ART. V.—*Cases of Injuries of the Larger Joints, with Remarks.*

By W. COLLES, one of the Surgeons to Steevens' Hospital.

CASE I.—A boy, aged about thirteen, came in contact with a reaping machine, while in motion, and received the following injuries in and about the ankle joint:—There were three transverse incised wounds, with intermediate oblique incisions partially connecting them. The first of these, about an inch in length, was situated on the dorsum of the foot; the second was somewhat larger, and higher up; and the third about the level of the ankle joint, and exactly representing what would be the anterior incision in Syme's operation—it extended from one malleolus to the other, dividing integuments, tendons, arteries, and bones, and opening the ankle joint, into which the fingers could be passed in all directions. The extremity of the fibula was deeply incised; two detached portions of bone from the lower end of the tibia were lying along with the lower flap; these were removed. On admission into Steevens' Hospital there was little or no hemorrhage; the shock was not as great as might have been expected. Notwithstanding that the foot was flexed to the utmost, I was unable to close this wound; I therefore drew the lips together as well as possible by means of sticking plaster, without using sutures, and maintained the flexed position by means of an iron splint, which was made in one piece, extending from behind the calf to the sole of the foot; this, along with long straps of plaster from the toes to the upper part of the leg, kept the part perfectly at rest. In three days' time suppuration had commenced; but I did not allow the dressings to be removed, for nearly a fortnight, contenting myself with merely correcting the fetor by chlorinated washes, &c.

When the plaster was removed I was gratified to find a broad belt of granulations occupying the site of the extensive wound. The patient was kept at rest for a month, when he was allowed to get out of bed, but not to put the foot on the ground; in another month he returned home with a useful foot.

In this case the prognosis at first was not very favourable, nor was the prospect of a rapid cure very encouraging; indeed, if we had followed the principles which are laid down for our guidance, we should have at once proceeded to consider the propriety of having recourse to either resection of the joint or amputation. I attribute much of the successful issue to the youth and good

constitution of the patient, and to the fact that I did not allow the limb to be disturbed, nor even the dressings to be removed, for a considerable period, although the discharge was profuse and the odour disagreeable. I thereby guarded against the probability of inflammation coming on from disturbing the position of the limb, and also against the admission of the atmospheric air.

CASE II.—Mr. S., aged about thirty, a dissipated man, was admitted into Steevens' Hospital, in a state of extreme intoxication, having met with an accident for which he could not account. We found a fracture of both bones of the left leg, close to the ankle: there was a small punctured wound on the outer aspect, which was bleeding freely, so much so that it was the occasion of my being sent for. Although only an hour after the accident, there was distinct emphysema of the leg as far as the knee. In a few days a black spot was observed on the outer malleolus; a slough, about the size of a crown piece, separated, exposing the joint and a portion of the fibula bare and very movable. After a few days healthy granulations sprung up, the piece of bone becoming firmer and more attached.

The case was progressing favourably, the wound being nearly healed, when a phagedenic form of ulceration seized it; it carried everything before it; nor did it cease until it had come within four inches of the knee joint. Various caustics and stimulating applications were tried—even change of air had no effect in arresting its progress; finally, I covered the whole surface with brown sugar, when the ulceration ceased. As soon as the ulceration made no further progress I amputated below the knee. The wound was healing well, when a large abscess formed on the outer side of the knee, another on the inner side; the discharge was so profuse that at one time we were considering the expediency of amputating above the knee; however, after a time the discharge began to decrease. Abscesses continued to form along the thigh, causing much debility. Finally, all healed up, and he left hospital, after twelve months' treatment, with a stiff knee.

On superficial observation we have here only an ordinary case of compound fracture of the bones of the leg, yet there were circumstances which rendered the case peculiar. The hemorrhage was excessive, yet we could not go search for the bleeding vessel; it was to be feared that pressure would have had the effect of driving the blood into the deeper tissues of the limb. The wound was very

small, and must have communicated with the joint; the presence of emphysema, occurring as it did immediately after the receipt of an injury, indicated some serious mischief. The patient's health was none of the best, owing to his drunken habits, yet we had very little constitutional disturbance when the slough separated and the joint opened; this latter consideration alone was sufficient to preclude the question of amputation.

When the integuments sloughed to such an extent there was no other treatment remaining but to amputate as soon as the phagedenic action had ceased. The application of brown sugar stopped it completely. I had been reading, a few days previously, of its having been used by American surgeons during the late war, when no other dressing could be obtained; they reported so favourably that I made trial of it in this case.

