Family history.—The influence of heredity upon pathological processes is both varied and occult. While in some instances we seem justified in assigning very great importance to it, in others its influence is wholly unrecognised, and between these two extremes we meet with all possible degrees of difference. It is, therefore, not a matter upon which it is possible to dogmatise or to write in a categorical manner, and it must suffice to indicate those constitutional states in the parents which are justly believed to influence disease or injuries in their offspring. Of these by far the most important is *Syphilis.* It admits of no doubt that the syphilitic taint may be inherited, but it is no less certain that all the children of syphilitic parents are not themselves the subjects of syphilis, and all degrees of intensity of the inherited taint are met with and can be recognised in practice. To ascertain that a patient is the subject of inherited syphilis is of the utmost importance ; for not only may it at once determine the diagnosis, but it will exert a distinct influence upon the treatment, and in very many instances form the sole guide to the management of the case. The manifestations of acquired syphilis vary so much in kind and in intensity that it is quite impossible to state positively what does and what does not constitute a history of syphilis in the parents of an individual, and experience will alone enable the surgeon to determine upon what evidence such a conclusion may be allowed to rest. But this may be mentioned, that one objective sign of the disease observed by the surgeon is of more value than much unsupported evidence of the patient or his friends. As already mentioned, the discovery that a patient's parents were the subjects of constitutional syphilis before his birth does not of itself warrant the conclusion that he has himself inherited the diathesis, and in all such cases the supposition must be

corroborated by evidence derived from the history or condition of the patient before it can be accepted. It has been clearly proved that the syphilitic taint is most often and most intensely inherited soon after it has been acquired by the parents, and that with successive pregnancies the chance of inheritance and the intensity of the inherited taint diminish. It is, therefore, of importance to get evidence upon this point, and to learn, if possible, not only whether the parents were the subjects of syphilis, but also when, in reference to the birth of the patient in question, they acquired the taint, and whether the syphilitic dyscrasia was manifested in the products of the conceptions immediately preceding and following that in point. What is known as Colles' law, that the mother of a syphilitic infant is always herself the subject of syphilis, leads us to rely more upon evidence of syphilis in the mother than in the father. In investigating a family history for inherited syphilis, two errors may be made : the infection may be assumed on insufficient evidence, or we may fail to obtain the evidence of the taint which really exists. When it is remembered how mild some attacks of syphilis are, oftentimes how little there is to attract the patient's attention to his condition and to fix it in his memory, as well as how unobservant many patients are, it is not to be wondered at that years afterwards we fail to elicit an account of troubles long ago forgotten if ever noticed at all. Many of the characteristic effects of constitutional syphilis are simulated by other conditions. For example, a series of abortions is caused by local affections of the generative organs perhaps as often as by syphilis ; repeated attacks of sore throat, and "ulcerated" sore throat, are as often simple follicular tonsillitis as specific pharyngitis ; while it need hardly be pointed out that sores on the genital organs leaving behind depressed scars, are so often not syphilitic in

nature, or at least not Hunterian or infecting chancres, that no weight whatever is to be given to the history or objective evidence of such sores unless supported by other facts. In some cases even one fact will render the existence of syphilis in the parents beyond all doubt, such, for instance, as the discovery of a perforation of the palate; but in the majority of cases the most satisfactory evidence will consist of a series of facts in which the recognised course and progress of the malady can be traced: a single sore followed by multiple painless buboes, a papular rash over the trunk, sore throat, and perhaps mucous patches, and then, later on, sore tongue, periosteal pains and swellings and ulcerations, miscarriages, and other well-known syphilitic phenomena. The result of an examination may be given under one of four heads. Thus, in many instances we may be able to state positively, (1) that the patient's parents were the subjects of active constitutional syphilis at the time of his conception and birth; or (2) that the patient's parents were certainly not the subjects of active constitutional syphilis at the time of his conception and birth; but in many other cases, the evidence obtained will only warrant the statement (3) that the evidence is not sufficient to show that the patient inherited syphilis from his parents; or (4) that the evidence is not sufficient to show that he did not inherit syphilis.

Struma is another disease which is undoubtedly hereditary, although often acquired. Evidence of the existence of struma in a family is usually readily obtained from its characteristic effects. Phthisis, diseases of bones and joints, lupus, and lymphatic glandular enlargements, are too obvious, too chronic, and too serious in their results, to be overlooked or forgotten. A family history of *Gout* is not so easily obtained among the humbler as among the upper

classes of society, where the distinction between it and rheumatism is carefully drawn. Repeated attacks of inflammation in the joint of the great toe is the sign that we have chiefly to rely upon.

