cases treated by intramuscular injection four relapses are recorded. In no case did any local trouble occur as a result of intramuscular injection.

General Remarks.

In concluding this report I would draw attention to the connexion between the malaria incidence and the death rate. Our death rate is more than twice as great as that of England and Wales; and while deaths recorded as directly due to malaria provide only 2½ per cent. of the total, yet due weight should be attached to the probability that malaria, on account of its effect in lowering the resisting power of the body to other infections, is a contributing factor to many more deaths than those of which it is the direct or recorded factor, and that, further, there are strong indications that malaria sequelae are responsible for many deaths which are recorded as due to other causes. In view of these facts it cannot be too strongly represented that vigorous anti-malarial measures should be instituted throughout the island with a view to (a) lowering our excessively high death rate and (b) improving the quality and quantity of our labour supply.

THE APPLICATION OF FASCIA LATA IN PLASTIC SURGERY.

BY

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In a previous article¹ I ventured to enumerate some of the uses to which the fascia lata might be applied in plastic surgery. I now wish to illustrate, by a series of cases, some of the suggestions already put forward. The operations subjoined have all been carried out during the last two years, and the results, on the whole, have been encouraging. Technique must be most careful, and every effort in reconstruction should be based on strictly anatomical lines wherever possible. I have also found it advantageous to have no "slack" after suturing the fascia lata *in situ*, but rather to have the graft under slight positive tension.

CASE I.

A man was admitted to hospital suffering from a faecal fistula in the left iliac fossa the result of an old gunshot wound of abdomen. The fistula communicated with the descending colon, and was about the size of a shilling. There was no spur, and the finger could be passed freely in both directions. Operation took place on January 27th, 1920. The opening was surrounded by a free incision one-sixth of an inch from edge, the bowel mobilized, and margin of the opening infolded by a series of Lembert sutures. A portion of fascia lata from the thigh, 2½ inches by 4 inches, was sutured with medium catgut over the deficiency in the oblique muscles from the rectus sheath medially to the remains of the external oblique aponeurosis laterally. Tension in the skin wound was obviated by a pedicle flap turned down from the left hypochondriac region. The wound healed under one dressing, and when last heard of in December, 1920, the patient was doing well.

CASE II.

A man, who had sustained a gunshot wound of left forearm, was admitted with partial wrist-drop and inability to extend fingers or thumb at terminal phalanges. He had a long scar along the upper half of the posterior aspect of forearm, and some obvious loss of muscle substance. An operation was performed on May 18th, 1920, a long exploratory incision being carried over the scar, extending to the wrist. Upper portion of the extensor muscle was found to be healthy; the lower portion and communis tendons in the upper part were an adherent mass of fibrous tissue. Tendons just above posterior annular ligament were healthy. The intervening scar tissue was freely excised, and the communis and extensor longus pollicis tendons identified below. The extensors of the carpus were freed from the overlying scar tissue. A fascial flap 4 inches by 1½ inches was cut from left thigh and split in its lower half. The upper portion was sutured to the healthy belly of the extensor communis digitorum and longus pollicis, the hand and fingers being in a position of dorsiflexion. The lower divided portion was sutured to the communis tendons and longus pollicis. The hand was put up in a long "cock up" splint, sutures removed at the end of three weeks, and gentle passive movement commenced. At the end of two months a fair degree of movement in the fingers was obtained, and even more in the thumb, but on the whole the benefit was less than anticipated.

CASE III.

A man was admitted with an old gunshot wound of the middle third of left shin. There was a painful adherent scar, about 2 inches long, about the middle of the subcutaneous border of tibia. At the operation on April 22nd, 1920, the scar was freely excised, also the underlying scar tissue. The edges of wound were

undercut and two parallel tension incisions made, 1 inch from sides of wound. A flap of fascia lata 2 inches by 1 inch was sutured to the periosteum, with the fatty side subcutaneous, and the wound closed without tension with three sutures of "bipped silk." The result was very satisfactory, the new scar remaining elevated and painless.

CASE IV.

A man was admitted suffering from an old gunshot wound of the mandible with non-union and loss of substance on the left side. There was a gap of 1 inch midway between the symphysis and angle. The fragments were largely subcutaneous, as there was loss of masseter and facial muscles, and the skin was adherent to the bone. Operation was performed on July 5th, 1920, a curved incision being made, commencing at the lobule, to the symphysis. Fragments were freed from skin and scar tissue, sclerosed tips excised and a gutter cut in them in the usual manner with an Albee saw. A graft was cut from the tibia 2½ inches long and secured in the gutter with kangaroo tendon. A strip of fascia lata 4 inches by 1½ inches was then carefully wrapped around the graft and sutured to periosteum of fragments. The skin was closed with horsehair. At first there was some serous discharge, which lasted for nearly a month, but finally the wound closed and the result was very satisfactory. The fascia lata probably saved the graft in this case.

CASE V.

