with a fairly movable one. There seems to be no object in removing the epiphysis unless it is broken into fragments. In six cases the projecting diaphysal end was cut off in order to procure reduction; four of these ended in a most satisfactory result, one recovered with an ankylosed elbow, the sixth underwent amputation at the end of three weeks because no union had occurred—surely a premature proceeding. In two of the fifteen cases an action for malpraxis was brought. One feels certain that these results do not represent what may fairly be expected of the resources of surgery at the present time. Finally, we have to note two cases of operation for old deformity due to backward and inward displacement of the epiphysis. Both were under the care of Professor Bardenheuer, who divided the bone and removed part of the diaphysis. In both great improvement was obtained.

Included in the lower epiphysis of the humerus during the first few years are the two projections, the epicondyles, which later on ossify by separate nuclei, and one of which (the internal) deserves special consideration. The external epicondyle is so small and so extremely rarely injured that we may disregard it. The internal epicondyle by the fourth or fifth year has attained sufficient size to make its separate detachment probable, and between this date and the eighth year ossification takes place in it. Fusion with the rest of the bone occurs in the seventeenth to the nineteenth year. The age of the patients whose records I have collected (38 cases of detachment of the epicondyle) ranged between 8 and 18 years. Small as the epiphysis is (never more than 16 or 17 mm. in vertical measurement and half that in width) there are certain points about its separation and the complications attending the latter that make it worthy of more notice than its size would seem to warrant. In the first place, when the epicondyle is separated the elbow-joint is probably always opened; secondly, union takes place by bone only in rare cases; thirdly, the attachment of the strong internal lateral ligament and of several muscles to the epicondyle accounts for the frequency with which it is dragged off when lateral strain is brought to bear upon the elbow, and also for the ease with which true dislocation follows, once this small epiphysis has been detached. Finally, and this is the most important point of all, the epicondyle is in one sense the guardian of the ulnar nerve at the elbow, and when displaced is liable to exert most injurious pressure upon this nerve. In a paper published in the *BRITISH MEDICAL JOURNAL* last year I brought forward several instances of this complication, and expressed the belief that the difficulty in obtaining good movement after this accident was largely due to every attempt at flexion of the joint increasing the pressure upon the nerve.

A boy came under my care at the London Hospital who had simply detached the epicondyle, had been treated most ably at one of the other hospitals (where passive motion had been very frequently used, and he had been three times anaesthetised for this purpose). It was now three months since the accident; he could not bend the elbow 10 degrees from the straight line; had complete anaesthesia in the ring and little fingers, and wasting of the hand muscles supplied by the ulnar nerve. I excised the epicondyle (which was found to be the entire epiphysis), and at the operation found it to be displaced downwards, stretching the ulnar nerve over it, and united only by fibrous tissue to the humerus. After this the power of flexion was almost perfectly regained, and his anaesthesia disappeared; the muscles regained their power more slowly.

A second, practically identical case, I have since operated on with an equally satisfactory result.

We have only one displacement to consider, that in the downward direction, sometimes also a little forwards or backwards, and by any ordinary method of treatment there is practically only one result to expect—fibrous union. To my mind the only chance of obtaining bony union in good position after displacement of this epiphysis would be to fix it with an aseptic steel needle, but I am not aware that this has ever been tried. Whether the elbow is put up flexed or extended seems to make little or no difference as regards the displacement; Pézerat and Bardenheuer recommend the latter position, and all are agreed that gentle passive motion should be begun from one to three weeks after the accident. The amount of trouble to the surgeon and the patient that an apparently simple case of detachment of this insignificant epiphysis may cause is quite surprising. At the same time it may at once be admitted that in many cases a very good functional result is obtained. Thus, in 10 cases under my observation almost perfect range of movement in the elbow-joint was ultimately secured in the 7 which were followed up long enough to decide. Perseverance in the performance of passive motion

was required in nearly all for some weeks. We have already noticed the coincidence of dislocation of the elbow, either backwards or outwards, with detachment of the internal epicondyle. The explanation is of course the same that accounts for Pott's fracture at the elbow being so often a mixed fracture and dislocation. A violent strain upon the internal lateral ligament of the ankle finds the weak spot at the epiphysal disc between the epicondyle and the rest of the bone; once the former is detached, there is practically nothing to hinder the remainder of the force producing a true dislocation. Hence a small practical deduction: when the surgeon has reduced a dislocation of the forearm in a young subject, let him examine the internal epicondyle. The chances are at least even that he will find it has been detached, and this will make it the more important to prevent the dislocation recurring by the proper use of a splint, and to obtain union of the little fragments of bone (fibrous though it will probably be) in such a position as to interfere least with the ulnar nerve and the elbow-joint.

