to find that Rushton Parker, in discussing his methods as a practical novelty, concluded by stating that "At present they are the best methods ever devised, and I am not alone in this opinion." These words, written in 1878, were those of a prophet, but at that time Professor Rushton Parker's voice was that of one crying in the wilderness.

There is hardly a fracture or a deformity existing for which Thomas did not invent some simple appliance by which cure or improvement could be obtained, and I may be permitted to digress for a moment to quote his views upon a condition not wholly disconnected with fractures of the lower limb, which is often overlooked even at the present day. In this way will be shown also his keen appreciation of the perplexities of the psychological difficulties with which he had to contend when advising a sound, simple, but new device for cure during the initial stage of splay-foot. The story of a medical friend who consulted him about his son, both of whose feet were in the initial condition of splay, well illustrates the directness of his practice, the humour with which he viewed failure to accept his advice, and the quiet confidence he felt in the soundness of his device. "Money," he writes, "may be spent upon machinery, so-called spring-plates, rubber pads, and steels, but they cannot assist so effectively as a few pennyworths of leather used to vary the boot sole." After examination of the boy, Thomas advised the well known "crooked heel" to be worn. Meeting the boy some time afterwards in the street, he observed that he was "rigged with steels as if he was being scaffolded for general repair. The assistance was only a fraction of that which a sloped heel would have given."

Thomas was eminently successful in his pioneer work because he personally supervised the carrying out of every detail in the construction of his numerous appliances. He thought it was unwise for a surgeon "to trust to a surgical instrument maker to fit his patient; his training and opinions are too mechanical to qualify him to handle unsound parts. To efficiently apply the various knee and hip instruments . . . it is absolutely necessary that the surgeon employs a 'Vulcan' cutter and fitter, a mallet and a triple acting wrench. . . . Armed with these tools he can easily model . . . an unsuitable splint into an orthodox form, and obtain from it good assistance." In order to complete his armamentarium for every emergency the surgeon was also to take with him "a restorer" and a "boot heel plate." With these appliances, he said, the surgeon could, by himself, fit a splint that might be several inches too long or too short, to the patient and his bed in a shorter time than it would take a blacksmith to blow up his fire.

The deterioration of Thomas's knee-splint (more especially) is due to two circumstances. The first is that surgical instrument makers have not taken the trouble to master and copy accurately all the details in construction upon which he insisted, and the second is that surgeons who do not know how extension should be applied *à la* Thomas suggest to instrument makers innovations which are usually most eagerly carried out; the instrument makers then exploit a profession, untaught in Thomas's methods of dealing with fractures, with a modified splint rechristened and blessed with names of varying magnetism. On three occasions I have had the good fortune to find out in time that modifications I had approved were a degradation of the original.

The aluminium splinting introduced by Treves several years ago for temporary employment in military service is practically useless for the treatment of fractures of the lower extremity, and more especially of the femur with overlapping. It is not rigid enough to keep up the force of extension that is necessary, neither is it possible to get a suitable perineal ring for efficient counter-extension. I tried it many times before giving it up, but the tape measure told a tale which could not be disputed. I am one of those who believe that the great practical value derived from the use of the tape measure in determining the reduction or setting of a fracture, and particularly of the femur, has suffered very much on account of the introduction of *x* rays for diagnostic purposes; the tape is always available, *x* rays are not, and besides the tape is infinitely more reliable as a method of determining shortening of a limb than an ordinary *x*-ray photograph. Some twenty years ago I showed by experiment that an ordinary straight transverse fracture of a bone appeared in a skiagraph as V-shaped with a varying angle, except at

one point, which was immediately underneath the anti-cathode. The distortions of fractures commonly shown in ordinary *x*-ray photographs are fairly well known, but to the medical practitioner who is untrained in skiagraphy these distortions as shown in ordinary skiagrams are most confusing. The only *x* ray photographs which convey a true impression of the conditions of a fractured bone are the stereoscopic. When stereoscopic skiagraphy becomes as popular as the cinema, when it is to be obtained in small villages, in the coal field of the Rhondda, or nestling in the wilds of Snowdonia, or near the snow lines of Kilimanjaro, then and then only will the time have come to attach to skiagraphy the same high value in diagnosis of shortening as belongs to the tape measure to-day.

