growth was a spindle-celled sarcoma with a fair amount of fibrous tissue. It obliterated the left internal jugular vein at its opening into the innominate vein, displacing and compressing the trachea, surrounding the left bronchus, invading the left lung, and destroying the left vagus and its recurrent and cardiac branches. The thoracic duct was involved at its termination and its trunk was dilated, but there were no chylous effusions anywhere. There was recent ante-mortem thrombosis in both innominate veins. The left phrenic nerve was involved. The posterior wall of the trachea was adherent to the growth and there was recent ulceration on the lateral walls of the trachea some three inches below the tracheotomy wound. This may have been due to the pressure of the tube which was in the trachea for three and a half days. The anterior wall of the oesophagus in its middle third was raised up into a prominence by a separate outlying mass of soft growth; this, it would have seemed, must have caused dysphagia, but the patient had been able to take his food without any difficulty until tracheotomy was performed. There were a number of enlarged glands in the immediate neighbourhood of the main tumour. The growth extended down in front of, and behind, the arch of the aorta on the left side, surrounded the left common carotid artery, and was closely adherent to the bodies of the fifth, sixth, and seventh cervical vertebræ which were eroded. The cervical sympathetic was extensively destroyed in this situation.

The roots of the brachial plexus were enlarged, more especially the eighth cervical and first dorsal. These two roots were united into a firm mass of growth which was examined microscopically and found to be composed of nerve bundles embedded in, and separated from each other by, fibrous tissue; in parts there was spindle-celled growth. These appearances suggested that a fibro-neuroma had undergone sarcomatous change. Sections of the thickened trunks of the plexus at a little distance from this mass of growth showed that they were infiltrated with a spindle-celled sarcomatous growth. The affected nerve roots inside the theca vertebralis were also enlarged, but in other parts of the cord the nerve roots were normal. No neuromata were found on the cauda equina or on any of the cranial nerves inside the skull. The spinal cord and the brain were normal. The right vagus was not involved in the growth but showed a number of neuromata in its course and presented a moniliform outline. The left vagus also showed neuromatous enlargement and ran into the thoracic extension of the growth over the arch of the aorta.

Where the growth started it is not easy to say with absolute certainty; it involved the brachial plexus and very probably started in connexion with a fibro-neuroma on the roots of the eighth cervical and first dorsal nerves close to their exit from the spinal column. From the microscopic appearances in this case and from the occurrence in other examples of Recklinghausen's disease of large neuromata on the brachial plexus, which may become sarcomatous, I am inclined to believe that the sarcomatous growth in this case was a malignant neuroma. Though careful dissection of the parts after removal from the body did not positively establish this view no other manifest origin was found. So although the growth might have begun in the surrounding connective tissues and spread to the brachial plexus it seems more reasonable to believe that the growth originated in connexion with the brachial plexus and then spread to the neighbouring parts.

The exostosis felt during life at the junction of the second left costal cartilage with the sternum was found not to be a true exostosis, but to be due to a forward projection of that chondro-sternal articulation. The second and third costal cartilages on the left side were intact though rather slender. The sternum was pushed forward by the intra-thoracic growth. The left lung was adherent to the intra-thoracic prolongation of the growth which surrounded its root and was invaded at one place by an outlying process of growth. The left bronchus was much narrowed. Both the lungs showed bronchitis. The heart (nine ounces) was normal. The abdominal organs were normal with the exception of some pigmentation of Peyer's patches in the ileum and of the solitary follicles in the colon. The adrenal bodies were quite healthy. On the abdominal sympathetic around the aorta there were a number of neuromata, but none was seen on the intestines or on the stomach. Dr. Lazarus-Barlow examined microscopic sections of these neuromata on the sympathetic and found that, like those on the spinal nerves, they were pseudo-neuromata.

Remarks.—It has been suggested by Feindel³ that Recklinghausen's disease is the outcome of a congenital malformation of the ectoderm. This hypothesis has quite recently been supported by Feindel and Oppenheim.⁴ The more probable theory seems to me to be that put forward 12 years ago by Dr. Payne⁵—viz., that the disease is due to a developmental vice on the part of the mesoblast in the corium and in the nerves. This accounts for the fibro-neuromata and the molluscos growths, while the pigmentation of the skin is allied to the common pigmented moles that occasionally develop into malignant melanotic growths. Recklinghausen's disease, therefore, may be regarded as depending on a congenital hyperplasia and tumour formation arising in the mesoblast at its junction with the epiblast—viz., in the skin and nerves. In this case it appears probable that as a result of progressive changes taking place the growth in the neck, at first an innocent neuroma, eventually became a sarcoma. This late development of sarcoma on congenital defects is, of course, well known to occur in pigmented moles of the skin. It also occurs in another defect of the mesoblast—viz., in multiple exostoses. An interesting example of this occurred in 1890 under the care of Mr. Warrington Haward who kindly allows me to refer to his case. A man, aged 33 years, had had exostoses all his life; one of them had pressed on the sciatic nerve and had given rise to pain for five years; the exostosis was therefore removed but a spindle-celled sarcoma developed on its site and eventually proved fatal. The patient and his son, aged seven years, also with exostoses, were shown at the Clinical Society of London by the late Mr. C. E. Cotes on Oct. 24th, 1890.⁶

