sixty-two, and was almost invariably frontal, and as frequent in the chronic as in the acute cases. Drowsiness or dullness, amounting at times to stupor, was the next most common head symptom. Convulsions were recorded in four cases, and in two cases occurred at the onset of the disease, and were not repeated; the ages were, one, a boy of eleven months, and the other a boy of four years. The third case was a girl twenty-one months old, in whom three convulsions took place on the same day within a few hours of each other. The fourth case was a boy, aged four months, who had five convulsions in three days. All of these cases terminated favorably, and in only one were the convulsions severe.

Vertigo was only noticed in three cases.

(To be continued.)

New Instruments.

A NEW FRAME SPLINT FOR HIP DISEASE.

BY F. S. WATSON, M. D.

It is a well-recognized principle, accepted, I believe, by even the most urgent advocates of the "up and about" treatment of hip disease, that there are periods in its course when enforced quiet to the affected joint offers not only the speediest relief subjectively to the patient, but also gives the joint its best chance for ultimate recovery. This is notably the case in the early stage of the disease, where the synovial lining of the joint is the primary seat of the affection, or where, in virtue of fluid pressure within the joint either from the presence of an increased synovial secretion or of pus which has made its way thither from a neighboring osteitis, pain is a prominent symptom.

Various appliances and apparatuses have been devised to secure partial or entire immobilization of the joint. And we have a number in use, from the weight and pulley extension to Bonnet's wire frame, Sayre's wire breeches, Thomas's fixation and Taylor's extension splints. Two ideas are prominent in these appliances. In one set the attempt is made to secure rest to the joint by, so to speak, incorporating the splint with the body and leg of the patient. And to this class belong the Thomas, etc. In the second class contraction of the thigh muscles is considered an important element in the production or continuance of pain, and this it is sought to overcome by efficient extension. All these appliances are open to criticism, *in so far as they profess to secure efficient and complete rest to the joint.*

The criticism, broadly stated, which is applicable to the first class may be expressed thus: It is impossible so to bind a splint to the leg and body of a patient that the patient and the splint shall not be capable of movements independent of each other, and at the same time permit of the splints being worn by the patient. And if the splint be not so applied, harm rather than good may result to the joint, owing to the varying pressure and friction transmitted to it by the independent movements of the splint and patient. One more important element is wanting in the construction of most of them, namely, extension and perineal counter-extension, which seems the most efficient manner of overcoming muscular contraction.

The weight and pulley supply simple extension, but are defective in securing rest to the joint in that

the patient can raise the body on the joint, thus causing friction, can roll from side to side, thus bringing pressure on to the trochanter of the diseased side, and, moreover, lacks perineal counter-extension, without which definiteness of extension is lost. This we get in Taylor's admirable splint, which, however, when joint immobilization is desired, fails, because the patient can move the body on the joint or roll on to the trochanter. Seeing these defects, Dr. E. H. Bradford, of Boston, a few years ago had constructed a rectangular iron frame, between the sides of which stout cotton cloth was stretched, leaving an interval for the nates of the patient. Upon this frame the child could lie, and, wearing an extension splint, could be moved with much ease.

It was in the hope of going one step further toward securing joint immobilization that I have had the frame splint constructed, for a description of which I beg the courtesy of your columns.

FIG. 1.

A B, rectangular iron frame. C B, forming the lower part of the frame, is an adjustable foot-piece, which can be lengthened or shortened, and fixed at any point by a set screw on either side. D, movable iron arm bent to fit the curve of the thigh and placed above the knee to aid in preventing flexion of the thigh. E, adjustable upright, to which is attached a perineal strap, F. G, sliding plate, to which are attached the shoulder straps, H, on either side of the frame. The shoulder straps are connected by a strap running across the chest, which keeps them in place.

FIG. 2.

The same. The sides of the frame have been wound with cotton bandage, and stout cloth has been stretched across between the sides, leaving only an interval for the patient's nates.

FIG. 3.

Shows the patient upon the frame, which rests upon two chair-backs. The extension straps are here in position.

When it is desired to place a patient upon the frame he is laid upon it, and the space to be left open in the cotton cloth for the nates is noted. The iron arm which crosses the thigh is slid along the frame to its proper position and there fixed. The same is done for the upright bearing the perineal strap and the plates bearing the shoulder straps. The patient is then removed, the frame wound with bandage, the cotton cloth stretched tightly across and sewed in the middle line behind. The patient is then placed upon the frame, as in Fig. 3. Extension is made by carrying the extension straps to a revolving bar with key and ratchet attachment in the foot-piece, upon which they are wound, -exercising as much traction on the leg as may be desired. The perineal strap is adjusted before ex-

tension is made. The arms are passed beneath the shoulder straps, and the cross strap buckled.

When thus placed upon the frame the following points are secured:—

Extension and perineal counter-extension.

