. See § 2216. [Herpes zoster is frequently followed, as well as preceded, by severe pains of a neuralgic character, which require the use of opiates internally and externally, and sometimes yield to the carbonate of iron.]

3. *Herpes phlyctænodes.*

3022. This kind of Herpes consists of similar successive clusters of vesicles, which observe a similar course, but less regular form. It may occur in any part of the body. It is denominated *Nirles* by the vulgar. See § 2216.

4. *Herpes circinatus.*

3023. This affection is more chronic than the preceding forms of Herpes, and is popularly designated *Ringworm*. Its *vesicular* character distinguishes it, at once, from the *pustular* Porrigo.

5. *Herpes præputialis.*

3024. This affection is also distinguished by its *vesicular* character. [Herpes usually requires little treatment beyond occasional aperient and emollient applications.]

IX. ECZEMA.

3025. The Eczema depends upon the application of external or internal irritants. Unlike Herpes, it is extremely irregular in its course and decline. Dr. Willan describes three forms of it:—

1. Eczema solare.
2. Eczema impetiginodes.
3. Eczema rubrum.

The *first* of these arises in a part which has been exposed to the direct rays of the sun, chiefly the face and neck. The *second* depends upon the application of a local irritation, and appears principally on the hands: it constitutes what is designated in one instance the *Grocer's*, in another the *Bricklayer's* itch, according as the exciting cause is sugar or lime. But the most important variety of Eczema is the

Eczema rubrum.

3026. I. *The History.* This disease is frequently, but not universally, excited by the external or internal use of *mercury*. Its seat, extent, and duration are extremely variable.

3027. II. *The Symptoms.* The first appearance of the Eczema is a diffused redness, rather rough to the touch, and distinctly, though minutely, vesicular on a careful examination. It is attended by tingling and tumefaction. The vesicles contain a fluid, transparent at first, and, in a few days, slightly opaque. It is most frequently seen on the upper part and flexures of the thighs; but it is often diffused extensively over the surface. The vesicles burst, at length, pour forth an acrid ichor, and the parts are painfully excoriated and fissured.

3028. The general health is frequently little affected.

3029. [According to Bielt, a rigorous diet, simple or emollient baths, emollient local applications, when the surface of the skin is exposed and painful, are the proper remedies for the *acute* form of eczema. He especially discountenances the employment of preparations of sulphur and mercury in this state of the disease.

3030. In chronic cases of moderate duration, the nitric and sulphuric acids, emollient baths, laxatives, alkaline medicines exhibited internally or applied in the form of baths and lotions, are recommended. In the more obstinate cases, it is necessary to have recourse to calomel, purgatives, vapor baths, and douches, sulphureous waters, preparations of arsenic, cantharides, and other remedies, the number of which sufficiently shows the obstinate nature of the affection.]

X. IMPETIGO.

3031. The transition is natural from Eczema to Impetigo, although these diseases are distributed in distant parts of Dr. Willan's arrangement. That author has divided Impetigo into five forms :—

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|-----------------------------|----------------------|
| 1. Impetigo figurata. | 4. Impetigo scabida. |
| 2. Impetigo sparsa. | 5. Impetigo rodens. |
| 3. Impetigo erysipelatodes. | |

3032. II. *The Symptoms.* Impetigo consists in the eruption of pustules, which are not very prominent, and which in a few days break and discharge their fluid, the surface becoming red, excoriated, and shining, and discharging an ichorous fluid; there are also great heat, itching, and smarting. The discharge concretes into thin scabs.

3033. The *first* variety of Impetigo assumes the form of *Ringworm*; the *second* is more diffused; the *third* appears upon the surface of a part affected with erysipelalous inflammation; the *fourth* is long-continued, the part being "encased in a thick, yellowish, scaly crust, not unlike the bark of a tree;" the *fifth* variety is said to be allied to cancer.¹

3034. III. *The Treatment.* Aperients, antacids, tonics, &c. must be conjoined with various applications, as gruel, lotions with alcohol, &c. an ointment with one eighth part of the liquor plumbi superacetatis, &c.

¹ It will be obvious, from this brief description, that Eczema and Impetigo are nearly allied. The vesicular and pustular eruptions are sometimes *combined* even; and the *Bricklayer's* or the *Grocer's* itch is sometimes an Eczema, sometimes an Impetigo, Impetigo seems also allied to Porrigo. The subject is in need of simplification.

XI. SCABIES.

3035. I. *The History.* Scabies is decidedly contagious.

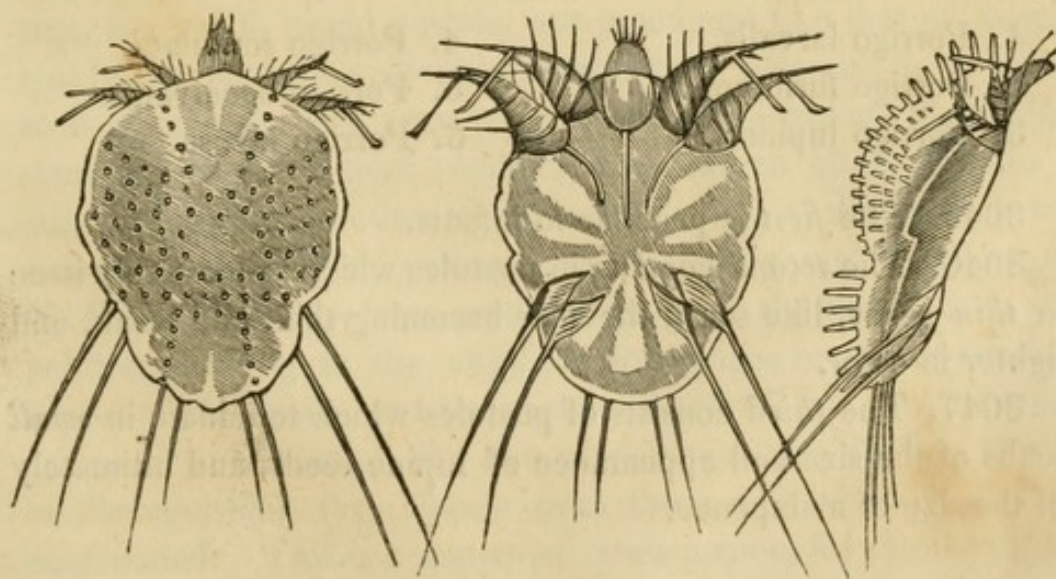
3036. II. *The Symptoms.* It consists of an eruption of papulæ, vesicles, or pustules, singly, or intermixed, chiefly seated betwixt the fingers and the bend of the wrists, and of the other joints, but also on every part of the body, except the face, terminating in scabs, and accompanied by intolerable itching.

3037. Dr. Willan divided this disease into four distinct forms:—

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|--------------------------|------------------------|
| 1. Scabies papuliformis. | 3. Scabies purulenta. |
| 2. Scabies lymphatica. | 4. Scabies cachectica. |

3038. [M. Bielt describes the primitive lesion of scabies as consisting always of a vesicular eruption. This may be complicated, however, with the papulæ of lichen, the *flattened* and *grouped* vesicles of eczema, or the pustules of impetigo.

3039. The existence of the itch insect, *acarus scabiei*, so long a matter of doubt and disputation, was at last clearly established by M. Renucci, of Corsica, in his inaugural thesis, presented to the Faculty of Paris a few years since. M. Raspail has given a plate, containing the figures of the true acarus, as delineated by different preceding authors, and of other insects erroneously taken for it, with the representation of the insect as seen by himself. We subjoin the last, which contains an upper, an under, and a side view of the insect, magnified many times.



3040. It is to be remarked that the insect is not found, as was formerly supposed, within the vesicle itself, but at the end of a small line, or covered way under the cuticle, extending an eighth of an inch or more from the vesicle. M. Gras, who studied these insects, by placing them on his own skin, found that they occupied several days in digging this covered way, and that the vesicles appeared some time afterwards. The insect is hard and horny, and can readily be seen to crawl with a common lens.]

3041. III. *The Effects of Remedies.* Scabies generally, real Scabies perhaps always, yields to the due application of the sulphur ointment. [Various other remedies are attended with some success, especially in the early stage, such as sulphurous waters, lotions of sulphurated potass, corrosive sublimate, chloride of lime or of soda, sulphate of zinc, &c.]

XII. PORRIGO.

3042. I. *The History.* This disease, like scabies, is contagious.

3043. II. *The Symptoms.* The Porrigo consists of the eruption of straw-colored pustules, sometimes circumscribed, sometimes diffused, generally, but not always confined to the head; the pustules break and give issue to a fluid which concretes into yellowish or brownish, thin or thick crusts or scabs.

3044. Dr. Willan describes six varieties of Porrigo:—

- | | |
|-----------------------|-----------------------|
| 1. Porrigo larvalis. | 4. Porrigo scutulata. |
| 2. Porrigo furfurans. | 5. Porrigo decalvans. |
| 3. Porrigo lupinosa. | 6. Porrigo favosa. |

3045. The *first* is peculiar to infants.

3046. The *second* consists in pustules which successively issue in *thin* scabs, like scurf, the hair becoming thin, and weak, and lighter in color.

3047. The *third* consists of pustules which terminate in *small* scabs of the size and appearance of lupine seeds, and ultimately of the size of a sixpence.

3048. The *fourth*, of pustules leading to thin scabs, which become thick, if neglected, assuming the form of *Ringworm*, and ultimately coalescing so as to affect the whole scalp.

3049. The *fifth* variety, or the *Porrigo decalvans*, is obscurely, if at all, pustular, and consists in bald patches of the scalp.

3050. The *Porrigo favosa* occurs in all parts of the body, sometimes on the scalp, sometimes on the face, trunk or extremities only, but chiefly on the head and behind the ears, with swelling of the cervical glands.

3051. Innumerable *Remedies*, internal and external, have been recommended for *Porrigo*. Indeed, it is plain that, under this designation, many totally different diseases are classed by Willan and Bateman. A just distinction is first required, and then a careful inquiry into the special efficacy of remedies.

3052. [M. Biett considers *Porrigo* very differently. In his opinion, Dr. Willan has improperly united several distinct affections. The *Porrigo larvalis* and *Porrigo favosa* of Dr. Willan, he considers as forms of *Impetigo*. The *Porrigo furfurans* is either *pityriasis*, or chronic *eczema*. The *Porrigo decalvans* may result from different affections of the scalp, and should not be considered as a distinct affection.

