Manual of pathology containing the symptoms, diagnosis, and morbid characters of diseases. Together with an exposition of the different methods of examination, applicable to affections of the head, chest, and abdomen ... / translated, with notes and additions, by Jones Quain.

Contributors

Martinet, L. 1795-1875.
Quain, Jones, 1796-1865.

Publication/Creation

London : For J. Anderson, 1826.

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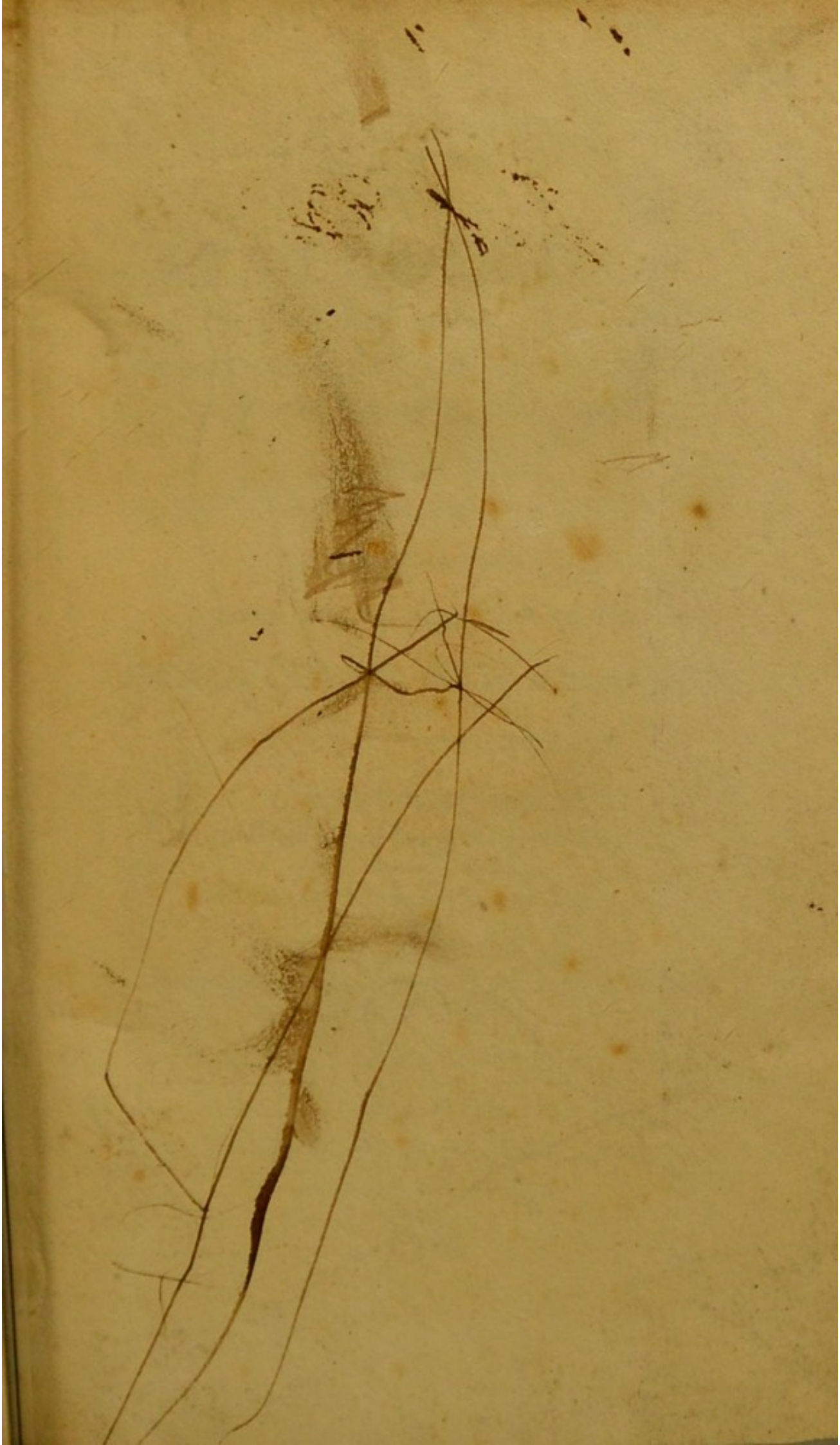

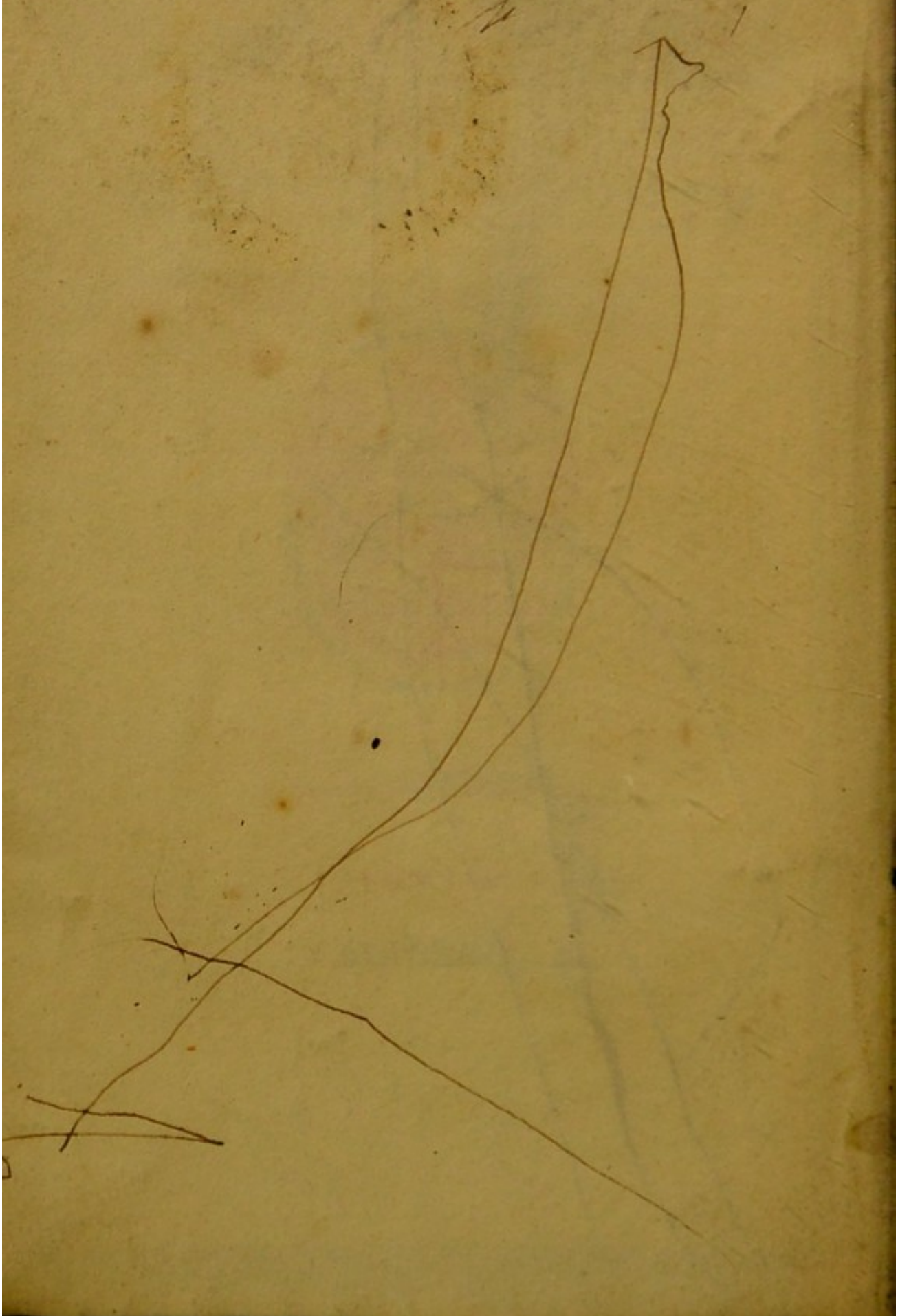

MANUAL OF PATHOLOGY

CONTAINING

THE SYMPTOMS, DIAGNOSIS, AND MORBID CHARACTERS OF DISEASES;

TOGETHER WITH

AN EXPOSITION OF THE DIFFERENT METHODS OF

EXAMINATION,

APPLICABLE TO AFFECTIONS OF THE

HEAD, CHEST, AND ABDOMEN.

BY

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TRANSLATED, WITH NOTES AND ADDITIONS,

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LONDON:

PRINTED FOR JOHN ANDERSON,

40, WEST SMITHFIELD.

1826.

LONDON:

C. SMITH, PRINTER, ANGEL COURT, STRAND.

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MANUAL

OF

PATHOLOGY.

PREFACE.

The first part of this work, which is intended as a Clinical Guide, contains a brief statement of the necessary requisites for the proper conduct of clinical pursuits; and a detailed account of the improvements which, of late years, have been introduced in the methods of investigating the diseases of the three great cavities of the human body.

In the second part, care has been taken to give in a condensed yet complete form, every thing that is necessary to enable the observer to distinguish diseases from each other, and, if necessary, to draw up with precision the history of them; to this is subjoined an enumeration of the symptoms of the different affections, and the morbid alterations which they induce. The office which the author has for some years filled at the "Hotel Dieu," has afforded him abundant opportunities of veri-

fying, by actual observation, the truth of his statements.

In the compilation of his work, the author has freely availed himself of the researches of all those who have thrown any light on the pathology and diagnosis of diseases, as well as of those who have contributed to improve the methods of investigating them; with this view he has constantly consulted the works of Laennec, Andral, Lallemand, Serres, Louis, Broussais, Rostan, Bertin, &c. &c., and also the treatises of Chomel, Double and Landrè-Beauvais, on semiology and general pathology.

From Professor Recamier, he has borrowed his classification of constitutions, and also his method of examining patients, and has occasionally introduced some practical remarks, made in his Clinical Lectures, for which he is anxious to make every acknowledgment.

In this new and improved edition, the chapter on the examination of the abdominal viscera is considerably extended; the method of studying the diseases of the different tissues, as well as the mode of making *post mortem* examinations, are pointed out; and some suggestions are offered on the subject of diagnosis.

MANUAL

OF

PATHOLOGY.

PART THE FIRST.

EXPOSITION OF THE VARIOUS METHODS OF EXAMINATION USED IN MEDICINE.

1. Medicine, which may be termed a science of facts, is indebted for its present distinction to observation, and on it must depend for its further advancement. To observation, the physician owes the most exact and valuable parts of his knowledge, and upon it he rests the basis of his diagnosis, prognosis, and treatment of disease. As then observation is, at once, the surest pledge of the future improvement of the healing art, and the safest guide to those who practise it, we must see at once the necessity of applying diligently to its cultivation.

2. It is at the bed-side of the patient that the observer must study disease; there he will see it in its true characters, stripped of those false shades by which it is so frequently disguised in books. There, freed from the vagueness and illusion of systems, the student can acquire fixed and defined notions of diseases, and learn the difficult art of distinguishing them. If physicians had always confined themselves within the limits of strict observation—if they had restricted themselves to such conclusions as are fairly deducible from facts, the science of medicine would not now be overloaded,

as it is, by hypotheses, and we should possess a sufficient body of materials to enable us to establish sound general principles.

3. Though clinical studies are necessarily long and laborious, still they should not discourage the young observer; they will amply requite him for his pains. Let it not, however, be supposed that observation is to be confined to the mere acquisition of facts, it will be of comparatively little value unless directed by reflection. To observe nature is not enough; she must be interrogated, if we wish to wrest her secrets from her, and acquire at the same time the means of communicating to others the result of our researches.

4. The improved means of investigating diseases which have been devised of late years, by rendering the methods of examination more strict and rigorous, have given a very decided impulse to medicine. Pathological Anatomy has raised it to a level with the descriptive sciences, when considered in reference to organic alterations, and the "Auscultation Mediate," has placed it amongst the physical sciences, so far as the doctrine of symptoms is concerned. Every well informed person now admits that the discovery of Laennec has effected for medicine, what Petit and Desault has already done for surgery. For if a catheter, introduced into the bladder, gives an assurance of the existence of a foreign body in that viscus, pectoriloquy is a no less decisive test of the presence of a preternatural excavation in that part of the lung in which it is perceived.

5. But, notwithstanding the advances that have been made in the investigation of diseases, particularly those of the brain and its investments, and those of the chest and digestive organs,—notwithstanding the improvements that have followed the researches of Laennec, Broussais, &c. &c., we cannot deny that many points remain immersed in obscurity, and that several questions of primary importance continue undecided. As, however, it is by observation alone that these and other difficulties can be removed, it cannot fail to be

instructive to inquire what are the qualifications necessary to be possessed by those who engage in the difficult undertaking of correcting erroneous impressions concerning the doctrine of diseases, and removing the obscurities that beset them.

OF THE OBSERVER.

6. Whoever wishes to extend the boundaries of science should commence his education by acquiring a perfect knowledge of the Greek and Latin languages, and should then proceed to learn the modern languages, particularly the French, Italian and German. This is necessary to enable him to study with effect the many excellent works published by our neighbours; and (should he visit those countries) to observe with advantage their clinical practice, and form an accurate estimate of their modes and principles of treatment.

7. The observer should acquire correct ideas of several sciences which may be deemed accessary to medicine. He should be acquainted with Chemistry, Natural History, and Natural Philosophy, as he will constantly have occasion to make application of their principles; and if he be ignorant of them, many physiological and pathological phenomena will appear altogether unintelligible.

8. The sciences more strictly medical, and therefore indispensible, are General Pathology, Physiology and Anatomy, particularly the anatomy of the tissues and viscera in their healthy state, which has hitherto been too much neglected, and which has begun to be properly regarded only since pathology has been more carefully studied. How can any person know a particular tissue to be diseased, if he be ignorant of its characters in its healthy state? How can he distinguish the effects of disease from those changes which occur after death has taken place, if he does not possess correct notions of each, and of the anatomical characters which are peculiar to them? Until anatomy is studied in this way, disputes and controversies will go on, as they

have hitherto done, and medicine will make no real progress towards improvement. These remarks apply with at least equal force to pathological anatomy, without a knowledge of which it is quite impossible to give precise and detailed statements of the various alterations of which the tissues and organs are susceptible, or avoid confounding the different structural lesions which occur in them.

9. These, however, are not the only requisites which an observer should possess. He should be acquainted with Materia Medica, Surgery, "Hygiene;" and, above all, Pathology, without which he can establish no claim to the character he assumes; and still it is by observation only that he can become a pathologist. Hence the second part of this work is calculated to remove some of the difficulties that stand in the way of the young observer, by giving such an exposition of the characters and diagnosis of diseases, as will enable him to prosecute his studies with effect.

10. In order to draw up correct histories of cases, it is not sufficient merely to observe the phenomena which they present during their progress; they must be observed accurately; and he who expects to do this, must possess many requisites both of tact and discrimination, which can be acquired only by a *long and regular* attendance on clinical practice.

11. A statement of a case should not consist of a mere detail of such symptoms as accident has caused to be perceived, nor of a confused, unconnected enumeration of them. It requires no small degree of sagacity to group them together according to the relations which subsist between them, so as to refer them to a common centre, or to a derangement of some particular function or organ, and thence ascend to a knowledge of the seat and nature of the affection, of which they are characteristic.

12. It is quite impossible for an inexperienced person to appreciate the many shades of difference which diseases assume. How can his unpractised eye distin-

guish a mere accidental phenomenon from a leading symptom,—a remote sympathy from a direct effect, or an insignificant circumstance from that which should constitute the very basis of his indication of cure? If he cannot assign their respective values to all these circumstances, how can he derive any advantage from the facts which he collects? or how can his reports be ever considered as exact descriptions of the diseases he has seen? A statement of a case can never be useful to him who makes it, or profitable to Science, unless it be a faithful transcript of the phenomena that have occurred. For if it be not correct in all its parts, it will but mislead the judgment and confirm error; whilst exact facts, on the contrary, strengthen the judgment, and contribute to the establishment of an exact Science.

13. When such results as these follow from the mere fact of the observer's knowledge being inadequate, what must be the consequence, if it be but a mass of falsity and error? Instead of transcribing a faithful history of the diseases presented to him, he will give an incorrect and inadequate account of them, and the only result of his observations will be, to lead to false theories, which may be considered as so many pathological romances that have long retarded, and still retard the progress of Medicine. Even under the most favourable circumstances, such a person can only attain an imperfect mode of examination; the degree of its imperfection will of course be lessened in proportion, as he acquires a better knowledge of pathology, or has opportunities of observing, and reflecting on, the facts collected by others; hence we can generally form an estimate, on reading a case, of the degree of knowledge possessed by the person who has detailed it.

14. But these are not the only sources of error to be guarded against. It will be found necessary to review such reports and observations as had been made during the earlier years of study, which are generally incor-

rect or incomplete. This is not done for the purpose of supplying their deficiences, or correcting their errors, but, in order to guard against any erroneous impressions they may have left on the mind,—impressions which, in too many instances, have exerted an injurious influence on the whole course of men's professional career.

15. Correctness and discrimination are qualities indispensibly necessary for a physician; and these he can only acquire by constant exercise and observation, which will so sharpen his senses and faculties, that he wil seldom fail to seize and appreciate symptoms and phenomena, which escape the notice of others. But it is not sufficient that the senses should be thus exercised, as we know that there are many minute circumstances that will escape them; hence the necessity of assisting them by certain auxiliaries. Thus it is that certain alterations of structure, which are not perceptible by the naked eye, are rendered manifest by a lens or a microscope; and a virus, which cannot be detected by our senses, or even by chemical tests, becomes evident by inoculation.

16. Each of our senses being adapted for special purposes, all of them are made to render important service to medical inquiries, and ought to be employed concurrently in conducting them. Percussion, and still more auscultation, have clearly shewn the great value of one sense, that hitherto was seldom directed to this sort of investigation; in a word, by the eye we can distinguish small-pox from cow-pock; by the ear, ascites from tympanites; by the smell, gangrene of the lung from phthisis; by the taste, diabetes melitus, from simple phthisuria; by the touch, aneurism from various other tumours.

17. The observer should possess penetration, not subtlety; sagacity, to follow the thread of a narration too often obscure; discernment, to overcome the obstacles which false modesty or want of candour may throw in his way; a sober judgment, to form just

ideas of the impressions conveyed by his senses, correct reasoning powers, that he may deduce no conclusions, but such as fairly follow from the premises; perseverance, that he may not be discouraged by the difficulties that stand in his way; and lastly, resolution and humanity to disregard the danger of contagion, as he does the disgust and risk of the dissecting room.

18. The observer should not allow any circumstance of a case, however trivial it may appear, to escape him. He should be free from prejudice and prepossession, if he wishes to avoid giving to his observations an erroneous direction, and impressing on his statements the bias he has contracted. He should see things as they really are, not as he may wish them to be. He should always recollect that the slightest error or negligence may be injurious, not only to himself, but also to those who repose confidence in his statements. The duty of an observer is that of an historian; from that he should not depart, his chief merit is correctness and fidelity.

19. But if even experienced persons have to contend against difficulties such as are here mentioned, we can readily see what care and exertion are required on the part of those who are just entering on their clinical pursuits. Hence the necessity of their receiving a regular course of instruction, which, while it fully impresses their minds with the importance of the pursuit in which they are engaged, may point out to their notice the various phenomena that present themselves, and indicate their relative value and connexion. A system of clinical instruction so conducted, should be considered as indispensible in every hospital which is resorted to by students. "Life is short, and Art is long," says the father of Physic. No man can see every thing by himself; but reading will make him acquainted with the observations of his predecessors, and contemporaries, and enable him to profit by their experience; in fact it becomes an imperative duty to read and study, as a most efficient means of acquiring new and useful information; but if this be not a suf-

ficient incentive, then it should be recollected, that if we do not read, we run the risk of being left behind by others, and that our knowledge is receiving no addition, while theirs is progressively advancing.

20. The observer should be scrupulously exact in his descriptions and statements. He should, above all things, be impressed with that integrity and love of truth which are indispensible to a physician. The mere gratification of self-love should give way to considerations of higher consequence, and which concern so nearly the interests of humanity.

21. One of the most efficient means of acquiring these different attainments, and becoming skilful practitioners, is, when we see a particular case to consult the writings of those who have treated expressly upon the disease to which it is referred. The work will then be studied with advantage when we have an example before us, with which we can compare its descriptions, &c. In this way, precept and practice are made to go hand in hand, tact and discretion are acquired, and the experience of those who have already distinguished themselves is made to supply our deficiencies in this particular. We should not, however, follow this course as servile imitators. We must exert our own discretion, for though we find much to approve, we shall meet with something to condemn; while we adopt the one, we appropriate to ourselves part at least of the spirit of our masters; when we reject the other, we feel reason to distrust ourselves, seeing the errors into which our predecessors have fallen. When the mind is disciplined in this way, the scope of its inquiries will be greatly expanded, and a new importance be given to circumstances previously regarded as insignificant. It is on this principle that such great advantage is derived from reading the works of the ancient physicians, who paid so much the more attention to the signs and symptoms of diseases, as they had not the lights of pathological anatomy to guide them.

22. We may here conclude these remarks, by saying a few words on the demeanour which ought to be observed towards sick persons in order to gain their confidence, and obtain the disclosures which are necessary to form a proper decision on their cases. The physician should be calm and conciliating, should hear with attention the communications which his patients make, should put his questions to them with mildness, listen kindly to their complaints, and never fail to demonstrate an active interest in their welfare.

OF OBSERVATION IN GENERAL.

23. The basis of medicine, says Baglivi, rests altogether on observation.—*Ars Medica est totain observationibus.* But the facts which observation presents should be collected with care, method, and discrimination. According to the object which an inquirer proposes to himself, observation may be general or special. It is termed *general*, when directed to ascertain the general phenomena ; for instance, of sporadic, endemic or epidemic diseases ; and *special*, when confined to single cases, collected at the bed-side of the patient ; it is to this latter that our attention for the present is directed : the former shall be treated of when we come to consider the subject of medical constitutions.

24. Special observation has this marked advantage, that when a number of cases are detailed with judgment and fidelity, and every circumstance of them carefully noted, they present to us the different characters which a disease puts on in several individuals, which will always give to Monograph Works a decided advantage over general treatises.

25. In drawing up a case, it should always be recollected that it is done with the view to convey to others an exact representation of the facts which we have observed. In order to effect this, the words used, and their various shades of meaning should be carefully considered, so that they may convey to the mind of the reader the facts as they really existed, without adding or sup-

pressing any thing. The report of a case should be like the copy of a picture. It should be so faithful as to preserve all that individuality which marks each particular case, and distinguishes it from every other of the same class. Even when the phenomena of a case are confused and intricate, the observer should still express its real character, and should not seek to make it appear clear and simple, as is too often done, for that can only be effected by misrepresentation.

26. The statement of a case should not be loaded with superfluous detail; it should contain what is necessary, or rather what is indispensible; but when the subject is obscure, the details should be extended and minute. In the descriptive part no reflections or opinions should be introduced, as that cannot fail to interrupt the narrative.

27. The leading symptoms, particularly those which serve to establish the diagnosis, should first be noted down, ranged according to their importance, reference always being made, as far as can be done, to the order of their appearance. These should be expressed clearly, so as to impress them on the mind of the reader. If several organs be affected at the same time, the symptoms referable to each should be collected into separate groups; those which are common to all, or are of secondary importance, should follow; and then if the treatment be given, it will be necessary to mark the state of the patient before and after the exhibition of medicine. Superfluous details should, of course, be omitted; and nothing stated but what is indispensibly necessary.

28. It may, however, be sometimes useful to note the absence of any particular symptoms, which usually exist in similar cases, lest the omission may be attributed to negligence or forgetfulness on the part of the observer, and so discredit be cast on the facts he has detailed.

29. When a disease is obscure, attention should then be redoubled, particularly if there be any controversies

on the subject, and even the minutest details should be noted.

30. When therapeutics are the object of research, and when attention therefore is directed to ascertain the action of particular medicines, it is not necessary to report all the details of the cases; it is enough to state their general nature, and the circumstances of the patient both before and after the administration of the medicine. Its form and dose should be stated, as well as the effect produced; and lastly, some remarks should be made on the state of the patient, when the treatment was discontinued. It is, in general, advisable to say a few words as to the state of the medical constitution, particularly when there exists any endemic or epidemic disease, as it must be evident, that a symptom which under other circumstances would be of no consequence, may then be of considerable importance; for instance, the existence of an epidemic varicella, may throw much light on a pustular eruption with a central depression.

31. In some cases, words cannot convey to the reader all that is necessary to be expressed, particularly in describing morbid appearances, which a disease presents, this can only be remedied by sketching or drawing the parts.

32. To execute our task in this way must necessarily be attended with many difficulties; but a case drawn up with adequate exactness and fidelity, becomes a complete monograph. In it we shall find stated the causes and distinguishing symptoms of the disease described, its progress and periods—the treatment adopted and its effects; and the reader may profit almost as much by it as if he had seen it himself.

33. Nothing more fully proves the absence of sufficient precision in the conduct of observations, than the disputes about facts which we so constantly witness. If the same phenomena be accurately observed, there will be no room for any difference of opinion. Still, when we look over a number of cases, and observe the total

want of conformity that there is in the descriptions of the same diseases, as given by different writers, we are often astonished at the discrepancy they exhibit, and feel disposed to consider it as a proof of the uncertainty of medicine, as if the errors of individuals should be laid to the charge of the science they profess. But whence, it may be asked, arises this difference in the reports of the same facts? It arises from the different degrees of knowledge possessed by the persons who have observed them,—from some error in their methods of observation,—from ignorance of the exact meaning of the terms they employ, or from want of attention in the examination of their patients. In fact, let any number of persons describe the same affection, if their judgments be equally correct and matured, if they possess the qualities above-mentioned, as being necessary for the proper conduct of observations, and if they be equally well acquainted with pathology, the cases which they collect cannot fail to be marked by the same characters of truth and similitude, and in all we shall at once recognize the complaint described, whether it be arachnitis, pneumonia, peritonitis, &c. But if the disease according to one seems to be pleurisy, according to another pneumonia, a third, phthisis, it clearly follows that the statements are given inaccurately, and that those who have made them, are ignorant of the differences which distinguish these diseases one from another.

34. The observations should be transcribed immediately after the visit, in a book kept for the purpose, as being the only means of ensuring correctness in the statements. Whilst the facts are fresh in the mind, they will be noted down with accuracy; and if any thing be omitted, it can readily be supplied. But if any length of time be allowed to elapse, it must be at the risk of forgetting some of the leading circumstances, and of giving probably a false colouring to the whole.

35. It is only when the case is concluded, that it becomes necessary to make reflections on the diagnosis,—on any particular circumstances that may have occur-

red,—on the treatment pursued,—or, finally, on the connexions of the symptoms with the organic alterations found after death, if the termination has been fatal. By these means materials really useful are collected, either for the guidance of our own future practice, or the instruction of others; and so the most advantageous use is made of our experience.

36. In order to save time and trouble in the subsequent perusal of these cases, it will be found useful to place at the head of each of them an abridged summary, containing the distinguishing signs—most important circumstances that occurred during the course of the disease—the plan of treatment pursued, and its effects;—and finally, the organic alterations, if it has ended in death.

37. The following formula seems well adapted for the purposes here stated. It will enable the observer to arrange his cases, and see at one view their most important phenomena. The clinical reports in the Hotel Dieu are all drawn up in this way.

Case of———

Year— No.
Month. Residence.

Causes . . . . . .
Particular Symptoms . .
Duration of the disease .
Termination . . . .
Treatment . . . . .
Effects . . . . . .
Morbid appearances.

We may now conclude these general remarks, with a few considerations on the style best suited to this species of writing.

38. In the first place, care should be taken that the terms employed should convey a precise meaning, and never admit of ambiguity; they should fully express the facts without being strained. It is sometimes preferable to repeat a particular expression,

rather than by endeavouring to vary it, run the risk of sacrificing clearness. The style should be plain and unaffected, free alike from ostentation as from mannerism. The narrative part should be written with simplicity and ease; but all that relates to the condition of the patient, and to the enumeration of symptoms, had better be given in the aphoristic form; it carries with it a greater degree of precision, as each word expresses an idea. Occasionally, however, it will be found necessary to deviate from this routine, to avoid the sameness that would necessarily be produced by a too rigid adherence to it.

METHOD OF EXAMINATION APPLICABLE TO ALL DISEASES.

39. Though the acquirements here pointed out are varied and numerous, it should not thence be inferred that they are too difficult to be attained. By industry and attention, if properly directed, much may be effected even in a moderate space of time, and a greater progress may be made than could at the commencement have been expected.

40. It will here be asked what course should be pursued in the conduct of our researches? Can we adhere to any fixed and uniform plan? Certainly not. For, how could the same method of investigation be made to apply to diseases whose seat and nature are totally different? Would it not be absurd, when examining a case of effusion into the brain, to proceed in the same way as if the effusion were seated in the thorax? And what resemblance can there be between the questions addressed to a person with malignant pustule, and one labouring under scirrhus of the stomach? Surely the means of ascertaining the difference between small-pox and varicella—between hydrophobia and certain nervous affections which simulate it, must be very different from those adopted, when we want to distinguish mania from arachnitis, inflammation of the stomach from peritonitis, or gout from ar-

ticular rheumatism. For it would evidently be irrational to pursue the same routine of examination in diseases, so totally different in their seat, nature, and character.

41. Our methods of examinatiou then should partake of all that precision which marks the improved pathology of the present day; and though they may not be directed in every case to each viscus and tissue, they should invariably be directed to explore each of the great cavities, where the vicinity of the contained viscera, and their numerous sympathetic relations constitute so many fertile sources of error.

42. Several plans of examination have been pointed out and insisted on; yet we too often find that though after putting many questions without any direct object, the observer may be able to collect a greater or less number of symptoms, he still has acquired no knowledge of the disease about which he is inquiring. Such a course is not merely injurious from the time it wastes, but also by conveying the erroneous impression that the symptoms are to be considered apart from the organ to which they are referable.

43. The following preparatory examination, which is that pursued usually at the Hotel Dieu, enables the physician to curtail much labour, and so to direct his questions as to ascertain with precision the seat and nature of the disease under consideration.

Preparatory Examination.—Whilst examining the general appearance of the patient, and the expression of his countenance, the observer should at the same time ascertain the state of his tongue and pulse, should see the expectoration if there be any, make him respire, and ask whether he feels pain in any particular part, and if he does, what has been its duration.

44. In this way, which is particularly useful in acute cases, a skilful person passes rapidly in review the principal functions of the system, and obtains some idea of the state of the organs contained in the three

great cavities, which are generally the seat of all serious diseases. The countenance and general appearance are good indices of the state of the intellectual and muscular systems, the tongue and mouth mark that of the digestive organs, and the pulse indicates either the direct derangement of the organs of circulation, or their connexion with the disturbance of others.—The expectoration, respiration, and voice mark the state of the lungs and their appendages, whilst the seat of the pain, of which the patient complains, and the time it has lasted, cast additional light on the information obtained by the previous inquiries.

45. The observer is still far from having ascertained the precise character of the lesion he is examining, but by means of the distinguishing signs of the diseases of the principal cavities, he will, in the first place, be able to determine whether the affection be acute or chronic; and in the next, by following the plan of examination we are now about to detail, he will learn how to give to his questions that degree of precision which is necessary for strict diagnosis and accurate description. By these means may be avoided that oversight so commonly committed in elementary works, namely, of supposing that to be known which is unknown, and of sending the reader to the perusal of a case, of which he as yet knows not even the denomination.

46. When commencing to take down a case, first note the name, sex, age, and occupation of the patient; this should be done according to the form above given. In some cases it becomes necessary to state the country or district from which the patient comes, and the diseases which prevail there. For example, many cases of intermittent fevers found in Paris got the infection elsewhere, which ought to be noted.

47. In general, it is advisable to collect the principal facts and circumstances of the case in the presence of those in attendance on the patient; it tends much to inspire confidence. In Hospitals, pupils should avoid fatiguing those unhappy persons whom misfortune

compels to take shelter in such asylums; and when they are seized by any dangerous disorder, surely their own feelings should teach them, that it is worse than inconsiderate to repeat the same questions many times over, and often without any determinate object. It should never be forgotten that misfortune has the strongest claims on the sympathy of every man; and that every principle should prompt us not to expose ourselves to such a censure as Martial passed on one of the physicians of his time—

Languebam; sed tu comitatus protinus ad me
Venisti centum, Symmache discipulis.
Centum me tetigere manus, aquilone gelatæ
Non habui febrem, Symmache nunc habeo.

48. The time of making the examination is not altogether a matter of indifference. When it is intended to put a number of questions, and enter into all the details necessary for a complete narrative, it is advisable to do so during the period of the remission, as then the patient can better bear the fatigue and exertion of conversation. But when, on the contrary, we wish to observe the symptoms presented by the disease, and the changes induced in the functions, in a word, the actual state of the patient, then it is better to choose the moment of exacerbation, as all the symptoms are more strongly marked, and their relative importance can be more easily assigned.

49. The acute and chronic forms of disease require a plan of examination and narration altogether different. Every thing connected with the previous history should be known, and stated fully in chronic cases; it is the only means of throwing any light on the obscurity which so generally surrounds them. But in acute cases this is far less necessary: it is of very little use, when considering a case of arachnitis, or pericarditis, or when giving its history, to go back to any previous affections of the patient, or inquire what has been his usual manner of living, or what influence any particular agent may have exerted upon him. When

the symptoms are urgent, our object is to ascertain speedily the nature and extent of the disease, and meet it by an energetic plan of treatment. Though this principle is true as to the treatment, it is not strictly so with regard to the prognosis, which must be modified by the existence of any particular organic disease, or hereditary predisposition, known to exist in the individual himself, or in his family.

50. After having examined the different parts of the body, in order to ascertain its external conformation, and any malformations it may present, the existence of which might lead us to suspect others deeply seated; after having ascertained whether there be any venereal or scrofulous cicatrices, which may throw some light on the present affection, the history should then be entered on in full detail, which will be found useful, particularly in consultations.

The Narrative.—The inquiries should be directed not only to the patient himself, but also to his family.

51. A family consists of its ascending, descending, and collateral branches. It is then necessary to know whether there has existed amongst any of these, but particularly in the father or mother, any habitual or chronic disease; such as hæmorrhoids, gout, rheumatism, phthisis, asthma, &c., which may be in any way connected with the present disease, or throw any light upon it. It sometimes happens, that a sort of general disposition to disease is transmitted from one generation to another, in such a way as to determine, in one, gout; in another, phthisis; in a third, some other disease, according as the occasional causes may tend to develope the one or the other.

52. The history of the collateral, or even of the descending branches of the family, may occasionally furnish some useful information. Thus we lately had an opportunity of seeing a female, about forty-eight years old, who had been attacked, for the third time, by apoplexy, and whose father, mother, uncle, and two maternal aunts, had died of the same dis-

ease. What a prognosis for her! What a dreadful inheritance for her children! When an intimate connexion subsists between the patient and any particular member of the family, it will be useful to ascertain whether there exists also between them any similitude in person, disposition, or habit; it constitutes an additional circumstance to be added to the others; for the closer the physical and moral resemblances between the individuals are, the more likely is the transmission of the disposition to disease.

53. The physiological and pathological part of the narrative should next engage the attention of the observer. He should pass rapidly over the different periods of the patient's life, observing particularly its septenary divisions, and dwelling on the more important æras, such as infancy, puberty, adult age, and the critical period. He should inquire into the habits, mode of life, and state of the functions at these periods; and ascertain what were the diseases to which the patient had been exposed, such as eruptions of the scalp, cerebral affections, glandular tumours of the neck or abdomen, during the first period of life; measles, small-pox, epistaxis, before puberty; catarrh, hæmoptysis, palpitations, dyspnœa, when the organs of the thorax were assuming a certain degree of preponderance; and lastly, he will make inquiries concerning any visceral or functional disturbances that may have occurred during the succeeding periods. It is only by accurate information on all these subjects that we can obtain such knowledge of the peculiar disposition and constitution of the individual, whose case is under consideration, as will enable us to give him advice as to the future management of his mode of living, at the same time that it throws much light on the plan of treatment to be pursued for his present relief.

54. A knowledge of the constitution will enable us to foresee in a great measure the form which diseases are likely to assume, and the course they will pro-

bably run. According to Professor Recamier, constitutions may be divided into the active, passive, ataxic and refractory. Observation has shewn that in persons who present the characters of the active constitution, namely those whose functions and actions are performed with energy and regularity, the return to health is more prompt and easy, and their diseases are more regular and less fatal, if properly treated from the commencement; that in those of a passive constitution, whose functions and actions are feeble, slow, and dull, though still regular, diseases are tedious in their progress, and tardy in their return to health, and consequently have a tendency to remain stationary; that in those, whether active or passive, who are of an ataxic habit, that is, who exhibit in their different vital phenomena, any incoherence, irregularity, or confusion, diseases will present similar characters, will arise from apparently insufficient causes, and often assume such a formidable character as to render it impossible to arrest their progress; lastly, in persons whose constitutions are such as to merit the appellation of refractory, that is, who manifest a certain energy in their functions, with considerable resistance in their disturbance, disease when once excited presents a similar tenacity, and generally resists every method of treatment.

55. The examination of the temperament should next engage attention. These have been divided into the sanguineous, lymphatic, and nervous, according as one or other of these organic systems predominates in the economy. By a knowledge of the prevailing temperament, the observer in the first place, is enabled to know the different affections to which this peculiar organic development disposes: and the reader can more readily represent to himself the aspect and appearance of the patient.

56. The study of idiosyncrasies is probably even of still more importance, when considered in refer-

ence to the peculiar dispositions and susceptibilities of particular organs, and also to the influence which different therapeutic and hygienic agents exert on the system.

57. It is thus we can see how an organ, too active relatively to others, must be more liable to contract those diseases to which the temperament of the patient already disposes him; how cephalitis, for instance, is more frequent in sanguineous children, in whom the brain is the organ most active and best developed; and thus we can give some explanation of those affections which occur in particular parts, which, though not endowed with much activity, exhibit a peculiar susceptibility for this or that agent; for instance, some persons contract catarrh only when they suffer from cold to the feet, and others get colic during stormy weather. In this way we may pass in review the different organs of the system, and consider them in reference to their predominence of action, their susceptibility relative to climate, seasons, different temperatures, food, drink, exercises, passions, and habitual or accidental diseases, such as issues, or hæmorrhoids; finally, it is only by considerations of this nature, that we can appreciate the advantage of this or that substance, or reject from our treatment a medicine that would be perfectly indicated in similar affections, and have recourse, occasionally, to others, the success of which can only be accounted for by some peculiarity of constitution in the individual. When the narrative of the previous condition of the patient, and of the diseases to which he had been exposed is thus concluded, it remains only to consider more particularly the affection under which he labours at present.

58. The observer first seeks to determine the causes which are presumed to have given rise to the disease, if they are appreciable, if not, he has only to state them doubtingly; he then considers the different phenomena that have preceded the attack, the symptoms which ushered it in, the signs which characterize it, its progress, its influence on the differ-

ent functions; and, finally, the treatment that has been pursued, and its effects. This plan is peculiarly applicable to acute diseases, and is in fact the only one that need be resorted to.

Let us now see how this mode of analysis may be applied to the present symptoms under which the patient labours.

59. When the preparatory examination has given grounds for supposing that a certain organ, or system of organs, is particularly affected, we begin by stating the symptoms referable to it, and then pass successively in review the state of the whole body, comprising the skin, face, state of intellectual faculties, apparatus of sensation, digestion, respiration, circulation, locomotion, secretion, and generation. When we come to treat of the diseases of each of the cavities, we shall give all the details that bear on this part of the subject.

60. After this is done, it remains only to add the changes that occur from day to day, or at more distant periods if the disease be slow in its progress. Attention should be redoubled on the critical days; for though the doctrine of crises is almost discarded of late years, it is still supported by the authority of so many ages, that we can scarcely neglect any thing that may throw light on a subject of such importance. When any new medicament is employed in the treatment, its effects should be carefully noted. Finally, the mode in which the disease has terminated should be mentioned, whether it be suddenly, slowly, or by metastasis; so also if it passes to the chronic form, or is followed by another affection. If the patient recovers, his progress to convalescence should be briefly mentioned, as it is always useful to know what influence the disease has exerted in the state of the different functions. But if death takes place, the fullest details should be given of the appearances presented on examination; in doing this, it is not sufficient to describe merely the state of the

organs known to be affected during life. If any other tissue or organ present any alteration, it should be fully detailed.

The subjoined tabular view exhibits a Summary of all the objects of examination referred to in these remarks.

61. After having marked the name, sex, age, physical conformation, constitution, temperament, and profession of the patient, we should pass successively in review—

Previous History.

- History of the Family
  - Ascending
  - Descending
  - Collateral
- History of the Patient
  - During Health
    - Habits
    - Regimen
    - State of Functions
    - Sympathies
    - Constitution
      - Active
      - Passive
      - Ataxic
      - Refractory
    - Temperament
      - Sanguineous
      - Lymphatic
      - Nervous
    - Idiosyncracies relative to
      - Morbid Susceptibility, hygienic agents, Medicinal agents.
  - During disease, observing the Critical Periods
    - Infancy
    - Puberty
    - Adult age
    - Critical period
    - Old age

History of the present Disease considered in its
- Causes
  - Predisposing
  - Occasional
- Previous circumstances
- Attack
- Progress
- Termination
- Present condition

2. Present State
- Habit of Body.—The Skin.
- Face.
- Intellectual System.
- Apparatus of Sensation.
- ——— Digestion.
- ——— Respiration.
- ——— Circulation.
- ——— Locomotion.
- ——— Secretion.
- ——— Generation.

3. Termination in
- Health.
- Other Diseases.
- Death.—Morbid Appearances.

METHOD OF EXAMINATION APPLICABLE TO DISEASES OF THE HEAD.

62 We shall now take it for granted, that by his preparatory examination, the observer has ascertained sufficient information to induce him to *suspect an affection of the brain, or its investments.* It remains for him then to verify his opinion, by examining carefully all the organs and functions which are subject to the immediate influence of the cerebro-spinal system.

63. The brain, like all the principal organs of the economy, presents, when attacked by disease, a disturbance, more or less evident, of the functions over which it presides; hence it is to these functions (at

the head of which we place the intellectual faculties, and those which belong to the systems of sensation and locomotion), that the observer ought particularly to direct his attention. The digestive apparatus should next be attended to, as its sympathetic connexions with the brain are so many and so important. As to the circulation and respiration, they are but very indirectly and rather remotely influenced by affections of the organs now under consideration. The expression of the countenance, and the position of the patient should always be attended to, whenever the brain is affected. Before we enter on each of these subjects in detail, it will be necessary to say a few words on some precautions which should be observed, and which should precede the examination of the symptoms.

64. As the diagnosis of diseases of the brain is in general difficult, and as several of them may be confounded with one another, or with affections of other organs, it is particularly necessary to attend to the previous history of each case, as it will elucidate the manner in which it set in, its progress, changes, the state of other organs coincident with these changes, more particularly that of the digestive apparatus. The observer will thus avoid the several mistakes which arise from the resemblance that exists between acute inflammations of the brain, and some derangements of the digestive tube. He should also attend to the nature of the causes which have induced the affection of the brain; he will recollect how constantly they are produced by concussion of the cranium, or vertebral column, insolation, hypertrophy of the heart, acquired and hereditary dispositions to cerebral congestion, abuse of spirituous liquors, the use of narcotics, mental anxiety, &c.

65. In every case the skull and spinal column should be examined, to ascertain whether there be any malformation, tumour, or lesion to which the present affection may be referred. If the patient be

a child, the temperament should be noted, and the size of the head, if it be large; the existence of worms, and the time that has elapsed since dentition. Increased vigilance will of course be required, if any organ of the thorax or abdomen be engaged, for then the cerebral affection may be obscured and masked by the other disease. After these preliminary inquiries, we may now enter on the examination of each of those systems of organs to which we have already alluded, and which we now proceed to consider in detail.

66. *Intellectual Faculties.*—It is usual to commence by ascertaining the state of the patient's faculties when he was in health, in order to distinguish what is really caused by the disease. Questions should then be put to the patient, to learn how far his intellects are impaired. His answers will determine whether his faculties are, as it were, exalted, deranged, or, on the contrary, merely weakened. To the two former heads may be referred that delirium, which is termed hallucination, when it takes one particular direction.

67. Delirium is presented to us in a variety of forms, for sometimes it is manifested only by a change in the patient's character; for instance, making a man habitually serious to become gay, or a mild and calm person to be impatient, irritable, or vicious; sometimes it is marked by a sombre or even savage expression, by phrenzied exclamations, singing, loquacity, incoherent expressions, ideas of the wildest ambition, a real state of mania; at other times there is an incoherence in the answers, some of which may be correct enough, while others are confused, and destitute of meaning; and lastly, the patient may be in a state of extreme agitation, making continual efforts to escape from his bed. In general, the degree of the delirium is proportioned to that of the general reaction in acute cases, and varies as this latter does. The delirium may be

continued or intermittent, periodic or irregular, subject to particular influences, or returning without any assignable cause. A better idea of the patient's case may, in some instances, be given by citing some particular word or phrase of his, than by any general description, for these are often peculiarly expressive. These circumstances, which generally concur with other indications of excitement, are referable to irritation of the brain; but they may also depend upon a reaction of such organs as sympathize with the brain, particularly the digestive tube. This is the reason why we have above insisted so much on the necessity of having a perfect knowledge of the manner in which these diseases set in. In infancy, as the intellects are not developed, it can scarcely be said that there is delirium; hence we must attend to the other cerebral symptoms.

68. We have already said that there is an opposite state to that here described, and which depends on diminished action, and loss, more or less, of cerebral power. This state is in most cases consecutive on the former; in others, however, it sets in suddenly, and indicates that the organization of the brain has been deranged from the commencement of the attack. This is marked by slowness and difficulty in giving answers, drowsiness more or less, and then somnolence, which may increase to a state of profound carus. Its degree should be stated; whether there be merely a disposition to drowsiness, or to actual coma, or whether it is possible to rouse the patient by stimulation. This may be ascertained by pinching different parts of the body, or by making slight percussion on the arm, or even the face, by which we may form some estimate of the condition of the nervous sensibility.

69. Some attention should be directed to ascertain the state of the memory, and the mode of articulation. The utterance may be hurried, quick, impeded, or even altogether suppressed; in which latter

case, it will be well to ascertain whether the aphonia arises from an impediment to the free motions of the tongue, or a want of cerebral power, caused by a lesion of some part of the brain.

70. *Sensitive System.*—This may be divided into two great heads, the organs of sense, and the general sensibility.

71. The symptoms most usually observed are referable to disturbance of the sight, hearing and touch. There may be a greater or less degree of diminution in these functions, or, on the contrary, an exaltation of them; or finally, there may be aberrations or illusions. When there happens to be a diminution, or complete suspension of the power of hearing or seeing, as in coma for instance, we ought to ascertain whether it is real, or only apparent. This can be done by suddenly exposing the eye to a strong light, or the ear to a loud sound.

72. Though the senses of smell and taste seldom furnish any assistance to the diagnosis of diseases of the brain, still we may examine their condition by bringing some pungent odour in contact with the pituitary membrane, or placing on the tongue some sapid substance.

73. In diseases of the brain, the sensibility is variously affected and requires very particular attention. As to the eye, its sensibility may be increased, which depends either on the impression of the air on the conjunctiva, in which case if there be ophthalmia at the same time, it becomes necessary to state it, or on the stimulus produced by the light on the brain through the intervention of the retina; these two causes should be carefully distinguished.

74. By tickling the interior of the nasal fossæ and the surface of the tongue we may determine whether their sensibility (considered as a result of the sense of touch generally diffused over the body,) remains unimpaired.

75. The nature and character of the headache

should be particularly attended to, as it is one of the most constant symptoms ; it will be necessary to ascertain exactly whether pain is felt in the internal ear, and also if there be any discharge from the auditory tube, which is sometimes of consequence as indicating an alteration on the lower suface of the cerebellum.

76. The sensibility of the limbs is sometimes increased, which is marked by shooting pains, by painful numbness, and creeping, which follows the course of the large nervous trunks ; this increased sensibility exists sometimes in the muscles also, particularly when they are permanently contracted. In such cases we ought, as far as is possible, to indicate the tissue affected.

77. As to the sensations of creeping, numbness, or of different "auræ," which occur in the limbs during the course of certain affections of the brain, they require a careful examination to determine in what tissue they commenced, or whether the skin only is engaged.

78. The state of the sensibility should then be ascertained in the different regions of the body, particularly in the chest and abdomen, and upper and lower extremities. This examination is so much the more necessary as in inflammation of the central parts of the brain, for instance in the corpus callosum, septum lucidum, and fornix, the sensibility is sometimes so much increased in the integuments of the body that the slightest pressure produces acute pain ; this should be distinguished from inflammation seated in the abdomen itself.

79. When the opposite state, or that of diminished sensibility takes place, as in the case of effusion, or disorganization of the substance of the brain, the different parts of the body should be examined as has been above stated, and we ought to have recourse to *pinching*, in order to determine the degree in which the sensibility is diminished. In all such

cases comparative trials should be made at both sides of the body, and the result stated in the report.

80. *Apparatus of locomotion.*—Its examination should follow that of the sensibility. After commencing with the face, the state of the eyes, mouth, neck and limbs, should be successively reviewed.

81. The part of the eye which should be most attended to is the pupil, which may be either dilated or contracted, immoveable or dilatable, or, in some cases, may present constant oscillations.

82. The globe of the eye itself may be agitated by convulsive or rotatory motions, or may present a change in the direction of its axis, constituting strabismus.

83. This last phenomenon depends on a permanent contraction of the muscles of the eye, at the side affected, or on paralysis of their antagonists. The eye-lids may be closed, which depends either on a paralysis of the elevator of the upper-lid, or on the contraction of the orbicularis muscle, which ought always to be stated. The contraction of this latter muscle, which is produced by the effect of the light on the eye, should not be confounded with that spasmodic effect, which is altogether involuntary, and depends on a deep-seated irritation in the brain.

84. The alæ of the nose are in some cases immoveable at one side, and applied closely to the septum. This arises from paralysis of the muscles at that side, and therefore deserves to be noted.

85. When the utterance is impeded, indistinct, or altogether lost, we should ascertain, whether it arises from difficulty of moving the tongue, lips, or larynx, or whether it depends on want of cerebral power. For this purpose we should endeavour, by calling aloud to the patient, to excite to action the different sets of muscles that contribute to the act of speaking,

86. As to the mouth, it presents several symptoms

deserving attention. They consist of trismus or tonic contraction of the elevators of the lower jaw; the direction of the point and base of the tongue may be changed, or the position of the commissure of the lips may be altered; this latter deviation sometimes takes place on the affected side, in consequence of a spasmodic contraction of the commissure, which draws the mouth upwards and outwards; at others the muscles are paralysed, when the lip becomes depressed and pendant; finally, it may exist at the same side and be caused by the muscles that remain unaffected. In general, when there are any spasmodic attacks, the examination of the commissure of the lips, as well as of the other muscles, should be made during the intervals, for while they continue, the two sides being sometimes convulsed, it will not be possible to ascertain the distinctions above stated.

87. The head is sometimes drawn backwards, or inclined to one side: attention should then be paid to the muscles of the neck which are contracted or relaxed. In some cases the larynx experiences continued motions up and down.

88. The trunk of the body may also present particular phenomena, such as momentary spasms of the muscles of respiration, retraction of the body backwards, or bending forwards; these latter usually depend on irritation in the spinal column.

89. The power of moving the upper and lower limbs, particularly the former, may be diminished or lost. This paralysis, which may exist with or without rigidity, depends, according to some writers, on a lesion of the optic thalami and posterior lobes of the brain, or of the corpora striata and anterior lobes; the former, namely that of the optic thalamus, determines paralysis of the upper extremities, the latter, namely that of the corpora striata, produces paralysis of the lower limbs. We should ascertain whether the immobility of the limbs arises from a state of inaction or general weakness, whether it is con-

fined to a certain region, or extends to all; whether the limbs retain any position that may be given to them as in catalepsy; or whether, on the contrary, there is a real paralysis. When this latter exists, we should examine whether the muscles are flaccid or rigid, whether the flaccidity is total or partial, or whether the limb falls down *en masse* when it is raised up: when rigidity exists we should ascertain whether it is confined to one part as in trismus, or extends to the whole body, as in tetanus. In some cases the muscles are alternately in a state of rigidity and relaxation, as in convulsions; in others the limbs are continually agitated as in chorea, the intellect remaining unimpaired, but incapable of controuling the motions. And lastly, the convulsions exist in certain muscles only (and then momentarily), producing *subsultus tendinum*. We may here observe that those irregular motions which occur during delirium should not be considered as convulsions, as they have a real object, and do not belong to movements merely involuntary. As to those motions which are termed automatic, they should be noted; such, for instance, as when children in hydrocephalus carry their hands frequently to their heads. In the exposé of these various phenomena, any differences that may exist between the state of the two sides of the body should not be overlooked.

90. *Digestive System.*—The digestive organs do not ordinarily present many symptoms which may be considered as the direct effect of diseases of the brain. The most important, however, are vomiting, which sometimes occurs at the commencement of these affections, constipation and retention of urine, or the opposite state of involuntary evacuation, which occurs when the affection is carried to a great degree, or when the spinal column is engaged. When there is vomiting, care should be taken to examine the state of the mouth and tongue, as well

as the abdominal viscera, in order to determine whether it is purely symptomatic of the affection of the brain, or depends on inflammation of the stomach.

92. *Circulating System.*—The disturbance referable to this part of the economy, consists in alterations of the natural rythm of the pulse, in increased frequency, or a greater or less degree of slowness. Sometimes it may become irregular or intermittent; but this latter modification is of trifling importance, as it contributes little or nothing to the diagnosis of cerebral affections. We may remark, however, that slowness of the pulse is chiefly connected with certain lesions of the substance of the brain, and with considerable effusions, whilst increased frequency accompanies rather the inflammatory condition of the membranes and the first stage of inflammation of the substance of the brain, particularly when this is complicated with gastro-intestinal inflammation.

93. *System of Respiration.*—We may make somewhat the same remark on this system as on that of the circulation, as to the degree of its connexion with affections of the brain. The respiration may be stertorous, interrupted, sighing elevated, or may become very slow, when the disease proceeds to an extreme degree. It becomes laborious and difficult when the spinal chord is injured, in a greater degree in proportion to the nearness of the affected part to the region of the neck; and suffocation may be threatened if it occurs opposite the fourth and fifth cervical vertebræ, below the origin of the phrenic nerves. In some cases the expiration is made at one commissure only, the mouth being closed; this is what has been termed "*fumer la pipe.*" After having in this way reviewed the different systems of organs the narrative may conclude with stating the position of the patient's limbs, as well as that in which he lies.

