position, however unnatural, does harm, provided the indulgence in it be occasional and not continuous. Of the various factors which by their continuous application give rise to deformities, none are so potent and yet prove so unsuspected as clothing. Especially is this the case amongst girls. From a hygienic standpoint, 90 per cent. of modern clothing is faulty and even harmful.

Nowadays people object to belts and garters, and the objection when made to such articles tightly applied is rational. But the result of the sensible objection to tight belts and garters has been a recoil to the other extreme, a discarding altogether of belts and garters, with the result that modern clothing is suspended entirely from the shoulders, and not only from the shoulders, which is bad enough, but from the extreme acromial ends, which makes matters worse. The hips, not the shoulders, should support the nether garments, a fact which every sailor and stableman knows from practical experience. Garters, if not overtight, are harmless, even in childhood, and suspenders are only justifiable if supported from the hips. Tight garments across the chest, a fault in construction almost universal with children's clothing, must also be avoided.

After clothing, the next most important factor is food. A constant source of juvenile debility, with its resultant changes in bone and ligament, is bad or insufficient food. The nitrogenous element especially is frequently deficient. The food is either insufficient in quantity, indifferent in quality, or badly cooked. All three conditions are very common in public schools, and yet no remedy is suggested because of the mistaken idea that the complaints of schoolboys and schoolgirls against their food should never be listened to.

The bony and ligamentous tissues thus weakened by imperfect feeding and displaced by irregular pressure, increasing in directions where the steady continuance of pressure should have prevented such increase, and remaining stationary from pressure which should not have existed, obviously must result in deformity; but a deformity of such insidious origin and of so slow a growth that it becomes evident only after years of progress. With these changes and alterations in the bones and ligaments there is necessarily concomitant muscle weakness, but a weakness easily remedied and of trifling importance to the patient compared with the other changes. Now the law which brought about so great a change by the continuity of action of a factor but slight in itself can be pressed into the service of the surgeon, and the result reversed by changing the factors but making them act in the same continuous way. Just as a deformity is effected by unnatural conditions and positions acting for a long time, so cure will be effected by natural conditions and positions being restored and retained through months and even years. From the consideration of this law it becomes self-evident that it is far more important to have prolonged rest in good positions than to have frequent (but necessarily occasional) drilling. By "rest" he did not mean recumbency, but merely the avoidance of exercises that produce fatigue, such as, for instance, long walks. It is very wrong to enforce, even in the most healthy, long races and paper chases and any other exercises which cause severe prolonged strain to the heart. Such prolonged over-exertion causes impaired nutrition, which necessarily results in atrophy and weakness. He had for years insisted upon the value of intermittent exercise such as games rather than continuous exercise such as long walks, and lately Dr. Lauder Brunton in his Harveian Oration has pointed out that the spontaneous exercise of a child was that of a butterfly, not of a bee. With the same object in view a colt was allowed to gambol and never put into harness whilst young.

If children were only allowed to rest their backs when they sat down, as by leaning them against the back of a chair, there would (*ceteris paribus*) be few weak backs. It is very important that their spines, when not in action, should be kept in a natural symmetrical position; a position absolutely unattainable, for more than a very brief period, by muscular action alone. The effort to keep the spine straight when sitting on a seat with no back support is never effectual, and though the order to "sit up" produces a temporary straightening of the spine, yet relaxation slowly but surely follows, and each reapplication of the stimulating word of command produces a less and less lasting effect.

This power of the muscles to straighten the spine temporarily, and sometimes to conceal a somewhat extensive curvature must be taken into account in making a diagnosis. In examining a child, therefore, for curvature of the spine, he should be kept sitting for an appreciable time. At first he may hold himself straight, but very soon fatigue sets in, and gradually the curves appear.

From the consideration of these facts, it is obvious that the rational treatment for spinal curvature is to give plenty of light, easy, and continually-changing exercise, and yet to enable the spine to rest completely the moment the muscles relax and their supporting influence ceases. This end can be effected by fitting to the child a strong light apparatus, which differs entirely from the ordinary spinal support, and is so arranged that whilst it gives free movement in almost every direction to the chest and arms—so that a boy can, for instance, play cricket—it yet gives the spine complete support, not when the muscles are acting, but when they begin to relax and the ligaments begin to be strained by the unnatural positions into which the bones fall.

[Mr. Noble Smith then showed a young boy with spinal curvature, who before treatment had not been able to walk more than a hundred yards or engage in any games with his companions, but who, immediately after commencing to wear such an apparatus as that described, had been enabled both to take fairly long walks without fatigue and even to engage in a game of cricket, and whose spinal curvature at the time of showing—several months after the commencement of treatment—had most distinctly diminished.]

