tion of the growth, if its nature is simple, or it may even suffice, as in Case v. to draw it away, when small, and secure it with a stitch, so that it will not pass between the joint-surfaces and interfere with their free movements.

In the *American Medical Record* for June 26th, 1886, there is an interesting paper on this subject by Dr. R. F. Weir. Dr. Weir records two cases of his own and one of his colleague, Dr. Bull, in which tumours were removed from the knee-joint. In one case, the tumour was composed of "vascular connective tissue, rich in fat and connective-tissue cells." In the second case, the growth was a "fibro-sarcoma," and in the third the growth was a "giant-celled sarcoma." Weir also refers to other cases published by Simon, Volkmann, König, and Lauenstein. Barwell (*International Encyclopedia of Surgery*) mentions that he removed two fatty growths from the knee, one being situated upon each side of the ligamentum patellæ. He expresses the opinion that some of these growths are formed in the subsynovial tissue, and gradually bulge into the joint. Volkmann, under the term "lipoma arborescens articulorum," has described a condition of multiple fatty growths having their origin in connection with the fringes of synovial membrane.

III. Growth from the Bone protruding into the Joint.

CASE VIII.—Miss H., aged 55, was seen with Dr. P. A. Young and Dr. Gibson, of Portobello, at the beginning of last year. She had suffered for several months from pain and stiffness in her right knee, and latterly she found that the movements of the joint were interfered with by something "catching in the inside of the joint." An examination showed slight chronic synovitis, and upon the outer edge of the patella a small hard body was felt, apparently firmly attached to the synovial membrane. But owing to the synovial thickening, it was difficult to decide whether or not it was connected to the bone. In the movements of the joint the edge of the patella came in contact with this body, causing great pain. After consultation, it was agreed to remove this body, and I accordingly made an incision parallel to the outer edge of the patella, and opened the joint. It was then seen that the body was an outgrowth from the articular surface of the femur, and was firmly attached to the bone. By means of a chisel the base of the growth was cut through and the body removed. It was an outgrowth such as is so commonly met with as a result of chronic rheumatic arthritis, and was half an inch in length and about a quarter of an inch in diameter at its base. The patient made a good recovery; the wound was soundly healed at the end of a month, and in three months she was able to walk well, and was much improved. During the winter she has suffered from further attacks of rheumatic inflammation in this joint, which has caused some pain and stiffness, but she is able to use the joint and limb usefully, although there is still a little "jerking" in it.

It is well known how commonly outgrowths of chronic arthritic origin cause interference with the movements of this and other joints, and it cannot be said that such cases are very favourable for operative interference; but still I think that, in cases where a single and distinct growth is causing much pain or stiffness, the question of an operation may be taken into consideration, and the case just recorded proves that the removal of such a growth may be successfully performed, and may also, even if not perfectly relieving the symptoms, improve them. It is not an operation that I would wish to urge very strongly, and the general condition of the patient, the condition of the joint, and his or her wishes—the question having been properly explained—would influence me in advising its performance.

Lastly, in opening the knee-joint for the removal of growths, the incision will be best made over the position of the growth, if it can be felt. Should its exact position not be determined, and the case be one suitable for operation, I would suggest that the incision advised for the fixing of the internal semilunar cartilage be employed, as it was found very convenient in the three cases reported.

A WALKING MANIAC.—Dr. Zenner, in a recent lecture at Cincinnati College, referred to John Snyder, of Dunkirk, whose marvellous feats of walking have interested the medical profession as well as the public. Dr. Zenner said that to him the man seemed perfectly rational, and was certainly not an imposter. During the forty-eight hours that he was watched by students of the Ohio Medical College, he walked all but seven hours, and did not lie down at all. He says it does not rest him, but makes him tired and uncomfortable, to sit down. The disease, then, is not in the walking, but in the uncomfortable sensation on account of which he walks. Weston walked 5,000 miles in one hundred days; but this man has walked almost 25,000 miles in five hundred days, and is no more tired than when he began. His gait was such as to cause the least possible fatigue.

REMARKS

ON

A METHOD OF FIXING THE BONES IN THE OPERATION OF EXCISION OF THE KNEE-JOINT.

