soon found, and exposed throughout its extent, where it lay on the callus. It was thick, pink, and fleshy-looking higher up than the commencement of the callus, but over the thickened bone it was smaller, paler, and hard. On making a small longitudinal incision through the neurilemma, which appeared thickened, the nerve substance bulged out excessively, showing that it was much compressed. The nerve was, therefore, dissected out from the groove for 3 or 4 inches (the wound being lengthened for the purpose) until it could be felt free above and below the extent of the callus. A large arterial branch (no doubt the superior profunda artery) and its accompanying veins were tied. The wound was then closed, free drainage being provided for. The usual Listerian precautions were adopted.

The first result of the operation was eminently unsatisfactory; but this was due to a circumstance which I mention as a warning as well as an explanation. I had given directions that an Esmarch's tube was to be applied to the upper part of the arm for the purpose of rendering the operation bloodless. I afterwards found that a solid cord of india-rubber had been used. The effect of this must have been so to compress and bruise all the nerve trunks that for some days there was partial paralysis of all the muscles of the hand and forearm.

Happily these effects passed off before long; but it was not until nearly a week had elapsed that the first sign of something like a change in the musculo-spiral supply began to appear. This sign was a slight "tingling" along the parts supplied by the terminal branches of the radial nerve. Then very slowly, almost imperceptibly, there came slight power of extension of the fingers; then very slight extension movements of the wrist.

All this time the continuous current was being used daily; the circulation was also stimulated by hot mustard-and-water arm baths, and by massage, in which treatment every assistance was rendered by the patient himself.

This treatment was persevered with for weeks, the patient attending daily for the purpose, and making steady but slow progress. About the end of June I went away for two or three weeks, and the man ceased attending; and it was not until the first week of this year that I saw him again, when I was delighted to find that his damaged limb has completely recovered.

He is a very intelligent man; and he says that, feeling satisfied that his arm was steadily improving, and finding it inconvenient and he thought unnecessary to continue the galvanism, he carried out the rest of the treatment as well as he could himself and with a satisfactory result. There is now nothing to be seen amiss with the limb, except that it is nowhere quite as plump and firm as the other arm; but he has full and perfect use of every muscle and of every finger, and writes a beautiful "hand."

It may possibly be objected that the operation had less to do with the result than had the long-continued galvanism, douching, and massing. In reply, I would point out that up to the time of operation, the course was rapidly down-hill. From about a week after operation, progress in the right direction was continuous, though slow.

In concluding, I think I may venture to repeat a warning as to the possible dangers of the elastic tourniquet. About ten years ago, I had a case in which the use of an Esmarch's tube, in the operation of excision of the elbow-joint, in the case of a very emaciated man, led to partial paralysis of all the muscles and of the sensibility of the hand and forearm—a condition which, however, completely and satisfactorily passed away in a few days. Since that occurrence, I have always, in the case of children or thin people, used a stout india-rubber bandage instead of a tube. By winding this round and round the limb, coil over coil, any amount of cumulative pressure may be obtained; but it is diffused over a surface represented by, or corresponding with, the width of the bandage.

EPSOM COLLEGE.—Mr. France has presented another female scholarship at St. Anne's School to the Council of Epsom College. This is the sixth scholarship he has purchased. Mr. France is doing good work with both hands. With the one he gives a large sum of money to a most deserving institution; with the other he enables the members of Council of the College to give in perpetuity a first-rate education free of all charge to six girls, the orphan daughters of medical men. Lucas, Mair, Norman, Barron, Griffiths, and Hardcastle, pupils of Epsom College, have all passed in the first division of the matriculation examination of the University of London.

REMOVAL OF ACCESSORY LIMB AND MENINGOCELE FROM THE BACK OF A CHILD, AND ITS ANATOMY.

By ROBERT JONES,

Honorary Surgeon, Liverpool Stanley Hospital,

AND

F. CHARLES LARKIN,

Assistant Lecturer in Physiology, University College, Liverpool; and
Anaesthetist to the Liverpool Royal Infirmary.

THE patient, an infant of four months, was sent by Mr. H. O. Thomas. It was born with a tumour at the back of its neck, which had attained to the size of a small cocoa-nut. This was attached by a broad base to the back in a line with the upper surface of both shoulder-blades. At its upper part was a dimple of retracted skin, and lower down an extension which felt like a forearm, and terminated in three fingers, which were perfectly formed, even to the nails; the third being less firmly attached by a narrow fleshy neck. On feeling the mass, bones could be diagnosed, which seemed to correspond to an elbow, humerus and possibly scapula. It could be freely manipulated without giving the child any discomfort. The family history was very interesting. The aunt had a supernumerary digit on the left forefinger, and an uncle died in infancy after an operation upon a lumbar spina bifida.