A splint *per se* has no more power to effect the proper setting of a fracture than a pair of wings has to fly without motive power. Nevertheless, I have seen 1 to 3 inches of shortening in femurs where splints have been condemned for the shortening as if they were sentient beings.

The practitioner who says that he does not know the extent of shortening because an *x*-ray photograph has not yet been taken, has not been taught or has not realized the great teachings of our forefathers.

A recent writer on fractures has spoken of the setting of a broken bone as a myth. I am not quite sure what meaning he intends to convey, but if he means that the two fragments of a fractured bone cannot be brought into accurate alignment, and that shortening cannot be overcome in a large proportion—I would say the great majority—of all cases, then I maintain that he is mistaken, and that the surgeon who has grasped the principles and is not afraid to carry them out, can in all ordinary cases produce good alignment and a limb of normal length. These results can be obtained by the understanding of principles and the application in practice of methods which existed before the advent of *x* rays and the open method into the field of the treatment of fractures.

(To be continued.)

AN EXTENSION SPLINT FOR FRACTURES OF THE HUMERUS.

By DONALD HINGSTON, F.R.C.S.ED.,
CAPTAIN C.A.M.C.

FRACTURES of the humerus, especially compound fractures, and more especially those caused by bullet or shell in which there is extensive laceration of skin and muscle, have proved difficult to treat during the present war, and this accounts for the unusually large number of new splints for this fracture recently described.

The splint I now submit was devised in September, 1915, and has been used with success on a number of cases—some with great splintering and extensive laceration.

It is a simple metallic extension hoop. I have used the aluminium splinting supplied in the field fracture box, and have found 21 inches by 9 inches a convenient size. It is applied in the following manner:

If the skin of the lower two inches of the arm is intact, and if the fracture is above that level, wide strips of adhesive are applied to the outer and inner surfaces of the lower part of the arm. These strips attach the arm below the fracture to the middle of the lower bar of the hoop (Fig. 1).

FIG. 1.

It is advisable to split the inner strip and thus avoid pressure on the pointed internal condyle. A piece of half-inch rubber tubing about 9 inches in length is wrapped around with absorbent cotton and made into a pad of comfortable size. This pad, well sprinkled with talc powder, is placed in the axilla, and tied to the upper corners of the splint by means of bandages passing through small holes through the rubber tubing near the ends. When tying gentle traction is made; the pull should not be too great; it varies according to the lesion and to the strength of the muscles. A feeling of comfort and marked relief are the guide as to when the correct amount is reached. This pull is maintained evenly distributed by the elasticity of the rubber tubing. The hand is then supported in a position of ease. It is usually necessary to tighten up the pull from time to time, the comfort of the patient being the index. Under this gentle traction, reduction of the fracture should take place slowly and painlessly. The muscles will act as splints, no other supports being necessary.

If the skin on the lower part of the arm is injured, and adhesive cannot be applied to it, or if the fracture is in the

lower two inches of the humerus, extension is procured indirectly by applying the traction just below the elbow (Fig. 2). The forearm is flexed at right angles and the wrist firmly held up. The forearm should be protected by a pad that pressure may be evenly distributed. Any splinting can be used. A layer of absorbent cotton covered by a few layers of plaster-of-Paris bandage moulded to the forearm and bend of the elbow is most satisfactory.

This splint has many advantages. It is simple, easily applied, and with the exception of a little tightening of the pull from

FIG. 2.

time to time it need not be altered for some days, and then the only necessary alteration is the changing of the absorbent cotton in the axilla.

Extensive lacerated wounds through the arm can be dressed without moving or taking off the splint. The patient can get up, and even travel without altering the splint or reducing the extension. Above all is the great comfort and relief it gives. This has been observed in all cases in which it was used.