By W. MORRANT BAKER, F.R.C.S.,

Surgeon to St. Bartholomew's Hospital; Consulting Surgeon to the Evelina Hospital for Sick Children.

THERE are few surgeons, probably, who will not admit that the maintenance of the proper position of the bones by means of splints only, after excision of the knee-joint, is a difficult matter, or who would not be glad to have additional means at their disposal for effecting that object; and many—and I would include myself in the number—are disposed to believe that the difficulty referred to is the chief element in the want of success so frequently met with in obtaining sound and speedy union of the resected surfaces, and an ultimate satisfactory recovery.

It was with the object of securing the parts in a more reliable and direct manner than splints could accomplish, that I determined, many years ago, to try some kind of suture or other appliance attached to the bones; and, after consideration, it seemed to me that the method recommended by Mr. Bickersteth (*Trans. Med. Chir. Soc.*, vol. xlvii, p. 113), in certain cases of non-union and of compound fracture of bones, would be, probably, the best for fixing the resected surfaces of the femur and tibia. In September, 1872, I had an opportunity of carrying the idea into practice, and with a result as good as I could wish.

Femur and tibia, the articular ends of which have been resected and fastened together in the manner described in the text.

CASE I.—A barman (S. W.), aged 26, was admitted into St. Bartholomew's Hospital, under my care, on August 6th, 1872. Eight years previously, he had received an injury to the knee, and to this he attributed his subsequent troubles. At the time of his admission there were all the usual signs of advanced disease of the knee-joint, into which a probe could be passed through one of the sinuses in the neighbourhood. Taking into consideration the patient's general condition, which was that of a delicate man, somewhat emaciated from the effects of long-standing joint-disease, as well as the condition of the knee, I did not feel justified in recommending any other treatment than amputation of the limb, although I promised to excise the joint, if, at the time of the operation, and on further exploration

under chloroform, the local conditions warranted my so doing. The patient, however, and his friends absolutely refused to entertain the idea of amputation, and I therefore proceeded to excise the knee-joint, making a semilunar flap and removing the patella, about a month after his admission into the hospital.

The bones were found in good condition, hard and vascular; and having placed the sawn surfaces of the femur and tibia in as exact coaptation as possible, I inserted on each side a steel pin or awl, pushing it in obliquely upwards for three inches or thereabouts, through the head of the tibia, and into the lower end of the femur, *St. Andrew's Cross* fashion (see Figure).

The awl with which I performed this part of the operation had been purposely constructed with a movable handle; and, after the insertion of each pin, the handle was removed. The proximal ends of the pins were left projecting from the level of the skin by about an inch and a half; the distal ends were left buried in the lower end of the femur. A splint was, of course, applied (I think, in this instance, a *McIntyre's*); and the limb was swung after the patient's return to bed.

I watched the progress of this case for a short time with some little anxiety, although feeling confident that the pins could do no harm; but all anxiety soon ceased when it was found that the case progressed after the fashion of a simple fracture. There was neither pain, heat, redness, nor swelling; the discharge from the wound was trifling, the greater part of the wound healing by first intention; and, a few weeks after the operation, in changing the splint for some cause which I have now forgotten, I was astonished at finding that the patient, instead of feeling pain or dread during the process, was taking the weight of his limb off my hands by the action of its own muscles. One steel pin was removed between four and five weeks and the other about seven weeks after the operation.

Between two and three months after the operation, the splint was removed, and the limb supported only by a pillow.

The patient left the hospital convalescent, and with firm, apparently bony ankylosis, returning to show himself a month or two afterwards. At this time (the exact date I have not preserved), the tissues around the knee were still not quite sound; but, although somewhat thickened in many parts, they were not tender. A few small sinus-tracks were still open, and from one of these, it was said, a tiny scale of bone had come away. On one side, the track of the pin could not be found; a small tubercle in the skin apparently representing the point at which it had entered. On the other side, the small track was still open. The leg was almost perfectly straight, and the ankylosis was apparently bony. The patient could walk firmly and well with a thick-soled boot, and without the slightest pain or discomfort. His general health was excellent.

I heard nothing more of this patient until January, 1879, more than six years after the operation, when, in reply to a letter asking for a report of the state of his limb, I received the following note, "The operation you so kindly performed upon my leg, while in *St. Bartholomew's Hospital*, has proved very successful. It healed up shortly after I came home, and I have been enabled to follow my occupation as barman ever since. I am happy to say I do not feel any pain in my knee."