Mr. Jones exhibited the patient at the Medical Institution before operating, and the opinion of all those who took part in the discussion was, that it had no connection with the vertebral canal, and that operative measures would be safe. It was believed to be connected with the shoulder girdle. On careful and repeated examination no deficiency could be detected in the vertebral column; and apart from its position, there was nothing to suggest a spina bifida. The base of the tumour was too solid to admit of accurate manipulative measures beneath it. The parents were strong advocates of operation, and after its dangers were forcibly put before them, they elected that the risk should be run.

Fig. 1.

Mr. Jones operated next day. He made an oval incision round the base of the tumour, leaving just sufficient skin to form flaps. The growth was found to be connected with the spinal cord, and the sac of the spina bifida was opened. A free discharge of spinal fluid escaped, and it was with difficulty that the flow was checked

by ligature. A thick nervous cord which almost looked as if it arose from a bifurcation of the cord was divided. It was now discovered that the laminae and spinous processes of the lower two cervical and upper two dorsal vertebrae were absent, and a narrow chink existed in the column. There was very little bleeding.

For the first twenty-four hours the little patient did well, afterwards became restless, and, after a series of convulsions, died in about fifty-six hours after operation. The tumour was handed to Mr. Larkin for dissection.

Dissection.—The general appearance of the "tumour," as seen from the dorsum, is shown in Fig. 2. It consisted of two parts, an

Fig. 2.

upper, oval portion—the meningocele portion—10.3 by 7 centimètres; and a lower, smaller, limb-like portion, attached to the left side of the upper segment, and free to the extent of 4 centimètres.

Upper Portion.—The dorsal surface was covered by normal fine skin. Just below the centre of its convexity was a small pedunculated mass, 1.8 centimètre long by 1 centimètre thick, and attached to the rest by a narrow neck. The ventral surface, by which the mass had been attached to the child's body, showed a cut surface of fat over the greater portion of its extent, but a little above its centre was a small aperture, 0.5 centimètres in diameter, bounded by dense fibrous tissue. Into this aperture a probe could be passed for about 4 centimètres into a cavity. Dissection showed this to be the cavity of a meningocele (3.5 by 3 centimètres). The walls of the cavity were tough and strong—2 millimètres thick—and lined by serous membrane. The rest of this portion of the "tumour," including the pedunculated portion, consisted simply of adipose tissue, a few vessels and nerves, and part of the skeleton to be shortly described.

Lower Portion.—This was continuous above with the left border of the upper segment, while below it presented a free hand-like part, having well-marked palmar and dorsal surfaces covered by skin, such as is natural to these parts. The posterior (post-axial) border was exactly like the ulnar border of a natural hand. The anterior (pre-axial) border was rounded and smooth. Peripherally the hand divided into three digits. Of these, the most posterior (post-axial) was largest and best formed; the next was smaller, but otherwise well formed; while the anterior (pre-axial) was rudimentary, consisting of one segment only, and was an example of dactylolysis.

Figure 3 is a diagram of the position of the meningeal sac, the nerves, and the skeleton to each other and to the rest of the mass.

The skeleton consisted of the following parts, and is shown as it appeared after removal in Fig. 4. (The dotted parts are cartilaginous, the rest bone.)

1. Scapula and coracoid (?) occupying the angle of junction of the upper and lower portions of the "tumour." The scapula convex dorsally, concave ventrally, had a rudimentary spine on its dorsum, was attached post-axially to the coracoid, and peripherally articulated with the humerus. In both these joints the union was by means of fibrous tissue. The coracoid (?) thin and bent, concave dorsally, and articulating post-axially with scapula.

2. The humerus somewhat obliquely situated, and slightly bent. Shaft osseous, ends cartilaginous. It articulated above with scapula, below with "carpal" cartilage; both joints ligamentous.

3. The carpal (?) cartilage, a quadrilateral piece of cartilage, flattened dorso-ventrally, and wider distally where it articulated with the two metacarpals by two separate synovial joints. Its narrower proximal end articulated with the humerus, as above mentioned.

Fig. 3.

4. The two post-axial fingers had each a well-formed metacarpal and three normal phalanges, articulating by synovial joints. The pre-axial imperfect digit contained only a small oval piece of cartilage, which had no articulation with other bones. Vertically below, and at some distance from the scapulo-coracoid joint, was a small round nodule of cartilage (see Fig. 3). The unopposed sur-

Fig. 4.

faces of the coracoid and scapula had on them a few scattered muscular fibres. These were the only muscular fibres the "tumour" contained. The blood vessels seemed to have no regular arrangement.

In the wall of the meningocele were numerous flattened nerve bundles, which collected peripherally into four trunks (Fig. 2). These four soon united together to form one large trunk, which passed between the scapula and coracoid close to their point of articulation. Opposite to the "carpal" cartilage this trunk divided into digital nerves for the supply of the fingers. All the rest of the "tumour" consisted of adipose tissue.