his lifetime than all the surgeons of all the ages had effected since the days of Hippocrates. I venture to say that, as an instrument in God's hands, Lister has wrought more for the relief of bodily suffering, for the security of life, for the prevention of anxiety, for the conversion of sorrow into joy, for the promotion of happiness, and for the enrichment of the life of mankind than any one man who has ever trod this earth. The history of our world is divided into the two periods, before and since the coming of Christ—B.C. and A.D. The history of medicine and surgery, and of human bodily suffering, will always be divided into the times before and after Lister. He was our countryman, and the greatest of the masters of surgery; we have lived through the golden age when he evolved this miracle of healing which had waited for centuries for his coming, and now can be wrought by every surgeon in every country in the world. Any house-surgeon, any newly qualified doctor, can to-day remove pain, arrest disease, and save life by perfectly safe operations which no man knew of, or, knowing, dare not adventure when Lister came to London fifty years ago.

Those who chanced to come near this great master caught glimpses of such a spirit as is seldom revealed to us. We are fortunate in possessing a perfect portrait of him in an imperishable poem, written by W. E. Henley, who at one time was his patient in the Edinburgh Infirmary:

"His brow spreads large and placid, and his eye
Is deep and bright, with steady looks that still
Soft hues of tranquil thought his face fulfil—
His face at once benign and proud and shy.
If envy scout, if ignorance deny
His faultless patience, his unyielding will,
Beautiful gentleness and splendid skill,
Innumerable gratuities reply.
His wise, rare smile is sweet with certainties,
And seems in all his patients to compel
Such love and faith as failure cannot quell."

Lister was born a Quaker, but he lived most of his life and died a member of the Church of England. He was blessed with a loving and devoted wife, who appeared to have no thought or interest beyond her husband. They were inseparable companions in all his work and in the numerous Continental trips he loved to make. It was while on one of these, in Italy, that his wife died, after a brief illness, in 1893. They had no children, and after his wife's illness Lister was a lonely man. He lies buried beside her in West Hampstead Cemetery.

As illustration of his noble spirit I will give a few sentences from two of his addresses. As a young professor of 33 he told the Glasgow students in his inaugural lecture in 1860 that the two great requisites for the medical profession were—"first, a warm loving heart; and secondly, truth in an earnest spirit." Eighteen years later, in a graduation address to newly qualified students, he said: "If we had nothing but pecuniary rewards and worldly honours to look to, our profession would not be one to be desired. But in its practice you will find it to be attended with peculiar privileges, second to none in intense interest and pure pleasure. It is our proud office to tend the fleshly tabernacle of the immortal spirit, and our path, if rightly followed, will be guided by unfettered truth and love unfeigned. In the pursuit of this noble and holy calling I wish you all God-speed."

In the north transept of Westminster Abbey there is a marble medallion of Lister's bust, placed next to those of the great scientists Darwin, Stokes, Anderson, and Watt. At the public funeral service in the Abbey on February 16th, 1912, there was sung an anthem of Handel's to words so peculiarly applicable to our dear master that I cannot better conclude than by quoting them:

"When the ear heard him, then it blessed him, and when the eye saw him, it gave witness of him; he delivered the poor that cried, the fatherless, and him that had none to help him. Kindness, meekness, and comfort were on his tongue. If there was any virtue and if there was any praise, he thought on those things. His body is buried in peace, but his name liveth for evermore."

REFERENCES.

¹ *Lancet*, 1867, i, 326. ² *BRITISH MEDICAL JOURNAL*, October 6th, 1877, p. 465. ³ *Ibid.*, December 13th, 1879, p. 943. ⁴ *Ibid.*, September 20th, 1879, p. 453. ⁵ *Proc. Med. Soc. London*, 1884, vol. vii, p. 8.

A CASE OF EXCISION OF KNEE AND ELBOW JOINTS BY LORD LISTER:

CONDITION FORTY YEARS AFTER.

BY

SIR GEORGE THOMAS BEATSON, K.C.B.,

M.D.ED., B.A.CANTAB.,

SURGEON TO GLASGOW ROYAL CANCER HOSPITAL.

(With Special Plate.)