CASE II.—The second case in which I employed steel pins in excision of the knee-joint was that of a boy, about 10 years old, who was admitted, under my care, into the *Evelina Hospital for Sick Children*.

In this instance, probably from being too careful in remembering the softer bone-texture with which I had to deal, and in my endeavours not to thrust the pins too far, I did not thrust them in far enough; as a consequence, probably assisted by some movement of the limb, the pins were found quite loose two or three days after the operation, and were then removed. The case, therefore, scarcely deserves record in the present list; although, read in another way, it may be fairly taken as an additional piece of evidence of the need of some such method as that which is here advocated, inasmuch as, without the pins, notwithstanding all the care we bestowed on him, the boy did not leave the hospital with a sound limb until eighteen months or more after his admission. I have seen him many times since, and he has a good useful limb, with the bones firmly ankylosed; but in the hospital, he was for many months an opprobrium to us, and it seemed over and over again as if nothing could save the limb from amputation.

CASES III, IV, and V were also cases under my care in the *Evelina Hospital*. I have not the detailed notes at hand, but it may be mentioned that they were boys aged from 8 to 12, and that the operation was performed in the usual manner, the patella being removed, and steel pins inserted through the articular ends of the tibia and femur.

Two of the three were completely successful, the wounds quickly healing, and both boys leaving the hospital with perfectly straight limbs, and with the bones in a state of apparently osseous ankylosis.

The third case ultimately did well, but the pins did not retain their hold, and the patient was for several months in hospital. I have seen him, many years after the operation—indeed, within the last year (1886). He has a strong well-grown limb, and is able to walk firmly on it, with only the limp due to the stiff knee and the slight shortening. The limb is somewhat curved, but any tendency there may be to increased deformity is overcome by his continuing to wear a leather and steel support.

In passing, I may remark that the tendency to curvature in old cases of excision of the knee is not confined to those in which the ankylosis stops short of osseous union, at all events in young subjects. If no strong well-fitting apparatus is worn, deformity is apt to occur even when one cannot doubt that there is continuity of bone at the excised part of the limb. Taking this into consideration, with the fact that there may be little or no tendency to increased deformity under similar circumstances, in a fully grown subject, I am disposed to believe that the curving of the limb is best explained, in the young, by assuming an irregularity of growth at the epiphyseal lines, rather than a giving way or yielding at the line of osseous union.

CASE VI.—In December, 1878, a boy, aged 14, came under my care at *St. Bartholomew's Hospital*, in the absence of my late colleague, Mr. Callender, who had excised his knee-joint a few weeks previously. The case had done well, and bade fair to be successful in every way, until the third week after the operation, when the boy began to suffer a good deal of pain, especially from starting of the limb at night, together with high temperature and general constitutional disturbance. The splint had lost its hold on the limb, and obviously required changing. Under these circumstances I determined to try the effect of inserting steel pins into the bones, after the fashion adopted in my previous cases of recent excision, if I found, on examination of the limb, that no union existed between the bones. The patient was, therefore, placed under chloroform; and, finding no union between the resected bones, I inserted two steel pins, and applied a fresh splint. The next day, the boy was much better; he had suffered little or no pain, and had passed a good night, and from this time onward had no recurrence of the special symptoms, for the relief of which the bones were pinned together. It is of course impossible to say how much good was done respectively, in this case, by the change of splint and by the pins. The special point, however, to which I wish to draw attention, is in the fact that between three and four weeks after the operation, securing the bones in this fashion has been found a safe and serviceable measure.

Although the further progress of this case, as might be anticipated, was very slow, the lad ultimately left the hospital convalescent; and when I last saw him, many months afterwards, the leg was in a good position, and on its way, apparently, to be a sound and useful limb.

CASE VII.—A boy (W. W.), aged 9, was admitted in August, 1877, into *St. Bartholomew's Hospital*, under my care, with strumous disease of the knee-joint, of two years' duration.

September 12th, 1877. At this date, the knee-joint was excised, steel pins being inserted in the usual manner.

