When a joint has been severely contused, separation of the cartilage from the hone occurs ; effusion then takes place between the carti­lage and the bone ; the cartilage is cut off from its nutrient supply ; and, unless the joint is kept at complete rest, unless the effusion is absorbed, the cartilage will sooner or later become necrosed. The necrosed cartilage will give way ; the bone beneath will be exposed ; and, if the irritation is kept up, effusion, at first serous but soon becoming purulent in consequence of the tension within the joint, will take place. Changes follow in the opposing carti­lage, which has been itself bruised by the primary jar, and perhaps even separated from the bone beneath. It will in its turn necrose, and the bone will be exposed, suppuration taking place within the joint. The synovial membrane will become diseased, the liga­ments softened, and the evil sequence of events already described will ensue. A joint affected in this way is easily recognized from one in which the synovial membrane is primarily affected by the absence of swelling and by the intense pain. In the early stages complete rest should be obtained by affixing a weight to the affected limb. This, by setting up between the opposed and in­jured cartilaginous surfaces a condition of negative pressure, will tend to check the disease. But if this plan of treatment does not soon cause a subsidence of the pain, actual cautery must at once be resorted to. Contusion in which the cancellated bone is injured at some distance from the cartilage is most commonly met with in young people, in whom the extremities of the bones are not fully developed. In them the epiphyseal cartilages are richly supplied with blood for the performance of their physiological function, the formation of bone, and a comparatively slight in­jury may cause inflammation to be set up in the bone immediately in contact with the epiphyseal cartilage. As in the synovial mem­brane when it is affected with pulpy degeneration, this disease may be occasionally non-tubercular in character ; but in the majority of cases, more especially when the primary injury is very slight, the disease assumes the tubercular type and tubercle is deposited. In such cases the symptoms are often very insidious ; the young patient complains of some slight uneasiness, or the first thing to be noticed is a limp in walking when a lower limb is affected. In the case of an upper limb the patient will avoid moving the affected joint. As there is no external swelling, the disease may be overlooked in its early stages ; but, if it is suspected, and if the affected limb is kept at rest, the inflammation will subside and recovery ensue. On the other hand, if the patient is allowed to use the limb, even in an imperfect way, the tubercular area may extend and the articular cartilage become affected. The articular cartilage does not in that case receive its proper nourishment : it disintegrates, breaks down, and the disease attacks the joint. Into this last tubercular matter escapes and suppuration occurs, result­ing sooner or later in disorganization of the joint.

In recent years a useful limb has often been saved by excision of the affected joint. In the early stages the disease may subside under appropriate local treatment, such as counter-irritation, rest, pressure, assisted by constitutional treatment, such as tonics, fresh air, and careful dieting. By these means an operation may be avoided, and in applying such treatment it must be remembered that, while the disease itself may subside, the joint as an organ may be irretrievably damaged : it may become anchylosed. If anchylosis occurs in a flexed position of the hip or knee joints, the limb will be useless for progression ; and an operation will be necessary in order to straighten it. In the ankle joint, if anchylosis occurs with the foot in an extended position, the patient will not be able to put his heel to the ground, and an operation will be necessary to bring the foot at right angles to the leg. Do not interfere with an anchylosed joint in the lower limb if it is in good position. If the shoulder joint becomes anchylosed after disease, the sterno­clavicular and acromio-clavicular joints take up to a great extent the function of the anchylosed shoulder. In the elbow, in what­ever position the joint becomes anchylosed, the arm loses much of its usefulness and excision of the joint is performed in order to get a movable elbow. In the wrist it may be necessary to operate for anchylosis ; but as a rule, if the fingers are mobile, the anchylosed wrist does not interfere to any great extent with the usefulness of the hand.

4. *Venereal Diseases.*

Three distinct affections are included under this term—gonorrhoea, chancroid, and syphilis. At one time these were regarded as dif­ferent forms of the same disease ; and, though gonorrhoea is now generally held to be quite distinct from the other two, there are not wanting eminent authorities, including Mr Jonathan Hutchin­son, who are inclined to look upon chancroid and syphilis as essen­tially one and the same disease. The present writer believes that gonorrhoea, chancroid, and syphilis are three distinct diseases, due to separate causes, which have nothing in common except their habitat. The cause in each case is a specific virus, probably a micro-organism. In the case of gonorrhoea the virus attacks mucous membranes, especially that of the urethra ; in chancroid mucous membranes and the skin are affected ; in syphilis the whole system comes under the influence of the poison. Gonorrhoea