One of the hereditary affections most interesting and important to the surgeon is *Hæmophilia*, and where this exists in the family, evidence of it is usually readily obtained, as the repeated and often fatal hæmorrhages are facts which strongly impress the laity. It must be remembered that inquiry is to be mainly directed to the male members of the family, as it chiefly affects them, although it is transmitted through the females.

Cancer.—The heredity of cancer, including under that head all malignant tumours, is of much less importance than was at one time supposed. Occasionally we meet with striking examples of it, as in the family of a patient recently under my care for scirrhus of the breast (the patient had lost her mother, two maternal aunts, and at least two cousins on the mother's side, from cancer); or the well-known "Middlesex Hospital case," in which a woman and five of her daughters had cancer of the left breast. The absence of all hereditary influence is very frequently observed, and this factor will scarcely influence in any way the diagnosis of the nature of a tumour.

Personal history.—By this is meant the history of the patient previous to the occurrence of the affection presented for diagnosis. This is of importance in two ways, either as indicating the existence of some dyscrasia or constitutional taint, or as revealing some habit, practice, or occupation, rendering the patient liable to particular accidents or forms of disease. When the family history shows the existence of some heritable affection in the parents or brothers and sisters, inquiry should at once be made to ascertain

whether there is positive evidence of this dyscrasia having been transmitted to the patient. As already mentioned, when a history of syphilis has been made out in the parents, that alone is not a proof that the children are syphilitic, and evidence of the existence of this taint must be sought in the patients themselves. This holds true to some extent also in the case of the other heritable diseases we have mentioned, but there will be nothing to indicate the existence of the cancerous or gouty dyscrasia until the occurrence of a tumour or an attack of inflammation in the great toe, and this may be postponed for many years; but the other dyscrasiæ (syphilis, struma, and hæmophilia) manifest themselves much earlier. In reference to habits and occupations, mention may be made of kneeling, mining, working with phosphorus, mercury, or lead, the handling of hides or horses, alcoholism, exposure to wet and cold, occupations involving constant standing or contact with soot.

History of the affection.—This must be made out with great care and precision, and all dates accurately fixed, and stated in the days of the month (not of the week) when committed to writing. The earliest symptom noticed should be first recorded, and then inquiry should be made with a view of tracing out its cause, whether an injury of any kind (blow, fall, strain), over use, exposure to changes of temperature or to contagion of any kind, or the ingestion of food or medicine. The student must not accept the patient's view of the cause of his affection unless it commends itself to his own knowledge and judgment. Having obtained an account of the supposed origin of the affection, note carefully its exact course, and the order, mode, and time of development of any changes in it, together with the effects of any plan of treatment that may have been adopted. The bearing that these facts has upon

diagnosis varies much in different cases, and will have to be discussed in succeeding chapters; but we may here make a few brief general remarks upon the subject. And first, as of most moment, comes *the influence of injury* of every kind; this is most apparent in a large class of cases such as wounds, fractures, sprains, etc., which will be dealt with apart from so-called "diseases" in the earlier chapters of the book. But there are cases in which the influence of traumatism is less certain: first, because we do not know how far slight injuries may act as exciting causes of the growth of tumours or of some other diseases; and next, because such an injury may be merely the means of attracting the patient's attention to a pre-existing morbid state. For instance, a blow is often alleged to be the exciting cause of a tumour of the breast, when it may merely have led a patient to make an examination of the part and detect a lump, which, not being painful or protuberant, had previously escaped observation. The only way of avoiding this error is to ascertain as accurately as possible the succession of events and the relation as to time of the injury and any signs or symptoms of disease. The *mode of progress* of the disease may be an important factor in diagnosis; for while any disease may steadily advance, only certain forms are capable of spontaneous recession, or of an intermittent or remittent course. It is a marked characteristic of all forms of malignant growths that they continuously and generally rapidly increase; and while simple tumours may run a similar course, yet they not unfrequently remain stationary for an indefinite period, or recede. The mere duration of an affection may in the same way exclude some forms of disease, as, for instance, malignant growths and acute inflammation. The *sequence of symptoms* is sometimes of importance, as, for example, where renal colic is followed by signs of vesical calculus, or where

the apparent reduction of a hernia is attended with no relief to, but rather an increase in, the severity of the signs of strangulation of the bowel. The *relative intensity* of various symptoms may aid in the diagnosis; thus, the absence of pain may exclude acute inflammation, or the frequency and amount of vesical hæmorrhage may clearly connect any other urinary symptoms with the presence of a tumour in that viscus. Lastly, the relation of any *constitutional state*, such as anæmia, wasting, jaundice, or other cachexia, may indicate whether it is the cause or the result of some local morbid state.