September 26th. The wound had united well. Both pins were removed to-day.

October 27th. The limb was placed on an ordinary wooden back-splint with foot-piece.

January 20th, 1878. The bones were apparently firmly united. The patient could bear some weight on the leg in standing.

February 22nd, 1878. He left the hospital, wearing a thick-soled boot and plaster-of-Paris case on the knee. There was still a sinus on the inner side.

This case illustrates well the necessity of wearing some apparatus, on the part of young subjects, after excision of the knee-joint, until the period of growth is completed, even when the ankylosis appears bony. This boy was lost sight of for a long time; indeed, until he returned to the hospital in the present year (1886), nine years after the excision, complaining that his leg was gradually bending, and therefore getting shorter. He said that for some time he wore an apparatus given him when he ceased attending at the hospital; but, feeling his leg quite well and strong, he left it off after some months, and had worn nothing of the kind since. Even now, with the leg bent to an angle of 45°, he could bear weight on it practically as well as on the other; but the gradually increasing shortening from the flexion led him to apply for relief. The ankylosis seemed quite bony, and the limb had grown well in proportion to the rest of the body.

The patient having been re-admitted at about the time of my leaving town for the autumn vacation, my colleague, Mr. Bruce Clarke, kindly

undertook the management of the case, and removed a wedge-shaped piece of bone at the site of the old excision.

The patient has done well; but there has been a good deal of delay in the re-union of the bony surfaces, on account of the impossibility of bringing them well together, even after the removal of the wedge of bone.

CASE VIII.—A girl (M. O.), aged 11, was admitted into St. Bartholomew's Hospital, under my care, on January 11th, 1878, on account of long-standing disease of the right knee-joint. The leg, it was said, had not been straight since she was 18 months old, when she fell, bending the leg under her. The patient was admitted into the hospital five years since, on account of the leg having been "drawn up;" but she managed to get about on it until nine months ago, since which date it has been so painful, and so much bent, that she has not been able to use it.

When admitted into the hospital, the leg was swollen, hot, painful, and tender, partially flexed on the thigh, and somewhat displaced outwards, as if there had been a partial traumatic luxation. There was not much eversion or displacement backwards. Slight movement could be effected at the knee, but it caused much pain.

January 30th. Excision was performed at this date in the usual manner, and two steel pins were inserted. The bones were found very soft; the cartilages were ulcerated, and the ligaments softened. The synovial membrane was thickened. No pus was present in the joint.

February 9th. The patient was doing well.

February 13th. One steel pin was removed, as it had become quite loose. (No note has been preserved of the date at which the other pin was removed.)

March 12th. There had been some bagging of pus on the outer side of the wound.

March 28th. At this date, the splint was removed. The wound was almost entirely healed, and there was tolerably firm union of the bones. The patient's general condition was good.

April 24th. Union seemed to be osseous. The patient walked about on crutches, a wooden back-splint having been applied to the leg.

May 20th. The patient could bear weight and walked well on the right leg. Very little discharge from the wound. General condition good.

June 21st. The patient wore a thick-soled boot, and walked well (shortening of limb only about half an inch). The leg was very slightly flexed.

The only cases of excision of the knee which, in my experience, have proved fatal after the use of steel pins are two; and in neither of these, to the best of my belief, were the pins the cause of the bad result; but it is right they should be recorded.

One case (Case IX) was that of a young man, aged 21, who was admitted into the hospital under the care of one of my colleagues, on account of disease of the knee-joint of two years' duration. Excision was performed January 1st, 1879. Steel pins were inserted at my own suggestion in the usual manner; but, from some cause or other, they lost their hold very soon, and, therefore, did little or nothing in the fixation of the limb. The case did badly from the first. On the second day after the operation, the temperature was 102° F., and of the third day 103° F.; pulse 132. Without any real relief from the urgent symptoms, the patient died about a fortnight after the operation with symptoms of osteo-myelitis and septicæmia. I have no note of the date at which the pins were removed, but I presume it must have been within two or three days of the operation.