94. *Urinary System.*—The state of the bladder should never be neglected; it is sometimes para-

lyzed. The secretion is then retained in the bladder, acquires an ammoniacal fetor, is absorbed into the system, and produces that peculiar fetor so common in affections of the brain, which has been compared to the smell of mice. The urine may be thready and mixed with mucus, arising from inflammation of the lining membrane of the viscus, caused by the retention of the fluid in its cavity. When the spinal column has sustained any injury, particular attention should be paid to the urinary organs, as paralysis of them is one of the most constant effects of the diseases of the medulla spinalis.

95. *Aspect.*—The examination should conclude with a slight notice of the countenance, which may be described either in reference to its general expression, (which may be furious and menacing, or merely fixed and denoting surprise), or to each of its parts: thus the eyes may be red and brilliant, or dull and covered with mucus; the upper lids may be contracted, moveable, or paralyzed; the mouth may present a deviation at its commissure; hence the great variety of expression which the countenance presents in diseases; it may be tranquil, immoveable, gay or gloomy; or it may express indifference, stupidity, or total insensibility.

96. *Position and State of the Body.*—The manner in which the patient lies, the state of agitation or calm in which he is found, the position of the head and limbs, the disposition to sink down in the bed, &c., may furnish some data for distinguishing the diseases of the brain. Finally, when there is any reason to suspect an affection of the cerebellum, when the patient presents any external marks on the occiput, or when he complains of pain in that part, attention should be directed to the genital organs, to see whether there be priapism.

97. *Recapitulation.*—In recurring to what has been here stated, we see that the observer should attend to the age of the patient, which in some cases

will assist in distinguishing apoplexy from inflammation of the brain, as the former seldom occurs before the age of forty, while the latter may arise at any period of life. He should examine the skull and vertebral column, to ascertain whether there is any external injury or malformation ; he should attend to the mode in which the disease has set in, its progress and symptoms ; then he should examine the present condition of the patient, commencing with the intellectual functions, having in the first instance ascertained their state in health. Delirium and its character should next engage his attention, and also the state of stupor, which may vary from mere somnolence to complete coma ; from a slight slowness in answering questions to total loss of understanding. The manner of articulation should also be attended to. After inquiring whether there is any pain or particular sensation in the head or vertebral column, the examination concludes with a review of the organs of sense, as the sight, hearing and taste.

98. The observer then passes in review the state of the pupils, of the globe of the eye, eye-lids, lips, tongue, neck, upper and lower limbs ; he then examines the muscular system, to determine whether there is contraction convulsion, or paralysis in any particular part ; or whether these phenomena are continued or intermittent. In drawing up the report of the case he will follow precisely this same arrangement.

99. After having thus investigated the condition of the three great functions which are affected by affections of the brain, the observer will ascertain the state of the tongue, stomach and bowels; he will state the existence of constipation or vomiting, and mark their symptoms, with so much the greater accuracy, as affections of these organs very frequently simulate those of the brain. He may conclude with a rapid glance at the state of the respiration, the pulse, action of the heart, state of the bladder, ex-

pression of countenance, and position in which the patient lies.

100. When the medulla spinalis or cerebellum appears to be affected after some external injury, attention should be paid to the digestive, respiratory, circulating and digestive systems. But that the report of the case may not be incomplete, he should examine the whole of the viscera, and state whether they present any thing remarkable. This is the only way by which complete and accurate cases can be drawn up, capable of still farther elucidating the pathology of the brain, which has latterly made so much progress.

METHOD OF EXAMINATION APPLICABLE TO DISEASES OF THE CHEST.

101. After having examined the external conformation of the thorax, and inquired whether pain is felt in any particular part, and learned its seat and character, we should proceed to investigate the phenomena which result—

1st, From the act of respiration;
2d, Those which depend on the voice;
3d, The product of expectoration;
4th, The symptoms given by percussion;
5th, Those which are referable to the heart and its connexions.

OF THE PHENOMENA WHICH RESULT FROM THE ACT OF RESPIRATION.

102. *In Health.*—Inspiration and expiration are performed slowly and with ease, none of the muscles appearing to make any particular effort; they succeed each other regularly, their rythm is constant and uniform; all the ribs are alternately elevated and depressed, and the dilatation and contraction are equal at both sides, except in cases of deformity of the thorax. Respiration in children is performed in a

great degree by the motion of the ribs alone; in adults, by that of the ribs and diaphragm; and by this last muscle alone, in old persons in whom the cartilages have become ossified.

103. The younger the subject is, the more frequent is the respiration. Thus, during the first year, an infant respires about thirty-five times in a minute, but an adult makes about eighteen or twenty respirations in the same time. Its frequency is greater in women and persons of a nervous or irritable habit.

104. *In Disease.*—The movements of the chest present many varieties, which may be referred to the following heads: They may be frequent or unfrequent, quick or slow, regular or irregular, great or small, equal or unequal, easy or difficult, complete or incomplete; and, finally, the respiration may be abdominal or thoracic. All these phenomena are within the reach of the ordinary means of examination; but auscultation conducts us to the knowledge of others, which we now proceed to detail.

105. Auscultation may be made either by applying the ear to the walls of the thorax, or by means of the stethoscope invented by Laennec.

106. Immediate auscultation is more particularly useful to persons who have not acquired much experience in this mode of examination; for when the phenomena have been rendered sensible by the application of the ear, and the observer has formed some idea of them, it becomes more easy for him to seize their minute shades than if he had commenced in the first instance by employing the stethoscope. However, it should be remembered that there are cases in which the use of the instrument is altogether indispensible, where, in fact, the ear cannot be applied; for instance, immediately above and below the clavicle, in the hollow of the axilla, and beneath the mammæ in females. Besides, the head can scarcely follow the movements of the chest, as it is elevated and depressed; and, even if it could, the friction it

produces must render the sounds somewhat confused.

107. When using the stethoscope, it should be held like a writing pen, the fingers being so placed on the instrument as to feel at once its extremity, and the point of the thorax to which it is to be applied. It should be also placed evenly upon the surface, and perpendicular to it.

108. Before we begin the examination, or at all events before we note its results, we should wait until any impression this process may have made on the patient shall have passed away; for if this precaution be necessary in examining the state of the circulation by means of the pulse, it is no less so when investigating the respiration by the stethoscope. The phenomena which exists in the healthy state of the organs should first be studied, in order that they be not confounded with those which are produced by disease; and that their various changes may be accurately estimated, or their absence determined, which is by no means an unusual occurrence.

109. *Examination of the Respiration in the healthy State.*—When examining the respiration, the funnel should be removed from the end of the cylinder. On applying its extremity to the chest, we perceive in a healthy adult, during inspiration and expiration, a slight, though distinct murmur, marking the entrance of the air into the cells, and its passage out of them. This murmur is loud in proportion to the depth and frequency of the respiration—to the youth of the subject, to the thinness of the walls of the thorax, and completeness of their dilatation. In females it is more strongly marked than in males, and still more so in children, whence the term "*puerile*" is applied to respiration when it becomes very sonorous.

110. The respiratory murmur is most perceptible in the hollow of the axilla, in the space between the anterior border of the trapezius muscle and the clavicle, immediately beneath this bone, and at the in-

ferior and posterior part of the chest; for these are the parts in which the lungs are nearest to the surface. Opposite the trachea, larynx and root of the bronchi, the sound of the respiration is much more loud and distinct; it is not unlike that of a bellows, and gives the idea of a considerable column of air passing through a tube of large diameter; the air also appears as if sucked in from the cylinder, during inspiration, and expelled again during expiration. To this peculiar sound the term "*tracheal* respiration" is applied.

111. *Examination of the Respiration in Disease.*—The respiratory murmur may be stronger or weaker than natural, may be altogether suppressed or heightened, so as to resemble what we have described as the "*tracheal*" respiration; and lastly, it may be pure, or mixed with some of those various sounds, to which the term "*râle*" has been applied.

When the respiration becomes more strong than natural, it assumes the character it manifests in children, and therefore is termed by Laennec "*puerile respiration.*" This intensity of sound is not owing to a lesion of the part of the lung in which it is heard; on the contrary, it is heard only in the healthy parts, whose action becomes momentarily increased to supply that of the diseased parts. Thus, in pneumonia, we usually find the "puerile" respiration, in those portions of the lung which are not yet attacked by the inflammation.

112. As the respiratory murmur presents a number of varieties even in the healthy state, it is only by comparing different parts of the lungs that we can judge of any diminution of its intensity that may occur. It is always easy to make this comparison; for the respiration is seldom weakened in the entire of the lung, or in both lungs at the same time. But its degrees vary from a slight weakening of its natural intensity to total suppression. A diminution of the movements of the thorax seems to be the most

usual cause of this weakening of the respiratory murmur; it sometimes arises from a partial obstruction of the smaller bronchial tubes, either by a thickening of their mucous membrane, or by the presence of some viscid matter. It is also found to occur in cases in which false membranes are yet soft and just beginning to be organized.

113. Complete suppression of the respiratory murmur arises from various causes. It occurs when the lung becomes impermeable to the air, or when there is interposed between it and the walls of the thorax any liquid or gaseous exhalation, which prevents the sound from being transmitted. It seldom happens that the sound is suppressed through the whole extent of a side of the chest. Some trace of it can almost always be discovered near the clavicles, and opposite the root of the lung; and probably it is never altogether inaudible at the latter of these points.

When treating of the natural phenomena, we described the "*tracheal*" respiration, and indicated the points in which it is heard. It sometimes happens that a similar sound is emitted from other parts, besides those in which it is audible during health. This occurs either when there are cavities of a certain extent communicating freely with the bronchi; or when the tissue of the lung becomes indurated, and so transmits more readily the sounds which the air produces in passing through the large bronchial tubes. In the parts of the lung which remain unaffected, we find that the respiration has become "*puerile.*"

114. The respiratory murmur, whatever be its degree of intensity, may be pure, which indicates that the air tubes are free from obstruction; or it may be blended, and as it were disguised by other sounds, to which the term "*râle*" has been applied. By "*râle*" *or rattle, is understood any sound produced by the circulation of the air in the bronchi and*

air-vesicles, different from that murmur which it determines in the healthy state *.

The "râle" seldom occupies the entire extent of the lung; they are usually audible only in a certain part of it, the respiration remaining natural, or becoming "*puerile*" in the rest. They indicate either a contraction of some part of the bronchial tubes, or the presence of a fluid which obstructs them or the air-vesicles. The "râles" are divided into four species;—1st, the "râle muqueux;" 2d, "râle sonore;" 3d, "râle sibilant;" 4th, "râle crepitant."

115. *The "râle muqueux,"* or mucous rattle, is produced by the passage of the air through sputa accumulated in the bronchi or trachea, or through softened tubercular matter. The character of the sound indicates that the fluid, which fills up the air-tubes, is unctuous but not tenacious. Sometimes it is weak, and audible only from time to time, at others it is rather loud and continuous. In the former case the air meets only at intervals portions of mucus, which determine the sound; in the latter the bronchi are almost entirely filled with it. When carried to a very high degree, it constitutes a gurgling, or "*gargouillement.*" This is the term that has been applied to the loud murmur, which is produced by the agitation of the matter of tubercles, or puriform

* Some persons seem disposed to use the English translations of these terms. It appears, however, preferable to adopt at once the terms devised by Laennec, which will save us from having new translations of them, according to the whim or the fancy of particular persons. The inconvenience of this practice should it become general, will soon be rendered apparent, as histories of cases begin to be published, containing statements of the signs furnished by the stethoscope. For as all these consist of simple ideas, if each of them be not marked by a term precise and definite, it will lead to endless confusion and discrepancy. The terms devised by Laennec, are purely terms of art—and if we paraphrase or translate them, we can never be sure that they will excite in the minds of hearers or readers the precise ideas which he meant them to express, and which we seek to convey.—T.

sputa, by the passage of air through them. This "râle" occurs in catarrh and in softened tubercle.

116. The "*râle sonore*," consists of a sound more or less grave, and occasionally very loud, resembling sometimes the snoring of a person asleep, at others the sound of the base string of an instrument when rubbed by the finger, and not unfrequently the cooing of a dove. It seems to be caused by a contraction of the bronchial tubes, by a thickening of their mucous membrane, or by some change in the form of these canals, induced probably by the thickening of the spur-like processes or folds of membrane at the points of division of the bronchi; at least this change is almost constantly observable in subjects that have died during the existence of chronic catarrh, of which this "râle" is characteristic.

117. The "*râle sibilant*," consists of a slight, though prolonged, hissing sound, which occurs either at the termination or commencement of inspiration. It may be grave or acute, dull or sonorous. These two varieties may exist at the same time in different parts of the lung, or may succeed each other at variable intervals, in the same part. It is owing to the presence of mucus, thin, and viscid, but not abundant, which obstructs, more or less completely, the smaller bronchial ramifications, which the air has to pass through before it arrives at the air-cells. This "râle" seems to indicate a more serious affection of the lungs than the one last described, inasmuch as it is seated in the more minute bronchial ramifications; hence, when it extends to any considerable portion of the lung, it is attended by great difficulty of respiration. It is during the existence of this "râle" that the sputa present that arborescent appearance, which resembles so much the form, dimensions, and ramifications of the small bronchial tubes, from which they have been expelled by the efforts of coughing. It occurs in the first stage of bronchitis.

118. The "*râle crepitant*" resembles very accurately the crackling or crepitation of salt, when thrown into a heated vessel, or that emitted by a piece of dried lung, when pressed between the fingers. It depends on an exhalation of blood on the internal surface of the air-cells, such as occurs in the first stage of pneumonia, of which this "râle" is the distinctive sign. It occurs also in hæmoptysis and œdema of the lungs.

119. These are the different "râles" which the stethoscope enables us to recognize. It would appear from this description of them, that their characters are so strongly marked, that they cannot be confounded or mistaken one for the other; but still it frequently happens that their differences are not so striking, and that they glide into each other, by a sort of transition indicative of a mixed lesion, or one more nearly allied to one than the other. It is by habit and practice alone that we can learn to appreciate these shades; words cannot convey an adequate idea of them.

OF THE PHENOMENA WHICH DEPEND ON THE VOICE.

120. When examining the voice, the funnel should be retained in the extremity of the cylinder, and then the phenomena will be found to vary: 1st, according to the points at which they are examined; and, 2d, according to the natural character of the voice.

When a person speaks or sings, his voice thrills in the interior of the chest, and produces in its whole extent a trembling motion, which we can readily perceive on the application of the hand. This phenomenon is not of much importance, and seldom demands any particular attention. However, when a large cavity happens to exist, the trembling becomes so forcible, as of itself to make us suspect its exist-

ence. When the cylinder is applied to the thorax, we hear a confused resonance of the voice, the intensity of which varies in different points of its extent. It is most distinctly heard in the arm-pit, at the back, between the internal border of the scapula and the vertebral column, and anteriorly at the angle formed by the clavicle with the sternum. We do not hear any thing distinct or articulate, it is rather a sound more or less confused, which seems to waste itself against the walls of the thorax. In other parts of the chest, particularly posteriorly and inferiorly, the sound is much more weak, and produces only an indistinct murmur. It is in all cases rendered more manifest where old adhesions exist.

In persons whose voice is deep and grave, the degree of resonance is greater, but it is confused, and nearly equal at all points of the thorax; but in females and children, whose voice is acute, it is clear and distinct.

121. *In Disease, the phenomena furnished by the voice* are referable to three heads: Resonance, Pectoriloquy, and Ægophony. By the term resonance, is understood a thrilling of the voice more loud than natural, or its existence in a part in which it is not heard during health. It sometimes becomes so strong as that the sound seems to be produced at the very extremity of the cylinder which is placed on the thorax, but it never conveys the impression as if it traversed the length of the tube to reach the ear of the observer. A thickened and hardened state of the lung, caused either by a mass of crude tubercles, or by inflammation, produces this phenomenon, by rendering the lung a better conductor of the murmur of the voice in the bronchi. Hence the origin of the term "*broncophony.*" This symptom, though not usually of much importance, becomes occasionally of considerable value, when it co-exists with phenomena furnished by other means of examination,

and also as enabling us to make a comparison between the state of the two sides of the thorax.

122. *Pectoriloquy.*—This phenomenon is said to exist when the voice of the patient, distinctly articulated, seems to issue from the point of the chest on which the cylinder is applied, and traverses its whole length to strike the ear of the observer, with its natural tone, or probably more strongly. These are the circumstances which constitute *perfect* pectoriloquy ; but it admits of two other degrees, namely, the *imperfect* and the *doubtful*. It is termed *imperfect*, when the voice thrills strongly under the cylinder, seems to approach the ear, but never traverses the whole length of the tube. And, lastly, it is said to be *doubtful*, when the voice seems acute and suppressed like that of a ventriloquist, and is arrested at the thoracic extremity of the tube, thus approaching to the character of simple resonance.

123. Pectoriloquy presents some varieties, which depend on the tone of the voice, the size and form of the excavations, the firmness of their walls, the degree of facility with which the air can penetrate them ; and finally, the existence or non-existence of adhesions with the pleura costalis.

124. The more acute the voice is, the more evident does the pectoriloquy become ; hence, in persons whose voice is grave and deep, the thrilling or vibration of the walls of the thorax may be sufficiently intense to mask it, and render it doubtful.

125. In cases of aphonia, the pectoriloquy is not entirely suppressed. It sometimes occurs that we can distinguish better what the patient endeavours to express, by placing the cylinder on the point corresponding to the excavation in the lung, than we can by the naked ear at the same distance.

126. The pectoriloquy is sensibly affected by the size of the cavities. Thus, when they are unusually large, it becomes changed into a very full and grave sound, similar to that of the voice transmitted to

some distance through a tube, or cone of paper. In very small cavities, on the contrary, it becomes doubtful, particularly when the parts of the lung which surround them are still permeable to the air.

127. The more dense and firm the walls of the excavation are, the more perfect is the pectoriloquy. It sometimes acquires even a metallic tone when the cavity has become lined by a membrane, whose structure approaches that of fibro-cartilage.

128. It is also rendered very distinct when the cavity is superficial, and its walls thin, and adherent to the pleura costalis; but when there is no adhesion, and the sides of the cavity become compressed together during expiration, the pectoriloquy becomes doubtful: the existence of the excavation must then be ascertained by other symptoms.

129. Again, its force becomes increased, and the voice seems as if transmitted through a tube, when new cavities begin to communicate with those already existing; but if the excavations become very numerous and tortuous, the sound is rendered somewhat confused and indistinct,

130. The less liquid the cavity contains the more evident is the pectoriloquy, for then the communication with the bronchi is usually open, and allows a free passage to the air.

131. If this communication be obstructed for any time by the accumulation of matter in the bronchi, the pectoriloquy is rendered doubtful, and acquires somewhat of an intermittent character.

132. It sometimes happens that we can find scarcely a single individual with pectoriloquy in the wards of an hospital, though at the previous visit there had been several; in such cases, we observe that in the greater number of the patients the expectoration had been very much diminished or altogether suppressed.

133. *Ægophony.*—This phenomenon consists of a strong resonance of the voice, which is more acute

and sharp than that of the patient, but never seems to traverse the cylinder as pectoriloquy does; its tone is thrilling and tremulous, like that of a goat; whence the term is derived.

134. Though its limits are usually circumscribed, they are not so much so as those of pectoriloquy; it is found between the base of the scapula and the vertebral column, towards the inferior angle and external border of that bone, and sometimes in the direction of a line, which may be conceived to pass from its centre to the sternum, following the direction of the ribs. When ægophony exists at both sides at the same time, it is difficult to determine whether it is produced by disease; for in some persons the natural resonance of the voice presents this acute and tremulous character at the root of the lungs. If old adhesions exist at one side of the chest, the ægophony becomes much more evident.

135. Ægophony, though it may vary in its force and extent, always indicates the existence, in the cavity of the pleura, of a moderate quantity of fluid, or of false membranes, somewhat thick and soft; it ceases when the effusion becomes too considerable: hence, in the former case it indicates pleurisy in its first stage; and in the latter, it marks its passage to the chronic state, if the general symptoms still continue after the cessation of the ægophony; but it is not a sign of its resolution if these symptoms cease as it disappears.

136. Ægophony does not prevent us altogether from hearing the respiratory murmur, when it is not suppressed by hepatization of the lung.

137. The *Metallic tingling—Respiration* and *Resonance* are very remarkable phenomena, with which we shall conclude this account of the signs furnished by the voice and respiration.

The metallic tingling, or "tintement metallique," resembles the sound produced by any very small hard body striking against a metallic or glass cup.

When the phenomenon is not so strongly marked, it produces only the *metallic resonance;* lastly, the respiration also may assume this character, in which case it resembles the murmur produced by air blown into a metallic vessel with a narrow aperture; these different sounds cease occasionally for a short time, but recur soon after.

138. The metallic tingling occurs when there exists a large excavation filled with air and fluid, communicating with the bronchi, and is heard when the patient coughs or speaks.

139. The metallic respiration occurs when there is a fistulous communication between the bronchi and the cavity of the pleura.

140. The metallic resonance and respiration indicate, in addition to the fistulous communication between the bronchi and pleura, an effusion of a gaseous fluid into the cavity of that membrane.

141. When the metallic tingling occurs together with the metallic resonance and respiration, it denotes the existence of a vast excavation, whose walls are thin, adherent and compact.

OF THE EXPECTORATION.

142. *In the Healthy State*, the expectoration consists of a viscid, ropy fluid, which is transparent, colourless, inodorous, insipid, and exists only in sufficient quantity to moisten the inner surface of the air passages.

143. *In Disease*, the sputa sometimes consist of a transparent, limpid, and slightly viscid fluid, the consistence of which gradually increases, until it ultimately becomes changed into an opaque, yellow, or greenish mucous matter, such as usually occurs in pulmonary catarrh.

144. In other cases, the expectoration is composed of a transparent mucous fluid, so tenacious as to adhere closely to the bottom of the vessel in which it is deposited, even when it is inverted. This may be marked

by bloody striæ, or the blood may be combined with it in greater or less quantity, so that its colour varies from a yellow slightly tinged with red, to that of the deepest mahogany. These are the characters of the expectoration in acute pneumonia.

145. We sometimes observe the product of expectoration to consist of a frothy, colourless fluid, containing, suspended, several portions of a flocculent matter, or presenting on its surface some yellow, rounded, purulent masses, in greater or less quantity: in other cases it is composed of a mucous matter, marked by striæ of a dull white colour. These varieties occur during the early stages of pulmonary tubercles. As the disease advances the quantity of the yellow diffluent fluid increases, and ultimately forms the whole of the matter expectorated. It sometimes contains bubbles of air, and presents more or less the characters of pus. Such is the expectoration in the last stage of phthisis.

146. In some cases the sputa are ejected forcibly, and in large quantity at a time, so that the patients seem to vomit them. This occurs when an effusion into the cavity of the thorax finds an exit through the bronchi.

147. Again, we sometimes observe portions of false membrane expectorated, either in the form of lamellæ, or moulded into that of the bronchial tubes, trachea, or larynx. This is characteristic of croup.

148. Lastly, the expectoration may consist of pure blood, sometimes of a bright, at others of a dark red colour, as occurs in hæmoptysis. When a large quantity is brought up at a time, we should take care to examine whether the blood is frothy, and accompanied by cough, as these are the symptoms which distinguish hæmoptysis from hæmatemesis.

149. In all cases the observer should ascertain whether the sputa exhale any particular odour, particularly when the general symptoms induce him to suspect the existence of gangrene of the lung, or of

a tubercular cavity, or collection of pus, which may have opened a passage for itself from the pleura into the bronchi.

150. In cases of gangrene of the lungs, the sputa are as dark as the lees of wine, or greenish; and the odour is so strong as to prevent any mistake as to their real character.

OF PERCUSSION.

151. The value of percussion, as a mode of examination, has not been by any means diminished by the discovery of auscultation. It is still considered a very efficient means of distinguishing diseases of the chest. Though it appears to be a very simple operation, it requires some precautions in performing it, so as to obtain satisfactory results. The fingers should be semi-flexed, their extremities placed closely together, and so adjusted as to be on the same plane, none of them passing beyond the others. In this way they are made to strike the chest perpendicularly, the integuments being made tense by the fingers of the other hand. The percussion should be made alternately on the corresponding points of each side of the chest, with the same degree of force and same angle of incidence. The wrist should be free and unrestrained, so as not to strike too forcibly and cause pain. Percussion may occasionally be made by striking the walls of the thorax with the hand flat and extended; but in this case allowance must be made for the sound emitted by skin.

152. The position of the patient should also be properly adjusted. He should be made to sit upright, his arms being carried backwards when the anterior part of the chest is to be examined; elevated towards his head, when percussion is being made on the lateral parts, or crossed in front, whilst we strike the back. He should at the same time be directed to bend forwards, so as to give the back an arched position. These several measures are intended for the

purpose of rendering tense the muscles which cover the walls of the thorax.

153. The condition of the external parts should be attended to; thus the sound will be more clear when the patient is thin and his fibres dry, than when he happens to be very fat, or when the flesh is soft and flaccid; but if the integuments be infiltrated by a serous effusion, no sound will be emitted on percussion.

154. The sound is more clear when we make percussion on those parts that are covered merely by the skin, or by thin and tense muscles; for instance, on the clavicles, or immediately below them to the distance of two fingers' breadth on the sternum;—towards the cartilages of the ribs, within the margins of the axilla as far as the third rib, and posteriorly on the angles of those bones;—on the spine of the scapula, and, in thin subjects, on its supra and infra spinous fossæ.

155. The sound must obviously be dull at the region of the heart, opposite the mammæ in females, and great pectoral muscle in males; and also inferiorly at the right side, in consequence of the position of the liver; at the left side, on the contrary, the sound is rendered more clear by its vicinity to the stomach, particularly if that viscus be distended by flatus.

156. *In Disease*, the sound emitted by the chest frequently becomes altered, being rendered dull, obscure, or even totally suppressed; or, on the contrary, may become more clear than in the natural state; so much so, as in some instances to give rise to a gurgling, or even a metallic tingling. When this phenomenon occurs, it is observed most usually beneath the clavicles. This exaltation of sound occurs when the lungs contain a greater quantity of air than is natural, or when this fluid is effused into the cavity of the pleura.

157. When the elasticity of the lung is diminished

by its becoming infiltrated, without at the same time losing altogether its permeability to the air, the sound is rendered dull or obscure, according to the degree in which the pulmonary tissue is affected. This change takes place in cases of intense catarrh, in the first degree of pneumonia, and in œdema of the lungs.

158. The sound is suppressed altogether in the second degree of pneumonia, when the substance of the lung becomes dense and heavy like that of the liver, and so is rendered impermeable to the air. The same effect is produced when the lung is compressed by a fluid effused into the cavity of the pleura, or by the development of any accidental production in its substance. This suppression is, however, but partial in most cases. Its extent depends on that of the effusion, hepatization, or tumour with which it is connected, the remainder of the side still emitting its natural sound on percussion.

159. When the lung contains an unusual quantity of air, or when an elastic fluid is effused into the pleura, the sound becomes more clear than natural. And lastly, its tone may be increased so as to resemble a metallic tingling, in cases of pulmonary excavations, or pleuritic abscess, which are circumscribed and filled partly with air, partly with fluid.

OF THE PHENOMENA REFERABLE TO THE HEART.

160. Laennec has referred these to four heads:—1st, the extent in which the movements of the heart are perceptible; 2d, the impulse which they communicate; 3d, the sound which accompanies them; 4th, their rythm.

161. In a healthy man whose heart is properly proportioned, we can distinguish its pulsations only in the præcordial region; that is, in the space between the cartilages of the fifth and seventh ribs, and at the inferior part of the sternum. The movement of the left cavities is most perceptible in the

former situation, that of the right, in the latter; but if the sternum be very short, they are sensible even in the epigastrium.

162. In some corpulent persons we cannot by the hand distinguish the pulsations of the heart, and the space in which we can perceive them by the cylinder is very limited, being not more than a square inch; but in emaciated persons, particularly when their chests are narrow, they are heard in a much wider range, namely, in the inferior fourth, or probably three-fourths of the sternum, or, occasionally, even along the whole length of that bone, under the left clavicle, and sometimes even as far as the right.

163. When the stroke of the heart is confined within these bounds, and when it is less strong under the clavicles than in the præcordial region, in persons of that conformation which has been just described, we may still consider the organ as retaining its proper proportions.

164. The stroke of the heart will, of course, be heard in situations different from those here stated, in cases in which a transposition of the viscera has existed from infancy.

165. *The Impulse.*—When one extremity of a stethoscope is placed on the cartilages of the ribs, or base of the sternum, and the ear is applied to the other, a sensation is communicated as if it were elevated by each stroke of the heart; this is termed its impulse.

166. It is very slight in a healthy person, particularly if somewhat corpulent; but even when altogether imperceptible by the hand, it is rendered distinct by the cylinder. In general, it is distinguishable only in the præcordial region, or, at farthest, along the inferior half of the sternum.

167. It is most forcible opposite the cartilages of the ribs, being the part which corresponds to the point of the heart. Its degree of strength is extremely variable; we learn, however, by practice,

to distinguish when it is more intense than it ought to be.

168. *Of the Sound.*—The alternate contractions of the auricles and ventricles emit sounds peculiar to each; which, though imperceptible by the ordinary means of investigation, are rendered quite manifest by the cylinder, no matter how small the volume and force of the organ may be.

169. In the healthy state there are two distinct sounds; one dull and lengthened, coincides with the arterial pulse, and sensation of impulse above described, and therefore indicates the contraction of the ventricles; the other, clear and sudden, somewhat like that of the valve of a bellows, corresponds with the systole of the auricles.

170. The sound of the right cavities is heard most distinctly opposite the base of the sternum, that of the left at the cartilages of the ribs.

171. When the walls of the heart happen to be more thin than usual, which may occur in persons who are enjoying uninterrupted health, the pulsations are heard in a greater extent of space than in persons differently constituted, but the sound is always louder in the region of the heart than in any other part. In such persons we also observe that the contraction of the auricles is more audible under the clavicles than that of the ventricles, which is not the case either at the base of the sternum or cartilages of the ribs.

172. In some cases the anterior border of the lung is prolonged in front of the pericardium, which renders the sound of the auricles more dull than that of the ventricles, but still not so much so as to make it indistinct. This evidently arises from its being masked by the murmur of respiration, or by that of the air forced out from this process of the lung, by the compression exerted upon it by the heart.

173. *Rythm* *.—The movements of the heart are

* By means of the stethoscope we can analyse the heart's action, and assign the time occupied by the contraction of each

performed in a determinate order, which constitutes their rythm. Each contraction of the ventricles coincides with the dilatation of the arteries, and is accompanied by a dull, prolonged sound; this is instantly followed by a clear and rather quick sound, which is owing to the contraction of the auricles; a moment of repose succeeds, when the ventricle again acts, and so the succession goes on.

OF THE PHENOMENA FURNISHED BY THE HEART.

174. *In Disease.*—When treating of the derangements of the heart, we shall follow the arrangement adopted when considering its actions in health.

175. *Extent.*—The pulsations of this organ are sometimes heard beyond the limits above assigned to them, or they may be restricted and confined to a very limited portion of the walls of the thorax.

176. The increase of extent is perceptible first along the left side from the axilla to the region of the stomach, then for the same space at the right

of its cavities. When the instrument is applied to the præcordial region, we hear first a dull, lengthened sound, synchronous with the arterial pulse, and therefore produced by the contraction of the ventricles, this is instantly succeeded (without any interval) by a sharp, quick sound, like that of a valve, or the lapping of a dog; this corresponds to the interval between two pulsations, and therefore marks the contraction of the auricles; then comes the interval of repose. The relative duration of these three periods may be thus stated—one half or somewhat less may be assigned to the contraction of the ventricles—a quarter or a little more to that of the auricles—the remainder for the repose.—According to this statement, if we take any given period, say 24 hours, we at once are compelled to conclude that the ventricles are in action 12 hours, and therefore rest 12 hours, the auricles are in action 6 hours, and rest 18 hours.

This calculation is applicable to a healthy adult, whose pulse beats 70 strokes in a minute. It assumes, what some will be disposed to deny, that the heart is passive in its dilation—but opinions on the subject are so various that it would be impossible to give any summary of them in a note.—T:—See, Laennec, Vol. 2.

side, next at the posterior part of the left; and, finally, but very rarely, in the same region of the right side; the intensity of the sound becoming progressively less in the order here indicated.

177. The possibility of thus perceiving the pulsations of the heart in these different points always indicates a diminution of the thickness of its walls, particularly those of the ventricles. It also marks a weakness or dilatation of the organ, which in the latter case strikes the sternum and ribs with a large surface. However it should not be forgotten, that similar effects are occasionally produced by causes altogether independent of any affection of the heart; for instance, narrowness of the chest, emaciation, hepatization of the lung, or its compression by a liquid or gaseous effusion, the presence of an excavation with firm walls, nervous agitation, fever, or, in a word, by any thing that can increase the frequency of the pulse.

178. Sometimes the pulsations of the heart are distinguishable only in a very circumscribed extent of space. This is a more rare occurrence than the preceding, and is produced by an increased thickness of its walls.

179. It sometimes happens that we perceive the pulsations more distinctly at the right side than at the left, or more high or low than usual. These variations are determined by the existence of a fluid or tumour at one side of the thorax, in the mediastinum, or in the cavity of the abdomen; and finally, the seat of the pulsation may vary, being perceptible now in one place, now in another.

180. *The Impulse.*—As the intensity of the impulsion communicated by the heart varies very much during health, it becomes difficult to decide positively upon its absolute increase or diminution in disease, unless it be very strongly marked, or be more manifest at one side than the other, which is the deviation most usually found to exist. This in-

crease is sometimes very slight, but in some cases becomes so great as to elevate the walls of the thorax so strongly, as to render this movement perceptible at a considerable distance. This is the pathognomic sign of hypertrophy of the heart.

181. The force of the impulse is directly proportioned to the thickness of the walls of the ventricles, and therefore, to the narrowness of the limit within which their contractions are audible. When the ear is applied to a stethoscope laid on the cartilages of the ribs, a jerking motion is communicated to it, which is strongly felt by the observer, and manifest to all around him.

182. Whatever increases the activity of the circulation, such as walking, running, fever, &c., may momentarily determine this state; and causes of an opposite tendency, rest, bleeding, &c., produce the contrary effect: hence, when we want to examine a patient, we should wait until a perfect calm is established.

183. The diminution of the heart's impulse is never so strongly marked as its increase. It depends sometimes on the weakness of the organ and the thinness of its walls, and therefore occurs in cases in which its contractions are perceptible in a wide extent of space; at others, it is produced by extreme embarrassment of the respiration and difficulty of the pulmonary circulation, and then may co-exist with a well-marked hypertrophy; we also observe this diminution to occur towards the close of this latter disease. Certain emotions, such as fear and depressing passions, may also produce it.

184. *Of the Sound.*—The sound of the heart's contractions may become more dull, or more clear and loud than natural; or sounds altogether new may be produced, which bear no similitude to any that are emitted in the healthy state of the organ. A diminution of the intensity of the sound is caused by an increased thickness of the walls of the heart;

but if it occurs together with a weakness of the impulsion, it indicates a "ramollissement," or softening of its structure.

185. The alteration most usually observed is an increased loudness and clearness of the sound, which always denotes a thinness of the walls of the heart. This may be emitted by the auricles or by the ventricles. The place in which it is audible marks its seat, and the time determines whether it arises from the contraction of the auricles or that of the ventricles.

186. As to the sounds, which possess no similitude with any that occur during health, a knowledge of which is necessary as a means of distinguishing several of the derangements of the heart, they may be referred to the three following heads:—

187. "*Bruit de Souflet*," or a sound like that of a bellows. Its name accurately expresses the character of this phenomenon. It may accompany the contraction of the ventricles, auricles, or large arteries; it may be continued or intermittent; the slightest cause being sufficient to induce its return after it has ceased. It is observable sometimes in hysterical and nervous persons, and also in those disposed to hæmorrhagies, even though there is no alteration of the functions or structure of the heart; however, in other instances it co-exists with affections of that organ.

188. "*Bruit de Râpe*," or sound of a file. This, like the former, may occur during the contraction of either of the cavities of the heart, but is not intermittent; when once developed, it invariably continues with, however, some occasional changes in its degree of force. The contraction of the auricles or the ventricles is more prolonged than natural, and emits a sound, hard, rough, and as it were, stifled.

189. This phenomenon indicates a contraction of the orifices by cartilaginous deposits or ossification

of the valves. The place and time in which it is heard, indicate its situation. If it coincides with the systole of the ventricles, the contraction exists in the sigmoid valves ; if, on the contrary, it occurs during the contraction of the auricles, it occupies the auriculo-ventricular opening.

190. "*Craquement de Cuir*," or sound like the crackling of new leather, was observed by M. Collin in a case of pericarditis, of which he looks on it as symptomatic.

191. *Rythm.*—The contraction of the ventricles may be lengthened beyond their ordinary duration, so may that of the period of repose also ; this indicates hypertrophy of these cavities, which is the more considerable, as the time of the contraction is the more prolonged.

192. In other cases, on the contrary, the contractions are found to be more rapid, and the repose more short than natural, this variation may coincide with quickness, or even with slowness of the pulse, and is not considered as indicative of any morbid alteration.

193. The time of the systole of the auricles is rarely observed to be lengthened, or shortened. Their contraction seems, sometimes, to anticipate that of the ventricles, particularly during palpitation, the consequence of which is that the sound of the auricles is masked by that of the ventricles, and in cases of strongly marked hypertrophy becomes altogether imperceptible.

194. Sometimes, during one systole of the ventricles, the auricles may make two or three contractions, or on the contrary, while the auricles are making one, the ventricles may make two, within the time of an ordinary contraction. These phenomena do not mark any particular lesion ; the pulse even, does not participate in their anomalies.

195. We sometimes observe several equal contractions followed by one or more, which are shorter

and quicker than the rest, or by a perceptible pause constituting an intermittence;—this should be considered as indicative of disease.

196. Sometimes again, the contractions are so frequent and irregular, that it is impossible to analyse them; this is always connected with some organic affection.

197. After having examined the heart, attention should be directed towards the region of the sternum and the first ribs on the right side, to ascertain whether there are any pulsations determined by an aneurism of the arch of the aorta.

198. Having thus concluded our remarks on the method of examination, applicable to the heart as the central organ of the circulation, we shall, in the next place, proceed to consider the varieties which the pulse presents, though these are not confined to affections of the chest, more particularly than to those of the other cavities.

199. *The Method of examining the Pulse.*—The observer should wait until any emotion, which his presence may have caused, has subsided. He may then proceed to examine the pulse at the wrist, temple, lateral parts of the neck, or, in a word, in any other part where an artery of a certain size happens to be superficially seated. After having ascertained that the course of the blood is not interrupted in the arm, by tight clothes, or by a ligature, he takes the wrist of the patient, who ought to be either sitting, or lying in such a way as that the weight of his body may not incline more to one side than the other; the arm being placed in extension and the fore-arm in pronation, supported by its ulnar border, while the radial is somewhat elevated, the artery is felt with the hand opposite to that of the patient.

200. The fingers should be laid in a right line on the course of the artery, the index finger on the anterior, and the thumb on the posterior or dorsal side of the wrist, furnishing a support to the others.

The little finger, which receives the first impulse of the blood, should be applied to the vessel but slightly, but the others may compress it more or less. We should continue this process for a minute or two, and always observe the precaution of examining the pulse in both arms. The abdominal aorta and crural arteries may be examined by means of the stethoscope, which enables us readily to distinguish the circulation in those vessels. A watch, with a second hand, is in general necessary, in order to ascertain exactly the number of pulsations that are made in a given time.

201. *In Health* the pulse is equal and regular, of a moderate degree of strength and frequency. The number of its beats vary according to the age, sex, temperament, stature, and idiosyncrasy of each individual. In the first months of life there are one hundred and forty arterial pulsations in a minute; up to the completion of the second year, there are about one hundred; at puberty the number is reduced to eighty; in middle life we count from sixty to seventy-five; and, finally, in old age, from fifty to sixty. The pulse is generally more frequent in females, and persons of a nervous temperament; it becomes quickened after meals and exercise, during pregnancy, or after any sudden emotion; but it is rendered slow by repose, fasting and blood-letting.

202. The observer should also recollect, that the pulse is subject to variations, both as to the duration and order of its beats; it is necessary to bear this in mind, least he attribute to disease what may be altogether independent of it.

203. *In Disease* the pulse may be quick or slow, strong or weak, full or small, hard, contracted, resisting, or soft and compressible, requiring a greater or less pressure on the artery to measure its degree. It may also be frequent or the reverse, regular or irregular, in which latter case there are sometimes intermittences coinciding with the contraction of the

auricles; and further, it may be equal or unequal, distinct or confused, thready or insensible.

204. In general, the larger the artery is the stronger is the pulse; this should be taken into account when it happens to be stronger in one arm than in the other. The strength of the pulse diminishes gradually, when a tumour is developed near the trajet of the artery, as we observe in cases of aneurism of the arch of the aorta, when the subclavian artery suffers compression against the walls of the thorax.

205. The veins sometimes present pulsations synchronous with those of the arteries. This may be observed in the jugular veins, when in consequence, of an aneurism of the right cavities of the heart, a reflux of blood is determined into them, which may occasionally be perceived even as far as the superior part of the neck. When a communication is established between an artery and vein which are contiguous, it determines a similar result.

206. There still remain to be described two other means or procedures, which are occasionally used in examining diseases of the chest.

OF THE MEASUREMENT OF THE THORAX.

207. This process may be performed as follows: The patient being placed in a sitting posture, or standing upright, with his arms hanging freely by his sides, or raised towards his head, a cord is drawn round his chest at any part of it; if this be doubled upon itself, we ascertain the natural extent of each side. The cord should then be applied successively to each side, beginning at one of the spinous processes of the vertebræ, and extending to the middle of the sternum, care being taken that it passes in a right line from one of these points to the other; by comparing the result of this latter measurement with that given above, we ascertain the degree of dilatation or contraction, that may exist at either side of the cavity.

208. In making this calculation, we should however recollect, that, even in the healthy state, the two sides rarely present the same capacity, and that in persons who have been attacked by very severe pleurisies, the side that remained unaffected, acquires an increase of development, whilst that which had been the seat of the disease becomes narrowed and flattened; the point of the shoulder is depressed, the side hollowed, and the muscles thin and wasted. Sometimes, also, in cases of phthisis we observe the upper ribs somewhat depressed, which is caused by adhesions between the pleura costalis and pulmonalis.

209. The thorax is dilated in cases of fluid or gaseous effusions, into the cavity of the pleura or pericardium, or of any considerable development of accidental tumours. It is contracted by original malformation, or after the termination of pleurisies, as has been already stated.

OF SUCCUSSION.

210. This process consists in giving to the body one or more slight jerks, for the purpose of ascertaining the existence of a fluid supposed to be in the thorax. This motion determines a sound similar to that produced by shaking a bottle which is half full.

211. The sound is not emitted unless the effusion consists at the same time of air, or gas and liquid. For if the effusion be liquid only, then the lung will fill exactly all the rest of the cavity, and cannot be compressed by the fluid, sufficiently for the succussion to excite any sound; and again, if the gaseous effusion be too abundant, or not sufficiently so, no result will be obtained. Hence these fluids must be combined in certain fixed proportions.

212. These are the principal indications which mark the different affections of the chest. The observer should also note the expression of the coun-

tenance, the colour of the cheeks and lips, their state of emaciation or injection, the manner in which the patient lies, the distribution of temperature in the limbs, the existence of partial sweats, and the state of the blood after bleeding, particularly in acute disease.

213. In phthisical cases, he should always inquire whether there be any hereditary predisposition. We shall recur to each of these points more in detail, when treating of the diseases peculiar to each organ.

214. We may here briefly sum up the different points to which the observer should direct his attention. He should begin with examining the expectoration, as being of considerable value in distinguishing diseases of the chest. If limpid and viscid, it indicates acute catarrh; if, after presenting this appearance, it becomes opaque, yellow, greenish or puriform, it marks chronic catarrh; if it adheres firmly to the vessel in which it is received, and is more or less tinged with blood, it announces pneumonia; if round and opaque, masses float in a quantity of frothy fluid; or if they are puriform, and streaked with white lines, and containing small white masses insoluble in water, we conclude that they are produced in a tubercular excavation. If the expectoration is fluid, purulent, and suddenly coughed up in great quantity, it should make us presume, that a fluid contained in the pleura has made its way through the bronchi, and so is evacuated. When pieces of false membrane are expectorated, they are recognized at once as the product of croup; and a dark green fluid, exhaling a fetid smell, marks gangrene of the lungs. In hæmoptysis, bright red, and frothy blood is expectorated; this should not be confounded with that which occurs in hæmatemesis, or with the bleeding which occasionally comes from the gums or the nares.

215. The effects of percussion should next be at-

tended to, as they tend to direct the observer in the examinations he is about to make with the assistance of the stethoscope. It should not be forgotten that, even in health, there are some parts of the chest which give a dull sound, as for instance the region of the heart, and the lower part of the right side; there are others in which the sound is heightened, as the lower part of the left side. Percussion indicates the parts in which the sound has become more dull, and those in which it is more clear than natural; diminution and absence of the natural sound, characterize pneumonia,—accidental tissues developed in the lung or cavity of the pleura, hypertophy of the heart, and effusions into the pleura or pericardium; increased loudness of sound occurs in emphysema of the lung, or effusion of gaseous fluids into the pleura; finally, the gurgling and metallic tingling indicate pulmonary excavations, or circumscribed cavities in the pleura, communicating with the bronchi.

216. Inquiry should next be directed to ascertain the state of the respiration, (whether it be painful and provokes cough, the character of the cough and also of the voice, which may be hoarse, croupal, &c. after which, by the stethoscope, the observer may ascertain the parts of the lung which are or are not permeable to the air. The "râle crepitant" will indicate to him the first degree of pneumonia, œdema of the lung, and pulmonary apoplexy; acute catarrh will be distinguished by the "râle sonore" or "sibilant,"—chronic catarrh, and the gurgling of softened tubercle by the "râle muqueux," and interlobular emphysema, by the peculiar sound described above, as the *murmur frictionis*.

217. The phenomena of the voice should be explored in the different parts of the chest. If pectoriloquy is heard under the clavicle, or in the hollow of the axilla, particularly at one side, it indicates phthisis; œgophony is the proper sign of effusion

into the cavity of the pleura ; finally, the metallic tingling announces a cavity communicating with the bronchi, and the metallic respiration, a simple bronchial fistula.

218. When any symptoms of effusion exist, it will be necessary to measure each side of the chest, and try by succession to discover the presence of the fluid supposed to be present.

219. When the heart is supposed to be affected, the observer, after having ascertained that there is no unnatural enlargement in the præcordial region, and after making percussion, should proceed to examine the pulsations of the organ, between the fifth and seventh ribs, and at the base of the sternum. He should consider these in reference to their extent, impulsion, sound, and rythm. If they are feeble, and heard in different parts of the thorax, he may suspect a dilation of the ventricles ; if, on the contrary, they are strong and circumscribed, they indicate hypertrophy ; if they emit a clear sound, it is a symptom of thinness of the walls of the heart. The disease is proved to exist at the right or left side of the organ, according as these effects are more audible at the base of the sternum, or between the cartilages of the ribs, and the time at which they are heard, marks whether it is the auricles or ventricles that are affected. When the "bruït de rape," or sound like a file, is heard at the left side, and is synchronous with the contraction of the ventricle and the pulse, it indicates a narrowing of the sigmoid-aortic, and mitral valves: when, on the contrary, it is synchronous with the contraction of the auricles, the narrowing is at the auriculo-ventricular opening ; when it is heard at the base of the sternum, it is a sign of contraction of the tricuspid or sigmoid valves of the pulmonary artery.

220. The observer should examine the anterior part of the sternum, to ascertain whether there be an aneurism of the arch of the aorta, and the poste-

rior part of the thorax, to determine that of the descending portion of this vessel. In all these cases he should attend particularly to the state of the pulse, whether it be frequent, small, irregular, contracted or developed; lastly, he should conclude this examination by noting the expression of the countenance, the appearance of the body, and the symptoms referable to affections of other organs.

THE METHOD OF EXAMINATION APPLICABLE TO DISEASES OF THE ABDOMEN.

221. As the cavity of the abdomen contains a great number of organs. whose functions and sympathies are altogether different one from the other, it becomes impossible to comprise under one head, the various means of examination, by which we are enabled to distinguish the diseases of these organs, and give a correct history of them. It is only when treating of each of them separately in the second part of the work, that we shall be able to enter into all the necessary details. We therefore find it necessary to arrange under so many separate heads, the methods of investigation applicable to each of them. We shall, in the first place, say a few words on the form, &c. of the abdomen in health, in order that the changes produced by disease may be more readily understood.

222. *The Abdomen in the Healthy State.*—Its size and form present some varieties, according to the age, sex, and temperament of the individual. In infancy the size of the abdomen is considerable; its walls are thick, its form round, particularly in the inferior region, but its size diminishes as the person advances in age. In the adult, it presents no prominence, unless such as depends on obesity, or particular conformation depending on temperament. In the male it is much more flat than it is in the female, in whom, after repeated pregnancies, it becomes prominent, particularly in the hypogastric region.

In persons who exhibit the physical signs of the sanguineous temperament, the abdomen is in general rather small; but if the lymphatic temperament be combined with the preceding, then it is susceptible of considerable enlargement. On the contrary, in persons of a nervous temperament, the abdomen is small, and as it were constricted; finally, in those who eat much, it becomes considerably enlarged, as in them the abdominal viscera become very much developed. In health, it is not sensible to pressure, it is soft and compressible; its temperature is moderate—percussion causes a dull sound.

223. *Mode of examining the Abdomen.*—The patient being placed on his back, the abdomen exposed, and the head inclined forwards on the chest, supported by pillows, the thighs and legs should be placed in the flexed position, so as to relax the abdominal muscles as much as possible; the examination is proceeded with as follows:—

224. The temperature may be at once determined, by ascertaining its degree in other parts of the body, and then placing the hands on the abdomen.

225. In order to ascertain the state of its sensibility, the hand should be laid flat on the centre of the abdomen, and then pressed successively on every part of it, observing at the same time the patient's countenance, which will at once indicate pain if the abdomen be sensible. Care should be taken not to make pressure with the ends of the fingers; for then, by being applied to one point, it becomes considerable, and will excite pain where there may be no disease.

226. Finally, to determine the presence of fluid in the cavity, if the patient cannot get out of bed, it becomes necessary to render the abdominal muscles tense, but if possible it is better to place him in the erect posture, then laying one hand steadily on the side, percussion should be made with the fingers of the other.

227. When flatus is suspected to be confined in the intestines or peritoneal cavity, percussion should be made with one or two fingers; the phenomenon will, however, be made more evident by the aid of the stethoscope applied on the abdomen.

EXAMINATION OF THE DIGESTIVE APPARATUS.

228. The observer should first examine the state of the tongue and mouth, then the manner in which deglutition is performed, and the effect which the passage of the food produces on the œsophagus; he will inquire concerning the state of the appetite, and digestion, and also whether the breath exhales any particular odour; if there be vomiting, it will be advisable to know how soon after taking food it occurs, and what are the appearances which the matter vomited presents. If the bowels be constipated, then the tenesmus, flatus, sense of distention, character of the stools, and the existence of hæmorrhoidal, or other tumours round the anus, form the proper subject of inquiry. Attention should, in the next place, be paid to the degree of sensibility manifested by the different parts of the digestive system, and the various modifications they may present in reference to their form, size, hardness, temperature. Lastly, a rapid view may be taken of the systems that are connected by sympathy with it, as well as of the manner in which the process of nutrition generally is carried on. It is under this head that we generally find included the headache, dull pain of the limbs, and cramps which so often accompany affections of the intestines, and also the marasmus, peculiar expression of the countenance, and altered colour of the skin.

229. We shall now recur to these different phenomena, and treat of each of them more in detail.

230. The *Tongue*.—Its colour may be white, dirty grey, yellowish white, with red dots, red more or less deep, or it may be brown, dusky, or even black.

These different shades, which are sometimes observable at the same time, may occur on the whole surface of the tongue, or only on some part of it; its base and centre are usually white, brown or yellow; its margin and point red. These conditions are attended with more or less of dryness, which sometimes goes on to such a degree, as to make the surface chipped and rough like a rasp. Sometimes, however, it is red, dry, smooth, and rounded at its point, at others elongated and pointed; lastly, it may be flat and broad, but then is moist and free from redness. As to the colour of the tongue, we may here remark, that when its point and margin are red, and its base white, we should make some estimate of the effect of the contrast of the two colours, by which the red may be made to appear more deep than it really is.

231. The tongue is frequently covered with a coating, more or less thick, whose colour is variable, being either whitish yellow, grey, brown, black or dusky, adhering intimately to its surface, or capable of being easily detached from it; in which case it leaves it red, and stripped of its epidermis. This coating does not extend to the margin of the tongue.

232. The tongue may be enlarged and swollen so as to protrude out of the mouth, when it is inflamed, or it may be covered with small white vesicles or apthæ. These different conditions may lead us to suspect the following derangements:—

233. The red and dry tongue indicates inflammation of the stomach and small intestines.

234. When it is dusky and tremulous, it marks acute inflammation of the intestine, particularly of its ileo-cœcal portion.

235. When white, clean, and broad, it usually indicates chronic irritation of the intestinal canal, or derangement of the chylopoietic viscera, also certain nervous affections.

236. *State of the Mouth.*—The lips and teeth may

be dry and covered, under the same circumstances as the tongue, with a coating which may be considered as indicating intense inflammation of the gastro-intestinal mucous membrane.

237. *Vomiting.*—This may occur without any effort, immediately after deglutition, as in cancer of the œsophagus; in which case the food is covered with mucus, but has suffered no change except that by mastication. In other cases it occurs some time after the food has passed into the stomach, when it is found changed more or less. It may be habitual or accidental, may occur with or without effort, afford sensible relief, or produce serious accidents, such as cramp, violent pains of the stomach, &c.; finally, it may take place without deranging the health in the slightest degree.

238. The contents of the matter vomited must of course be various—consisting of half-digested pieces of food, mucus, yellow or green bile, aqueous and colourless fluids, or such others as have been drunk. In some cases it is black or brown, resembling chocolate; in others it consists of coagulated blood, or fœcal matter. Pus, biliary calculi, lumbrici, have been brought up by vomiting; the quantity of the matter ejected must be very variable. In its passage along the throat and œsophagus it gives rise to a dry and parched sensation.

