not infrequently, they are present in the morning, disappear during the day, and reappear in the evening, accompanied by febrile excitement. Very little that is abnormal may be observed about the hip-joint. Still, if the patient is told to raise up the affected extremity, a slight rotatory movement of the thigh inward, along with a small degree of abduction, will be noticeable. These circumstances, in the insidious course of the evil, may last for months (even years), and alternate also, frequently, with improvement and aggravation.

After a certain period the morbid picture changes without any apparent decided external cause, and inclines more and more toward the acute form. The well-known pains in the knee come on, which are very intense in most cases, without, however, becoming aggravated on touch or pressure. These pains are explained by the supposition that the external cutaneous branches of the obturator, or of the internal saphena nerve, are irritated. The walk becomes still more difficult, the patient limps, the toes only touch the ground, while the weight of the body comes to rest upon the extended sound limb. In the sitting posture the buttock only of the sound side rests upon the seat, and, when the patient desires to pick up some object from the floor, he only bends the sound knee, while the diseased extremity is kept stiff and extended.

At a further stage of the disease certain symptoms supervene, which have given rise to the most varying views and significations, and which have already been alluded to above, namely, an elongation or shortening of the affected thigh in comparison with its fellow, without any change in the position of the bones, entering into the formation of the joint, having taken place. Formerly it was almost wholly assumed that the head of the femur was pressed out of the acetabulum by the exudation, and displacement of the femur thus produced, or it was drawn into the acetabulum by strong muscular contractions, and the extremity shortened. All evidences, however, tend to show that the supposed shortening or elongation is no actual condition but only an *apparent* one, produced by the sinking of the pelvic moiety on the diseased side, or through displacement upward of the pelvis on the affected side, with subsequently resulting curvature of the spinal column. For the purpose of clearly elucidating this circumstance, and to avoid falling into a very possible error, certain accurate measurements are to be instituted; but first it is necessary to bring both anterior superior spinous processes into the most direct line possible, the patient being on his back, and a rectangular line drawn from the xiphoid cartilage of the sternum, directly to its centre. Then both extremities should be placed in perfectly exact positions, and both sides measured from the spinous processes to the internal condyle and internal malleolus.

At this stage, i. e., while the deformity is only apparent, the disease may also be brought to a stand-still and cure, and the phenomena of shortening or lengthening disappear, provided no alteration in the configuration of the pelvis and spinal column has taken place, sufficient to prevent the pelvis from regaining the straight position.

But, on the other hand, if the disease goes on unchecked, a more or less marked swelling of the fundament and region of the hip-joint takes place, the integument becomes red and soft, fluctuation is distinctly felt, and these conditions are soon followed by the breaking of the abscess. This, however, does not always take place in the neighborhood of the joint, the pus may tunnel its way downward, and make its appearance in the region of the knee, or even still lower down. It may also perforate the capsule of the joint. In the majority of cases, this occurs at its posterior or under side, where on the one hand it is less dense, and on the other, also, the greatest amount of pressure is exerted by the head of the femur, especially when the patient is left to himself to select his own position. Pus may sometimes be observed escaping from the cavity of the joint through the communicating place, with the bursa beneath the iliacus internus and psoas magnus muscle, into the latter, and thence into the pelvic cavity; in addition it may also run into the pelvic space by perforating the ilium along the gluteal group of muscles. The sinous openings, left after the bursting of the abscesses externally, are generally surrounded by spongy, readily-bleeding granulations, which project above the level of the skin; extensive ulcers, also, not unfrequently form upon the skin and subcutaneous cellular tissue at the places corresponding to the perforations.

In progressive destruction of the osseous substance of the bones, entering into the formation of the joint, there originates a shortening of the neck of the femur, and an enlargement of the acetabular space, thus resulting in a disproportion, which is the fundamental condition to the process called luxatio spontanea, and is attended by true shortening or elongation of the thigh, in comparison to its fellow. In the advanced carious process, dislocation of the head of the femur or the residue thereof very frequently occurs by the mere altering of the position in bed, by raising the patient, or by the energetic contractions of the extensor muscles, and may be effected in different directions. Most frequently, however, the luxation takes place upward and backward upon the dorsum ilii, because the head, by the position of the thigh, comes to press mostly against the posterior border of the cotyloid cavity, and its carious destruction is completed at

an earlier period, and the head of the bone then has but a very slight impediment to overcome. When that portion of the ilium, upon which the ulcerating caput femoris comes to rest, is also attacked by carious disease, perforation of the ilium, with penetration of the head into the pelvic cavity, may take place, although this event may also happen, without dislocation, by perforation of the floor of the acetabulum.