IN view of the approaching Lister Centenary, I thought that the following case would be of interest. It is that of Arthur Howard, aged 67 (?), cattle driver, who was admitted under my care to the Glasgow Royal Cancer Hospital on April 3rd, 1925, suffering from an inoperable malignant growth of the right orbit. The case was apparently not suitable for radiation treatment either by deep therapy or by radium. The history of the growth Howard gave was that nine years previously he had an ulcer on his right upper eyelid which was excised, but recurred some months later. Three years before admission he had an application of carbon dioxide snow, when being treated in a Glasgow hospital, and he also attended the Glasgow Royal Infirmary once weekly for seventeen months for electrical treatment. The growth, however, continued to enlarge, and he was sent to the Glasgow Royal Cancer Hospital. It is unnecessary to give a description of the case on admission, beyond saying that the mass completely overlaid the right eye, which was entirely hidden, and extended over the bridge of the nose. The tumour bled easily; but there was no glandular involvement. On questioning Howard as to past illnesses, he stated that forty years before (1884) he had had his left knee-joint excised in King's College Hospital by Lord Lister for tuberculosis, as also his left elbow-joint. In addition, the middle fingers of both hands were removed at the metacarpo-phalangeal joints. The knee-joint was excised about three months after the elbow-joint, and the right middle finger was removed at the same time. The left middle finger was amputated when the elbow was excised. (Fig. 1.)

On examination, the left knee-joint was found to be completely ankylosed, there being about two inches of shortening of the left leg. (Fig. 2.) The excision was apparently performed through a semilunar incision. The left leg is in a position of complete extension, and gives the patient perfect support. The patient had good free movement of the left excised elbow-joint. There was a certain degree of lateral and antero-posterior instability, but in spite of this the joint could be actively extended and flexed. (Fig. 3.) The patient could also pronate and supinate the forearm, these latter movements being best performed when the joint was slightly flexed. There were evidently several osteophytic outgrowths present in the neighbourhood of the new joint. The left and right middle fingers had been disarticulated at the metacarpo-phalangeal joints. The affected arm was nearly three inches shorter than the right one.

Skiagrams were taken of the elbow and the knee. Those of the elbow-joint (Figs. 4 and 5) show that the lower extremity of the humerus and the head of the radius have been removed, but the olecranon process of the ulna appears to be intact. The upper extremities of the forearm bones articulate with the anterior of the humerus about one inch above its lower end, the latter thus projecting beyond the joint. The skiagram (Fig. 6) of the left knee-joint shows that the patella, lower end of femur, and upper end of tibia, have been removed, and the femur and tibia united by wiring. The line of union between the femur and tibia, can be recognized, except over an area of about one inch. On the inner aspect of the upper extremity of the tibia, the skiagram reveals a dense opacity, showing no definite structure. This dense shadow is almost completely surrounded by an area of bone, which exhibits marked rarefaction. This shadow probably represents a sequestrum. The skiagram also shows the wire suture in position.

This case has an historic interest, showing us after a lapse of many years the work of Lister as a surgeon; but it has a further interest in revealing the presence of the wire

SIR G. T. BEATSON: EXCISION OF KNEE AND ELBOW JOINTS BY LORD LISTER.

FIG. 1.—Amputation of middle fingers for tuberculosis, by Lord Lister in 1884 at King's College Hospital.

FIGS. 4 AND 5.—Skiagraphs (taken in 1925) of the left elbow-joint, showing that the lower extremity of the humerus and the head of the radius have been removed.

FIG. 2.—Excision of left knee-joint for tuberculosis, by Lord Lister in 1884 at King's College Hospital.

FIG. 3.—Showing left elbow after excision by Lord Lister forty years previously.

FIG. 6.—Skiagram (1925) of left knee-joint, showing that the patella, lower end of femur, and upper end of tibia have been removed, and the femur and tibia united by wiring.

suture. When I was house-surgeon with Lord Lister in 1873 he had then begun to extend the scope of his operations, having full confidence in his antiseptic system. The two great objects Lister had in view when he came to Edinburgh in 1869 were, first, the importance of perfecting his technique in the matter of dressings so as to make them reliable for excluding the micro-organisms from the wound during its healing; secondly, he was desirous to increase the scope of his operations so as to furnish further evidence of the reliability of his antiseptic system of surgery. The cases he selected to extend his operative measures were the remedying of bone deformities and the wiring of ununited and badly united fractures. At that time he used silver wire, but was unwilling to leave the wire *in situ* after union had taken place, and it was nearly always removed, as,

apparently, he regarded it as a foreign body that might be an irritant and the cause of future trouble. The case reported to-day shows that he had evidently departed from that view, and had had no hesitation in leaving the wire *in situ*. It is interesting to note that he had left intact the olecranon process of the ulna, and I learn from Dr. Stewart of Halifax, N.S., who was then working with him in London, that when that process of bone was not diseased Lister was in the habit of leaving it. It is interesting, too, to note that the articulation of the upper extremity of the forearm bones with the anterior of the humerus about one inch above its lower end allowed the projection of the latter considerably beyond the joint, there being no surface of bone against which it worked, and which would have ensured its attrition.