239. *Alvine evacuations.*—These may be soft, fluid, yellow brown, or black, intensely fœtid; or they may be colourless, grey, harder than natural, marbled, or elongated and compressed, as occurs in cases of scirrhus of the rectum. In some instances the stools consist chiefly of greenish bile, mucus, and an acrid serous fluid; in others they are tinged with blood, or intimately blended with it; finally, they may be mixed with pus, sanious fluids, layers of membrane, or different sorts of intestinal worms.

240. Tenesmus, sense of heat, lancinating pains are often excited at the arms and lower part of the

rectum by the passage of the fæces, and sometimes even along the anterior part of the thighs, as in dysentery. In some cases, on the contrary, the colic pains which previously existed, cease altogether after the evacuation. When any acute pain is seated in the rectum, it becomes necessary to introduce the finger, and ascertain its cause. It is in this way that we discover the various alterations which so frequently occur, such as contraction of the gut, excrescences, hæmorrhoids, foreign bodies, &c. &c.

241. *Sensibility.*—In order to judge of the sensibility of the abdomen, it is not sufficient merely to question the patient, pressure should be made on different parts of the cavity; for it sometimes happens, that there is no sensation of pain except it be compressed. The mode as well as the degree of the pressure will be different, according as it is sought to determine the sensibility of the walls of the cavity, or that of the contained viscera. Its direction may be perpendicular to the point on which the fingers are applied, or it may be so oblique as to affect only a part beneath it. Thus, though direct pressure affects the stomach, that from above downwards acts against the transverse colon.

242. The observer should note with care the sort of pain caused by this pressure, as well as the region in which it is felt; thus, if in the epigastrium it indicates inflammation of the stomach or transverse colon, according to the direction in which it is applied; if in the umbilical region, it marks that of the small intestines and mesenteric glands; towards the loins, between the false ribs, and crest of the ileum, it indicates inflammation of the kidneys, or ascending, or descending colon, according to the side at which it exists; in the hypogastrium it coincides with cystitis or matritis; in the iliac regions it induces a suspicion of inflammation, of the cœcum at one side, or of the descending colon at the other.

243. Pressure may not excite any pain in some cases, it may even diminish it, as in painters colic; so also, when it is directed not against the part affected but on those of its neighbourhood. In these cases there is no heat at the surface, and the general symptoms of acute inflammation of the intestine are wanting; or if they exist, they are disguised by stupor, or some affection of the nervous system.

244. In all cases the temperature of the different parts examined should be attended to, and compared with the state of the sensibility. In acute inflammations of the intestinal canal, the surface of the abdomen is usually hot, dry, and even pungent; its degree marks that of the inflammation.

245. *Size and hardness.*—An increase of size may depend on flatus, which may be general or partial, and confined to some particular part, as the epigastrium, or one of the hypochondria. By percussion, a clear sound is emitted, which proves that the effect is owing to the presence of an elastic fluid; but when the increased size is caused by a tumour, percussion produces a dull sound.

246. Tumours in the abdomen may be prominent and visible, or they may be so situated as to be discoverable only by careful examination. Their situation should always be stated, and also all the other important circumstances connected with them; for instance, whether they are hard, soft, irregular, or nodulated; pulsate or fluctuate; whether the pulsations are synchronous with those of the pulse, are produced by the impulsion of an adjacent artery, or by the expansion of their own walls.

247. A tumour in the epigastrium may make us suspect an organic disease of the stomach or pancreas; at the umbilicus, it indicates some affection of the small intestines; but in these cases we should not forget that indurated fæces may accumulate in the alimentary canal, and simulate tumours of a very different character. In such cases we may be assist-

ed in our diagnosis by knowing when the patient was at stool, and also by making pressure on the abdomen, which will sometimes displace the hardened fæcal matter.

248. When any increased developement occurs in the hypochondria, we suspect some organic affection of the liver or spleen, but we ought to ascertain whether the alteration of size depends on a dilatation of the abdomen, or exists in the thorax. In the former case, the anterior extremity of the ribs, and lower border of the thorax are projected forwards; in the second, the convexity of the ribs is merely increased.

249. The abdomen may in some cases be more or less contracted, so that its anterior paries is compressed upon the vertebral column. This is most perceptible in the epigastric and umbilical region, and occurs generally in nervous or painters colic.

250. In some cases, though rarely, evacuation by stool is altogether suppressed, the abdomen becomes swollen and irregularly distended, and then vomiting supervenes. As these phenomena may arise from strangulation, internal as well as external, examination should always be made to ascertain whether there is a hernia, which may be the cause of the derangement. If this does not exist, we should then endeavour by pressure directed to the different parts of the abdomen, to discover whether the suppression be not caused by an accumulation of fæces; if not, it may be caused by an internal strangulation.

251. The throat and fauces should always be examined, particularly if any pain be referred to these parts, as they are not unfrequently covered by false membranes, or attacked by ulceration and gangrene. The condition of the functions with which the digestive system sympathizes should also be attended to, as the pulse, skin, expression of the face, the existence of headache, dull pains or cramps; lastly, in cases of intense inflammation of the gastro-intestinal

mucous membrane, the state of the mind should be noted.

EXAMINATION OF THE URINARY ORGANS.

252. It is usual to begin by inquiring whether the patient feels pain in the loins, along the course of the ureters, in the hypogastrium, perinæum, or rectum; pressure with the hand should then be made, to ascertain whether there is any tumour in these parts, or whether their sensibility is increased. Thus pain in the loins, vomiting, numbness along the anterior part of the thigh, with (in some cases) retraction of the testicle, indicate inflammation of the kidney.

253. *Urine.*—Its characters are, of course, extremely various. In some cases it is clear, limpid, pale, watery; in others turbid, viscid, purulent, saffron-coloured, or red; it may contain blood intimately blended or coagulated, also in some cases false membranes; in others, it deposits a thick mucus, like the white of egg, as occurs in chronic catarrh. It sometimes, as in gravel, leaves a red sabulous deposit on the bottom of the vessel, or particles of uric acid, and still more rarely of oxalate or phosphate of lime; and lastly, even real calculi. If its quantity is excessive, and if there be a constant inclination to evacuate the bladder, or the reverse, it should be noted; likewise if its expulsion be difficult or painful, and also the seat of the pain. When abundant, its taste will determine whether it is such as occurs in diabetes mellitus. Its smell should be attended to, as it may be pungent or even ammoniacal. The size of the hypogastrium should always be marked; in some cases it is necessary to examine through the rectum to discover the state of the prostate gland.

254. The most usual causes of these affections are suppressions of habitual discharges, gout, stricture, the injurious habit of retaining the urine when there is a disposition to evacuate it: on these several par-

ticulars the patient should be questioned, and our inquiry should be directed also to determine how far they are connected with organic lesions of the brain or spinal marrow.

EXAMINATION OF THE GENERATIVE SYSTEM.

255. The mode of investigating the different symptoms induced by diseases of the generative organ differs in the two sexes.

256. In man the parts affected can be viewed, hence the observer has only to describe what he sees; but he ought to pay particular attention to the cause which has produced the disease. We shall, for the present, merely refer the reader to the part of this work which gives the symptoms and characters of each of these affections; as to those which are connected with the generative system in females they are more complex, and require more particular attention.

257. The best means of examination is the touch, which enables us to ascertain the state of the vagina, uterus, and adjacent cellular texture.

258. The touch consists of introducing into the vagina one or more fingers, while the other hand is placed on the abdomen, for the purpose of ascertaining the state of the uterus and its connexions.

259. It may be performed as follows: the bladder and rectum being previously unloaded of their contents, the physician proceeds to examine the uterus, the patient standing or laid on her back, according to circumstances; she should stand up when it is intended to examine a case of relaxation of the vagina, prolapsus uteri, or, in a word, any affection in which it is necessary to estimate the weight and mobility of the uterus; she should be lying on the back in order to have the state of the ovaria ascertained, or any other disease besides those just mentioned. In this latter case, the patient's head should be supported by pillows, so as to be raised above the

trunk, the legs should be semi-flexed, in order to relax the abdominal muscles. The index finger of the right hand is most usually employed, and if the patient be standing, the physician kneels on the opposite (the left) knee. When the finger touches the neck of the uterus, pressure should be made with the other hand placed on the abdomen, so as to force down the uterus, which is felt as a hard and somewhat moveable body.

260. *Examination of the Uterus in the healthy state.*—The neck of the uterus somewhat resembles the extremity of a cylinder slightly flattened from before backward; it projects more posteriorly than anteriorly; its centre is marked by an oval aperture, whose longest diameter is from side to side; in females who have had children, this is from five to eight lines long, in the adult virgin it is about three. As this opening is placed nearer to the posterior than anterior part of the neck, it causes the anterior lip of the os uteri to appear somewhat thicker. The portion of the neck which projects into the vagina is about four or five lines anteriorly, and a little more posteriorly; its thickness from side to side is from eight to ten lines, and from before backwards from six to eight, as the neck is somewhat compressed in that direction. In women who have borne children, the neck is thicker, more rounded, and the orifice is more open; its margin, uneven and puckered, sometimes presents one or two depressions, particularly at the left side. The neck of the uterus is about an inch in length, but it may be much more, which may lead to mistake, unless attention be paid to the projection formed by the two lips of the orifice, which will distinguish this from any of the tumours developed in the uterus.

261. *In Disease.*—The observer should examine whether there is any hardness at the neck of the uterus, or in its vicinity; if there be a tumour, whether it is hard or soft, is attached by a broad base, or

slight pedicle; whether the orifice is dilated, giving passage to a tumour, foreign body, polypus, fungus, &c.; or whether it contains a fluid accumulated in it, as occurs when the menstrual flux is retained; this may be ascertained by the fluctuation. The size and weight of the body should be ascertained, also the length of the neck, the state of the os tincæ, its sensibility and temperature, which is sometimes increased, as in hysteritis. The nature of the fluid by which the finger may be stained should not be overlooked, whether it is blood, pus, sanies; what its colour is, &c. The touch will also ascertain the existence of spasm of the vagina, or its sphincter, and the consequent accumulation of menstrual blood, or mucus; it will distinguish tympanitis of the intestine from that in the uterus, ascites from uterine or ovarian dropsy, prolapsus of the vagina, or matrix from hernia, and anteversion from retroversion of the organ; and in some instances, the diseases which occur in the cellular tissue surrounding the vagina and rectum; in this last case, it becomes necessary to introduce the finger into the anus also.

262. We cannot conclude these remarks without recommending to the notice of the reader the *speculum uteri*, constructed by M. Recamier some years since. By means of it we can correct the errors and remedy the deficiencies of the touch, and gain a view of parts that seem totally removed beyond the reach of inspection.

263. After having examined the state of the organ itself, the inquirer should proceed to investigate the sympathetic phenomena to which its diseases give rise. The following are the points to which his attention should be directed, the pain the patient suffers, and its characters, whether it is pulsating, lancinating, &c.; its situation, and whether it is increased by pressure; whether any sense of weight is felt in the rectum, or painful contractions in the uterus; whether the pain extends to the loins, the

region of the sacrum, &c.; whether the menses are more or less abundant than usual, or occur at irregular periods; the character of the evacuation, if it is pure, or mixed with some other fluid; the existence of any vaginal or uterine discharge, whether the patient has had children, or is pregnant at the present time; the existence of any tumours in the abdomen, their probable cause, and progress; if there be a fluctuation, whether the fluid changes place as the patient varies her position; the existence of retention or incontinence of urine, and finally, the state of the digestive function.

264. To complete what has been here suggested on the examination of the abdomen, it remains only to say a few words on a peculiar state of that cavity, which sometimes occurs, namely its hardness. This condition sometimes arises from the intestines contracting adhesions with one another, or with the peritoneum lining the abdomen; in such cases pressure made on the parietes of the cavity will displace, to a greater or less extent, the contained viscera; this occurs in chronic peritonitis. The hardness in other instances, is caused by tumours in some of its regions, and is then considerable, unless the contents are fluid, which may be ascertained by the fluctuation. These tumours should be examined with great care, to determine whether they pulsate; and if so, whether the pulsation is synchronous with that of the pulse. Each of the organs should be examined in detail as well as the functions which they perform, in order that the positive information supplied by the organ affected, may be strengthened by the negative evidence deduced from this investigation of the other viscera. This is frequently the only means we possess of removing the difficulties that beset the diagnosis of these obscure affections. The hardness is sometimes diffused generally, whilst the abdomen becomes excessively sensitive: then gentle pressure should be made on different parts to

ascertain the degree of their sensibility, the heat of the skin, &c. The observer should inquire if the bowels be constipated, and examine the state of the pulse which is usually small, concentrated and frequent: vomiting sometimes occurs, this gives him occasion to look at the colour of the tongue, and at the same time note that it is broad at its extremity; finally, if the disease occurs in a female, it becomes necessary to ascertain whether she did not lately lye-in. These symptoms decide the complaint to be peritonitis. We shall now conclude these remarks by stating the phenomena furnished by percussion.

265. *Percussion* gives different results according to the parts to which it is applied.

266. The sound emitted is sometimes like that of a drum, and indicates the presence of some gaseous fluid in the intestines or peritoneum. We can generally ascertain its existence in the latter situation, by placing a stethoscope on the part which gives the tympanitic sound, and then striking the abdomen gently with the nails, when a very clear sound is heard, the character of which is intermediate between the proper tympanitic sound, and that produced by striking an empty jar with the finger.

267. Percussion sometimes produces only an obscure or altogether dull sound; in which case, if the abdomen be struck with one hand, whilst the other rests on an opposite point of it, the latter receives an impulse communicated by the fluid contained in the peritoneum.

268. In cases of effusion, it becomes necessary to ascertain whether the fluctuation is sensible in every part of the abdomen, or is confined to some particular part of it, which is the sign of encysted dropsy.

269. If the abdomen gives at its most prominent part a tympanitic sound whilst the patient is lying down, and if, when he stands erect, the sound is dull in the depending parts, it indicates the existence of ascites, together with flatus in the intestines; for

these by their greater lightness occupy the higher situation, when the fluid by its gravity sinks to the lower.

270. But if when the dropsy is considerable, a fluctuation is perceived at the most prominent part of the abdomen, whilst at the sides, towards which the intestines incline, the sound is tympanitic, we may infer the existence of encysted dropsy.

271. *Recapitulation.*—In summing up the symptoms which characterize the diseases of the abdominal viscera, we see that they differ according to the functions with which these organs are connected; and therefore, that it is in the disturbance of these functions, that we are to seek for the means of distinguishing them.

272. Pressure is the first means which we ought to resort to, as by it we ascertain the seat of the pain, and the organ affected. The patient, however, sometimes feels it himself from the commencement of the attack, and points to its situation. Its degree and extent should next be ascertained, namely whether it extends over the cavity, or is confined to some part of it; the heat of the surface should at the same time be noted. Irritation of the stomach and transverse colon is marked by increased sensibility in the epigastrium, that of the liver by pain in the hypochondrium and right shoulder;—that of the small intestines and mesenteric glands, by pain at the umbilicus;—of the ascending and descending colon and kidneys by pain in the lumbar regions;—of the ileum, cœcum and ovaria in females after accouchement, by pain in the iliac fossæ; and that of the bladder, uterus, and rectum by pain in the hypogastrium, and perinæum, and by the propensity to make water, or go to stool; finally, peritonitis is marked by great sensibility all over the abdomen, increased by the slightest pressure, but this seldom exists to any such degree in inflammation of the digestive tube.

273. Again the observer should attend to the state of the tongue, whether it is moist or dry, white or red, clean, or coated ;—the state of the digestion and the symptoms, which indicate the various lesions of the alimentary canal; if there be vomiting, what is the nature of the matter; also the appearance of the alvine evacuations. Diarrhœa indicates irritations in the large intestine, whilst obstinate constipation furnishes grounds for suspecting the existence of peritonitis, concurrently of course with the other indications of this affection. He should ascertain whether the intestines are glued together, in which case by pressure on the abdomen they are displaced, as it were, " en masse :" this marks chronic peritonitis. When percussion indicates a fluctuation in the cavity, it then becomes necessary to attend both to the present symptoms and previous history, to determine whether, it is an encysted dropsy, or ascites ; and if it be the latter, whether it is symptomatic of an affection of some organ in the abdomen or thorax, or depends on chronic inflammation of the peritoneum*.

274. Pressure will determine the presence in this cavity of a tumour ; its seat will pretty nearly mark the organ affected, but not with positive certainty, for sometimes a viscus is drawn somewhat out of its place, and the pressure which it produces on the adjacent parts, by disturbing their functions, will render the diagnosis obscure.

275. Percussion will indicate the degree of con-

* The state of the muscles is often of itself sufficient to mark the existence of irritation of the mucous membrane, even without the aid of other symptoms, such as heat of skin, redness of tongue, headache, &c. On exposing the abdomen, and laying the hand on its surface, the muscles are instantly thrown into action, and present their outlines distinctly and strongly marked. It is this tense and rigid state of the muscles which prevents the indication of sensibility, by bearing off the pressure from the subjacent parts. T.

sistence of these tumours, the sound being dull if they are solid, and clear and tympanitic if they be produced by an elastic fluid; finally, if the tumour pulsates, it will be necessary to determine whether the pulsation is produced by elevation of its whole mass, or by dilatation of its walls; if it be the latter, and also synchronous with the stroke of the heart, it is referable to aneurism of the aorta.

276. When any local pain or particular symptom, any accidental discharge, or alteration in the state of the alvine evacuations, urine, or menstrual flux, indicates a derangement of the rectum, uterus, or bladder, examination by the touch should be made, and if necessary with the speculum above recommended.

277. We cannot conclude these remarks on the methods of examination applicable to affections of the three cavities, without again urging the necessity of paying to each of them a degree of attention proportioned to its severity, and also to its complication with others. It should not be forgotten that the physician who wishes to arrive at an accurate diagnosis, should not be satisfied with examining the cavity which contains the organ apparently affected, he ought to go farther, and ascertain whether others are not affected at the same time; for symptoms are not merely the indication of a lesion of one organ—they are phenomena common to several—they are effects, with whose theory and cause we are but imperfectly acquainted; the observer therefore should never omit examining the three cavities; it is the only means by which he can collect complete histories of cases, arrive at a sure diagnosis, and practise his profession with success.

METHOD OF EXAMINATION APPLICABLE TO DERANGEMENTS OF THE PRIMARY TISSUES.

278. After having treated of the method of investigating the diseases of the organs contained in the

three great cavities, it only remains for us to say a few words on the derangements of those organic systems which enter into the composition of the *parietes* of those cavities, and of the upper and lower extremities; with this view we shall point out the plan to be pursued in examining affections of the cellular texture, skin, muscles, mucous, and synovial membranes, lymphatics, veins and nerves.

279. When the disease exists in the skin, or is seated in the sub-cutaneous cellular texture, it is easy to ascertain its chief characters by the sight and touch. The following rules will serve as a sufficient guide to the observer in this investigation.

280. The precise part of the skin that is affected should first be stated; also whether the disease is local—confined to one or two spots, or is diffused over the whole surface. Thus, for example, erysipelas in general is found only on some particular part of the skin, whilst *zona* encircles the whole trunk; tinea capitis attacks the hairy scalp, and measles and small-pox cover the entire surface of the body. It is necessary to ascertain from the patient whether he ever had the disease before, what part of the body it occupied, whether it continued in one spot, or changed its place, as so often occurs in erysipelas.

281. Any change of colour presented by the skin or mucous membranes; should always be stated, also whether it is diffused, and loses itself insensibly in the adjacent parts, or is bounded by a defined line; we should also note the effect of pressure upon it—for in some cases the change of colour continues even when it is pressed, in others, the blood flows back rapidly into the capillary vessels of the part; and lastly, we sometimes find that this occurs very slowly. These things deserve attention, as indicating the degree of activity in the capillary circulation, and the vitality of the part affected. The blood sometimes stagnates in the

capillary vessels, assuming a blue colour as we see in certain spots on the skin; sometimes, on the contrary, it is red, presents all the characters of arterial blood, and gives to the skin a bright red colour. As however the various shades of colour presented by the skin and mucous membranes are almost infinite, we shall not extend these remarks farther; it is quite sufficient to indicate the method of ascertaining and the necessity of attending to them.

282. When we have to examine a case of eruptive fever, it is necessary, in the first place, to ascertain in what part of the body the eruption commenced, and then the parts to which it gradually extended. In cases of small-pox and varicella, we should always examine those parts of the body which are not exposed to the atmospheric air, such as the armpits, and loins, in order to ascertain whether it exerts any influence on the progress of the eruption; attention should also be directed to the roots of the hair, to see whether the pustules correspond with the pores of the skin. In every species of eruption the colour of the areola deserves notice as well as that of the pustule, which present many shades caused by the liquid which it contains; when it is depressed at its centre, as occurs in small pox, we may ascertain by dissecting a pustule at an early period whether the depression is caused by a cellular band, whether it consists of only one cell, or is divided into several.

283. Tumefaction of the skin is either diffused or circumscribed, and presents a vast variety of characters according to the affections with which it is connected; thus, in small-pox and varicella it assumes the form of single or confluent pustules;—in herpes, of irregular crusts; in erysipelas, of vesicles caused by the effusion of a serous fluid under the epidermis; in emphysema, of an elastic swelling, which crepitates when pressed on. In these different cases the state of the skin, the extent of

the swelling, and the effect of pressure upon it should be stated.

284. When gangrene occurs, we should always ascertain whether the skin had been previously red and inflamed, or whether the disease commenced with a black or white spot, and thence gradually extended to the neighbouring parts; the general symptoms should be attended to, and inquiry should be made to determine whether the mortification arose from inoculation of some morbid matter.

285. In some affections of the cellular texture and mucous membranes, such as furuncle, ophthalmia, &c, &c. it is useful to ascertain whether the patient had any previous attacks of the disease. In exanthematous affections the progress of the inflammation from one mucous membrane to another should be noted; thus it usually begins with the conjunctiva, and then proceeds from above downwards, successively attacking the nasal fossæ, throat, trachea, and bronchi.

286. *Pain.*—The character of the pain often leads us to ascertain the seat of the affection of which the patient complains; hence it should be particularly attended to. The effects of pressure on the skin should be noted, but in order to press it alone, it must be pinched between the fingers, as otherwise we shall not be able to determine whether the pain arises from an affection of the skin or of the subcutaneous cellular substance.

287. Pain of the skin is marked by a sensation of heat, itching and tension—that of the cellular texture, on the contrary, is pungent and throbbing, but both are fixed and limited to the seat of the disease.

288. When the mucous membrane is affected, it is quite otherwise; as the pain is sometimes felt only at the extremity of the canal, there being no indication of it in any intermediate part; thus irritation in the bladder caused by the presence of a cal-

culus is often indicated only by pain at the extremity of the glans penis ; and irritation in the intestines, caused by worms, is marked by a sense of constriction in the throat, or itching at the nares, &c.

289. The changes induced in the secretion of the mucous membranes should be carefully examined ; its quantity may be increased, or its colour and consistence altered. The observer should ascertain the temperature of the part affected, and also whether the sensation which the heat gives is parched or pungent ; if there be any ulcerations their appearance, colour, state of their margins as well as of the adjacent parts, should be noted. In cases of exanthematous eruptions, the cause which may have produced them should be inquired into. Whether it be epidemic, contagious, by inoculation, or the use of certain aliments, such as muscles, lobsters, &c. In such cases attention should always be paid to the state of the mucous membranes, as in these, the affection usually commences, the skin being attacked but secondarily. When reporting the case, the day on which the fever set in should be stated ; then the appearance of the eruption, and the changes induced in the previous symptoms at this period ; in the next place the time at which the suppurative stage began, and its effects on the system generally, which are usually manifested by a new access of fever—and finally, the progress of desquamation or desiccation. In cases of small-pox, particularly when it is confluent, the state of the lungs and their membranes should be indicated ; and when the disease terminates favourably the state of the skin, and appearance of the cicatrices should not be overlooked.

EXAMINATION OF THE MUSCULAR, FIBROUS, SYNOVIAL, VASCULAR AND NERVOUS SYSTEMS.

290. After having ascertained whether there exists any swelling, heat, or redness, in the integu-

ments covering the part to which the patient refers the pain, the observer proceeds to determine which of the primary textures is affected, viz. the muscles, membranes, arteries, veins, nerves or lymphatics.

291. These should be successively passed in review ; the observer will have to ascertain whether the articulations are swollen, present symptoms of a fluid affused in their cavities, or of calcareous deposits. When the muscles are sensible to the touch, and when motion causes pain, it becomes necessary to learn the character of the latter ; for if it consists in a sensation of dragging, tearing or lassitude, it indicates fibrous or synovial rheumatism.

292. When the pain is felt along the course of the nerves, arteries, veins, or lymphatics, the observer should ascertain whether any tumour exists upon them, or whether they give the sensation merely of a hard cord sensible to pressure. The pain in such cases is very variable in its character. Sometimes it is marked by a shooting sensation taking the course of the nerves from the centre to the extremities, or *vice versa ;* in other cases there is a feeling of numbness, heat or cold ; and lastly it may be continued, or may only recur at intervals. Its mode of commencement should be stated, and also the effect produced upon it by heat, cold, moisture, dryness, rest or motion ; or finally, by pressure applied to the muscles or in the course of the nerves. When the affection depends on the puncture of a vein in bleeding, the pain and swelling extend from the wounded point along the course of the vessel towards the heart.

METHOD OF MAKING POST MORTEM EXAMINATIONS.

293. No department of natural science has made within the last twenty years, a more decided progress towards improvement than medicine. For

the precision and certainty, which are now attained in the diagnosis of diseases, we are mainly indebted to pathological anatomy. A knowledge of the many advantages which have followed the cultivation of this pursuit should induce us to omit no occasion of prosecuting it farther, at the same time that it encourages us not to be deterred from it by a few moments of trouble or disgust. When we have followed a case from its commencement to its termination, and have carefully noted all its details, we shall be amply requited for the trouble of making the *post mortem* examination by the pleasure of finding our diagnosis correct, or the satisfaction of having an opportunity of altering it, if it has been erroneous. But in order to derive from this examination all the advantages which it is capable of affording, the physician should, whilst conducting it, be divested of every preconceived opinion, and be guided solely by the desire of discovering the truth. These remarks, we shall not prosecute farther in this place, it is sufficient to refer the reader to what we have already stated, sect. 6 and 23.

294. We shall now proceed to detail the method of examining the parts contained in the head, chest and abdomen, and the means of discovering the different species of alterations which they may present :—

295. The shortest method of opening the head, and which is therefore the most convenient in the dissecting room, is, after supporting the back part of the head on a block, to make a circular incision through the scalp around the head, passing along the frontal sinus, the petrous portion of the temporal bone, and the occipital protuberance. Having made this down to the skull, the latter may be broken all around by the claw of a hammer, taking care not to tear the dura mater or brain ; when the vault of the skull is detached, it may be torn off by introducing the end of the hammer between the divided portions

of the frontal bone. In some cases the dura mater adheres so closely to the parietal bones, that it is impossible to detach it without using the scalpel. Whilst going through the first step of the examination, the quantity of blood which flows from the incision in the scalp should be observed, and also the state of congestion of the face.

296. After the skull has been removed, the dura mater should be examined, in order to ascertain whether there is any fungous production upon it, or depression in the corresponding part of the bony arch; when adhesions exist, when the sinuses are gorged with blood, the fact should be stated in the report. When pus or blood is effused between the membrane and bone, we should ascertain whence it comes; and should never omit to examine the scalp, to see whether it presents a wound, or the bone a fracture; finally, the dura mater should be washed, in order that we may be able to determine whether any change of colour which it presents is owing to a fluid effused on its surface, or is produced by inflammation.

297. After these preliminary steps, we should proceed to divide the dura mater circularly with a scalpel or pair of scissars, and when the falx is detached, the whole may be drawn back, gently separating it from the arachnoid, in order that we may see whether any slight adhesions exist between them. Before the contact of the air has reddened the vessels of the pia mater, we should see whether they present any appearance of injection. After having ascertained whether pus, blood, or serum is effused between the two layers of the arachnoid, or infiltrated between it and the pia mater, we should inspect the convolutions of the hemispheres, to see whether they are flattened; for when that exists to any considerable degree, it indicates an effusion of fluid into the lateral ventricles.

298. Whilst examining the arachnoid, we should recollect that in the healthy state this membrane is

exceedingly thin and transparent, even at the summit of the hemispheres, and can scarcely be detached from any part without being torn, except opposite the *pons varolii*, where it presents some degree of firmness and thickness. Examination should then be directed to ascertain if it has lost its transparence, or presents on its surface any purulent exudation or false membrane. When viewed horizontally, it sometimes appears covered with minute granulations, giving it a velvety appearance; we should carefully avoid mistaking for these, small bubbles of air effused beneath the pia mater. Whenever it appears opaque or studded with white points, it should be pressed on by the finger in order to ascertain its degree of consistence, as in some cases it approaches that of cartilage. When the arachnoid is white and thickened, so as to resemble a false membrane, it should be detached from the pia mater, to discover how far each of these membranes is concerned in the alteration. Though at first sight it occasionally appears red, we find the effect to depend on an alteration in the state of the vessels of the pia mater, which are found to be injected. When detaching the membranes from the surface of the brain, the finger may be insinuated between the convolutions, so as to draw them from within outwards, and then it will be easy to ascertain their degree of thickness, strength and tenacity; and also, whether there exist any adhesions between them. We should thus pass in review successively the different parts of the arachnoid which line the base of the brain, the decussation of the optic nerves, and the *pons varolii;* as from the loose connections which exist in these parts, as well as the number and size of the vessels, effusions of lymph or of pus are more perceptible and more common than elsewhere, particularly in children.

299. Hitherto our observations have been confined to the membranes of the brain, we shall now proceed

to its substance. The appearance of the grey substance should be noted, it may be of a slightly rosy tinge, or may present a sort of dotted redness, particularly when the pia mater is much injected; in other cases the texture of the convolutions is altered, being rendered soft, or almost diffluent, by inflammation and suppuration. An incision may be made from above downwards, across the substance of each anterior lobe, so as to penetrate through the lateral ventricles, and then by compressing the brain from behind forwards, the fluid (if any be contained in them) may be made to flow forwards, and its quantity ascertained by receiving it in a graduated glass vessel.

300. The substance of the brain should, in the next place, be sliced off by several horizontal incisions, and any change, either of colour or consistence, carefully noted. In cases of "ramollissement," the existence of pus or serosity should be ascertained if possible; and whether the softening is connected with sanguineous injection. When infusion of blood has taken place into the brain, the change of appearance and colour of the affected part should be stated; it is also necessary to ascertain the size and consistence of the clot, and whether it is enclosed in a membranous sac, or mingled with a serous fluid; in a word, we should describe the physical character of the clot, as well as those of the cyst which surrounds it. When a tumour is found developed in the brain or its investments; its mode of connexion with those parts should be examined, also the degree of compression which it exerts upon the substance of the brain, and the consistence of the parts of the latter which surround it. This can be ascertained by gently pouring water on the part; but when the membranes are affected, they may be washed in a vessel of water, and dissected according to convenience. The state of the corpus callosum, fornix, corpora striata, optic thalami, and pons varolii, should be fully stated, taking care, with regard

to this last, to indicate the side of it which is particularly affected. When the ventricles are laid open, we should never omit examining with care the state of the serous membrane which lines them.

301. The cerebellum, medulla oblongata, and their membranes, should be dissected in the way just pointed out for the brain; in order to remove these parts from the occipital fossa, the tentorium cerebelli should be cut through, and after detaching the nerves, the medulla oblongata should be divided as far down as possible. If the patient has had a discharge from the ear, attention should be directed to the state of the bones which support the posterior lobe of the brain, particularly the petrous portion of the temporal bone; we should ascertain whether there is a caries of the bone, or any collection of pus, which may be recognized by its colour or smell; or finally, whether the dura mater is detached at any point from the skull. We should always endeavour to determine whether the disease commenced in the bone, membranes, or substance of the brain; and whenever any lesion of the cerebellum is discovered, the testicles in the male, the ovaries, uterus, and its connexions in the female, should be carefully examined.

302. *Method of opening the Vertebral column.*—The body being turned forwards on its face, the cervical vertebræ may be raised to a level with the dorsal, by placing a block under the neck. The great mass of muscle which fills up the depression at each side of the spinous processes of the vertebræ should be dissected away from the occipital hole to the sacrum (a large portion of the occipital bone having been previously removed by two cuts made by a saw from above downwards.) The posterior or annular portion of the vertebræ being thus laid bare, it may be cut through with a chissel, or with a "rachitome," the cutting edge of which being placed on the transverse process of each vertebra, its division is easily

effected by striking the instrument with a hammer or mallet; the same is to be done at the opposite side, and the portion thus insulated is then easily detached. A continuance of this operation will, in a short time, expose the entire of the medulla spinalis, as it lies enveloped in its membranes, which need not be in the slightest degree injured by it. The membranes, and substance of the spinal marrow should then be examined, with those precautions which have been already detailed in the previous section.

303. *Opening the Thorax.*—The shortest and simplest process consists in dividing the cartilages of the ribs, as near as possible to their bony arches, with a strong scalpel, proceeding from below upwards, after having previously divided the abdominal muscles which are attached to the zephoid cartilage. The sternum should then be raised up towards the face of the subject, which is facilitated by luxating the bone from its connexions with the clavicles, having previously divided the articular ligaments. By this process we avoid breaking the ribs, and leaving thereby projecting spiculæ of bone, which may wound the operator whilst engaged in examining the contained organs. When it becomes requisite to expose the cavity of the chest to a greater extent, we may proceed according to the process recommended by M. Chaussier.

304. With this intent, a large elliptic incision is made in the integuments, commencing immediately below the clavicles, and extending downwards towards the crest of the ileum, and thence forwards towards the margin of the pubis. After having made a similar incision at the opposite side, all the ribs, except the first and two last, are to be sawed through with a saw convex at its cutting edge; the sternum should, in the next place, be divided by a transverse cut. The upper part of this large flap should then be raised up, in order that its attachments to the me-

diastinum, lungs and diaphragm may be divided by a scalpel, so that being left attached to the pubes merely by a narrow band, it may be laid down upon the lower extremities. In this way a full view is got of the whole extent of the chest and abdomen, and the alterations presented by the different viscera may be examined as they lie in their natural situations.

305. When we want to examine the state of the large vessels at their origin, or the lower part of the trachea, it becomes necessary to saw across the first rib, and part of the clavicle at each side; after having turned back this flap, the blood should be wiped away so as to expose the parts more clearly.

306. In examining the lungs, we commence by ascertaining whether there are any adhesions between the two layers of the pleura. When such connexions exist, they should be detached from the serous membrane, which gives an opportunity of seeing what their colour and consistence is, whether they consist of a single band or of several, and whether vessels are developed in their substance. In order to determine whether the corresponding points of the pleura are thickened, opaque or injected, it should be removed from the lung or the wall of the thorax, and held up to the light, when any change of structure which it presents is at once perceptible. In doing this, care should be taken not to attribute to the pleura a change of colour which may exist only in the false membrane. The serous membrane should be examined in every part of its extent, on the internal surface of the ribs, the diaphragm, and fissures between the lobes of the lungs. When, after detaching the bands of adhesion, the pleura appears red and injected, we should ascertain whether the redness exists in the membrane itself, or has taken place only in the subjacent cellular texture; when any fluid is contained in its cavity, its quantity, colour, and other properties should be noted. In cases of interlobular pleurisy, care should be

taken not to mistake an effusion enclosed amongst the adhesions for an abscess of the lung. When gangrene exists, its seat should be ascertained, as it may attack the false membranes, the pleura, or both. Where a communication exists between the pleura and bronchi, a probe should be passed along the fistulous canal, which then may be laid open, and the state of its walls examined; finally, if air be contained in the cavity of the serous membrane, it should be stated in the report.

307. When the lungs are removed from the thorax, incisions should be made through their substance, that we may be able to ascertain their colour, consistence, weight, degree of cohesion, and also whether they contain any fluid blood, serosity or pus, infiltrated into them. In cases of gangrene it is useful to determine whether it is circumscribed by a defined line, or is blended insensibly with the healthy structure, or whether this transition is effected by an inflamed portion of the lung. The bronchi are to be laid open in their whole extent, even to their final terminations, that we may ascertain the degree of consistence and colour of their lining membrane, and also whether it presents any effusion, false membrane or ulceration. In pursuing this examination, we sometimes find some accidental substance developed in the bronchi, or their trajet dilated, or that they are contracted in some particular part. In some cases also, we find air effused under the pleura, or contained in some of the pulmonary lobules distended or torn, as occurs in emphysema of the lung.

308. In cases of tubercular excavations, we should not omit ascertaining whether they are covered with a false membrane, also whether they communicate with the bronchi. For a full description by the different changes of structure presented by the lungs, we shall refer the reader to the pathological articles which follow those on the diagnosis of each disease,

and particularly to the description of the accidental tissues which we shall give in section 318.

309. When the heart is removed from its situation it may be cut across, in order that we may discover the thickness and consistence of its walls, the colour of its lining membrane, and the dilatation of its cavities. The state of the different orifices, their contraction, obliteration, ossification of their valves, &c. may be ascertained by the introduction of the finger, after which the ventricles, auricles, and great vessels arising from them should be cut open to expose their cavities, and shew whether there is any thickening or induration of their coats, or change of colour in their lining membrane. As the method of examining the pericardium is the same with that above pointed out when treating of the pleura, it is unnecessary to repeat it in this place; we shall merely observe that in all diseases of the heart and lungs the liver should be examined. In cases of aneurism of the aorta, it becomes necessary to inquire whether the dilatation extends all round the vessel, or occupies only one side of it, whether all the tunics are dilated or only one of them. When rupture or ulceration exists, its seat should be noted, and also the manner in which the layers of blood are disposed in the sac.

EXAMINATION OF THE MOUTH, PHARYNX, LARYNX, AND TRACHEA.

310. Having put the neck of the subject on the stretch, a longitudinal incision is made along the median line, from the lower lip to the top of the sternum, another may then be made in the course of the base of the lower jaw bone, the symphysis of the jaw is then sawed through, and its lateral halves separated after having removed all the soft parts which are attached to its base. The same should be done with regard to those muscles which are placed on

the lateral parts of the neck, and interfere with the examination of the œsophagus and trachea.

311. To examine the air-tube, it is necessary to remove the thyroid gland, and then make an incision along the whole extent of the trachea and bronchi, having previously sawed through the clavicle and first rib at each side. To what has been already said when treating the mode of examining the bronchi, we shall here merely add that the state of the epiglottis and ventricles of the larynx should always be attended to.

312. *Examination of the Abdomen.*—This may be commenced by making a crucial incision through the parietes of the cavity, or a double elliptic one from the cartilages of the ribs at each side to the pubes, and having detached the flap from this latter point, it may be turned upon the thorax of the subject. When the cavity of the abdomen is thus exposed, we can readily see whether there are any adhesions between the intestines or between the two layers of the peritoneum, or whether there is any fluid effused within it. The digestive tube may be laid open in its whole extent with the "entérotome," and after having detached it from the mesentery, it should be washed and examined from the œsophagus to the rectum. We should attend particularly to the colour of the mucous membrane, and to the different appearances of congestion and inflammation which it presents, also to its degree of adhesion to the muscular coat, and to its thickness, consistence, and elasticity in different parts. When ulcerations, fungous excrescences or cicatrices exist, their extent and situation should be described on the report of the case.

As derangements of the gastro-intestinal mucous membrane are exceedingly frequent, and as disputes constantly arise on the subject of its inflammation, it may be useful to describe the physical characters which this membrane presents in its healthy state,

as the first step towards, distinguishing the changes induced by disease.

313. *Appearance of the Mucous Membrane in the healthy state.*—1st. The thickness and tenacity of the membrane in general diminishes from the stomach to the anus, but its degree of adhesion to the subjacent parts diminishes in the opposite direction. 2d. It is soft and pulpy in infancy, increases in density as age advances, but in some cases in old persons it again becomes soft as in children. 3d. In the fœtus it is somewhat of a rosy colour, in infancy it is of a pale colour, in adult age it is greyish white; during digestion, the part of the membrane which lines the stomach, duodenum, and the commencement of the ileum, is of a slightly rosy tinge. 4th. The membrane of the stomach is never marbled or studded with black spots in the healthy state. 5th. The age of the individual, the sort of death, the last agonies of life, the vicinity of certain organs, the nature of the matter contained in the canal, the time which has elapsed since death took place, the position given to the body, (particularly whilst it was warm) the contact of air, are all so many causes capable of altering the appearance of the mucous membrane. 6th. The prominences or villi perceptible on the surface of the membrane are most numerous in the stomach, (particularly at its pyloric extremity) and in the duodenum; their number gradually diminishes from thence along the course of the intestine. 7th. Mucous glands are not very apparent, or rather appear in a very small number on the internal surface of the stomach and intestines.

314. After having examined the digestive canal, we should proceed to inspect the different organs contained in the cavity of the abdomen: the liver, gall-bladder, spleen, mesentery and its glands, kidneys, ureters, bladder, genital organs, aorta, vena cava, &c.

315. We shall conclude these remarks by recommending the examination of the lining membrane of the large arteries and veins in cases of eruptive fevers, particularly of small-pox. When giving the account of a *post mortem* examination, we should never omit to state how many hours have elapsed since death took place, and the position in which the body has been placed, for position exerts a material influence on the appearance of congestion presented by bodies after death.

316. These remarks on the subject of the knowledge necessary to enable an observer accurately to describe the different species of alterations which occur in the human body, may now be concluded by a brief statement of the anatomical characters of the non-analogous accidental tissues: tubercle, scirrhus, encephaloid, melanosis, cyrrhosis, sclerosis, and scaly-scirrhus.

317. *Tubercle* is the most common of all the productions of this sort; it is a morbid structure, common to all organs, and generally occurs in several at the same time. Tubercles are found either in the form of spherical tumours, or of masses infiltrated into the substance of the organ in which they are developed; their size varying from that of a millet seed, to a small egg. They sometimes adhere intimately to the surrounding substance, and appear as if formed at its expense *(non-encysted tubercles)* at other times they are enclosed in a distinct membrane, whose character may be merely cellular or approach that of fibro-cartilage; as this completely separates them from the surrounding parts, they are termed *encysted tubercles.*

318. In their crude state tubercles consist of a grey, transparent, semi-cartilaginous substance, without any trace of vessels, and which in process of time becomes opaque and of a yellow colour.

319. Tubercles after some time become softened; the process begins at the centre and proceeds to-

wards the circumference until the whole mass is converted into a cheesy pultaceous matter, and then into a curdy, puriform fluid, which, when expelled from its situation, leaves an ulcerated cavity ; the latter may, though very rarely, be cicatrized by means of a fibro-cartilaginous structure.

320. *Scirrhus.*—This is white, grey, or bluish, somewhat semi-transparent, colourless, or very slightly coloured. In the crude state its consistence varies from that of hog's skin, which it very much resembles, to that of the intervertebral cartilages ; scirrhus is usually divided into irregular homogeneous masses, which are again subdivided into lobules united to each other by fibrous bands or dense cellular texture ; it sometimes presents an alveolar or regularly radiated appearance, somewhat like that presented in the interior of a turnip; in such cases the scirrhus is so firm that a scalpel grates upon it as if it were cartilage.

321. When it becomes soft, its consistence and appearance resemble those of meat jelly, or a thick syrup whose transparence is disturbed by a dirty grey tinge, or by some blood ; at other times it resembles honey, gum, or a grey pultaceous mass.

322. *Encephaloid.*—In its crude state encephaloid is somewhat more opaque and white, but not so firm as scirrhus. It consists of masses, sometimes lobulated sometimes not so ; these are usually disposed like the convolutions of the brain, and separated from one another by a very soft, delicate, or rather imperfect cellular texture, in which we find blood vessels of rather a large size, but whose coats are very thin and weak. The sub-divisions of the lobes, as in scirrhus are marked by septa or lines which are whiter than the rest of the tumour, they assume no regular distribution and in some instances are but very slightly marked.

323. When encephaloid becomes soft it resembles very much the substance of the brain when inclining

to decomposition ; when an incision is made into it some drops of blood ooze out. If the softening has extended through the whole mass it presents the appearance of a reddish or violet coloured pulp, the consistence of which, however, is variable in different parts of its extent. We sometimes find in these masses effusions of blood, either in the liquid or solid form, not unlike those found in the brain after hæmorrhage has taken place into that organ ; at other times the blood is diffused amongst the encephaloid structure in such a way as to resemble that in aneurismal tumours ; and the resemblance in some cases is so complete that the distinction between them can only be established by finding some portion of the encephaloid, which at once marks the true nature of the tumour.

324. These masses are sometimes enclosed by a sort of membrane, or by a semi-cartilaginous cyst, whose internal surface is lined by a soft, vascular, cellular structure ; in other cases the cyst is incomplete in some part of its extent, or it may be altogether wanting, the tumour being merely enclosed by some loose cellular substance ; finally, we occasionally find serous effusions into the encephaloid itself or into the parts which surround it. When exposed to the air its surface becomes of a grey or somewhat greenish colour, and as it decomposes it exhales a very fœtid smell.

325. *Melanoides.*—This accidental production may exist in the form of single masses, enveloped in a cyst, infiltrated into the substance of organs, or lastly, in layers diffused on the surface of membranes. In some cases the masses are extremely small, they are however occasionally found as large as a nut—they are sometimes lobolated or nipple-shaped, united by cellular texture, but never penetrated by vessels.

326. In the crude state it is opaque, brown or black, homogeneous without smell or taste, some-

what moist, and of the consistence of a lymphatic gland.

327. When "ramollissement" or softening begins, a thin reddish fluid, mixed with small black clots, can be forced out by pressure. After the softening is complete the mass is converted into a thick dark pulp, which may be effused or infiltrated so as to stain the surrounding parts.

328. Its chemical analysis, according to Breschet, gives the following results—1st. coloured fibrine; 2d. a dark colouring matter soluble in dilute sulphuric acid, or in a solution of sub-carbonate of soda, which fluid it tinges of a red colour; 3d. a small quantity of albumen; 4th. sub-carbonate of soda, phosphate of lime, and oxide of iron.

329. *Cyrrhosis.*—In the crude state this is somewhat of a fawn colour, inclining sometimes to greenish, and presents some resemblance to the supra-renal capsules in an adult. To the touch it feels flaccid, like fungoid productions, and when cut into it appears compact and humid; but though in some cases we find divisions which separate the mass into lamellæ, still there are no traces of fibres.

330. When cyrrhosis becomes softened, it assumes the appearance of a glutinous pulp, of a greenish brown colour, but without smell.

331. According to Laennec, who first described this accidental production, there are three species of it; 1st. Cyrrhosis in masses; 2d. in layers; 3d. in cysts.

332. When it exists in the liver, (which is the organ most frequently attacked by it) it assumes the form of small masses, never exceeding the size of a cherry stone, and sometimes not larger than a grain of millet seed. In such cases, these granular bodies being exceedingly small and numerous, and diffused through the whole substance of the liver, give it a homogeneous appearance, and a yellowish colour, not unlike that of boot-leather; on closer examina-

tion however, the liver is found to be studded with a multitude of small bodies not unlike those hard, fatty granules, found in the sub-cutaneous cellular texture of the lower extremities in anasarcous subjects. The cysts which sometimes enclose these productions, consist of a thin layer of cellular membrane, which renders them capable of being easily detached from the substance of the liver, to which they form and adhere when there are no cysts. The substance of the organ in these different cases, shrinks, becomes wrinkled and indurated.

333. Cyrrhosis has hitherto been discovered only in the liver, kidneys, prostate gland, epididymis, ovaria and thyroid gland.

334. *Sclerosis.*—This was found infiltrated beneath the peritoneum in a subject affected with cancer; it was of a dull white colour, and not unlike cyrrhosis. It appears disposed to extend itself; but has not as yet been discovered in the softened state.

335. *Scaly Scirrhus.*—M. Laennec found this accidental production enclosed in a cyst, in the case of a person who died of cancer; it was of a dull white colour, semi-transparent, and disposed in layers or flakes like those of fish.

NOTES BY THE TRANSLATOR.

1. The method pointed out in this section for the opening of bodies answers very well in the French hospitals, as the greater number of those who die are consigned to the dissecting rooms immediately after the examination is completed. It is, however, altogether inadmissible in private practice, and cannot be adopted even in hospitals in this country, where the bodies are almost invariably claimed by the friends for the purposes of burial. When opening the head, an incision may be made through the scalp, from ear to ear, transversely over the vertex; two flaps may then be made of the integuments, one

of which should be reflected forwards over the face, the other backwards over the occiput; the bones can then be sawed through all round. After the brain has been examined, the roof of the skull may be restored to its place, and the flaps drawn over it, and united by suture. The thorax and abdomen may be laid open by a straight incision made along the central line; the integuments may then be dissected off the ribs, for some way at each side, so as to expose their attachments to the cartilages, which should be cut through with a strong scalpel; and the triangular flap thus formed, consisting of the sternum and the cartilages of the ribs, can be readily turned upwards on the neck and face of the subject. In addition to the straight incision from the sternum to the pubes, through the integuments of the abdomen, it is usually necessary to make another at each side at right angles with it, extending into the loins, in order to give greater room for continuing the examination of the contained viscera. When these incisions are properly united, there will be no appearance of unnecessary mutilation. It has been lately proposed to open the spinal column from the inner side, namely, by cutting out the bodies of the vertebræ, after having removed all the thoracic and abdominal viscera. The process, however, is very tedious and troublesome; and as it can serve no other purpose than that of avoiding another external incision along the back, it cannot be recommended as being either useful or necessary.

2. It is very difficult to make a satisfactory classification of those accidental productions which are developed in the living body. Each species of them presents some modifications according to the organs in which they are found; in many cases several of them are found blended together in the same mass, so that it is difficult to ascertain which predominates; in other instances, the shades of difference between them are so slight that it is difficult, if not altoge-

ther impossible, to determine to which species some particular accidental growths belong. These productions have, however, been divided into two classes: the first consists of those which are *analogous to some of the textures existing naturally in the body:* in the second are placed those which have no analogy or similitude to any thing found in the body during health. Hence has arisen the use of the terms *analogous, and non-analogous accidental productions.* Under the former may be included those ossific deposits, fibrous textures, fibro-cartilage, cartilage, horn and hair, which are developed by disease, and deposited in situations different from those in which they naturally exist. To these may be added the serous membranes which Bichât first noticed at the inner side of some serous cysts, and the mucous membranes which, as Hunter pointed out, line the trajet of fistulæ. To this class may also be referred that production, like enamel, which covers the heads of bones after the termination of certain affections of the articulations, and also the synovial membranes which line false joints.

In the text, the reader will find an enumeration of the *non-analogous* accidental productions, and a short description of the appearances which they present. The nature and character of tubercle, the most fatal because the most common of them, have long engaged the attention of pathologists; on this subject a considerable difference of opinion still prevails. According to Laennec, tubercles go through three stages, each presenting a distinct set of characters. In the first they are small, transparent, colourless, about the size of a millet seed, and are thence termed *miliary* tubercles. In the second they become yellow, opaque, and firm—in which form they are said to be *crude*, their consistence being about that of cheese. In the third stage the mass becomes softened, a passage for it is made by ulceration into some of the neighbouring bronchi, through which it

is evacuated, and so is formed a tubercular cavity. Bayle and Laennec agree in considering tubercle to be a production *sui generis;* but the former pathologist considered the transparent granules, above described as the first stage of tubercle, to be a distinct production. Other writers are of opinion that they are nothing more than the lymphatics of the lungs, slightly altered in their appearance. This idea was inculcated long since by Morton and Portal, and has lately been revived by Broussais.

Dupuy, professor at the Veterinary school at Alfort, after having investigated the production of tubercles in several of the ruminant animals, has come to the conclusion that the matter of tubercle is, in the first instance, *secreted* in a semi-fluid state, which, after a while, becomes indurated. In several cases in which hydatids were developed in the lungs of animals, he found a pale liquid deposited between the external surface of the hydatid, and the cellular membranes which invested it. This, when dried perfectly, resembled tubercle. In some cases the hydatid is destroyed, and the cavity which it occupied became filled with *tubercular matter, secreted by the cyst.* These observations are confirmed by Andral. He found in the liver of a rabbit a mixture of tubercle and hydatids, the latter being in a great variety of conditions. Some were entire, and separated from the substance of the liver by a thin layer of condensed cellular membrane; others, also entire, were surrounded by a matter not unlike a mixture of chalk and water; finally, a third set were broken down, so that only a few portions of their gelatinous structure could be recognized, the place which they occupied being nearly filled up by the matter just described. These facts are important in many points of view, and particularly as they throw some light on the opinions of Dr. Barron on the nature of tubercle. He considers that a transparent vesicle, which he calls an hydatid, constitutes the first stage of tubercle;

but though this opinion is inculcated in a very decided, I had almost said dogmatic tone, it is by no means so tenable as the Doctor seems to think. Tubercle and hydatid are constantly found together in the same part, and under every variety of form and size, and as we have just seen, the one is often supplanted as it were by the other; but this is quite a different process from the conversion of the one into the other. If hydatids be living organized beings, according to the opinions of all those naturalists who have examined the *entozoa*, it is very difficult to conceive how they can be considered as identical with tubercle, which all agree in regarding merely as an accidental production, or texture developed in the substance of organs.

M. Andral, in his late work, contends, that tubercle is the product *of a morbid secretion*, and that this process is preceded by an active congestion in the part similar to that which occurs in every case while secretion is going on, whether healthy or unhealthy. Meckel has long since advanced the same doctrine. He says, Vol. i. p. 531, "accidental formations are sometimes produced by a peculiar fluid effused expressly, in order to give them origin. This is the way in which all accidental textures are formed, whether they have or have not any resemblance with parts already existing in the economy." Mr. Wardrop seems to have come to the same conclusion, at least with regard to one of the productions of this class. When treating of fungus melanodes, he observes, that "it has no smell, and seems more to resemble a secretion than a decomposition." M. Andral, as has been observed, asserts the same of tubercle, whilst Meckel extends the position to them all. This is a remarkable coincidence of opinion between inquirers of such deserved celebrity in their respective countries.

3. The accidental production which the French pathologists describe as "encephaloid," is that to

which most of those in this country apply the term fungus hæmatodes. Mr. Abernethy, however, in his classification of tumours, calls it medullary sarcoma. This appears to be a contradiction in terms, or rather (to use the precise and forcible language of Mr. Wardrop), "it is inconsistent to speak of a tumour being a *medullary* species of a sarcomatous or *fleshy* genus." Meckel, in the following passage, has evidently confounded structures which are altogether different, or rather the descriptions given of them by the authors whom he quotes. "The *fungus hæmatodes* of Hey, the *spungy inflammation* of Burns, and the *melanosis* of Laennec, are really one and the same production, which differs from cancer by being less firm in its texture, and of a black colour, still it resembles cancer so much, that some persons have called it *soft cancer*." Vol. i. p. 540. It is the encephaloid of Laennec, and not the melanosis, which agrees with the descriptions of fungus hæmatodes, given by Hey and Wardrop. It is rather remarkable, that though Breschet has commented on the passage, he has not noticed this oversight.