3053. He admits only two forms of *Porrigo*. The first he calls *Porrigo favosa*, and this corresponds to the *Porrigo lupinosa* of Dr. Willan. The second is the *Porrigo scutulata*. The character common to both these forms, and distinctive of true *Porrigo*, is a small, round pustule, not prominent like that of *impetigo*, but set into the epidermis, containing a yellowish fluid, which soon concretes, and presents a central depression, then after some days forms a thick, cellular crust, which often contains a cup-like cavity; at other times, is without this character, being only a thick, grayish yellow, and frequently very hard scale. M. Gibert, in his lectures on the diseases of the skin, was in the habit of pointing to the cup-like depressions or honey-combed aspect of the crusts, and the peculiar smell of the part affected, (*odeur de souris*, smell like that of a mouse,) as the best means of distinguishing this disease from those with which it is often confounded. This is a matter of consequence, for the true *Por-*

rigo is contagious, and exceedingly difficult of cure. The treatment consists in cutting the hair, softening the crusts by emollient applications, alkaline, sulphurous, or acidulated lotions. M. Biett has obtained favorable results from the iodide of sulphur. The celebrated empirical treatment invented and practised by the brothers Mahon, consists in the use of remedies of alkaline nature, and owes a part of its success, doubtless, to the care with which they superintend the application of their method.]

3054. In general, it may be observed that an attention must be paid to restore the health and tone of the system ; and applications of an emollient and stimulant character must then be made in turns. After cataplasms and simple ointments, the unguentum hydrargyri nitratis, the unguentum picis, the unguentum sulphuris, singly and mixed ; the liquor potassæ ; the nitras argenti, have been variously prescribed.

XIII. SYCOSIS.

3055. This cutaneous disease, when it affects the head, must be distinguished from Porrigo. The distinction is founded on its tubercular, slowly suppurating character. Its tubercles are inflamed, fleshy, and of a darkish red ; they are apt to coalesce ; and they pour out a sanious matter, which concretes, and mats the hair together. It is distinguished by its seat into the

1. Sycosis menti.

2. Sycosis capillitii.

3056. The *former*, affecting the bearded part of the lip and chin, has been noticed, § 2946. The *latter* is principally seated upon the margin of the hairy scalp : the tubercles rise in circular clusters, are softer and more acuminate than those of the Sycosis menti, slowly suppurate, coalesce, and induce an elevated, unequal, ulcerated surface, which often appears granulated, resembling the cut surface of a fig ; whence its name.

3057. *The Treatment* is the same as that described § 3054.

XIV. ACNE.

3058. It seems quite unnecessary to enter into any minute description of that eruption of slowly or partially suppurating tu-

bercles, which chiefly beset the face and the skin upon the shoulders of young persons. It has been described under four forms by Dr. Willan, the designations of which sufficiently express the varieties of its appearance :—

- | | |
|-------------------|-------------------|
| 1. Acne simplex. | 3. Acne indurata. |
| 2. Acne punctata. | 4. Acne rosacea. |

The last of these has been already noticed, § 2932.

3059. In addition to the treatment, § 3055, I may recommend the trial of an unchemical mixture of brandy and sulphur, shaken together and applied to the spots of acne. § 3055-4

XV. ECTHYMA.

3060. I. *The History.* The Ecthyma generally follows some severe indisposition, as fever, scarlatina, rubeola, variola, dyspepsia acuta, or the effects of anxiety, spirits, &c. It constitutes certain forms of venereal eruptions; and it is frequently the effect of *Cachexia*.

3061. II. *The Symptoms.* This disease consists of distinct, scattered pustules, situated upon hard, elevated, and inflamed bases, and terminating in thick, hard, greenish, or dark-colored scabs.

3062. Dr. Willan describes four varieties of Ecthyma :—

- | | |
|-----------------------|------------------------|
| 1. Ecthyma vulgare. | 3. Ecthyma luridum. |
| 2. Ecthyma infantile. | 4. Ecthyma cacheticum. |

3063. The *first* variety consists of a partial eruption of small, hard pustules, on the neck, shoulders, or extremities, which is completed in about three days. They enlarge and inflame, form pus, and then scabs. These eventually dry, fall off, and leave no mark behind. They are chiefly seen in young persons whose health has been impaired.

3064. The pustules of the Ecthyma luridum are larger, more diffused, more repeated, and are fixed upon a hard, elevated base of a peculiar dark red color. They appear upon every part of the body, but least frequently on the face. This form of Ecthyma is principally seen in old persons of broken constitutions.

A *symptomatic* variety also occurs during the cachexia which succeeds to scarlatina, &c.

3065. The Ecthyma cacheticum occurs, as its name imports, during various forms of Cachexia, and especially that which follows certain venereal taints. The reader is referred to § 2865.

3066. III. *The Treatment* is entirely constitutional. The secretions and the tone of the system must be restored, and sarsaparilla administered; warm baths, sulphurous baths, &c., must be added.

XVI. RUPIA.

3067. Rupia is described by Dr. Bateman as consisting of an "eruption of flat, distinct vesicles, with the base slightly inflamed, containing a sanious fluid, the scabs accumulating, sometimes in a conical form, easily rubbed off, and soon reproduced." The same author enumerates three varieties of the disease—

1. Rupia simplex.
2. Rupia prominens.
3. Rupia escharotica.

3068. The principles of treatment are the same in Rupia as in Ecthyma.

XVII. PEMPHIGUS.

3069. This disease is described by Dr. Bateman as an eruption of transparent vesicles, about the size of a filbert, *with* a red, inflamed edge, but without surrounding blush or tumefaction, containing a pellucid fluid, and disposed to ulcerate on breaking. [Pemphigus is sometimes congenital. The treatment consists in the common antiphlogistic remedies.]

XVIII. POMPHOLYX.

3070. This affection consists of an eruption of blebs [or large rounded blisters] *without* surrounding inflammation, and without fever, which break and heal without scab or crust. It appears under the three following forms:—

1. Pompholyx benignus.
2. Pompholyx diutinus.
3. Pompholyx solitarius.

3071. The *first* consists of transparent blebs, which appear in succession, burst and soon heal. They appear chiefly in boys in hot weather, on the face, neck and limbs.

3072. The *second* occurs in debilitated or aged persons, in the form of successive blebs, which augment from the size of a pea, to that of a walnut, and perhaps burst and lead to excoriation. This disease is sometimes associated with dropsy or purpura.

3073. The *third* form of Pompholyx requires no distinct notice.

3074. *The Treatment* is the same as in Ecthyma, Rupia, &c.

3075. [Pompholyx is not recognised as a separate form of disease by Biett and Rayer, but its cases are referred to Pemphigus. Two varieties, the *acute* and the *chronic* pemphigus, include all the species of the two diseases.]

XIX. LEpra.

3076. This disease consists of circular patches of smooth, laminated scales, of different sizes, inflamed at their borders, and depressed in their centres.

3077. There are three varieties of Lepra :—

1. Lepra vulgaris.
2. Lepra alphoides.
3. Lepra nigricans.

3078. The *first* and *second* do not deserve a distinct notice. The Lepra is generally seen to occupy the skin over the *olecranon* and *patella*.

3079. The *third* variety is attended by thinner scales ; and, when these are removed, the part is frequently tender and apt to bleed. It is frequently associated with cachexia.

3080. *The Treatment* in Lepra consists in restoring the healthy condition of the system, especially of the secretions and the skin ; the liquor arsenicalis, the decoctum dulcamaræ, sarsaparilla, &c., have also been prescribed.

XX. PSORIASIS.

3081. Psoriasis differs from the *Lepra* chiefly in the irregular form and in the diffusion of the scaly patches, and in the absence of its inflamed borders, depressed centres, and regular oval or circular forms. The subjacent surface is also more tender, more easily denuded, and more prone to become affected by fissures. Psoriasis has been divided into the following varieties:

- | | |
|-----------------------|--------------------------|
| 1. Psoriasis guttata. | 4. Psoriasis inveterata. |
| 2. Psoriasis diffusa. | 5. Psoriasis localis. |
| 3. Psoriasis gyrata. | |

3082. These varieties, except the last, depend on the difference of *form* and *duration* of the disease. The *Psoriasis localis* affects—1, the under lip; 2, the wrists and fore-arm in *washer-women*; 3, the palm of the hand, the eye-lids; 4, the back of the hand in *bakers*; 5, the prepuce; 6, the scrotum.

3083. The principles of treatment are the same as in *Lepra*.

3084. [*Lepra* and *Psoriasis* have many points in common; they were indeed considered by M. Martins, under whose instruction we formerly studied the diseases of the skin, at St. Louis, as the same affection, under somewhat different forms. Both are often very intractable. Among the remedies proposed for these obstinate affections, we may mention the external application of the iodide of sulphur, and the internal use of the tincture of cantharides, both of which have produced favorable results.]

XXI. PITYRIASIS.

3085. This affection consists of irregular patches of thin, bran-like scales, which frequently exfoliate and recur, but never form crusts, or are accompanied with excoriations.

3086. Four varieties of *Pityriasis* have been described:—

- | | |
|--------------------------------|-----------------------------------|
| 1. <i>Pityriasis capitis</i> . | 3. <i>Pityriasis versicolor</i> . |
| 2. <i>Pityriasis rubra</i> . | 4. <i>Pityriasis nigra</i> . |

3087. The *first* of these is the dandriff of infants.

3088. The *second* occurs in advanced life.

3089. The *third* is denoted by the variegated appearance of the cuticle.

3090. The *fourth* is seen in children born in India.

3091. *The Treatment.* Attention to the general health, and frequent ablutions of pure water, are the only remedies required. I have frequently seen Pityriasis excited by flannel ; which must, therefore, be avoided. [Tonics, with aperients, alkaline washes, and vapor baths have been recommended.]

XXII. ICTHYOSIS.

3092. This disease consists in an indurated, horny condition of the skin. [It derives its name from the resemblance the skin affected by it presents to that of a fish.] It is divided into two kinds :—

1. Ichthyosis simplex.

2. Ichthyosis cornea.

3093. [Ichthyosis is sometimes congenital. It is little benefited by any treatment beyond the employment of baths and emollients as palliatives.]

CHAPTER IV.

ON SOME DISEASES SUBJACENT TO THE SKIN.

3094. I PROPOSE, in the present chapter, to sketch the diagnosis of those diseases which are seated deeper than the skin. They will present new instances of affections belonging to the province of medical surgery, rather than that of physic.

3095. These diseases occur in the course of the limbs, in the neck, in the groin, and in the lumbar and iliac regions. The diseases of each of these parts form interesting subjects for diagnosis, as the reader will perceive on casting his eye over the sub-joined arrangement.

I. OF THE LIMBS.

I. PHLEBITIS.

II. INFLAMMATION OF THE ABSORBENTS.

II. OF THE NECK.

I. INFLAMMATION OF THE LYMPHATIC GLANDS.

II. CYNANCHE PAROTIDEA.

III. BRONCHOCELE.

IV. TUMORS.

V. ANEURISM.

III. OF THE GROIN.

I. INFLAMED GLANDS.

II. HERNIA.

III. THE POINTING OF LUMBAR ABSCESS.

IV. TUMORS.

V. ANEURISM.

IV. OF THE LUMBAR AND ILIAC REGIONS.

I. DISEASE OF THE SPINE.

II. ANEURISM OF THE AORTA.

III. RHEUMATISM ; LUMBAGO.

IV. LUMBAR ABSCESS.

V. DISEASE OF THE KIDNEY.

VI. DISEASE OF THE HIP-JOINT.

I. DISEASES OF THE LIMBS.

I. PHLEBITIS.

3096. I. *The History.* Inflammation of the vein frequently occurs from an accident or surgical operation : it is apt to follow venesection, the ligature of a vein, &c. and I have known one instance occasioned by the bite of a horse on the finger.