The examination of the patient will now follow, and should in all cases be as complete and careful as possible, no point being omitted because of its apparent want of bearing upon the case; for it must always be remembered that we have to deal with patients, with men and women, not with diseases: we must not, therefore, limit our attention to some merely local lesion, or even some constitutional change, but must try to view each patient as a dis-ordered man. The interest and practical importance of local lesions or of general diseases is so great, that there is a grave danger lest in our view of the disease we lose sight of the subject of it. The re-sults of our examination of the patient are, of course, the most important for purposes of diagnosis; for the evidence so obtained may be mostly, if not wholly, objective, and will also be entirely skilled evidence. To show how the data thus obtained, combined with others, enable us to diagnose various morbid states is the chief burden of the following chapters.

What has been said as to the progress of the case as stated by the patient himself in relating its history, applies equally to the changes, or lack of change, observed by the surgeon himself. In refer-ence to the *results of treatment*, special significance is

to be attached to the influence of what are known as "specifics," such for example as mercury, iodide of potassium, and quinine; but scarcely less important are the results of general tonic treatment, or of rest, counter irritation, and of surgical operations. It remains but to add a few words upon the general *method of examination*. First of all it should be *systematic* and *purposive;* the investigation of symptoms should be conducted in some regular order, and each question, each manipulation, each part of the examination, should have some definite object or objects in view. To conduct an ex-amination in this way not only promotes accuracy of diagnosis, but it tends also to facilitate and expedite it, because it necessitates the surgeon using his mind and his senses together. Its value is often conspicuously seen in the way two men will examine a tumour, one of whom in a few brief moments will have learnt all its characters, while the other, after a more prolonged examination, will have ascertained little or nothing about it, and will be unable to speak definitely and with assurance as to its nature; and this may not be so much from want of absolute know-ledge, as from ineptitude and the want of a definite aim and purpose in his examination. Similarly, *pre-cision in result* must be attained whenever possible; there are many cases where it is unattainable, but it is safe to say that this should neither be taken for granted, nor admitted until an attempt has been made to eliminate all elements of doubt and inaccuracy; whenever the results of examination can be stated in numbers, this should be done, as in the case of the temperature, pulse, respiration, measurements of all kinds, number of fits, frequency of micturition, etc. As far as possible, objective and subjective phenomena should be separately investigated, and the latter must be carefully analysed. Patients will frequently

describe their sufferings or their sensations by inaccurate language, and the surgeon must seek by careful questioning to obtain objective evidence of subjective phenomena. For instance, a patient's statement that he cannot swallow must not be accepted until his attempt and failure to do it have been seen; in this, as in many other like cases, pain in an act is often spoken of by the sufferer as inability to perform it. Lastly, as already mentioned, the examination must be *complete,* and include the entire patient, with all his functions. It is only too true, that from various reasons this latter point is often neglected; the omission may be condoned, but never justified, and while it often results in serious error, it is never without some risk.

Certain symptoms we shall have to speak of so often, and are so important, that they merit and must receive separate consideration. Of these, swelling, ulceration, and gangrene, will be dealt with in subsequent and separate chapters; redness and pain may be discussed here.

Redness.—The first point to be settled in regard to redness of a surface is the cause of the discoloration, whether it is dependent upon excess of blood in the vessels of the part (hyperæmia) or upon extravasation of blood from the vessels. This is easily ascertained by noticing the *effects of gentle pressure* upon the part; when the condition is one of hyperæmia, such pressure displaces the blood in the vessels and causes a momentary blanching, while it has no effect whatever upon petechiæ or larger blood extravasations. By observing also the rapidity with which the blanching produced by pressure passes off and the blood returns into the emptied vessels, an estimate of the freedom and rapidity of the local circulation can be formed. In acute inflammation, for example, the redness generally entirely disappears on pressure, but