Besides the usual form of dislocation of the head of the thigh-bone, it may also occur into the ischiatic notch, obturator foramen, or upon the horizontal ramus of the pelvis; these are, however, very rare and exceptional instances. Total exfoliation of the head of the bone, and its expulsion through a large sinus, have also happened in the experience of some surgeons; in favorable cases a cure may take place after these processes, not, however, without very great deformity.

When an arrest in the progress of the disease, and recovery from the evils under consideration after luxation, have taken place, the just-described effects will remain behind and impair the usefulness of the limb in a high degree. In fortunate cases a kind of joint-cavity forms at a future period near the old one, in which the head is able to perform some evolutions, but in most it is held firmly in its new place by adhesions and newly-formed structures.

Most frequently, however, the dislocation of the head of the femur is the precursor of the last stages of the disease. The suppuration constantly becomes more and more profuse, not infrequently large portions of the integument slough off, and the extremity, in consequence of pressure on the veins or obstructions within them, becomes œdematous. The fever assumes more and more the hectic character; shiverings or actual chills come on, and the patients die exhibiting the picture of general consumption.

In the acute form of inflammation of the hip-joint, as also in the fully-developed disease, there will be no difficulty whatever in forming the true diagnosis; in the chronic course, on the contrary, it may, in its incipient stages, be entirely overlooked or confounded with other processes. At the commencement of the disease it is not unlikely to be mistaken for rheumatic affections, or for coxalgia, still an accurate observation of the delineated symptoms, and the absence of phenomena peculiar to those diseases will plainly point out the true diagnosis, although the general state of the system had not yet directed any special attention to the local trouble.

Therapeutics.—The most important part in the treatment of coxitis is absolute rest of the lower extremity and hip-joint, and this indication is to be carried out *with the limb in the extended* position. For this purpose the same apparatus is advantageously resorted to as is

used in fractures of the neck and body of the femur, and preferably with double splints for the outer sides of both extremities, which should reach up to the axillæ, and be united below by a foot-board, while the pelvis is secured to the apparatus by a strap or girdle. No matter how much the patients are opposed to this apparatus at first, especially if they have been allowed to retain the thigh in the flexed and adducted position which they had themselves selected, they will readily become accustomed to it, especially if, at first, it is only applied for a while and gradually kept on for a longer time.

Starch and plaster-of-paris bandages have also been used with advantage for the purpose of keeping the limb and hip-joint immovable: these may especially be used in the milder cases, for in these the displacement of the pelvis does not require so great a counteracting power as in the severer.*

* A variety of apparatus has been invented for the purpose of securing complete immobility to the affected hip-joint. M. Bonnet's *grand appareil*, and Bauer's wire-breeches—which is a modification of the first—are so constructed as to fit to the pelvis, both thighs, legs, down to the feet. The apparatus being well fitted and padded, is secured to the parts by bandages and leather straps, thus securing perfect immobility for the lower half of the person. Barwell, of London, however, finds fault with this appliance, on account of its interfering with the movements of the sound limb and spinal column, without securing perfect immobility to the diseased hip-joint, and has had a splint constructed which simply restrains the movements of the affected limb. It consists of a pelvic portion made of wire gauze and reaching from the spine of one ilium to the other, thus embracing both sides of the pelvis and the sacrum, wide enough to reach from the crista ilii to the trochanter on the sound side, and extending from the pelvic band on the diseased side down the outer aspect of the thigh as far as the knee. The instrument is also secured to the trunk by an india-rubber band surrounding the body. It should be well lined and padded, and retained in place by bandages and adhesive plaster. As regards the use of counter-irritants, there is great diversity of opinion. No doubt seems to exist as to their usefulness in the early stages. Thus, in subacute synovitis of the hip-joint, blistering and the use of savine ointment will suffice, but, when the severe symptoms of ostitis show themselves, the more potent cautery or caustics are required. Potassa fusa is frequently resorted to, but at this stage is properly superseded by the potential cautery. The splint should not be removed until some period of time has elapsed after the subsidence of all symptoms of inflammatory action, and after its removal the patient should remain in bed for a few days, and gradually undertake the exercising of the limb.