CASE III.—A man, thin, but healthy, aged about thirty-two, was caught in an engine by the right knee. There was a lacerated wound on the inner side of the patella, with considerable swelling about the joint, and, as far as could be ascertained, a fracture of the patella; some serous fluid could be pressed out of the wound; there was considerable ecchymosis of the thigh.

After some days a dark patch was observed on the outer side of the patella; here a slough formed, one inch and a half long by half an inch in breadth; this was raised considerably, and gave the evident sensation of fluid underneath. I divided the slough, and gave exit to a considerable quantity of sero-purulent fluid; as an abscess had formed in the thigh, I opened it also, and let out some healthy pus. There was considerable pain and starting of the limb, especially at night.

In about three weeks the discharge had diminished considerably; but, as the wound did not close, I introduced a probe, and felt a portion of bone bare and loose; on its removal it was ascertained to be a portion of the under surface of the patella partly covered with cartilage. The knee had become stiff and rigid, but I thought I could feel some motion in the joint; I put it across my knee and gave it a forcible wrench, when I felt and heard a tearing and laceration of the tissues in the joint. Of course this gave him great pain, but was not followed by any inflammation. He would not allow anything more to be done to the leg, so he left the hospital a few days after.

Taking everything in the case into consideration, we must admit

that in this case the joint was opened, yet the constitutional disturbance was not great at any time.

CASE IV.—A boy, while swimming, struck his knee against some hard body. He was brought to Steevens' Hospital with an incised wound a little above the outer angle of the patella, extending outwards for about two inches; it was treated in the usual way. All went on well for about a fortnight, when, in the centre of the granulations filling up the wound, a yellow spot appeared resembling a hernia of the synovial membrane; it increased in size, and became elevated; it ultimately broke, and gave exit to a quantity of serous fluid resembling synovia. Acute inflammation of the joint followed, as characterized by swelling, redness, and pain. I at once put him under the influence of mercury. An abscess formed of considerable size on the inner side of the joint, and extending down over the tibia; I did not interfere with it locally, but allowed it to burst; it emptied itself and closed. Other abscesses formed behind, and again in front of the femur; eventually the pain subsided. The joint is now stiff; the periosteum all round is thickened; the patient is gaining strength and appetite; he is most anxious to get up.

In this case the wound at first did not apparently reach the joint, yet it implicated it subsequently, without any evident cause, and by a process not easily explained. We had all the symptoms of acute inflammation of the joint, terminating in the formation of a large abscess; yet matters did not go to that extent that we find in similar cases. I attribute this very much to the rest, and beneficial effects of the mercury, which, whatever theoretical detractors may say, has a great influence in counteracting inflammatory action.

We may perceive that the reparatory process may go on in a joint, though it be filled with purulent matter, and that ankylosis may occur without the cartilage being expelled by the profuse suppuration, as we find in *disease* of the same joint. The process by which the joint came to be secondarily opened is curious, and not explicable by any surgical process that I know of. In this case, also, the necessity of an operation was imminent.

CASE V.—A boy, aged about fourteen, received a contusion on the inner side of the left knee, from the wheel of a cart. He was admitted to Steevens' Hospital. Gradually a portion of the integuments in the neighbourhood assumed a dark colour, a slough

formed the size of half-a-crown, the line of demarcation showed itself and sank deeper. He had no bad constitutional symptom up to this time, viz., about a fortnight after the receipt of the injury, when suddenly, at night, he was seized with violent pain in the joint, accompanied by great constitutional disturbance; the knee became greatly swollen and red, the tumefaction extending up the inner side of the thigh, which soon assumed a reddish blush, gradually darkening in colour; on pressure at the knee a watery fluid, mixed with bubbles of air or gas, escaped; the fever continued to increase in intensity, he became delirious, and died in a few days.

On admission, this boy's case seemed deserving of little attention; yet when the separation of the dead from the living parts reached the joint, such local and constitutional disturbance was set up that the question of surgical interference was precluded altogether; in fact, to have given this patient a chance, the limb should have been removed on his admission, an operation which the surgeon would not have thought of proposing or the patient of submitting to.