quickly returns when the pressure is removed. In the congestion of a part approaching gangrene the redness may still be made to disappear on pressure, and then only slowly reappears. The eruption of purpura or the discoloration of a bruise, is entirely unaffected by pressure. Cases may of course occur where the redness of a surface is merely the result of the application of a dye, such as magenta, either accidental from the contact of dyed stockings or other clothing, or intentional on the part of malingerers. In the one case its position and extent will suffice to prevent error, while in both cases alike the peculiar colour, unlike that due to hyperæmia or hæmorrhage, its superficial character, the fact that it is at the same time bright, intense, diffused, uniform, and yet unaffected by pressure, together with the absence of local heat or swelling or other signs usually attendant upon such marked hyperæmia, and the results of a diligent application of soap and water, will reveal the true nature of the case. This is the most important of all the particulars to be noticed in reference to redness. Next in importance in the cases of hyperæmia comes the *colour of the redness,* which depends upon the state of oxygenation of the blood in the vessels; a purple or livid colour may depend upon a general de-arterialisation of the blood from structural or functional derangements of the heart or lungs; upon local conditions, the hyperæmia being mainly or entirely venous, or the circulation in the part retarded, and the regular interchange of gases greatly increased in amount. Very important deductions, therefore, can be made from the colour of a hyperæmic surface; its lividity may prove a measure of general systemic failure reacting upon the heart and lungs; while in other cases similar lividity may indicate local obstruction to the return of blood from the part. The difference between this local lividity from obstruction and that from venous

hyperæmia without obstruction, such as is seen in the final stages of inflammation, in venous nævus, and in some other cases, is that the effect of pressure is slowly recovered from in the former case, and very rapidly in the latter ; and in the latter case, too, the individual dilated veins are oftentimes to be seen. Closely connected with this is the *temperature of the part ;* where hyperæmia is combined with increased heat it indicates that there is a rapid circulation, and a rapid renewal of the blood in the part ; where, on the other hand, a hyperæmic part is cold, it shows that the circulation is torpid, and that the blood travels so slowly through the superficial vessels that it loses a considerable amount of its heat. The intensity of the redness and the extent of tissue affected are points easily observed, and the significance of them is quite obvious. It should also be noticed whether the redness is *associated with swelling*, and an attempt be made to gain an estimate of their dependence one upon the other. Marked hyperæmia may be quite unattended with appreciable swelling (a familiar example of this is afforded by blushing) ; it may be attended by slight swelling, as in cutaneous erysipelas ; or associated with intense swelling, as in phlegmonous erysipelas or in œdematous intertrigo. Where redness is one of the phenomena of inflammation, swelling will always be found with it, it may, however, be so little marked as not to be noticeable as enlargement of the part so much as a certain increase in its tension, or a hardness of the tissue. It may be well to point out here what are the various associations of redness and swelling. (1) They may be joint phenomena of the process of inflammation ; (2) hyperæmia, especially when passive or obstructive, leads to œdema or transudation of the iiquor sanguinis ; (3) by the growth of tumours the deep veins may be pressed upon, and the stress of the circulation thrown upon the superficial vessels may then

cause hyperæmia, or the tissues around a tumour may participate in its extreme vascular engorgement ; (4) greatly swelled parts may become hyperæmic, or even inflamed, as the result of friction or the prevention of cleanliness, or of the proper evaporation of irritating cutaneous secretions ; the patches of intertrigo in connection with large pendulous tumours, scrotal hernias, or the œdema of Bright's disease, afford illustrations of this.

Finally, the association of *alteration of sensation* with hyperæmia is to be noted. Inflammatory hyperæmia, indeed all active hyperæmia, is always attended with pain and increased sensitiveness. When, on the other hand, there is a combination of numbness, or loss of the normal acuteness of sensation, with hyperæmia, it indicates a failure of the local processes of nutrition, unless indeed the two phenomena own one common cause in some affection of the central nervous system, which will be shown by other signs, and especially by motor paralysis.

Pain is a symptom which more often than any other is presented to the surgeon, and the importance of which, from a diagnostic point of view, cannot be overrated. For a full and worthy consideration of the diagnostic value of pain, the reader is referred to Mr. Hilton's classic lectures on "Rest and Pain ;" our space will only allow us to notice some of the principal features which should be noted in the investigation of pain. The first of these is its *exact seat ;* this is of value in two ways ; in the majority of cases it directs attention to the affected parts, and by localising the pain we are able to localise the disease ; in other cases the pain is found to correspond to the distribution of a particular branch or trunk of nerve, and when this is the case it should lead us to look for the cause of the pain, not in the area of peripheral distribution of the nerve, but in some affection of the trunk or root of the