The result of this case will be probably taken in different ways by different observers. Had it been the first case in which pins had been inserted, it is not unlikely that one would have attributed to them, in part, the untimely result. Inasmuch, however, as nothing but good has, in my experience, followed their employment in all the other cases in which they have been used, I am not disposed to believe that the calamity was more, in this case, than a coincidence. Indeed, I am sure now, from increased experience, that the employment of the pins, so far from adding to the number of calamitous results by causing osteo-myelitis or the like has, in many instances, by promoting speedy and sound union of the bones, prevented it.

CASE XI.—The only other case of excision of the knee which has, in my experience, been followed by death after the use of steel pins was that of a woman (H. B.), aged 41, who was admitted into St. Bartholomew's Hospital on March 13th, 1879, on account of chronic but

extremely painful disease of the knee-joint. She had been previously a patient in the hospital, and had been treated by the usual methods, but without marked relief. At her urgent request that something should be done, and as everything, with the exception of her age, seemed in favour of excision, I performed this operation on March 29th, 1879, under carbolic spray, and with the other details of the Listerian system.

So far as the operation was concerned, all went well (excepting the fact that the spray seemed too strong a solution of carbolic acid, and was changed for a weaker in the course of the operation); the bones, although ulcerated on the joint-surfaces, were hard and otherwise good, and came well and evenly together. They were fixed in the usual manner by steel pins. After the operation, too, the wound went on perfectly, with no local trouble of any kind. But the general constitutional condition was bad from the time of the operation. The patient seemed never to recover from the shock. Vomiting, which was naturally attributed, at first, to the anæsthetic, was frequent, for several days; and with gradually increasing weakness, but without active symptoms and without rigors or sweating, the patient sank and died on the seventh day after the operation.

The *post-mortem* examination, which was made by Mr. Butlin, then surgical registrar, disclosed nothing which would account for death, excepting in the condition of the kidneys.

Post-mortem Examination.—"Bones. No sign of inflammation at seat of operation. Thorax. No abnormal fluid in serous cavities. Heart flabby; otherwise heart and lungs normal. Abdomen. No abnormal fluid in peritoneum. All organs fairly healthy, excepting kidneys. Right kidney, 6½ ounces, large and granular; capsule stripped off with much difficulty. Left kidney, 4½ ounces, also granular."

I can find no account in the notes of the condition of this patient's urine before operation, but I have no reason to doubt that the usual examination was made, and that nothing considered worthy of note was found.

CASE XII.—A boy (H. S.), aged 9½, was admitted into St. Bartholomew's Hospital, under my care, February 10th, 1879, on account of disease of the knee-joint of three and a half years' duration. The leg was flexed, with slight displacement backwards and much eversion; the synovial membrane much thickened. The patient had been an inmate of the hospital for the same disease a few months before, but no real improvement in the knee was effected by the various methods of treatment adopted.

February 15th, 1879. Excision of the diseased knee was performed at this date in the usual manner. Gant's splint was applied; two steel pins were inserted.

February 21st. There had been much oozing of blood, or blood-stained fluid, from the wound; but the patient's general condition was very good. The temperature had been raised somewhat.

March 22nd. Since the last note the wound had proceeded satisfactorily, the daily notes recording nothing worthy of special remark. One pin was removed to-day; union appeared tolerably firm.

March 27th. The second pin was removed.

April 5th. The leg was taken off the splint. The patient could raise it easily off the bed by its own muscles. The limb was laid on a pillow.

After the above date, the union of the wound superficially was delayed by some suppuration, which ultimately led to discharge of pus just below the scar of the operation-wound on the front and inner aspect of the limb; but the union of the bones was not apparently interfered with, and it was noted, June 18th, that the union seemed to be bony.

I have seen this lad at intervals down to the present time (November, 1886). He walks well and firmly, with only a moderate amount of shortening of the limb, although he is of quite an average height or more for his age. He wears a leather and steel apparatus by my advice, as there is still a tendency to curvature of the limb at the site of the excision when he leaves it off. So far as can be made out by examination, however, the union is bony.

CASE XIII.—A young woman (E. D.), aged 17, admitted into St. Bartholomew's Hospital on April 4th, 1882. She had lately recovered from an attack of small-pox. During this attack it was said the leg became painful and flexed. The right knee was now swollen and slightly flexed. Great pain was caused by any movement of the limb. A McIntyre splint was applied, and other usual measures were adopted for securing rest to the inflamed joint.

April 17th. The splint was changed.

