of great trouble she consented to the removal of the appendix. This was done in June, 1899. The incision was the same as in Case 5. The appendix was easily found. There were no adhesions and it was removed in the manner already described. It was inflamed externally and outside and was decidedly distended with a purulent fluid. The patient made an uninterrupted recovery.

Remarks.—Looking at these cases as a series it can be said that in two of them (Case 3 and Case 4) the condition of the patient at the time of the operation was of the gravest possible nature and a fatal issue was merely a question of time. In Case 1 the chief point was the difficulty of finding the appendix, bound up as it was in a mass of adhesions. Here the presence of a calculus just ulcerating through was a gave menace to the patient's safety. The other cases illustrate a not unimportant point—viz., that attacks of appendicitis may occur without any great inflammation taking place in the surrounding peritoneum. The inflammatory change in these is probably chiefly found in the mucous tissue. The occurrence of a stenosis such as existed in Case 2 paves the way for a damming up of the secretions and for the occurrence of the necrotic change which is frequently seen in fatal cases without much suppuration. I believe that in slight cases of appendicitis, when one or several attacks have occurred, the right course is to recommend removal of the offending organ. It is usually found quite easily and ought to be ligatured as near its origin as possible, a circular ligature being first applied. The cut mucous membrane ought to be carefully swabbed with a 1 in 20 carbolic acid solution and then be invaginated, peritoneal surface being sewn to peritoneal surface. In cases where adhesions are present great judgment is required and no rules can be laid down for the guidance of the surgeon. In sewing up the abdominal wound in these simple cases it is needless to say that the muscular and especially the aponeurotic coats ought to be sewn up with deep sutures. In suppurative cases the cardinal point is never to delay an hour more than is absolutely necessary before operating. In such cases I never give morphia or other sedatives which may mask symptoms. In cutting down I go straight for the most prominent part of the inflammatory tumour. Once the abscess is found and evacuated unless the vermiform appendix is found at once I do not seek for it. With regard to the after treatment of these severe cases, I believe in putting in two indiarubber drainage-tubes and douching out the cavity with boiled water every few hours night and day for 48 hours. All the cases I have recorded have been inmates of the Sarah Acland Home in this city, where the arrangements of nursing, &c., are of the best description.

Oxford.

TWO CASES OF SEVERE SUBCUTANEOUS INJURY TO THE PERONEAL NERVE; OPERATION.

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CASE 1.—A man, aged 29 years, received a very violent blow either from a kick or from a collision whilst playing football, the brunt of which fell over the head of the left fibula and outer side of the left knee. There were intense pain and inability to stand. There was no fracture. The extensor muscles of the toes and flexors of the ankle were completely paralysed and there was anæsthesia of the skin of the dorsum of the toes and foot and for some distance up the front of the leg. The anæsthesia was complete in the cleft between the big toe and the second toe, but only blunted in the other parts. This is interesting and was no doubt due to the high division of the nerve (which was found at the operation which took place subsequently). A large subcutaneous extravasation of blood formed which extended half way up the thigh and filled the popliteal space and reached downwards as far as the ankle. On pressing the skin over the head of the fibula the blood was displaced and the finger seemed to come down immediately on the bone, just as if there was no intervening tissue between the bone and the skin. The skin was quite intact. There was some effusion into the knee-joint. The leg

was treated on a back splint with lead and opium lotion on lint covered with oil silk and the use of considerable pressure by bandaging firmly over cotton-wool to prevent further extravasation of blood. In spite of this the extravasation was very extensive. At the end of a month the splint having been discarded and most of the swelling having gone the patient could move about a little. The anæsthesia and paralysis of the muscles remained the same. His foot when lifted from the ground hung in a position of talipes equinus with slight varus and his toes caught in the ground when he walked. At this time (one month after the injury) all the paralysed muscles—viz., the tibialis anticus, the extensor longus digitorum, the peroneus longus, the peroneus brevis, the peroneus tertius, the extensor longus hallucis, and the extensor brevis digitorum—showed when tested carefully with an electric battery marked reaction of degeneration. None of them responded to the faradaic current. There was slightly increased irritability to the galvanic current and there were marked polar changes. The muscles were then thoroughly massaged and galvanised every day. At the end of a month of this treatment—that is, two months from the time of the injury—there was no improvement. The degeneration in the paralysed muscles was more marked and there was considerable wasting. There was no thickening now to be felt over the seat of the injury. The patient was advised to have the nerve exposed so as to ascertain its condition and to rectify it if possible. He refused to have this done and went to London for treatment. At the end of another month he returned in the same condition and asked for the operation. It was pointed out to him that he was not so likely now to derive benefit from the operation as he had delayed so long.