A HINGED GRAFT FOR UNSTABLE FEET.*

BY

ARNOLD K. HENRY, M.B., B.Ch., F.R.C.S.I.,
PROFESSOR OF CLINICAL SURGERY, ROYAL SCHOOL OF MEDICINE, CAIRO;
DIRECTOR OF THE SURGICAL UNIT, KASR EL AINI HOSPITAL.

(With Special Plate.)

In February, 1926, Rutherford Morison and W. Mackenzie published a method of treating cases of paralytic foot-drop in children.¹ In children, as in animals, it is notoriously difficult to secure ankylosis by operating on unstable joints without injuring the growing ends of bone. Morison and Mackenzie solved the problem for the ankle by taking osteo-periosteal strips from the tibia and implanting them into beds cut in the bones of the leg and tarsus. The grafts became "osseous ligaments" which completely fixed the joint.

This method of osteo-periosteal grafting is capable of wide application, and takes rank, I believe, with the notable contributions to orthopaedic surgery of the past twenty years. But while these grafts give the best available way of procuring absolute fixation in children with foot-drop, there are many unstable feet in which some movement may with advantage be preserved. Apart from those limbs in which enough contractile force remains to permit of tendon transplantation, there are others with muscles either unsuitably placed or too weak to be used with effect.

Talipes Calcaneo-Valgus.

The deformity of talipes calcaneo-valgus is a case in point, and many imperfect remedies have been proposed for its correction. Transplantation of the peronei is inadequate whether (a) their tendons are fixed directly to the inner border of the foot, or (b) are used to replace the long extensors of the toes, while these in turn are shifted to a medial insertion.

Tendon fixation is often followed by stretching, and astraglectomy—in young children at least—frequently results in an inward rotation of the front of the foot. At best, too, astraglectomy gives a squat, unshapely ankle. The need, then, in this deformity is for the strongest possible support compatible with useful movement, and this may be obtained by fixing the unstable articulation in bony splints provided with a false joint or hinge.

The Hinged Graft.

My first experience with osteo-periosteal grafting showed me that the method held an unexpected resource. Morison and Mackenzie, intent upon absolute immobility, fixed their cases of "dangle foot" firmly in plaster immediately after operation; the first dressing was done a month later, and the foot was at once put back into plaster for a further six weeks.

In my patient, whose peroneal nerve had been divided at another hospital in the treatment of a tuberculous fibula, there was a healing tuberculous ulcer on the dorsum of the foot which made enclosure in plaster undesirable. After grafting, therefore, his leg was put on a back-splint

with the footpiece set at a right angle. In spite of the unpromising skin condition the wound healed by first intention, but bandages, of course, could not give the rigid fixation of plaster-of-Paris. Small movements must have occurred, for after thirty-eight days a few degrees of mobility were present in the ankle. Radiograms showed that the grafts had fused respectively with the bones of the leg and tarsus, but where they crossed the ankle there was in each a small hinge. An opportunity soon occurred for utilizing this chance discovery.

A child, aged 7, who had had untreated infantile palsy for three years, was brought to me with a very marked calcaneo-valgus deformity. The right foot could be dorsiflexed till the instep touched the leg; the outward displacement, too, was extreme. Postural treatment in over-correction did not diminish

FIG. 1.—Girl, aged 7, three months after treatment of extreme calcaneo-valgus deformity of the right foot by hinged grafts.

FIG. 2.—Same patient as Fig. 1, seven months after grafting, standing on grafted foot.

the deformity, and I determined to try the effect of osteo-periosteal grafts. I employed the following procedure.

After the usual "double" preparation of the skin on two nights preceding operation, an incision was made which curved on to the tarsus behind each malleolus. The knife used for incising the skin was discarded and the skin edges were excluded from the wound by side curtains. (I find in orthopaedic operations which require neighbouring incisions that side curtains are best fixed to the lips of the wound by Michel clips, which occupy less space than towel forceps.)

On the medial side the tendons of the tibialis posterior and the flexor longus digitorum were dislodged from behind the malleolus and raised from the tarsus. On the lateral side the peronei were similarly dealt with. Grooves were then gouged in the beds of these tendons. An incision over the tibia (Fig. 1) allowed two grafts to be outlined with a knife on its subcutaneous surface; these were cut with a chisel from the tibia in the form of pliable strips of periosteum encrusted with bone, and were laid with their bony face on the gouged grooves. The displaced tendons were sutured back into position over the grafts and thus held them in place. Neither the grafts nor any part of the wounds were touched except with instruments. Unchromicized (and untouched) catgut was used for suturing, and the knots were tied with forceps. The skin was closed with Michel clips only, exact coaptation being secured by the transverse needle scratches which preceded the incisions.

* A paper read before the Egyptian Branch of the British Medical Association, January, 1927.