April 25th. The joint was now distended with fluid, and there was much heat of the surface. A fluctuating painful swelling was now present below and to the inner side of the patella.

* THE ABOVE REMARKS AS TO ANY POSSIBLE DANGER IN THE EMPLOYMENT OF THE PINS WERE WRITTEN SOME YEARS SINCE. AT THE PRESENT DATE, THE NUMBER OF CASES WITHIN MY OWN EXPERIENCE IN WHICH THEY HAVE BEEN USED, BOTH BY MYSELF AND OTHERS, WITH ONLY GOOD RESULTS, IS SO LARGE, THAT ANY DEFENCE OR WARNING REGARDING THEM MAY SEEM UNNECESSARY.

May 26th. The knee was in much the same condition, with great pain, and no sign of improvement in any respect. The joint was obviously disorganised. The patient was very anxious for relief.

May 29th. Excision was performed at this date. Two steel pins were inserted.

June 6th. The temperature was somewhat raised, especially at night, but the wound was healing well. The patient was of an extremely irritable and restless disposition.

June 30th. At some date (not preserved) since the last note, one pin had been removed. The second pin was removed to-day.

July 4th. Wound nearly healed throughout. Very little discharge.

July 11th. Wound now quite healed. The leg perfectly straight.

At about this time, namely, six or seven weeks after the excision, this patient walked across the hospital square without support from crutch or stick.

August 9th. A strong leather splint had been applied since the last note. The patient was quite well, and at this date left the hospital.

This patient (having been married in the interval) was re-admitted into the hospital, in 1885, on account of debility, and some minor troubles, following her first confinement. The leg was found perfectly straight, although for a long time she had ceased to wear a splint or other apparatus. With the exception of the effect of the stiff knee, she could walk as well as ever.

CASE XIV.—A girl (E. S.), aged 11, was admitted into St. Bartholomew's Hospital, under my care, on May 26th, 1884.

Excision of the right knee had been performed at another hospital five years ago, and had been apparently successful at the time; but, subsequently, the knee became much bent. Of late, she had been an inmate of the Cripples' Nursery, Regent's Park, under the care of Mr. Henry Baker, at whose request I admitted her into St. Bartholomew's Hospital.

When admitted, there was firm, apparently bony, ankylosis at the site of the old excision, the tibia being at about a right angle with the femur.

June 11th. Re-excision was performed at this date; a wedge-shaped piece of bone being removed, and two steel pins inserted.

June 12th. The patient had slept well.

June 17th. The patient had slept well every night since the operation, and had suffered very little pain.

June 24th. One pin, which had been rather loose for two or three days, was removed at this date (thirteenth day). The other pin was removed on the nineteenth day after the operation.

July 5th. The splint was changed to-day.

July 18th. The splint was removed to-day. The patient was able to raise her leg from the bed by its own muscles, without other help and without any pain. The bones seemed firmly united.

July 22nd. The external wound was nearly healed; the good position of the limb is maintained. The patient could lift her leg easily.

August 4th. The patient left the hospital to-day.

The foregoing cases form the whole number of those in which I have employed steel pins in fixing the bones after excision of the knee-joint.

Although the insertion of the steel pins is a very simple procedure, a few details regarding it are worth noting; some of them are important.

The absolute weight, as well as the leverage of the bones, is so great that as much precaution as possible should be taken, in order to prevent or relieve any strain on the pins after their insertion. In other words, the pins should not be considered as substitutes in any way for splints, or for the best splints obtainable; nor will they necessarily compensate for what may be termed bad carpentry in section of the bones. The great objects in view in sawing the bones are, of course, (1) to remove as little as possible consistently with removal of the disease; and (2) so to cut the bones that, with the limb straight or ever so slightly flexed, the cut surfaces shall be evenly apposed throughout their whole area, so far as the comparative size of the resected surfaces will permit; and it is when the position of the bones satisfies these conditions, and after they have been supported, as far as possible, in the right state of apposition by splints and padding, that the pins should be inserted. The test, moreover, to be employed for the right position of the bones should be not the general outline of the limb, or even of the knee, as seen through the integument, but the examination of the cut bones themselves; and that this may be carried out, the introduction of the sutures in the integumental flaps should be the last step of the operation. A few extra minutes employed in adjusting and securing and testing the firmness of the bones are well spent if, as is frequently the case, their expenditure will save weeks or months in the subsequent healing.