In these injuries we can seldom expect a speedy and safe issue; we may perceive that there are different periods at which danger may be apprehended, and that they do not depend on the amount of injury. We may have reaction set in and inflammation run high in twenty-four or forty-eight hours after the receipt of the injury; this we may denominate the *primary period* of danger. At the end of the second or third week the separation of a slough, or some other unexpected cause, may give rise to a bad form of inflammation of the joint; we may denominate this as the *secondary period* of danger. These evil consequences may, I think, be attributed to the presence of air in the joint, and although many surgeons deny that this can set up inflammation, and even record cases where its presence has not been followed by any bad symptom, still when we consider that every part of the body is covered with cuticle, and that if we remove that covering, or expose a new surface, inflammation is set up, and a new covering is formed resembling the former cuticle, we may fairly reason that the presence of air in a joint is likely to be followed by inflammation. Even when the viscera are exposed a covering of cuticle is thrown over them, as in the case recorded by John Bell. Having escaped these periods of danger we have the exhausting discharge of pus in quantities, the ulceration and destruction of cartilage, the effusion of lymph, granulations, adhesion and consolidation into bony union, to contend with. During all this time the patient is liable to all

the various diseased actions attending all injuries and surgical operations. This we may denominate the *tertiary period* of danger.

From the cases here recorded we can scarcely draw any deductions on which to form rules for our guidance in practice; on the contrary they show us that the rules in vogue at present are liable to many and great exceptions; they compel us to go back and take up each case as a separate consideration, and to recommend a line of treatment which we think most suitable for that particular case. This includes the important question of operation.

In injuries of the larger joints the surgeon has often little difficulty in deciding on the line of practice to be adopted and the dangers to be dreaded. Many cases thus die of the constitutional effect of the injury a few hours after its receipt; we may have cases in which the surgeon can see at a glance that it is at once necessary to remove the part by resection or amputation. On the other hand, there are many cases which are sources of much anxiety, as to the consideration of which line of practice he should adopt. For the solution of this momentous question he must rely on his experience—both on what he has seen and read with the circumstances in the patient's case. If he determine to save the limb he must look forward to long suffering, great exhaustion, and at best a termination in a stiff joint, during which, at any time, an attack of inflammation may supervene and destroy the patient, without being able to have recourse to any operation; or if we must resort to operation it must be under circumstances much less favourable than at the outset. But if the operation be proposed at the first he may hope for recovery in a few weeks.

Having decided on the necessity of an operation, another question arises, what it will be—resection of the joint, or amputation? The records of civil practice do not offer us many cases from which to judge of the probable success of resection, but we must not forget that it in general is a much more severe tax on the constitution than amputation. In military practice, where the injury is so greatly complicated, though in smaller joints, resection may succeed; yet in the larger joints we find the operations, resection and amputation, all have such a tendency to a fatal termination that it is difficult to form any opinion from the statistics at our disposal.

One thing we learn, that the usual manner of evading the difficulty by proposing to wait, and be guided by symptoms as they arise, is not to be considered always as safe and expedient. If we defer operating, on the receipt of the injury, we may never again have

a chance of affording even such partial relief; the attack may be so sudden and severe as to preclude the possibility of an operation as occurred in the last case.

Here I may allude to the weakness of some surgeons who, in cases similar to these, say they will explain everything to the patient, and let him decide as to the expediency of an operation. This is an abandonment of the duties imposed on him, and an unworthy effort to ease his conscience by throwing the responsibility on the shoulders of a patient who is perfectly unacquainted with surgery, and at the time incapable of forming a correct judgment. The surgeon cannot always say decidedly whether or not the operation is absolutely necessary to save the life of the patient; for surgery is not perfect, nor surgeons infallible. He should, however, say, to the best of his judgment, whether or not the operation affords the best chance of recovery. Should he urge this with all the power he is capable of, he has done his duty; if the patient refuse, the surgeon must only adopt that other plan of treatment which to him appears next best; this he may pursue with an easy conscience.

ART. VI.—*On Scarlatina Complicating Child-bed.*^a By ALFRED H. M'CLINTOCK, M.D., F.R.C.S., President of the Dublin Obstetrical Society; Honorary Fellow of the Obstetrical Society of London; Late Master of the Lying-in Hospital, Dublin; &c., &c., &c.

IN the present paper I propose submitting a clinical analysis of some cases of scarlatina, occurring within the first eight days of childbed.

Common observation has attached a great deal of importance to the disease under these peculiar circumstances, and by physicians generally such a complication of the puerperal state is regarded with profound dread. Nevertheless, but little has been done towards investigating scarlatina under this aspect. Beyond a few isolated cases recorded here and there in our periodic medical literature, I believe we may in vain search for information upon the subject.

^a This paper was read at a meeting of the Medical Association (K.Q.C.P.), in February, 1859. It is now published, with little alteration, beyond the addition of some cases.