3097. II. *The Symptoms.* Phlebitis is distinguished by a hard, cord-like, tender line, pursuing the course of a vein or veins, from an incision or wound. It is—

Suppurative, and Diffused ;

and attended by fever of the typhoid form, and abscesses ; or

Suppurative, and Adhesive,

and accompanied by distinct abscesses in the course of the inflamed vein, with protracted fever. § 2922.

II. INFLAMMATION OF THE LYMPHATICS.

3098. I. *The History.* This disease usually arises from a wound or ulcer.

3099. II. *The Symptoms* consist in a flat line of redness and tenderness, pursuing its course from this wound or ulcer along the lymphatic vessels, and frequently attaining the lymphatic glands,—in the neck, in the axilla, or in the groin,—when the scalp, the hand or arm, the leg or foot, or the penis, is severally affected.

The redness and tenderness may subside ; or numerous successive abscesses may form in the course of the lymphatic vessels or glands.

3100. III. *The Treatment* consists in purgative and saline medicines, and the application of the nitrate of silver.

II. DISEASES OF THE NECK.

I. INFLAMMATION OF THE LYMPHATIC GLANDS.

3101. I. *The History*. This affection is generally slow in its progress, and allied to struma or connected with general disorder. It is also a frequent complication of porrigo.

3102. II. *The Symptoms*. The tumor obviously consists of a single lymphatic gland ; or of a chain or cluster of glands ; it is, of course, seated in the situation of these glands, and thus distinguished from the disease to be next mentioned. It frequently passes into slow suppuration.

3103. III. *The Treatment* consists of mild aperients and tonics ; leeches, blisters, &c.

3104. [The glands of the neck are frequently the seat of tuberculous depositions, which here, as in other parts, undergo softening and induce ulceration. The constitutional remedies of scrofula are called for in this affection.]

II. CYNANCHE PAROTIDEA.

3105. I. *The History*. The Cynanche Parotidea, or mumps, is a contagious disease, and may generally be traced to exposure to patients similarly affected.

3106. II. *The Symptoms*. It is distinguished by occupying the position of one, or more, of the parotid or sub-maxillary glands. It is soft, puffy, slightly tender, and not disposed to suppurate. It is subject to metastasis, to the *testis*, in the male, and to the *mamma* in the female subject. It is attended by febrile symptoms.

3107. III. *The Treatment* is simply and purely antiphlogistic.

III. BRONCHOCELE.

3108. I. *The History.* This singular affection is endemic in hilly countries ; in Switzerland it is termed the goître, and is apt to be associated with cretinism.

3109. II. *The Symptoms.* Bronchocele is an enlargement of the thyroid gland ; its situation will, therefore, be well known to the student of anatomy ; it is frequently unequally developed on the two sides of the thyroid cartilage ; it is soft and free from tenderness ; and is moved upwards in deglutition.

3110. By degrees it may increase in magnitude so as to impede the respiration ; and it may become extremely hard, and even ossified.

3111. III. *The Effect of Remedies.* Early in the disease the iodine seems to be almost specific.

IV. TUMORS.

2112. A tumor situated in the neck can only be identified by contrasting its form, origin, and progress, with those of the affections just described, and by comparing them with those of the various kinds of morbid growths. In this manner, too, is such a tumor to be distinguished from

V. ANEURISM,

which is further distinguished by its peculiar pulsation, and the impulse felt and the sound heard under the ear or stethoscope.

III. DISEASES OF THE GROIN.

I. INFLAMED GLANDS.

3113. This disease is distinguished by its tenderness, and by presenting to the finger the sensation of several distinct glands forming the general tumor. There are frequently redness of the skin, and an obvious disposition to suppurate.

3114. [Inflammation of the glands of the groin is usually excited by some irritation in the course of the lymphatics of the neighboring parts or the lower extremities. It is a frequent accompaniment of ulcers of the genital organs and of gonorrhœa,

and is occasionally excited by apparently trifling causes, as the pressure of a tight boot, &c. We have known three cases in which it arose without any apparent cause, constituting idiopathic bubo, (*bubon d' emblée* of the French) in two of which there was tedious suppuration. In two of these cases there had been recent connection with suspected females, but in neither was there any venereal symptom.

3115. The treatment consists in the ordinary remedies of local inflammation.]

II. INGUINAL HERNIA.

3116. This disease, when free from strangulation, consists of an individual tumor, augmented on coughing, reducible by pressure in the recumbent posture, and unattended by tenderness, or pain, or other symptoms.

3117. When strangulated, it is attended by its peculiar symptoms of sickness, vomiting, and intestinal obstruction and pain; and the local tumor, when examined, is usually found to be tender under pressure.

III. LUMBAR ABSCESS,

3118. When it points in the groin, is attended by phenomena precisely similar to those of hernia, when free from strangulation. These two cases are distinguished by *the history*, lumbar abscess being preceded by its peculiar symptoms. They are also distinguished by the state of the general health, which, in lumbar abscess, is greatly impaired. The stethoscope would also probably assist the diagnosis. § 3123. [The sound and feeling, on percussion and on reducing the tumor, are of material assistance. If there be intestinal hernia, the presence of gas will render the sound tympanitic, and there will be gurgling when the tumor is returned into the abdomen.]

IV. TUMORS and

V. ANEURISM,

3119. Are to be distinguished by their appropriate course and symptoms, which need not be repeated in this place.

IV. DISEASES OF THE LUMBAR AND ILIAC REGIONS.

I. DISEASE OF THE SPINE.

3120. This disease, which is usually of the most insidious character, is detected by careful *examination*. Pain and tenderness in the course of the spine on the application of pressure or percussion, followed by spasmodic or paralytic symptoms, are the diagnostic marks of this terrific disease. The general health also fails, and there are debility and emaciation. In the case of caries, redness and tumor and augmented pain and tenderness supervene.

II. ANEURISM OF THE AORTA.

3121. In cases of pain and tenderness in the region of the spine, the ear or the stethoscope will occasionally detect the pulsation of an aortic aneurism. In all such cases, this mode of examination should, therefore, be adopted.

III. RHEUMATISM ; LUMBAGO.

3122. This affection is usually sudden in its attack, attended with greatly aggravated pain on throwing the lumbar muscles into action, and frequently with pain in the joints or limbs, and unattended by the symptoms peculiar to the other diseases of this section.

IV. LUMBAR OR ILIAC ABSCESS.

3123. I. *The History*. This affection may sometimes be traced to a blow or strain, or to exposure to damp and cold. It is exceedingly insidious, and frequently undetected until it begins to point externally.

3124. II. *The Symptoms* are obscure pain of the back, with little tenderness, but with a peculiar lameness of one leg, the thigh being flexed upon the abdomen, or rotated inwards with pain. There is some degree of hectic, debility and emaciation ; in the course of time, a soft tumor appears in the groin, near the

anus, or in the back, &c. which becomes tense on coughing, and fluctuates under the finger. This disease is frequently complicated with—

1. Caries of the Spine, or
2. Tuberculous Disease.

It is necessary to distinguish it from

V. DISEASE OF THE KIDNEY;

3125. The diagnostic marks of which are given, § 2663, and from

VI. DISEASE OF THE HIP;

3126. The diagnosis of which is to be found in works professedly of surgery.

CHAPTER V.

OF SYPHILIS AND DISEASES OF THE GENITAL ORGANS.

GONORRHŒA.

3127. [GONORRHŒA is a contagious inflammation of the urethra, glans and prepuce in the male, and of the vagina, and occasionally of the urethra in the female. In the male, it is announced by the secretion of a yellowish or greenish-white fluid, with scalding and pain in making water, and frequent troublesome erections. In the female, the inflammation may extend to the cervix uteri, and may cause excoriation of the labia. The fluid secreted communicates the infection in both sexes.

3128. The more common complications of this affection in the male are, swelling of the testicle and of the prostate gland, and *chordee*, which is an inflammatory curvature produced by the extravasation of lymph in the corpus spongiosum ; in the female, inflammation of the ovaria and uterus ; and in both, ophthalmia, iritis, and gonorrhœal arthritis.

3129. The treatment of Gonorrhœa must vary according to its intensity, which is generally greater in a first attack than in subsequent ones. When the inflammatory symptoms are strongly marked, M. Ricord applies thirty leeches to the perinæum ; a practice which may be enforced in hospitals, but is difficult in ordinary cases. Rigid diet, rest, aperients, and mucilaginous drinks should constitute the general treatment. Chordee is much relieved by the internal use of camphor and opium. The warm bath is useful in this stage of the complaint. Injections of the acetate of lead, in the proportion of one or two grains to the ounce of water,

and other astringent or stimulating salts in solutions of various strength ; also the copaiba and cubebs, internally, are employed after the first violence of the symptoms has abated. A common accident is the occurrence of great sensibility about the neck of the bladder, with frequent desire of passing water. This is apt to follow the use of stimulating injections, and is best combated by opiate injections into the rectum, opiate plasters to the loins, rest, warm bathing, and leeches.

3130. The milder attacks of *Gonorrhœa* in those who habitually expose themselves to it, may be treated at once by means of copaiba and injections. These means are also proper for the removal of *gleet*, the chronic discharge which often follows gonorrhœa, which is frequently obstinate, and requires long and varied treatment. *Stricture* is relieved or cured by dilatation with the bougie, or the application of caustic with the same instrument. *Gonorrhœa* is sometimes very obstinate. Dr. Oppenheim observes, it is "a most annoying form of disease ; it is cured, and it is not, by every plan of treatment."

3131. *Inflammation* or *blenorrhœa* of the *glans*. This is a muco-purulent contagious discharge from the glands and inside of the prepuce, proceeding from separate inflamed, and frequently excoriated spots on the surface. When not complicated with sores or gonorrhœa, it is cured in a few days, by cleanliness, and a lotion of lead water. It is called by the French *balanite*, (from *Balanos*, a gland,) and it is treated by M. Ricord, at the Venereal Hospital of Paris, by the interposition of a piece of soft linen dipped in lead water, between the gland and the prepuce, under which treatment it readily yields. If there is phymosis, the operation of dividing the prepuce must be performed, after which, the application just mentioned may be employed.]

SYPHILIS.

3132. [Syphilis, in the words of the reviewer in the *British and Foreign Quarterly*, "for little less than three centuries and a half, has monopolized a share of medical literature, nearly as large as all the remaining members of the nosological family put together." Nevertheless, the diagnosis and treatment of the vari-

ous forms of this disease seem to be involved in as much perplexity and dispute as they were a century ago.

3133. The sources of this perplexity are found in the changeable character of the disease in different periods, the new aspects and tendencies which it assumes in different localities, and the various results which are obtained from the same treatment, and from opposite modes of treatment, in different cases and constitutions. We shall offer a few general statements, derived from some of the best modern lights on the subject.

3134. Syphilis is a contagious disease, communicable by inoculation, or by contact of surfaces, and most commonly by impure sexual connection. The symptoms are divided into the *primary*, or those which appear early in the disease, and the *secondary*, which appear later, and as a consequence of the former.