At a further stage of the disease, when lengthening, with abduction and flexion, has existed for some time, the patient will suffer intensely from a very peculiar and painful clonic spasm of the muscles of the thigh, aggravated at night, depriving him of all sleep, and indirectly undermining the health. Narcotics, even in very large doses, have little if any quieting effect, so that, generally, it is better to place the limb in a straight position and retain it by counter-extension, a measure easily accomplished, as the pain is chiefly due to spasmodic muscular contraction, caused by nervous irritation, and is overcome by the extension. If the deformity is slight, and the

Lately, resection of the femur has also been successfully performed. The operation is comparatively easy, as, the ligaments and capsule of the joint having been almost wholly destroyed by the various processes, one long incision will suffice to reach the head of the bone; it is then turned out of the socket and sawed off by the ordinary or chain saw. Other methods of operation are based upon the substitution of a triangular or an elliptical incision for the straight one, but in that respect no positive rules can be laid down, for the sinuses, which are invariably present, will materially affect the direction that is to be given to the flap.

Where a cure has resulted with dislocation of the head of the bone, the deformity and hinderance in the use of the limb may be sought to be remedied by surgical operations. Where the dislocation is but of short duration, the usefulness and direction of the limb may, in a measure, be improved by an operation best adapted to the individual case, and afterward bettered still more by a properly-adjusted instrument.

Scrofulous Inflammation of the Knee-joint (*Gonarthrocace, Gonalgia, Tumor Albus Genu— White-swelling of the Knee*).—This disease takes its starting-point either from the bony parts of the joint, and preferably from the condyles of the femur, less frequently the head of the tibia or—but, in fact, oftenest—from the synovial membrane, with or without the ligaments of the joint. The phenomena vary according as to whether the disease occurs in an acute or chronic form; in the former case they may manifest themselves in an intensely-rapid and violent manner, and in a short time terminate in suppuration of the joint, or even fatally—in the latter, the signs are often at first very slight, almost unnoticeable, and only after a while become aggravated.

Symptoms.—The affection begins with a sensation of stiffness and some impaired mobility of the joint; flexion is difficult, while extension, on the contrary, is generally hindered to a less degree. Swelling of the joint, which may be proved by comparative measurements, is early recognized by the depressions to both sides of the ligamentum patella, as also by the knee-joint appearing fuller and larger. The

case be in its primary stage, the splint alone may be sufficient to overcome the contraction, while in aggravated cases tenotomy may be required.

Should fluctuation be discovered in the joint, Bauer, Barwell, and others, recommend evacuation of the pus, either by opening the capsule with a tenotome, allowing its exit into surrounding tissues, or the use of a trocar and canula. The latter measure seems preferable, inasmuch as by it the fluid may be seen and examined, and the diagnosis confirmed as well as the treatment aided. Finally, in the third stage of the disease, where there is great deformity from strong and rigid contractions which cannot be overcome by counter-extension, etc., aided by chloroform, and there is intense suffering from muscular spasms, tenotomy must be resorted to, after which the limb, being placed in position, may be retained so by means of the hip-joint splint. For further details, the student is referred to the standard works on surgery.—Tr.

temperature of the part is usually somewhat increased. As the disease progresses, the leg gradually becomes contracted upon the thigh, and the movements more painful, especially flexure of the limb. The pains soon become constant, even without any attempts at motion. At first they are of a dull character, after a while become more intense and sharper, and extend down to the foot, the tumefaction increases, generally has a peculiarly-elastic feel, but does not fluctuate; the integument retains its color, and is mostly intense and shining. When suppuration begins within the cavity of the joint, and the abscesses rapidly increase in size, the integument becomes red, and distinct fluctuation is felt, more or less plainly, in the degree in which the pus reaches the skin; the pains become so aggravating as to rob the patient completely of all rest and comfort. The abscesses burst either in the circumference of the joint, or the pus sinks downward along the leg, and in some cases makes its appearance in the region of the ankle. In addition, abscesses have been observed to break on all parts of the leg, most frequently on its anterior surface. The pus, facilitated by the position of the extremity, has also been seen to travel for a distance upward upon the thigh, and to make its appearance there. When the process is attended by carious destruction of the bones entering into the formation of the joint, and ulceration of the capsule and the contiguous soft parts, dislocation of the bones may likewise ensue in this condition, and this may happen especially to the tibia, which will present a partial or total luxation from its natural position.

The process may come to a stand-still, at every stage of the stated alteration in the course of the disease, in which, according to the extent of the pathological alterations, more or less impairment of motion, and of the configuration of the joint, will ensue. In most instances there results—when the treatment did not prevent this termination—a cure, *with union of the joint ends*—anchylosis: in more favorable cases, where the treatment was more successful, the result will be the formation of fibrinous and ligamentous bands, following inflammations which took their issue from the synovial membrane, and were unattended by any serious destruction of the cartilages—false anchylosis: in the unfavorable, complete bony union of all the bones of the joint following carious inflammation of the bones, with exfoliation of the cartilages—true anchylosis.