At first thought, it seems easy so to resect the articular ends of the

femur and tibia as to permit the sawn surfaces to lie exactly in co-aposition one with the other, as they do when the operation is performed experimentally on two bones which have been removed from the body (see Figure). But everybody who has performed excision of the knee knows that, in many cases, this is not so. Removal of the joint-surfaces leaves the soft parts at the back of the knee intact; and inasmuch as these do not retract or shorten, to any great extent, they may, by being unduly long, offer an impediment to the even co-aposition of the resected surfaces; or, from their state of contraction, they may, in just the opposite way, prevent the same result, by being too short. Hence, in either case, the great value of any means of securing the resected bones which will not only prevent lateral displacement, but which will, at the same time, keep them in contact over a great part of their sawn surfaces in opposition to the tendency of the soft parts behind to keep them apart, either by being too long or too short. Of course, for many reasons needless to be mentioned, all strain must be avoided, even if by force it could be overcome, and prevented by the mere strength of the pins from separating the bones. What is here referred to as resisted by the pins is merely that resilience of the soft parts which, slight as it may seem, no splint will absolutely overcome, except with the help of such bandaging or strapping as will probably be itself unbearable.

As the steel pins are constructed for the special purpose of perforating bone, the points are not very well adapted for piercing the skin, and I have usually punctured the latter with a fine scalpel before their introduction.

The pins have been usually left *in situ* until they have become loose, that is, for a period varying from a few days to several weeks in different cases; and, beyond a trifling ulceration of the skin now and then around the point of insertion, no ill effects locally have ensued. They can, as a rule, be withdrawn, when loose, by a few turns between the finger and thumb, or the handle may be re-applied for this purpose. Ordinary well tempered steel has answered the purpose so well that I have not thought it necessary to use anything else; but possibly it would be an advantage if the pins were silvered, as they become somewhat rusty after a few weeks' residence in the tissues. The tracks made by them have, however, always in my experience been healed soundly within a reasonable time after their withdrawal.

I may add that the plan of fixing the bones which I have here recommended has been adopted by several of my colleagues at St. Bartholomew's Hospital, and with success similar to my own. Mr. Willett has of late, after perforating the bone with the steel pins, withdrawn them, and substituted bone pins (of about the size of knitting-needles), cutting these off at the level of the bone, and allowing them to remain permanently *in situ*. He tells me he is well satisfied with the result, and has hitherto had no subsequent trouble from the presence of the pins within the bones.

Although the plan of securing the bones in excision of the knee-joint by means of steel pins resembles, to some extent, that of the insertion of silver or other sutures which has been so frequently tried by various surgeons, I venture to think that it is much more effectual. The quick union of the bones and the comparative freedom from pain and other troubles which I would claim as the results of the treatment by pins, depend largely, I believe, upon the avoidance, by means of them, of even those slight movements between the bones which metal sutures will not altogether prevent.

GUY'S HOSPITAL.—The appeal recently made for funds by the Governors of Guy's Hospital has, so far, brought in a sum of £47,800.

THE DANGERS OF OVERHEAD WIRES.—A letter has been addressed to the Metropolitan Board of Works by the Vestry of Kensington, suggesting the advisability of introducing a clause into a Bill before Parliament, making it compulsory for all telegraphic and telephonic wires to be laid underground, wherever, in the opinion of the Board, it is necessary for the public safety, and giving the Board entire control over the erection of all overhead wires as to their structure, maintenance, and continuance. The matter was referred to the Works and General Purposes Committee.

TAVISTOCK COTTAGE HOSPITAL AND DISPENSARY.—It was decided, at a meeting of the Tavistock Dispensary, held on January 25th, to establish a cottage hospital in connection with the dispensary, and that the joint institution be named the Tavistock Cottage Hospital and Dispensary. A special committee was appointed to take the matter in hand.

METEOROLOGICAL EXHIBITION.—The Council of the Royal Meteorological Society have arranged to hold at 25, Great George Street, S.W., an exhibition of marine meteorological instruments and apparatus, from March 15th to 18th.