This patient had been sent to Mr. Noble Smith by Mr. Cox, of Winchcombe, and Mr. Cox, who was present, spoke to the great improvement which had taken place in the lad.]

A METHOD OF TREATING INVERSION OF THE LIMB SUBSEQUENT TO THE CURE OF EQUINO-VARUS.

By R. L. SWAN, F.R.C.S.I.,

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WHEN an aggravated equino-varus is so far cured that the sole of the foot rests on the ground in walking the surgeon, usually desists from treatment and formulates a routine to be adopted by the nurse or mother calculated to prevent collapse and to further a degree of progressive improvement by the combined influences of development and education. It will be found, however, that in the great majority of instances conditions remain which exert a distorting influence, and notwithstanding the time, trouble, and perhaps outlay which have been expended the patient may be still recognised as the victim of malformation. The conditions referred to are:

(1) *Knock Knee*.—This is seen in cases of aggravated equino-varus which has been untreated until walking has been for some time indulged in. The point of incidence of the axis of weight is internal to the contact of the outer edge of the tarsus or the adventitious bursa to the ground. This, in conjunction with the fact that there is a disproportionate relation between the body weight and the functional development of the lower limbs will favour its production. This distortion may be dealt with by any one of the ordinary methods of treatment, and with this brief notice may be dismissed.

(2) *Rotation Inward of the Leg*.—This will be found as a constant distorting element, and betrays its existence when the rectification of the equino-varus has been effected. Even when the foot has been rendered completely plantigrade the inversion of the limb will be (apart from cosmetic reasons) of great detriment to the individual. He cannot walk without tripping. The outer edge of the advancing foot strikes the back of the tendo Achillis or the dorsum of the tarsus of the stationary limb. If the surface be irregular, or unless he steps with great care, he is apt to tilt over and fall, being deprived of the support of the toes and anterior segment of the foot, which if in their normal position bear the momentum created by his weight and progress. After a time he adopts a winding method of progression, which becomes a permanent

habit, so that the removal of the major deformity has not resulted in a perfect restoration of functional usefulness, to the dissatisfaction both of the surgeon and the patient's friends.

If a careful study of a limb in the above category be made, it will at first sight appear that the entire extremity is inverted. If, however (as was pointed out to me by my friend and colleague Mr. Chance), the patella be placed in its normal position, looking directly forwards, it will be seen that the inversion wholly results from conditions existing below the knee. It may furthermore be added from abnormal relations of the skeleton at the lower third of the leg. To briefly define this abnormality: The post-axial line does not occupy its ordinary position in human anatomy, but the fibula is distinctly projected to a point anterior to its usual situation. The external malleolus is on a plane far anterior to the internal in the plantigrade position of the foot. This, then, must be regarded as the factor in the production of inversion of the lower third of the leg itself, and, as a consequence, of the foot.

Two theories may be held as to the causation of this abnormality: First, that the extremity of the fibula is tilted forwards by the traction exerted by the peronei tendons in their overstrained state. Secondly, that it may be explained by developmental arrest. If we examine the arrangement of the skeleton in the lower extremities of the higher anthropoids, an equino-varus is the normal arrangement; and if the sole be approximated to the ground, the external malleolus is very much anterior in its relative position to the internal—to that which is seen in man. This was pointed out to me very clearly by my friend Professor Frazer, R.C.S.I., in the dissection of the lower extremity of a chimpanzee. I would regard the condition, then, rather as an indication of reversion of type, and as in its essential explanation identical with equino-varus itself, and not the production of any concomitant accidental cause.

Regarding the practical management of this element of deformity, its importance has been fully recognised by orthopaedic surgeons, and many appliances have been devised for its removal. Dr. L. Sayre used a spiral spring for everting the entire limb. The same object may be obtained by adapting steels to a pelvic band, which are inserted into the boots by slots set at a suitable angle. Other contrivances have been resorted to for the same object, which it is unnecessary to enumerate. A good deal of reliance has also been placed on the voluntary power which education will cause the child to exert in the production of eversion of the limb; but if we investigate the result of the adaptation of any one of those means, we will see that the apparent correction of the deformity is produced by the creation of another. The femur is rotated unnaturally, so that the patella, instead of looking forwards in walking, will present its anterior surface outwards. Even if voluntary effort be successful in concealing the deformity, it means the imposition of a strained and unnatural method of progression, which violates the law regulating the economy of force.