SYMMETRICAL TALIPES DORSALIS IN AN ACEPHALOUS FŒTUS.

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DURING the past summer Dr. Grove, of St. Ives, kindly sent me an acephalous fœtus, in which there was also a condition of spina bifida extending from the skull to the mid-lumbar region of the column. The spine was strongly bent forwards in the dorsal region, as is not infrequently the case in spina bifida. The spinal cord could not be discerned in any part of its length, but the spinal nerves could be displayed by careful dissection. The fœtus was in other respects normal and well formed, but the feet were symmetrically deformed in an unusual manner, as may be gathered from the accompanying sketches taken at the time. (See Fig. 1.)

Fig. 1.—Talipes dorsalis, left foot.

This deformity at first sight resembled that known as talipes calcaneus, but an inspection of the sketches will show that the heel is not drawn down, but slightly drawn up, and the whole bone (os calcis), with that part of the foot, is hori-

zontal, this position being due to extension of the astragalus on the tibia; and the foot is sharply bent upwards upon itself at the mid-tarsal joint, so that the dorsum is applied to the anterior surface of the leg. The toes are flexed. In other words, there is extension at the ankle with hyperextension, which is preternatural, at the mid-tarsal joint.

In talipes calcaneus, on the other hand, there is extreme flexion at the ankle-joint, so that the tip or hinder part of the heel only would come to the ground, the foot remaining natural, or it may be hyperflexed, at the mid-tarsal joint.

The feet were frozen, and mesial sections were made in order that the relative positions of the bones might be seen and sketched. These sections are illustrated in Figs. 2 and 3,

Fig. 2.—Section of left foot in talipes dorsalis.

Fig. 3.—Section of right foot in talipes dorsalis.

and, in order that they may be compared with a similar sec-

tion of a normal foot at the time of birth, I have added Fig. 4.

Fig. 4.—Section of normal right foot in foetus at birth.

In the deformed feet the plantar arch is convex downwards, the head of the astragalus forming its summit. The os calcis lies in an almost horizontal position instead of rising upwards and forwards from the heel as it does in the normal foot. It is well formed and normally ossified, as are all the other bones. The astragalus lies with its long axis almost vertical, whereas normally it lies almost horizontal; the hinder part of the superior articular surface only is in contact with the tibia, and the head articulates in the main with an unusually long calcaneo-scaphoid ligament. This bone (astragalus) is natural in its shape and size, and there is no change in its neck that would account for this deformity; but the calcaneo-scaphoid ligament is much elongated, and also the long and short plantar ligaments, though not to the same extent. It appears, therefore, that the deformity in this instance is not due to any malformations of the bones, but rather to want of due balance between opposed sets of muscles, the ligaments adapting themselves to the altered position. The scaphoid, which bears its normal relation to the cuneiform bones, rests upon the dorsum of the neck of the astragalus, the lower part only of its hinder articular surface being in contact with the head of the astragalus. The cuboid is also displaced slightly upwards. The remaining bones of the foot bear the natural relation to one another.

The differences between the normal relation of the bones of the foot to one another and to the tibia and those obtained in this deformity are well illustrated in the sketches—Figs. 2, 3, and 4 that are appended. The muscles of the leg and foot appeared natural.

This condition may, perhaps, have been produced in the following manner: During the later months of intrauterine life the most common position of the foot is one of extreme flexion at the ankle-joint, the dorsum of the foot being applied to the anterior surface of the leg. If this natural position—which, when it persists after birth, is known as talipes calcaneus—were by some means or other fixed and unalterable, and if during that time contracture of the muscles of the calf occurred from changes in the spinal cord incidental to spina bifida, extension of the ankle-joint would take place, the mid-tarsal joint would give way and become preternaturally extended, and the calcaneo-scaphoid and plantar ligaments would be stretched and elongated, as in these two feet in the specimen.

I would lay stress that in this case, in which there is so marked a deformity, the defect is in no way due to abnormality in form or growth of the bones, but is entirely dependent upon want of balance of muscular action. In talipes varus, also, as far as my observations have gone, the same thing may be said, any deviation from the normal in the neck of the astragalus being obviously the result of traction upon the bone due to the preternatural flexion of the astragalo-scaphoid (mid-tarsal) joint in which the deformity chiefly consists; and it is not the neck of the astragalus only which becomes slightly altered, but the os calcis likewise, from the like cause—that is, from muscular traction—becomes somewhat flatter and more incurved than natural. In one specimen of extreme varus in the Cambridge Pathological Museum, the metatarsal bones have undergone slight

abnormal flexures; and it is probable—though I have not been able distinctly to observe this—that other bones undergo slight changes in form from abnormal stress in these cases. Bones do thus become modified in shape under abnormal pressure or traction, as shown by the ordinary lateral curvature of the spine, and no less markedly in that hardest of all bones, the lower jaw, under the influence of contraction of cicatrices and the pressure of a prolapsing macroglossia (see Spec. 1228 Camb. P. Mus.). The elongation of the ligaments is, of course, due to the same cause.