Operation (three months after the injury).—An incision nine inches long was made, commencing in the popliteal space on the inner side of the tendon of the biceps and continued downwards in the course of the nerve round the head of the fibula. The nerve was found to be free at the lower end of the wound and was carefully traced up. It was embedded in dense cicatricial tissue round the head of the fibula to which it was intimately adherent. At the upper end the nerve was glued by adhesions to the tendon of the biceps. Altogether it was implicated for about four inches. The nerve divided very high up just before leaving the popliteal space and the anterior tibial branch was the one most involved, which accounted for the complete anæsthesia between the big and second toes. In some places it was almost impossible to distinguish nerve from fibrous tissue. Had it only been involved for a short distance it would undoubtedly have been best to have removed the piece of nerve and to have united the ends. In this case it was out of the question as the ends could not have been approximated. It was accordingly thoroughly freed. The wound was dressed and in a week it healed. Within 12 hours the skin supplied by the nerve and the anæsthetised area which had previously been cold and bluish were warm and red and sensation was beginning to return. Daily massage and galvanism of the muscles were commenced as soon as possible. The muscles were slow to begin improving but they did so almost imperceptibly and at the end of three months the patient could flex his foot to a right angle and could walk and run without any lameness. The muscles filled out and at the end of three months the patient had gained two and a half inches in measurement round the calf. Of course, part of the wasting was due to disease. Sensibility had returned completely in a month. He has not been seen since then.

CASE 2.—A man, aged 19 years, had received a severe kick on the posterior and outer part of the left knee, principally over the tendon of the biceps. He dropped to the ground at once and the feeling went from his foot and he was in great pain. He was laid up for 10 days and was attended by a medical practitioner. When he got up his foot dropped and his toes caught in the ground when he walked. He consulted another practitioner and massage was ordered. Later he saw a bone-setter who, saying that a small cartilage was out in his knee, wrenched it. This produced synovitis. He was seen shortly afterwards—i.e., two months after the injury. He had all the signs and symptoms which were observed in the other case except that the anæsthesia was not so complete and that in addition he had synovitis of the knee. His foot hung in the equinus position with a slight tendency to varus. The electrical reaction of the muscles showed marked reaction of

degeneration. The patient consented to an operation. A similar incision was made as in the former case and the nerve was found lightly bound down by cicatricial tissue to the tendon of the biceps for about an inch. This was easily dissected off and freed. The wound healed in a week. The muscles were massaged daily and galvanised as soon as possible. The patient soon began to recover and at the present time (three months after the operation) he is well and can do anything. The muscles are not quite so active as are those of the other leg but there is no doubt that they will recover perfectly in time.

Injury or involvement of nerves from traumatism is not uncommon, especially after fractures (in certain situations) and after wounds when they may be divided totally or partially. The two cases recorded above are interesting because they are instances of severe injury to the subcutaneous tissue in which the skin was intact and in which there was no fracture. Such cases are not common and would be likely to occur only in instances in which the subcutaneous injury was very severe and in parts where the nerve was exposed. In both these cases the injury occurred whilst playing football and from the very exposed position of the peroneal nerve as it winds round the head of the fibula it is remarkable that it does not occur more often. In both cases the cause of the paralysis was the result of pressure from firm cicatricial adhesions which produced loss of conductivity in the nerve. The continuity of the nerves was intact and in neither case had they been torn across, which would have been quite possible. It is impossible to tell from clinical evidence whether a nerve has lost continuity or conductivity. Pressure if of a sufficient degree will produce the same effect as complete division of the nerve.

In Case 1 there was complete anaesthesia in the skin supplied by the anterior tibial branch, and at the operation a high division was found and this branch was very much more involved than the other, and no doubt the nerve itself from its appearance had been severely contused and damaged at the time of the accident in addition to the subsequent pressure from cicatricial tissue. In the other parts in both cases the anaesthesia was only partial though the paralysis was complete, and it might be argued that this showed clinically that the nerve was not completely divided, as slight impulses must be passing, otherwise anaesthesia would be complete. Some hold that the partial sensation is derived from other nerves supplying the affected region. Arloing and Tripier¹ described a free anastomosis on the skin of all the nerves entering the dog's paw, which would accord with the latter view. Kennedy² describes cases of injury to the musculo-spiral nerve as a complication of fracture of the humerus in which the anomalies which may be found in the distribution of sensation are very well shown in a series of cases.