For the rectification of this condition I have concluded that a section of the tibia at the junction of its middle and lower thirds, with rotation outward of the lower fragment of the bone on its own axis, is perfectly efficient. The external malleolus is thrown backwards, carrying with it the foot, which remains in a normal position. When the osteotomy has healed, I have applied this operation to a number of cases within the last six months with uniform satisfaction, and I am convinced that it is the proper corrective, being safe, easy to perform, and followed by perfectly good results.

ROYAL MEDICAL BENEVOLENT FUND OF IRELAND.—The annual meeting of this Society was held in the College of Surgeons, Dublin, on Monday, June 3rd, Mr. Thornley Stoker, President of the College, in the chair. The report stated that 75 applications for aid had been considered. The Society's stock amounted to £22,777. The speakers were Dr. W. G. Smith (President of the College of Physicians), Dr. Truell, Dr. Jaggart, Dr. Moorhead (Cootehill), Dr. Little, Sir Wm. Stokes, Professor Bennett, Mr. Croly, Brigade-Surgeon Potter, Dr. Jacob, Dr. Newell, Dr. R. Moore, and Deputy-Surgeon-General Beaumont.

CASE OF INJURY TO THE FOREHEAD FOLLOWED BY APHASIA, PARTIAL PARALYSIS OF RIGHT ARM, AND CONVULSIONS:

TREPHINING AND EVACUATION OF CLOT: RECOVERY.

By J. C. RUSSEL, M.D., and C. PINKERTON, M.D., C.M.

HISTORY OF THE CASE: By Dr. RUSSEL.

On March 3rd, 1894, J. H., a healthy and wiry man, aged 67; was thrown from his tricycle. His forehead struck the ground, and was cut, as was also his little finger. The wounds, which bled freely, were dressed at a neighbouring surgery. He was not stunned, but could not afterwards recollect how he got home.

I saw him for the first time on March 4th. He complained of feeling shaken, and of pain in the right arm and shoulder. Since the fall he had vomited everything he had taken. There was no other special symptom. The cut was about an inch and a-half long, situated above the outer half of the left eyebrow. No fracture or depression of bone could be found about it.

On March 5th no more vomiting had occurred, but it was observed that he was unable to speak properly. He left his sentences unfinished, seemed at a loss for words, and used wrong and meaningless words. He did not spontaneously use his right hand, though he could move it when told, and could grasp feebly. No paralysis of the face was observable. On the following day the aphasia was more complete. At 11 P.M. he had a sudden attack of convulsion; and on March 7th a second attack at 1 A.M., and a third at 9 A.M. These attacks were said to be all similar. They came on suddenly, lasted for two or three minutes, affected the whole body rather violently, and were accompanied by loud stertorous breathing. Those who witnessed them, not being skilled observers, could give no further particulars.

The occurrence of convulsions with aphasia and partial paralysis of the right arm following injury led to the diagnosis of effusion of blood on the surface of the brain causing pressure in the region of the speech centre and its neighbourhood. The friends of the patient were advised that trephining, in the expectation of finding and removing blood clots, was the proper treatment, and Dr. Pinkerton was invited to examine the case with a view to operating if he deemed it expedient. The consultation was held in the afternoon, and as there had been no convulsions since morning and the patient's condition seemed improved, it was decided to refrain from operation and await further developments.

On March 8th and 9th the general condition was improved. He was conscious, and spoke volubly but quite unintelligibly. During March 10th, 11th, and 12th he became worse. On the last named day he was lethargic and restless, he frequently moaned and raised his left hand to his head, he took no food, and towards night became quite comatose. The pulse was under 60, and full. On the morning of March 13th his condition was much the same, and the operation was performed in the forenoon.

THE OPERATION: By Dr. C. PINKERTON.

We first localised the fissure of Rolando, as follows. A point on the crown of the head, half an inch behind the middle of a line drawn from the root of the nose to the external occipital protuberance was taken as indicating the upper extremity of the fissure. A second line was then drawn, perpendicular to the first, so as to pass immediately in front of the meatus, and a point on this line two inches above the level of the centre of the meatus was supposed to indicate the lower extremity of the fissure. It appears from the result that the location of the fissure by this very simple method was substantially correct.

No shaving was required, owing to the baldness of the patient, but the integuments were rendered antiseptic. The incision at first was crucial, but was afterwards enlarged in an anterior direction, so as to convert it into an irregular crescent. A 1-inch trephine was then applied over what was supposed to be the spot for the arm and speech centres, but on reflecting the bone nothing abnormal was discovered. Having enlarged the scalp wound, the trephine was again applied immediately in front of and slightly below the first opening. The bone