3135. The primary symptoms are, 1. The simple syphilitic ulcer, of which there are more kinds than one. 2. The indurated syphilitic ulcer, (the Hunterian chancre.) 3. The phagedenic syphilitic ulcer. 4. The gangrenous ulcer. 5. The bubo. All these affections are supposed to be due to the same cause, and capable of being taken from the same exposure. They also arise from and may be produced, the one by the other, at certain periods of their existence.

3136. 1. The *simple venereal ulcer*, or chancre, is a contagious, acute primary sore, arising from local infection, the edges of which are neither callous nor deeply indurated. Of this kind of sore there are several varieties. Those which are most commonly called *chancres*, appear usually behind the corona glandis, or on the contiguous parts of the prepuce. They begin with a small red spot, followed by a yellowish-white point, gradually changing to a small, slightly excavated ulcer, having its bottom covered with a yellowish-white, very adherent substance. These ulcers are capable of producing most, if not all, the secondary forms of the disease.

3137. 2. The *indurated venereal ulcer* is the chancre described by John Hunter. It is circular, excavated, without granulations, covered with a whitish adherent matter, and having a callous base, with hard, thick edges. When this chancre appears on

the body of the penis, it spreads to a considerable size, and retains its characteristic hardness, but without excavation. Secondary affections are apt to follow this primary symptom.

3138. 3. The *phagedenic venereal ulcer* has an eroded aspect, it is without granulations, and the soft parts that surround it are not callous nor indurated. It sometimes spreads with great rapidity, committing much havoc in the course of a few days; at other times it creeps slowly, but does not stop until it has destroyed a great part of the prepuce and glans. It is sometimes attended with hæmorrhage, which has a favorable effect. Every form of secondary symptom and cutaneous eruption is observed to follow the phagedenic ulcer.

3139. 4. The *gangrenous venereal ulcer* is the most terrific of all the primary syphilitic affections. It begins with a small blackish spot, attended with little pain, but which on examination is found to be a gangrenous eschar. This goes on increasing until a slough separates, leaving a highly erosive phagedenic sore, attended with acute pain, and soon covered with a new eschar. In this manner a succession of erosive processes and eschars go on, until a large part, and sometimes the whole of the genital organs in both sexes are destroyed. In those who happily escape without extensive mutilation, the secondary symptoms are liable to follow.

3140. 5. The *venereal bubo* is a tumor occurring in the inguinal region after impure coition, and attended with more or less pain. Buboes generally accompany or follow other primary symptoms, but there is sufficient evidence to show that they occasionally occur as primary symptoms themselves, without any preceding morbid affection. Buboes may terminate by resolution, or they may suppurate.

3141. Syphilis may be hereditarily transmitted to infants, in which case it appears in the form of external tubercles, pustules, ulcers, &c., or it may be received by them at the moment of birth, from contact with the diseased organs, in which case it produces ophthalmia, and blenorrheal affections.

3142. This disease may be communicated by inoculation, and the primary symptoms have been accidentally produced by this cause on the hands, mouth, navel, anus, &c.

3143. In the *treatment* of primary syphilitic sores or chancres, two methods are employed, the *mercurial* and the *non-mercurial*. In regard to the respective efficacy of these two methods, great diversity of opinion has prevailed, and still exists. In the days of Mr. Hunter, the mercurial plan was considered not only efficacious, but indispensable, and it became a part of the diagnosis of the true syphilitic chancre, that it was curable by mercury alone. This opinion, or at least the practice which is founded upon it, still prevails to a great extent in Great Britain and the United States, while in some parts of these countries, and more extensively on the continent of Europe, a preference for the non-mercurial treatment, appears to be gaining ground.

3144. The circumstance which first tended to impair the exclusive confidence which had existed in the anti-venereal powers of mercury, was the occurrence of cases of a syphilitic aspect, which could not be cured, but, on the contrary, were aggravated by a mercurial treatment. These cases were studied by different European surgeons, but particularly by Messrs. Abernethy and Carmichael, and by them pronounced to be of a spurious, or not truly syphilitic kind. Various rules of distinction were laid down for separating the true from the false cases, until at length it came to be believed that the true venereal chancre, as it existed in the days of Mr. Hunter, is now a comparatively rare occurrence; while a number of spurious or imitative diseases, curable without mercury, have taken its place. Nor was this all. It was soon alleged that the most genuine and undoubted cases might recover without mercury, and the more extensively the experiment was made, the more uniform appeared to be the result, that not only the primary symptoms of syphilis, but also the secondary effects, in all their varieties, may be removed by a treatment in which no mercury is employed.

3145. The non-mercurial, or *antiphlogistic* treatment consists in confining the patient to the house, and for the most part, to a horizontal posture. A simple or liquid, and very sparing diet, only is allowed, and the rest of the antiphlogistic regimen strictly enforced. Blood-letting, when required by the symptoms, purgatives and diaphoretics are used, particularly antimony and sarsaparilla.

3146. A vast body of statistical and comparative results on this subject has been collected in the hospitals and armies of Europe. The aggregate of these reports, amounting to not less than eighty thousand cases, have abundantly established the fact, that syphilis is curable without mercury. In Sweden, particularly, where the experiment was largely undertaken by order of government, twenty thousand cases were treated without mercury. The number of relapses under this treatment was seven and a half in a hundred; while in a like number treated with mercury, the proportion of relapses was thirteen and two thirds in a hundred. Dr. Fricke, of Hamburg, a zealous advocate of the antiphlogistic method, has treated "more than five thousand cases without mercury, and has still to seek the cases in which that remedy may be advantageously employed." The chief points insisted on by him as necessary in the treatment, are strict cleanliness, perfect repose, rigid diet, and antiphlogistic remedies.

3147. On the other hand, abundant and constant experience shows that true syphilis is curable by mercury, and it is probable that a great majority of practitioners still continue to employ it, both in Europe and this country. It has the advantage, that it may be pursued without great inconvenience to the patient, and sometimes without interruption of his ordinary occupations; whereas, the antiphlogistic treatment requires more confinement and greater privations than are willingly submitted to by patients in the incipient forms of the disease.

3148. A mercurial influence, adequate to the eradication of syphilis, may be obtained in various ways. Calomel or the blue pill may be given once or twice a day in small doses, with or without opium, according to the effect produced on the bowels, till the constitutional effect is manifested by soreness of the gums. Or the same effect may be produced by rubbing in the mercurial ointment externally. Corrosive sublimate, in such doses as do not offend the stomach, is very efficacious, and is less apt to salivate. Other preparations of mercury are used, some of which will be mentioned hereafter.

3149. Destruction of the chancres by caustic, is frequently effectual, if applied in the early stage, before the disease has affected the constitution.

3150. Simple venereal ulcers are said to get well most rapidly under the antiphlogistic treatment, with purgatives and antimonials, though alterative doses of mercury are useful.

3151. The indurated or Hunterian chancre is most satisfactorily managed by mercury, though it appears capable of getting well under treatment without that medicine.

3152. Phagedenic ulcers are treated with caustic, and a rigid antiphlogistic course, rest, emollient and narcotic topical applications, blood-letting and antimonials. Desruelles has recommended leeches to the ulcers, and Carmichael advises scarifying their edges.

3153. In gangrenous ulcers, stimulating applications to the part, such as balsam of Copaiba, or turpentine diluted with olive oil, are recommended by Carmichael. Opiates, sarsaparilla, and more than all, a change of air, are advantageous remedies. Mercury and bark are deemed injurious, at least until the gangrenous period is past.

3154. Buboës, in their earlier stages, are treated upon antiphlogistic principles, and by cold applications. If matter forms they should be opened seasonably. After the inflammatory symptoms subside, mercurial ointment rubbed at night on the inside of the thigh, is extremely useful.

3155. The *secondary symptoms* of Syphilis are exceedingly numerous and varied. They are liable to occur in all cases which have been neglected, or improperly managed; and they will sometimes take place even under the best management. The most common are ulcers of the mouth, throat, nasal fossæ, and other parts; affections of the periosteum, with thickening, effusion, &c.; nodes, caries, and other affections, of the bones; diseases of the joints, of the eye, and its various parts, &c. Almost every form of cutaneous affection may appear as a secondary symptom of Syphilis, such as venereal, tubercles, squamæ, papulæ, excrescences, rashes, secondary ulcers, pustules phlyctenous and psudracious, bullæ, vesiculæ, onychia and alopecia.

3156. *The Treatment* of these numerous affections of the secondary class is various, and frequently tentative. Sarsaparilla, guaiacum, and various compound decoctions made from them, are extensively used. Cinchona and quinine, iodine, arsenic,

gold, antimony, and opium, are all applicable to particular cases. Mercury is indispensable in many cases, and injurious in some others. The effect of its previous employment or omission in the particular case, is often a useful guide. Corrosive sublimate and the iodide of mercury, are among its best forms. Local applications are to be suited to the character of the particular affection.

3157. This subject is of such importance, that we shall here present some of the views of one of the most intelligent observers of Syphilitic diseases, M. Ricord, of Paris. These views are derived from his "*Traité Pratique des Maladies Veneriennes*," and from our notes of his clinical remarks, or his answers to our questions.

3158. Chancre is eminently the characteristic of the venereal disease. It is produced by a specific virus, and may be propagated indefinitely by inoculation.

3159. Bubo is not necessarily syphilitic; the pus formed in a bubo can only produce syphilis when there is an internal or ganglionic chancre.

3160. Gonorrhœa also, can only propagate syphilis when there is a chancre in the urethra, the vagina, or the uterus.

3161. The flat tubercles are characteristic of syphilitic disease; vegetations and excrescences are doubtful marks of this affection.

3162. M. Ricord attaches no importance to the different forms assumed by syphilitic eruptions, which are in a great measure due to the part affected. Thus around the genital organs there will be mucous pustules, and about the scalp impetigo.

3163. M. Ricord has thrown much practical light on the nature of syphilis, by his late experiments on inoculation with matter taken in the various forms and states of that disease. Chancre, according to him, undergoes two stages. The first is the period of increase, during which the chancre furnishes an inoculable secretion, or virus, and if inoculation from it be performed, the part inoculated becomes red in twenty-four hours, and passing through the stages of vesicle, pustule, and incrustation, at length produces the true Hunterian chancre, and engenders a virus, proved by experiment to be identical in its nature with that

which produced it. The second is the period of reparation, when it assumes the form of simple ulceration, and is no longer contagious. The following are among the conclusions drawn from his experiments.¹

3164. Chancre can only be recognised with certainty by the quality of the matter it secretes, and the constitutional symptoms it determines. Chancre can alone produce chancre.

3165. Inoculation from a chancre never fails, if the proper conditions are observed in taking and applying the matter.

3166. The inoculated pustule produces matter equally virulent with that of the original sore.

3167. The pustule is always developed at the precise point where the inoculation is applied, and nowhere else.

3168. A constitutional malady does not necessarily ensue, but appears only when the primary disease has lasted for some time. But the commencement of the disease must be dated from the day on which it was contracted, and not from that on which it was first perceived.