Impossibility of raising the body on the leg, or of flexing the leg on the body, or of rolling from side to side.

Entire freedom is allowed for movements of the arms and of the unaffected leg.

The patient can be moved from place to place with the greatest facility, undertake car journeys, be carried out-of-doors, etc., with the minimum of disturbance to the joint.

The sphere of action of this frame is limited. When deformity is already present it has to be overcome before the splint can be advantageously used. This is best accomplished by making extension in the line of deformity. This splint does not, of course, replace in any way the appliances which allow of the patient's moving about, which in a later period of the disease is so important a part of the treatment.

The frame has now been worn by three patients, in each case with relief from pain, with the greatest comfort to the children, and with an entire absence of any injury resulting from pressure on any part of the body. When the patient is lying upon the frame on a mattress the sides of the frame sink into the bed just far enough to prevent any injurious pressure from them. It is not necessary to employ very powerful extension, and hence no complaint is made of the perineal strap, so that we may safely say that sloughs will not result from its use. In the first case in which it was employed the patient lay upon it for two months, and constantly derived the greatest comfort from it.

Two measurements are necessary for the construction of this splint,—the patient's length and the width between the acromion processes.

Reports of Societies.

PROCEEDINGS OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

SURGICAL SECTION.

H. C. HAVEN, M. D., SECRETARY.

OCTOBER 28, 1882. DR. R. M. HODGES presiding.
DR. T. S. WATSON presented

A NEW SPLINT FOR HIP DISEASE.¹

DR. E. H. BRADFORD said that he had seen the splint in practical operation for the last six or eight months, and it seemed to him to afford the best method of fixation of the joint, better than Bonnet's goulitière or Sayre's wire breeches. Dr. Bradford had sometimes found it advisable, in the case of an active child, to restrain the movements of the well leg by another knee piece similar to that described for the affected side. The patient whom Dr. Watson had shown was in a wretched condition when admitted to the hospital, whereas now her condition was excellent, as could easily be seen from her appearance.

DR. C. D. HOMANS asked if those using the splint had not been troubled by abrasion caused by the perineal strap. Formerly an apparatus somewhat similar

to this was used extensively in fracture of femur; that is, extension by ratchet and counter extension by perineal strap. This apparatus was given up on account of the abrasion caused by the perineal strap, and it seemed to Dr. Homans probable that the same trouble would be met with in using the splint of Dr. Watson.

DR. BRADFORD replied that he had not as yet met with any cases either in hospital or private practice where he had been obliged to forego the use of the splint on this account.

DR. C. P. PUTNAM thought the amount of pressure practically brought into the perinæum had been overestimated. He had once tested the amount that a child's perinæum could bear, and found that twelve pounds could be borne for a short time, but before long gave great pain. He thought it would be found that the pressure was seldom over six pounds.

The management of the perineal strap was comparatively easy while a patient was in bed, or while using an apparatus that did not bring the weight of the body into the strap, but much more difficult when a patient was walking with a long hip splint.

DR. MARCY agreed with Dr. Putnam in his view that a small amount of force was all that was necessary to secure the desired result.

In regard to the objection of Dr. Homans, Dr. C. P. PUTNAM thought the method of applying the perineal strap made a great difference; formerly it was carried upwards on a slant, in front as well as behind, and pressed hard against the edge of the adductors. Now it is usually attached, as in the apparatus just exhibited, at a point somewhat in front of the groin and carried up in front vertically, as had been explained by Dr. Bradford. In this way it was far easier to avoid sores than by the old method.

DR. CHEEVER asked if this apparatus had ever been adapted to the treatment of Pott's disease. Dr. Watson replied that a similar splint had been used for that disease, but without the ratchet extension. Dr. Cheever thought that by fixing the body and applying extension to the legs this same splint would be admirably adapted to the treatment of caries of the spine.

DR. BRADFORD stated that although extension by the ratchet had never been utilized in treating Pott's disease, extension had been gained by fastening the patient's head to the head of the bed, which was raised, the sag of the body thus giving counter-extension.

DR. CHEEVER thought the advantage so great of being able to carry a patient so conveniently as can be done on this splint either out-of-doors or wherever it is desired, as to merit its careful trial in case of spinal caries.

In reply to a question, DR. WATSON answered that the patient exhibited had worn the splint shown for six weeks without changing.

DR. HODGES said the remarks of the evening showed the general distrust which surgeons have of any new apparatus, some unexpected part turning out to be defective, and provoking the unfortunate effects of pressure, and often in the last place where it would be suspected.

In regard to the objection that the iron sides would be a source of trouble, Dr. Watson said that children had been kept on them for months at a time without the slightest abrasion.

DR. BRADFORD mentioned the necessity of the splint being wide enough to take its bearings entirely

¹ Vide page 84, this number of the JOURNAL.