4. In extirpating cancer of the lip, Dupuytren, instead of removing a triangular portion, and then uniting the cut surfaces by suture, in some cases makes a semi-lunar incision, so as to remove all the hardened part, and then covers the surface with simple dressing; after a while, there is scarcely any perceptible loss of substance, as the margin of the lip rises up nearly to its natural level. This plan of proceeding is particularly applicable to cases in which the breadth of the diseased part is greater than its depth; for instance, when it extends across the whole lip. This operation is practised on the principle that cancer being an accidental production, developed in the part, compresses and forces back the adjacent substance, in proportion as it grows; consequently, the substance of the lip can restore itself to its original position, when, by the removal of this new growth,

the compressing power is taken away. The Editors of the new edition of the "Medecine Operatoire," have given this rationale of Dupuytren's practice; (Vol. iii. p. 339.) where they say that the deficiency produced by the operation is filled up, not by a new growth, but by the extension of the substance of the part; "par l'extension de la substance de l'organ." This method of operating has as yet, so far as I recollect, been adopted but in one instance in this country. The case will be found reported in one of the Numbers of the Medical Repository, for 1824 or 1825; it occurred in the practice of Dr. Bull, of Cork, and was attended with complete success.

5. When examining the different accidental textures here described, it is necessary to remember that they are very frequently blended together in the same organ. The following remarks by Mr. Wardrop, in his observations on diseased structures, place this subject in a very clear light:—

"Though it cannot be doubted that scirrhus, scrofula, and fungus hæmatodes have each a distinct character, yet it is of importance to be aware that several of these diseased structures may exist at the same time in the same organ, or either of them may appear along with diseased changes of structure of some other kind: this led Laennec to form a class of Compound Diseased Structures. Different diseases are also seen existing at the same time in the lungs, brain, liver, and in the different coats of the intestines.

"A tumour is sometimes met with, one portion of which is scirrhous, another portion is medullary, and another is osseous or cartilaginous. It also happens, that when a disease attacks an organ already changed in some part of its structure, the one disease produces a certain influence on the other. For example, an injury, as has been already noticed, often increases the growth of a scirrhous tumour, creating in it all the symptoms of simple inflamma-

tion; the common wart of the skin, from some accidental irritation, has often been known to become cancerous; one disease thus appearing either to be a complete conversion or transformation into another, or showing that two or more deviations from the natural structure may occur in the same part. So also it often happens that a syphilitic sore is accompanied by more or less common inflammation, a circumstance necessary to be attended to in the treatment of the disease; mercury increasing such an ulcer until the simple inflammation be previously subdued by antiphlogistic treatment.

"Sometimes compound tumours consist of a simple juxta-position of two or more different structures, and sometimes they are formed of an intimate and apparently confused mixture of the primitive tumours. Frequently some portions of each of the component primitive structures may be distinguished, but in other instances it is not easy precisely to define the primitive structure, and this is to be considered, as Laennec has justly observed, the conjectural part of pathological anatomy.

"In all tumours, it is not only difficult but impossible to describe the various modifications which result from the combination of scirrhus, fungus hæmatodes, and scrofula with one another, and with other morbid alterations of structure. The characters of different tumours are drawn from cases where one disease has alone existed; for, like colours, those that are primary are easily distinguished, yet language cannot describe their various and almost infinite combinations; therefore it is only in their unmixed state that we can learn to distinguish each morbid structure; their various complications must be afterwards discriminated.

"It is not impossible that when an organ is thus affected with more than one disease, each different affection may exist in a different texture of the organ."—*Notes by the Translator.*

DIAGNOSIS.

337. Diagnosis is the most important part of Pathology, for it not only enables the physician to ascertain the nature of diseases, but also the treatment best adapted for their relief. Hitherto we have limited our attention to the study of symptoms, in order to distinguish the different phenomena which diseases present during their progress. We now proceed to assign a value to these phenomena, and appreciate them as signs, whereby an observer may be enabled, in a given affection, to ascertain what organ suffers, and the nature of its derangement.

338. If diseases presented themselves always and at every period under the same form; if the phenomena which characterize them were not subject to infinite modifications and varieties depending on unknown causes, and if they were not complicated with those sympathies which the diseased organ has with others more or less distant from it, our diagnosis would not be enveloped in so much obscurity; for the local symptoms which result from the derangement in the function of the affected organ would be sufficient, in most cases, to resolve our doubts. Frequently, however, the principal organ of a function is materially altered, and yet the function is but slightly deranged; at other times, on the contrary, a function is considerably disordered while the disease has its seat in an organ which is but indirectly subservient to it. Yet notwithstanding the numerous exceptions to this great physiological law, "that the disease of an organ manifests itself by a derangement of the function over which it presides," we still must take the state of the function into account, and consider it as the chief basis of our diagnosis. In doing so, however, we must remember to employ a greater degree of care and attention, according as the disease has been of long standing, its progress slow, and its symptoms indistinct.

339. As the following remarks are confined chiefly to diseases of frequent occurrence, they shall be directed to supply the means of distinguishing them by rational principles, rather than to attempt a degree of precision in this particular, which medicine cannot as yet lay claim to; with this view, we shall endeavour to determine this important problem. "*What is the organ which is affected, and what is the nature of its derangement in any particular disease?*"

340. When, together with headache more or less severe, we find a marked change in the state of the intellectual faculties—a derangement of the power of motion and sensibility, without any symptom of acute gastro-enteritis; and when these phenomena continue for any length of time, or set in suddenly, it is evident that the brain is the organ affected.

341. When the disturbance of the powers of sensation and motion occur at one side of the body, the affection of the brain is at the opposite side.

342. When paralysis with relaxation of the muscles occurs, the substance of the brain is disorganized; or, what amounts to the same thing, an effusion has taken place in its substance or on its surface.

343. If the derangement consist of paralysis with a slight degree of rigidity in the muscles, or with convulsive attacks, and if these symptoms have been preceded by headache and other marks of a cerebral affection, we may conclude that the brain is in a state of irritation or inflammation, which is not unfrequently produced by the contact of some extraneous substance, such as effused blood, or serum.

344. When after a violent headache, without paralysis of either side of the body, the intellects become disturbed or deranged, or when a state of complete delirium sets in without any symptom of gastro-intestinal inflammation, the pia mater, or arachnoid membrane covering the superior parts of the brain is inflamed.

345. When, more especially in children, a severe headache is succeeded by slight delirium, or coma coinciding or alternating with convulsions of both sides of the body, and spasmodic motions of the eye-balls, together with dilatation of the pupils, we may infer that the arachnoid membrane, or pia mater at the base of the middle lobe of the brain is inflamed.

346. If an acute pain occurs in some point of the vertebral column, together with a disturbance of the function of respiration, of the power of motion and sensation in the limbs, rectum or bladder, and if at the same time the powers of the mind are unimpaired—the derangement is seated in the medulla spinalis or its membranes; and the affection of the medulla will be found after death at the side in which the paralysis had manifested itself.

347. When the paralysis takes place in the upper extremities and in the respiratory muscles, the derangement is seated in the cervical portion of the medulla spinalis.

348. When it occurs in the lower limbs, rectum and bladder, the alteration of structure exists in the lumbar portion.

349. When violent pain is referred to some point of the vertebral column, and when after the pain the spine is bent backwards, its membranes are inflamed.

350. When none of the symptoms here mentioned present themselves (all of which are referable to a derangement of the functions of the brain), and when pain is felt in some part of the chest, with difficulty of respiration, cough and expectoration, the respiratory organs are affected.

351. When the pain is referred to the larynx, and when there is an acute or hoarse cough with a change in the character of the voice, we infer that the larynx is inflamed, particularly if by auscultation a "râle," is heard in that part.

352. If, besides these symptoms, there are fits of coughing with extreme dyspnœa, and expectoration of pieces of false membrane, the complaint is croup.

353. We infer the existence of acute or chronic catarrh from the following symptoms:—the chest sounds clearly on percussion, the respiratory murmur is masked by a mucous "râle," the expectoration consists of sputa, which may be transparent or opaque, viscid or puriform, colourless or of a greenish yellow.

354. When, in addition to these symptoms, there is a considerable degree of dyspnœa, congestion of the face, and considerable quickness of the pulse, without any symptom of disease of the heart, the catarrh is seated in the last ramifications of the bronchi.

355. When the sputa are round and opaque with white striæ, and when pectoriloquy is heard in some part of the chest, it indicates the existence of phthisis with a cavity in the lung.

356. When the sound emitted by the chest is dull, when the sputa are viscid and streaked with blood, at the same time that the respiration is incomplete and accompanied by a "râle crepitant," the lung is inflamed, no matter whether pain is felt in the part or not.

357. If the pain is acute, and the respiration imperceptible by the stethoscope, at the same time that the voice determines an œgophony, the disease is pleuritis.

358. When the sound of the chest on percussion is more loud than natural at one side, the respiration being completely suspended in that part, it indicates pneumo-thorax.

359. When the respiration is laborious, without any other symptom of an affection of the lungs, and when there is at the same time an irregularity in the action of the heart, we conclude that this latter is the organ which is affected.

360. When the stroke of the heart is weak, and gives a clear sound, which is audible in several parts of the chest, its cavity is dilated, and its walls thin. If these phenomena are perceptible at the base of the sternum, the dilatation is seated in the cavities of the right side; if at the cartilages of the ribs, it indicates that the left cavities are dilated.

361. When the stroke of the heart is strong and circumscribed, and when a dull sound is emitted by percussion at the region of the heart, there is an hypertrophy of that organ, the situation of which (whether in the right or left cavities) will be determined according as the phenomena are most perceptible at the base of the sternum, or on the cartilages of the ribs.

362. When the "bruit de rape," or sound like that of a file is heard at the left side, simultaneously with the contraction of the ventricle, and the stroke of the pulse, it indicates that the mitral valves, and the sigmoid valves of the aorta are indurated; but if this sound is heard at the base of the sternum, the alteration of structure is situated in the tricuspid valves and the sigmoid, which are placed at the origin of the pulmonary artery.

363. When the abdomen is painful on pressure at some point, and when the functions of some of the viscera contained in this cavity are deranged, the disease must be looked for in one of its regions.

364. The digestive apparatus is deranged when there is vomiting or purging, or when the tongue is loaded and the digestion impaired.

365. If the tongue is red, and its point dry, if there is pain in the epigastrium with vomiting, loathing of food, and fever, the mucous membrane of the stomach is inflamed.

366. If to these symptoms there is added a diarrhœa with pain in the umbilical or iliac region, particularly of the right side, the inflammation extends to the intestines.

367. When, in addition to these phenomena, the tongue, lips, and teeth are covered with a dark coating, the intellects disturbed, and the patient lies in a state of stupor, the gastro-enteritis has reached an extreme degree.

368. When the tongue is white and broad, when there are colic pains with flatus, diarrhœa and acute pain in either of the loins, extending along the course of the colon, the large intestines are inflamed.

369. If the abdomen is hard, and contracted with obstinate constipation, and occasionally vomiting, and if there be violent colic pains, particularly at the umbilicus, which so far from being increased by pressure are often relieved by it, and if the pulse be not increased in frequency the disease is *colica pictonum*.

370. When the abdomen is tumid and excessively sensitive to pressure, either at some point or in its entire extent, and if the pulse is small, contracted, and febrile, the tongue white and humid, and the countenance anxious, the peritoneum is inflamed; in some cases there is vomiting, in others not.

371. When the digestion is painful and difficult, and is attended with flatus, and vomiting—and when a hard irregular tumour is felt in the epigastrium, there is a scirrhus or cancer in the stomach.

372. When a dull pain is felt in the right hypochondrium, and when pressure on that part produces pain, the stools being suppressed or of a grey colour, the skin and mucous surfaces presenting a yellow tinge, the urine turbid or saffron coloured, the liver is inflamed; in such cases the patient usually rests on the affected side.

373. We shall not extend these general remarks farther; sufficient we trust has been said to point out the way in which the young observer should proceed to ascertain by a strict analysis—1. the cavity in which the diseased organ is situated; 2. the organ itself; 3. the manner in which it is affected. For more details the reader is referred to the second part of the work.

SECOND PART.

DIAGNOSIS AND PATHOLOGY

OF

DISEASES OF THE BRAIN

AND ITS MEMBRANES.

FUNGUS OF THE DURA MATER.

374. *Symptoms.*—This disease is of rare occurrence, but is not confined to any particular period of life. It may sometimes exist without occasioning any derangement of function, or if it manifests any symptoms, they are so obscure as scarcely to indicate its existence. But after some time, probably during the progress of an old syphilitic taint, or in consequence of a contusion of the head, violent headaches occur, which may be either dull or lancinating, continued or intermittent, and occasionally accompanied by epileptic, comatose, or paralytic symptoms; at length a tumour begins to appear, the seat of which may be either at the roof or base of the brain, or sometimes in the orbit. This production is more or less hard, indolent or very painful, increases rather slowly, and exhibits a sort of pulsatory motion. It may at times be reduced altogether, or in

part, within the walls of the cranium, and then we can distinctly trace the margins of the aperture, through which it had escaped, which we find to be rough and irregular. Pressure, directed from above, downwards on the tumour, gives rise to paralytic or comatose symptoms, for by this means it is made to compress the brain; but if we press it from side to side between the fingers, no particular effect is produced, or at most only a slight degree of pain, for then no impression is made on the substance of the brain. Sometimes the cerebral symptoms ceases altogether after the tumour has escaped beyond the cranium.

375. *The diseases with which it may be confounded.*—This affection may, in its first stage, be confounded with any of the derangements of the brain or its investments; in the second, with encephalocele—with vascular tumours of the dura mater, following wounds—with abscess—with certain wens, or with aneurism of the occipital or temporal arteries.

376. *Anatomical Characters.*—These tumours are fibrous in their texture, sometimes crossed by enlarged blood-vessels: in some points they become softened and broken down, and contain blood effused into their substance. In some instances we find only one of them, in others several, which may be encysted, circumscribed, and more or less irregular. At first they are flattened before they escape beyond the skull, afterwards assume the form of a mushroom, the pedicle corresponding to the aperture in the cranium. The margins of the opening are eroded, and in many cases present asperities, which, by pressing against the tumours, excite intense pain.

ENCEPHALOCELE.

377. *Symptoms.*—In this affection, we find a soft, round tumour, which pulsates synchronously with

the arteries, is little if at all painful, diminishes or altogether disappears on pressure, but is increased by crying, coughing, sneezing or forced expiration. It does not produce any change of colour in the skin, nor is it attended by any marked cerebral symptoms, unless when complicated with other affections : it is most common in children, particularly at an early period after birth, and then makes its appearance at the fontanelles or sutures, when the ossification is retarded : it may, however, occur at any time of life, after caries of the bones or wounds, with loss of substance. Pressure directed in any direction upon it, either from above downwards or from side to side, induces symptoms of coma, paralysis or spasm, which at once distinguishes it from tumours of the dura mater. The margins of the opening through which it escapes, can be ascertained by examination sufficiently to distinguish it from tumours seated on the surface.

378. *The diseases with which it may be confounded.*—In infants it may be mistaken for sanguineous congestions—in adults, for fungus of the dura mater.

379. *Anatomical Characters.*—Congenital encephalocele is generally formed by the cerebrum, seldom by the cerebellum ; it is enclosed either in the meninges of the brain, or, after these have been destroyed in the integuments of the cranium ; when this is the case, various alterations take place in the protruded portion of the brain, and effusions of various descriptions are, in most instances, poured into the sac which contains the tumour. In accidental encephalocele the dura mater is more or less thickened and altered, and sometimes becomes adherent to the hairy-scalp, in which case the brain is almost always healthy.

INFLAMMATION OF THE DURA MATER.

380. *Symptoms.*—This inflammation rarely occurs except as a consequence of severe contusions of the

skull, or wounds with loss of substance of its bony arch. It gives rise to violent headache, and is often complicated with arachnitis, encephalitis, or with effusions of blood. The greater number of cases are accompanied by paralysis ; which, when it does occur, is preceded by rigors, but not by delirium or any spasmodic affection. This paralysis is observed usually on the side opposite to that which is the seat of the contusion, and is more or less partial, according as the effusion covers a greater or less extent of surface. In cases of fracture of the skull, when there is a perceptible interval between the bones, pus will flow out, and if there be a loss of substance sufficient to expose the dura mater, it is easy to ascertain its inflammation by the cellular and vascular masses developed on its surface, and by the pus which flows from them.

381. *The diseases with which it way be confounded* are, arachnitis, effusions of blood consequent on external injuries, fungous tumours of the dura mater during their first stage, and also that of some cancerous affections of the brain.

382. *Anatomical Characters.*—The membrane presents a degree of redness, more or less intense, together with some vascular masses developed on its surface, which sometimes unite with similar productions on the bones, and inflamed integuments, and in some instances pass into the state of cartilage or bone; the membrane also becomes thickened, and occasionally exfoliates; pus is effused on its surface, particularly towards the lateral parts, where it becomes accumulated.

ARACHNITIS. *(Cerebralis.)*

383. The characteristic symptoms of this inflammation vary according as it is seated on the convexity of the brain, at its base, in the ventricles, or according as it is acute or chronic; hence it is necessary to consider each of these cases separately.

384. *Symptoms of Arachnitis of the Convexity of the Brain.*—This occurs most commonly in persons from the age of 15 to 40 years; its causes may be divided into those which act directly on the head, such as contusions, insolation, burns, erysipelas of the scalp, and those which predispose to inflammation, such as suppression of sanguineous discharges, abuse of spirituous liquors, co-existence of inflammations of the other serous membranes. It begins with headache, the seat of which is variable, it soon becomes violent, the temperature of the head being at the same time very much increased, the face suffused, and the conjunctiva of the eyes injected. Vomiting sometimes occurs at this period, either spontaneously or excited by drinking; we do not, however, observe any other symptom of gastritis; there is much restlessness and agitation, the sensibility of the eye is much increased, the mode of pronunciation is altered, the expressions are short, memory deceptive, movements hurried, with general fever. After some time the headache is succeeded by delirium, which is connected with this state of general re-action of the system; the delirium, however, is not constant, it ceases occasionally when the headache recurs, is attended with irregular though still voluntary movements, gives to the countenance an appearance of dulness and stupor, such as occurs in intoxication, or determines a general diminution of the sensibility. Finally, the arachnitis passes into its third stage, which is marked by immobility of the pupils, suspension more or less complete of the mental faculties, as well as of the general sensibility; in a word, by those symptoms which indicate a change from a state of disordered intellect to that of entire destruction of it. This state of coma is usually joined with trismus, or (though less frequently) with subsultus tendinum of one or other of the arms; in other instances we find a rigidity of the muscles, with or without convulsions, which may attack both

sides of the body, but more frequently the upper extremities. These different symptoms are succeeded by a state of general relaxation, which immediately precedes death. Inflammation of the arachnoid seems in some cases to commence with one of the latter stages, without having exhibited any of the symptoms of the first.

385. When arachnitis is caused by a contusion, it may be followed by a paralysis of one side of the body. The hemiplegia, however, does not occur before some days have passed, as it is always gradual in its approach, being preceded by delirium, and the other symptoms above enumerated.

386. In lymphatic subjects, and in those who are weak and not capable of much re-action, disturbed dreams may occur instead of the delirium, and a state of general prostration may become the chief character of the disease. In such cases also, the coma is more sudden in its occurrence, and the stupor is more decided, though the cerebral and febrile symptoms are in general less strongly marked.

387. *Symptoms of Arachnitis of the Ventricles and base of the Brain.*—This inflammation is considered as peculiar to infancy; but if it does occasionally occur in adults, it is found connected with that of the convexity of the brain. It is marked by headache, generally confined to the forehead and temples, which is accompanied by fever, depression, and general languor; sometimes by spontaneous vomiting, and somnolence more or less constant, without any disturbance of the intellect. These phenomena are usually succeeded on a sudden by a complete loss of the general sensibility, of the intellectual functions and senses, together with spasm of both sides of the body, which may be either continued or recurring in fits of variable duration, and manifested chiefly in the eyes, mouth, and upper extremities. We also sometimes have occasion to observe the head drawn backwards, which indicates that the part of the arach-

noid which covers the pons Varolii is engaged in the inflammation. In some cases during the progress of this inflammation, remarkable remissions occur, but are speedily succeeded by new convulsive and comatose symptoms, until at length the comatose state becomes fixed and constant, accompanied by a complete relaxation of the limbs, together with, in general, a remarkable slowness of the pulse. In this latter period the pupils of the eyes are considerably dilated.

388. In adults, languor and somnolence occur in place of the spasmodic symptoms manifested in children; there is also a greater or less degree of weakness and inactivity of mind, but no delirium; the patient replies correctly to questions put to him, and may speak rationally when roused; but after some time coma and relaxation of the limbs go on increasing, until the fatal termination of the disease takes place.

389. *Symptoms of Chronic Arachnitis.*—Sanguineous congestions, either continued or frequently repeated, precede and accompany this affection; its progress is essentially slow; its symptoms at the commencement are not strongly marked; they all, however, partake somewhat of the character of those already detailed in the previous section. At first the power of articulation is somewhat impeded, and when the inflammation begins with the arachnoid of the convexity of the brain, which usually is the case, the ideas are somewhat incoherent, the gait vacillating, and the limbs agitated by continued tremblings; the disturbance of the intellect, though slight at first, makes a slow but constant progress, until at length it ends in absolute maniacal delirium. According to Bayle, who first described this form of arachnitis, the chief characters of the delirium which accompanies it are, a "heightening and exaggeration of all the ideas, particularly those of ambition." After some time this state of phrenzy gradually subsides into one of fixed mental alienation; the power

of articulation is impeded or totally lost; and finally, idiocy and general paralysis occur during the last stage of the disease, which still may last several years, during which the organic functions, such as digestion, respiration, and circulation may be regularly performed, though the paralytic symptoms, and the derangement of intellect go on progressively increasing. In some cases we observe, towards the close, spasms, accompanied by total loss of intelligence; these may be continued or periodical, or they may recur at irregular intervals.

390. We cannot conclude this description of arachnitis without remarking, that when it happens to be complicated with inflammation of the thoracic or abdominal viscera, the cerebral affection is rendered much more obscure, and therefore requires a more careful examination, in order to ascertain its existence.

391. *The diseases with which it may be confounded.* Some other affection may be confounded with inflammation of the arachnoid membrane; thus permanent congestions of the pia mater, encephalitis, and ataxic or nervous fever, may be mistaken for arachnitis of the convexity of the brain; dropsy of the ventricles, "ramollissement," or softening of the hemispheres of the corpus callosum or cerebellum, and adynamic or putrid fever, may be mistaken for that of the base; and finally, hydrocephalus, and several chronic alterations of the brain, may be mistaken for chronic arachnitis.

392. *Anatomical Characters.*—The different regions of the arachnoid membrane do not seem equally susceptible of inflammation. The following appears to be the order of its frequency in them: on the convexity of the hemispheres, at the decussation of the optic nerves, in the interior of the ventricles, at the pons Varolii: and lastly, on the internal flat surfaces of the hemispheres. When the arachnitis has lasted only a few days, and has been slight, the

membrane presents no perceptible change; it remains as thin and transparent as in the natural state, and cannot be detached from the convolutions without being torn, and therefore cannot be separated without the greatest difficulty from the pia mater. The redness and increased consistence which it appears to possess in this stage belong altogether to this latter membrane, whose cellular tissue is thickened, and vessels considerably injected. At a more advanced period of the affection, the arachnoid acquires a real increase both of thickness and density; it loses its transparence, and presents somewhat of a milky appearance. These different states are marked in proportion to the duration and intensity of the inflammation: still the thickening is never so great, nor is the change so decided as to give to the arachnoid the appearance of the pleura; it may, however, be easily detached from the pia mater, in fragments of sufficient extent to point out its change of structure, and shew that this increase of thickness is not owing to the cellular filaments that adhere to it. The pia mater is in such instances injected; the cellular tissue under the arachnoid, and that which connects the different vessels, are injected with a serous or albuminous fluid, so intimately combined with them, as to give them the appearance of a single membrane, thick and whitish, from which by pressure a seropurulent fluid may be made to exude. These characters are presented by the pia mater in a greater or less extent on the brain, particularly towards the superior part of the hemispheres. In parts where the sub-arachnoid tissue is rather loose and abundant, for instance between the convolutions, in the fissure of Silvius, and more particularly opposite the pons Varolii and decussation of the optic nerves; this serous liquid, by being infiltered into the meshes of the tissue, gives it the appearance of a gelatinous fluid diffused on the surface of the brain. Sometimes under the arachnoid there is a layer of pus, particu-

larly when the inflammation has been determined by a contusion of the head; more commonly, instead of pus, is found a serous or sero-sanguineous fluid. In some cases the arachnoid is covered with false membranes, more or less thick, and more or less extensive; but it is rare to find adhesions between the two layers of the membrane, and still more rare to find the inflammation confined to its cranial layer; when, however, it does occur, it requires care to determine whether the redness is seated in the serous membrane, or depends on the injection of the pia mater; adhesions of the pia mater to the substance of the brain are, on the contrary, very common. Finally, the arachnoid, particularly that of the ventricles, may lose its polished appearance, become rough, and covered with small granulations, which, when very minute, make it appear as if covered with down; they however can be distinguished, when examined in a clear light. When these granulations are seated on the upper part of the hemispheres, care should be taken not to mistake them for the glandulæ Pacchioni, which are always larger, whiter, more numerous, and in closer contact. A similar mistake may be caused by the presence of air-bubbles beneath the pia mater, but this is easily removed by detaching the membrane from the surface of the brain. The arachnoid and pia mater may be both altogether destroyed, by inflammation extending to the substance of the brain. In other instances, we find in the substance of the membrane small white lamellæ, thicker at their centre than towards their circumference, at first sight resembling a soapy fluid diffused on the surface; but on closer examination, they are found to approach very much to the consistence and structure of cartilage.

To conclude, we find frequently in the ventricles serous, sero-sanguinolent or sero-purulent effusions, which are more abundant as the inflammation approaches the base of the brain, or occurs in the ven-

tricles themselves. In such cases, more especially in children, the portion of the brain that forms the walls of the lateral ventricles is softened to a greater or less extent; this is particularly observable in the digital cavity, fornix, and corpus callosum. This "ramollissement" may be so great as to reduce the parts to a semi-fluid state, in which the cerebral substance presents a dull whitish colour, without any appearance of sanguineous injection.

ACUTE HYDROCEPHALUS. *(Essential.)*

393. *Symptoms.*—Headache, confined to the forehead or temples, increasing gradually, and occurring during the first septenary period of life, most usually during the process of dentition; frequent vomiting—slowness in movement, which is made with reluctance; restlessness, discomfort, irritability of the retina, with, in general, contraction, and immobility of the pupils; inclination to drowsiness, together with sudden startings, sleep, incomplete while it lasts, sometimes gnashing of the teeth. After some time, the headache is no longer complained of, or the child manifests it only by acute cries, or by carrying its hands as if instinctively towards its head. The drowsiness increases in degree, the patient lies on the back, sensibility gradually diminishes, the coma is interrupted by momentary convulsions, most usually manifested in the eyes, mouth, and upper extremities; sometimes there is a permanent strabismus, or a turning of the eye upwards; the pupils become dilated and immoveable, or, in some cases, agitated by constant oscillations; the pulse becomes slow and irregular; the bowels are in general constipated. It is about the period that we begin to perceive remissions of the principal symptoms, which disappear more or less completely; during these intervals the patient recovers his understanding, and complains only of headache. If death does not occur during the comato-convul-

sive period, a state of collapse succeeds the latter, the pupils become more and more dilated, the extremities are in a state of general insensibility and relaxation, the pulse resumes its frequency, the skin becomes cold and covered with perspiration, the respiration is irregular, and death terminates this state which occasionally lasts for some days.

394. *The diseases with which it may be confounded* are, arachnitis of the base of the middle lobes, "ramollissement," of the walls of the lateral ventricles, and worms in the intestinal canal.

395. *Anatomical Characters.*—The arachnoid membrane lining the lateral ventricles and base of the brain presents no alteration; on the convexity, it is rather dry; the superior convolutions of the hemispheres are depressed and flattened, and when touched, give a sense of fluctuation; the lateral ventricles, considerably dilated, are filled with a limpid straw-coloured fluid, without any flocculi; the dilatation is most manifest towards the digital cavity; the third and fourth ventricles contain but little fluid; the foramen of communication between the lateral ventricles is considerably enlarged.—Sometimes no fluid is found in the ventricles though dilated, which arises from the fluid (being absorbed immediately) before death had occurred. The pia mater, enveloping the external surface of the brain, may be injected with blood, but this is not a very frequent occurrence, and should not in any case be considered as the cause of the effusion into the ventricles. Finally, when the disease has lasted for a considerable time, the digital cavity, the fornix, and corpus callosum may become softened, in the same way as has been described when treating of arachnitis of the ventricles.

CHRONIC HYDROCEPHALUS.

396. *Symptoms.*—This disease is most usually constitutional, and then distinguishable by an ex-

cessive increase of the size of the head, separation of the sutures, transparence of the fontenelles, with fluctuation, perceptible by pressure. The activity of the senses and understanding is considerably diminished, or altogether lost; the movements are weak and feeble to the last degree; convulsions sometimes takes place; the patient has not sufficient strength to support his head, it therefore droops constantly on the shoulders or chest. In some cases the head retains its natural dimensions, but we can then observe near the occiput a fluctuating tumour, surrounded by the investments of the brain, by pressing on which, we can make the fluid compress the brain, and cause comatose or convulsive symptoms. If the hydrocephalus occurs after the child has attained its first year, it can be distinguished by the gradual weakening of the sensitive and locomotive powers in proportion as the head increases in size; the headache becomes gradually less intense as the disease advances.

397. *The diseases with which it may be confounded.*—When congenital it may be mistaken for encephalocele in adults; for some of the chronic alterations of the brain, or for hydatids, which sometimes give rise to it.

398. *Anatomical Characters.*—Separation of the sutures, incomplete ossification of the bones, in some of which the bony matter is altogether wanting; effusion of a citron-coloured serous fluid, in greater or less abundance. When the disease has lasted for some years, the fontanelles are occupied by a fibrous substance, and the bones become thin and considerably increased in breadth. If the effusion has taken place on the surface of the brain, then this organ, reduced to a very small size, is compressed towards the base of the skull; if, on the contrary, the effusion occupies the lateral ventricles, then the hemispheres of the brain are expanded into a vast membraneous pouch, the external surface of

which is closely applied to the investing membranes.

HYDATIDS.

399. *Symptoms.*—We have no means of distinguishing this affection from other tumours developed in the brain. Hydatids sometimes exist without giving rise to any particular disturbance of the system; at other times, however, they cause irregular headache, vertigo, fits, and convulsions, for which it is impossible to assign any adequate explanation until after death, which usually takes place suddenly.

400. *It may be confounded* with any of the chronic alterations of the brain or its membranes.

401. *Anatomical Characters.*—On examination we find some vesicular bodies belonging to the genera acephalocystis, polycephalus, and echinococcus: there may be but one of these, or there may be several. They usually occupy the lateral ventricles, and sometimes, though more rarely, the substance of the hemispheres; in this latter case they form for themselves a second covering at the expence of the substance of the brain, which increases in density, and assumes the appearance of a whitish membrane, somewhat similar to the membrane of an egg; its internal surface, which is in contact with the hydatid, is smooth, and may be easily detached from the brain. Hydatids vary in size from that of a pea to a large egg.

EFFUSION OF BLOOD.
(On the Surface of the Brain.)

402. *Symptoms.*—Most usually after a severe contusion of the head, paralysis, with either a rigid or flaccid state of the muscles occurs suddenly, either at one or both sides of the body; this is sometimes accompanied by spasmodic symptoms, but more frequently by a state of coma; but in cases in

which the intellectual faculties are not altogether extinguished, the patient may complain of a severe headache or be somewhat delirious. As this disease so frequently induces inflammation of the arachnoid membrane and brain, it partakes of the characters of both, and naturally comes under the descriptions given of them.

403. *The diseases with which it may be confounded* are, simple concussion, congestion, or disorganization of a part of the brain.

404. *Anatomical Characters.*—Effusion of blood between the cranium and dura mater, into the cavity of the arachnoid membrane, or between the pia mater and brain, caused by the rupture of some vessels, or, though very rarely, by a mere exhalation of blood. In these different cases the blood is coagulated and diffused in a layer on the brain or between the convolutions; occasionally there is some in the lateral ventricles—in which case the meninges always exhibit a very considerable degree of congestion.

CONGESTION IN THE BRAIN.

405. *Symptoms.*—A sense of weight in the head, vertigo, followed by a sudden deprivation of intellect; in other cases the articulation becomes embarrassed, the limbs completely relaxed at one or both sides of the body, and sometimes momentary spasmodic symptoms occur. These phenomena, which are in general of very short duration, for the most part not more than a few hours, and seldom lasting beyond three or four days, terminate either in death or restoration to health.

406. *The diseases with which it may be confounded* are, hæmorrhage into the substance of the brain, effusions into the ventricles, or encephalitis.

407. *Anatomical Characters.*—The substance of the brain and its investments are gorged with blood, which oozes out in minute drops on the surface of

the incision when a section is made ; its consistence, however, is by no means diminished.

APOPLEXY.

408. *Symptoms.*—The predisposing circumstances to this complaint are, hereditary disposition, previous attacks, hypertrophy of the left ventricle of the heart, and the period of life from the 50th to the 70th year ; in general, without any headache or other precursor, a paralysis, more or less complete, both of sensation and motion suddenly occurs either in the whole of one side of the body, or only in one of its regions, accompanied by an immediate relaxation of the muscles of the parts affected. In cases of effusion into the brain, the paralysis is always protracted, the time of its duration being proportioned to the extent of the effusion ; perception, though weakened, is preserved unless the coma be very profound: the respiration is more or less stertorous. At the commencement the pulse is hard and full, but we observe no fever, no headache, during the course of the disease ; no vomiting occurring at its invasion, on the contrary it is difficult to excite it ; there is in general constipation or retention of urine. When the paralysis attacks the muscles of the face, as is generally the case, the point of the tongue when protruded inclines to the paralytic side,* the commissure of the lips at the

* When a paralysis, whatever be its cause, affects one side of the head, the lips are drawn towards the sound side, by the zigomatic muscles, in consequence of the paralysis of their antagonists; and the point of the tongue, as it issues from the mouth, deviates towards the paralysed side, which seems at first rather singular, but is at once explained by considering the muscular power that protrudes the tongue out of the mouth. This is effected by the posterior portion of the genio-glossus muscle, the fixed point of which is at the chin, the moveable one, at the base of the tongue. When this part of the muscle acts, its two extremities approach, and so the base of the tongue is drawn forwards, towards the fixed attachment of the muscle. If then this insertion be to the right of the

sound side is drawn upwards and outwards, when the patient moves it, whilst on the other it is depressed and pendant, or merely immoveable; the muscles of the cheek on the paralysed side, and those of the eyelid are sometimes, though not very commonly, in a state of relaxation more or less complete; the pupil is insensible, sometimes dilated; lastly, the head is drawn to the sound side by the muscles, which remain unaffected by the paralysis. It seldom attacks both sides of the body at the same time: but if it should, then the patient is found in a state of total insensibility or complete carus. It sometimes happens that after the first attack, a second takes place at the sound sides, so suddenly as to induce a belief in the existence of a double paralysis occurring at the same moment; the history of the case alone can rectify the error. Apoplexy may be confounded with "ramollissement" of the brain, or with effusion of blood on its surface.

409. *The diseases with which it may be confounded* are, encephalitis, "ramollissement" of the brain, or effusion of blood on its surface.

410. *Anatomical Characters.*—Effusion of blood to a greater or less extent in the hemisphere of the brain, opposite to the side in which the paralysis has occurred. The fluid is found either in several small cavities, or accumulated into one mass. At other times it is intimately blended with the cerebral substance, and forms with it a red or brown pulpy mass. When the effusion is recent, having existed but for a few days, the blood is black and partly coagu-

median line, the base of the tongue is brought forward and to the right, and its point by consequence forwards and to the left. But when the patient draws back the point of the tongue, it always inclines or deviates towards the sound side. It is by a similar mechanism that the face is inclined towards the paralysed side, which is caused by the contraction of the sterno-mastoid muscle of the sound side.—Hall Lallemand, Vol. i. p. 28.—T.

lated, it seems adherent to the cerebral substance, but may be removed from it by effusion with water. The part of the brain surrounding the clot is torn and irregular, its consistence much diminished, its colour a deep red, which becomes gradually less so, as we examine it farther from the centre of the effused mass—this alteration, however, extends no farther in general than a few lines. In some cases we find a few shreds of the substance of the brain, which being softened and tinged with blood, resembled very closely coagula of blood.

At a more advanced period, the part of the brain, surrounding the clot, after having been softened in the first instance, resumes its firmness, and presents a yellowish colour, a serous effusion is poured round the clot, which gradually diminish in size, and loses its original colour, for having been black, it by degrees becomes red, then yellow and grey, and finally is absorbed altogether, when the walls of the cavity approach each other, contract adhesions, and after some time present a real cicatrix of a linear form, and somewhat yellow colour, which is produced by means of cellular and vascular bands. In other cases, the walls of the cavity approach and remain contiguous, without contracting adhesions to each other; and finally, we sometimes find that the walls become covered with a false membrane, which is very thin, gradually increases in consistence, and changes into a cyst, which contains some serous fluid, at first of a deep red, then of a paler tinge, and lastly yellow, and encloses a clot which also passes through the different changes we have just indicated.

411. When this is completely absorbed, the walls of the cyst may become united in the same way as occurs in simple cavities. We sometimes find either in the hemisphere in which the recent effusion has occurred, or in the other, several cavities resulting from old apoplectic attacks.

412. The portions of the brain, most usually the seat of these effusions, are the corpora striata, the optic thalami, and the parts immediately surrounding them, corresponding ventricle, or even into the opposite one after having torn through the septum lucidum. In cases of hæmorrhagy of the substance of the brain, the parts that remain unaffected, present when divided by an incision, an infinite number of minute drops of blood, which re-appear again after being wiped away. The vessels of the pia mater, and also the sinuses of the dura mater are constantly gorged with blood.

ENCEPHALITIS.

413. Inflammation of the brain may occur at any period of life from infancy to old age. There are usually some premonitory symptoms, such as a sense of weight in the head, of tinglings in the ears, deception of vision, irritability of the retina, numbness of one side of the body, pain or prickling of the limbs; when suddenly there supervenes a state of contraction or convulsion, continued or intermittent, of the muscles of one side of the body, or only of one of its regions. If the intellectual faculties be not altogether destroyed, the patient complains of headache usually referred to the side opposite to that which is the seat of the contractions; there is no delirium, the understanding is not deranged, it is merely weakened. Sometimes the contracted limbs are painful, particularly when they are flexed, and an effort is made to extend them; the pupil of the affected side is in some instances contracted, and the eye closed by the contraction of the orbicularis muscle; the commissure of the lips is drawn outwards even when the mouth is not moved; but when any voluntary motions are made, the commissure of the opposite side experiences a deviation; the muscles of the neck are in a state of rigidity, and draw the head towards the affected side. Still these various effects

of irritation diminish gradually in intensity, and are succeeded by symptoms of collapse; the muscles fall into a state of paralysis with flaccidity; the eye remains closed, but it is by relaxation; the commissure of the lips hitherto contracted becomes pendent; the head and mouth are drawn in the direction *opposite* to that to which they had previously inclined; that is to say, to the sound side; the pupil is dilated, the sensibility of the affected side totally lost, and the understanding completely destroyed. We may here remark, that in order to trace these different effects of the disease, we must observe the patient from the first invasion of the attack to its final termination.

414. In some cases, we find that a rigid state of the muscles supervenes after a sudden paralysis with flaccidity; this is caused by the apoplexy being followed by encephalitis; the walls of the cavity, in which the effusion had taken place, being then seized with inflammation.

415. If convulsions attack the side that remained unaffected, and if they be not followed by paralysis, they are caused by the occurrence of inflammation of the arachnoid membrane. If however a paralysis succeeds, it arises from a new inflammation attacking the opposite side.

416. And finally, when encephalitis succeeds to arachnitis, particularly that of the base of the brain, as occurs usually in children, one of the sides affected by convulsions becomes paralyzed.

417. Encephalitis presents several groups of symptoms, each indicating a lesion of a particular part of the brain. Affections of the upper extremity seem referable to lesions of the posterior fibres of the optic thalamus of the opposite side; those of the lower extremity to alterations of the anterior half of the corpus striatum.

418. Paralysis of both sides of the body at the same time depends on an alteration of the central part of the pons Varolii.

419. When there is no paralysis or muscular rigidity at either side of the body, and when a comatose state occurs, and goes on progressively increasing, we may suspect inflammation of the corpus callosum, septum lucidum, or fornix.

420. Loss of the power of utterance seems to depend on an alteration of the anterior lobules of the hemispheres.

421. Strabismus, rotation of the eye, dilation, contraction, immobility, constant oscillation of the pupil at one side, indicate usually an alteration of the surface of the corpora quadrigemina of the opposite side.

422. Lesions of the pituitary gland, of the infundibulum, and of the grey lamella in which it terminates, by causing compression of the optic nerve at one side behind the point of decussation, may induce blindness of the opposite eye.

423. As to alterations of the transparency of the membranes and humours of the eye, and to paralysis of the organs of sense at one side, they seem to depend either on a derangements of the ganglion of the fifth pair of nerves where it lies, on the petrous portion of the temporal bone, or a lesion of the corresponding walls of the fourth ventricle.

424. Finally, derangements of the circulation, respiration, and of the generative system, without paralysis of the limbs, indicate an alteration of one of the lobes of the cerebellum.

425. *The diseases with which it may be confounded* are, hæmorrhage, or "remollissement" of the substance of the brain, nervous fever, some cases of arachnitis, especially when it is circumscribed, and local effusions.

426. *Anatomical Characters.*—The inflamed part of the brain presents different appearances, according to the time that the disease has lasted. When it is only of some days duration, the white substance, and, still more perceptibly, the grey exhibits a rosy

or slightly red colour, and in it we perceive several vascular filaments. The firmness of the affected part is considerably diminished, and when cut into, the surface of the incision presents (not a multitude of minute drops of blood re-appearing after being wiped away, as occurs in congestion, but) a multitude of small red points, which cannot be removed by ablution. We frequently have occasion to observe these appearances in the cortical substance of the convolutions after arachnitis or violent congestions of the pia mater. In a more advanced stage of encephalitis the brain is red, the vascular injection more strongly marked, and the "ramollissement" very considerable. Finally, in some cases the blood becomes so intimately combined with the cerebral substance, that its colour approaches that of the lees of wine, being of a deep, dusky red; there is no actual effusion of blood, except we consider as such some small dots about the size of a pin s head, which we occasionally find in some particular points; in such cases the brain is in a state of extreme "ramollissement, or softening."

427. If it should happen that the inflammation proceeds to these two latter stages without causing death, then the part affected begins gradually to lose its softness, and ultimately becomes more dense than in the natural state; it retains for some time its red colour, but changes finally to a dusky yellow.

428. The third stage of encephalitis is that of suppuration; the red colour gradually disappears, the blood is replaced by a sero-purulent fluid, which is infiltered into the substance of the brain, combines with it, and gives to it, according to the extent of the admixture, a greyish dull white, or yellowish green colour. The pus accumulates in some spots to a greater or less extent; sometimes there are no more than one or two drops, but still they are easily recognized by their resemblance to the pus of ordinary phlegmonia; in other cases, however, it occu-

pies the entire of the centre of one hemisphere where, extravated as it were, it forms cavities for itself, in which we find mixed with it several fragments of cerebral substance; lastly, in some cases, we find several small cavities uniting together to form a large one.

429. These cavities are sometimes found separated from the substance of the brain by a new membrane, formed of the remains of the cellular tissue and vessels, which had escaped the effects of the suppuration, and which, when compressed towards the circumference of the cavity, interlace mutually, become organized, gradually increase, and become changed into a membrane whose thickness and density are progressively augmented. The internal surface of these cysts becomes smooth; the pus which they contain assumes more and more the characters of pus formed in cellular tissue, by reason of the progressive destruction of the cerebral substance, and finally becomes white, yellowish, or greenish, and perfectly homogeneous. Sometimes when the abscess is seated near the convolutions, the pia mater and arachnoid becoming thickened, concur in the formation of its walls. The pus of abscesses in the brain rarely emits any odour, except such as occur in consequence of caries of the bones of the head, particularly of the petrous portion of the temporal bone; in which cases it is always fetid, and the membranes are altered and perforated.

430. The grey substance is the most usual seat of encephalitis; and the parts most commonly affected are the corpora striata, optic thalami, the convolutions, pons Varolii, and cerebellum.

RAMOLLISSEMENT, OR SOFTENING OF THE BRAIN.

The symptoms of this affection are nearly the same as those of encephalitis, only that its precursors are more common, hence we shall merely add to what has

been already stated under the latter head, that if in any case the intellects remain undisturbed, and the headache continues for a long time; if sensibility and muscular power diminish gradually, and somnolence becomes the leading character; and, finally, if there be neither paralysis, rigidity of the muscles, nor convulsion, the patient being in a state merely comatose, with strabismus and dilated pupils, we may suspect a "ramollissement" of the corpus callosum, septum lucidum, or fornix. Such a case is very likely to be confounded with arachnitis of the base of the brain in adults, or with the same affection in children if there be convulsions.

Note by the Translator.

"By "ramollissement" of the brain is understood a softening or degenerescence of part of its substance, the rest preserving nearly its ordinary consistence. This expression possesses the peculiar advantage of giving an exact idea of the state of the parts, without involving any opinion on the nature or cause of the disease. On this subject opinions have been very much divided. In the text the reader will find an outline of the peculiar views of Professor Ricamier, who still contends that "ramollissement" is a disease *sui generis*—a peculiar degeneration, which may be compared to certain alterations of the spleen. He denies that these changes are produced by inflammation, and considers them as the effects of a general cause—a disease of the whole system; in fact, an ataxic, nervous or malignant fever, which attacks the nervous system, and more particularly the brain, destroying and disorganizing its structure, and so producing "ramollissement," degenerescence, putrid abscess, &c. In direct opposition to this doctrine, Lallemand and Abercrombie contend, that this affection is altogether inflammatory in its character, and refer the symptoms exhibited during life, as well as the appearances presented after death, to inflam-

mation of the substance of the brain. Acute inflammation produces the same effects in the brain that it does in other organs, namely diminution of its consistence or "ramollissement," and change of colour, the various shades of the latter being dependent on the degree and proportion in which blood in the first stage, and pus in the second, happen to be infiltrated into its tissue. In the former, we observe degrees of tinge varying from a greyish red to a dark dusky hue, not unlike that of the lees of wine; and in the latter, when suppuration sets in, and pus begins to take the place of blood, the colour changes again, and varies from a dirty white to a green.

"The symptoms of inflammation of the brain present two characters altogether opposite, those of irritation and those of collapse. The former is marked by headache, sensibility of the retina, contraction of the pupil, pains of the limbs, and continued or intermittent contraction of the muscles; the latter, by diminution of the intelligence, somnolence, deafness, loss of vision, and power of utterance, with paralysis of the muscles, and insensibility of the skin. The first series, it is true, occurs in arachnitis, and the second in apoplexy; but it is only in inflammation of the brain that the two are united; for in it we find irritation followed by disorganization. Hence we may briefly sum up the distinctive symptoms of these three affections. In inflammations of the arachnoid membrane we find, *spasmodic symptoms without paralysis;* in hæmorrhage, *sudden paralysis, without spasmodic symptoms;* in inflammation of the brain, *spasmodic symptoms, slow and progressive paralysis, the progress of which is unequal and intermittent.*"—Lallemand, 1st and 2d letter, *passim.*—T.

431. *The diseases with which it may be confounded* are, encephalitis, nervous fever, arachnitis of the base of the brain in adults, and, if convulsions occur, with the same affection in children.

432. *Anatomical Characters.*—Softness to a greater or less degree of the substance of the brain, without any trace of vascular injection or perceptible change of colour, the medullary portion being of a dull white, and homogeneous, whilst the grey substance remains in its natural state, whatever be the degree of softening, or "ramollissement;" even when the part affected becomes perfectly diffluent, it is impossible to discover the least trace of real pus, nor do the sections of the brain exhibit any drops of blood oozing from this surface. If it is the convolutions that are affected, the corresponding part of the pia-mater presents no appearance of injection. This sort of disorganization is never accompanied by any peculiar odour. "Ramollissement," if we except the mere circumstance of its being confined to parts of greater or less extent, exhibits in every respect the same physical characters, as a brain which begins to be decomposed after having been kept for some days. The parts most commonly affected are not those which in the natural state are the least firm; for we find that the walls of the ventricles, the corpora striata, and optic thalami, suffer this disorganization more frequently than the cerebellum.

TUBERCLES AND CANCER OF THE BRAIN.

433. *Symptoms.*—The only symptoms which can induce us to suspect the existence of tubercle, scirrhus, or cancer of the brain, are violent headaches continued or intermittent, with spasms of one or both sides of the body, and total suspension of the faculties; to these in some instances are added a consecutive paralysis, with diminution or abolition of the senses and intellects. These different tumours in general give rise to encephalitis which then presents the train of symptoms already detailed when treating of that disease. In children, tubercles are very common, and induce acute dropsy of the ven-

tricles of the comato-convulsive form, as we have already stated. Occasionally, however, these tumours do not give rise to any appreciable derangement.

434. *The diseases with which they may be confounded* are, arachnitis of the ventricles and base of the brain, encephalitis, fungus of the dura mater, or hydatids in the brain.

435. *Anatomical Characters.*—The accidental tissues most usually in the brain are scirrhus, tubercle, and encephaloid. They are found in the form of round irregular masses, varying from the size of a pea to that of an egg, of a greyish or reddish colour, and sometimes nodulated on the external surface. The tumour sometimes consists but of one of these structures, but we occasionally find several combined together; the nature of the degenerescence can be determined only by cutting into it; the interior is sometimes found softened, and contains some effused blood. The adjacent portion of the brain is, in general, in a state of "ramollissement" to a greater or less extent; at other times the accidental production is lost gradually in the cerebral substance, without presenting any line of demarcation. When the tumour extends to the convolutions, it generally gives rise to a chronic inflammation of the pia mater and arachnoid membrane.

EPILEPSY.

436. *Symptoms.*—This affection is intermittent, chronic, without fever, comes on by fits with general convulsions, complete loss of intelligence, total insensibility, but still without any consecutive paralysis either of mobility or sensibility. At a moment when he least expects it, the patient suddenly becomes senseless, the eyes are opened widely, the pupils remain immoveable, the direction of the eyes becomes changed, the face is drawn to one side, the mouth dragged towards the ear, and the teeth firmly closed;

then after some minutes the muscles of the neck become rigid, the head is turned to one side, the jugular veins become distended, and the face is in a state of livid turgescence; the muscles of the countenance are then seized with spasmodic contractions frequently repeated; foam issues from the mouth, the extremities, particularly the upper, are agitated by convulsive motions; the thumbs are buried, as it were, into the palms of the hands; still the thorax remains fixed and immoveable; the respiration is high and agitated; suffocation imminent. To this state, which lasts from two to eight minutes, and may be repeated at very short intervals, succeeds a general relaxation of the muscular system, paleness of the face, and a gradual return to freedom of respiration; the countenance for some time retains an expression of stupidity; the intellectual and sensitive faculties, which had been plunged in stupefaction, gradually resume their activity, and the patient begins to perceive a creeping sensation all over his body. At other times the attack is much less violent, and consists only of a momentary loss of sense, with slight and partial convulsions of the eyes, mouth, of an arm or a finger; and may or may not be accompanied by a fall. Sometimes the attack is preceded by a peculiar sensation in some part of the body, which directs itself towards the brain, and thence causes the loss of sense, and the various other phenomena mentioned above; this is what has been termed the *aura epileptica*. Epilepsy may occur at any period of life; it generally goes on increasing, as the fits occur at shorter intervals; it induces a loss of memory, and tends essentially to produce madness and idiocy.

437. *The diseases with which it may be confounded* are, hysteria, worms in the intestinal canal, the first stage of acute hydrocephalus, encephalitis, with different tumours of the brain and its investments.

438. *Anatomical Characters.*—We know of none

that are peculiar to epilepsy; still several alterations of the brain and spinal marrow may give rise to epileptic symptoms, as the history of these affections demonstrates.

HYSTERIA.

439. *Symptoms.*—This is an intermittent, irregular, chronic disease, that comes on by fits, and usually attacks females from the age of puberty to the critical period; it very commonly occurs on the suppression or diminution of the menses, particularly in persons of a nervous or irritable temperament, who have indulged much in venereal pleasures; or have been for a long time deprived of them. The fit begins with a yawning, numbness of the extremities, involuntary laughing and crying, alternations of pallor and redness of the face, and a sensation as if a ball, commencing at the hypogastrium, ascended through the abdomen and thorax to settle at the throat, where it produces a sense of violent constriction, with threatening of suffocation. Then spasmodic motions of different parts of the body occur, or there is a tetanic stiffness of them, with loss more or less complete of sensation, but without any consecutive paralysis. Hysteric fits do not in general come on instantaneously, and without cause, as is the case in epilepsy; chagrin, pain, mental emotions usually give rise to them. Hysteria does not tend essentially to increase, nor does it determine, as a consequence, madness or idiocy.

440. *The diseases with which it may be confounded* are, epilepsy, certain diseases of the uterus, intestinal worms.

441. Its *Anatomical Characters* are altogether unknown.

CATALEPSY.

442. *Symptoms.*—Suspension of sensation and motion occurring suddenly, whether the patient be

sitting, standing, or lying, and accompanied with such a complete immobility of the different parts of the body, that they retain indifferently the position which they had before the attack, or any that may be given to them during its continuance. The circulation and respiration are not at all disturbed; in some instances, however, they become more slow. These attacks, which occur at intervals, more or less irregular, last usually from some minutes to several hours, or even for the length of a day. This disease, which is very rare, is sometimes simulated; it should rather be considered as symptomatic than as an essential affection.

443. Pathological anatomy has not as yet been able to assign any form of alteration peculiar to this complaint.

CHOREA.