3169. By observations made in this way, it appears that if the sore be destroyed with caustic, or other means, on the third, fourth, or fifth day after the application of the cause, all risk of constitutional affection is removed.

3170. The disease may be considered *local* until induration occurs. Induration commonly commences about the fifth day, and announces that the poison is entering the system.

3171. M. Ricord's experiments further show that the fact of an individual having one chancre, does not prevent him from contracting others to an indefinite number.

3172. In regard to the question of the identity or diversity of syphilis and gonorrhœa, M. Ricord's experiments seem to establish the fact, that the matter of gonorrhœa *per se* never gives origin to chancre. In several hundred inoculations, performed with the secretions of gonorrhœal patients, taken from the glans, prepuce, urethra, vagina, vulva, uterus, anus, conjunctiva, &c. no chancre, or positive result, was produced. And in

¹ See Edinb. Med. and Surg. Journ. April, 1839.

cases where chancre had been *apparently* communicated by gonorrhœa, it was found that a chancre co-existed with the gonorrhœa in the urethra, or deep-seated parts of the vagina.

3173. Bubo, according to M. Ricord, when it is a *primary* symptom has little tendency to suppurate, and if it suppurates, the matter is not inoculable. But *virulent* bubo, or that resulting from previous chancre, is identical with chancre in its nature, and differs from it in form only. Its virulent nature can be ascertained with certainty by the test of inoculation.

3174. The secretions produced in the various *secondary* symptoms of syphilis have been proved by Hunter to be incapable of communicating the disease by inoculation. M. Ricord's experiments fully sustain this conclusion.

3175. M. Ricord states that secondary symptoms are as common after one chancre as where many had existed, and that they are not rendered more likely to occur by the existence of buboes. The order in which he had observed the secondary symptoms to appear was as follows: affections of the skin, of the mucous membranes, of the fibrous system, of the periosteum, of the bone itself, and finally the tuberculous affection of the cellular tissue, called gummous tumors, which last are the most obstinate of cure.

3176. While we attended at the Venereal Hospital, M. Ricord was in the habit of treating venereal ulcers by ordinary means, such as cauterization and the opiated cerate, unless they were accompanied by induration, in which case he prescribed mercury, but rather as a resolute than as a specific. The same principle was applied to buboes, which he did not consider as necessarily a secondary symptom or evidence of constitutional infection. He usually commenced the treatment of venereal sore throat by ordinary means, such as leeches and emollient gargles. In the other secondary affections he commonly employed mercury at once, under the form of iodide of that metal, beginning with the dose of one grain daily, and increasing sometimes to as much as four grains. Secondary affections, not complicated with grave organic lesions, mostly yield to this remedy.

3177. M. Ricord declared that he knew of no sign which authorized the physician to say that a case of syphilis was abso-

lutely cured. Since mercury has been employed more sparingly he thought that affections of the bones had become less frequent.]

OF DISEASES OF THE GENITAL ORGANS.

I. IN THE MALE SEX.

I. OF THE PENIS.

I. HERPES PRÆPUTIALIS.

II. SCIRRHUS—CARCINOMA.

II. OF THE TESTIS.

I. INFLAMMATION.

1. Of the Epididymis.

2. Of the Body of the Testis.

1. Enlargement.

2. Suppuration.

3. Sloughing.

II. TUBERCLES.

III. FIBROUS TUMOR. ENCEPHALOSIS. SCIRRHUS.

IV. CHIMNEY SWEEPER'S CANCER.

V. HYDROCELE.

VI. VARICOCELE.

VII. HERNIA.

II. IN THE FEMALE SEX.

I. OF THE PUDENDA.

I. INFLAMMATION.

1. Enlargement.

2. Abscess.

II. PRURIGO.

III. VASCULAR TUMOR OF THE MEATUS.

IV. VARICOCELE OF THE URETHRA.

V. AFFECTIONS OF THE ANUS.

II. OF THE VAGINA.

I. INFLAMMATION.

II. TUMORS.

I. IN THE MALE SEX.

I. DISEASES OF THE PENIS.

I. HERPES PRÆPUTIALIS.

3178. This affection consists in one or two clusters of vesicles, situated on the præpuce, or on the labia pudendi. Transparent at first, these vesicles become opaque, and then assume a peculiar appearance. On the internal surface, these vesicles lead, on the fourth or fifth day, to a small ulceration; on the external surface, to a scab, about the sixth. This affection yields without remedies. It is apt to recur.

3179. Herpes Præputialis is precisely similar to that familiar form of Herpes seen on the lip, from exposure to cold.

II. SCIRRHUS—CARCINOMA.

3180. Cancer of the penis frequently arises from a wart or warts, situated on the glans, frænum or præpuce. Long indolent, this local disease, when irritated, may lead to the formation of Scirrhus, having its usual character of induration; and this, to ulceration or Carcinoma. The course of this disease is usually slowly progressive: it eventually involves the inguinal glands, and the integuments of the pubes, or scrotum.

3181. Mr. Earle¹ has made some interesting observations upon *diseases resembling cancer*, induced by local irritation, from which I extract the following description of a disease affecting the penis. It occurs in persons with elongated foreskins, from want of cleanliness. The præpuce becomes excoriated and œdematous, and the frænum thickened; and there is phymosis. The further irritation of the urine induces ulceration, swelling, and induration.

¹ Medico-Chirurgical Transactions, vol. xii, p. 268.

II. DISEASES OF THE TESTIS, SCROTUM, ETC.

I. INFLAMMATION.

3182. I. *The History.* The testis may become inflamed from blows or other similar causes ; but the most frequent cause is *gonorrhœa*.

3183. II. *The Symptoms* are heat, tenderness, and swelling, affecting, like all other diseases of this organ,—

1. The body of the Testis principally, or
2. The Chord and Epididymis.

This affection may issue in

1. Enlargement.
2. Abscess or Abscesses.
3. Sloughs of Cellular Membrane.

3184. [The treatment consists in general and local bleeding, especially the latter, discutient or emollient applications, and, if necessary, a suspensory bandage.]

II. TUBERCLES.

3185. *The Symptoms* of the Tuberculous Testis are those of slow inflammation. This affection usually arises from gonorrhœa, and affects the *epididymis*.

III. FIBROUS TUMOR—ENCEPHALOSIS—SCIRRHUS.

3186. The Fibrous Tumor is distinguished by its uniform shape from Encephalosis, and by its want of extreme induration, from Scirrhus. *All occupy the body of the testis* chiefly. The first is *purely local* ; the others apt to *spread*, and apt to occur in *distant parts*.¹

3187. A singular disease must be noticed in this place, termed the

¹ Encephalosis seems to push the textures in which it is situated aside ; Scirrhus seems to involve them in its extension.

IV. CHIMNEY-SWEEPER'S CANCER.

3188. I. *The History.* This disease does not occur in children or the very young subject. It is caused by the irritation of soot, within the cuticular folds, chiefly of the scrotum, in those predisposed, in middle age, to such disease.

3189. II. *The Symptoms.* This disease is denoted by a warty excrescence, which eventually ulcerates, the edges of the ulcer being everted, and affected by fungous growths; the discharge is fœtid; and there is much induration. The disease spreads, and eventually may involve the entire scrotum, the perinæum, the testis, the inguinal glands, &c.

3190. III. *The Treatment* consists in removing the diseased part, and attention to the general health, cleanliness, &c.

V. HYDROCELE.

3191. Hydrocele is distinguished, and its extent in complicated cases traced, by its transparency. § 239.

VI. VARICOCELE.

3192. Variocèle [or enlargement of the spermatic veins] is ascertained by its peculiar, varicose feel, [resembling that of a bunch of knotted cords in the posterior and under part of the scrotum] and by its disappearing in the recumbent position, [and being aggravated by pressure made at the abdominal ring. It remains through life in most cases, without giving serious trouble. If troublesome, it is relieved by a suspensory bag, or finally by a surgical operation.]

VII. HERNIA.

3193. Hernia is ascertained by its history, by its being reducible, by its tympanitic feel and sound, &c. § 240.

II. IN THE FEMALE SEX.

1. THE DISEASES OF THE PUDENDA.

I. INFLAMMATION.

3194. Inflammation may affect the pudenda, from internal and external causes, and lead to—

1. Swelling, and
2. Suppuration.

II. PRURITUS, ETC.

3195. Herpes of the pudenda has been already mentioned. Sometimes, especially in disease of the uterus, there is extreme pruritus: this symptom alone should always lead to an examination per vaginam. In other cases, there is excoriation, or aphthæ, or verrucæ. [These are treated by lotions of the mineral astringents and stimulants, as lead, borax, &c. or in obstinate cases by caustic.]

III. VASCULAR TUMOR OF THE MEATUS.

3196. Sir C. M. Clarke has described a vascular tumor occupying the orifice of the meatus urinarius. It is exquisitely tender to the touch: and attended by a mucous discharge. It is ascertained at once by an inspection of the part. It is cured by ligature.

IV. VARICOSE VESSELS OF THE URETHRA.

3197. The vessels of the urethra sometimes become varicose. This disease is also described by Sir C. M. Clarke. The urine is apt to be detained in the posterior part of the urethra, causing a pouch, and inducing a constant desire to make water.

V. AFFECTIONS OF THE ANUS.

3198. With or without an affection of the pudenda, there may be pruritus, excoriation, verrucæ, &c. of the verge of the anus, inducing great distress.

II. THE DISEASES OF THE VAGINA.

I. INFLAMMATION.

3199. Besides gonorrhœa, other forms of inflammation affect the vagina, attended by mucous discharges and constituting vaginal leucorrhœa. Such a complaint may continue during

pregnancy, in which case *uterine* leucorrhœa ceases. It is readily cured by the injection of the nitras argenti, [beginning with a weak solution, and increasing the strength to such degree as the patient can bear.]

II. TUMORS.

3200. Tumors may form in any part adjacent to the exterior surface of the vagina. Dr. Heming has described some interesting cases of this kind. These tumors may be—

1. Mere Abscess ; or
2. Encysted,
3. Fibrous,
4. Tuberculous,
5. Encephaloid, or
6. Scirrhus.

3201. The *Diagnosis* and the *Treatment* will depend on the *History*, *Symptoms*, and a careful *Examination*.

CHAPTER VI.

OF ENTOZOA, OR INTERNAL PARASITIC ANIMALS.

3202. [The cavities and passages of the living body afford a habitation to many species of parasitic animals, not only in man, but in the lower orders of the animal creation. No quadruped, bird, fish, reptile, or insect, is known to be exempt from them, and in those which have been most observed, a considerable variety of species has been brought to light. It is the object of the present chapter, to give a short notice of those which inhabit the human body, and which, in certain cases, are instrumental in the production of morbid affections.

3203. The entozoa, says Cuvier, can only propagate themselves in the interior of the bodies of other animals. There is hardly any animal which does not give support to several kinds of them, and frequently the same species of them does not inhabit more kinds of animal than one. They are not only found in the intestinal tube, and the ducts communicating with it, but also in the cellular tissue, and in the substance of the most recondite viscera, such as the brain and liver.