A man was admitted to hospital suffering from hernia of the right lung, through the third interspace, about the nipple line. There was a tympanitic swelling, about the size of a cocoanut, and a marked impulse on coughing, reducible on pressure. The conditions had followed upon an old injury to the chest by the shaft of a cart. Operation was performed on September 8th, 1920, a large curved incision being made from the anterior axillary fold, across the right chest and down towards the ensiform cartilage. The pectoralis major was split about its centre, and the sac (formed by the parietal pleura) dissected off the thin and stretched pectoral muscle and ribs. The third and fourth ribs were found to be widely separated. During this dissection, the sac was accidentally incised and air rushed in. The opening in the pleura was closed with a purse-string suture of catgut, and the sac, after being separated, was invaginated through a defect in the intercostal space. Following upon a suggestion of Professor Rutherford Morison, advantage was taken of a lipoma, situated over the right deltoid. This was dissected out, split into two portions, and inserted into the defect. A sheet of fascia lata 4 inches by 2½ inches was stretched firmly over this and sutured to the divided and separated periosteum of the rib above and below. The pectoral muscle was then adjusted and the wound closed. A report dated January 12th, 1921, states that the chest in the position of rest is quite flat, and with the hardest cough the patient is only able to produce a small impulse without any bulge.

CASE VI.

A pensioner was admitted with "drop-foot," the result of nerve injury consequent upon a gunshot wound of the thigh. Previous operations for nerve suture and for tendon transplantation had failed. At an operation performed in June 29th, 1920, the tendo Achillis was lengthened subcutaneously, the base of the fifth metatarsal and tubercle of scaphoid exposed through small incisions, and the crest of the tibia and fibula exposed through a 3-inch curved incision at the junction of lower and middle thirds. The aponeurosis of the tibialis anticus and peronei was split in the line of incision, and the periosteum of both bones exposed. Fascia lata of right thigh was exposed through a 12-inch incision, and a portion 12 inches by 2 inches removed. This was split from below upwards for 7 inches, thus resembling a pair of trousers. The upper portion was sutured deeply to the periosteum of the tibia and fibula, and to the split aponeurosis. The lower bifurcated portion was pulled down by tunnelling the subcutaneous tissues with forceps, and a limb drawn into each of the two lower wounds. Here with the foot in full dorsiflexion all slack was taken up, and the two strips sutured to the periosteum of the scaphoid and the fifth metatarsal respectively, and to the plantar fascia. The wounds were closed with silkworm gut and a back splint applied. In January, 1921, he could walk well without any special boot.

CASE VII.

A man was admitted with partial rupture of the short head of the biceps of the left arm, the injury having occurred three months before admission. On examination, there was a small hard nodule at the junction of upper and middle thirds of the left arm, on the medial aspect, and above this, a definite hollow. Movements of flexion and supination were weak and very painful.

An operation was carried out on September 20th, 1921, a long incision being made from the coracoid, along the antero-internal aspect of the upper arm to the junction of middle and lower thirds. The scar in the biceps was located just about the junction of the two heads. The site of the scar was firmly adherent to the underlying brachialis anticus. Adhesions were separated, and the tendon of the short head, which was torn and slack, tightened up. A strip of fascia lata, 4 inches by 2½ inches, was then wrapped round the site of rupture, and secured with catgut sutures. A further small portion was sutured over the scarred area on the brachialis. The wound was closed in two layers, and the arm slung in a "dog collar" in semiflexion. At the time of writing the arm is gaining power daily, and movements are free from pain.

I have selected these cases as fair examples of the practical uses to which the fascia lata may be put. It has, of course, been utilized for many other purposes, and doubtless others will yet be devised.

I wish to thank the Council of the Newcastle-upon-Tyne and Northern Counties Medical Society,² Professor Rutherford Morison, and Dr. W. K. Russell, for permission to include Cases v and vi.

¹BRITISH MEDICAL JOURNAL, April 2nd, 1921. ²Newcastle and Northern Counties Medical Journal, April, 1921.

A CASE OF SLIPPING PERONEAL TENDONS TREATED BY KELLY'S OPERATION.

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W. B. F., aged 22, was admitted to the Ministry of Pensions Hospital, Streatham Hall, on July 10th, 1921, complaining of pain and weakness in the right ankle, and inability to walk any distance.

History.

He stated that while at physical training in June, 1918, he fell and twisted his ankle rather badly. The injury was diagnosed as a sprain, and he was sent to hospital. Nothing definite was discovered on x-ray examination, and his leg was put on a back splint for five weeks. After this he was given massage for six weeks, followed by a stay of two months in a convalescent camp. He was demobilized in January, 1919. For some time after this his ankle swelled at night, and his leg and foot were put in plaster for seven weeks, but, after the plaster was removed and he was treated by massage and exercises, there was still some swelling of the ankle at night, and, on extreme flexion or extension of the foot at the ankle-joint, something slipped on the outer side of the joint, giving rise to much pain locally and a jarring sensation up his leg and body.

Condition on Admission.