Sarcomatous change in neuromata also occurs. Goldmann⁷ in his monograph gives a careful description of a malignant neuroma in a woman, aged 54 years, the subject of multiple neuromata, and Bowlby⁸ quotes examples of multiple neuromata associated with sarcomatous change. It is probable that many cases described as multiple neuromata show in addition some degree of molluscos growth and pigmentation, but that the more important clinical feature being connected with the neuromata the other changes attract little or no attention. In the present case the molluscos growth was a very striking feature and at first sight threw into the shade the small subcutaneous tumours and the pigmentation of the skin.

Other points of interest in the case are: 1. That the brunt of the tumour growth fell on the left side of the body, as shown by the molluscum fibrosum, the fibro-neuromata, and the tumour in the neck, while the pigmentation was bilateral. 2. The curious condition of pseudo-ptosis due to paralysis not of the levator palpebræ but of the unstriated muscular fibres in the upper eyelid, a condition which is the exact converse of Stellwag's symptom in exophthalmic goitre.

Harley-street, W.

INTERSCAPULO-THORACIC AMPUTATION.

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My personal experience of this operation is limited to two cases, in both of which there was little or no evidence of shock, with rapid recovery, the patient being out of bed with the wound healed *per primam* in the second week. Elaborate details of the incision and general technique of the operation were given by Paul Berger in a monograph on the subject in 1887 and these may also be found in the textbooks; but in neither of my cases, nor in the other operations of this kind which I have seen performed, were the

³ Thèse, Paris, No. 104, 1896.

⁴ Archives Générales de Médecine, July, 1898, p. 77; Sur les Formes Incomplètes de la Neuro-fibromatose.

⁵ Transactions of the Pathological Society of London, vol. xxxviii., p. 69.

⁶ Transactions of the Clinical Society of London, vol. xxiv., p. 228.

⁷ Beiträge zur klinischen Chirurgie, Band x., Heft i., redigiert von P. Bruns, 1892.

⁸ Injuries and Diseases of Nerves, 1889, p. 496.

directions of much avail, for, as "the coat has to be cut according to the cloth," so the flaps in these cases must be obtained from the unaffected skin available, and it will be seen that in the first case this was from the posterior and in the second case from the anterior surface of the upper arm. For preventing loss of blood the limb to be removed was Esmarched and a tourniquet was applied at the middle of the arm so as to utilise all the blood in the arm to be removed, this being supplemented in the first case by exposure of the subclavian artery and vein and

FIG. 1.

Showing apparatus for concealing deformity produced by operation.

clamping them with large pressure forceps, and in the second case by pressure on these vessels above the clavicle by means of a well-padded forceps handle. During the course of the operation the vessels were caught in pressure forceps immediately on division and subsequently ligatured, the loss of blood in each case being trifling. As a pocket is necessarily left when the wound is closed I found an advantage in draining it by means of a stab wound at the most dependent part, the tube being removed in 36 hours. The subsequent deformity is so great that apart from any risk in the operation itself it can only be justifiable where all other means of relief have been exhausted. The accompanying illustrations which have been reproduced from photographs serve to demonstrate the mutilation (Figs. 2 and 3) and a means of disguising it by an apparatus (Fig. 1) made for my first case by Mr. Gillingham of Chard, Somerset.

CASE 1.—The patient, who was 38 years of age, was suffering from recurrent sarcoma in the axilla which involved the vessels and nerves as high as the clavicle, the mass being adherent to the neck of the scapula. The growth had first appeared in the hand where it had recurred four times after removal.

For the following notes I am indebted to Dr. F. Macrae who assisted me with the operation. The patient came to Leeds on June 6th, 1898, with an inflamed swelling in the right axilla and gave the following history. In January, 1895, a small warty growth appeared on the right thenar eminence

which was informally removed by a medical man in Australia in October of that year. A local recurrence was removed in March, 1896, and a further return growth was freely excised in November, 1896, by a surgeon in Adelaide. Again it recurred locally in October, 1897, and it was then noted that the axillary glands also were enlarged. These tumours were removed, only to be followed by a further recurrence in the axilla, which was excised in March, 1898. The growth was then examined microscopically and was found to be sarcoma. At the end of April the patient left Australia for a holiday in England and seemed to be well until 10 days before coming to Leeds, when he was bitten on the forearm by a fly and he had an attack of what was described as erysipelas. Four days later a swelling, which was tender, appeared in the axilla and this had gradually increased in size.