3204. The difficulty of conceiving how they arrive in these situations, together with the observation that they are never met with out of the living body, has caused some naturalists to believe in their spontaneous generation. But it is now sufficiently settled, not only that the greater part of them produce either ova or living young, but that they have distinct sexes, which copulate like other animals. We are therefore obliged, says Cuvier, to believe that they are propagated by germs sufficiently minute to enter the smallest passages, and that animals sometimes contain these germs at the time of birth.

3205. Two orders of these parasitic animals are given by Cuvier, under the head of his *Intestinaux*. These are—

3206. 1. *Cavitary* animals, which have an intestinal canal floating in a distinct abdominal cavity, and furnished with a mouth and an anus. This order includes the various cylindrical worms, well known to medical men.

3207. 2. *Parenchymatous* animals, which have viscera imperfectly terminated, often resembling mere vascular ramifications, and in some cases hardly discoverable. To this order belong the flat worms, the vesicular entozoa, &c.

3208. Those who are curious in regard to the comparative anatomy and systematic arrangement of these animals, may find abundant information in the works of Rudolphi, Bremser and others. For the present purpose, it is thought best to confine ourselves chiefly to the common language and objects of the medical profession.

3209. For practical use, we may consider the entozoa under three general divisions: 1. The Cylindrical. 2. The Flat. 3. The vesicular, or hydatids.

I. CYLINDRICAL ENTOZOA.

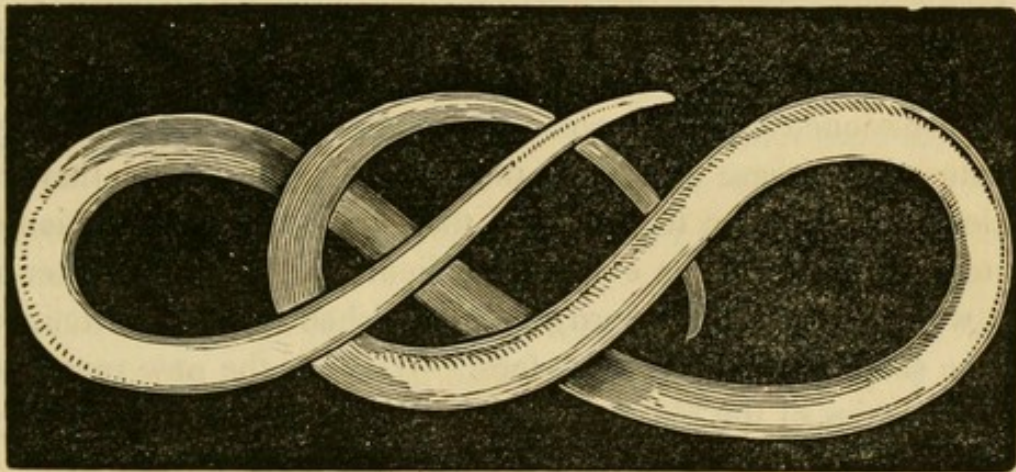
3210. These have cylindrical bodies tapering at one or both ends. Some of these reside in passages, and exercise the power of locomotion; others spend their lives closely coiled up in circumscribed cavities.

1. LUMBRICUS.

3211. The first species of intestinal parasite is the long, round worm, commonly, though improperly, called *lumbricus* by medical writers. This is the *ascaris lumbricoides* of Linnæus. The genus *Ascaris* has a cylindrical body, tapering at both ends, and a triangular mouth surrounded with three small prominences, or tubercles. The species in question is, when full grown, a foot or more in length, and is found not only in man, but in various quadrupeds. It is supposed to feed upon the chyme, and inhabits the small intestines, from whence it creeps upwards to the stomach,

and in rare instances to the fauces. It is sometimes solitary, and sometimes exists in great numbers. *The Symptoms* indicating its presence are equivocal ; but are commonly considered to be, starting in the sleep, itching of the nose, irregular or excessive appetite, emaciation, &c. Nevertheless these worms are often suspected of being present, when they do not exist, and often exist in healthy persons, without doing any harm. They are expelled in acute diseases, of which they are not the cause. The best remedies are active cathartics, especially calomel and oil of turpentine.

3212. The subjoined figure represents a lumbricus of middling size.



Ascaris Lumbricoides.

2. ASCARIDES.

3213. The next species is the *maw worm*, or *pin worm*, which is of small size, and exists in great numbers. It is usually denominated, in medical books, by the plural epithet *ascarides*. It is the *ascaris vermicularis* of Linnæus and Rudolphi. Bremser thought the three tubercles which characterize the genus *ascaris*, were wanting in this species, while he found the circular mouth which belongs to *oxyuris*. He therefore changed the name to *oxyuris vermicularis*. But it has since been observed by Dr. Bellingham, in the *Dublin Journal*, that the three tubercles are always visible in the recent state, also when the animal is preserved in water, but that when put into alcohol, the tubercles are obliterated, whence he thinks the mistake of Bremser arose.

3214. The natural history of the small *ascarides* is curious,

and not well understood. Many individuals are infested with them in childhood, but get rid of them as they advance in years. Some, however, are troubled with them during the whole of a long life, though they are represented as less annoying after middle age, than before. They most commonly appear periodically, both in children and adults, after intervals of from three to six weeks. During the intervals they are neither felt, nor seen in the discharges. Their periodical return is announced by a sense of itching and burning at the extremity of the rectum, felt principally in the evening, sometimes producing tumefaction, and eruption of the neighboring skin. This irritation continues to recur every evening for perhaps a week, or more, and then ceases. During this time the worms are discharged alive and active in every alvine evacuation. Cathartics and enemata bring away vast numbers of them, but without diminishing the annoyance occasioned by those which remain behind. At length they spontaneously cease to appear, the irritation subsides, cathartics no longer bring them to light, and the inexperienced practitioner flatters himself that the evil is remedied. Nevertheless, after a few weeks, they again return in undiminished numbers, attended by the same phenomena as before. Whether the new race are cotemporaries of the old, or descendants from them, it is not easy to tell.

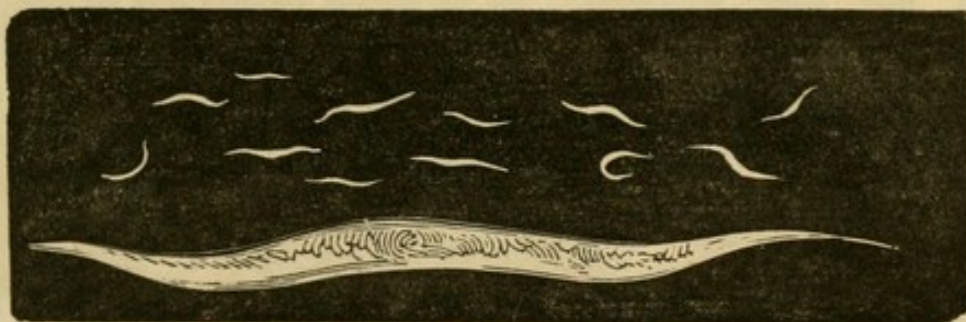
3215. It is commonly believed that the principal residence of ascarides is in the rectum, because they are most felt there. They have been found, however, in every part of the alimentary tube. Many patients, immediately after a cessation of the annoyance in the rectum, are visited by pain in the epigastrium, attended with costiveness and clay-colored discharges. This state continues for two or three days, and is then followed by a bilious diarrhœa. We have repeatedly known these consecutive events to occur with great regularity for half a dozen years, so much so, that our inquiries are generally directed towards this cause, when children have complained of epigastric pains at regular periods. Whether, in these cases, the worms ascend to the duodenum and mouth of the biliary duct, or whether the whole is an affair of sympathy, is difficult to determine.

3216. The nidus of these animals, and perhaps the food also

appears to be the mucus which lines the alimentary canal. Buried in this substance they resist the effect of the most violent cathartics and vermifuges, oil of turpentine and croton not excepted. If it be permitted to derive an hypothesis from the phenomena which they exhibit, it would be, that during a greater part of the time, they remain quietly imbedded in this mucus, deriving from it their habitation and nourishment, being at the same time secured from the effects of the peristaltic motion ; but that at certain periods, perhaps at their generating seasons, they issue forth from this covert, and mingle themselves in the contents of the alimentary canal ; in consequence of which, they are liable to be expelled with the common mass.

3217. We have known ascarides to be eradicated by a severe dysentery. In some cases they have been totally removed by large injections of oil, particularly of lamp oil. But more frequently they resist these and most other remedies for a series of years. A temporary palliative may always be found in small injections of weak salt water, or even of an ounce or two of cold water.

3218. The next figure exhibits ascarides of the natural size, together with one specimen highly magnified.



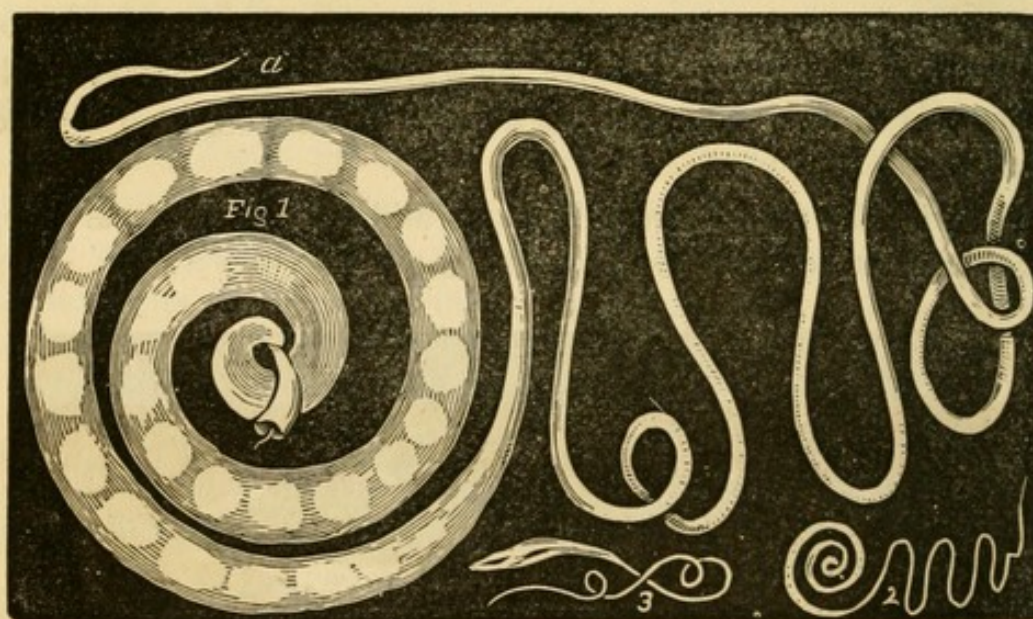
Ascaris vermicularis.