If the disease goes on without displaying any tendency to abate, and enters its last stages, the leg will become œdematous, suppuration will be profuse, the general phenomena assume a more and more alarming character, and death ensue either from exhaustion or purulent infection.

Therapeutics.—The principles already laid down in the treatment

of inflammation of the hip-joint are also applicable here. Of the serious surgical operations, amputation of the thigh will claim the main consideration; resection of the knee-joint will hardly ever be practicable, on account of the extensive osseous surfaces, which will have again to undergo suppuration, and the small prospect of recovery which will attend this operation.

Scrofulous Inflammation of the Ankle-Joint (*Tumor Albus Articuli Pedis. Podarthrocace*).—This disease, which is of tolerably frequent occurrence, usually commences by a very moderate, and after a while a more intense, growing, fixed pain either on the anterior surface of the ankle-joint or on one of the lateral regions, seldom embracing the entire joint. Motion, at first, is but little hindered; soon, however, it becomes so difficult that the foot is dragged along, the patient being unable to bring it down flat upon the floor, and every false step, every collision with firm objects, even the stepping upon firm bodies, stones, etc., induces a painful sensation of the joint. An elastic swelling, covered by normal-colored skin, soon manifests itself about the ankle-joint, by which the spaces beneath the malleoli become filled out, and the entire region of the joint more voluminous. The pain is constant, of a dull or tearing character, and radiates over the foot.

At a further stage of the malady the skin becomes reddened and the swelling softer, fluctuation is detected at one or more places, in consequence of the purulent accumulation either direct from the ankle-joint or from an abscess that has originated in its vicinity, and which soon communicates with the cavity of the joint. The pains attain to their acme before the abscess breaks; when that has occurred, they decline in intensity. Through the fistulous openings, of which quite a number are sometimes seen about the joint, the opened cavity of the joint may readily be reached with a probe, or the probe may encounter carious portions of bone belonging to the tibia or tarsal bones, while from it a very badly-smelling discolored pus, which is also mixed with crumbly granular pieces of tubercular masses and particles of bone, escapes. The fistulous openings are indebted for their origin to abscesses that have formed in the soft parts around the joint, and which, in most instances, will be found to penetrate clear into the diseased cavity of the joint.

At a further stage, if the disease has gone on unchecked, the foot becomes misshapen and deformed, for its anterior part generally emaciates, the region of the joint thereby appears disproportionately enlarged, and, in addition, is drawn upward in consequence of contraction of the tendo Achillis, after the manner of talipes equinus. The disease, as a rule, runs a very slow course, with acute and subacute exacerbations; sometimes heals with deformity and permanent

impairment of motion, but, under serious disturbances of the general system, from profuse suppuration and exhaustion, may also terminate fatally.

Therapeutics.—Besides amputation of the leg, which, in this form, may come into consideration, it may also be a question about exsecting the carious ankle-joint, if the disease has only involved the lower joint-end of the tibia, and the upper surface of the astragalus.

Scrofulous Inflammation of the Elbow-Joint (*Olenarthrocace*).—In strumous subjects, the elbow-joint is not infrequently the site of inflammation, which generally has its starting-point in the synovial membrane, and attacks the bony joint-ends; sometimes, again, it first starts from the spongy portion of the bones entering into the formation of the joint. The disease, as a rule, begins with a slight degree of difficulty in exercising the joint, and with mild pains; both phenomena gradually become aggravated, while round about the joint a swelling forms, which at first is tolerably dense and elastic, but, after a while, becomes soft and breaks open at one or more places.

The forearm is bent more or less upon the upper arm, and has a position midway between pronation and supination; the whole extremity not infrequently presents a peculiar appearance, for the forearm is atrophic, the upper arm also, on account of its inactivity, suffers its muscles to become emaciated, while the region of the joint is seen to be swollen into a spindle or globular form. The destruction within the joint, as a rule, may be easily ascertained by the examination with the probe through the sinuses, as these, in most instances, do not form any very long tracts, but lead directly to the bone.

The general phenomena vary in the manner often already described, according as to whether the course has an acute or chronic character; hectic and pyæmic fever less frequently become developed from this kind of scrofulous inflammations than from those previously described, but, nevertheless, do likewise occur. When the disease goes on toward recovery, a cure may take place, with more or less deformity and anchylosis. Dislocations of some of the bones from their normal position do not often occur, even in extensive destruction. Most frequently, a luxation of the ulna backward, or a displacement of the head of the radius inward, takes place.