Further, the specimen is clearly an exaggerated form of the ordinary flat foot in which the same joint (mid-tarsal) is preternaturally extended, and the heel bone rendered horizontal. That is, in the main, due, as we know, to superincumbent weight. It is also, as in this case, attended with want of muscular balance, the extensors of the toes and the flexors of the ankle being preternaturally tense, and resisting return to the normal position.

NOTES OF A CASE OF ACROMEGALY TREATED BY OPERATION.

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WITH REPORT OF THE OPERATION BY

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A. L., aged 33, was admitted to the infirmary on June 6th, 1891, complaining of pain in the head and swelling of face, hands, and feet.

HISTORY.

Nothing of importance was elicited as to family history—the record was a good one. Her own health was good prior to the year 1888. There was no evidence of syphilis, nor of intemperance. She was married, and had one child 9 years old.

In June 1890 she was seized with pain extending across the base of the skull from one ear to the other, and soon after that she herself and her friends noticed that her lips, chin, nose, hands, and feet were enlarging, but so far as she could judge no change occurred in the dimensions of the trunk, legs, or arms. She formerly wore gloves of the number six size, but now has to wear sevens. The boots she wears are two sizes larger than those she could wear with comfort a few years ago. During the year before admission she had suffered severely from pain in all the regions supplied by the fifth cranial nerve on the left side. She supposed the ailment to be neuralgia, and had several teeth extracted, but without deriving any benefit. During the past five years she has had to work hard as a confectioner, being at times much exposed to the heat of the oven.

CONDITION ONE YEAR AFTER ONSET OF SYMPTOMS.

She was well nourished and fairly healthy in appearance. The mammae were atrophied; she had a thick growth of coarse, yellow hair over the scalp. She stated that the hair was coarser and more rapid in growth than it was a few years earlier. The skin of the face was rough, of a yellowish tint, and had a somewhat greasy aspect. The patient laid much stress upon the enlargement of her nose, lips, and chin, stating that her personal appearance had entirely altered. The mouth was always kept open, the lower teeth, which formerly were slightly behind the upper ones, were now a little in advance of them. The lower lip was nearly an inch thick, and the mucous surface had a peculiar, dry, glazed, and congested appearance. There was a distressing hyperæsthesia of the lower jaw on the left side, both on its cutaneous and its mucous surfaces. The tenderness of the latter made eating painful at times.

In the photograph No. 1, the patient is represented as sitting in a fairly erect posture, but usually there was a dorso-cervical kyphosis, and the head hung over the front of the chest.

The hands were distinctly spade-shaped, and the fingers curiously misshapen, bearing some resemblance to sausages.

In the feet the enlargement was chiefly in the great toe; the os calcis also seemed increased in size.

Nervous System.—Intelligence was normal; memory slightly impaired. She slept well when free from pain. All reflexes were normal. Sensibility was normal everywhere, excepting over the left half of the lower jaw. Pupils 4 millimetres, reacted to light and in accommodation. The retina was reported normal; she was rather deaf in right ear. The other special senses were normal. She complained of acute pain in the region supplied by the fifth cranial nerve on the left side.

Fig. 1.—Case of Acromegaly.

The *Muscular System* was apparently normal; electrical reaction was unchanged.

Cutaneous System.—There were various erythematous patches on the skin of the forearm and trunk; pressure—as, for example, that of the stethoscope—produced an erythematous blush, which persisted for some time. There was much perspiration.

Circulatory System.—There was an occasional faint systolic bruit at the apex, but no other abnormality.

The *Respiratory System* was normal with the exception of frequent pain in the nares on the left side.

Alimentary System.—The tongue was large and rather oedematous; the appetite large. Soon after a meal the patient felt as if she had eaten nothing, and desired to eat again. She complained of considerable thirst. Digestion was good, the bowels somewhat constipated. The liver dulness extended four inches. She complained much of pain in the left side of mouth and fauces.

Renal System.—The urine was normal in amount, specific gravity 1020; it contained neither sugar nor albumen.

Reproductive System.—She had ceased menstruating for three years; the mammae were atrophied.

Blood Glands.—The spleen was normal. The thyroid was not enlarged, but rather tender; there was some dulness over region of thymus.

The diagnosis presented no difficulty, the case was obviously one of acromegaly.

The patient remained three months in the hospital. On July 25th the temperature rose without any apparent cause to 104.2° F., and did not return to the normal until July 28th. She suffered almost constantly from the pain, which was only temporarily relieved by morphine, exalgine, antipyrin,