444. *Symptoms.*—A certain number of, or in some cases all the voluntary muscles, are subject to irregular and continued movements, producing remarkable grimaces and contortions. The disease is sometimes confined to one side of the body, or is more perceptible at one side than at the other. The muscles, in addition to this incoherence in their motions, are affected with a sensation of pricking, creeping, or of numbness. Chorea attacks children much more frequently than adults, and females more usually than males.

445. *The diseases with which it way be confounded* are, chronic encephalitis, certain affections of the medulla spinalis, or with tubercles on the brain.

446. Its *Anatomical Characters* are altogether unknown.

HYPOCHONDRIASIS.

447. *Symptoms.*—This affection is chronic in its character, and very irregular in its course; it sometimes is intermittent, in general attacks adults, particularly men; it, in many cases, is consecutive on

gastro-enteritis, if the persons attacked by it are of a nervous temperament, and if their hepatic system be considerably developed, or if their moral and physical habits tend to derange the digestive functions, at the same time that they exalt and cultivate the intellectual.

The principal effects of hypochondriasis are referable to disturbance of the intelligence; of digestion, and functions of the liver: these are, gloominess, irascibility, distrust even of intimate friends, constant restlessness, timidity, and fear of death; sleep becomes short and agitated; sometimes there is headache, and even vertigo; the digestion is slow and painful, accompanied by distention and swelling of the stomach and intestinal canal, flatulence, colic, and constipation in most cases; in some cases, however, we find diarrhœa; the pulse is sometimes frequent, contracted, intermittent; at others slow and irregular; the patient heightens the extent of his sufferings, and describes them in exaggerated terms. He experiences various sensations, in general momentary; such as cramps, tremblings, palpitations, faintings, and irregular pulsations in the abdomen. The respiration is sometimes difficult, and as it were constricted. This affection frequently terminates in monomania.

448. *The diseases with which it may be confounded* are, chronic gastro-enteritis and mania.

449. *Anatomical Characters.*—We usually find some alterations of the brain, or of the abdominal viscera; but it is very difficult to decide whether they are the sole cause of the disease,

MANIA.

450. *Symptoms.* — Derangement, more or less marked, but of long continuance, of one or more of the faculties of the mind, without any perceptible disturbance of the sensations or voluntary motions. There is no fever, except during the period of ex-

citement, which usually manifests itself by headache, want of sleep, delirium, and various hallucinations. When some particular idea constantly haunts the patient, the disease is termed *monomania*. The organic functions are seldom disturbed, except the nutrition, which is not properly performed, hence maniacs lose flesh and become thin. This affection may be confounded at its commencement with arachnitis, drunkenness, or with the effects of certain poisons.

451. *It may be confounded*, in an early stage, with arachnitis, the effects of certain poisons, or with drunkenness.

452. *Anatomical Characters.*—Mania may be connected with alterations of the brain or its investments, but several cases occur in which it cannot be traced to any such cause. In some it is connected with chronic inflammation of the intestinal canal.

AMENTIA.

453. *Symptoms.*—Diminution, more or less considerable, of the powers of the mind, with weakness or loss of memory, total indifference and incoherence of ideas and actions, which have no determined object. This affection most commonly occurs in persons advanced in years; it is not accompanied by fever, or any disturbance of the organic functions; and as in most instances it arises in persons who had previously been of sound mind, it must in such at least be regarded as consecutive upon some affection of the substance of the brain.

454. *It may be confounded* with chronic arachnitis, and with some morbid alterations of the brain.

455. *Anatomical Characters.*—These are referable to various alterations of the brain when the affection is symptomatic; sometimes we find atrophy of the brain depending on old age.

IDIOTISM.

456. *Symptoms.*—The faculties of the mind are incompletely or not at all developed, in consequence of a defective organization of the brain—a condition which may commence at the first moments of existence, or be produced at any subsequent period before the full evolution of the understanding. In these persons the general sensibility is but little developed, the senses are generally dull, and the power of articulation so defective, that in many cases they may be said rather to howl or cry; the limbs are wasted, paralyzed, or ill-formed; the temperament is generally lymphatic, sometimes scrofulous. There is no perceptible alteration of the digestion, circulation, or respiration.

457. *Cretinism.*—These constitute a variety of idiots, presenting the following physical characters: head rather large, forehead and occiput usually flattened, visage square, and marked with wrinkles; nose thick, short, and broad, mouth very wide, ears thick and elongated; "goîtres" more or less voluminous and pendant towards the chest; thorax narrow and flat, genital organs much developed, height seldom more than four feet.

458. *Anatomical Characters.*—The heads of idiots usually present a deficient conformation; their size is most commonly small, the forehead is flat, short, and sloping backwards, the occiput is depressed; there is sometimes a perceptible difference in the development of the two sides of the skull. The brain presents also a corresponding deficiency of organization.

DISEASES OF THE SPINAL MARROW.

ARACHNITIS SPINALIS.

459. *Symptoms.*—In this affection the head is drawn backwards, the muscles on the posterior part of the trunk are in a state of permanent contraction, pain more or less violent is felt along the vertebral column, more acutely however in some particular parts of it; the intellectual faculties are not engaged; the head moves from one side to the other, when inflammation attacks the upper part of the medulla oblongata. We shall have additional reason to conclude that the disease is arachnitis, if the patient has received a fall, or suffered any injury of the vertebral column; or if there exists at the same time symptoms of arachnitis of the brain, in which case the symptoms of both affections will be blended.

460. *The diseases with which it may be confounded.* Arachnitis of the spine may be confounded with tetanus, and with different acute affections of the medulla spinalis.

461. Its *Anatomical Characters* are the same as those enumerated when treating of arachnitis of the brain.

HYDRO-RACHIS.

462. *Symptoms.*—Hydro-rachis, or spina-bifida, though generally congenital, may sometimes be observed at more advanced periods of life; one or more tumours, broad at the base, or attached by a pedicle, are found in the lumbar region, or more rarely in the superior parts of the spine; their size is variable, their surface in general transparent, without any

change of colour of the skin. Pressure exerted on one of them increases the size of the others, if there be several, and at the same time causes symptoms of compression of the brain; the same effect takes place when the brain is pressed, if there should happen to be hydrocephalus. The limbs of these patients are feeble and ill-developed; the rectum and bladder are paralysed.

463. *Anatomical Characters.*—When the skin forms a covering for the tumour it is thickened, or, on the contrary, is thin and transparent; in some cases it is wanting altogether, and then the coverings of the tumour consist of the dura mater, pia mater, and arachnoid membrane; the pia mater is in general much injected and red. In some instances the lateral arches of the corresponding vertebræ are wanting; in others they present but a slight separation; and finally, in some rather rare cases, the vertebræ is divided altogether. The cavity of the arachnoid membrane contains a fluid, serous and limpid, sanguinolent or purulent, which may communicate with the brain itself, or be merely inclosed in the pia mater. We sometimes find a division to a greater or less extent, of the substance of the medulla, in other cases very few traces of its structure can be found where the tumour had been situated.

INFLAMMATION AND "RAMOLLISSEMENT," OF THE MEDULLA SPINALIS.

464. *Symptoms.*—This disease usually supervenes after contusions of the vertebral column, and is distinguishable by pain referred to some point of the spine, and by a sensation of pricking, and darting in the extremities; there is no derangement of the intellectual faculties, or of the senses, unless the inflammation be near the pons Varolii; in which case there may be total loss of sense, with aphony, trismus, paralysis of the whole body, retroversion of

the head, and embarrassed respiration. When the cervical portion is affected, we usually observe a rigidity of the neck, permanent contractions or convulsions of the upper extremities, which are succeeded by paralysis and considerable disturbance of the respiration. When the dorsal portion is the seat of the disease, the trunk is sometimes agitated by continued convulsive motions, there are at the same time palpitations, high fever, and greater or less difficulty of respiration. Finally, when the lumbar portion becomes inflamed, we find paralysis of the lower extremities, constipation and retention of urine or involuntary evacuations. When the disease is chronic, there sometimes is no pain, and then the paralysis of the lower limbs, of the bladder and rectum, come on gradually.

465. *The diseases with which it may be confounded* are, certain forms of rheumatism, or neuralgia of the limbs.

466. *The Anatomical Characters* are the same as those of inflammation, and ramollissement of the brain.

TUMOURS OF THE MEDULLA SPINALIS AND ITS MEMBRANES.

467. *Symptoms.*—The present state of knowledge does not furnish any signs by which we can distinguish the existence of the different tumours that are developed in the medulla spinalis and its membranes; we can only say that they sometimes induce paraplegia and various epileptic symptoms.

468. *Anatomical Characters.* — These tumours may in general be referred to the heads tubercle, scirrhus, and hydatid.

469. *They may be confounded* with tumours external to the vertebral column, compressing the nerves or their origins.

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1. Though authors so constantly speak of inflam-

mation of the arachnoid membrane, still anatomy has not yet been able to discover any vessels in its tissue. Ribes and Ollivier are of opinion that the seat of the inflammation is not in the arachnoid of the spine, but in the dura mater, which receives a great number of vessels in the pia mater, and in the vessels of this latter membrane, which penetrate into the substance of the medulla. Hence they account for the red tinge and thickening (which are reported by different persons as having been observed in the arachnoid) by attributing them to injection of the vessels of the other membranes, and infiltration or thickening of the sub-serous cellular tissue. Inflammation of the membranes of the medulla spinalis, very frequently extends to those of the brain. The symptoms of both affections are therefore usually found united, however there are two which may be considered pathognomic of arachnitis of the spine—the first is a general contraction of the posterior muscles of the trunk, producing a complete opisthotonos. As this has been observed in cases where examination has demonstrated an inflammation of the arachnoid of the spine, that of the brain being free from any such affection, it may be regarded as diagnostic of arachnitis spinalis.—The other symptom is pain extending along the spine, but more particularly referred to some parts of it.

Tetanus has been attributed to inflammation of the membranes of the spinal marrow. This, it is true, has been observed in many subjects that had died of tetanus; but as in several others no trace of such inflammation could be found to exist, we cannot admit the conclusion that it is the essential cause of the disease. Some pathologists are of opinion that this inflammation is connected chiefly with traumatic tetanus. When we consult the writings of those who have treated of this subject, we find that they speak of inflammation of the medulla spi-

nalis, in such a way as to leave it a matter of doubt, whether they mean inflammation of the medulla itself, or of it, together with its membranes; so that we find it difficult to ascertain whether there had been inflammation of all these parts, or whether it had been confined to one or other of them. Dupuytren, however, found the investments alone inflamed in an individual who had died of tetanus, caused by a punctured wound of the foot, and Brera says, that he has seen the substance of the medulla altered in similar cases.

The progress of arachnitis spinalis is, in general, rapid, and its termination fatal. Ollivier reports one case that lasted thirty days, but death usually occurs from the tenth to the fourteenth. — See Ollivier, p. 319.—T.

2. Several writers consider "ramollissement" of the substance of the brain and medulla spinalis, as a peculiar alteration of the nervous system altogether dependent of inflammation. It is true that this morbid alteration has been observed in cases in which no trace of local congestion could be found; but in general the membranes in the neighbourhood of it are red and thickened, and their vessels injected with blood; and sometimes those which penetrate into the substance of the medulla, though not visible in the healthy state, become so by being injected, and give to the part a more or less deep tinge of red. These circumstances tend to shew that "ramollissement" is produced by inflammation, which is further confirmed by the fact that it most constantly is seated in those parts of the brain and medulla, which are most vascular in their structure—such as the corpora striata, optic thalami and convolutions of the brain—and those swellings or enlargements which the medulla presents in its lumbar, cervical, and dorsal regions.—These are the most vascular parts, as they contain the greatest quantity of grey substance. The "ramollisse

ment" may extend to the whole thickness of the medulla, may occupy but one of its lateral halves to a variable extent, or be found only in either its anterior or posterior lateral facette—it may exist in the medulla oblongata solely, or in the cervical dorsal or lumbar region. Sometimes, an increase of volume is observable in the affected portion—in some cases the limbs, even at the commencement are attacked with convulsive movements of variable duration, which after some time are succeeded by paralysis ; in others they are in a state of permanent and painful contraction—and lastly, they are sometimes altogether relaxed and flaccid. On what do these remarkable differences depend ? According to Janson, as quoted by Ollivier, paralysis of the limbs without contraction is owing to inflammation of the nervous structure alone, whilst the contraction depends on its complication with inflammation of the membranes.

3. We can, as is pointed out in the text, indicate almost the very spot in which the inflammation is seated ; and those distinct groups of symptoms enumerated as characteristic of the lesions of the different regions of the medulla spinalis, are readily explicable by considering the destinations of these nerves that arise respectively from them. But it is not sufficient to consider merely their destination, we must take into account their function also. And here we find how the improved physiology and pathology of the present day can mutually assist and enlighten each other. When the researches of that distinguished inquirer Mr. Charles Bell, had demonstrated that the anterior roots of the spinal nerves preside over motion, and the posterior over sensibility, it became evident that the loss or derangement of these functions must be determined by the lesion of those roots, or of the part of the medulla from which they arise. Ollivier reports a very remarkable case, that clearly proves the cor-

rectness of this inference. This individual, an old soldier, had been for some years taciturn and indolent, wished to remain constantly in bed from finding an inability to get out of it. His gait was tottering, his lower extremities weak, both being equally affected. These symptoms increased until he ultimately became confined altogether to his bed, in which he lay with his thighs, flexed towards the pelvis, his legs on his thighs without being able to extend or move them in the least degree. Still these parts retained *their natural sensibility, as was evident on pricking or pinching* them. — The excretions were passed involuntarily, the voice and intellectual faculties were lost—after death the corpora pyramidalia and olivaria were found softened, and converted into a greyish diffluent pulp, which alteration extended along the whole of the anterior part of the medulla — almost to the lumbar region. The "ramollissement" could also be traced upwards into the brain, though the commissure of the cerebellum, the crura cerebri, the thalami, and corpora striata, even to some of the convolutions, particularly towards the middle of the anterior lobe. None of the other parts of the brain or cerebellum presented any sensible change, and the posterior part of the medulla, as well as the other membranes investing it were perfectly healthy.—*Notes by the Translator.*

DISEASES OF THE CHEST.

AFFECTIONS OF THE AIR-TUBES.

ANGINA LARYNGEA.

470. *Symptoms.*—Pain in the region of the larynx, increased by pressure, by the action of deglutition, coughing or speaking; the stethoscope indicates the presence of the "râle muqueux;" and as this depends on the fluid in the trachea, it is evident in proportion as that fluid is more abundant and less tenacious, the air bubbles being evolved with greater or less facility according to its degree of consistence. The voice is sensibly altered, becomes hoarse, frequent cough, increased by speaking, which also becomes hoarse, painful, suffocating, and is accompanied by an expectoration, the product of which is variable, sometimes consisting of mucus, sometimes of pus, or of a mixture of both.

471. *Anatomical Characters.*—The mucous membrane lining the larynx, and particularly the glottis and epiglottis, is red and injected; which appearance is either in spots, or diffused to a greater or less extent. It is also somewhat swollen, and on its surface is effused a viscid or puriform fluid. When the disease has continued for any length of time, the redness disappears, and the membrane acquires an increase of thickness; small ulcerations are occasionally in this case observable upon it, particularly at the sides of the glottis.

TRACHITIS.

472. *Symptoms.*—Pain in the inferior part of the neck below the larynx, extending downwards behind the sternum; this is increased by pressure and by inspiration, and is accompanied by a mucous rattle, such as occurs in laryngitis, which is perceptible in the trachea but not in the lungs, or even at the root of the bronchi; the voice is but little altered except at intervals, when the mucus secreted in the trachea becomes accumulated in the larynx, but this hoarseness of the voice ceases after expectoration.

473. *Anatomical Characters.*—Redness of the mucous membrane, which is covered with a viscid or purulent fluid, and if the affection has passed into the chronic form, the membrane usually presents several small spots of ulceration, always less numerous than in the larynx. In some cases the ulceration extends so as to perforate the walls of the trachea.

CROUP.

474. *Symptoms.*—In this disease there is a combination of the symptoms of the two preceding affections, together with spasm of the glottis, accompanied by a peculiar alteration of the voice, and a cough which comes on in fits, the intervals between which diminish as the disease advances; the dyspnœa is extreme, the respiration sibilant. This disease, which usually attacks children, and occasionally adults, sometimes begins with a slight cough, attended with pain, though not very acute, of the larynx or trachea; to this sometimes is added a tracheal mucous "rattle;" at other times, however, it sets in suddenly without any perceptible premonitory symptoms; the patient in many instances is awakened during the night by a severe fit of coughing, which is at first dry, but is soon followed by the expectoration of a viscid fluid, sometimes puri-

form, or combined with flocculi of an albuminous substance. The cough may be either acute and shrill, like the crowing of a young cock, or may be hoarse, low, and deep; the voice too becomes hoarse, particularly when the inflammation approaches the glottis; the inspiration is sibilant, in consequence of the spasm at the glottis, and is always heard at a considerable distance. The little patient experiences a severe constriction in the throat, frequently raises his hands towards his neck; the face becomes swollen, and presents the appearance of considerable congestion; the dyspnœa increases in intensity.

475. Still the symptoms may diminish, and a remission supervene, but the cough retains its peculiar character, and the voice its hoarseness; a second attack, more violent than the first comes on, and induces fits of coughing attended by an expectoration, either of a mucous or purulent fluid, or of portions of false membrane, or even of membranous tubes of a form perfectly cylindrical, the removal of which, in general, gives some momentary relief.

476. When the expectoration consists of a viscid mucus, we can distinguish a "râle muqueux," with an easy disengagement of the air-bubbles; if the expectoration be puriform, the "râle sibilant" is perceived, giving a sensation which announces the presence, in the larynx and trachea, of a more thick and viscid fluid. When false membranes are being expectorated, there is no "râle," but we can distinguish a sound similar to that of the valve or clapper of a pump, which is audible only at intervals, when the false membrane is partially detached by the passage of the air through the larynx. If this sound is perceived during inspiration, it indicates that the membrane is detached at its superior extremity, but if, during expiration, then the detachment must have occurred at the inferior one.

477. Finally, the hoarseness of the voice and the dyspnœa increase as the inflammation proceeds;

sometimes complete aphonia takes place, but is removed momentarily, by expectoration; the fits become more and more violent, and occur at shorter intervals; the cough becomes more frequent as the consistence of the expectorated matter diminishes, and death if the termination be fatal, soon closes the scene.

478. The diseases with which croup may be confounded are simple laryngitis, suffocating catarrh and œdema of the glottis.

479. *Anatomical Characters.*—The mucous membrane lining the larynx, upper part of the trachea, and sometimes even the larger divisions of the bronchi, exhibits a greater or less degree of redness, which disappears rather suddenly; it is sometimes covered by a false membrane, of a pale yellow, or greyish colour, the thickness of which depends on the intensity and extent of the inflammation. This production lines the inner surface of the larynx and trachea and commencement of the bronchi; it is either moulded into a tubular form, or appears in detached portions, blended with mucus, or flocculi of albuminous matter; it is sometimes separated from the mucous membrane, by a viscid or puriform fluid; at others, it adheres more or less intimately, according to the degree of the inflammation, and also as its seat is nearer to the glottis. When the disease has been of short duration, the false membrane is usually confined to the trachea. The redness of the mucous membrane and tumefaction of its follicles are considerable. In several cases, the under surface of the epiglottis becomes coated by the false membrane, and the rima glottidis is obstructed by it, or by the purulent matter which frequently occurs in place of it. Finally, cases have occurred in which the mucous membrane of the air-tubes was covered merely by a viscid fluid, or by pus, and still death took place as speedily, and with precisely the same symptoms, as mark the progress of the disease in those in whom the false membranes really ex-

isted. Those who die of croup generally exhibit a high degree of congestion of the lungs, and also of the vessels of the brain.

ŒDEMA OF THE GLOTTIS.

480. *Symptoms.*—Pain, or a feeling of uneasiness at the upper part of the larynx, giving to the patient the sensation as if a foreign body were lodged there; this impression is so decided, that he fancies the body is moved during deglutition, and changes its place, so as to occupy the aperture of the glottis, or one of its sides during expiration. From the commencement of the disease, respiration is performed with extreme difficulty, recurring by fits, which threaten instant suffocation*; inspiration is sonorous or sibilant—expiration *free and easy.* The voice is hoarse and somewhat weakened, occasionally altogether suppressed. If the finger can be carried along the tongue, as far as the upper extremity of the larynx, a soft tumour may be felt, about the margin of the aperture of the glottis, The severity of the symptoms gradually increases, and the patient generally dies rather suddenly.

481. *The diseases with which it may be confounded* are, croup or suffocating catarrh.

482. *Anatomical Characters.*—The margins of the glottis are thickened and swollen, forming a tumour of greater or less size, caused by a serous, or still more rarely, a sero-purulent infiltration of the sub-mucous cellular tissue, but without any constant

*Cases have occurred in which tracheotomy has been resorted to, for the removal of foreign bodies supposed to be lodged in the larynx or trachea—but in some of them, nothing of the kind could be discovered even after the most careful examination. It would appear that such a mistake may occur from the close resemblance that exists between the symptoms of œdema of the glottis, and those caused by the presence of a foreign body. Expiration is comparatively free and easy in œdema, but in cases of foreign bodies in the trachea both inspiration and expiration are sibilant and difficult. T

redness of the mucous membrane. A similar turgescence is sometimes found on the inner surface of the larynx, which sometimes resembles phlyctenæ, caused by the application of a blister to the skin. The epiglottis occasionally presents the same appearance. We also in some cases find chronic alterations of different descriptions in the larynx.

CATARRH. *(Suffocant.)*

483. *Symptoms.*—The attack comes on very suddenly, often during the night, attended by considerable difficulty of respiration, threatening of suffocation, a sensation of compression of the thorax, and cough more or less painful; to this state a remission generally succeeds, which is soon followed by a more violent attack, which is in general fatal.

484. *Its Anatomical Characters* are unknown.

485. *The diseases with which it may be confounded* are, croup, asthma, and œdema of the glottis.

PULMONARY CATARRH *.

486. Catarrh, considered as an inflammation of the pulmonary mucous membrane, is divisible into two stages, the acute and chronic. Its degrees of intensity vary from the slightest cough to such a derangement as makes it resemble phthisis in almost every particular. It begins with irritation in the throat, and dry cough; but after an interval, which varies according to the constitution of the individual, or the treatment resorted to, each fit of coughing is followed by the expectoration of a clear, transparent, glairy mucosity, somewhat similar to the white of egg; the greater the degree of inflammation in the mucous membrane, the greater is the viscidity and tenacity of its secretion. When the patient is seized

* This chapter is somewhat too brief in the original, I have therefore written it anew or rather compiled it from the first volume of Andral's work.—T.

with violent fits of coughing, accompanied by a sense of heat in the interior of the chest; by general anxiety and oppression; the expectorated matter acquires a degree of viscidity, somewhat approaching the glutinous sputa of acute pneumonia.

In the midst of this transparent matter we sometimes find several small particles of a dull white colour, which have been frequently mistaken for portions of pulmonary tubercle, and therefore indicative of phthisis *. They do not, however, come from the lungs, they seem to be secreted in the mucous cryptæ of the pharynx and fauces. Whilst the expectoration presents these appearances, the symptoms of bronchial irritation remain unabated; but according as this tends to resolution, the sputa progressively change their character. The mucosity of which they consist, by degrees loses its transparence, becomes mixed with opaque yellow, white, or greenish masses, which at first few in number gradually increase, and ultimately constitute the whole of the expectorated matter. This change is generally accompanied by a perceptible remission of the symptoms of the acute affection, indicative of its resolution.

When the disease, instead of thus terminating, passes into the chronic form, the sputa retain the same appearance as in the latter period of the acute stage. They are opaque, white, yellow or greenish; they sometimes adhere to the bottom of the vessel, at others they float in a transparent mucosity, or are suspended in the midst of it. They are generally inodorous, and to the patient insipid; and in most cases expectorated without difficulty.

* If there be any doubt as to the nature and origin of these substances, it can readily be satisfied by placing some of them on a piece of paper, and exposing them to heat. If they are merely sebacious matter from the mucous cryptæ, in the fauces and pharynx, they will leave on the paper a greasy stain, which effect will not be produced if they are tubercular matter from the lungs.—T.

487. Thus the expectoration resembles what is very commonly observed in phthisis; the respiration too is short and frequent: there may be night-sweats, and a considerable degree of marasmus. Under such circumstances, none of the ordinary modes of examination are sufficient to distinguish chronic catarrh from phthisis; the stethoscope alone can furnish signs really pathognomic; and these vary according as the catarrh is dry or humid. In the former, there is a feebleness, or even total absence of the respiratory murmur, in parts of greater or less extent, of the affected lung. This, however, is not constant, it changes almost incessantly, so that the respiration becomes distinct in the parts where it had but a moment before been inaudible, and ceases to be heard where before it had been distinct. These effects are produced by the altered bronchial secretion momentarily stopping up the air-tubes in some places; and of course they cease when the impediment is removed. This state of the respiration is accompanied by the "râle sonore" and "râle sibilant;" the former is little liable to change its seat; the latter, on the contrary, is very variable. It disappears for a while, probably after an effort of coughing, then suddenly returns with the same intensity as ever. Sometimes, however, both are constant, strongly marked, and occupy the greater part of the organ, which indicates that the affection is extensive and violent.

488. Acute catarrh may be confounded with emphysema of the lung, and with croup; chronic catarrh presents several of the characters of phthisis.

489. *Anatomical Characters.*—On opening the body of a patient, who has died of any affection, during the

* The "rale sonore" is permanent in its duration, because it depends on a change of structure either in the bronchi or their lining membrane; the "rale sibilant" is variable, because it depends on the presence of a viscid secretion plugging up the bronchial tubes, which is constantly liable to be displaced and expectorated.—T.

course of which he had been attacked by acute catarrh, the mucous membrane is found red to a greater or less extent. This most usually occurs towards the end of the trachea, and in the first division of the bronchi. In very severe cases it may be found even in the smallest ramifications. If it is confined to the bronchi of one lobe, it is rather remarkable that those of the superior lobe are most constantly affected. In some cases, the membrane seems as if finely injected; in others there is no appearance of vessels, we see merely a number of small red points aggregated closely together. Finally, the redness may be confined to particular spots of various forms, constituting so many distinct inflammations, between which the membrane is white and healthy.

This bright redness disappears in chronic cases, and is replaced by a livid, violet, or brownish tinge, but this is not an invariable occurrence. Bayle and Andral report cases of inveterate chronic bronchitis, with puriform expectoration, in which the membrane scarcely presented any trace of redness, or was even in some instances perfectly pale in its entire extent. The small bronchial tubes, particularly those towards the summit of the lungs, are occasionally found dilated in some parts, so as to be considerably larger than in the rest of their trajet, which may increase to such an extent as to emit a real pectoriloquy. —See Andral, Vol. ii. p. 29.—T.

HOOPING-COUGH.

490. *Symptoms.*—This affection, which is peculiar to infancy, and sometimes epidemic, commences usually with symptoms of catarrh, either of the lungs or larynx, which last for about fifteen days; the cough then becomes convulsive, and recurs by fits at variable intervals. These are attended with violent efforts, and consist of one long sonorous inspiration, followed by several rapid, quick expirations; there is at the same time congestion of the face, and occa-

are accompanied by a sensation of suffocation and constriction, more or less intense, give rise to a vomiting of large quantities of mucous matter, and an expectoration which is thin, transparent, and viscid at the commencement, but afterwards becomes thick and opaque; after this there succeeds a complete remission, with every appearance of perfect health. The duration of this affection is variable.

491. It may for a short time be taken for croup, or suffocating catarrh in children.

492. *Anatomical Characters.*—Pathology has not as yet thrown any light on the causes of this complaint; in fatal cases, it is usual to find an inflammation of the mucous membrane lining the larynx, trachea or bronchi, and sometimes even some ulcerations.

PLEURODYNIA.

493. *Symptoms.*—Pain in one side of the chest, with immobility of the ribs during respiration, which also becomes more or less incomplete. The murmur of respiration is weak, or altogether inaudible in some parts of the thorax; percussion gives a dull sound; inspiration and pressure on the muscles cause pain. There is no trace of any of the phenomena peculiar to other diseases of the chest, such as œgophony, pectoriloquy, râle, &c. &c.

494. Its anatomical characters are unknown.

495. It may be confounded with pleuritis.

ŒDEMA OF THE LUNGS.

496. *Symptoms.*—This affection, which is seldom idiopathic, usually supervenes either with other diseases—at the close of fevers of long duration—or of organic diseases, particularly those of the heart. The respiration is laborious and difficult; the respiratory murmur is scarcely perceptible, though the thorax is largely expanded; there is a slight "râle crepitant," particularly at the base and inferior part

of the lungs. The sound on percussion is clear, and on both sides equally so; the cough is followed by an aqueous expectoration. In some cases the respiration becomes "puerile," in a small part of the summit of the lung. This affection is sometimes complicated with pneumonia, or with emphysema, in which case its dignosis is very difficult. The nature of the "râle," and the general symptoms alone can distinguish it from catarrh.

497. *The diseases with which it may be confounded* are, pneumonia and catarrh.

498. *Anatomical Characters.*—The tissue of the lung, of a pale greyish colour, is more dense and heavy than in the natural state; it is crepitant, and collapses only when, by compression; it is freed from the liquid that is infiltrated into it; the lung seems to contain very little blood, but is gorged with a colourless, transparent, frothy serosity; the air-cells retain their natural texture.

PNEUMONIA *.

499. Laennec has established three periods or stages of this disease, each characterized by a distinct group of symptoms. In the first, the respiration is difficult, accelerated, laborious, becomes also unequal, and imperfect, and so bears no proportion to the dilatation of the walls of the thorax. When both sides are affected it becomes abdominal, the ribs over the affected part are unmoved; occasionally there is a dull pain in some part of the chest, but this is by no means a constant occurrence, except when the disease is complicated with pleuritis. On percussion the chest sometimes sounds as in health, but most commonly its resonance is rendered dull, or

* I have compiled this chapter from Andral and Collin, that in the original not being sufficiently full, considering the importance of the subject, the chapters on Emphysema and Phthisis, have been for the same reason taken chiefly from Laennec. —T.

lost altogether in a greater or less extent, always, however, limited to that of the affected part of the lung.

When we examine the respiration in those parts in which the resonance is altered, we find it feeble, scarcely perceptible, or altogether masked by "*a râle crepitant*," which indicates both the nature and extent of the alteration. The respiration becomes "puerile" in the parts that remain unaffected, and sometimes also in the other lung. These phenomena soon change, either by the resolution of the disease, or by its making further progress. In the former case, the "râle crepitant" diminishes in extent and intensity; the murmur of respiration approaches its natural state; the sound of the chest becomes less dull, and its movements more regular; and finally, a "râle muqueux" is audible, which indicates the change of the expectoration, and approach of convalescence. But if, on the contrary, the disease proceeds unabated; the alterations in the movements of the thorax still continue; the sound becomes altogether dull, the "râle crepitant" ceases, for the lung is no longer permeable to the air; there is a total absence of the murmur of respiration, except in some points corresponding to the large bronchi, in which the respiration becomes cavernous, and the voice resounds, so as frequently to produce a real bronchophony. The expectoration is more or less difficult, the sputa are white, slightly yellowish, or semi-transparent, and so viscid as to adhere firmly to the vessel even when inverted; they contain some bubbles of air, and present some striæ of pure blood, or are so intimately blended with it, as to exhibit a dusky *or perfectly red colour*.

500. If the disease occupy but a small part of the lung, it may still end in resolution. It will then be found to retrace its steps, as it were, and go back through the very same stages by which it had ascended. But if, on the contrary, it still advances, a purulent effusion takes place into the affected part of

the lung, the movements of the chest become more restricted, weak, and difficult; symptoms of general debility supervene—a peculiar "râle muqueux" is heard, at first in some points, then in the whole of the affected part. This soon degenerates into a gurgling sound, indicating that the pus is collected into a mass, or cavity, from which it escapes by the neighbouring bronchi; and so, a real pectoriloquy is established by means of this communication between the cavity and the air-tubes.

As each stage of this complaint exhibits a distinct set of symptoms, we can seldom be in error as to its character or extent, if we have an opportunity of following it from its commencement to its termination. But if we are called in, after the second period is established, we experience much difficulty in deciding what the complaint really is. Thus, we find the sound dull, the respiration suppressed, and the ribs immoveable:—but are not these common to empyema and hydro-thorax, as well as this stage of pneumonia? The previous history can alone establish the distinction.

Again, in the third stage, the respiration is cavernous, a gurgling sound is heard in the part, together with pectoriloquy, which constitute the leading characters of phthisis. How then are they distinguishable? The previous history and the nature of the expectoration must be our chief guides.

501. From pulmonary apoplexy, it is distinguished by percussion and the examination of the movements of the thorax, which furnish us in general with sufficient data for establishing the diagnosis. The respiration is always complete in apoplexy, but, in most cases, incomplete in pneumonia. In the first degree of the latter, while the "râle crepitant," exists, the sound is obscure or dull, but remains clear in the first degree of the apoplexy; the "râle," is rarely diffused in pneumonia; it usually in the other affection.

What is the part of the lung chiefly affected in pneumonia? Is it the cellular tissue between the cells, or rather the air-cells themselves? As yet we cannot affirm any thing with positive certainty; we may state what appears probable.

Whilst there is but a simple congestion, we recognize it during life by the existence of the "râle crepitant." Now this "râle," seems to be but the diminutive, as it were, of the "râle muqueux," and if it is quite certain that the latter is seated in the bronchi, we can scarcely hesitate to admit that a mixture of air and fluid in the bronchi of the smallest size produces the "râle crepitant;" but the pulmonary cells are nothing but the ultimate terminations of the bronchi expanded into the form of a cul-de-sac. These cells then are the seat of the "râle crepitant," in the first stage of pneumonia. If this reasoning be correct, it follows that this disease consists essentially in an inflammation of the air-cells, whose inner surface secretes a fluid at first muco-sanguinolent, and afterwards purulent.

As the inflammation advances, the fluid becomes more thick and viscid, it can no longer be expelled from the vesicles in which it is formed; it accumulates, obstructs, and distends them, and so gives rise to those granulations, which give to the lung its hepatized appearance in the second degree of pneumonia. At a later period, it is not mucus or blood that is poured out, it is pus, which in its turn fills the air-cells, and so constitute the grey granulations which characterize this last stage, or "hepatization grise." If a portion of a lung in this state be pressed, we see the pus escaping in the form of drops, each seeming to come from the vesicle in which it had been contained. If the distention of the cells be general and carried to a great degree, they burst their contents, become blended, and so the granular appearance is lost.

The walls of the vesicles become soft and friable,

just as all tissues do when inflamed. Hence the remarkable softening of the substance of the lung in pneumonia.—See Andral, Vol. ii. p. 313.

502. *Anatomical Characters.*—In the first stage of pneumonia the substance of the lung presents an increase of weight and density; it is infiltrated with a frothy, sanguineous serosity in considerable quantity; it still crepitates on pressure, and its alveolar texture can be recognized; the external surface is a deep violet, the interior is more or less deeply red. In the second stage, or that of "hepatization rouge," it no longer crepitates on pressure. It presents the heaviness, appearance and density of the liver, its tissue seems granular when torn; its external surface is not so much of a violet colour as the preceding degree; its internal is red, and presents some white spots, caused by the pulmonary cells and vessels; these are occasionally mixed with black spots, similar to those observed on the surface of granite. The sanguineous serosity with which it is infiltered is diminished in quantity, and does not trickle out when a section is made. In the third stage, or that of "hepatization grise," the interior of the lung becomes of a pale yellow tinge, its granular aspect becomes even still more manifest; a purulent fluid issues from it on incision, which may be collected by the scalpel; lastly, the pus infiltered into the substance of the lung may unite in some points, and then gradually increase so as to present the appearance of abscesses, the walls of which exhibit no trace of false membranes; on the contrary, they are softened and broken down, so that not a trace of their original structure remains.

PLEURITIS.

503. *Symptoms.*—At the commencement of the disease, before any false membranes are formed or fluid effused, an acute pain occurs in some part of

the chest, together with immobility of the ribs, particularly those corresponding to the seat of the affection; respiration is frequent, (especially if both sides are affected at the same time) painful, hurried, quick during inspiration, and slow in expiration; percussion is painful, in other respects it gives the same results as during health. The respiratory murmur is weakened, but not altered in character, except the disease be complicated.

When an effusion takes place to a moderate extent, the sound becomes dull in the lower part of the thorax, both laterally and posteriorly. This effect may also be produced in any other part of the cavity, in which the effusion shall have become circumscribed by bands of adhesion left by a former pleurisy.

When the stethoscope is applied along the posterior border of the scapula, or towards its inferior angle, in fact opposite to any point to which the effusion may have extended, we perceive, when the patient is desired to speak, the diminutive, as it were, of his voice, sharp, thin and tremulous, to which Laennec has applied the term œgophony.

When the effusion is very considerable from the commencement, or becomes so during the progress of the disease, the sound is altogether dull, the œgophony disappears, and the respiration is no longer heard, unless where old adhesions retain some part of the lung near the ribs, and prevent it from being forced back by the effusion. The intercostal spaces become enlarged, and elevated, the affected side is more expanded than the sound one, but is no longer influenced by respiration, its immobility forming a striking contrast with the great mobility of the other in which the respiratory murmur is increased in intensity, so much so as to assume the "puerile" character.

When the disease begins to decline, and the fluid becomes absorbed, so that its quantity is reduced to

the proportion necessary for the production of the phenomena, the œgophony recurs for a while, but gradually diminishes as the effusion is lessened, and ultimately disappears altogether when its absorption is complete. Still the sound given by percussion remains dull for a considerable time, and the respiration weak or imperceptible; which effects continue in a greater or less degree, until the adhesions of the pleura are converted into cellular bands, or into a structure similar to fibro-cartilage. Then the intercostal spaces are contracted, the ribs are made to sink inwards, the thorax becomes narrowed, and the affected side never again resumes its former dimensions or mobility. The diseases with which it may be confounded are hydro-thorax, chronic pneumonia or phthisis.

504. While the œgophony exists, there is no possibility of mistaking pleuritis for any other disease, except hydro-thorax, as that phenomenon is altogether peculiar to these two affections; the other local and general symptoms of each must be taken into account in order to establish the diagnosis. But when the effusion is abundant, or the disease has passed into the chronic form, if we have not observed it from the beginning, we may mistake it for hydro-thorax, or chronic pneumonia; or, on the other hand, these affections for pleurisy. However, the previous history, together with the general symptoms, will enable us to distinguish them.—There seems no probability of its being confounded with phthisis.

505. *Anatomical Characters.*—The inflamed membrane presents a great number of red points, which though situated under the pleura are visible through its substance. The spaces between them retain their natural colour; sometimes the membrane is injected, but is scarcely ever thickened. The inflammation always determines the effusion of a serous transparent, citron-coloured fluid, somewhat similar to

unclarified whey ; and which contains some detached portions of the false membranes, which are formed on the surface of the pleura. The extent of these is determined by that of the inflammation ; if it be confined to the pleura costalis or pulmonalis, then the surface is covered with a layer of coagulable lymph, which is gradually converted into a false membrane ; but if the pleura lining the wall of the thorax, and that covering the adjacent portion of the lung be at the same time inflamed, then both are covered with layers of membrane, and become connected by transverse bands passing from one to the other, through the fluid which is effused between them. When these new structures become red, and traversed by vessels, the portion of the pleura subjacent to them becomes red also, and the effused fluid partakes of the same colour. The surface of the lung beneath the inflamed pleura usually remains unaffected, but is somewhat more dense and less crepitant than natural. When the effusion is considerable, the lung is compressed and flattened, and if the pleurisy becomes chronic, it may be forced back towards the vertebral column, and be reduced to the form of a membraneous lamella, so as to be with difficulty discovered, and so induce a belief that it had been altogether destroyed.

In this chronic state the pleura is more red, and the false membranes more friable than in the acute form, the effusion also is more abundant, but less limpid, and is mixed with minute albuminous flocculi, which give it a puriform appearance.

If resolution and absorption of the fluid take place, the lung becomes distended with air, the false membranes contract adhesions, which are usually of a cellular structure, or sometimes that of fibro-cartilage ; the membranes themselves present the same organization. It is during this process that the ribs approach each other, the chest becomes narrowed, and the affected side contracted. When the effusion

is circumscribed, as happens when it is poured out amongst old adhesions closely united together, it may be mistaken for a cyst in the lung, particularly if it occurs in one of the interlobular fissures. In such a case the lung, being compressed against the vertebral column, renders the mistake still more likely to occur, as at first it may be supposed to have been altogether destroyed ; but the error is removed as soon as the false membrane is removed from the pleura.

506. Gangrene sometimes takes place in the pleura, presenting itself in the form of circumscribed spots of a dark brown or greenish colour, penetrating the substance of the membrane, and extending in some cases to the subjacent cellular tissue, or to the surface of the adjacent soft parts, which become infiltered by a serous fluid. If the gangrene be the result of an intense pleurisy, which is a very rare occurrence, the false membranes partake of the same state as the pleura, become softened, broken down, lose all consistence, and give out the peculiar odour of gangrene. If it be caused by the rupture of gangrenous abscess of the lung, which pours its contents into the pleura, pleurisy, with formation of false membranes first takes place, and then the gangrene supervenes consecutively. The walls of the thorax may sometimes be engaged in the disorganization, and an abscess, caused by the infiltration of the effused fluid, may burst externally.

HYDRO-THORAX.

507. *Symptoms.*—If the effusion be not very abundant, œgophony is perceived in the same places as in pleuritis, and presents the same modifications. The sound of the chest is dull on percussion, and the respiration inaudible, except along the vertebral column.

508. The only disease with which hydro-thorax can be confounded is chronic pleurisy ; hence the

previous history, together with the absence of the symptoms of the latter, can only determine the diagnosis.

509. *Anatomical Characters.*—The cavity of the pleura contains an effusion, in most cases consisting of a citron-coloured serosity, transparent, and without any albuminous flocculi. The lung void of air is compressed towards the mediastinum. But if instead of serosity, the pleura exhales blood, then the membrane is studded with numerous small red points, and covered with blood in a semi-coagulated state.

EMPHYSEMA OF THE LUNGS. *(Asthma.)*

510. *Symptoms.*—This is one of the many diseases long confounded under the common name, *Asthma.* It is characterized by habitual dyspnœa, recurring by fits, which are exceedingly irregular in their periods of return and duration, and are subject to be increased by any cause, however slight, that affects the respiration. The movements of the thorax are irregular, and habitually unequal; inspiration is short, high and rapid; but expiration is slow, incomplete, and as it were graduated; there is thus a manifest difference in the duration of the two movements. During the fits the respiration becomes convulsive. On percussion, the chest emits a sound more clear than in the healthy state, but this unnatural resonance is not given equally at all points, as the disease seldom extends to the whole lung. When the affection occurs at both sides, we experience much difficulty in estimating this increase of sound, as we have then no subject of comparison; and again, when only one side is affected there is another source of error; we may mistake the sound side, as being less sonorous, for the diseased one; but this is soon rectified by auscultation.

There is a constant cough, returning in fits, usually dry, or accompanied by a viscid, transparent expec-

toration. When the emphysema is of long standing and extensive, the intercostal spaces become expanded, and the thorax is rendered prominent and rounded on one or both sides, according as the affection is single or double.

In all the points occupied by the emphysema, the murmur of respiration is very weak or altogether suppressed. During full inspirations, and sometimes during expiration, we hear a "*râle sibilant*," resembling the sound of a small valve, or a "*râle sonore*," imitating the cooing of a dove. The contrast between this marked resonance of the thorax, with the feebleness or total absence of the respiratory murmur, constitutes the distinctive character of this disease.

511. The diseases with which emphysema may be confounded, are—pulmonary catarrh, and pneumo-thorax, unaccompanied by effusion of fluid.—From catarrh it may be distinguished by attention to the following circumstances: In catarrh the suspension of the respiration in any particular point is of short duration; and when it returns, it is strong and even "*puerile*," a constant râle, sonore or sibilant, also accompanies it: In emphysema the suspension of respiration in a particular part may be long continued, and even permanent, and when it is restored, the respiratory murmur always continues weak, particularly if the disease has lasted long. Further, in catarrh, the movements of the ribs remain free, the respiration does not present a constant inequality, and the chest retains its natural sound and capacity. But in emphysema, one side is more moveable than the other, inspiration is very short relatively to expiration, and the thorax becomes expanded, and acquires a tympanitic resonance.

512. *Anatomical Characters.*—The pulmonary vesicles on the surface of the lung are distended, their size varies from that of a millet seed, to a nut. The

partitions separating them are ruptured, hence the contained air is readily extravagated; the small bronchial ramifications of the affected part are also dilated. When the thorax is opened, the lung does not collapse; on the contrary, it seems to extend beyond it, as if too large for its cavity, and if it be thrown into water, it floats on the surface. The mucus which obstructs the bronchi is very viscid.

PHTHISIS.

516. Phthisis may be considered as divisible into three periods. From this it is not to be inferred, that a disease, in many cases so obscure in its progress, and variable in its duration, conforms strictly to any such systematic division. Still it is useful to adopt it, for the purpose chiefly of facilitating the description of the symptoms and diagnosis of the complaint. During the first period, namely that in which tubercles, in moderate number, begin to be developed in the substance of the lung, we cannot find, either by the examination of the local phenomena, or general symptoms, evidence of any other affection than a catarrh more or less severe; in some instances its progress is, as it were latent, and altogether escapes observation. However, there usually is some cough, which may be either hard and dry, or accompanied by an expectoration, similar to the saliva of the throat and fauces, which consists of a colourless, ropy, and somewhat frothy fluid, and in which we occasionally find suspended some black spots, and rounded flocculi.

In the second period, the tubercles increase in number, so as to compress and obstruct the substance of the lung to a certain extent; in which case they afford sufficient evidence to make us suspect their presence, but not to decide with positive assurance. Finally, in the third stage, the substance of the tubercle becomes softened, makes an opening for itself into some of the neighbouring bronchi, is evacu-

ated, and so gives rise to the formation of a cavity, the existence of which is indicated by its characteristic symptom—pectoriloquy.

The movements of the chest are very variable during the progress of this complaint, so much so, that though they present almost every possible alternation, they can contribute little to its diagnosis.

In the second period, we usually find that the summit of the side of the chest gives, on percussion, a sound more or less dull and obscure; and if the cylinder be applied on this part, a weakness or total absence of the respiratory murmur is found to exist; and the voice thrills with increased force under the instrument. These symptoms, however, do not become signs of the disease unless they are constant, and exist at one side only; for it is on the comparison of the sound with that of the affected side that their value depends.

After some time the sound returns, occasionally with even increased intensity; or, on the contrary, diminishes; and from having been obscure, becomes altogether dull. The pectoriloquy, doubtful at first, soon becomes perfectly manifest, and so continues, except the disease should increase so much as that the excavation becomes of unusually great extent, when something of indistinctness is given to it. Whilst these changes are taking place, the catarrh increases from day to day, and extreme emaciation is produced.

517. If phthisis during its progress observed these regular periods in all cases, and exhibited this succession of phenomena, it would no longer be a disease difficult to be recognized. But how frequently does it not happen that patients die before the softening and evacuation of the tubercular matter, or even before the tubercles have increased in number sufficient to alter the sound of the chest, or affect the distinctness of the respiration? but it decides its existence with certainty, only when it has passed be-

yond the reach of art. The complaint with which phthisis is most liable to be confounded is chronic catarrh, from which it is distinguishable by the pectoriloquy, and other symptoms given above, as indicative of the development of tubercles. But the diagnosis is still rendered uncertain; for in catarrh a pectoriloquy may be produced by the dilatation of the bronchi, in which case, time and the progress of the disease can alone clear up the difficulty. From acute or chronic pneumonia occupying the superior lobe of the lung, it will be distinguished by the previous history, the expectoration, and general symptoms.

518. *Anatomical Characters.*—Tubercles, in their first stage, present themselves in the form of small semi-transparent granules of a greyish colour, or sometimes almost colourless and transparent, their size being usually about that of a millet seed, whence the term *miliary* tubercle. As they increase, they become yellow and opaque; at first in the centre, then gradually in their whole extent; some of those that are near to each other unite, form masses of a pale yellow colour, and of the consistence of cheese, in which state they are named *crude* tubercles.

In this the second stage of their progress, it frequently happens that the substance of the lung, round the tubercles, hitherto healthy, becomes indurated, semi-transparent or greyish, owing to a new production of tubercular matter, which becomes as it were infiltrated into the pulmonary tissue. However, it occasionally happens that masses of considerable size are formed by a similar process of infiltration, without the previous development of separate miliary tubercles. The part of the lung in which this deposition occurs is dense, humid, impermeable to the air, and when cut presents a smooth polished surface. In some parts of this induration, we generally observe several small yellow granules, which

mark its change into the second stage, or that of *crude tubercle.*

As the hardening began in the centre of each mass, so also does the final process or softening, which progressively increases until the consistence of the whole is changed, when the matter, by opening for itself a passage into some of the bronchial tubes, becomes evacuated, and so leaves a true tubercular cavity. The interior of these cavities is sometimes crossed by bands of pulmonary tissue, studded with tubercular matter still in the crude state, or in some rare cases by obliterated vessels, but never by any bronchial ramifications. As to the larger vessels, they are forced back and compressed by the progress of the tumour, but not altogether obliterated, the small vessels only suffer that change.

After the evacuation of their contents, the internal surface of these cavities becomes lined by a soft, friable, false membrane; or there is merely an exudation, which exists in some parts only, and presents variable degrees of thickness. If the exudation and false membrane should exist at the same time, then the latter is placed beneath, and is found to be torn in some parts. Some cases have occurred in which these excavations were lined by semi-cartilaginous lamellæ, of a greyish white colour, semi-transparent, adherent to the substance of the lung, uniting by a progressive increase, and so becoming continuous with the lining membrane of the bronchi. In some cases also, the sides of these excavations have been found united by cellular adhesions, or by a structure similar to fibro-cartilage, which form a cicatrix, in which different structures may exist, such as chalky concretions, black bronchial matter, &c. Finally, the boundaries of the excavations may be formed by the substance of the lung having become red, hardened, or infiltrated with tubercular matter. Their form is more or less tortuous, their contents

vary, sometimes consisting of a matter of the consistence of thick pus, at others of a friable substance, swimming in a serous limpid fluid.

In some cases pulmonary tubercles are contained in cysts, semi-cartilaginous in their texture, firmly adherent to the tissue of the lung by their external surface, but smooth and polished on their internal. This is most commonly found in the bronchial glands.

HÆMOPTYSIS.

(By exhalation on the Mucous Membrane.)

519. *Symptoms.*—The attacks of this affection are always preceded by a titillation in the region of the trachea, larynx, or bronchi, according as the congestion exists in one or other of these points; there is also a sensation of heat and irritation in the chest, together with a cough, which is soon succeeded by an expectoration, consisting of frothy, red, vermilion-coloured blood, in greater or less quantity. The chest emits its natural sound on percussion; respiration continues unimpeded, but is accompanied by an abundant "râle muqueux," with large bubbles.

520. Hæmoptysis may be periodical, or supervenes on the suppression of an habitual sanguineous discharge. It can scarcely be confounded with hæmatemesis or epistaxis.

521. *Anatomical Characters.*—The mucous membrane lining the air-tubes is covered with blood, and presents on its surface a number of red points, but there is no trace of erosion or lesion of its texture.

PULMONARY APOPLEXY.

522. *Symptoms.*—This affection, which is generally very sudden in its invasion, is marked by intense dyspnœa, and sometimes even a threatening of suffocation. The movements of the thorax are hurried, unequal, intermittent; sometimes alternately full and contracted as if convulsive; in a word, they

exhibit the greatest possible irregularity ; the patient seems as if suffocating, and every movement indicates the greatest anxiety.

At the commencement, the sound of the chest on percussion is found very little, if at all, altered, but the murmur of respiration is decidedly changed. In some points of the lung, circumscribed and more or less numerous, we perceive a " râle crepitant," and in the intervening spaces the respiration is perfect, or increased in intensity, so as to become what is termed " puerile." After some time, however, it ceases to be heard, is succeeded by a " râle muqueux" in great abundance, and consisting of large bubbles, indicative of an abundant exhalation of blood into the bronchi and air-vesicles ; these phenomena are soon found to extend to the whole of the lung or lobe affected, and then the diagnosis which was founded upon them, is confirmed by the expectoration and its characters. In this, the second degree of the disease, the sound of the chest becomes in general obscure and dull.

523. Pulmonary apoplexy may be confounded, while in its first stage, with incipient pneumonia, in its second with catarrh, particularly if it assumes a chronic character, and if the expectoration of blood be not constant, which usually is the case.

524. *Anatomical Characters.*--Some portions of the lung, generally circumscribed to a few inches in extent, are found of a very deep dark-red colour, presenting a degree of density similar to that of hepatized lung : these appearances are not altered by ablution. When these portions are divided by an incision, we generally find in their centre some coagulated blood ; the surface of the incision is granulated and homogeneous, its aspect being perfectly like that of a clot of venous blood, as it is impossible to discover any trace of vessels, bronchi, or cellular intersections. The parts of the lung which surround them are crepitant, sometimes

pale, at others red and injected with blood ; but they are always separated from the parts affected by the apoplexy, by an abrupt, well-marked line of demarcation.

GANGRENE OF THE LUNGS.

525. *Symptoms.*—This disease, of rather rare occurrence, may attack the surface of the organ, and then produce pleuritis with or without pneumothorax ; or it may occur in any central part. In the commencement it presents the signs of a slight pneumonia, together with a great degree of general prostration ; and then there supervenes an expectoration of diffluent, greenish, fœtid sputa, emitting the gangrenous odour ; this is accompanied by frequent cough, and sometimes by an abundant hæmoptysis.

This disease can scarcely be said to have any symptom peculiar to it. In its first stage, its characters are those of pneumonia or intense catarrh ; and in the second, when an excavation is formed by the gangrene, we find pectoriloquy as in phthisis—and if a communication be established between the bronchi and pleura, then the stethoscope indicates its existence by the " tintement metallique,"—but the general adynamic symptoms, and peculiar odour of the sputa, sufficiently indicate the nature of the disease.