3. TRICHOCEPHALUS.

3219. The third specimen of worm inhabiting the human intestine, is the *Trichocephalus dispar*. This worm is about two inches long, of which length about two thirds consist of an attenuated, thread-like filament, while the remaining third is many times larger. Originally the thread-like portion was thought to be the tail, and the animal was named *Trichuris*, (from $\theta\rho\iota\chi\iota\varsigma$, a

hair, and *ουρα*, tail.) But it is since found that the attenuated portion is the head, and contains the mouth of the animal, so that the name is now changed to *Trichocephalus*, (*τριξ*, hair, and *κεφαλη*, head.) The large extremity of the male is usually coiled up, and has the genital organ projecting from the end. That of the female is more straight, and terminates with a simple aperture.

3220. It is remarkable that this species of worm is among the most common in some parts of Europe, while, in this country, it seems to be exceedingly rare. Cuvier speaks of it as one of the most common worms of the large intestines, and Mr. Joy, in the *Cyclopedia of Practical Medicine*, says, it is discoverable in the bodies of almost all individuals. But on this side of the Atlantic, some of our oldest physicians have never met with it in practice.



Trichocephalus Dispar.

3221. Fig. 1 represents the trichocephalus highly magnified, the head being at *a*. Fig. 2 is the male, and fig. 3, the female, of natural size.

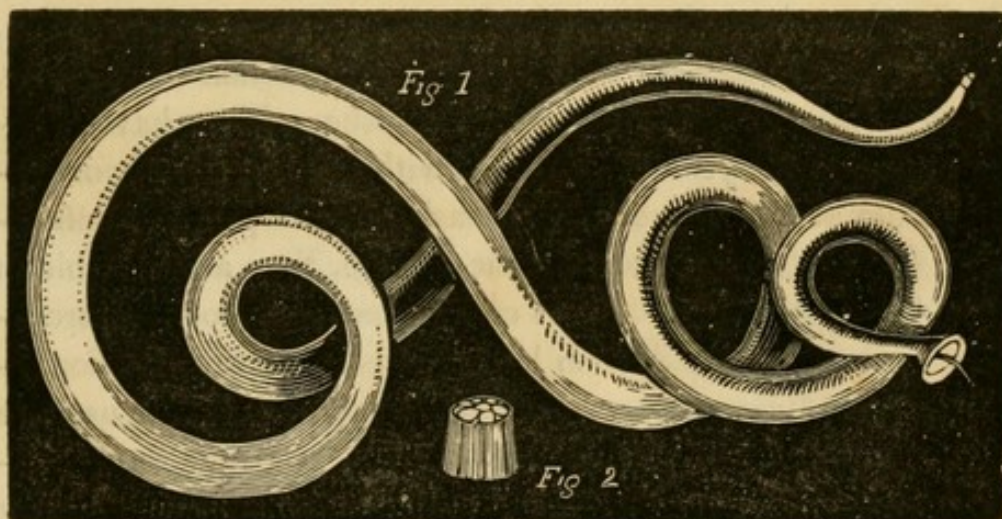
4. STRONGYLUS.

3222. The *Strongylus gigas* is one of the largest species of entozoa, and is found inhabiting the kidneys of man and of various

quadrupeds.¹ It is usually of a blood-red color, and is sometimes even two or three feet in length. Its form is cylindrical and tapering, ending posteriorly in a trumpet-shaped extremity, from which, in the male, a spicular body, supposed to be the organ of generation, proceeds. In this species the head is obtuse, and the mouth surrounded with six ridges or papillæ. These animals are found of various sizes, and are said to be never met with except when the structure of the kidney is in some measure destroyed or broken down. Whether their presence is a cause or consequence of disease, is not sufficiently known.

3223. Many cases are on record of worms of this description, found in the kidney, in post mortem examinations, and of others discharged from the urethra during life. They have generally occasioned much irritation and distress in the urinary passages. Mr. Lawrence, in the Medico-Chirurgical Transactions, mentions the case of a woman, who, in the course of a few months, voided by the urethra no less than a thousand worms. These were supposed, by Bremser, to be young strongyli. In some other cases, the animals discharged have appeared to belong to different species.

3224. Fig. 1 represents the entire strongylus. Fig. 2, the head magnified.

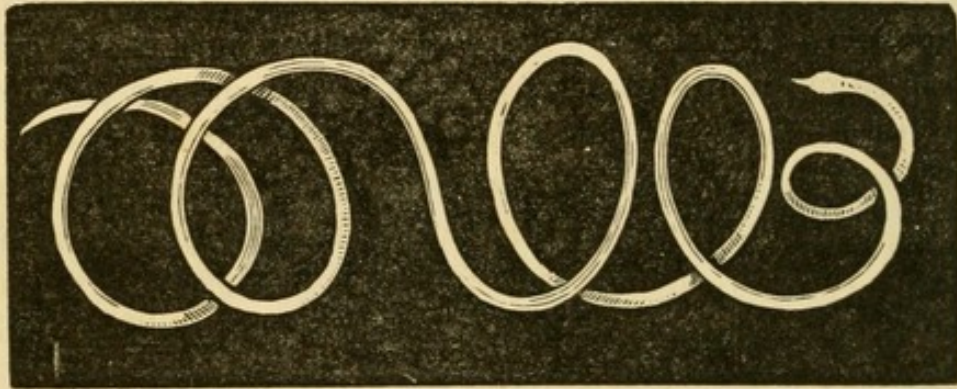


Strongylus gigas.

¹ The kidney of the American Mink (*Mustela lutreola*) is frequently found infested with this kind of worm.

5. FILARIA.

3225. The *Filaria medinensis*, or Guinea worm, is a very troublesome inhabitant of hot climates, being found under the skin, and in the cellular and muscular substance of men and animals. The Filaria has a smooth, round, filiform body, and an orbicular mouth. The present species is distinguished by its great length, which is sometimes three or four feet, and by the termination of the tail, which is pointed and curved. Its size is about that of a pigeon's quill or smaller.

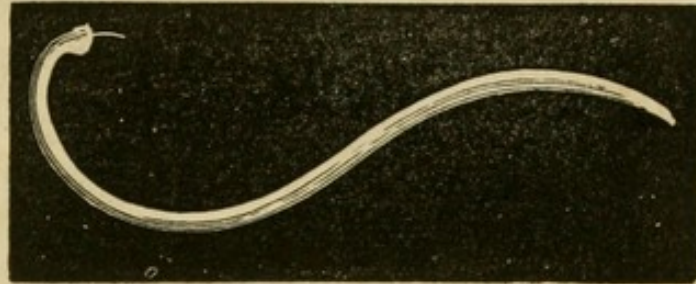


Filaria medinensis.

3226. These worms appear to be formed within the substance of the body, and are discovered when they approach the surface, by an itching at the spot, followed by the formation of a vesicle, or pustule, where the worm is about to issue. They have sometimes remained for years in the flesh without material inconvenience, while at other times they occasion severe pain and inflammation. When they appear at the surface, they are capable of being wholly extracted. Great care is necessary to avoid breaking them, since a dead portion left behind is found to occasion inflammation and abscesses. It is therefore customary to use the most gentle force, extracting a small portion at a time, and winding it on a stick. This operation is repeated about twice a day until the whole worm is gradually extracted.

3227. Another species, called *Filaria bronchialis*, has been found in the lungs when in a state of disease. It is sometimes met with in great numbers in the lungs of inferior animals, but

only one instance is known of its discovery in those of man. It was found by Treutler in the enlarged bronchial glands of a phthisical patient. It is called *Hamularia subcompressa*, by Rudolphi and others.



Filaria bronchialis.

6. TRICHINA.

3228. The *Trichina spiralis* is a minute worm lately discovered by Mr. Owen, existing in great numbers in the muscular substance of the human body. They are found in minute cysts of an ovoid or oblong figure, resembling nits of pediculi interspersed among the muscular fibres. When these cysts are examined with a microscope, they are found to contain one, or sometimes two of these worms, coiled up in a spiral form. According to Dr. Hodgkin, they are wholly confined to the muscles of voluntary motion, and to the tendons connected with them. He found them, in one case, in every muscle of the body which he examined, even to the lumbricales of the foot. He then looked for them in the œsophagus without discovering the least trace of them. They ceased abruptly at the lowest contractor of the larynx. They have not been found in the heart, nor any other involuntary muscle. No symptoms have been observed as pathognomonic of their presence. They have been found in some cachectic subjects, and in others who died suddenly in apparent health.

3229. Fig. 1, on next page, represents a piece of muscle containing the cysts of the natural size. Fig. 2 represents one of the cysts magnified. Fig. 3 shows the trichina taken out of the cyst and magnified still farther.



Fig. 1.



Fig. 2.



Fig. 3.

Trichina spiralis.

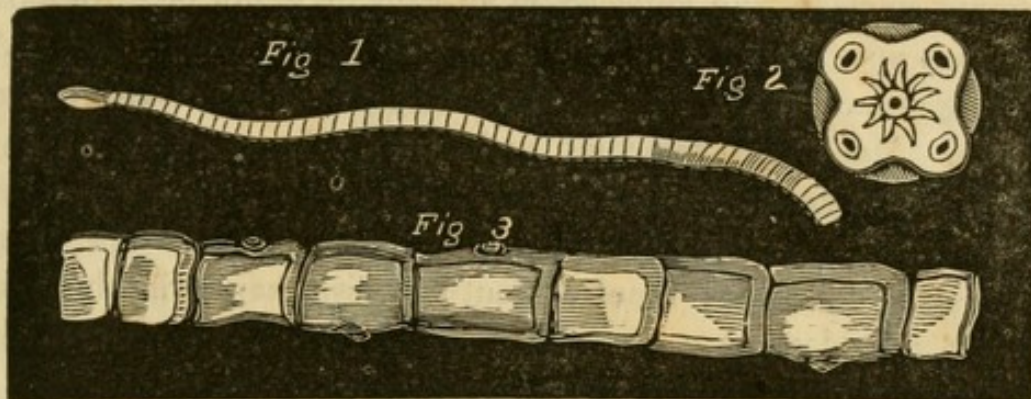
II. FLAT ENTOZOA.

7. TÆNIA.

3230. The *Tænia solium*, or common *Tape worm*, is one of the most troublesome and formidable inmates of the alimentary canal. The genus to which it belongs is characterized by an elongated, flat body, composed of numerous joints, and having four suckers on the head. In the present species the head is somewhat hemispherical and flattened laterally, having an obtuse prominence in front. The joints are oblong, and nearly square, and have been compared, in shape, to the seeds of the gourd. They are generally longer than they are broad, though the animal sometimes contracts them into the opposite form. The anterior portion of the animal is much smaller than the rest of the body, and the joints appear to be made up of amorphous cellular texture, without any abdominal cavity, and with but indistinct traces of internal organs. Each joint is somewhat rounded at its anterior extremity, and is received into the posterior extremity of the preceding joint, which is larger and fringed.

3231. Fig. 1 shews the head and upper joints of the body, of natural size. Fig. 2 is a front view of the head, highly

magnified. Fig. 3 is a number of joints of the body of natural size.



Tænia solium.