An exploratory operation was done on June 6th when the abscess was found to consist of broken-down tissue, the tumour itself being found to involve axillary vessels and nerves as well as the pectoralis minor muscle. A portion was examined microscopically and was found to be round-celled sarcoma. After consultation with a colleague, interscapulo-thoracic amputation was advised and the operation was performed on June 19th, 1898. Owing to the condition of the axilla and front of the deltoid no regular operation could be done. The subclavian vessels were exposed, clamped, and then divided along with the brachial plexus above the clavicle and beyond the growth. The outer half of the clavicle together with the arm and the

FIG. 2.

Side view of patient after operation.

scapula were then removed, a flap of skin having first been dissected up from over the back of the deltoid and upper arm. There was very little loss of blood as the vessels were seized immediately they were divided. The removal of the scapula was facilitated by an assistant rotating the arm and forcing it forwards and outwards. The wound was stitched up closely and a drainage-tube was introduced through a stab wound. There was practically no shock from the operation and the patient was up on the ninth day, the

wound having healed by first intention. He had the apparatus (shown in Fig. 1) applied in August and he returned to Australia quite well in September.

CASE 2.—A man, aged 31 years, was, on March 11th, 1899, admitted under my care into the Leeds Infirmary with tuberculous disease of the body of the scapula and shoulder joint, osteo-myelitis of the humerus, and tuberculous disease of the elbow joint, with sinuses in the axilla over the back of the shoulder and scapula and over the elbow. He had been in hospital on several occasions and had been frequently operated on during the previous three years. As he was much pulled down with pain, which was worse at night, and with discharge from the sinuses, and as it was quite impossible to amputate at the shoulder joint and remove the disease or obtain a skin covering, interscapulo-thoracic amputation was performed on March 23rd.

FIG. 3.

Back view of patient after operation.

The following is the description of the operation furnished by my dresser, Mr. Greenwood. Ether was given and with the patient lying on his left side an incision was made as in the diagram (Fig. 4), the flap being taken from the front of the upper arm. Bleeding was checked by pressure on the subclavian above the clavicle with a pair of forceps padded at the end with lint. The flap was first raised, taking only skin and superficial fascia, and the muscles were then divided down to the clavicle which was divided by bone forceps. The axillary vessels were now clamped and divided. The other vessels were taken up with pressure forceps as they were cut and very little blood was lost. Then by rotating the arm the scapula was forced forward and outward, the muscles attaching it to the trunk were divided, and the limb was removed. The vessels were then tied and pressure was removed from the subclavian. One or two large glands were removed from the axilla. The wound, which had been contaminated with pus from the diseased part, was thoroughly washed with perchloride lotion. A drainage-tube was inserted through the flap by a stab puncture in the postero-inferior part of the wound. The wound was then

closed and a dressing was applied. The flap covered the wound readily without tension. The after course was quite uneventful and the wound healed by first intention. The

FIG. 4.

O.S. and O.S. indicate old sinuses. L.I. marks the line of incision, dotted to show its course beneath the arm.

patient was up on the eleventh day and returned home on April 10th. When seen in July he had regained his old weight and colour and was well in every respect.

Leeds.

A CASE OF ACUTE INTESTINAL OBSTRUCTION; LAPAROTOMY; RECOVERY.

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ON Sept. 15th, 1898, I was called in consultation by Dr. Phillips to a patient, aged 42 years, who was suffering from abdominal pain and a history of seven days' constipation. He had during this period been taking purgatives without effect and also enemata. When I saw him he was evidently in great distress; the abdomen was very much distended and he had been vomiting a green-coloured fluid; there was not much pain at the time, but the distress was due to the enormous distension of the abdomen. The tongue was coated and the pulse was slow, regular, and fairly strong. There was an anxious expression on the countenance and the features were drawn and the cheeks were sunken. By rectal examination nothing whatever could be felt; the rectum was empty as far as the finger could reach, but a few small piles were detected. He was removed by my advice to the Lucca Hospital immediately. On admission large enemata composed of one ounce of glycerine, one ounce of sulphate of magnesia, one and a half ounces of olive oil, and boiling water to 20 ounces were administered in the genu-pectoral position every third hour. Hot linseed-meal poultices were applied to the abdomen from 4 P.M. to 10 P.M. and after that hot olive oil was applied. The enemata were returned unchanged, there being no trace of faecal matter in them. He slept fairly well during the night. On the 16th nourishment was given by enema, two ounces at a time. He had vomited twice during the previous day, but there was no faecal odour in the vomit. He also had an attack of hiccough. Large enemata were again tried every third hour, composed of one ounce of oil of turpentine, one ounce of olive oil, one ounce of glycerine, and soap and water to 20 ounces, and turpentine stupes were applied to the abdomen, but with no result. No history could be got from the patient to account for his present condition and as he was evidently getting weaker each day it was decided to operate and thus find out the nature and seat of the obstruction.