526. *Anatomical Characters.*—When the gangrene is not circumscribed, its borders are blended insensibly with the adjacent parts, the transition being marked by traces of inflammation in the first or second degree, but the substance of the lung is more humid, and more easily torn than in the first stage of pneumonia. It is of a dirty pale colour, or of a green, bordering on brown or black, interspersed with portions of a livid red tinge, infiltered with blood in a very liquid state. In other parts, it is so much softened that it falls into deliques-

cence, and when divided by an incision a sanious fluid oozes out, of a greenish colour, and emitting a gangrenous fœtor. In some cases the gangrene is circumscribed, and presents the appearance of a dark, livid eschar, somewhat similar to that produced by the application of caustic potass to the skin. Sometimes this eschar is enclosed within an excavation, but more commonly is converted into a putrid, sanguineous pulp, which finds an exit into the bronchi or pleura, or into both together. When an ulcerated cavity is thus formed, after a previous inflammation, it is sometimes lined by a false membrane, which secretes a dark fœtid sanies ; but when there is no membrane, then the walls of the excavation seem to secrete the sanious fluid. Their tissue is granular, sometimes fungoid, soft, and of a reddish brown colour. In some instances the vessels, though denuded, cross these cavities uninjured, at other times, on the contrary, their coats ulcerate, slough, and discharge their contents.

PNEUMO-THORAX.

527. *Symptoms.*—This complaint is sudden in its invasion, and dangerous in its character ; it consists essentially in the effusion into the pleura of an aeriform fluid, to which is added in many instances a liquid effusion also. Its signs vary according as there is, or is not, a communication between the pleura and the bronchi. The affected side gives a hollow-tympanitic sound even when the thickness of the walls of the thorax is considerable. If it should happen that the lung is connected to the walls of the thorax by bands of adhesion, the sound in these points is almost natural, which renders the change in all the others still more manifest. When the respiration is suppressed in all the space occupied by the gazeous effusion, it is scarcely heard even at the root of the lung. This depends on two circumstances 1. the compression of the lung by the air contained

in the pleura; 2. the pressure of that air, which is a bad conductor of such feeble sounds as those produced by the passage of the air into the bronchial tubes. At the sound side the respiratory, murmur is distinct, often "puerile."

528. When the effusion is considerable, the affected side is dilated, but there is no "râle," of any description. When a gazeous and a liquid effusion are present at the same time, then on making percussion, we find the sound of the thorax clear at its superior parts, but altogether dull in the inferior; hence by varying the patient's position, and by consequence that of the contained fluids, we can vary the seat of the clear and the dull sound.

When this gazeous effusion is owing to a fistulous communication between the pleura and the bronchi, it is known by the existence of those peculiar phenomena described by Laennec,—"la respiration, et la resonnance metalliques," or the metallic resonance and respiration.

Finally, if there be a gazeous and liquid effusion, and at the same time a fistulous communication, in addition to these signs another is added—"le tintement metallique,"—or metallic tingling.

The presence of the fluid can always be ascertained by the peculiar sound caused by succussion. This is sufficient to distinguish this affection from all others in which the respiration is suppressed for a considerable time, and to any great extent. It can then be confounded only with emphysema of the lung—but in this latter the sound of the chest is rarely increased to such a degree; the respiration is never altogether suppressed, it is heard distinctly at the root of the lung, it is accompanied by some "râle," and returns occasionally in parts in which it had ceased to be perceptible.

529. *Anatomical Characters.*—We find effused into the cavity of the pleura, an elastic fluid, sometimes containing sulphuretted hydrogen gas. This

seldom occurs without some perceptible lesion, it usually is accompanied by a sero-purulent effusion, and by a communication with the bronchi. In other instances, it results from the rupture of a tubercular cavity into the pleura, or even of a gangrenous eschar of the lung; in this latter case, we also find traces of pleurisy. Finally—pneumo-thorax may arise from gangrene of the pleura, effusion of blood into its cavity, or from rupture of some pulmonary vesicles.

ACCIDENTAL PRODUCTIONS DEVELOPED IN THE LUNGS.

530. *Symptoms.*—There is a degree of dyspnœa proportioned to the size of the tumour, accompanied by a dry cough, or by an expectoration, whose characters are exceedingly various; there is no fever, or general disturbance of the functions. After some time the sound of the chest and murmur of respiration diminish at the points which correspond to the seat of these productions, and finally cease altogether when they have acquired any considerable size. When "ramollisement" of these productions occurs, then that series of symptoms begins to be manifested which attends the same alteration in tubercles, and which has already been detailed in the chapter on Phthisis.

531. They may be mistaken for pleuritis, chronic pericarditis, or phthisis.

532. *Anatomical Characters.*—These tumours vary very much both in their size and composition. They are in some cases merely cysts in the lung, invested by a membrane whose structure is sometimes similar to serous, at others to mucous membranes. At other times these productions consist of a cellular, fibrous or cartilaginous structure, in the centre of which, we sometimes find calcareous or osseous concretions. These latter productions may also exist

without any cyst, in which case they adhere immediately to the substance of the lung; in some instances they are developed in a mass of cartilage or tubercle.

ACCIDENTAL PRODUCTIONS DEVELOPED IN THE PLEURA.

533. *Symptoms.*—When small, or in the state of crudity, there are no means of ascertaining their presence. This can only be done when serous effusions take place, or when the tumours pass into the state of "ramollissement," and symptoms of hydrothorax set in, namely egophony at the commencement, and then absence of respiration, and dull sound of the chest, to which, in some cases, symptoms of pleurisy are added.

534. They may be confounded with pleurisy, pneumonia, or pericarditis.

535. *Anatomical Characters.*—These productions vary according to the nature of the tissues that compose them. In some cases they consist of encephaloid, in the form of small tumours in no great number; occasionally combined with melanosis; the pleura to which they adhere is, in general, red towards the point of union.

536. In other instances they are tubercular, appearing as small, transparent, grey granules, united together by a false membrane in which they seem to have been developed, rather than in the pleura itself. These at a later period become opaque and yellow, but seldom pass into the state of "ramollissement." On the surface of the pleura we sometimes find small, white, opaque granulations, analogous to fibrous structures. Other serous membranes present occasionally similar productions, which seem to be the result of inflammation.—And lastly, we sometimes find on the surface of this membrane, depositions of cartilage.—fibro-cartilage, and even osseous matter.

DISEASES OF THE HEART,

AND ITS MEMBRANES.

AORTITIS.

537. *Symptoms.*—Considerable development of the pulsations of the aorta, and sometimes of the large arteries, those of the aorta can be recognized at the depression at the top of the sternum. In some cases there is a sensation of heat or pain, which is referred to the inflamed part, accompanied at the same time by sinking and anxiety. When aortitis becomes chronic, the arterial pulsations usually become more slow, and then we observe symptoms of dilatation or hypertrophy of the heart. Accidental tissues developed in the trajet of the aorta may simulate aortitis, particularly when their density is such as to facilitate the transmission of the pulsations of the vessel.

538. *The diseases with which it may be confounded* are, any accidental productions developed in the course of the aorta, particularly when they are so dense as to facilitate the transmission of the pulsations of the vessel.

539. *Anatomical Characters.*—Redness of the lining membrane of the aorta, variable in degree, and appearing in some cases as if it had been painted. This colour is, in general, circumscribed; in most cases it is scarlet; but when it extends to the right cavities of the heart and pulmonary artery, it is of a more or less deep shade of violet. The lining membrane presents no distinct traces of injection, it is however quite otherwise with the cellular

coat; it is not much thickened. On its surface we sometimes find a layer of coagulable lymph; it is also frequently the seat of deposits of fibrous lamellæ, or of osseous or calcareous matter; in this latter case all the coats of the artery are thickened, friable, and destitute of their usual elasticity. We sometimes find spots of ulceration affecting the lining membrane only, or penetrating more deeply into the coats of the vessel.

ANEURISM OF THE AORTA.

540 *Symptoms.*—This affection is marked by strong and loud pulsations, synchronous with those of the pulse, and accompanied by a "*bruit de soufflet.*" The seat of these symptoms varies according to the situation which the tumour occupies; and if it be so situated as to compress the trachea or bronchi, it will determine a peculiar hissing sound during the act of respiration or speaking. The sound of the chest is diminished, and sometimes above the heart there is a murmur or thrill perceptible by the stethoscope, or even by the hand.

541. When the aneurism is seated in the ascending aorta, the pulsations are most perceptible at the sternum and cartilages of the ribs; but when the descending aorta is dilated, then they are perceived along the dorsal vertebræ; finally, when it occurs in the abdominal aorta, we observe them with great distinctness, and to a great extent, in the abdomen. Aneurism of the thoracic aorta may be confounded with contractions of the orifices of the heart; that of the abdominal portion of the vessel may be simulated by tumours placed upon its trajet.

542. Aneurism of the thoracic aorta may be mistaken for a contraction of the orifices of the heart; that of the abdominal aorta may resemble the effects of tumours placed along its course.

543. *Anatomical Characters.*—Dilatation of the aorta occurs most usually in its curvature and ascend-

ing portion; it may occupy the whole circumference of the vessel, or only a part of it; in which latter case it generally occupies the anterior or lateral part of the tube. The three coats of the artery almost always have some degree of redness, together with some exudations, ulcerations, or spots of ossific matter. In some cases the dilatation does not (as in true aneurism) extend to all the coats of the vessel, the inner and middle coats are torn, the cellular alone forming the wall of the sac. Finally, we sometimes find the coats of the artery both dilated and torn, the blood being effused beneath the cellular membrane, which serves as its investment. The fibrine of the blood, which lines aneurismal tumours, is disposed in successive concentric layers, deposited one upon the other. Of these the external ones are the most dense in texture and dark in colour, and also most firmly united to each other: they are thinner in the true aneurism than in that which is accompanied by ulceration of the two inner tunics, and complete rupture of the walls of the artery.

INDURATION AND CONCRETION OF THE VALVES OF THE HEART.

544. *Symptoms.*—From the very commencement there is habitual dyspnœa (which is increased by the least exercise), together with palpitations; and during the contractions of the heart, the sound it emits is rough, and, as it were, stifled. Such symptoms as these may induce us to suspect an incipient contraction of the orifices; but when it becomes considerable, it may be recognized by the following signs: If the affection is seated in the auriculo-ventricular openings, we hear, during the contraction of the auricles (which is then prolonged beyond its usual duration) a slight "*bruit de rape*," (sound of a file) or a "*bruit de soufflet*" (sound of a bellows). These phenomena are constant in their duration; the former

depends on an osseous induration of the valves, the latter is heard when its structure is that of cartilage or fibro-cartilage. When the contraction is seated in the arterial openings (*aortic* and *pulmonary*), the sound above indicated is synchronous with the pulse and contraction of the ventricles: if the left orifices (the *mitral valvulés, and sigmoid valves of the aorta,*) are contracted, the "bruit de rape," or "de soufflet," is heard between the cartilages of the fifth and seventh ribs at the left side, whilst, if it occupies the orifices at the right side of the heart (the tricuspid valves, and sigmoid of the pulmonary artery), the sound is most distinctly heard at the inferior part of the sternum. This murmuring, or thrilling, is in some cases sensible to the hand placed on the region of the heart; particularly when the mitral valve is ossified, and the contraction of the left auriculo-ventricular opening is considerable. In this disease the palpitations are frequent; the strokes of the heart generally intermittent, unequal, and sometimes very strong, whilst those of the pulse, on the contrary, are small and concentrated; they are more irregular when the contraction occurs at the left than at the right side. The face is of a violet hue, the limbs are œdematous, the patient is constantly afflicted with a dyspnœa, which increases until it proves fatal.

545. These productions may be mistaken for dilatation or hypertrophy of the heart; for pericarditis or palpitations.

546. *Anatomical Characters.*—When the valves of the heart are affected by these alterations in their whole extent, their natural form is lost, they become coiled upon themselves in such a way as to contract the orifice at which they are placed, which in some instances has been thus reduced to a diameter of three or four lines. The surface of the valve, which is the seat of the induration, is sometimes red, and is always smooth, unless there be osseous particles or other depositions upon it; its consistence is that of

fibro-cartilage, cartilage, or even bone. Sometimes the fibrous band which exists between the layers of the valves is alone affected; sometimes it is the points of the valve that contract adhesions to one another, and so reduce the orifice to the form of an osseous canal; in other cases we find, in the duplicatures of the valve nothing more than some osseous or cartilaginous concretions, which may pierce through it, and so come into immediate contact with the blood; finally, the valves may contain in their free border some pisiform concretions. These different alterations occur most usually in the mitral valves, and sigmoid valves of the aorta, particularly in the former, whilst, on the other hand, they are very rarely found in the tricuspid valves, or sigmoid valves of the pulmonary artery.

547. Vegetations on the valves exhibit the appearance of verrucæ, and are usually seated on the surface of the valves of the left cavities; they are round, rough, elongated, placed close to each other; their colour is somewhat blue, violet, or red; they adhere closely to the subjacent parts, their texture is fleshy, resembling that of compact polypous concretions: there sometimes exists in their centre a small dot of black blood. These vegetations sometimes resemble small cysts, adherent to the valve, usually at its free border, and most commonly are found on the aortic and mitral valves.

PERICARDITIS.

548. *Symptoms.*—These are very uncertain, still, when the following phenomena are present, we may suspect the existence of pericarditis. When the contractions of the heart, in a man otherwise healthy, without any perceptible cause, begin to give a strong impulse, and produce a sound more intense than in the natural state; when at intervals its stroke becomes more weak and short, corresponding to inter-

missions of the pulse, which is very small and frequent, or even insensible. In some cases we hear a sound, similar to the crackling of new leather, but this lasts only for a few hours. There is more or less of dyspnœa; considerable anxiety, acute pain, and fainting on the slightest exertion; sometimes the patient feels an acute or lancinating pain, or of heat and weight at the region of the heart, occasionally the sound of the thorax in this part is dull. When the disease is chronic, these symptoms are less decisive and come on more slowly. When the pericardium adheres to the heart, Dr. Sander informs us that a continued undulating motion is perceptible, distinct from that undulation which naturally exists at the region of the heart; sometimes the contractions of the auricles are more obscure than in the healthy state. To establish the diagnosis of pericarditis all these symptoms should be present, and even so, some doubts must rest upon it.

549. Pericarditis may be confounded with pleuritis, hydrops, pericardii, or with certain tumours developed in the vicinity of the heart.

550. *Anatomical Characters.*—The redness of the pericardium in this affection is not intense; it is sometimes dotted on the surface; in the chronic form it is more strongly marked, and diffused in patches, but there is no perceptible thickening of the membrane. In the greater number of cases a layer of false membrane is deposited on the serous surface of the pericardium, which in most cases covers its whole extent, but in some only a part of it. The cavity of the pericardium contains more or less of a straw coloured serous effusion, in which float some small albuminous flocculi; the quantity of this fluid diminishes when the disease is of long standing.

HYDROPS PERICARDII.

551. *Symptoms.*—By no means decisive, the sound emitted by percussion is more dull than natural; there

is a sensation of weight and oppression in the region of the heart, its pulsations are perceptible in a very wide range, but vary both in degree and situation every instant, being sometimes towards the right side, sometimes towards the left, but always tumultuous and obscure; the pulse small, frequent, and irregular; the extremities œdematous, the patient is threatened with suffocation if placed in the horizontal position, and is subject to faintings, but not often to palpitations.

552. It may be confounded with pericarditis, pleuritis, and some organic affections of the heart.

553. *Anatomical Characters.*—The heart is usually sound, so is the pericardium, it contains, however, a quantity more or less considerable of a transparent citron-coloured serous fluid; this is sometimes tinged with blood, its quantity is less when the affection is connected with a general dropsy than when it is purely local; in some cases air is also contained in the serous membrane.

HYPERTROPHY OF THE HEART.

554. *Symptoms.*—The left ventricle gives a very strong impulse between the cartilages of the fifth and seventh ribs, to which space the pulsations of the heart are circumscribed, and in which the sound on percussion is dull. The impulse of the ventricle is very much lengthened when the hypertrophy is considerable; the contraction of the auricle, on the contrary, is very short, and when examined in the præcordial region its sound is scarcely perceptible, whilst at the superior part of the sternum, and under the clavicles it is loud and distinct. The stroke of the heart is heard only in a very small space, and is scarcely perceptible at the top of the sternum, or under the left clavicle, and scarcely at all at the right side, though it is continually perceived and heard by the patient. We usually find the pulse strong and full, the sound on percussion at the region of

the heart dull, and the face presenting a red tinge. These are symptoms of secondary importance, but still deserve attention.

555. When the hypertrophy occurs in the right ventricle, the stroke of this cavity is stronger than natural, and the impulse which it gives is perceived more plainly at the bottom of the sternum than between the cartilages of the fifth and seventh ribs. It is also more strongly marked at the right than at the left side of the chest. The sound on percussion is dull in this same region, and the patient is frequently attacked by hæmoptysis.

556. When the hypertrophy exists in both ventricles at the same time, we of course find the symptoms peculiar to each, those which indicate hypertrophy of the right ventricle usually predominate.

557. This affection may be confounded with contraction of the orifices of the heart or aorta, or with inflammation of the latter vessel.

558. *Anatomical Characters.*—There are some differences according to the ventricle which is affected. When the hypertrophy attacks the left ventricle, there is an increase of thickness, and also of density in its walls and in its base ; but the thickness diminishes gradually towards its apex. It is also less in the septum ventriculorum ; it is however in proportion to that of the columnæ carneæ ; its muscular substance is more firm and deeply coloured than in the natural state, and its cavity is diminished in proportion to the increase in thickness of its walls. The size of the right ventricle is diminished in proportion as that of the left is increased ; it becomes flattened, and appears as if it were a cavity contained within that of the left. When the hypertrophy is seated in the right ventricle, its thickness and density are always less than in the left cavity ; it does not collapse when divided ; its thickness is uniform over its whole extent, except probably towards the tricuspid valves and origin of the pulmonary ar-

tery; the columnæ corneæ are also increased in thickness.

DILATATION OF THE VENTRICLES AND AURICLES OF THE HEART.

559. *Symptoms.*—When the left ventricle is dilated the contractions of the heart give rise to a clear and loud sound between the cartilages of the fifth and seventh ribs. The loudness of this sound, and extent in which it is perceptible, are in proportion to the degree of the dilatation; when the dilatation is at the right side the sound of the heart is louder at the inferior part of the sternum, than opposite the cartilages of the ribs. The extent in which the sound is heard is in proportion to the degree of the dilatation; when palpitations occur their impulse is more weak than in the natural state. The external jugular veins are swollen, but do not present any pulsation; the countenance is usually of a purple colour; in most cases dilatation of the heart occurs in both ventricles at the same time.

560. It may be confounded with contraction of the orifices of the heart.

561. *Anatomical Characters.*—The capacity of the ventricles, or auricles, is found to be increased, and the thickness of their walls proportionally diminished, particularly towards the point of the left ventricle. The dilatation is sometimes partial, being confined to a single point. The substance of heart is more or less deeply red; in some cases its colour is altered, and its firmness considerably diminished.

DILATATION, WITH HYPERTROPHY OF THE VENTRICLES.

562. *Symptoms.*—The impulse of the ventricles is strong, and their contraction determines a sound;

that of the auricles also is sonorous. The stroke of the heart is heard over a very wide range, and is perceived particularly in thin and young persons, even to the posterior part of the right side of the chest. The contractions of the ventricles are perceptible to the hand, when placed at the region of the heart, and are sometimes interrupted by short, and even violent pulsations. When the left side of the heart is affected, these results are perceived by the cylinder placed between the cartilages of the fifth and seventh ribs. In these cases the pulse is usually strong, hard, vibrating, and resisting; but when the right cavity is the seat of the affection its contractions are perceived at the inferior part of the sternum. We may infer that the two sides of the heart are affected, when the phenomena above described are perceived equally at the right and left side.

563. This affection may be confounded with inflammation of the heart.

564. *Anatomical Characters.*—Partake of the characters above enumerated, when treating of each of these affections.

DILATATION, WITH HYPERTROPHY OF THE AURICLES.

565. *Symptoms.*—The contraction of the auricles emits a dull sound, instead of the clear one which exists in the natural state. Conjointly with this dull sound of the auricles, we usually find symptoms which indicate an induration of the valves, for dilatation of the auricles is the necessary consequence of a contraction of the corresponding auriculo-ventricular opening; that is to say, dilatation of the right auricle is the result of a contraction in the right auriculo-ventricular opening; that of the left auricle being dependent on the contraction of the left auriculo-ventricular opening. When dilatation with hypertrophy of the auricles occurs together with hypertrophy of the ventricles, the contraction of the

auricles is most distinctly heard at the superior part of the sternum, and under the clavicles.

566. This affection may be confounded with contraction of one or other of the auriculo-ventricular openings.

567. *Anatomical Characters.*—The name expresses the lesion of structure found on examination. The cavity of the auricle is found increased in its capacity, and its walls thickened.

CARDITIS.

568. *Symptoms.*—Pathologists have not, as yet, been able to ascertain with sufficient precision any symptoms which enable us to indicate satisfactorily the existence of inflammation of the substance of the heart.

569. Pericarditis, aortitis, pleuritis at the left side, may be confounded with this affection.

570. *Anatomical Characters.*—Carditis is a rare disease. The inflammation is usually confined to some detached part of the substance of the heart; in these cases pus is usually found diffused amongst the fleshy fibres of the organ, or united into one cyst. When ulcerations exist, they are found more frequently on the internal surface than at the external.

"REMOLLISSEMENT," OR SOFTENING OF THE HEART.

571. *Symptoms* are very obscure; so much so, that its existence is often not even suspected. When the disease is in its acute state we usually find a degree of anxiety in the patient; his pulse small, soft, and accelerated; the contractions of the heart are quick, hurried, and as it were, convulsive; the sound which they emit is dull, the impulse is feeble. Patients under such circumstances are subject to fainting fits, and death takes place suddenly. When the "remollissement" of the heart is chronic, its contractions, as well as those of the pulse, are usually frequent, and

very feeble; in this respect, however, they are rather variable, being sometimes slow, sometimes hurried.

572. Pericarditis may be confounded with this disease.

573. *Anatomical Characters.*—The consistence of the heart is considerably diminished, and it may be torn very readily. It is so soft and friable that the finger easily penetrates into it; in some cases this change of structure is found to exist only at one side of the heart. When the disease is acute the colour of the heart is deep red, or even brown; but if it has been chronic, it is found pale and yellowish. The walls of the ventricles, when cut through, collapse and sink down. When ramollissement is followed by rupture, which has happened in a few cases, this accident was observed to have occurred near the point of the left ventricle.

INDURATION OF THE HEART.

574. *Symptoms.*—At the commencement of this disease we usually find the same symptoms as in hypertrophy of the heart; but in proportion as the induration makes progress, the stroke of the heart diminishes in energy. When the induration is moderate in degree, the contractions of the heart are sometimes so strong, as to be heard even at some distance from the patient. The diagnosis of this disease is still involved in great obscurity.

575. Hypertrophy may be mistaken for it.

576. *Anatomical Characters.*—The structure of the heart is sometimes of a rosy red; its consistence approaches that of fibro cartilage, and when cut is found so firm as to grate under the edge of the scalpel. This induration, which is variable in degree, has not yet been observed to extend to the whole substance of the heart; it is usually confined to one or other of its surfaces. It is sometimes found in the form of incrustations, and seems as if it had commenced in the

first instance in the pericardium. Induration of the heart does not necessarily give rise to any increase or diminution of the capacity of its cavity.

POLYPUS CONCRETIONS OF THE HEART.

577. *Symptoms.*—When the concretions are recent the contractions of the heart are obscure, confused, and so irregular as to be with difficulty analysed. These symptoms usually supervene in a person in whom the action of the organ was regular. We may presume that the obstacle to the transmission of the blood exists in the right cavities when these phenomena are perceptible at the inferior part of the sternum, but the left cavities are obstructed when the irregularity of the contraction is heard between the cartilages of the fifth and seventh ribs. The diagnosis becomes almost certain when the disturbance in the movements of the heart exists only at one side. When the concretions are of long standing, they give rise to a considerable degree of dyspnœa, extreme anxiety and anasarca, which is confined to the superior or inferior parts of the body, according as the concretions occupy the superior or inferior vena cava.

578. Pericarditis and contraction of the orifices may be confounded with it.

579. *Anatomical Characters.*—When the concretions are recent the clot is surrounded at its margins by an opaque whitish layer, which does not adhere to the walls of the heart, or its vessels; but after some time a connexion is established between them. These concretions are usually free from the colouring matter of the blood; they resemble a mass of fibrine, the consistence of which varies in different cases; in some instances they become organized. In dropsical subjects the concretions, at their commencement, are gelatinous and semi-transparent; they are usually found in the sinus of the right auricle, in the venæ cavæ and in the left ventricle; the

columnæ carneæ, to which they adhere are flattened. The walls of the auricles, and also the sinuses may be lined with concretions of much less consistence than those just described, being like a mere paste, and therefore presenting none of the characters of fibrine.

COMMUNICATION BETWEEN THE RIGHT AND LEFT VENTRICLE OF THE HEART.

580. *Symptoms.*—The colour of the skin and mucous membranes is livid, blue, or violet, particularly when the affection exists from the time of birth. The respiration is always laborious ; palpitations of the heart and syncope frequently occur ; the general heat of the body is diminished, and the patient is very susceptible of the impression of cold. In some cases all the symptoms of hypertrophy of the right cavities are present.

581. This disease may be simulated by contraction of the auriculo-ventricular openings, or of the arterial orifices ; but as these latter affections seldom occur before the age of puberty, the history of the case will clear up the diagnosis.

582. *Anatomical Characters.*—The foramen ovale is found to have continued open, or to have been again opened after it had been closed, the two lamellæ of the valve which exists in the fœtus not having been completely united, so that a probe can readily be passed from the right to the left auricle. The walls of the right ventricle are usually found thickened, the auricle at the same side being dilated. In some cases an obstacle to the transmission of the blood is found either in the ventricle or pulmonary artery ; the foramen ovale and ductus arteriosus sometimes continue as in the fœtal state. The septum which separates the ventricles may be perforated to a greater or less extent ; so much so, that sometimes the two ventricles seem to form one cavity. This

accident usually takes place towards the base of the heart, in which case the aorta receives blood from the right ventricle as well as from the left. The two auricles have been found imperfectly separated, and opening into the right ventricle which communicated freely with the left; this latter being deprived of its auricular opening, but giving rise to the aorta as usual. Finally, several other mal-formations may be found.

ANGINA PECTORIS.

583. *Symptoms.*—The patient complains of a sense of constriction in the chest, with very acute and lancinating pains in the region of the heart, occurring suddenly, and in fits. When the disease is recent, these occur usually in the day, and are of very short duration, lasting only a few seconds. The dyspnœa is considerably increased when the patient walks against the wind. The pulse during the attack is frequent and almost insensible, but is not intermittent or irregular, unless the affection be complicated with some other. Pain extends down the left arm, and sometimes, but rarely, to the right. The patient is troubled with palpitations, anxiety, and a sense of impending suffocation. As the disease makes progress a painful sensation of numbness extends to the fore-arm, and even to the fingers; the attacks become more frequent, and of longer duration, and the patient is afflicted by the constant apprehension of death. This disease, which is always mortal, is neither regular in its progress or fixed in its duration, which remark is also true with regard to the recurrence and duration of the fits.

584 Angina pectoris may be confounded with various organic affections of the heart, particularly with dilatation of its cavities; also with emphysema of the lungs, with hydrothorax, hydrops pericardii, and abscess situated in the anterior mediastinum.

585. *Anatomical Characters.*—Are altogether unknown. In some cases we find various alterations of the valves, old adhesions of the pericardium, ossification of the coronary arteries, or deposits of fat round the heart and its large vessels.

DISEASES OF THE ABDOMEN.

AFFECTIONS OF THE DIGESTIVE ORGANS AND THEIR CONNEXIONS.

INFLAMMATION OF THE GUMS.

586. *Symptoms.*—The gums swollen and red; when pressed, allow blood to ooze out from their surface. They become painful, and if the inflammation passes to the chronic state excrescences shoot up from the surface, supported by a pale red pedicle, and often extend to such a length as to cover the teeth. In some cases, they become so firm in their texture as to resemble fibro-cartilage, in which case they cease to be painful. Inflamed gums are often attacked by ulcerations, or abscess; they occasionally continue for a considerable time soft and spongy.

587. *Anatomical Characters*—Are merely what we have just enumerated.

APHTHÆ.

588. *Symptoms.*—These consist of an eruption of small white, superficial vesicles, single or confluent, filled with a glutinous or puriform fluid. They usually are succeeded by a crust, or by ulcerations, the surface of which may be grey or reddish. The vesicles are seated in the mucous membrane of the cheek, extending backwards to the fauces; they produce a

sensation of heat, with some difficulty of mastication and of deglutition. This affection is sometimes endemic, and occasionally contagious; it usually affects children in early infancy. It is not dangerous, except it passes to the state of gangrene, or extends to the digestive tube, or larynx and trachea; in which cases it constitutes œsophogitis, or gastro-enteritis.

589. Its *Anatomical Characters* are those just enumerated.

GLOSSITIS.

590. *Symptoms.*—The tongue is attacked by an acute or pulsating pain; it becomes red, hard, and very sensible, then swollen and covered with a thick mucous coating. The tumefaction is sometimes so great that it shuts down the epiglottis, compresses the larynx, and tends to produce suffocation; it is pendent outside the mouth, becomes immoveable, and incapable of serving the purposes of articulation. The mouth is open, and from it flows a viscid, and sometimes fetid saliva; deglutition is impossible, respiration much impeded, and the face red and swollen; there is usually some cough, and more or less fever.

591. *Anatomical Characters.*—Consist of those which have been just enumerated.

AMYGDALITIS, OR ANGINA TONSILLARIS.

592. *Symptoms.*—Heat and pain, increased by deglutition, in the posterior part of the mouth, with swelling and redness of one or both tonsils, which are studded with whitish specks; the inflammation sometimes extends to the Eustachian tubes; the mucus of the fauces, which is at first diminished, afterwards increases in quantity, is expelled with pain and difficulty; redness, swelling and extension of the uvula, which causes a frequent desire of swallowing. If the inflammation be intense, and attacks both ton-

sils at the same time, the respiration becomes impeded, sometimes to such a degree as to threaten suffocation. Amygdalitis is frequently combined with inflammation of the larynx. The tongue is generally covered with a thick coat of a yellowish white colour; it is seldom red, even at the edges.

593. It may be confounded with pharyngitis, or with angina laryngea.

594. *Anatomical Characters.*—Redness and tumefaction of the tonsils, more or less considerable; suppuration or induration of these glands.

PHARYNGITIS.

595. *Symptoms.*—Swelling and redness in the back part of the pharynx, which is generally spotted with whitish patches; deglutition difficult, often impracticable; no impediment to respiration; heat and dryness of the pharynx, followed by a copious secretion of mucus, which is expelled with pain; the tongue is generally foul and coated, but without redness. Pharyngitis is often accompanied by amygdalitis.

596. *Anatomical Characters.*—To the morbid alterations which have been pointed out in treating of glossitis and amygdalitis, we may add, that the inflamed tissue may be increased in thickness, penetrated by pus, or covered with a false membrane.

CANCER OF THE PHARYNX.

597. *Symptoms.*—The first symptoms of this affection are very obscure, and usually consist of uneasy sensations in the throat, and slight impediment to deglutition, consecutive, in general, to inflammation of the pharynx; afterwards prickly pains, supervening at intervals, are often perceived in the inferior part of the pharynx; deglutition becomes painful; fluids are rejected as soon as swallowed. If the pharynx be examined, it is found tumefied, hard and insensible to pressure; at a more advanced period,

ulceration takes place, and the ulcer presents an uneven surface with everted edges, and secretes a foul putrid sanies; at this period acute lancinating pains are experienced.

598. *Anatomical Characters.*—The parietes of the pharynx are thickened, hard, and transformed into a scirrhous substance; encephaloid matter is sometimes, though very seldom, to be found there. The mucous and muscular coats are almost always distinct, though degenerated, at least whenever the scirrhus does not become softened; one or more ulcers, with thick hard and everted edges, present themselves; their surface is unequal, granular, or fungous. The disease extends more or less to the adjacent parts.

ŒSOPHAGITIS.

599. *Symptoms.*—Pain in a part of the œsophagus, increased by pressure applied to the neck, when the inflammation is seated in its superior portion, between the trachea and spine; difficulty of swallowing; solids and fluids produce a burning sensation along the whole or some part of the œsophagus; they are sometimes rejected by the nostrils; contin ed hiccup. When this affection assumes a chronic form it is usually accompanied by vomiting, which supervenes immediately after taking food.

600. It may be confounded with cancer of the œsophagus.

601. *Anatomical Characters.*—Redness and thickening of the mucous membrane, more or less conspicuous; it is sometimes lined with a false membrane, very thin and intimately adherent.

CANCER OF THE ŒSOPHAGUS.

602. *Symptoms.*—This disease frequently commences with hiccup, and shooting pains in the course of the œsophagus, with interruption to the free passage of food immediately after deglutition. When

it affects the superior portion of the œsophagus, its symptoms are the same as those of cancer of the pharynx. If it be situated lower down, gnawing pains, and a burning sensation are experienced behind the trachea, particularly if the patient make use of drinks containing spirit, which always exasperate the disease. If the disease be seated near the cardia the food remains for a short time in the œsophagus, and is then rejected without effort, mixed with mucus. If it communicates with the air tubes, deglutition is always followed by a violent fit of coughing.

603. *Anatomical Characters.*—Similar to those of cancer of the pharynx. The cavity of the œsophagus is narrowed by the thickening of its walls; sometimes the degenerated part retains the cylindrical form of the œsophagus; sometimes it is transformed into an irregular mass adhering to the trachea, to the lungs, or even to the dorsal vertebræ.

ANGINA GANGRENOSA.

604. *Symptoms.*—There are no signs at the commencement of this disease by which we would be led to suspect its real nature, as all its primary symptoms are perfectly similar to those of common amygdalitis; but in a short time it assumes its peculiar characters, and all doubts as to its nature are removed by the appearance of gangrene, which sometimes occurs so early as the first day. From the severity of this affection, we should always be on the watch in inflammations of the throat, and dread its approach; 1st, in delicate women and weak children; 2d, in persons who are already affected with gangrene of other parts; 3d, in cases of sore throat, occurring in scarlatina, or other eruptions of a livid colour; 4th, when the disease is epidemic; 5th, when the individual affected has attended others in the complaint, for under some circumstances it appears contagious; 6th, when the inflamed parts are livid, or of a deep red: or when, after having been

of a lively red, they become pale, at the same time that the patient complains of dryness of the fauces, and considerable general depression ; or when the parts are covered with those false membranes, which so frequently occur in all inflammations of the throat ; 7th, in fine, when general or local bleeding induces a state of weakness, neither proportionable to the strength of the patient or quantity of blood drawn.

605. Angina gangrenosa may be known by the small white or ash-coloured specks which appear on the tonsils and other parts of the mucous membrane, spreading with rapidity, and running into one another so as to form large patches; the surrounding membrane is of a pale or livid colour ; these patches become grey, or even black, towards the conclusion ; as soon as they are completely developed, the throat ceases to give pain, deglutition becomes easy, the breath loses its fœtor ; but symptoms of general prostration supervene.

606. When the breathing through the nostrils becomes difficult, and the voice nasal, the gangrene has extended to the nasal parts ; when this occurs, an irritating discharge flows from the nares, the circumference of which becomes inflamed.

607. When gangrene is about to extend into the air-tubes, it is preceded by pain in these parts, together with difficulty of respiration, cough, and aphonia.

608. When it extends to the œsophagus, deglutition becomes impossible. When the isthmus faucium is affected, the affection is at once recognized by the appearance which the part presents, by the sense of suffocation, and impossibility of deglutition.

609. It partakes of the characters of angina.

610. *Anatomical Characters.*—The amygdalæ, velum, palate, pharynx, mucous membrane, the cheeks and nares, œsophagus, larynx and trachea, are either together or separately covered with eschars,

which may be white, grey or black, adherent or detached; these can scarcely be said to be putrescent, or in a state of complete decomposition. We also, in general, observe ulcerations, perforations, and loss of substance to a greater or less extent.

ANGINA "COUENNEUSE."

611. *Symptoms.*—These are the same as in the preceding disease, but seldom so severe. The white ash-coloured patches never become black; there are merely some false membranes, which fall off without destroying the substance beneath them, and are thrown up by vomiting or coughing; sometimes they gradually decay, and are in a manner absorbed.

ANGINA PULTACEA.

612. *Symptoms.*—Slight sore throat, with patches of a pultaceous cheesy matter, of a white, grey or yellowish colour, spread at intervals over the affected part; easily removed by the fingers, but appearing again in a short time, and ending by being coughed up.

GASTRO ENTERITIS ACUTUS.

613. *Symptoms.*—This affection is usually marked by the following symptoms:—viz. uneasy sensations of compression and weight are experienced in the epigastric region, accompanied by wandering pains in the abdomen; general lassitude and dull pains in the extremities; restlessness, heat, and dryness of the throat, with thirst, accompanied by a particular desire for cold drinks; the eyes are dull and heavy; the complexion pale and sallow; the appetite usually diminished, sometimes increased; the digestion accompanied with colicky pains, flatulence, hiccough and nausea. It often begins by a dislike for food, and distention of the stomach; the mouth becomes clammy; the tongue is red at its point and margins.

614. Again, it makes its attack more suddenly and without any precursory symptoms; first appearing by vomiting and frequent alvine evacuations, with tormina and tenesmus. These symptoms may exist conjointly or separately, according as the inflammation may be seated in the stomach, or small or great intestines. The epigastrium becomes tender and particularly sensible to pressure; however, this symptom is often altogether absent. The head-ache is generally constant, and the brain or its membranes may become secondarily affected. In the course of the disease, the sensibility and activity of the senses and mental faculties are blunted, which does not necessarily imply any structural alteration of the nervous centre; and even the locomotive powers are more manifestly deranged than in many essential disorders of the brain.

615. The pungent heat and dryness of the integuments is remarkable; the pulse frequent, the tongue red, which depends upon the degree of the inflammation. Stupor and muscular prostration are more frequent in this affection than paralysis or spasms; if these last appear and affect one side only, they show that the brain is implicated. The pulse, during the progress of the disorder, is usually frequent; in the onset it is full, but soon becomes small, concentrated, irregular, and intermittent; when the inflammation is intense, however, this frequency is sometimes less remarkable, particularly if the patient be of the lymphatic temperament.

616. The urine is small in quantity, and red; the external margins of all the mucous membranes are red; the conjunctiva injected; the pituitary membrane dry; the mouth, which is at first clammy, becomes hot and parched when the inflammation is at its height; the tongue, white or yellow in the commencement, becomes red at its tip and edges, and even over all its surface in the course of the disease. Now and

then its anterior portion is found covered with a multitude of small projecting red or violet-coloured spots, separated by the mucous membrane, which is pale or covered with mucus; this appearance rather indicates a slight or chronic gastro-enteritis. More frequently, however, the tongue is covered by a thick adherent coat, which becomes dry and rough as the inflammation becomes more intense. At this period the tongue, gums, lips, and teeth are encrusted with a brownish-black matter.

617. The thirst is considerable, and increases as the disease extends from the stomach to the small intestines; the skin is dry and arid, with a pungent heat, which is extended over all the body, or only occupies the chest and abdomen.

618. Finally, towards the conclusion the countenance is indicative of suffering, the eyes are red, hollow, and dull; the nostrils expanded, and the cheek-bones projecting, and of a deep red colour.

619. *Anatomical Characters.*—The external membrane of the stomach is usually natural; sometimes this viscus is distended with air; but occasionally it is contracted. The mucous membrane of the stomach is sometimes studded with red dots, or covered by patches, arising from the effusion of blood into the substance of the membrane itself; at other times a uniform redness is diffused over its whole extent, being particularly conspicuous, and a deeper shade around the cardia and pylorus.

620. Occasionally the redness follows the course of the blood-vessels which are injected and arborrescent; this colour is of a vivid red or of a darker shade, almost brown, both shades are alternately mixed or intimately blended one with the other. In some cases an effusion of gas takes place beneath the mucous membrane.

621. Gangrene is rarely met with; ulceration is also unusual, and seldom penetrates as far as the

muscular coat. When the mucous follicles are affected, they resemble small reddish pimples.

622. When contraction of the stomach accompanies inflammation the creases of the mucous coat are conspicuous, and of a deeper tint than the surrounding parts.

623. The exterior of the small intestines usually appears healthy, but when the inflammation is intense the redness of the subjacent mucous coat is visible through its thin parietes; they may be ultimately contracted or distended.

624. The redness of the internal coat is interrupted suddenly in various parts, and is less deeply marked in the duodenum than at the further extremity of the intestine.

625. If the inflammation be slight, the valvulæ conniventes are alone affected, the intervals which separate them appearing perfectly natural. In a more advanced degree, the vessels are strongly injected, and we perceive patches of paler or deeper red; the membrane is covered with an adhesive mucus. The muscular and serous coats seldom participate in the disease.

626. Gangrene of the intestine is of very rare occurrence; when it takes place the intestine becomes black, dull and friable, and emits a gazeous odour. Ulceration, on the contrary, is very common, and is found in the ileum, particularly in the neighbourhood of the ileo-cœcal valve; it is in general confined to the mucous coat, but it sometimes extends to the other tissues, and not unfrequently produces perforations through the intestine.

627. The edges of the ulcers are sometimes quite perpendicular, and at other times rugose, thick and irregular; their circumference is red or pale; their floor is often formed by the muscular coat.

628. During the process of cicatrization their edges sink down, approach each other, and unite by

a little eminence, which in the course of time gives place to a small depression.

629. If the ulcer be large, the cicatrix is formed by a whitish or rosy pellicle, and if it be still more considerable the mucous membrane is puckered and drawn in, so that the intestine may be contracted in this part.

630. Thickened patches or excrescences are frequently met with in the small intestines, formed of a white, greyish, or red substance, possessing considerable tenacity, and chiefly occupying that portion of the gut which is placed next the ileo-cœcal valve, the rest of the intestine generally remaining sound. These occur most frequently in young subjects.

631. The mucous follicles resemble so many pimples, hard and depressed in the centre, which afterwards soften and suppurate, or appear in the form of brownish patches, circumscribed and without swelling. The invaginations which are occasionally met with in enteritis are formed by the introduction of the superior portion of the gut into the inferior, or the reverse takes place, which is infinitely more unusual.

GASTRO ENTERITIS CHRONICUS.

632. *Symptoms.*—This occurs as a consequence of the former disease, or supervenes in a very slow and gradual manner, with symptoms more mild, but in other respects resembling those of the acute form. There is epigastric uneasiness, often with a sensation as if a transverse and painful band is perceived extending from one side to the other, and particularly evident at the right; it may be continuous, interrupted, or remittent, and is increased after meals, more or less, according to the quantity and quality of the food, and is exasperated by the depressing passions.

633. The pain is gnawing, pungent and burning, accompanied by a sense of constriction in the œso-

phagus, or with difficulty of deglutition and respiration, with a sensation of compression along the base of the thorax, or in some part of it only; it is sometimes attended with a dry cough; occasionally the pain exists solely in the epigastric region, which is then incapable of supporting the slightest pressure. Usually the patient experiences a dislike for food; but now and then he has an extraordinary appetite, which, however, soon gives place to a distaste for every sort of food.

634. The digestion is imperfect, and accompanied by bitter acrid eructations; thirst, and a sense of epigastric fulness are not unusual. The ideas become confused, and the head heavy; dulness, somnolency, and a dislike to movements of any description takes place.

635. The skin is hot, particularly on the palms of the hands; the pulse is tense, and generally frequent; vomiting takes place when the stomach is overloaded or much irritated; their is habitual and obstinate constipation, giving place occasionally to diarrhœa of short duration.

636. In general the tongue is small and red at its tip and edges, or even over all its surface, but in other cases it is merely dotted with red specks or covered with a dry mucous coat. The breath is fœtid; the heat and thirst are augmented after meals; the pulse becomes frequent towards evening; a bitter taste is complained of in the morning; the complexion is sallow.

637. The patients become sad, uneasy, low spirited, distrustful and peevish, and suffer hallucinations, errors of judgment, and other mental disorders, particularly if they be of the nervous temperament; the countenance is furrowed, its expression altered, and its colour changed to a pale sallow; whilst the cheeks remain red or become livid; the muscular powers are weakened, and there is the greatest objection to taking exercise. The skin adheres to the

bones and muscles, and insinuates itself into their interstices, and exchanges its natural colour for that of an obscure red or ochery yellow.

638. Such are the symptoms of this disease; but they are never all united in the same case: indeed, we often meet with only one or more of them, variously combined, so as to form almost innumerable varieties of this perplexing affection.

639. It may be confounded with peritonitis, schirrhus of the stomach, hypochondriasis.

640. *Anatomical Characters.*—The left end of the stomach is frequently found thinned, and admits of being torn with the greatest facility. The mucous coat, softened, varies in colour from a white or grey to the deepest shade of red; scraped with a knife it is easily detached, in the form of a pulpy matter; occasionally it presents slight erosions.

641. If the vessels be injected, the blood appears of a bluish tint, and patches, varying from violet to the darkest brown, are seen on the internal surface; the lining membrane is usually thinned, particularly towards the fundus, so much so, as sometimes to occasion perforations with irregular edges.

642. As we proceed from this part, the mucous membrane becomes thick and red, which arises, in some cases, from a varicose state of its vessels. Ulcerations are very common, especially near the pylorus where they penetrate through the coats of the viscus; occasionally it becomes of a slate colour or entirely black, without in any degree changing the consistence of the membrane.

643. The small intestines are generally pale externally, and sometimes contracted or almost entirely obliterated. Ulcers are very common in the jejunum and ileon; they are more extensive and deeper than in the acute form of the disease; finally, the mucous coat changes to a bluish slate colour, nearly analagous to that of the stomach itself.

CANCER OF THE STOMACH.

644. *Symptoms.*—This disease is generally a consequence of chronic inflammations of the stomach, and seldom occurs except in those who have passed thirty, and have been addicted to an immoderate use spirits or some medicinal excitants.

645. It may be recognised by a sense of uneasiness and obtuse pain, situated in the region of the epigastrium, and sometimes extending to the œsophagus, hypochondria, or even the lumbar regions; giving rise to habitual flatulency with irritating, acid eructations, nausea and vomiting of a liquid, at first aqueous, then mixed with the undigested food, and afterwards combined with a brownish matter, becoming more and more frequent, and finally habitual.

646. All aliments are not equally offensive, and not unfrequently the most indigestible are those which agree best with the stomach. The epigastrium at this period becomes the seat of a tumour, which is irregular, and sometimes projects so as to be perceptible externally either to the sight or touch. This affection usually gives origin to a cough, attended with an abundant aqueous expectoration. The skin soon becomes dull and yellowish; the appetite is completely destroyed, and the patient wastes or becomes œdematous; the matter ejected from the stomach assumes a sooty blackness; the countenance is shrivelled; the pains acquire more and more intensity; the diarrhœa gives place to constipation; the fever increases; and the patient expires, preserving to the last the intellectual faculties entire.

647. We may judge from the following symptoms what particular part of the viscus is chiefly affected. If the pylorus be the part exclusively or chiefly affected, the vomiting is very abundant, and occurs at a certain precise period after taking food; the epigastrium is much more distended with flatus; the tumour is seated more towards the right side, be-

tween the false ribs and the navel; diarrhœa does not supervene till after its obstruction, or the ulceration of its edges.

648. If the cancer be seated in the cardia there is no tumour of the epigastrium; the pains are only felt in the superior part of the stomach, and in the back; the patient often brings up a mouthful of mucous matter, or even of the undigested food, and is harassed by an abundant salivation.

When the affection attacks the body of the viscus the lesser curvature more generally suffers; the sufferer takes little food or drink, as they always occasion a very painful distention, and are ejected up almost as soon as swallowed.

649. Universal degeneration of this viscus produces almost unceasing pains, and is attended with scarcely any vomiting, a circumstance which may also be remarked when this organ has contracted adhesions with the adjacent viscera.

Nausea only exists when the pylorus is contracted, the stomach partially ulcerated or recently perforated; or when some abdominal inflammation is existing.

650. This disease may be mistaken for certain chronic nervous vomitings; for chronic gastritis; or may be confounded with aneurism of the abdominal aorta, or tumours formed by the accumulation of fœcal matter in the colon.

651. *Anatomical Characters.*—When the change of structure is seated in the pylorus, the stomach is enlarged; in almost all other cases this viscus is found smaller than in the natural state. It is filled with a blackish liquid which exists in the absence as well as presence of ulcerations. The thickness of the morbid part varies from two lines to half an inch or more; its internal surface is uneven, ulcerated, and covered with a whitish grey or blackish fungous matter, in the intervals of which numerous depressions are perceived; its external surface may

be either free or adherent to the liver, peritoneum, or other neighbouring parts. The morbid matter is composed of the cancerous tissue; of cerebriform matter, or sometimes of both combined. In the beginning the mucous may be distinguished from the other coats of the stomach; it is of a dull white and homogeneous structure, whilst the muscular coat becomes more firm and thick, and appears of a bluish colour. Sometimes, though rarely, the disease spreads from the cardia to the œsophagus, and from the pylorus to the duodenum.

HÆMATEMESIS.

652. *Symptoms.*—Flatulence, anxiety, general lassitude, pain of the stomach, coldness of the extremities, and vomitings of blood at longer or shorter intervals; the blood is sometimes pure, never frothy, but more usually black, clotted, or mixed with the matter contained in the stomach; these are attended with cough, but no fever, and accompanied with a distention of the left hypochondrium; when the blood accumulates to a certain extent in the stomach, the stools often appear bloody.

653. It may be confounded with Hæmoptysis.

654. *Anatomical Characters.*—Sometimes the mucous membrane of the stomach is of a brownish black, and its vessels appear gorged with blood; the hemorrhage arises from simple exhalation from the surface. Sometimes the membrane is red, and presents at intervals patches resembling ecchymoses covered with adherent blood, and retaining their colour, though submitted to frequent ablution.

COLITIS ACUTUS.

(Acute Inflammation of the Large Intestine.)

655. *Symptoms.*—Slight diarrhœa unaccompanied by disturbance of the constitution, if there exist only irritation or slight inflammation; usually wandering

pains of the abdomen, particularly about the navel, increasing in severity by starts; eructations, a sense of weight in the pelvis preceding the evacuations, and again recurring sometime afterwards; frequent scanty dejections, consisting of a mucous, serous, or bilious matter, giving rise to a sense of heat at the margin of the anus, to tenesmus and straining, particularly if they occur at very short intervals. When colitis exists to this extent, it is complicated with gastro-enteritis, and consequently with fever, and the other symptoms peculiar to this disease.

DYSENTERIA.

656. *Symptoms.*—Often epidemic, having the peculiarity of becoming contagious when it is joined to typhus fever; commencing by slight symptoms, or by a general prostration of strength, with severe pains in the abdomen, becoming more and more insufferable, and producing a sensation of twisting along the course of the colon from its origin to the anus; frequent calls to stool, attended with considerable and often unavailing efforts, followed by the dejection of some filamentous mucus mixed with red streaks, or even pure blood, which only gives momentary relief; painful strainings, pungent and burning sensations in the rectum in the intervals of griping; abdominal pressure does not occasion very great pain, the weakness, which is sometimes extreme, is generally in relation to the violence of the gripings and frequency of the evacuations.

657. It may be confounded with peritonitis, colic, or cholera-morbus.

658. *Anatomical Characters.*—The large intestines usually appear natural; they are contracted if the inflammation be recent, and very much dilated if it be of longer standing. Internally the ileo-cœcal valve and large intestines present numerous red dots, and occasionally large dark co-

loured patches. Ulcerations are not unfrequent. The parts bounding the ileo-cœcal valve are frequently studded with brown or reddish pustules, occasioned by the inflammation of the mucous follicles. In dysentery the ileo-cœcal valve and the commencement of the colon are the parts principally affected; the sigmoid flexure and rectum more slightly. The mesenteric glands, corresponding to the inflamed parts, are often found red and tumefied.

COLITIS CHRONICUS.

659. *Symptoms.*—This succeeds the acute form, or exists primarily in a mild or mitigated character; in this last case it frequently arises from a chronic affection of a neighbouring viscus. The tormina and tenesmus are slight, or perhaps do not occur. The diarrhœa is abundant, but less frequent than in the former affection; the evacuations vary in colour, consistence, and quantity; the food sometimes passes unaltered along the whole track of the intestinal tube, a state which constitutes what is called *lientery*. The countenance becomes pale, furrowed, and of a dirty yellow colour; the skin is dry, rough, and assumes a clayey aspect; morning sweats occur, the superior extremities are infiltrated, and the sufferer usually is carried off by an acute Gastro-enteritis, which supervenes on the primary disease.

660. It may be confounded with enteritis of the small intestines, with hypochondriasis, or cancer of the intestine.

661. *Anatomical Characters.*—Thickening and ulceration of the ileo-cœcal valve are discovered, with unusual density of the lining membrane, which appears of a brownish black colour. The inflammation is sometimes pustular, sometimes diffused; the inflamed follicles resemble white or reddish fleshy pimples depressed in the centre; in a more advanced stage they are filled with pus, and assume

a whitish colour, whilst their base is surrounded by a red circle. The subjacent cellular tissue occasionally passes into suppuration, and then the mucous membrane may be detached in shreds, more or less extensive.

CANCER OF THE INTESTINES.

662. *Symptoms.*—Habitual constipation occurring after a chronic enteritis ; pains, transient at first, but after sometime becoming constant and accompanied by eructatious and painful distention of the abdomen without loss of appetite or perceptible alteration of the pulse ; progressive wasting, and occasionally liquid alvine evacuations, containing blood or purulent matter. The distention of the abdomen is more considerable, according as the disease is distant from the pylorus, and obliterates more or less perfectly the calibre of the intestine. When the cancer is large, it presses against the integuments, and may be discovered by pressure with the hand.

663. This affection is extremely difficult to be detected, and may be confounded with tumours, having their seat in the cavity of the abdomen.

664. *Anatomical Characters.*—Similar to those of cancer of the stomach.

DYSPEPSIA.

665. *Symptoms.*—A sense of weight and fulness in the stomach, usually supervening some hours after meals, particularly when the food has been too abundant or of bad quality, and accompanied with distention and sensibility of the epigastric region with general uneasiness, nausea, some difficulty of respiration, pain and heaviness over the orbits, and eructations, and sometimes hiccough ; signs which may disappear in part after the occurrence of vomiting. Occasionally diarrhœa, flatulency, and borborygmi are added to these.

666. *Anatomical Characters.*—The stomach is filled with half digested matter, and distended, as well as the intestines with an acid gas; the jejunum is usually filled with food, and the ileum contains a liquid matter, which has already the appearance of excrement. Sometimes the gastro-intestinal mucous membrane appears slightly inflamed. We sometimes discover the food or drink in the trachea, which had entered it whilst vomiting.

CHOLERA.