nerve. The reason of this is that purely local (that is, peripheral) causes of pain are not limited by the distribution of particular nerves; while causes of pain acting upon nerve trunks or their roots are referred to the exact peripheral distribution of the nerves affected. But it must also be remembered that an irritation acting upon one branch of a nerve may be referred as a pain to the terminal offsets of the nerve, and the pain experienced in the knee in many cases of disease of the hip-joint is a well-known example of this fact. Hence, where the area of a pain does not correspond to the exact distribution of any given nerve or nerves, a local cause for it may be sought; but when, on the contrary, the painful area is sharply limited to parts supplied with sensation by a particular nerve or nerves, some cause acting upon this nerve trunk or its root, whether inflammatory, compressive, destructive, or reflex, must be sought.

Much light is afforded by noticing whether *hyperæsthesia* is associated with pain, and if so how this hyperæsthesia is elicited. For example, the absence of all tenderness to pressure or movement in a painful part is strong evidence that the source of the pain is not local, but central or referred; for instance, when pain is complained of in the knee, and the part is found free from all tenderness to pressure or movement, there will be no doubt that the source of the pain is not in that joint, and probably it will be discovered in the hip-joint. Other illustrations are afforded by the pain felt in the foot in cases of aneurism pressing upon the internal popliteal nerve, or the pain in the testicle in cases of renal calculus. The surgeon must make this examination with caution, because the association of pain and tenderness is so frequent, and probably in the patient's experience so constant, that he will thoroughly expect pressure or movement to give pain, and he may be so much on the alert to detect its first

onset, that he may unconsciously deceive the examiner; his suspicions and his alarms must be allayed. The converse of the above statement does not hold good, for tenderness may be elicited where the cause is central or referred, as, for instance, in some cases of neuralgia, and in some cases of pain in the knee from disease of the hip; but most markedly of all is this met with in hysteria. The manner in which the hyperæsthesia is elicited greatly aids in diagnosis; if, for instance, the lightest contact causes pain it indicates affection of the cutaneous nerves; if the skin can be handled freely, perhaps pinched up without causing pain, while pressure upon the deeper parts (muscles or bones) excites pain, it shows in the same way that these deeper structures are affected; this mode of diagnosis is constantly employed in the recognition of intercostal myalgia, and there are many similar instances. Where the hyperæsthesia of the subcutaneous tissues is very intense, and they lie superficially, as, for instance, in the case of periostitis over the inner surface of the tibia, the gentlest pressure upon the skin is at once transmitted to the inflamed periosteum, and causes pain, and great care must be used in applying this test. Very similar information is afforded by observing the *effect of movement* upon pain. The stretching or compression of any inflamed part, or the contraction of an inflamed muscle, is painful. Hence, if it is found that a certain active movement, *e.g.* abduction of the arm, is painful, but that the arm can be put into the same position by the surgeon without causing any pain provided the patient's abductor muscles are all kept relaxed, it will show that it is really the contraction of these particular muscles, and not this position of the limb, that is painful; the precise seat of the pain will thus have been determined. The same test may be applied in a similar manner to other muscles.

But it will further be found in these cases that placing the parts in such a position that the affected muscles are stretched will also elicit pain ; for instance, in a case of myalgia of the deltoid muscle, active abduction of the arm will give acute pain, passive abduction will be painless, and extreme adduction, whether active or passive, will be painful. Ligamentous pain is elicited by any movement, whether active or passive, that stretches the ligament. Hence by the careful and intelligent use of this sign we are able to distinguish between muscular and ligamentous pain. Take such a case as is presented in "stiff-neck," and we will suppose that the patient has pain on turning his face to his left shoulder, the pain being limited to the right side of the back of the neck ; if we find that the surgeon can turn the patient's head to the left without causing pain, but that when he moves the face far to the right he elicits sharp pain, the pain evidently is muscular ; but if the pain is just the same whether the face be turned actively or passively to the left, while no pain is produced on turning the face to the right, the pain is evidently situated in those ligaments which are stretched when the face is turned to the left, and not in the muscles. There is a considerable range of movement in all joints in which no ligament is placed on the stretch, but during which the articular surfaces are in contact, and passing over each other with more or less pressure ; hence, if such range of movement be painless it is a good indication that the articulation itself is not the seat of the painful lesion ; while, on the other hand, if passive movement to any extent, and in every direction, is painful, it clearly shows that the interior of the articulation is affected. Quite similar principles find a somewhat different application in special situations, as, for example, in the bladder, where the pain in vesical calculus is specially caused by the contraction of the bladder on the stone, and