3232. The head, which has been differently represented by writers, appears to be a minute tubercle, terminating in a very slender neck. It has, on its anterior part, a circular aperture, or depression, surrounded by a star of sharp, curved processes or hooks. These processes, however, are not constantly found, and are thought by some to disappear with age. On the four sides of the head are situated four apertures or suckers, which seem to be mouths, as from each of them proceeds a vessel, running along the whole length of the animal near the margins of the joints, and communicating with the rest by transverse passages in every joint. Lateral orifices are found, generally on alternate margins of the joints.

3233. The tape worm is capable of subsisting in the intestine for an indefinite number of years, continually casting off joints, which appear in the stools. Whether these joints are reproduced, and, if so, in what manner, is a subject of hypothesis, upon which different opinions are entertained. Several tape worms have been known to exist in the same individual.

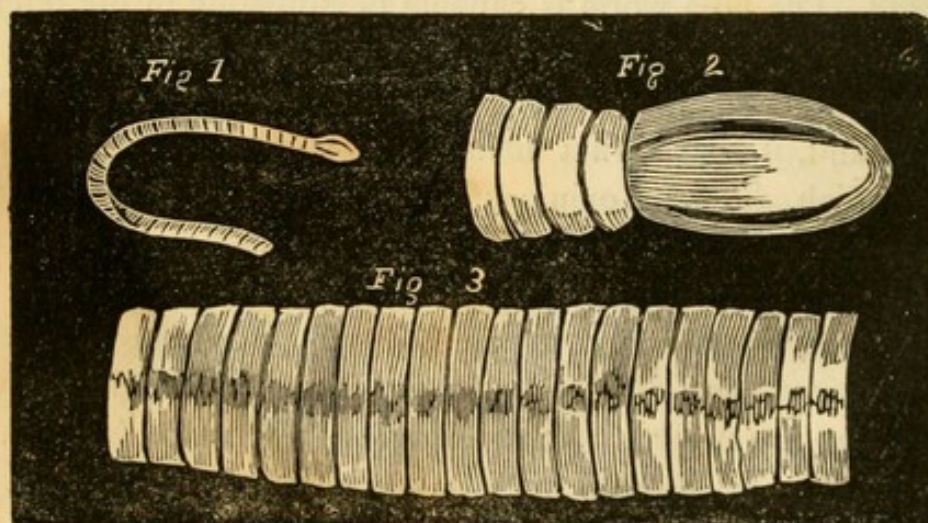
3234. The symptoms indicating the presence of tænia are slight, so as not to attract notice, until the joints are observed in the discharges, or are found in the clothes or bed, having crawled away from the rectum. But generally, if the worm has attained considerable size, there is more or less pain, sense of weight, and uneasiness in the abdomen, voracious appetite, nausea, itching of the anus and nose, and sometimes atrophy.

3235. The most effectual remedy for the tape worm is oil of turpentine, taken in the dose of an ounce or upwards, on an empty stomach, and followed in an hour by castor oil. In most cases it operates speedily, and brings away the worm dead. A strong decoction of pomegranate bark has been found also efficacious. Mechanical remedies, such as the filings of zinc, tin and iron, have occasionally succeeded. M. Guilbert thinks it unnecessary to use any remedies, having observed that the tape worm may exist for a long time without any disturbance in the economy, provided the patient be plentifully supplied with nourishing food. In the end it will disappear spontaneously.

8. BOTHRIOCEPHALUS.

3236. The *Bothriocephalus latus*, or broad tape worm, was formerly considered a species of *tænia*. It however differs in the form of its head, which is marked with furrows instead of orifices. The joints are also very broad in proportion to their length, and have orifices on their broad surfaces, instead of the edges. This worm is common in Switzerland and Russia. Its joints separate with much more difficulty than those of the *tænia*, and it is more obstinate under the employment of remedies.

3237. Fig. 1 is the head and upper joints of natural size. Fig. 2, the head magnified. Fig. 3, joints of the body of natural size.

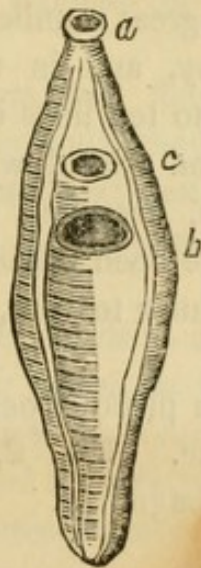


Bothriocephalus latus.

9. DISTOMA.

3238. This animal is rare in the human species, and has hitherto been met with chiefly in the gall-bladder, though in some quadrupeds, particularly the sheep, it is often found in the liver in considerable numbers. The *Distoma hepaticum* is called *Fasciola hepatica* by the older naturalists. It is a soft, roundish-flat animal, with two large roundish openings on the under side of the body. When full grown, it is about the size of a melon seed in man, but in quadrupeds it is found sometimes an inch long by half an inch wide. Their general outline is oblong, with conical extremities, but the shape varies with the contractions of the animal. The color is yellowish or light brown. It is known to butchers by the name of *flake* or *flake worm*.

3239. In the figure, which is two or three times the natural size, *a* is the mouth, *b* and *c* the ventral apertures.



Distoma hepaticum.

III. VESICULAR ENTOZOA.

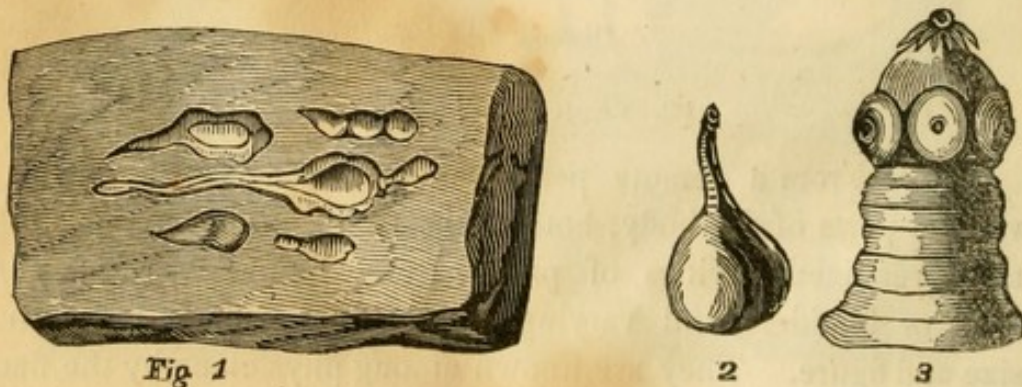
3240. From a remote period anatomists have discovered in various parts of the body, both in man and in other animals, certain organized cavities of preternatural formation, resembling cysts or bladders, and varying greatly from each other, both in size and figure. They are known among physicians by the name of *hydatids*. These were at first considered as morbid changes in the animal texture in which they were found residing, but

later observers have discovered in them certain properties, which lead to the belief that they have a separate vitality, or in other words, are distinct animals. This opinion is derived chiefly from the contractile power which they exhibit when stimulated. Some of them have been noticed, when cut with a knife, to eject their contents with some force; others retract or invert their cut edges, and some have been observed to turn themselves nearly inside out. Various genera and species have been described, some of which are regularly organized, and others are very imperfect, minute or variable, and, therefore, difficult of satisfactory description.

10. CYSTICERCUS.

3241. This genus has a complete organization, having a head furnished with four suckers, and a neck terminating in caudal vesicle. The species best known is the *cysticercus cellulosus*, which is said to have been found in man, but is very common in hogs, where they exist in great numbers, giving rise to the disease called in England *leprosy*, and in the United States, *measles*. This species is from two to ten lines in length, and has an ovoid or pear-shaped bladder, and a head, which, under the microscope, exhibits thirty-two hooks, arranged in a double circular row. Several other species have been described. They usually reside in free cavities in the cellular texture, and have been found even in the brain and eyes.

3242. Fig. 1 shows a piece of cellular substance, containing cysticerci of natural size. Fig. 2, a cysticercus magnified. Fig. 3, the head highly magnified.



Cysticercus cellulosus.

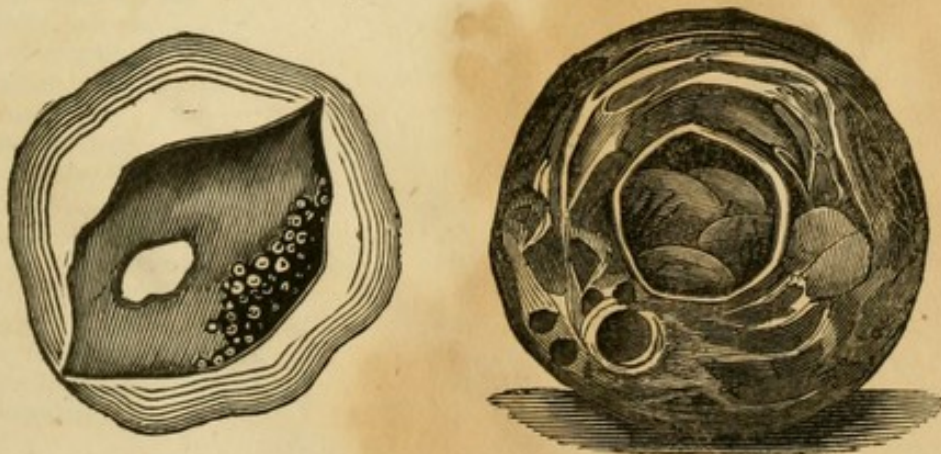
11. ACEPHALOCYST.

3243. The most common species of hydatid is the *acephalocystis*, an animal, which, as its name indicates, consists of a bladder without a head. The shape of this hydatid is uniformly round, or oval, and it varies from the smallest perceptible size to the circumference of several inches. The coats are translucent and composed of a white, semi-opaque, pulpy matter, separable into two layers. It contains a thin, watery fluid, which is commonly transparent, or slightly yellowish. Many of these hydatids are included in a common cavity or cyst, to which they have no adherence, nor any to each other. The fluid in which they are enveloped is variously turbid and opaque, while that contained in the cysts themselves, is perfectly clear, a circumstance which has been considered as indicating an assimilative function residing in the tunics. Some of them have a number of minute vesicles adhering to their inner surface, resembling small pearls in appearance, and thought by Hunter and others to be young hydatids.

3244. Acephalocysts have been found in almost every structure and cavity of the human body, they have been vomited from the stomach, discharged from the intestines, voided in the urine, coughed up from the lungs, and discharged from tumors in various parts of the body.

3255. The presence of hydatids is accompanied with various morbid affections, especially tumor, in the part where they reside. Little is known of their therapeutic management, except in those cases which admit of their destruction by surgical means

3246. The following figures represent acephalocysts.



Acephalocystis.

3247. A number of other entozoa have been described or cited by those who have written works on the subject, among which are species of *spiroptera*, *echinococcus*, *polystoma*, &c. But most of these are either of doubtful authority, or too imperfect in their organization to afford interesting objects of examination. They are, therefore, omitted here, together with the numerous insulated cases in which terrestrial insects, and particularly *larvæ* of insects, have accidentally introduced themselves into the cavities of the body, and given rise to phenomena of disease.]

Note. For the *Acarus scabiei*, or itch insect, see page 673.

ERRATUM. Page 56, line 17, &c. for *schirrus* read *scirrhus*.

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