667. *Symptoms.*—Vomitings and very frequent alvine dejections of a green, whitish, or brown mucous or bilious fluid; supervening suddenly and continuing with such violence as to threaten speedy dissolution, accompanied with violent pain of the stomach, severe gripings, not increased by pressure, extreme præcordial anxiety, anguish, syncope, and in most cases cramps of the extremities. In this disease, which may occur as an endemic or epidemic, especially in hot climates, the pulse is small and contracted, the extremities cold, and the countenance, even from the commencement, suffers a peculiar and very remarkable change; this affection sometimes proceeds from irritating undigestible matter taken into the stomach.

668. It may be confounded with gastritis, enteritis, peritonitis, or intus-susceptio.

669. *Anatomical Characters.*—When death occurs in a few hours, after the invasion of the disease the mucous membrane undergoes no alteration; in some epidemics, however, the intestines are found inflamed and contracted; when death takes place, after some days, the lining membrane appears more or less strongly injected.

INTUS-SUSCEPTIO.

670. *Symptoms.*—In general the diagnosis is ex-

tremely difficult. The disease usually commences by obstinate constipation, which yields to no purgative; it may happen that an enema may bring away some fœcal matter accumulated in the large intestines, but this does not continue to take place, and even the flatus ceases to escape. The abdomen soon swells and hardens, occasionally in an unequal manner, so that the convolutions of the intestines are perceptible externally. To these succeed nausea, hiccough, cholic pains, and in some cases a fixed pain in a particular part of the abdomen; thin mucous, bilious, and infirm stercoraceous vomitings occur; these last however are not common. In some instances obstinate constipation, prostration of strength, and coldness of the limbs, are the only symptoms that precede death.

671. It may be confounded with peritonitis, ileus, or constriction of the colon.

672. *Anatomical Characters.*—On some occasions the strangulation is produced by bands, or adhering false membranes, the consequences of former inflammations existing between the affected part and the epiploon, or convolutions of the intestines: the intestine slips in between these productions and becomes compressed and strangulated; in other cases without the intervention of any of these causes it becomes twisted and contorted on itself; the knot, which results from this, becomes more and more strained as the tube increases in volume from the distention caused by the evolution of gas, or by the enemata or drink given to the patent.

SPASMODIC COLIC.

673. *Symptoms.*—This disease commences suddenly with a sensation of twisting, usually occupying the umbilical region or the course of the colon; the pain is not increased by pressure, on the contrary it is usually alleviated; it is accompanied by borborygmi,

constipation, small contracted pulse, anxiety, and a particular expression of countenance.

674. It may be confounded with peritonitis, colitis, or cholera morbus.

675. *Anatomical Characters.*—The viscera of the abdomen suffer no perceptible alteration.

COLICA PICTONUM.

676. *Symptoms.*—Acute pains in the abdomen, attacking those persons only who have been employed in working lead, or some of its preparations; not increased, being even relieved by pressure; pain and difficulty at stool, then constipation; retraction and hardening of the abdomen, nausea, and vomiting; pain in passing urine, sometimes strangury; wandering pains of the extremities with paralysis, or extreme weakness of the extensor muscles of the fingers; occasionally convulsions of the superior extremities; slowness and hardness of the pulse; in some cases severe headach, dyspnœa occurring at intervals, and a sensation of constriction at the præcordia, coincident with the numbness of the arms.

677. It may be mistaken for peritonitis or enteritis.

678. *Anatomical Characters.*—None to be discovered.

CANCER OF THE RECTUM.

679. *Symptoms.*—Weight and pain in the fundament; burning pain, especially whilst at stool; then tenesmus, with or without griping, borborygmi, and a scanty sanguineous or mucous discharge; on introducing the finger into the rectum its orifice is found hard, contracted, and unequal; irregular furrows, or a circular induration are perceived on its internal surface, not sensible to pressure; soon after lancinating pains are felt, which are seldom increased by pressure. The anus becomes more and

more contracted, and violent tormina occur; the fœcal matter, if it be soft, is always voided in a cord-like form, and cause great agony in its passage. When ulceration is established, a sanious or purulent discharge takes place, which is attended with diarrhœa or obstinate constipation.

680. Cancer of the rectum may be mistaken for lymphatic indurations in the neighbourhood of the parts, for venereal ulcers, or certain species of hemorrhoids.

681. *Anatomical Characters.*—The disease is not always confined to the verge of the anus, it sometimes extends up the gut for two or three inches or more; the appearance of this cancer and its morbid structure are perfectly similar to that which occurs in the œsophagus, and which has been already described.

HŒMORRHOIDS.

682. *Symptoms.*—A determination of blood towards the end of the rectum recurring periodically or irregularly; accompanied with a sense of weight, tension, and itching about the anus; with a sense of bearing down in the loins and perineum, and with frequent calls to stool; giving rise to an oozing of a sanguineous, or more rarely, of a mucous matter, and producing in its course the development of tumours, which may be either dry or contain a bloody fluid, painful or indolent, or sometimes dependant upon a varicose state of the veins of the rectum or they may be cellular in their structure, and formed at the expense of the gut itself.

683. Piles may be mistaken for venereal excrescences, or fungoid tumours in the rectum.

684. *Anatomical Characters.*—Piles appear under the form of tumours, varying in size, and more or less thickly set, arising from the dense cellular tissue which connects the mucous to the muscular coat, Contained in a sort of cyst, thin smooth, or some-

times villous as to its interior, and adhering by its external surface to the sub-mucous cellular membrane. In many instances these tumours are formed of a reddish vascular spongy tissue, or of a sort of parenchyma or fungous flabby tissue, analogous to the erectile. Sometimes they depend upon a partial dilatation of the veins, which may be easily proved by the introduction of a probe into the vessels.

WORMS.

685. *Symptoms.*—Vary according to the species of the worms; direct symptoms are sometimes observable; such as sudden disgust for food, increase of appetite, nausea, vomiting, pain of the belly, hiccough, borborygmi, tenesmus, flatulency, &c., occasionally sympathetic signs, the principal of which are dilatation of the pupils, itching about the nose, disturbed sleep, perspirations, irregularity of the pulse, and disagreeable breath.

686. They may be confounded with inflammation of the intestines, hypochondriasis, or inflammation of the brain.

687. *Ascarides Lumbricoides.*—A sense of itching with sharp pains in one or more points of the intestines, particularly about the navel; the ejection of one or more worms by the mouth or anus.

688. *Ascarides Vermicularis.*—Dull irritation and itching about the anus, increasing towards evening; the escape of many of the worms with the stools.

689. *Tænia.*—Twisting and weight in the abdomen, with a sense of pinching or gnawing in the vicinity of the stomach; swelling and irregular retraction of the lower part of the abdomen; enormous appetite; ptyalism; the rejection of part of the worm by stool or vomiting.

690. *Anatomical Characters.*—Differing according to the species of the worms.

691. *Ascarides Lumbricoides.*—Body whitish or of a reddish grey; round, from four inches to a foot

in length, very elastic; tail terminating in a blunt end; head furnished with three oblong tubercles, between which the head is placed.

692. *Ascarides Vermicularis.*—Body very thin, and from two to nine lines in length; tail terminating in a very fine and transparent point; head furnished with two vesicles, lateral and transparent, or with three tubercles.

693. *Tænia.*—Flat and articulated, having at its smaller exremity a tubercular head and mouth, surrounded by four suckers; there are many varieties of them.

HEPATITIS.

694. *Symptoms.*—A heavy, dull pain occurring in the right side, increased by pressure, deep inspiration or cough; sometimes, however, it is alleviated by doubling the body forwards; in some cases an acute pain is felt in the right shoulder and along the vertebral column; the size and consistence of the liver may be augmented; in which case it projects beyond the false ribs and extends more or less into the abdomen. The patient lies on the right side, and finds it sometimes almost impossible to rest on his back or left side. Respiration and digestion are impeded, and there is occasionally a slight dry cough; very generally a yellow tinge is communicated to the skin and conjunctiva; the urine is of a saffron colour; there is constipation, and the feculent matter is found greyish and discoloured. If the disease terminate in suppuration, a fluctuating tumour may be felt beneath the integuments of the right side. This affection, which is of more frequent occurrence in hot countries than in our temperate climate, is always difficult to be detected: writers have constantly assigned to it the symptoms which belong to the inflammation of the peritoneum, on its concave or convex surface.

695. Hepatitis may be easily confounded with

pleurisy or with inflammation of the peritoneum, enveloping the substance of the liver.

696. *Anatomical Characters.*—The size of the liver is not increased by acute inflammation; its investing membrane adheres less firmly to it than in the healthy state; its surface is brown or reddish, and marbled. The substance of the organ becomes brittle and friable in proportion to the degree of the inflammation; and when cut, blood oozes from its surface, but cannot be said to flow from its vessels, as in the natural condition. It is also granular, the granulations consisting of the parenchymatous structure; they are, however, increased in size; some of them are red, more or less bright; others yellowish, which gives rise to a striated appearance. In this state the liver resembles much the aspect of an inflamed lung before it has become completely solid; but when pressed between the fingers it is very friable, and is reduced to a soft pulp like an inflamed spleen, which arises from the quantity of sanguineous fluid which is poured into its texture; its weight is evidently increased; the lining membrane of the different biliary canals is injected, and of a reddish brown colour. These are the appearances presented by the liver when inflamed, and before suppuration has set in. When the latter takes place, the pus is infiltrated into the substance of the liver, sometimes it is found in several small abscesses, and mixed with blood, which gives it a greenish yellow colour; sometimes it is united with one large cyst which may make its way either into the abdomen, into the chest, and bronchial tubes, into the intestines directly, or by means of the biliary canals, or lastly, may point externally through the integuments of the abdomen, and so be evacuated.

CANCER OF THE LIVER.

697. *Symptoms.*—The marks of this affection are very uncertain; it cannot be detected till the organ

extends itself below the edges of the false ribs, and affords an opportunity of perceiving the projections, varying in size and number, which exist on its surface. The digestion is attended with pain and difficulty, but without vomiting, and is most generally accompanied by constipation, cholic, borborygmi and more or less acute pain of the right hypochondrium and shoulder of the same side, with uneasiness in the epigastric region; emaciation commences; the skin and conjunctiva become jaundiced; the limbs are affected with œdema; and ascites soon supervenes, which speedily carries off the patient.

698. It may be confounded with any of the diseases of which this organ is susceptible.

699. *Anatomical Characters.*—The liver commonly extends across the epigastrium; sometimes occupying the left hypochondrium. Its surface is covered with furrows, occasionally pretty deeply marked. When the substance is cut into, tumours are met with in different parts, of a cancerous nature, and mixed with tuberculous or encephaloid matter in various degrees of advancement, The structure of the viscus surrounding these is usually natural, and is, in many cases, attached to the tumours, (which are now and again very numerous,) by vascular connexions only, which admit of being easily separated; in other cases, however, the connexion is more intimate, and the parenchyma of the organ seems gradually to degenerate. When these morbid degenerations, which compose the cancerous substance, become softened, the whole is converted into a pultaceous mass, which increases by degrees, at the expense of the lower tissue of the viscus. This softening, however, is seldom general, several of the tumours usually preserving their original consistence.

ENCYSTED DROPSY OF THE LIVER

700. *Symptoms.*—A smooth shining tumour, little or not at all painful; without discoloration of the

integuments, and with evident fluctuations; seated in the right hypochondrium and epigastric region; not being displaced by change of position; the patient is unable to lie on the back or left side.

701. It may be mistaken for encysted abscesses in the liver.

702. *Anatomical Characters.*—These cysts are sometimes formed of fibrous tissue, sometimes of serous, their size is very variable; they are developed occasionally in the substance of the liver, and contain a serous or semi-gelatinous liquid, containing, in some instances, a greater or lesser number of hydatids.

BILIARY CONCRETIONS.

703. *Symptoms.*—Very difficult, generally impossible to be distinguished; the presence of the concretions in some cases gives rise to a sort of pressure in the epigastric region, to violent cholic, to eructations, to obstinate vomtings, and to acute pain, seated in the course of the common duct, and increased after taking food. These symptoms become more certain if the patient has voided any biliary calculi, either by vomiting or stool.

INFLAMMATION OF THE SPLEEN.

704. *Symptoms.*—This affection is seldom observed during its acute stage; it is marked by pains felt under the left false ribs; encreased by pressure or by motion. The patient finds it disagreeable to rest on his side. The skin is discoloured, being of a yellow tinge, but not sufficiently deep to simulate jaundice. In some cases of splenitis, blood is occasionally vomited. It occurs epidemically in low and marshy districts, and on the sea shore. When chronic, it is more easily recognised; for besides the symptoms above-mentioned, a hard, large tumour is felt in the left hypochondrium, which is sensible to pressure. Splenitis is a common consequence of intermittent fevers.

705. It may be confounded with gastritis, peritonitis, or tumours in the left hypochondrium.

706. *Anatomical Characters.*—The substance of the spleen is sometimes softened, gorged with blood, and almost diffluent; its size is generally much increased; it is sometimes filled with pus, accumulated into a mass, or diffused in its substance. The spleen has often been found filled with tubercles, either indurated or softened. Its external membrane is sometimes torn through, at others it is thickened and hardened, being almost cartilaginous.

PERITONITIS.

707. *Symptoms.*—Acute pain, producing an extreme degree of weakness, occurring over the whole extent or part of the abdomen, increased by the slightest pressure; obstinate constipation and burning heat of the abdominal integuments; pulse small, contracted, concentrated, and frequent; particular expression of conntenance; the patient lies on his back, with his thighs drawn up; urine scanty; in many cases vomiting and hiccough. The tongue is white, covered with mucus, and more or less dry; the respiration is difficult (particularly during inspiration) frequent, and chiefly carried on by the ribs.

708. If the disease attack women after their accouchement, the breasts become collapsed, and the lochia suppressed; the pain in that case usually commences in the hypogastric region. The symptoms of peritonitis are not always so well marked, particularly if it come on more slowly; or if the chronic form succeed the acute, it then becomes difficult to detect it, for the pain is often very obscure; the belly little distended, the pulse unaltered, and the constipation less conspicuous. The increased size of the abdomen, and the evident fluctuation which soon succeed, are the symptoms chiefly to be depended on.

709. When it occurs in consequence of perforation of the intestine, it is rapid and violent in its progress, and soon causes death.

710. It may be confounded with enteritis, hepatitis, and splenitis.

711. *Anatomical Characters.*—Numerous red spots are discovered on the peritoneum, penetrating its whole thickness, and separated one from the other by parts of the membrane, retaining their natural colour; in some cases the serous membrane is injected or thickened.

712. Inflammation more generally occupies the covering of the intestines, than the part which lines the walls of the abdomen. False membranes, varying in thickness and softness, according to the duration of the disease, are found spread over the peritoneum: these insert themselves into the intervals of the intestines, and unite them one to the other. The cavity of the abdomen is filled with a whitish milky liquid of very fœtid smell, containing suspended a great number of small albuminous streaks of a white, greyish, or red colour; the contained fluid sometimes consists of a bloody serosity, more or less limpid, particularly if the disease had lasted but for a very short time, and that death quickly supervened.

713. Peritonitis sometimes also shews livid patches and real gangrenous spots. In the chronic form the albuminous concretions possess more solidity, and these bands which unite the intestines often become cellular; finally, peritonitis often gives rise to hard, semi-transparent granulations, and the serosity which then exists in the cavity is limpid, and contains few albuminous streaks; it resembles whey, slightly turbid.

ASCITES.

714. *Symptoms.*—Tumefaction of the abdomen, commencing from below upwards, and unaccom-

panied by the symptoms of peritonitis; a sensation of fluctuation upon striking the parietes of the abdomen, which appear smooth, then stretched and covered with turgid veins; the liquid changes place when the patient changes his position; the urine is much less abundantly secreted than in health; and difficulty of respiration, varying in intensity, according to the distention of the abdomen, is complained of.

715. It may be confounded with encysted dropsy and tympanitis.

716. *Anatomical Characters.*—Abdomen distended to a greater or less extent by a citrine transparen serosity without the slightest trace of albuminous streaks, peritoneum sound; there usually exists some organic alteration of some one of the abdominal viscera, generally the liver or spleen.

DISEASES OF THE URINARY ORGANS.

NEPHRITIS.

717. *Symptoms.*—A dull weight or pain, in general perceivcd in one side only of the lumbar region, soon giving place to sharp deep-seated pain, causing a sensation of tensien and bearing down; occasionally lancinating or pulsatile; increased by pressure, or by lying on the belly or unaffected side; scantiness or suppression of urine, which is, in general, red, tinged with blood, and voided with difficulty; the pain often extends itself from the loins to the bladder, penis, or groin, and is accompanied with a numbness or tremulous motion of the thigh, and with painful retraction of the testicle; vomiting, with general febrile symptoms usually supervene. In some cases, the pain ceases for a time, but returns again with increased violence; when this happens, we may suspect the existence of calculi in the kidneys, particularly if the urine at the same time contain some calculous matter. When the complaint is chronic, the pains are less, a heaviness is complained of in the loins; and the urine usually becomes troubled, and contains a puruleut fluid.

718. It may be confounded with cystitis, peritonitis, or lumbago.

719. *Anatomical Characters.*—We seldom meet with more than one affected kidney, which is red, indurated, and infiltrated with pus; the ureters some-

times participate in the disease, and are then found red, their mucous coat thickened, and covered with pus.

GRAVEL.

720. *Symptoms.*—Urine depositing soon after being voided a gravelly matter more or less fine, hard, and resisting the pressure of the fingers, which is composed of uric acid united to animal matter, and, in some few instances, of oxalate or phosphate of lime; acute pains, with a sense of heat and heaviness in the lumbar regions; urine generally voided with pain and difficulty. This complaint is very commonly met with in gouty subjects.

721. It may be confounded with nephritis or hæmaturia.

722. *Anatomical Characters.*—A gravelly substance, similar to that which exists in the urine, is usually detected in the kidneys ureters or bladder. The substance of the kidney is in most cases of a perfectly natural appearance.

DIABETES.

723. *Symptoms.*—The urine is considerably augmented in quantity, and is clear, white, or yellowish, insipid or sweet, and preceded in most instances by frequent calls to make water, and pain in the course of the ureters; thirst insatiable, appetite immense, wasting and extreme debility.

724. *Anatomical Characters.*—The kidneys are at one time found red, and unusually large; at others they present a remarkable flaccidity; their vessels are occasionally considerably distended with fluid, dilated, and easily torn: in other instances their substance has suffered a sort of disorganization or solution, more or less complete. Again, they have been found smaller than natural.

CYSTITIS.

725. *Symptoms.*—Acute permanent pain and heat

in the hypogastrium, which is sometimes protruded; weight and tension of the perinæum; frequent, painful, and often ineffectual efforts to make water; frequent and painful erections; the urine, at first limpid, becomes troubled and reddish, and is voided with pain and scalding heat; a concomitant fever generally attends. When the chronic form succeeds the acute, the fever disappears, the heat and tension of the hypogastrium and perinæum are also diminished; the calls to make water become less urgent, and the scalding during emission is considerably less distressing; the patient often voids, with an effort, a viscid fluid resembling the semen in appearance, but differing in smell. On other occasions chronic cystitis comes on gradually; a heaviness and uneasy sensation is experienced in the perinæum, and the patient finds a desire to void his urine, which can be accomplished with difficulty; the urine is yellow, and deposits a mucous matter more or less abundantly, similar to the white of eggs; the pain is slight and permanent, or returns at intervals: finally, the introduction of the sound is attended with great difficulty and intense suffering.

726. It may be confounded with nephritis, peritonitis, or matritis.

727. *Anatomical Characters.*—Redness of the lining membrane of the bladder more or less considerable, confined to some particular parts or diffused over its whole surface. When cystitis is chronic, the viscus is lessened and contracted; or, on the contrary, distended by a fœtid urine mixed with blood or purulent matter; its parietes are thickened in proportion to the duration and slow progress of the disease; its internal surface is of a reddish brown colour; we often meet with a net work of vessels distinctly developed, similar to varicose veins, and particularly resembling the venous plexus which surrounds its neck; it is in general furrowed more or less deeply, according to its degree of contrac-

tion. The mucous follicles are considerably developed, and oose out, when pressed between the fingers, a glairy matter similar to that deposited by the urine. Ulcerations of the internal coat of the bladder are also frequent, and it then contains more of pus than of this glairy fluid. In some cases gangrene or even perforations exist, and finally, it is occasionally changed into the true cancerous tissue.

HÆMATURIA.

728. *Symptoms.*—A passing of blood through the urethra, which may proceed from the kidney, ureters, bladder or urethra; when it proceeds from an affection of the kidneys, it is attended with a sense of heat and pain in the loins, and not unfrequently by coldness of the extremities; it is only when the blood accumulates in considerable quantities that the hypogastrium increases in size, and becomes tender, and that the calls to pass urine are frequent and urgent. When the disease is seated in the ureters, it causes a sense of pain and tension along the line of their course. Hemorrhage from the bladder is usually preceded by frequent desire of passing urine, by heaviness and tension above the pubis, extending to the perinæum, groins, and lumbar regions; sometimes the patient complains of tenesmus, constipation, and heat about the anus; the passing of urine is attended with pain and difficulty; the blood is scarcely or not at all combined with the urine. When the hemorrhage takes place from the urethra, a pain is perceived in a particular part of the canal, and the blood is red, liquid, and pure, and generally voided without effort.

729. It may be confounded with nephritis, cystitis, or menorrhagia.

730. *Anatomical Characters.*—Sometimes the mucous membrane which has given rise to the effusion is tumefied and red, and the blood still ooses

from it when pressed between the fingers; on the other hand, it is occasionally pale, and shews no marks of congestion; in other instances we find rupture of the vessels, or some other morbid changes in the kidneys, ureters bladder, or urethra, which have given rise to the hemorrhage.

DISEASES OF THE ORGANS OF GENERATION.

MATRITIS.

731. *Symptoms.*—Obtuse pain and sense of bearing down in the hypogastric regions, sometimes joined to an obscure swelling or circumscribed tumour of the part; the last only occurs when the body of the viscus is inflamed. The pain, which is augmented by pressure, soon extends to the loins, perineum, pudendum, and superior part of the thighs; add to these a sense of weight about the rectum, frequent desire to pass urine and stools, and often also constipation and dysuria. When the inflammation occupies the neck of the uterus, it becomes extremely hard and tumefied, and acutely sensible to the slightest touch; it is contracted on itself, and its temperature is considerably augmented; a reddish liquid flows from the vagina, being preceded by colic and pains in the lumbar regions; the breasts are in general retracted and painful. In chronic hysteritis these different symptoms are lighter, and there is usually an habitual flow of matter, sometimes very fœtid, from the vagina.

732. It may be confounded with catarrh of the uterus, or with scirrhus of that organ.

733. *Anatomical Characters.*—Augmentation of the size of the uterus, at least if death occur, a few

days after delivery; its walls are swelled, softened, and gorged with blood, and in some instances it is infiltered with purulent matter.

CANCER OF THE UTERUS.

734. *Symptoms.*—Irregularity of menstruation, sometimes alarmingly abundant discharges, sense of pain and bearing down in the hypogastrium, tenesmus, dysuria, and wandering pain of the breasts; to these in a short time succeed acute lancinating pains in the neck of the uterus, uneasy sensations in the loins, hips, and hypogastrium; an abundant fœtid fluor albus or discharge of sanious matter through the vagina. If at this period the finger be introduced into the vagina, the neck of the uterus is found to have become softened over all its extent, or only in particular parts, the intervening portions appearing hardened. Its orifice is more open than natural, and of irregular form; upon pressing the os tincæ a sanious or sanguinolent liquid escapes, and a flow of this matter is soon established; as the disease proceeds the lancinating pains become more frequent and intense; the neck of the viscus becomes irregular, fringed, painful, and bloody, and if the disease be seated in the body of the womb, it evidently acquires an increase of size, which may be perceived externally; pressure on the hypogastrium augments the pains, which are then extended to the groin, thighs, lumbar and sacral regions. The examination of the neck of the uterus by means of the speculum, invented by Professor Recamier, gives us a certainty as to the nature of the affection, even in the very commencement; hence we should always have early recourse to it.

735. It may be confounded with chronic matritis, scirrhus, or some forms of leucorrhæa.

736. *Anatomical Characters.*—In the greater number of cases cancer commences in the neck of

the uterus, more rarely in its internal surface. In the greater number of instances the cancerous or cerebriform matter which constitutes the disease, or both united, are interiorly blended with the substance of the viscus; in other cases we only meet with an ulceration of its tissue, the ulcer appearing studded with fleshy vegetation, irregular, and reddish or whitish, or covered with a fungous matter, or a kind of putrescent substance, varying in colour, and extremely fœtid. When the body of the organ has not been destroyed, we find its structure perfectly healthy at some lines distant from the surface of the ulcer; its volume is not augmented in this case, but its internal surface is livid, tumefied, and discoloured. If, on the other hand, the ulcer first commences in the interior of the womb, its size is greatly increased, and the fungous matter which covers the ulceration is extremely thick, the os tincæ appears livid, blackish, tumefied, and converted into a lardaceous substance. The superior part of the vagina and the appendages of the uterus often participate in the disease, and are disorganized.

FIBROUS TUMOUR OF THE UTERUS.

737. *Symptoms.*—A tumour varying in size, round, and slightly furrowed, which may be perceived by the touch; heaviness and dull pain in the loins hypogastrium, and superior part of the thighs, frequent hemorrhage, various irregularities or suspension of menstruation.

738. They may be confounded with cancer of the neck of the uterus.

739. *Anatomical Characters.*—These tumours are attached to the internal surface of the uterus, or to its neck; they are formed from a collection of whitish fibres, closely united, and are very firm and extremely tenacious, much more flexible than cartilage, but less so than cellular substance.

MENORRHAGIA.

740. *Symptoms.*—An abundant flow of liquid or coagulated blood through the vagina, occuring continually or at short intervals, and accompanied with a sense of weight in the hypogastrium, loins and thighs, and with painful contractions during the expulsion of the blood.

741. It may be confounded with cancer, polypi, or fibrous tumours.

742. *Anatomical Characters.*—Redness and tumefaction of the lining membrane of the uterus; in other cases polypi, fibrous tumours, and other organic affections of this viscus are discovered.

ENCYSTED DROPSY OF THE OVARIES.

743. *Symptoms.*—A partial tumour of the abdomen, occupying one side of the hypogastrium, or both, if the two ovaries be conjointly affected, proceeding slowly, and in general co-existent with some irregularity in menstruation; a sense of fluctuation in the tumour, which is not displaced when the patient changes position.

744. It may be confounded with tumours developed in the pelvis.

745. *Anatomical Characters.*—A cellular or fibro-cellular cyst is usually found in the ovarium, containing a limpid citrine serosity, and in some instances a greater or less number of hydatids.

CATARRHS OF THE UTERUS.

746. *Symptoms.*—Slight itching of the pudendum and vagina, sometimes extending to the uterus, and accompanied by a discharge of a serous limpid liquid which progressively becomes more and more consistent, and assumes a green or yellow, and finally a white colour; from this period it begins to de-

cline, and the urine in its passage ceases to give pain. The mucous membrane of the labia and vagina is red and tumefied, and the patient complains of pain in the groin, perinæum, and hypogastrium, and of scalding during emission of urine. When the affection is chronic, there is but little pain about the genital organs, and the discharge is abundant and lasting, or only occurs for a few days after the menses; it is accompanied in such cases by pain of the loins and thighs, by languor, by irregularities in digestion, and by a gnawing sensation in the stomach.

747. It may be confounded with chronic matritis, or cancer of the uterus.

748. *Anatomical Characters.*—Redness more or less evident of the lining membrane, which in some instances appears rather thicker than in its healthy condition. In the chronic complaint the membrane presents no marks of redness, but is occasionally covered with fungous vegetations.

INFLAMMATION OF THE TESTICLE.

749. *Symptoms.*—This affection often arises from the suppression of acute or chronic gonorrhœa. It begins with a dull pain in the epididymis, which soon increases, extends to the testicle, and causes a swelling and enlargement of it. The pain becomes very acute, extends up to the loins following the course of the spermatic cord, which is often sensible to the touch, and swollen; the scrotum frequently becomes inflamed, and increases the size of the tumour.

750. *The diseases with which it may be confounded* are, hydrocele and sarcocele.

751. *Anatomical Characters.*—The testicle, and particularly the epididymis, is swelled, red, and increased in density; in some cases these parts have passed into the state of suppuration.

DISEASES OF THE TISSUES.

AFFECTIONS OF THE SKIN.

ERYSIPELAS.

752. *Symptoms.*—The skin of the affected part slightly swollen; of a red colour, with well defined but irregular edges; the redness disappears on the slightest pressure being applied, but instantly returns when this is discontinued; acute pain, attended with the sensation of burning heat; these symptoms are followed by slight desquamation; in some instances small miliary vesicles appear, and form in a short time yellowish crusts. Erysipelas is most frequently observed to affect the face and breasts. It often attacks different portions of the surface one after the other, and cases occur where it returns periodically. Generally found to be connected with disorder of the digestive organs. Many varieties are described, the following are the chief:—

753. *Phlegmonous Erysipelas.*—This is characterised by the redness of the surface being very vivid, and diminishing in intensity from its centre to the circumference; and does not return so quickly after pressure. The swelling more distinct and hard; pain burning and *pungent*; it generally terminates by suppuration; is observed to attack the extremities and scalp.

754. *Œdematous Erysipelas.*—The swelling comes on slowly;-is not so hard as in the other species; rather inelastic; the skin smooth, shining, and retains the impression of the finger for some time; vesicles are formed, and followed by other yellowish crusts.

This affection very often induces gangrene; attacks the organs of generation and the lower extremities of hydropic patients.

755. *Anatomical Characters.*—On examination after death, the redness is found to have disappeared; the skin infiltrated, and a bloody serum flows from it when cut. Its texture is changed, as it is much more easily torn than when in the natural state. In the simple erysipelas the skin is found changed in its superficial vascular layers only; but in the phlegmonoid, its whole thickness is affected, and the veins are found diseased, their internal coat red, and occasionally they are seen filled with pus, a phenomenon never observed in the arteries of the same parts. Pus is also met (in the phlegmonous erysipelas) effused into the cellular membrane, or collected in one or more abscesses. When it terminates by gangrene, the vesicles are observed to be black and friable.

ZONA.

756. *Symptoms.*—A successive eruption of pustules, extending half way round the trunk, and sometimes completely surrounding it. The pustules of different colours, white, red, or brown, are pointed towards their summits, and are surrounded by a red circle. They contain a limpid fluid which proves very irritating to the parts it comes in contact with. When one set goes off another constantly appears. This affection remains longer than erysipelas; its duration may be stated at from twenty-five to forty days. The patient suffers a very acute burning sensation in the affected part; and this disease occasionally is followed by obstinate pains. In some rare examples a slight swelling of the subcutaneous cellular tissue is perceived.

757. The diseases with which it may be confounded are pemphigus, erysipelas, and herpes.

758. *Anatomical Characters.*—The same as simple erysipelas.

URTICARIA, OR NETTLE RASH.

759. *Symptoms.*—A general redness of the skin very soon followed by an eruption, sometimes general sometimes partial, of irregular, flattened, hard, and various sized tubercles, whose bases are of a deep and vivid red, and centres of a very pale colour, and *flattened.* They are accompanied by a very hot sensation and violent and continual itching. They always terminate in resolution or desquamation.

760. *Anatomical Characters.*—The same as simple erysipelas.

MILIARIA.

761. *Symptoms.*—An eruption, appearing on the whole surface at the same time, or on different portions successively, of small transparent vesicles, placed sometimes in the centre of small purple spots; or of red conical granulations, more readily perceived by the touch than the sight; they may be distinct or confluent, and are changed into vesicles containing a serous fluid; they sometimes extend to the mucous membrane lining the mouth, œsophagus, and trachea. This affection generally terminates in desquamation, sometimes by resolution.

PEMPHIGUS.

762. *Symptoms.*—Red patches of an erysipelatous appearance, but the redness does not disappear under pressure, is attended by tumefaction of the skin, and formation of phlyctenoid vesicles, which vary in size from that of a lentil to a hen's egg, and even now and then much larger. In six or seven days these vesicles collapse, break, and discharge a limpid yellowish and mild serosity. Sometimes they dry up, scale off, and leave violet spots on the surface which remain for sometime; now and then ulceration takes place, and is followed by cicatrization.

763. It may be confounded with zona or erysipelas.

764. *Symptoms.*—Small pimples, or confluent round red patches, easily felt, with prickling pain and itching, which is increased at night, by heat or stimulating food. This eruption may appear on the whole surface, but it is mostly observed on the face, neck, shoulders, back, and hands. It recurs very frequently and at certain seasons.

TINEA, OR SCALD HEAD.

765. *Symptoms.*—Violent itching of the scalp or forehead; small pustules or vesicular eminences are observed; these are hard, of a conical shape, whitish, and contains a fluid of a very disagreeable odour; on the appearance which this takes when drying is founded the description of the various species of this affection.

766. *Tinea Favosa*—In this species thick yeliowish crusts are formed of various sizes, of a tubercular form, with a conical depression in the centre. These *scabs* are buried in the skin and scalp, in which large fissures are made around these, discharging a purulent, thick and fetid matter. This variety is observed to attack the forehead, temples and neck of children from two to fifteen years.

767. *Tinea Rugosa.*—The crusts or scabs in this species are small, granular, of a greyish or brown colour, and are compared to the pieces of mortar which is seen to fall from old walls. The smell is sour: there is no depression in the centre. Rarely met with in adults, and is confined to the scalp.

768. *Tinea Furfuracea.*—There are no crusts; there are white scales, more or less thick; from under which a fetid viscid liquid oozes, which dries and gives rise to new scales. This form of tinea does not occur in adults, or even in children after their seventh year.

769. *Tinea Amiantacea.*—Small scales of a silvery

or pearl colour surrounding the hair in their entire length, and so forming filaments and meshes like the asbestos or amiantus, whence the name is derived. It emits no particular smell; occurs only during adult age, and particularly in melancholic individuals.

766. *Tinea Mucosa.*—Superficial ulcerations, from which exudes a mucous humour, somewhat like honey; this, as it dries, forms crusts of an ash colour, or greenish, occasionally yellow like wax. This species of the disease sometimes extends to the face, temples and limbs, in the same way that the tinea favosa does. It occurs usually in children from the period of lactation to their fourth year.

767. *Anatomical Characters.*—The cutis remains without any perceptible alteration as long as the disease continues moderate, but when it makes any considerable progress the skin is altered in its entire substance; it becomes red, and injected with a sanguineous fluid; in some extreme cases the sub-cutaneous cellular texture, the muscles, periosteum, and even the bones become engaged and their structure altered.

The Tinea of Alibert is the Porrigo of Willan and Bateman. The "Teigne faveuse" corresponds with the Porrigo lupinosa—the T. furfuraceé is the P. furfurous—the "Teigne muqueuse" corresponds to the Porrigo larvalis.—See *Bateman's Synopsis*, No. 159.—T.

PRURIGO *.

768. *Symptoms.*—The characteristic symptoms of

* I have here taken the liberty to substitute a few sections from Bateman's synopsis, in place of those in the original. This will probably be excused when it is considered that the terminology adopted by Willan and Bateman, is now universally used in the schools in this country, and therefore will be much more readily understood by the younger members of the profession, for whom alone, this little work is intended.—There

this genus are, a severe itching, accompanied by an eruption of papulæ of nearly the same colour with the adjoining cuticle. It affects the whole surface of the skin, under three varieties of form, as well as some parts of the body locally.

769. *Prurigo mitis.*—Is accompanied by soft and smooth papulæ, somewhat larger and less acuminated than those of Lichen, and seldom appearing red or inflamed, except from violent friction. Hence an inattentive observer may overlook the papulæ altogether: more especially as a number of small thin black scabs are here and there conspicuous, and arrest his attention. These originate from the concretion of a little watery humour, mixed with blood, which oozes out when the tops of the papulæ are removed by the violent rubbing or scratching which the severe itching demands. This constant friction sometimes also produces inflamed pustules; which are merely incidental, however, when they occur at an early period of the complaint. The itching is much aggravated both by sudden exposure to the air, and by heat; whence it is particularly distressing when the patient undresses himself, and often prevents sleep for several hours after he gets into bed.

770. This eruption mostly affects young persons, and commonly occurs in the Spring or beginning of Summer. It is relieved after a little time by a steady perseverance in the use of the tepid bath, or of re-

is also another reason, M. Martinet has adopted the terms and arrangement of Alibert. This is liable to one serious objection, viz. that the descriptions of the diseases are often taken from secondary characters, whilst Willan and Bateman have taken them from the primary as far as was possible.

Thus Alibert arranges the "Dartres" according to the characters of the scales which are secondary in their appearance, and of course liable to great variety, and subject to be influenced by the treatment pursued. But Bateman takes his descriptions from the appearance of the vesicles, which are primary in their occurrence, and far less liable to be influenced by any accidental causes.—T.

gular ablution with warm water, although at first this stimulus slightly aggravates the eruption. The internal use of sulphur, alone or combined with soda or a little nitre, continued for a short time, contributes to lessen the cutaneous irritation ; and may be followed by the exhibition of the mineral acids. Under these remedies, the disorder gradually disappears : but if the washing be neglected, and a system of uncleanliness in the apparel be pursued, it will continue during several months, and may ultimately terminate in the contagious scabies.

771. *Prurigo formicans.*—This affection differs materially from the preceding, in the obstinacy and severity of its symptoms, although its appearances are not very dissimilar. The itching accompanying it is incessant, and is combined with various other painful sensations; as of insects creeping over and stinging the skin, or of hot needles piercing it. On undressing, or standing before a fire, but above all on becoming warm in bed, these sensations are greatly aggravated: and friction not only produces redness, but raises large wheals, which, however, presently subside. The little black scabs, which form upon the abraded papulæ, are seen spotting the whole surface, while the colourless papulæ are often so minute as nearly to escape observation.

772. This prurigo occurs in adults, and is not peculiar to any season. It affects the whole of the trunk and limbs, except the feet and palms of the hands ; but is most copious in those parts over which the dress is tightest. Its duration is generally considerable, sometimes extending, with short intermissions, to two years or more. It is never, however, converted, like the preceding species, into the itch, nor becomes contagious ; but it occasionally ends in impetigo.

773. *Prurigo senilis.*—The frequent occurrence of prurigo in old age, and the difficulty of curing it, have been the subject of universal observation. The

sensation of itching, in the prurigo of that period of life, is as intolerable and more permanent than in the P. formicans; and the appearances which it exhibits are very similar, except that the papulæ are for the most part larger. The comfort of the remainder of life is sometimes entirely destroyed by the occurrence of this disease.

774. A warm bath affords the most effectual alleviation of the patient's distress, but its influence is temporary. The disorder seems to be connected with a languid state of the constitution in general, and of the cutaneous circulation in particular; hence the sulphureous waters at Harrowgate, employed both internally and externally at the same time, afford on the whole the most decided benefit. A warm sea-water bath has also been found serviceable. Sometimes stimulant lotions, containing the oxymuriate of mercury, the liquor ammoniæ acetatis, or alcohol, are productive of great relief, and occasionally render the condition of the patient comparatively comfortable, or even remove the disease. When the surface is not much abraded the oxymuriate will be borne to the extent of two grains to the ounce of an aqueous or weak spirituous vehicle; but it is generally necessary to begin with a much smaller proportion.

This mineral salt is likewise useful in destroying the pediculi, which are not unfrequently generated, when the prurigo senilis is present. Where the skin is not abraded by scratching, the oil of turpentine, much diluted with oil of almonds, may be applied, with more decided effect, for the destruction of these insects.

ICHTHYOSIS.

775. The ichthyosis, or fish-skin disease, is characterized by a thickened, hard, rough, and in some cases almost horney texture of the integuments of the body, with some tendency to scaliness, but with-

out the deciduous exfoliations, the distinct and partial patches, or the constitutional disorder, which belong to lepra and psoriasis.

Ichthyosis simplex.—In its commencement this disease exhibits merely a thickened, harsh, and discoloured state of the cuticle, which appears, at a little distance, as if it were soiled with mud. When further advanced, the thickness, hardness, and roughness become much greater, and of a warty character, and the colour is nearly black. The roughness, which is so great as to give a sensation to the finger passing over it, like the surface of a file, or the roughest shagreen, is occasioned by innumerable rugged lines and points, into which the surface is divided. These hard prominences, being apparently elevations of the common lozenges of the cuticle, necessarily differ in their form and arrangement in different parts of the body, according to the variations of the cuticular lines, as well as in different stages and cases of the complaint. Some of them appear to be of uniform thickness from their roots upwards; while others have a short narrow neck, and broad irregular tops. The former occur where the skin, when healthy, is soft and thin; the latter where it is coarser, as about the olecranon and patella, and thence along the outside of the arms and thighs. On some parts of the extremities, however, especially about the ankles, and sometimes on the trunk of the body, these excrescences are scaly, flat, and large, and occasionally imbricated, like the scales of carp. In other cases, they have appeared separate, being intersected by whitish furrows.

This unsightly disease appears in large continuous patches, which sometimes cover the greater part of the body, except the flexures of the joints, the inner and upper part of the thighs, and the furrow along the spine. The face is seldom severely affected; but in one case, in a young lady, the face was the exclusive seat of the disorder, a large patch covering

each cheek, and communicating across the nose. The mammæ, in females, are sometimes encased in this rugged cuticle. The whole skin, indeed, is in an extremely dry and unperspirable condition, and in the palms of the hands and soles of the feet it is much thickened, and brittle. The disease often commences in childhood, and even in early infancy.

This affection has been found to be very little under the control of medicine. Stimulating ointments and plasters have been industriously applied, with no material effect; and the disorder has been known to continue for several years, with occasional variations. Dr. Willan trusted to the following palliation by external management: "When a portion of the hard scaly coating is removed," he says, "it is not soon produced again. The easiest mode of removing the scales is to pick them off carefully with the nails from any part of the body, while it is immersed in hot water. The layer of cuticle, which remains after this operation, is harsh and dry; and the skin did not, in the cases I have noted, recover its usual texture and softness; but the formation of the scales was prevented by a frequent use of the warm bath, with moderate friction.

I have known the skin cleared of this harsh eruption by bathing in the sulphureous waters, and rubbing it with a flannel or rough cloth, after it had been softened by the bath; but the cuticle underneath did not recover its usual condition; it remained bright and shining; and the eruption recurred. Internally the use of pitch has in some instances been beneficial, having occasioned the rough cuticle to crack and fall off, and leave a sound soft skin underneath. This medicine, made into pills with flour, or any farinaceous powder, may be taken to a great extent, not only without injury, but with advantage to the general health; and affords one of the most effectual means of controlling the languid circulation, and the inert and arid condition of the skin.

Upon the same principle, the arsenical solution has been employed in ichthyosis. In one case, in a little girl affected with a moderate degree of the disease on the scalp, shoulders, and arms, this medicine produced a complete change of the condition of the cuticle, which acquired its natural texture; but in two others no benefit was derived from it. The decoction of the inner bark of the elm has been said to be a specific for ichthyosis, by Pleuck; but this originated in a misconception as to the use of the term.

HERPES.

776. *Symptoms.*—This appellation is here limited to a vesicular disease, which in most of its forms, passes through a regular course of increase, maturation and decline, and terminates in about ten, twelve, or fourteen days. The vesicles arise in distinct but irregular clusters, which commonly appear in quick succession, and they are set near together, upon an inflamed base, which extends a little way beyond the margin of each cluster. The eruption is preceded when it is extensive, by considerable constitutional disorder, and is accompanied by a sensation of heat and tingling, sometimes by severe deep seated-pain, in the parts affected. The lymph of the vesicles, which is at first clear and colourless, becomes gradually milky and opaque, and ultimately concretes into scabs; but, in some cases, a copious discharge of it takes place, and tedious ulcerations ensue. The disorder is not contagious in any of its forms.

The ancients, although they frequently mention herpes, and give distinctive appellations to its varieties, have no where minutely described it. Hence their followers have not agreed in their acceptation of the term. It has been principally confounded with erysipelas on the one hand, and with eczema, impetigo, and other slowly spreading eruptions, on the other. But if the preceding character be well considered, the diagnosis between these affections and

herpes will be sufficiently obvious. From erysipelas it may be distinguished by the numerous, small, clustering vesicles, by the natural condition of the surface in the interstices between the clusters, and by the absence of redness and tumefaction before the vesicles appear; and from the chronic eruptions just alluded to, by the purely vesicular form of the cuticular elevations in the commencement, by the regularity of their progress, maturation, and scabbing, and by the limitation of their duration, in general, to a certain number of days.

777. *Herpes phlyctænodes.*—This species of the eruption, including the miliary variety above mentioned, is commonly preceded by a slight febrile attack for two or three days. The small transparent vesicles then appear, in irregular clusters, sometimes containing colourless, and sometimes a brownish lymph; and, for two or three days more, other clusters successively arise near the former. The eruption has no certain seat; sometimes it commences on the cheeks or forehead, and sometimes on one of the extremities; and occasionally it begins on the neck and breast, and gradually extends over the trunk to the lower extremities, new clusters successively appearing for nearly the space of a week. It is chiefly the more minute or miliary variety which spreads thus extensively; for those which, at their maturity, attain a considerable size and an oval form, seldom appear in more than two or three clusters together; and sometimes there is only a single cluster. The included lymph sometimes becomes milky or opaque in the course of ten or twelve hours; and about the fourth day, the inflammation round the vesicles assumes a duller red hue, while the vesicles themselves break and discharge their fluid, or begin to dry and flatten, and dark or yellowish scabs concrete upon them. These fall off about the eighth or tenth day, leaving a reddened and irritable surface, which slowly regains its healthy appearance. As the suc-

cessive clusters go through a similar course, the termination of the whole is not complete before the thirteenth or fourteenth day.

The disorder of the constitution is not immediately relieved by the appearance of the eruption, but ceases as the latter proceeds. The heat, itching and tingling in the skin, which accompany the patches as they successively arise, are sometimes productive of much restlessness and uneasiness, being aggravated especially by external heat, and by the warmth of the bed.

The predisposing and exciting causes are equally obscure. The eruption occurs in its miliary form, and spreads most extensively, (sometimes over the greater portion of the surface of the body,) in young and robust people, who generally refer its origin to cold. But it is apt to appear, in its more partial forms, in those persons who are subject to headaches, and other local pains, which are probably connected with derangements of the chylopoietic organs.

The same treatment is requisite for this as for the following species.

778. *Herpes zoster.*—This form of the eruption, which is sufficiently known to have obtained a popular appellation, the *shingles*, is very uniform in its appearances, following a course similar to that of small-pox, and the other exanthematic fevers of the nosologists. It is usually preceded for two or three days by languor and loss of appetite, rigors, headache, sickness, and a frequent pulse, together with a scalding heat, and tingling in the skin, and shooting pains through the chest and epigastrium. Sometimes, however, the precursory febrile symptoms are slight and scarcely noticed, and the attention of the patient is first attracted by a sense of heat, itching and tingling, in some part of the trunk, where he finds several red patches of an irregular form, at a little distance from each other, upon each of which numerous

small elevations appear, clustered together. These, if examined minutely, are found to be distinctly vesicular; and, in the course of twenty-four hours, they enlarge to the size of small pearls, and are perfectly transparent, being filled with a limpid fluid. The clusters are of various diameter, from one to two, or even three inches, and are surrounded by a narrow red margin, in consequence of the extension of the inflamed base, a little beyond the congregated vesicles. During three or four days, other clusters continue to arise in succession, and with considerable regularity; these are nearly in a line with the first, extending always towards the spine at one extremity, and towards the sternum, or linea alba of the abdomen, at the other, most commonly round the waist like half a sash, but sometimes, like a sword-belt, across the shoulder.

While the new clusters are appearing, the vesicles of the first begin to lose their transparency, and on the fourth day acquire a milky or yellowish hue, which is soon followed by a blueish, or livid colour of the bases of the vesicles, and of the contained fluid. They now become somewhat confluent, and flatten or subside, so that the outlines of many of them are nearly obliterated. About this time they are often broken, and for three or four days discharge a small quantity of a serous fluid; which at length concretes into thin dark scabs, at first lying loosely over the contained matter, but soon becoming harder, and adhering more firmly, until they fall off about the twelfth or fourteenth day. The surface of the skin is left in a red and tender state; and where the ulceration and discharge have been considerable, numerous cicatrices or pits are left.

As all the clusters go through a similar series of changes, those which appeared latest arrive at their termination several days later than the first; whence the disease is sometimes protracted to twenty, or even twenty-four days, before the crusts exfoliate.

In one or two instances, I have seen the vesicles terminate in numerous small ulcers, or suppurating foramina, which continued to discharge for many days, and were not all healed before the end of the fourth week.

The febrile symptoms commonly subside when the eruption is completed; but sometimes they continue during the whole course of the disease, probably from the incessant irritation of the itching and smarting connected with it. In many instances the most distressing part of the complaint is an intense darting pain, not superficial, but deep-seated in the chest, which continues to the latter stages of the disease, and is not easily allayed by anodynes; sometimes this pain precedes the eruption.

Although the shingles commonly follow the regular course of fever, eruption, maturation, and decline, within a limited period, like the eruptive fevers, or exanthemata of the nosologists; yet the disorder is not, like the latter, contagious, and may occur more than once in the same individual. The disease, on the whole, is slight; it has never, in any instance that I have witnessed, exhibited any untoward symptom, or been followed by much debility; in the majority of cases, it did not confine the patient to the house.

The causes of the shingles are not always obvious. Young persons, from the age of twelve to twenty-five, are most frequently the subjects of the disease, although the aged are not altogether exempt from its attacks, and suffer severely from the pains which accompany it. It is most frequent in the Summer and Autumn, and seems occasionally to arise from exposure to cold, after violent exercise. Sometimes it has appeared critical, when supervening to bowel-complaints, or to the chronic pains of the chest remaining after acute pulmonary affections. Like erysipelas, it has been ascribed by some authors to paroxysms of anger.

It is scarcely necessary to speak of the treatment of a disorder, the course of which scarcely requires to be regulated, and cannot be shortened, by medicine. Gentle laxatives and diaphoretics, with occasional anodynes, when the severe deep-seated pains occur, and a light diet, seem to comprise every thing that is requisite in the cure. Experience altogether contradicts the cautionary precepts, which the majority of writers, even down to Burserius, have enjoined, in respect to the administration of purgatives, and which are founded entirely upon the prejudices of the humoral pathology.

In general, no external application to the clustered vesicles is necessary; but when they are abraded by the friction of the clothes, a glutinous discharge takes place, which occasions the linen to adhere to the affected parts, producing some irritation. Under these circumstances, a little simple ointment may be interposed, to obviate that effect. With the view of clearing off the morbid humours, the older practitioners cut away the vesicles, and covered the surface with their unguents, or even irritated it with the nitrico-oxyd of mercury, notwithstanding the extreme tenderness of the parts. These pernicious interruptions of the healing process probably gave rise to ulceration, and prolonged the duration of the disease, and thus contributed to mislead practitioners in their views respecting its nature.

779. *Herpes circinatus.*—This form of the herpes is vulgarly called a *ringworm*, and is, in this country, a very slight affection; being unaccompanied with any disorder of the constitution. It appears in small circular patches, in which the vesicles arise only round the circumference; these are small, with moderately red bases, and contain a transparent fluid, which is discharged in three or four days, when little prominent dark scabs form over them. The central area in each vesicular ring, is at first free from any eruption; but the surface becomes

somewhat rough, and of a dull red colour, and throws off an exfoliation, as the vesicular eruption declines, which terminates in about a week with the falling off of the scabs, leaving the cuticle red for a short time.

The whole disease, however, does not conclude so soon; for there is commonly a succession of the vesicular circles, on the upper parts of the body, as the face and neck, and the arms and shoulders, which have occasionally extended to the lower extremities, protracting the duration of the whole to the end of the second or third week. No inconvenience, however, attends the eruption, except a disagreeable itching and tingling in the patches.

The herpetic ringworm is most commonly seen in children, and has been deemed contagious. It has sometimes, indeed, been observed in several children, in one school or family, at the same time; but this was most probably to be attributed to the season, or some other common cause; since none of the other species of herpes are communicable by contact. It is scarcely necessary to point out here the difference between this vesicular ringworm, and the contagious pustular eruption of the scalp and forehead, which bears a similar popular appellation.

The itching and tingling are considerably alleviated by the use of astringent and slightly stimulant applications, and the vesicles are somewhat repressed by the same expedients. It is a popular practice to besmear them with ink; but solutions of the salts of iron, copper, or zinc, or of borax, alum, &c. is a less dirty form, and answer the same end.

Another form of herpes circinatus sometimes occurs, in which the whole area of the circles is covered with close set vesicles, and the whole is surrounded by a circular inflamed border. The vesicles are of a considerable size, and filled with transparent lymph. The pain, heat, and irritation in the part are very distressing, and there is often a consi-

derable constitutional disturbance accompanying the eruption. One cluster forms after another in rapid succession on the face, arms, and neck, and sometimes on the day following on the trunk and lower limbs. The pain, feverishness, and inquietude do not abate till the sixth day of the eruption, when the vesicles flatten, and the inflammation subsides. On the ninth and tenth days a scabby crust begins to form on some, while others dry, and exfoliate; the whole disease terminating about the fifteenth day.

All the forms of herpes appear to be more severe in warm climates, than in our northern latitudes; and the inhabitants of the former are liable to a variety of herpetic ringworm, which is almost unknown here. This variety differs materially from the preceding in its course, and is of much longer duration. For it does not heal with the disappearance of the first vesicles, but its area continually dilates by the extention of the vesicular margin. The vesicles terminate in ulcerations, which are often of a considerable depth; and while these undergo the healing process, a new circle of vesicles rises beyond them, which passes through a similar course, and is succeeded by another circle exterior to itself; and thus the disease proceeds, often to a great extent, the internal parts of the ring healing, as the ulcerous and vesicular circumference expands.

Herpes labialis.—A vesicular eruption upon the edge of the upper and under lip, and at the angle of the mouth, sometimes forming a semi-circle, or even completing a circle round the mouth, by the successive rising of the vesicles, is very common, and has been described by the oldest writers. At first the vesicles contain a transparent lymph, which in the course of twenty-four hours becomes turbid, and of a yellowish white colour, and ultimately assumes a puriform appearance. The lips become red, hard, and tumid, as well as sore, stiff, and painful, with a

sensation of great heat and smarting, which continues troublesome for three or four days, until the fluid is discharged, and thick dark scabs are formed over the excoriated parts. The swelling then subsides, and in four or five days more, the crusts begin to fall off; the whole duration being, as in the other herpetic affections, about ten or twelve days.