and chancroid correspond to the process of septic intoxication. The organisms on implantation set up a local disturbance, and the products of this fermentative process pass into the system and give rise to constitutional effects ; but the organisms themselves do not pass into the system generally. In syphilis, on the other hand, there is a true infective process : the organisms pass into the general circulation and live and multiply wherever they find a suitable nidus. The joint affection commonly called “gonorrheal rheu­matism,” which sometimes follows gonorrhoea, is in all probability an infective condition. If this is true, then in these rare cases gonorrhoea is infective. The chancroid poison may pass into the lymphatics and cause inflammation of the lymphatic glands in the groin, giving rise to *chancroidal bubo.* These clinical facts are undoubtedly opposed to any generalization such as that laid down above, and it is right to note them ; but the general comparison between gonorrhoea and chancroid as non-infective and syphilis as distinctly infective in its character holds good in the great major­ity of cases. A further study of these quasi-infective varieties of gonorrhoea and chancroid must undoubtedly throw light upon the physiological classification of pathogenic organisms. These three affections are generally acquired as the result of impure sexual intercourse ; but there are other methods of contagion, as, for example, when the accoucheur is poisoned whilst delivering a syphi­litic woman, the surgeon when operating on a syphilitic patient. An individual may be attacked by any one or any two of the three, or by all of them at once, as the result of one and the same connexion ; but they do not show themselves at the same time ; in other words, they have different stages of incubation. In gonorrhoea the disease appears very rapidly, so also in chancroid, the first symptoms com­mencing as a rule three or four days after inoculation. It is very different, however, with syphilis. Here the period of incubation is one rather of weeks, the average length being twenty-eight days, though it may vary from one week to eight. The length of the period of incubation, therefore, is the great primary diagnostic in the case of syphilis.

Syphilis is an infective fever, and its life history may be best considered by comparing it with vaccinia. A child is vaccinated on the arm with vaccine lymph. For the first two or three days nothing is observed ; but on the fourth day redness appears, and by the eighth day a characteristic vaccine vesicle is formed, which bursts and frees a discharge, which dries and forms a scab. If on the eighth day the clear lymph in the vesicle is introduced at another point in the child’s skin, no characteristic local effect follows. The system is protected by the previous inoculation ; this protection will last for some years, anti in certain cases for the rest of the patient’s life. We have here, then, exposure to a poison, its introduction locally, a period of incubation, a charac­teristic local appearance at the seat of inoculation, a change in the constitution of the individual, and protection from another attack for a variable period. So with syphilis. The syphilitic poison is introduced at the seat of an accidental abrasion either on the genital organs or on any part of the surface of the body. The poison lies quiescent for a variable period. The average period is four weeks. A characteristic cartilaginous hardness appears at the seat of inoculation. If this is irritated in any way, an ulceration takes place ; but ulceration is an accident, not an essential. From the primary seat the system generally is infected. The virus is multiplied locally and, passing along the lymphatic vessels, attacks the nearest chain of lymphatic glands. If the original sore is in the genital organs, the glands in the groin are first attacked ; if in the hand, the gland above the inner condyle of the humerus ; if on the lip, the gland in front of the angle of the jaw. The affected glands are indurated and painless ; they may become inflamed, just as the primary lesion may ulcerate ; but the inflammation is an acci­dent, not an essential. From the primary glands the mischief will affect the whole glandular system. The body generally is so altered that various skin eruptions, often symmetrical, break out. Any irritation of the mucous membrane is followed by superficial ulcer­ations, and in the later stages of the disease skin eruptions, pustular and tubercular in type, appear, and in weakly people in severe cases, or in cases that have not been properly treated by the surgeon, syphilitic deposits termed *gummata* are formed. These, if irritated, break down and give rise to deep-seated ulcerations. Gummata may attack the different organs in the body ; the muscles, liver, and brain are the favourite sites. Their presence interferes with the functions of the organs, and, if the organ affected is one functionally important in the economy, may cause death. The individual is as a general rule protected against a second attack, although there have been rare cases recorded in which individuals have been attacked a second time.

Syphilis is treated by many surgeons by giving careful attention to the general health, to diet and regimen and tonics, by placing r the patient in the most favourable hygienic circumstances, in the s belief that it runs a natural course and has a tendency to natural cure. Special symptoms are treated as they arise. Other surgeons administer small doses of mercury, in the form of grey powder, iodide of mercury, or corrosive sublimate. If the physiological