Sensation always returns quickly and may be complete long before any improvement takes place in the muscles. This slowness of the muscles to recover probably depends on the muscles themselves and varies with the amount of degeneration; the more advanced it is the longer the period of recovery. In the first case the improvement in the muscles began sooner than one would have expected considering the condition of the nerve found at the operation and the length of time between the injury and the operation.

As long as the muscles give a response to the galvanic current there is hope of recovery and the operation is worth doing. If there is commencing reaction of degeneration in any case with complete paralysis and no sign of improvement six weeks after the injury the operation should be performed without waiting any longer. The sooner the operation is done the sooner is recovery likely to take place, and *vice versa*.

In some cases the muscles show no sign of recovery for three or four months after the operation and the recovery may not be perfect for 12 or 18 months. Speaking generally it may be stated in giving a prognosis in any given case that if the injury has occurred within three or four months recovery will be perfect, but after that time the result will be doubtful. If the muscles will not respond to galvanism at all they will never recover and the operation will then, if undertaken, be of no use except that sensation may return. Sensation has returned in one instance in a case which was operated upon nine years after the injury.

The most important part of the operation is complete asepsis. If this fails the operation will also probably fail. Massage and galvanism are very important afterwards and should be begun as soon as possible. When voluntary power begins to return in the muscles they should be used. It will help them to recover.

Nottingham.

A CASE OF RECKLINGHAUSEN'S DISEASE COMPLICATED WITH A SARCOMATOUS GROWTH INVOLVING THE BRACHIAL PLEXUS.

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IN Recklinghausen's disease there is a combination of multiple lesions affecting the integument and the nervous system. Though the association is sufficiently coherent to justify its being classed as a special disease there is a considerable variation in the prominence of the individual symptoms and many cases have therefore to be regarded as incomplete.

The cardinal signs of this morbid entity which was first isolated by von Recklinghausen¹ are: 1. Tumours of the skin of the nature of molluscum fibrosum. 2. Subcutaneous tumours situated on the nerves, either plexiform or fibro-neuromata; these are multiple and usually of small size, but one of them may reach a large size and require removal. They may occur on the peripheral nerves, on the larger nerve trunks, or close to the nerve-roots, and on the cranial and sympathetic nerves. 3. Pigmentation of the skin; this occurs in two forms—as patches of considerable size and in small specks somewhat resembling freckles. When one of these three essential lesions is absent the disease has been spoken of as incomplete. In addition there are phenomena of secondary importance, such as pain, arthralgia, alteration of sensation, and impaired mental activity. After this brief *résumé* of the nature of Recklinghausen's disease or, as it has sometimes been called, generalised neuro-fibromatosis,² an account of a case recently under observation in St. George's Hospital which presented some interesting features will be given.

A man, aged 32 years, had had all his life a mass of molluscum fibrosum covering the back of the left side of the head and neck and upper part of the left front of the chest and left shoulder. This growth had not increased in size except in so far as it had developed equally with the rest of the patient's body. The skin of the body was generally brownish, but scattered all over the trunk, limbs, head, and neck there were areas where the pigmentation was concentrated either into patches of considerable size, as large as a shilling or in a few instances larger, or in small discrete patches resembling freckles. Neither the hands nor the feet were pigmented. This peculiar pigmentation was not more marked on one side of the body than on the other except that the two largest areas were over the inferior spine of the right scapula and to the right of the base of the sacrum; the latter area measured two inches by two inches. In this respect it contrasted with the localisation of the cutaneous tumours which, as will be seen, chiefly affected the left side. There was more pigmentation on the back than on the front of the body and it seemed to me that the pigmentation had increased since he had been under observation. The patient himself was not aware of the pigmentation, so it is impossible to say how long it had existed or whether it was congenital. One of his children, a boy of about three years of age, whom I examined, had similar areas of pigmentation, but no tumours. Under the skin of the back on the left side of the body there were a number of smooth, firm subcutaneous tumours readily movable under the skin. They were not tender and ordinary pressure did not give rise to any pain in the course of the nerves of the back. They appeared to be multiple fibro-neuromata on the intercostal nerves. Some of them were

¹ Comptes Rendus de l'Académie, tome lxvii., 1868, page 1058.

² Brit. Med. Jour., Nov. 5th, 1898.

¹ Die multiple Fibrome der Haut und ihre Beziehung zu den multiplen Neuromen, Festschrift, Berlin, 1882.

² For an excellent clinical account of the disease see P. Marie's *Leçons de Clinique Médicale*, Hôtel Dieu, 1894-95, p. 242.