Therapeutics.—Besides amputation of the upper arm, which may come into consideration in very violent inflammations of the elbow-joint endangering life, resection of the carious bones is yet to be mentioned, which is not infrequently resorted to in exhaustive suppuration, to save the life of the patient, or to shorten the morbid process in the joint. Generally a longitudinal incision, running parallel with the inner border of the olecranon, commencing two fingers' width above it,

and running downward, will be sufficient for the removal of the diseased bones; where this does not answer, a complicated incision, the shape of which depends mostly upon the existence of the sinuses, will be necessary. In all methods of operation, proper care should be taken to preserve the ulnar nerve.

General Treatment of Tuberculosis and Scrofula.—In the great importance which, according to my views, is to be attached to the hereditary disposition, as the chief cause, there can be less of a question of preventing the outbreak of the cachexia, than of attaining a possibly mild, favorable course of the various local manifestations.

Scrupulous avoidance of all digestive disturbances, and residence in well-ventilated rooms, are the two chief points upon which the physician has to insist, in children the progeny of tuberculous parents.

They should remain for a long time at the breast of a healthy wet-nurse, and be weaned with the utmost caution. Subsequently, all nutriments which produce flatulence are to be avoided. The chief articles of diet in the first ten years should be milk and milk soups, beef broths and juicy meat, tender vegetables, and plenty of ripe fruit. Potatoes should not be allowed in large quantities; the bread should be well baked. Children should get nothing but water for a drink. Small quantities of beer can do no harm; wine and other spirituous liquors, however, should be strictly prohibited.

Acorn coffee is especially adapted as a drink at breakfast, and pure milk is to be substituted for it when the patients are no longer disposed to take it readily; genuine coffee should not be used under any circumstances.

No departure need be made from this diet, so long as the strumous affections, which happen to supervene, are feverless; when febrile excitement comes on, the instinct, which in children is even keener than in the adult, will forbid it of itself.

As regards the residence, a sunny sleeping and sitting-room, as large as possible, and capable of being thoroughly ventilated, is to be urgently recommended. In summer the children should be out the entire day in the fresh air; in winter, at least two hours every day. Frequent tepid-warm, and, still better, cold baths and ablutions are the best means of protecting the children against colds, and the so-frequent bronchial catarrhs. Sea-baths and salt-water spring baths are also of especial benefit to scrofulous children.

In summer they should live in the country; in winter, in large, spacious apartments. The residence in warm climates during the cold seasons of the year has, it is true, the great advantage that the children are there able to be much more out in the fresh air. But since this change of place has to be carried out every year, if, in the succeeding years, the children are not to be subjected to the danger of suffering decided harm, they thereby become accustomed from their earliest youth on to an unsettled, roving life, and regard themselves as eternal patients. That there is no happy prospect in store for such hot-house plants needs scarcely any additional assurance.

Of the remedial agents, cod-liver oil without doubt deserves the first name on the list. It is contraindicated in febrile conditions, in anorexia, and in diarrhœa; the latter condition it is of itself apt to induce in the hot summer season. Aside from that, it is taken with the greatest advantage for years by all scrofulous, and also well-pronounced tuberculous children.

It is best to give it one or two hours after breakfast, in quantities of from one-half to one tablespoonful—a little coffee or a small piece of sugar is given afterward. On the whole, most children do not require to be remunerated at all with any particular delicacies for taking the oil, for usually it is not repulsive to them in the least, and they will themselves remind the nurse to give it to them if she has once forgotten to do so. It is well to inform the relations, at the very outset of the cure, that an improvement can only be derived from years' constant use of the remedy, and that it has to be given for many months, even though at first no change or no aggravation should have taken place.

In well-nourished, but, for the most part, strongly-tainted, scrofulous children, small doses of tincture of iodine, one or two drops, to the ounce of the oil, may be added. Still, I would never advise a long-continued, internal treatment with iodine. Springs containing iodine and bromine, of which Heilbronner stands at the head of the list, next Kreuznach, are of decided benefit in scrofulous children free from bronchitis, but totally contraindicated in emaciated children with suspicious bronchitis.

If the cod-liver oil is not tolerated, or the child refuses to take it, some substitute must be looked for which will take its place. A tea made from walnut-leaves seems to be the most advantageous, and of which two or three cupfuls should be given daily. A decoction of hops, or a calamus infusion, is also relished by some children, but many others refuse to take either on account of the intense bitterness. To children with excessively-pale lips and mucous membrane, mineral waters containing iron, or easily-assimilated preparations of iron, for example, ℞ martis pomat.,* must be given.

All exhausting treatment, whether it consists in abstraction of blood or emetics, in purgatives, in antimonials or mercurials, induces, in all cases, an aggravation of the dyscrasia, and is therefore to be entirely avoided.

* Malate of iron.—Tr.