The labial herpes occasionally appears as an idiopathic affection, originating from cold, fatigue, &c., and is then preceded for about three days by the usual febrile symptoms, shiverings, headache, pains in the limbs and the stomach, with nausea, lassitude, and languor. Under these circumstances, a sort of herpetic sore throat is sometimes connected with it; a similar eruption of inflamed vesicles taking place over the tonsils and uvula, and producing considerable pain and difficulty of deglutition. The internal vesicles, being kept in a state of moisture, form slight ulcerations when they break; but these heal about the eighth and ninth days, while the scabs are drying upon the external eruption.

The herpes labialis, however, occurs most frequently in the course of diseases of the viscera, of which it is symptomatic, and often critical; for these diseases are frequently alleviated as soon as it appears. Such an occurrence is most common in bilious fevers, in cholera, and dysentery, in peritonitis, peripneumony, and severe catarrhs; but it is not unfrequent in continued malignant fevers, and even in intermittents.

Herpes præputialis. This local variety of herpes was not noticed by Dr. Willan; but it is particularly worthy of attention, because it occurs in a situation where it is liable to occasion a practical mistake of serious consequence to the patient. The progress of the herpetic clusters, when seated on the prepuce, so closely resembles that of chancre, as described by some authors, that it may be doubted whether it has not been frequently confounded with the latter.

The attention of the patient is attracted to the part by an extreme itching, with some sense of heat; and on examining the prepuce, he finds one, or sometimes two red patches, about the size of a silver penny, upon which are clustered five or six minute transparent vesicles, which, from their extreme tenuity, appear of the same red hue as the base on which they stand. In the course of twenty-four or thirty hours, the vesicles enlarge, and become of a milky hue, having lost their transparency; and on the third day, they are coherent, and assume an almost pustular appearance. If the eruption is seated within that part of the prepuce, which is in many individuals extended over the glands, so that the vesicles are kept constantly covered and moist (like those that occur in the throat), they commonly break about the fourth or fifth day, and form a small ulceration upon each patch. This discharges a little turbid serum, and has a white base, with a slight elevation at the edges; and by an inaccurate or inexperienced observer, it may be readily mistaken for chancre; more especially if any escharotic has been applied to it, which produces much irritation, as well as a deep-seated hardness beneath the sore, such as is felt in true chancre. If no irritant be applied, the slight ulceration continues till the ninth or tenth day nearly unchanged, and then begins to heal; which process is completed by the twelfth, and the scabs fall off on the thirteenth or fourteenth day.

When the patches occur, however, on the exterior portion of the prepuce, or where that part does not cover the glands, the duration of the eruption is shortened, and ulceration does not actually take place. The contents of the vesicles begin to dry about the sixth day, and soon form a small, hard, acuminated scab, under which, if it be not rubbed off, the part is entirely healed by the ninth or tenth

day, after which the little indented scab is loosened, and falls out.

This circumstance suggests the propriety of avoiding not only irritative, but even unctuous or moist applications, in the treatment of this variety of herpes. And accordingly it will be found, that, where ulceration occurs within the prepuce, it will proceed with less irritation, and its course will be brought within the period above-mentioned, if a little clean dry lint alone be interposed, twice a day, between the prepuce and the glands.

I have not been able to ascertain the causes of this eruption on the prepuce. Mr. Pearson is inclined to ascribe it to the previous use of mercury. Whencesoever it may originate, it is liable to recur in the same individual, and often at intervals of six or eight weeks.

NÆVUS.

780. The various congenital excrescences and discolorations of the skin, to which the appellations of nævus, spilus, moles, &c. have been applied, may be conveniently treated of together. They exhibit many peculiarities of form, magnitude, colour, and structure, and are seen on almost every part of the surface of the body in different instances. Some of them are merely superficial, or stain-like spots, and appear to consist of a partial thickening of the rete mucosum, sometimes of a yellow or yellowish-brown, sometimes of a blueish, livid, or nearly black colour. To these the term spilus has been more particularly appropriated. Others again exhibit various degrees of thickening, elevation, and altered structure of the skin itself; and consist of enlarged and contorted veins, freely anastomosing, and forming little sacs of blood. These are sometimes spread more or less extensively over the surface, occasionally covering even the whole of an extremity, or one half of the

trunk of the body; and sometimes they are elevated into prominences of various form and magnitude. Occasionally these marks are nearly of the usual colour of the skin; but most commonly they are of a purplish red colour, of varying degrees of intensity, such as the presence of a considerable collection of blood-vessels, situated near the surface, and covered with a thin cuticle, naturally occasions.

The origin, which was anciently assigned to these marks by physicians, and to which they are still ascribed by the vulgar, (viz. the influence of the imagination of the mother upon the child in utero,) has occasioned their varieties to be compared with the different objects of desire or aversion, which were supposed to operate on the passions of the mother; whence the following nævi have been described:— the flat and purple stains were considered as the representative of claret, or of port wine; and sometimes of a slice of bacon, or other flesh. Sometimes the stains are regularly formed, like a leaf, with a very red border, and lines, like veins, across from a central rib, forming the nævus foliaceus; and sometimes a small red centre with branching lines, like legs, has suggested the idea of a spider, or N. araneus. But those nævi which are prominent, have most commonly been compared to different species of fruit, especially to cherries, currants, and grapes, when the surface is smooth and polished; or to mulberries, raspberries, and strawberries, when the surface is granulated; whence the nævus cerasus, ribes, morus, rubus, fragarius, &c.

Some of these excrescences are raised upon a neck or pedicle; while some are sessile upon a broad base. Some of them again, although vivid for some time after birth, gradually fade and disappear; some remain stationary through life, but commonly vary in intensity of colour at different seasons, and under circumstances easily explained; and others begin to grow and extend, sometimes immediately after birth,

and sometimes from incidental causes, at a subsequent period, and from small beginnings become large and formidable bloody tumours, readily bursting, and pouring out impetuous and alarming hæmorrhages, which, if they do not prove sudenly fatal, materially injure the health by the frequent depletion of the system. Sometimes, however, after having increased to a certain degree, they cease to enlarge, and thenceforth continue stationary, or gradually diminish, till scarcely any vestige remains.

In some instances, however, these preternatural enlargements and anastomoses, which constitute the nævi, are not merely cutaneous. A similar morbid structure may take place in other parts; it sometimes occupies the whole substance of the cheek, according to Mr. Abernethy, and has occurred in the orbit of the eye; and Mr. John Bell affirms, that it affects indifferently all parts of the body, even the viscera.

The origin of these connate deformities is equally inexplicable with that of other anomalous and monstrous productions of nature; but it would be insulting the understanding of the reader, to waste one word in refutation of the vulgar hypothēsis, which ascribes them to the mental emotions of the mother —an hypothesis totally irreconcileable with the established principles of physiology, and with the demonstrable nature of the connexion between the fœtus and the parent, as well as with all sober observation.

It is important, however, to know that very slight causes of irritation, such as a trifling bruise, or a tight hat, will sometimes excite a mere stain-like speck, or a minute livid tubercle, into that diseased action, which occasions its growth. This growth is carried on by a kind of inflammatory action of the surrounding arteries; and the varying intensity of colour arises from the different degrees of activity in the circulation. Thus these marks are of a more vivid red in the Spring and Summer, not in sympathy

with the ripening fruit, but from the more copious determination of blood to the skin, in consequence of the increase of the atmospheric temperature. The same increased determination to the surface is also produced temporarily, and with it a temporary augmentation of the florid colour of the nævi, by other causes of excitement to the circulation; as by active exercise, by heated rooms, or the warmth of the bed, by drinking strong liquors, or high feeding, by emotions of the mind, and in women, by the erethism of menstruation.

These considerations will serve to suggest the proper means of treating the nævi and spili, where any treatment is advisable. When they are merely superficial, without elevation, which would render them liable to accidental rupture, and without any tendency to enlarge and spread, there appears to be no good reason for interfering with them. The applications mentioned by the older writers were doubtless as futile as they were disgusting; such as saliva, the meconium of infants, the lochial blood of women, the hand of a corpse, &c.; and the severe resource of the knife, even if the deformity of a scar were much less than that of the original mark is scarcely to be recommended.

But when the nævi evince a tendency to enlarge, or are very prominent excrescences, and either troublesome from their situation, or liable to be ruptured, some active treatment will then be required. Either their growth must be suppressed by sedative applications, or the whole morbid congeries of vessels must be extirpated by the knife.

All strong stimulants externally must be avoided, as they are liable to produce severe inflammation, and even constitutional disorder.

The consideration of the mode in which these vascular excrescences grow, by a degree of inflammatory action in the surrounding vessels, suggested to Mr. Abernethy the propriety of maintaining a con-

stant sedative influence upon those vessels, by the steady application of cold, by means of folded linen kept constantly wet. This practice has succeeded, in several instances, in repressing the growth of these unnatural structures, which have afterwards shrunk, and disappeared, or ceased to be objects of any importance. Pressure may, in some instances, be combined with this sedative application, and contribute to diminish the dilatation of the vessels; but in the majority of cases, pressure is the source of great irritation to these maculæ, and cannot be employed. The temporary enlargement of these prominent nævi by every species of general excitement, would teach us to enjoin moderation in diet, exercise, &c., during the attempts to subdue them.

The mode of extirpation is within the province of the surgeon; and the proper choice of the mode, under the different circumstances, is directed in surgical books. From the days of Fabricus Hildanus, the propriety of radically removing every part of the diseased tissue of vessels has been inculcated; but Mr. John Bell has most satisfactorily stated the grounds of that precept, by explaining the structure of these excrescences, as well as the source of the failure and danger, when they are only cut into, or opened by caustic. I shall therefore refer the reader to his "Discourse," already quoted.

The varieties of spilus, or mere thickening and discoloration of the rete mucosum, are sometimes removable by stimulant and restringent applications. A combination of lime and soap is extolled by several writers; and lotions of strong spirit, with the liquor potassæ, as recommended for the treatment of the ephelides and of pityriasis, certainly sometimes remove these maculæ.

With respect to those brown maculæ, commonly called moles, I have little to observe; for no advantage is obtained by any kind of treatment. It is scarcely safe, indeed, to interfere with them; for

when suppuration is induced in them, it is always tedious, and painful, the matter emitting at the commencement an extremely fetid odour. When moles are irritated by accident, or rudely treated, so as to produce excoriation, they are liable, it is said, to become gangrenous, and thus to produce sudden fatality.

Moles are not always congenital. I lately saw an instance in a lady of remarkably fair and delicate skin, where a numerous crop of small moles appeared, in slow succession, upon the arms and neck. Congenital moles, indeed, are not always stationary; but they sometimes enlarge gradually for a time, and afterwards disappear.

DISEASES OF THE CELLULAR TISSUE.

PHLEGMON.

781. *Symptoms.*—A round prominent tumour, with violent pulsating pain, great heat, and intensely red in the centre, gradually diminishing towards its base. Pain and swelling usually precede the redness; it attacks the parts of the body which contain quantities of cellular membrane; generally terminates by suppuration, and the formation of an abscess. When it occurs in the groin, it is called a *bubo;* in the region of the parotid gland *cynanche parotidæa*, or *mumps;* and *whitlow* when situated in the subcutaneous cellular tissue of the fingers, or the tendinous sheaths which surrounds them.

782. Phlegmon may be confounded with anthrax, furunculus, carbuncle, or erysipelas.

783. *Anatomical Characters.*—In the first stage, the cellular substance is red, injected with blood, and very easily torn; in a short time, when the formation of pus is commencing, we find a gelatinous fluid issues on pressing the parts, but is soon changed into real purulent matter; this at first is found in numerous small collections, but finally one sac is formed; the parts around are injected with blood; the internal surface of the abscess has the appearance of a mucous membrane; when the inflammation becomes chronic it changes colour and turns greyish.

FURUNCULUS, OR BOIL.

784. *Symptoms.*—A conical, circumscribed, hard, and very painful tumour of a fiery red colour, and very hot; terminating in suppuration; small pieces of mortified cellular substance generally come away with the purulent matter. This affection consists of an inflammation of the cellular substance which fills the conical papillæ of the dormis, generally observed at the verge of the anus, on the buttocks; the scrotum and internal parts of the thighs. Their volume varies from the head of a pin to the size of a cherry, and are observed to appear in great numbers successively.

785. It may be confounded with anthrax, carbuncle, erysipelas, or phlegmon.

ANTHRAX (BENIGN.)

786. *Symptoms.*—An inflammatory, circumscribed, very hard and painful tumour, of a violet red colour, exceedingly hot, especially at the top of the tumour; in this is found a thick, flocculent, and bloody matter, very fœtid; even after the suppuration takes place, it still spreads; many irregular openings are formed, at the bottom of which the cellular substance is seen greyish and sloughing in layers; attacks the neck, back, parietes of the thorax and abdomen, and the shoulder. It sometimes is several inches in circumference.

787. It may be confounded with furunculus and carbuncle.

788. *Anatomical Characters.*—In the first stage they are the same as described in phlegmon; in the more advanced stages, the cuticle mortifies, and forms a blackish crust; it is swollen and infiltrated with blood and serum. Pus may be found in the cells of the cellular tissue or collected into an abscess.

MALIGNANT PUSTULE.

789. *Symptoms.*—A small spot appears on the

skin without any precursory symptoms; this is followed by a small vesicle, which produces most violent itching; it soon breaks, and a serous, very irritating, yellowish fluid flows from it; in its centre a dry livid spot may be observed. In a very short time a dreadful burning heat comes on; new vesicles are formed round the gangrenous spot; with an œdematous swelling of the skin, at first very pale, and glossy, then erysipelatous; the tumour extends, and all the symptoms increase; and constitutional phenomena commence of a nervous or low typhoid type, active in their most aggravated form. In its commencement this disease is purely local, and easily cured by surgical means. It proceeds from the contact of the remains of animals which have died of the carbuncle. It is always sporadic.

790. It may be confounded with anthrax, carbuncle, or erysipelas.

791. *Anatomical Characters.*—The same as erysipelas, with gangrene of the skin and cellular membrane.

CARBUNCLE, OR MALIGNANT ANTHRAX.

792. *Symptoms.*—A very hard and painful low tumour, of a fiery red colour in its circumference, but livid and black in its centre; surrounded very often by small tumours, which soon become black, or vesicles containing an irritating serosity. Always accompanied by constitutional symptoms, and generally preceded by them. It is one of the worst symptoms in pestilential diseases. Very often epidemic, especially amongst quadrupeds, and may be communicated from them to man by the contact of their remains, or the use of the flesh. It may arise spontaneously; when left to itself it is speedily and invariably fatal.

793. It may be confounded with malignant pustule, or anthrax,

794. *Anatomical Characters.*—Those of inflammation and gangrene of the skin and cellular membrane.

ŒDEMA.

795. *Symptoms.*—Uniform, indolent, and inelastic swelling of the skin; it is pale, milky-white, and glossy; no heat; retains the impression of the finger for some time. In some cases it is confined to the lower extremities, in others it is general, and is then called anasarca.

796. It may be confounded with emphysema, phlegmon, and erysipelas.

797. *Anatomical Characters.*—The cells of the subcutaneous and intermuscular cellular tissue, distended with a serous fluid.

SUBCUTANEOUS EMPHYSEMA.

798. *Symptoms.*—Indolent, colourless, shining, and elastic swelling, which does not retain the impression of the finger; but when pressed a particular crepitating noise, quite characteristic, is heard.

799. It may be mistaken for œdema.

800. *Anatomical Characters.*—The swelling is produced by gazeous fluids passing into the cells of the cellular membrane.

HARDENING OF THE CELLULAR TISSUE.

801. *Symptoms.*—Great hardening of a portion or the whole of the cellular membrane; very firm, and not yielding to pressure; commencing generally in the hands and feet; extending along the extremities to the abdomen and face, and inducing a coldness in the integuments. It attacks infants newly born.

802. *Anatomical Characters.*—The cellular tissue filled with an albuminous yellowish liquid, occasionally very thick and purulent.

INFLAMMATIONS OF MUCOUS MEMBRANES.

OPHTHALMIA.

803. *Symptoms.*—This affection commences by a sense of weight and tightness in the eye; it then becomes difficult and painful to move it; violent and burning heat, encreased by the action of light, with a disagreeable itchiness; the conjunctiva reddens, either generally or partially, with some swelling round the cornea; the tears flow incessantly, become irritating, and excoriate the cheeks; matter, at first limpid, afterwards thick and white, is discharged; vision becomes confused; violent headache generally complained of. When it passes into the chronic stage the violent pains cease; the edges of the eyelids swell, turn red, and become painful; the flow of tears continues, and vision is weakened, which obliges the sufferer to desist in using these organs too long at one time.

804. *Anatomical Characters.*—Redness, swelling, and roughness of the conjunctiva.

OTITIS, OR INFLAMMATION OF THE EAR.

805. *Symptoms.*—Violent lancinating pain, extending from the auditory canal to the throat, preventing free deglutition, encreased by the head being moved, by coughing, mastication, &c.; continual humming or buzzing sound; matter at first thin, afterwards thick, of a yellowish green colour,

very fœtid, is discharged; this sometimes contains small pieces of bone; violent headache, particularly severe when the internal ear is affected, when frequently a caries of the mastoid process is induced; in this case the matter may be discharged by the eustachian tube unto the pharynx, either gradually or all at once.

806. The diagnosis between external and internal otitis may be made by attention to the following symptoms. In the external the pain is not so deeply seated, matter is formed very soon, a few hours, or at most two days is sufficient for its formation, and it is at first of a serous nature. In the internal affection the matter does not appear before the eighth day, and it is discharged suddenly, of a purulent quality, mixed with blood; it may flow externally by the rupture of the membrana tympani.

807. Diseases it may be confounded with. The acute form may be mistaken for a neuralgia, and the chronic for affection of the cerebellum.

CORYZA.

808. *Symptoms.*—The nares obstructed, dry, and itching, disagreeable heaviness in the frontal sinuses, dull headache, frequent sneezing, loss of smell, *lachrymation*, change of the voice, secretion of mucus at first suppressed, but becomes very abundant, serous, and irritating, which causes an excoriation round the nares; it is afterwards thick, yellowish, or green, and finally returns to its natural quality and quantity. When it runs into a very chronic state, there is sometimes a discharge of purulent fœtid matter, ulcerations having been formed.

809. When this affection seizes infants at the breast, it prevents them from sucking, as the nasal respiration is impeded. The disease may be easily detected by examining the parts.

810. *Anatomical Characters.*—Redness and in-

jection of the mucous membrane, which sometimes is thickened, and ulcerated, &c.

GONORRHŒA.

811. *Symptoms.*—A violent itching on the orifice of the urethra, in the glans penis, which is slightly swollen and red, the itching and pain much increased after the last drops of urine; a discharge of matter, which is at first limpid and colourless, then gets thick, and of a green yellow tint. The making water gives great pain, and the calls to perform this function becomes more frequent and urgent as the disease advances. When the inflammation extends to the whole course of the urethra, this canal hardens and is very painful; the passage of the urine is effected with much difficulty, and very often complete retention takes place; the erections are frequent, particularly in the night, and exceedingly painful. We have no positive sign to distinguish the syphilitic gonorrhœa from the other similar affections.

812. *Anatomical Characters.*—The mucous membrane, red, thickened, and covered with the secreted matter, especially towards the fossa navicularis; ulcerations rarely met with. When the disease has lasted for a considerable time, hardened bands and irregular cicatrices are sometimes seen. Partial thickening of the lining membrane, causing strictures, is often found.

TETANUS.

813. *Symptoms.*—Violent, involuntary, and permanent contraction of the muscles of the whole body, or of some part of it, unaccompanied by disturbance of the mental functions, generally induced by lacerated wounds. In many instances we observe convulsive twitchings of the muscles, subsultus tendinum, acute pain, slowness of the pulse, and more or less hurried respiration. Sometimes the

spasms affect the elevator muscles of the lower jaw, causing the locked jaw; in other cases it is the extensor muscles of the trunk, and less frequently the flexors that are attacked, occasionally only one side is affected, hence the body may be bent backwards, forwards, or to one side.

814. Tetanus may be mistaken for some disease of the brain and its membranes, and still more probably those of the spinal marrow.

815. *Anatomical Characters* not known.

RHEUMATISM.

816. *Symptoms.*—Pain more or less acute, producing a gnawing sensation, increased by the action of the affected muscles; accompanied, particularly in acute cases, with swelling and slight redness of the integuments; generally brought on by cold and moisture. It is liable to sudden metastasis to the muscles of a different region or to the joints; when it is severe and very painful it causes fever and various constitutional symptoms. The muscles most generally attacked are those on the back of the neck, the parietes of the thorax, and the lumbar region, to which respectively are applied the terms torticoli, plarodynia, lumbago. When it comes on gradually, or when it becomes chronic, no swelling is observed; the pains are felt only at irregular intervals, sometimes however, though rarely, they are continued, but in almost every instance they are increased by changes in the atmosphere or by cold. This affection is generally very tedious, lasting for many weeks, and in some instances for years, and after it has ceased, is very liable to return.

817. Diseases with which it may be confounded, are the neuralgic affections.

818. *Anatomical Characters.*—When acute rheumatism is seated in muscular parts, if the inflammation has been very intense, pus is sometimes found infiltrated into the part affected, or even col-

lected so as to form an abscess. The substance of the muscles is softened, of a reddish brown colour, easily torn, and contains a bloody serum. When the disease is chronic, no very evident alteration can be perceived in the state of the parts.

ARTICULAR RHEUMATISM.

819. *Symptoms.*—Acute, lancinating pain of one or more of the joints, increased by motion or the slightest pressure, and accompanied by a greater or less degree of swelling of the affected part, and sometimes inflammation of the skin over it, with perceptible fluctuation. It most commonly attacks the large joints, as the knee, the wrist, the elbow. This inflammation readily changes from one part to another, generally causes fever, and is of very tedious duration.

820. *Anatomical Characters.*—The articulations are filled with purulent matter of various consistence, or with a bloody serum; the synovial membrane is often found injected, swollen, and in some cases altogether destroyed. The articular cartilages may be enlarged, thickened, diminished, or may have partly disappeared. Pus is sometimes found effused round the joint, or into the sheaths of the tendons.

GOUT.

821. *Symptoms.* — Inflammation attacking the small joints, but more especially that of the great toe, and the phalanges; it is generally remarked to be hereditary, and continuing a great part of the patient's life, and not accidental, as acute articular rheumatism; rarely occuring before the age of thirty years, chiefly attacking those who live luxuriously, often connected with intestinal irritation, recurring in regular or irregular paroxysms, in which a more or less violent pain attacks the great toe, the ankle, or the heel, lasts for some time, and goes off; the

affected part remaining a little red and swollen. Concretions of urate of soda or lime are often formed on the joints after these paroxysms. In cases of long standing or in the erratic species the diagnosis is often very difficult.

822. *Anatomical Characters.*—Calcareous concretions of the joint, with some appearance of inflammation.

DISEASES OF THE VASCULAR AND NERVOUS TISSUES.

ELEPHANTIASIS.

823. *Symptoms.*—Hard and permanent swelling, at first confined to the lymphatics of the diseased part, commencing with a fixed pain in a cluster of glands, or in the course of the lymphatic vessels; redness and irregular swelling, with difficulty of motion. When the disease has lasted for a few days, the swelling disappears, and returns again and again; the part becomes harder and harder, at the same time small irregular tubercles are formed; the feet, the legs, the hands, and the face, which are most commonly affected in this manner, lose all shape, and are covered with thick white crusts, or small ulcerations which discharge sanious matter.

824. *Anatomical Characters.*—The lymphatic vessels and glands swollen, discoloured, and softened; the coats of the former easily torn, if we attempt to inject them; the cellular tissue connecting these parts undergoes the same change, and appears as if schirrous.

PHLEBITIS, OR INFLAMMATION OF VEINS.

825. *Symptoms.*—Pain and swelling in the course of the affected vein, extending from the point where it commenced towards the heart; the cellular substance near the part, and sometimes that of the whole

limb swollen; in the course of the vein a kind of cord is felt rolling under the finger. This affection is generally produced by bleeding.

826. *Anatomical Characters.*—On opening the body the coats of the vein are found thickened, red, and easily torn, with pus effused into its cavity. The inflammation generally extends more towards the heart than in the opposite direction.

NEURALGIA.

827. *Symptoms.*—Fixed pain in the trunk, or branch of a nerve extending along its course, speedily changing from one part to another, sometimes affecting all together, or confined to one or two branches. The pain is very various; an icy coldness is complained of by some, or burning heat, disagreeable numbness, sense of touch impaired, or a kind of electric shock; in others we have lacerating or quick lancinating pains, transitory pricklings, or permanent pulsations. This pain is very irregular, its paroxysms coming on generally without any evident cause. Pressure of the nerve or its filaments in the most violent paroxysms rather lessens the pain, or if it should cause any, none of the characteristic marks of neuralgia are observed; it is rather a slight numbness of the part which is pressed, but never that lancinating pain in the course of the nerve. No alteration can be observed in the integuments of the affected part; heat in some instances lessens the pain, in others increases it; in the latter case cold affords relief. Neuralgia may change instantaneously from one nerve to another; it may attack any nerve in the body, but as its symptoms are always the same, we shall only speak of its chief varieties.

828. Neuralgia may be confounded with inflammation of the nerve, or certain rheumatic affections.

829. *Neuralgia of the facial nerves.*—Pain in

some facial branch of the portio dura of the seventh pair, or in some of the numerous divisions of the fifth. This species is generally intermittent, and accompanied with the most violent and variable pains, and all the characteristic phenomena of which we have given an account. The paroxysms are commonly very short, but recur very frequently.

830. *Neuralgia (Ileo-scrotal.)*—Of very rare occurrence, situated in the second branch of the first pair of lumbar nerves. The pain commences at the crest of the ilium, extends to the spermatic cord, to the scrotum, attended by contraction of this covering and retraction of the testicles.

831. *Sciatica.*—Pain extending from the ischiatic notch along the posterior part of the thigh to the ham then affecting the knee, from that to the leg, on its fibular side, and terminating in the calf.

832. *Neuralgia Cruralis.*—Pain following the course of the crural nerve, from Poupart's ligament on the inside of the leg to the dorsum of the foot.

833. *Neuralgia (cubito digital.)*—Pain from the internal condyle of the humerus, to the dorsal or palmar regions of the fore-arm.

834. *Anatomical Characters.*—No alteration can be perceived in the affected parts.

INFLAMMATION OF THE NERVES.

835. *Symptoms.*—A fixed, lacerating, numbing, or lancinating pain in the trunk, or branch of a nerve increased very much by pressure, but unaccompanied by the various characteristics of Neuralgia; it is generally continued, or its remissions are not well marked; in some instances a slight swelling of the nerve may be observed.

836. *Diseases with which it may be confounded*, are, Neuralgia and certain rheumatic affections.

837. Morbid appearance more or less marked, redness of the nervous tissue, with injection of its

vessels, or of those of the surrounding cellular substance; partial ecchymosis; sero-sanguineous or sero purulent effusion in the nervous filaments; sometimes thick pus is found in the nerve. A few cases are related, in which the nerves were found gangrenous in many points; even small tumours like tubercles are said to have formed in the nervous tissue, or between the filaments of the nerve.

CONSTITUTIONAL DISEASES.

SCURVY.

838. *Symptoms.*—Lassitude, with a sense of weight in the muscles of the lower extremities; indolent and inelastic swelling of the legs, which are covered with blotches of greater or less size, not elevated; red, blue, violet, or yellow, very similar to those ecchymoses arising from contusions, changing colour as the former, becoming brown, and gradually disappearing; pain, swelling, and bleeding of the gums; fœtid smell from the mouth, and the teeth get loose, and fall out, and hæmorrhage occurs from the various mucous membranes.

839. *Anatomical Characters.*—The blood is generally found fluid, the muscles flaccid, the bones softened, yellow, and uneven. The viscera present various appearances, they are generally softened, pale, and gorged with watery blood. The brain something softened.

SYPHILIS.

840. *Symptoms.*—These differ much in the various tissues which may be affected, but in all cases arising from a syphilitic taint, and attended with ulceration and discharge of matter, capable of reproducing the same disease by inoculation. When the mucous membrane is affected, we find gonorrhœa, ophthalmia, or ulcers; these ulcers commence in a

pimple, and afterwards have the following characters :—a greyish base, the edges hard, thick, red, and conical ; they generally occur on the glands, on the internal surface of the prepuce, in the vulva, the mouth, in the throat, or about the anus. When the skin is affected, we observe patches of a copper or reddish brown colour ; dry furfuraceous crusts at the roots of the hairs ; greyish ulcers, which proceed from prominent pimples, appearing like boils ; round transparent pustules covered by crusts ; dry or suppurating fissures ; and finally, we may have the epidermis very rough or uneven.

When syphilis attacks the glands the inflammation has a great tendency to run to suppuration or induration ; the inguinal glands are those most exposed. The periosteum and bones, especially of the cranium and face ; the sternum and tibia are very frequently affected ; the parts swell, and a hard more or less prominent tumour is observed ; the pain which is produced is much more violent during the night. A deep caries is often the consequence.

841. *Anatomical Characters.*—Just described above.

SCROFULA.

842. *Symptoms.*—Indolent swelling of the glands in various parts of the body, but occurring most commonly in the neck and abdomen of children ; no change is observed in the skin at the commencement, but after some time it becomes red, gets thinner, and finally ulcerates ; this is attended with very little pain. Scrofula often induces swelling and caries of the long bones ; various affections of the joints, especially of the knee, hip, foot, and ancle. The affected glands remain for some time without change, at length they soften and ulcerations take place, discharging a serous fluid, sometimes mixed with albuminous flocculent matter. The cicatrices of these ulcers are pale, irregular, and

wrinkled. When scrofula attacks the lungs it causes phthisis. Persons whose lymphatic system is much developed, seem particularly subject to this disease. It is remarked to be endemic in moist and cold valleys, where the rays of the sun cannot penetrate.

843. *Anatomical Characters.*—On dissection the cervical maxillary or mesenteric glands are found variously affected; those of the axilla and groin are not so commonly diseased. Tubercles are often discovered in the lungs. In some instances we find swelling and softening, or destruction of the articular surfaces and caries of the ends of the bones.

FEVERS.

ERUPTIVE FEVERS.

SCARLATINA.

844. *Symptoms.*— A contagious disease, commencing with the symptoms of inflammation of the different mucous membranes, especially of the throat, followed on the second, third, or fourth day, by an eruption of small, isolated, and little prominent pimples, at first of a palish red, then scarlet colour; these pimples enlarge and approach each other, becoming in this way confluent, and forming large patches, giving the skin the appearance of being covered by raspberry juice, or the sediment of wine. These patches appear on the face and neck, then on the chest, abdomen, and extremities; last from seven to nine days, and then disappear in the same order, and are followed by a furfuraceous disquamation of the epidermis.

845. *Anatomical Characters.*—The red spots disappear after death, but traces are found of inflammation of the digestive tube, and more frequently of the lungs and trachea.

846. Before the eruption has taken place, it may be confounded with arachnitis, or inflammation of the digestive or respiratory organs. After the eruption has taken place, with measles.

MEASLES.

847. *Symptoms.*— This disease is contagious, occurs but once during life; appears in an eruption of semilunar spots of vermilion red, separated by

colourless intervals of an angular form; the spots do not generally rise over the skin, sometimes however they are swollen in the middle like small pimples, and more easily felt than seen; do not contain any fluid, and disappear without suppurating, leaving, on going off, a slight degree of roughness. These spots are first seen on the face and neck, then on the chest, abdomen, and extremities, and form, by spreading and approaching each other, irregular, prominent, and vermilion coloured patches, more red and broad on the extremities than any other part; their duration from seven to nine days, and terminate by disquamation. The eruption is preceded and accompanied by a certain degree of irritation of the mucous membrane of the nose, eyes, and intestines, and still more particularly of that of the pulmonary organs. There is also some fever attending. The disease terminates by disquamation of the cuticle.

848. *Disease with which it may be confounded:*—arachnitis, inflammation of the mucous membranes of the digestive or pulmonary organs before the eruption appears; after this takes place, scarlatina.

849. *Anatomical Characters.*—All traces of the eruption disappear after death; the mucous surfaces of the digestive and pulmonary organs often found more or less extensively inflamed.

VARICILLA (CHICKEN-POCK).

850. *Symptoms.*—On the first or second day there appears an eruption of small pimples, which are at first red and slightly prominent, then spread, turn white, and the summit fills with a white, transparent, and inodorous fluid. This fluid does not possess the power of inducing the same diseases by inoculation. The three stages of eruption, suppuration, and desiccation, are not well marked; it terminates from the sixth to the tenth day. Never fatal, nor does the skin retain any mark whatever.

851. It may be confounded with variola.

852. *Anatomical Characters.*—These are described above.

VARIOLA (SMALL-POCK.)

853. *Symptoms.*—After a febrile attack for two or three days, or some symptoms of gastric irritation, an eruption of pimples appears successively on the neck, face, chest, and then on the rest of the body; their duration is from four to five days, and present the following characters: Their form is lenticular and depressed at the centre; at first they are very small and red, then enlarge, become white, but are surrounded by a red areola; at this period they are filled with a seropurulent, nauseous fluid, which possesses the property of producing a similar disease by inoculation. The skin near those pustules is swollen and painful, especially on the face and hands, and still more remarkably so in the confluent species, in which form the pustules are quite flattened; and as they are deprived of the red areola, they become blended, and form large patches covered by phlyctenæ, or a whitish pellicle. From the ninth to the eleventh day the pustules exsiccate in the order of their appearance, are followed by encrustations, which are cast off from the fifteenth to the twentieth day, leaving cicatrices or pits, which are at first red, then colourless, variable in depth and extent, but in all are very permanent in their duration. This disease is remarkably contagious, often epidemic; occurs most commonly in infancy; usually but once during life.

854. Diseases with which it may be confounded: Inflammatory affections of the brain, or its dependencies, the lungs or intestines, the various exanthematic fevers before the eruption. After this, varicella.

855. *Anatomical Characters.*—The characters and appearance of pustules differ in their different

stages. In the first or eruptive stage, it is formed in a solid red mass, like a phlegmon in the rete mucosum, and adhering to the true skin; during the second or inflammatory stage it is found filled with a fluid of variable characters; in the third, or suppurative, it contains pus, and depresses the true skin; fourth, after desiccation has taken place, we find incrustations on the skin, which are red, and more or less deep. In many instances we find variolous pustules on the gastro-intestinal and pulmonary mucous surfaces, which appear like aphthæ.

VACCINIA, OR COW-POCK.

856. *Symptoms.*—This is always produced by the inoculation of matter either taken directly from the cow, or from vaccine pustules on the human subject. On the third or fourth day a small, hard, and colourless eminence is observed where the matter was inserted, then a vesicle depressed in the centre, which gradually increases in size, and on the 6th or 7th day presents a tense prominent head, surrounded by an areola of a deep red colour; if at this period we open the vesicle, a limpid, transparent, and viscid fluid exudes, which has the power of reproducing the same affection; on the eighth and tenth days the swelling and redness increase, the vesicle becomes broad, whitish, and less prominent; on the twelfth desiccation commences, and spreads from the centre to the circumference; a hard, dry, reddish crustation is formed, which falls off about the twentieth day, leaving a well marked and indelible cicatrix.

Every eruption after vaccination not presenting these characters is spurious, and not to be relied on.

INFLAMMATORY FEVER.

857. *Symptoms.*—This is ushered in by shivering fits; the face red and flushed, eyes bright and injected, pulsations of the temporal and carotid

arteries; intolerance of light and sound; great sense of weight in the head; faintness; the pulse full, strong, and frequent; the beating of the heart increased; respiration deep and frequent; the tongue whitish; constipation; hæmorrhagies often occur, giving temporary relief; secretion of urine diminished; it is first very red, but afterwards deposits a dirty sediment; dull pains in the limbs; an exacerbation generally takes place in the evening, and during the night. In the advanced stages of this disease, the skin, which was at first hot, and becomes parched, the tongue dry, or covered with a brownish crust; the intellectual functions destroyed; great debility, and the patient dies.

858. *Anatomical Characters.*—On dissection the signs of inflammation is found in some of the principal organs.

BILIOUS FEVER.

859. *Symptoms.*—Bitter taste in the mouth, the tongue covered with a whitish or brownish coat, nausea, and desire of vomiting; thirst, particularly for acidulous drinks; complete disgust for animal food; bilious vomiting, constipation or diarrhœa, head-ache principally complained of around the orbits; a yellow tinge observed in the lips and alæ nasi; skin hot, dry, and parched to the touch; tenderness of the epigastrium on pressure; dull pains of the extremities; pulse full, hard, and frequent; in some instances a complete jaundice occurs. Morning and evening exacerbations.

860. These symptoms should rather be considered as proceeding from some inflammation of the digestive organs, than as an idiopathic disease.

861. *Anatomical Characters.* — For these the reader is referred to the descriptions given when treating of the affections of the gastro-intestinal canal.

MUCOUS FEVER.

862. *Symptoms.*—Irregular rigors; tongue moist and white, or coated with a thick mucus; the mouth clammy; increased secretion of saliva; the breath fœtid; aphthæ observed in the mouth; acid or fœtid eructations; mucus diarrhœa, with expulsion of worms; pulse rather slow, small, and weak; heat of skin moderate; urine diminished in quantity, sometimes the secretion of it is very abundant, limpid, whitish, and depositing a greyish sediment; dull headache; general lassitude; pains in the joints, dulness of intellect, irregular exacerbations.

863. *Anatomical Characters.*— Inflammation of the digestive respiratory tubes.

ADYNAMIC FEVER.

864. *Symptoms.*— General languor, and great prostration of strength; great reluctance, and slowness in moving; the muscles quite flaccid, so that the limbs, when raised, fall like dead masses; the patient lies on his back; great tendency to gangrene in wounds, and those parts on which the body rests; it is very difficult to redden the skin; appearance of petechiæ and ecchymosis; the skin dry, and the heat trifling; cold, viscid, and partial sweats; great sinking of the countenance; the energy of the intellectual faculties much diminished; drowsiness; wild dreams; answers very slowly given; the eyes contorted; the tongue at first pale, then becomes parched, and is covered, as well as the lips and teeth, by a brown black coat of viscid matter; the breath fœtid; great difficulty of swallowing often impossible; dark and fœtid fæces passed involuntarily; meteorism of the abdomen; the urine either passed in bed, or completely retained; hæmorrhagies occur often, and increase the debility; the pulse rather slow, soft, and easily compressed; pulsations of the heart weak; the blood is found very thin, and sometimes of a greenish colour.

865. *Anatomical Characters.*—In the present state of the science we cannot exactly describe these; the bodies run into putrefaction in a very short time; the parenchymatous viscera are found softened; the lungs and the lining mucous membrane of its numerous canals are gorged with a thin black blood.

NERVOUS FEVER.

866. *Symptoms.*—Great irregularity and confusion of the different functions, and of the phenomena which depend on them, accompanied with various nervous affections; no consistency between the symptoms, and the generally fatal termination of this disease; the sensibility and the various senses more acute than natural or confused; the tone of the voice changed; delirium; dreaming; stupor; restlessness; general or partial convulsions; trembling fits, with subsultus tendinum; rigidity of the muscles and temporary paralysis; swooning, fainting; finally a comatose state comes on; pulse very irregular; it is found sometimes quick, sometimes slow, intermitting, and changes instantaneously from one to the other; face pale, alternating with flushings; perspiration may be either suppressed or very copious; the temperature varies in the same way from hot to cold, &c.; the diagnosis of this disease is often very difficult.

867. Diseases with which it may be confounded: The different cerebral affections of the gastro-enteritic inflammations.

868. *Anatomical Characters.*—In the simple nervous fever no alteration is found on dissection.

TYPHUS.

869. *Symptoms.*—This disease always arises from infection, is generally contagious, and confined to European countries; the symptoms are those observed in the inflammatory affections of the viscera of the three great cavities, or those of the five differ-

ent fevers we have just described. Typhus, in its first stage, is characterized by the symptoms of the inflammatory, bilious, or mucous fevers, and in its second, by those of the adynamic or ataxic; it is very often epidemic, and the principal phenomena are stupor, vertigo, petechiæ, constant confusion of the nervous functions, and a great tendency to a fatal termination.

870. *Anatomical Characters.*—These vary very much; the viscera of the head, thorax, or abdomen, sometimes are seen with all the marks of most acute inflammation, in other cases it seems to have been very slight, or no traces of any disorganization may be observed, especially where death has occurred very rapidly; the bodies generally putrefy quickly.

YELLOW FEVER.

871. *Symptoms.*—A most fatal disease, occurring in hot climates, and running its course in a very short time; the principal symptoms are, violent headache often confined to the orbitar region, with redness or paleness of the face at its commencement, and soon followed by itchings, nausea, violent thirst, yellowness of the skin observed on the temples, the conjunctiva, the sides of the neck, and soon spreads over the whole body; violent pains in the epigastric region of the abdomen and loins now supervene; excessive internal burning heat, with coldness of the extremities; vomiting of yellow, then dark matter; urine diminishes, and finally is suppressed; passive hæmorrhagies occur; local gangrene; syncope, hiccup, subsultus tendinum, and gradual sinking of the pulse.

872. *Anatomical Characters.*—General yellowness of the skin, interspersed with blue livid spots; the muscles soft or contracted; congestion of blood in the membranes of the brain, and occasionally an effusion of a sanguinolent serum is found at the base of the brain and along the spine; red, livid, or

dark black spots on the mucous membrane of the stomach, which is filled by a dark fluid matter similar to what was vomited. The lining membrane of the intestines often brown-coloured; the liver softened; the kidneys red, or covered with gangrenous spots; the bladder contracted, sometimes inflamed.

PLAGUE.

873. *Symptoms.*—An essentially contagious disease confined to the eastern countries, inducing death very rapidly, always accompanied by carbuncles and buboes, which terminate in gangrene; petechiæ on different parts of the body; these are attended with general symptoms, the same as described in the ataxic and adynamic fevers.

874. *Anatomical Characters.*—Gangrene of different portions of the digestive tube; sanguineous congestions in the head or chest; suppuration more or less of the principal viscera, and invariably gangrene is found in the skin and glands of the groin and axilla.

INTERMITTENT AND REMITTENT FEVERS.

875. *Symptoms.*—The returns of this fever are more or less regular, the fits being divisible into three stages, the cold, the hot, and the sweating; if during the fits there is a complete cessation of fever, it is called intermittent; if on the contrary, the fever does not cease altogether during the intervals, it is called remittent; these fevers in general present the symptoms peculiar to one or other of the five orders described above.

876. *Anatomical Characters.*—The appearances presented after death are very variable; we know of none that may be called pathognomic of the disease; the spleen is sometimes found increased in size and consistence, particularly when the disease has been of long standing.

CONTAGIOUS FEVERS.

877. *Symptoms.*—The febrile attacks or paroxysms present various symptoms at their commencement, but still assume some special character marked by some phenomena which threatens life directly, and increases at each attack. These fevers, which are endemic in certain countries, owe their origin usually to the influence of marsh miasmata.

878. *Anatomical Characters.* — The organs to which those symptoms are referable, which characterized the disease, present various alterations in their appearance and texture, but in some cases there is no appreciable alteration, particularly when the patient dies in the early stages of the disease.

POISONS.

THE METALLIC CORROSIVE POISONS.

POISONING BY THE PREPARATIONS OF ARSENIC.

879. *Symptoms.*—Taste acrid and metallic; constriction of the pharynx; nausea; vomiting; the ejected matter brown, sometimes bloody; salivation copious; precordial anxiety; heat and pain in the stomach; stools black, sometimes green, fœtid; violent colic pains; tenesmus; pulse small, quick, and irregular; intense heat of skin; burning thirst, cold sweats, difficult respiration; urine scanty, red, or bloody; delirium; convulsions; total change in the expression of the countenance. When the poison has been taken in large quantity, the sufferer dies quickly, without presenting the symptoms characteristic of this mode of poisoning.

880. *Anatomical Characters.*—Traces of inflammation, more or less considerable, of the mucous membrane of the digestive canal from slight redness to ulceration, and even gangrene.

POISONING BY THE PREPARATIONS OF ANTIMONY.

881. *Symptoms.*—The same as those of poisoning by the acids; they usually commence in very abundant and obstinate vomiting, with acute pain of the stomach; there are observed extreme prostration of strength, copious stools, violent colic pains, cramps, cold sweats, and delirium.

POISONING BY THE PREPARATIONS OF COPPER.

882. *Symptoms.*—Coppery taste in the mouth;

eructations of the odour of copper; nausea; vomiting, with difficulty and pain, a green matter; pain of the stomach, most painful griping; alvine evacuations frequent, black, and bloody, accompanied by tenesmus tension of the belly; pulse small, hard, and quick; anxiety; cold sweats; headache; vertigo; convulsions.

POISONING BY THE PREPARATIONS OF SILVER.

883. *Symptoms.*—Same as those which characterize the other corrosive substances.

POISONING BY THE PREPARATIONS OF GOLD.

884. *Symptoms.*—Same as those which result from the actions of the greater number of other metallic salts.

POISONING BY THE PREPARATIONS OF MERCURY.

885. *Symptoms.*—Of the same character with those produced by other corrosive substances; acrid and metallic taste; tumefaction, and burning heat of the throat; pain of the stomach and abdomen increased in a short time to an intense degree; salivation quickly induced, with the characters peculiar to mercury when the corrosive sublimate has caused the poisoning.

POISONING BY THE PREPARATIONS OF BISMUTH.

886. *Symptoms.*—Same as those caused by the action of other very active corrosive poisons.

POISONING BY THE PREPARATIONS OF LEAD.

887. *Symptoms.*—Taste sweet, metallic, and astringent; pain of stomach; constriction of the throat; vomiting obstinate, very painful, sometimes bloody; hiccup; convulsions. Sufferers, if they survive, are very generally afflicted with palsy, or various painful affections.—See the article Colica Pictonum.

POISONING BY THE PREPARATIONS OF TIN.

888. *Symptoms.*—Those common to all the corrosive poisons; sometimes paralysis supervenes, but most frequently death is the result.

POISONING BY THE PREPARATIONS OF ZINC.

889. *Symptoms.*—Taste sour, with a sense of strangulation; nausea; vomiting. The symptoms often cease quickly in consequence of the poison being ejected by means of its emetic property; should it, on the contrary, remain in the stomach, the symptoms produced by other corrosive poisons are observed.

POISONING BY THE ACIDS.

890. *Symptoms.*—All the acids produce very nearly the same effects—viz: a taste sharp, burning and disagreeable; heat and acute pain of the throat, then of the œsophagus, stomach, and intestines; fetor of the breath; eructations; nausea; vomiting repeatedly a bloody liquid of a yellowish or brown colour, which produces an effervescence on the ground, and deeply reddens tincture of turnsoll; stools copious, more or less tinged with blood; extreme sensibility of the abdomen; burning, incessant thirst; pain increased by drinking; pulse small and irregular; urine scanty, and evacuated with difficulty; respiration laboured; extreme paleness, with alteration of the face; cold sweats, and in some instances convulsions; the intellectual faculties generally remain unimpaired. Very often the poison causes, by its contact with the lips, tongue, and pharynx, yellow or brown eschars, which drop off and produce a loss of

POISONING BY ALKALIES AND THEIR SALTS.

891. The Prussic acid, when inoculated on the surface of the body, even in very small quantity, causes almost instant death.

POISONING BY THE ALKALIES AND THEIR COMPOUNDS.

892. *Symptoms.*—Taste pungent, urinous, and caustic, accompanied generally by the symptoms of poisoning by concentrated acids; the liquid of the vomited matter and the stools render syrup of violets green.

893. Ammonia produces total derangement of the faculties, and sudden death.

POISONING BY PHOSPHORUS.

894. *Symptoms.*—Taste of garlic in the mouth, with peculiar parched sensation, together with all the symptoms which result from poisoning by the acids.

POISONING BY IODINE AND ITS PREPARATIONS.

895. *Symptoms.*—Same as those which are characteristic of poisoning by the acids, and, in addition, a strongly marked yellow colour of the tongue and fauces.

POISONING BY ALCOHOL AND ITS COMPOUNDS.

896. *Symptoms.*—Intoxication, then complete insensibility; paralytic phenomena; stupor; the face swollen, and of a deep red hue; respiration stertorous; the breath smells strongly of the liquors which have produced the intoxication.

POISONING BY VEGETABLE SUBSTANCES.

ACRID POISONS.

897. *Symptoms.*—All the poisons of this class produce very nearly the same effects, which generally consist in the following:—viz. taste acrid and pungent, or intensely bitter; heat in the throat; dryness of the mouth and pharynx, with constric-

tion ; vomiting continuing even after the ejection of the poison ; acute pains in the stomach and intestines ; alvine evacuations abundant ; pulse strong and quick ; sometimes dilatation of the pupil ; general insensibility ; smallness and irregularity of the pulse ; death.

NARCOTIC POISONS.

898. *Symptoms.*—Heaviness in the head ; stupor ; torpor ; inclination to vomit ; great tendency to somnolence ; countenance dull ; face swollen ; eye-lids tumefied ; pupils always much dilated, with little or no power of contraction ; relaxation of the muscles of the limbs, particularly the inferior ; sometimes convulsive movements of different parts of the body ; the pulse at first generally strong and full, afterwards becomes feeble, slow, and irregular ; finally precordial anxiety, alvine dejections, and death.

899. *Anatomical Characters.*—After death there are not discovered any traces of inflammation in the parts with which the poison is found in contact, but there is congestion of the vessels of the brain and the lungs : these latter do not crepitate on pressure, and are of a deep red colour : the blood contained in them, as well as that in the heart, is sometimes liquid, sometimes coagulated.

POISONING BY ANIMAL SUBSTANCES.

POISONING BY THE FLESH OF FISHES.

900. *Symptoms.*—In a time more or less considerable, after the fish has been swallowed, there are experienced a heaviness in the stomach, vomiting, griping pains, cephalalgia, vertigo ; the head and circumference of the eyes are intensely hot ; the face is red and swollen ; the patients feel burning thirst ; a rash like that of urticaria frequently appears over the entire body ; the pulse is accelerated, small, and

hard; convulsions sometimes come on; the extremities are rarely cold.

POISONING BY THE STING OF VENOMOUS INSECTS

901. *Symptoms.*—Generally pain, swelling, and sometimes high inflammation of the part stung, in some cases terminating in gangrene, and accompanied by nausea, vomiting, fever, numbness; general shivering, and in some instances death.

POISONING BY CANTHARIDES TAKEN INTERNALLY.

902. *Symptoms.*—Breath fetid; taste acrid; heat excessive: pain in the throat, stomach, and belly; vomiting frequent and bloody; alvine evacuations abundant; heat in the lumbar region and the bladder; strangury or entire retention of urine, with frequent desire to make it; obstinate and very painful priapism; fever; convulsions; delirium; death.

POISONING BY THE BITE OF VENOMOUS SERPENTS.

903. *Symptoms.*—Acute and sharp pain in the part which has been bitten, and extending over the entire body; there immediately appears swelling, with hardness and paleness at first, then with livid redness, and a gangrenous appearance; the pulse small, frequent, and irregular; then supervene syncope, vomiting, anxiety, difficulty of respiration, with cold and abundant perspiration; the sight becomes weak, delirium is manifested, a yellow tinge is spread over the entire body; after a certain time the bitten part becomes insensible, discharges a serous fluid, is covered by gangrenous specks, and the sufferer sinks.

POISONING BY THE BITE OF RABID ANIMALS.

904. At a time more or less considerable, after the infliction of the wound (usually between the twentieth day and third or fourth month), the bitten part becomes painful, opens afresh, emits a reddish

serum; if it has not been cicatrized it becomes red, and affords a serous and reddish pus; restlessness, anxiety, spasms, troubled respiration succeed; the sufferer feels a trembling, which extends from the sore over the entire body, and appears to end in the throat; he is agonized by internal heat, and sometimes excessive thirst, but he dares not to drink; the sight of water or of polished or shining bodies irritates him, and aggravates the symptoms; deglutition is impossible. At the expiration of four or five days the symptoms are increased: violent convulsions pervade the entire body; produce a frightful expression of the countenance; the eyes are red and prominent; the tongue hangs outside the mouth, from which flows a viscous saliva; in a few cases there is an inclination to bite; the pulse becomes unequal and intermittent; a cold sweat extends over the entire body, and death speedily takes place.

POISONING BY GASES.

POISONING BY CARBONIC ACID GAS.

904. *Symptoms.*—At first heaviness and pain in the head; a feeling of compression in the temples; vertigo, palpitations, tingling noise in the ears; sometimes nausea; the respiration is difficult, stertorous, then it ceases entirely, so does the circulation; the patient is apparently dead.

905. When asphyxia is produced in a place where the air not being renewed, has in consequence lost all its oxygen, and contains a large quantity of carbonic acid gas, these symptoms are preceded by violent thirst, copious perspirations, and pains of the chest, then syncope, insensibility, and inability of motion; in some cases the limbs are flexible, in others they are rigid; heat generally continues for a considera-

ble time ; the colour of the face is sometimes red or violet, sometimes pale and leaden ; frequently there are involuntary alvine and urinary evacuations.

907. *Anatomical Characters.*—The body a little swelled ; the limbs flexible ; veins of the lungs and brain gorged with black and fluid blood ; the arteries almost empty ; the muscles softened ; the mucous membrane of the stomach and intestines reddish ; the tongue swollen ; epiglottis always elevated.

POISONING BY THE HYDRO-SULPHURET OF AMMONIA, AND HYDRO-SULPHURIC ACID.

908. *Symptoms.*—When the patient has respired but a small quantity of the deleterious gas he experiences uneasiness, nausea, general convulsions ; the skin is cold ; the respiration is free, but is performed in jerks ; the pulse is irregular.

909. When the gas has been respired in large quantity, the symptoms of asphyxia, caused by carbonic acid, are observed ; in addition, the pupil is dilated and immoveable ; the mouth is filled with bloody foam ; the respiration is short and difficult ; from time to time there occurs a sort of convulsive agitation ; there exists, at intervals, a tetanic rigidity of the muscles ; the body is curved backwards ; the sufferer cries out with pain. If syncope makes its appearance it is rarely of long continuance.

910. *Anatomical Characters.*—The bronchiæ and nasal fosses are covered by a viscous and brownish mucus ; the lungs are swollen ; the heart and vessels contain blood which is black, thick, and abundant ; all the soft parts, deprived of their natural consistence, are very easily torn, and in a very short time become putrid.

ASPHYXIA FOR WANT OF RESPIRABLE AIR.

911. *Symptoms.*—Respiration is at first hurried,

and, in a short time, pain of the chest, then spitting of blood, and syncope supervene.

912. When the asphyxia is produced by cold the patient does not experience pain, but stupor, sleepiness, and torpor, to which succeeds a suspension of respiration and circulation.

FINIS.

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