In a very small number of cases there was swelling of the forearm, but this was temporary, and required no special treatment. It occurred in badly infected cases. No ill effects have occurred from pressure in the axilla. The points of support are the axillary folds and vessels, and nerves are in no way pressed upon. The traction is along the line of the bone, and the position of the fragments is necessarily correct.

THE Valentin Haüy Association, which has for many years occupied itself with the training of the blind in farm labour, including the care of animals, the making of butter, the binding of sheaves, the winnowing of grain, etc., is endeavouring to make men who have lost their eyesight in the war fit to return to their former work on the land. A missionary has been found in a man blind from infancy who is sent to teach the maimed soldiers. The results are already very encouraging. One man is reported to have quickly learnt to gather fruit and vegetables, to yoke and unyoke horses, to feed poultry, to milk cows, and to clean harness. Another can without help look after fifty hives of bees. Valentin Haüy, it may be mentioned, was the philanthropist who in 1785 founded in Paris the Institution Nationale des Jeunes Aveugles, said to be the first school for the blind.

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A METHOD OF TREATMENT OF "SHELL SHOCK."

By E. T. C. MILLIGAN, M.D., B.S.MELB.,
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A WELL-KNOWN method of treatment of hysteria has been applied at this casualty clearing station to selected cases of what is now diagnosed as "shell shock." The results of this treatment have been so satisfactory that I desire to give some account of the details of the same in this brief note.

It is not the purpose of the note to classify the many different conditions caused by "shell shock," nor to suggest the pathological condition—psychical or physical—underlying them.

Nature of Cases Treated.

The cases treated were those who "could not speak," "could not hear," "could neither speak nor hear," cases of loss of memory, and cases obsessed by the memory picture of recent terrible experience, their minds being occupied, to the exclusion of all other things, by the bursting of shells in the trench or during the attack.

Other cases which have been treated are those of loss of function, partial or complete, in one or more limbs; of inability to walk, and of neuromimetic deformity of limbs.

We have endeavoured to select for treatment only cases of genuine hysteria and of conscious fraud. Malingers with mimicry so close, and acting so consistent that it was difficult to discriminate them from genuine hysteria, respond more easily to the method, though in a different manner.

Cases Excluded from this Treatment.

Care has been taken to exclude all cases suffering from discoverable organic lesions of the special sense organs, the central and peripheral nervous system, and organic lesions of the above accentuated by hysteria. The underlying organic lesions in these cases must first be treated.

TREATMENT.

It is well known that during chloroform administration there is a stage before the involuntary struggling stage when a patient is highly susceptible to suggestion. It is while the patient is in this stage that suitable suggestion and stimulation should be used. The treatment must be conducted in a quiet room, apart from other patients. Chloroform is slowly administered, and suggestion carried out by the anaesthetist when the patient has reached the required stage.

In cases of loss of memory, and cases in which the memory of past experience is blotted out, and replaced by the mental picture of recent terrifying incidents, the past life of the soldier can often be recalled by suggesting to him some person or object of his affections, as his wife, his child, or his mother. Mention of his home life and country, his regiment and occupation, has proved effective in restoring the chain of past experience.

Mutism is treated by the insistent asking of suitable questions in the suggestible stage, and cutaneous stimulation is found of use.

Loss of hearing responds to the same methods.

Hysterical attitudes of limbs are changed to opposite attitudes and fixed there firmly with bandages; thus extension is changed to extreme flexion.

Loss of function in limbs is overcome by continuing to give passive movement together with suggestion as the patient is regaining full consciousness.

In obstinate cases complete anaesthesia is produced, and the patient is immediately allowed to recover from the anaesthetic. As he emerges he is again in an impressionable state, and this state has been used for suggestion with success where the first efforts of the operator were not successful.

In all types of cases suggestion should be continued till the patient has fully recovered consciousness. When quite rational the man is assured of his cure, promised a rest, given morphine, and allowed to enjoy a much-needed sleep.

The after-treatment consists in prolonged rest and change of surroundings, even although the most obvious symptom of the mischief—for it is a symptom only—has been remedied.