is relieved by the passage of some urine into the bladder to re-distend the viscus off the surface of the stone. In acute cystitis, on the other hand, the chief pain is produced by the contact of the urine with the inflamed mucous surface, and by the contraction of the inflamed muscular tissue, and it is relieved immediately after the act, to be again exaggerated as the urine accumulates. The knowledge of the way in which the pain is spontaneously produced or increased has for its object the same purpose. By the *character* of the pain something may at times be learnt ; the itching, burning, smarting pain of cutaneous and mucous inflammations, the deep boring and aching pain of bone inflammations, the shooting, lancinating pains of "neuralgic" origin, or of those due to central lesions, and to pressure upon and partial destruction of inflammation of nerve trunks, and the "lightning-like" pains of locomotor ataxy, are all illustrations of this fact. Paræsthesia or anæsthesia with pain is most frequently due to central nervous lesions, but may be purely of local origin, as in the case of commencing gangrene. When there is a history of severe or of long-continued pain, it should be carefully observed whether there is any evidence of the *constitutional influence of the pain*. Pain exerts a depressing influence upon the central nervous system, and when intense or very prolonged its ravages are always visible. If, therefore, the account of the pain given by the patient corresponds with the *facies*, it receives important corroboration. If, on the other hand, there be no correspondence between the two, if with cheerful face and healthy countenance a patient describe himself as in great suffering, or as having recently suffered severely, and for a long time, it will convince the surgeon that the statement is exaggerated, or that the pain is purely functional hysteria, not that it need be any the less real. Such a fact may render important aid in

diagnosing hysterical pains, and may then usually be corroborated by finding that when the patient's attention is engaged elsewhere he permits of pressure, manipulations, and movements, which when his attention is directed to the part he would have described as "distracting," or "intense," or "unbearable," or by some similar term. This correspondence of all the facts about a given pain is a point which may enable the surgeon to give an opinion even in otherwise very difficult cases.

CHAPTER II.

THE GENERAL DIAGNOSIS OF INJURIES OTHER THAN WOUNDS.

IT is important to remember that more than one lesion may be produced by a single injury or accident, and that it is the duty of the surgeon not only to determine that a certain lesion, *e.g.* a fracture, has been produced, but also to exclude every other, *e.g.* a ruptured artery, severe sprain, and so on. Errors, sometimes of grave consequence, are made by failing to make a *complete* diagnosis. In conducting an investigation for this purpose it is best to examine each structure separately and in succession, beginning with the skin and subcutaneous tissue.

1. Examine the skin and subcutaneous tissue, noticing especially discoloration and swelling.

(*a*) If the skin be discoloured dark-red or reddish purple, and the colour be unaffected by pressure, there has been an escape of blood from several small vessels, a *bruise*. This effused blood goes through the well-known colour changes, and if seen late may cause

merely a yellow stain. If the dark-red discoloration appear at some interval after an injury it points to a *deep bruise*, the blood escaping from deep vessels gradually reaching and staining the superficial tissues; this phenomenon is sometimes witnessed in fractures of the neck of the femur.

(*b*) If immediately or very rapidly after an injury a distinct fluctuating swelling be formed in the skin and subcutaneous tissue, and if the circulation in the part be not interfered with, the blood has escaped from torn vessels in such a manner as to form a blood tumour or *hæmatoma*. Two forms of hæmatomata are met with, the *circumscribed* and the *diffuse*. In the former the swelling is circumscribed and tense; in the latter the swelling is much less tense and involves a larger area, and is due to the detachment of the skin from the deep fascia with effusion of blood between them; in such a case the blood can be pressed from one part of the injured region to another. Thus, the author treated a case in which the whole scalp was separated from the pericranium without any wound; blood was effused between these structures, and when the man lay on his back it all collected in a soft loose swelling at the back, but could be easily pressed forwards on to the forehead, or laterally as far as the attachment of the scalp. Hæmatoma is generally combined with a certain amount of superficial bruising. The collection of blood may long remain *fluid*, or it may *coagulate*, and the presence or absence of fluctuation will determine this point; occasionally such a swelling *suppurates*, or, more strictly, the tissues around it become inflamed and suppurate. This has to be distinguished from simple inflammatory œdema following the tissue laceration, and is recognised (*α*) by increased and progressive swelling; (*β*) by surrounding œdema; (*γ*) by great heat and redness of the part; (*δ*) by severe pain of a throbbing character;