On admission the movements at the ankle-joint were good, and there were no signs of any disease of the joint, but on dorsiflexion a distinct slipping of the peroneal tendons could be felt. A skiagram did not show any damage to the ankle-joint. An operation for retaining the peroneal tendons in their normal position was necessary, and I decided to perform that described by Mr. R. E. Kelly in the *British Journal of Surgery* for April, 1920.

Operation.

On January 26th, 1921, I made a hockey-stick-shaped incision immediately behind the fibula, commencing at a point about $2\frac{1}{2}$ inches above the lower extremity of the bone, and following the course of the tendons downwards. The incision was deepened and the periosteum covering the outer surface of the fibula was incised and stripped, so as to expose the outer surface of the bone and its anterior and posterior borders. The peroneal tendons with their synovial sheath were retracted with the periosteum stripped from the posterior border. At a point about $1\frac{1}{2}$ inches from the lower end of the fibula on its anterior

Diagrams illustrating the method of cutting the wedge. The wedge is shown wider than is necessary. The dotted lines indicate parts of the wedge in the slot in the bone.

border, and midway between its external and internal surfaces, a hole was bored horizontally backwards through the bone with a small bone awl. This hole was enlarged downwards and parallel to the external surface with a Gigli saw, and when the cut was large enough to admit the point of a Hunter-Mackenzie saw, this instrument was used, until the cut reached a point about half an inch from the extremity of the bone. Two cuts were now made in a horizontal direction but approaching one another posteriorly to join the vertical cut, so as to free a wedge-shaped piece of bone with its narrow end at the posterior border of the fibula. The saw was sloped while making these cuts, so that the external surface of the wedge was narrower than the internal surface. The wedge thus formed could only be removed from the bone by sliding it forwards, and when it was pushed backwards and tapped gently it became fixed in the groove made by the saw cuts, with about a quarter of an inch projecting from the posterior border of the

bone, thus making an external lip to the peroneal groove. It was found, however, on attempting to bring the superficial tissues together over the bone, that there was a tendency for the wedge to slide forward in its groove, but this was easily prevented by raising the floor of the groove slightly in front of the wedge with a chisel. After the wound had been closed, the foot was put in plaster, with a window over the incision, in a position of plantar flexion.

Result.

The plaster was removed one month after the operation, and recovery was uneventful. The movements at the ankle-joint were perfect, and no slipping of the tendons could be obtained. The patient states that he is cured, and that he has none of his previous difficulties in walking.

A skiagram taken six months after the operation showed the wedge firmly fixed in the position in which it was placed.

The main difficulty in the operation is, as pointed out by Kelly, the thickness of the saw. Allowance has to be made for this in the inclination of the horizontal cuts to one another, so as to avoid too great projection of the posterior part of the wedge when driven into position. A small fretsaw, such as is used by watchmakers, would be an excellent tool for this operation, and I propose to use it in future cases. It is also rather difficult to avoid injuring the synovial sheath of the peroneal tendons, and I accidentally made a small opening into it in this case, but no harm resulted.

THE INTERPRETATION OF SYMPTOMS IN DISEASE OF THE CENTRAL NERVOUS SYSTEM.

ABSTRACT OF THE GOULSTONIAN LECTURES, DELIVERED
BEFORE THE ROYAL COLLEGE OF PHYSICIANS,

BY

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LECTURE III.

In this final lecture Dr. Feiling said that he proposed to deal with some of the more general rather than the particular aspects of disease of the central nervous system. Any discussion on the interpretation of symptoms could not fail to take account of the principle laid down by that master mind of modern neurological theory and practice, Hughlings Jackson, who distinguished between negative and positive symptoms, a negative symptom implying some definite loss of function, and a positive some accelerated function. The actual symptom-complex produced by disease provided, more frequently than not, both positive and negative symptoms, destructive lesions producing the latter, and irritative lesions the former. The term "irritative," as applied to a pathological lesion, must not be interpreted too narrowly, in the sense of a mere mechanical irritation. Brief or temporary circulatory disturbances might be included in such a category, and the convulsions or deliriums occurring in various states of toxæmia were to be regarded as positive symptoms produced through the medium of the circulation. It must be understood also that when a destructive lesion occurred in the nervous system it did not follow that the ensuing disorder of function was necessarily due to that destructive lesion itself; it might be due, wholly or in part, to the unbalanced action of other parts of the nervous system.

Negative and Positive Symptoms.

The same morbid process might produce at one and the same time negative and positive symptoms. The early stages of syphilis of the central nervous system, for example, might be marked by pain—a positive symptom—while later on negative symptoms in the shape of palsies made their appearance. A more difficult question to decide was whether pain and other subjective sensory disturbances could occur as the result of purely destructive lesions, for this would seem to imply that positive symptoms could be produced by such lesions.

The lecturer did not wish to suggest that in investigating any disease of the nervous system it was necessary to set out by classifying symptoms as negative and positive. It was only necessary to realize that there were these two kinds of symptoms, and from such realization one was led to consider the nervous system as a whole. The consideration of these principles had its value when one was confronted with the task of localizing a lesion in the central nervous system. It was notorious how misleading in such cases the signs might