In impacted fracture the Buck's extension is not necessary, for obvious reasons, but the splint is of particular advantage in these cases, as it keeps the impaction from separating while healing is in progress.

During the past few years, I have used this splint successfully in fourteen cases, ages varying from 52 to 76 years, and have received reports from several other physicians who have had gratifying results from its use.

True, the diagnosis in these cases has been purely clinical and there have been no roentgenograms, but these cases had all the classical symptoms and were without doubt true fractures.

The patients, without exception, recovered and walked with remarkably little functional disturbance.

The simplicity, practicability and ease of adjustment of this splint make it an ideal method of treatment in communities where more elaborate appliances are not available.

AN APPARATUS TO ASSIST IN THE APPLICATION OF DRESSINGS ABOUT THE HIP*

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In applying dressings, especially of plaster of Paris, in the region of the hip joint, a rest is needed which will add to the patient's comfort, allow sufficient working space, give a feeling of security during traction, permit easy removal and leave a well-fitting cast.

Patients not infrequently complain more of pain during and following the application of a cast than of the disease which required its application. Orthopedic surgeons find plaster a serviceable dressing because they have learned through

of the most common sites of such sores, mainly the result of flat, ill-fitting appliances which leave irregular irritating areas supporting the weight of the body.

In order to insure perfect contact and avoid pressure-pain, the support should conform to the lumbosacral curve and allow as large a weight-bearing area as possible. Since a bone plate or graft may be loosened during the application of a cast, ease of application and removal are also important. An apparatus that will allow a certain amount of traction without slipping is also essential.

Fig. 2.—Sacral rest in position.

To meet these various requirements, casts of the lumbosacral region were taken of patients of varying ages in the prone position, and a support of average size was designed by me which has been used with satisfaction in the Mayo Clinic for the past three years. The apparatus is removable and can be left under the cast while hardening takes place. It may be lowered or elevated so as to meet varying degrees of tilting, as are found, for example, in ankylosis of the hip, and allows traction against the perineum (Fig. 1).

The patient is placed in position as shown in Figure 2. The parts to be covered are encased in stockinet, and the bony prominences are well padded with felt; then a single layer of flannel in the form of a bandage is applied, and afterward the plaster bandages. Trimming is done with the patient resting on the support, the flannel is allowed to protrude one-half inch beyond the plaster, the stockinet is drawn up over this and the rounded edges of the cast and held in place by a gluten bandage.

Fig. 1.—Removable rest (A) used to support cast while hardening. The various degrees of elevation of the tongue are shown; B, elevated position; C, a square joint which prevents rotation and allows traction against the perineum; D, a hollow rectangular bar to obtain elevation, fixed by a screw (E); F, screw fitted in heavy base (G), by means of which the bar (D) is tilted and the tongue lowered or elevated.

experience to guard against the pitfalls attending its use. Sores due to pressure may be avoided by padding and smoothness of the areas of contact. The sacrum is one

SIMPLE ADAPTATION OF POCKET FLASH-LIGHT FOR EAR AND EYE EXAMINATIONS

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The principle of transillumination by a glass rod, used more than twenty years ago by Rochon-Duvigneaud of Paris for the eye, and later improved by Würdemann, is not new; but the instruments utilizing this principle (including the Sachs lamp) are all expensive and need special lamps, batteries, wiring, etc. No doubt others have hit on the expedient which I have used now for about four years: the addition of the glass rod to the smallest of the common flash-lamps obtainable.

I take a small hard rubber syringe pipe, cut it off and drill out to fit tight over a piece of $\frac{3}{16}$ inch glass stirring rod; cut the latter by nicking with a file to proper length, smooth the ends by melting in a gas or alcohol flame, and set firmly in place with collodion. The completed transilluminator is held in place over the end of the flash-lamp by a simple clip of spring nicked wire, for example, a common paper-fastener straightened out.

For scleral or mastoid or frontal transillumination, or for throwing a small straight beam into the eye in looking for foreign bodies, testing pupillary reactions, etc., the simple straight tip is best. For use in the ear, the rod should be

* From the Mayo Clinic.

bent on a radius of about $\frac{1}{2}$ inch, so that it forms rather more than a right angle, say 120 degrees. The upper end of the rod should now be roughly filed into a little hemisphere; melting this smooth gives us a lens tip. Now mount in a syringe pipe as before, and it will be found that the rays travel around with the rod, so that a splendid view of the tympanic membrane may be readily obtained. The advantage of this for bedside work, and the freedom from the necessity of carrying head mirror and hunting up a portable lamp, have made it almost indispensable to me.

I also use a long rod acutely bent and then cut so as not to exceed its own diameter, and covered by thin rubber tubing, to carry a strong lateral beam into the nasopharynx. The view through the cocaineized other nostril is then very clear. But this, and the fact that I have also adapted an old Marple electric ophthalmoscope to the same battery by using a glass rod of larger diameter to carry the light up to the point usually occupied by a miniature lamp of uncertain behavior, are not such generally applicable uses of this principle. I may say that on account of its portability and small size, as well as the ease of obtaining all the necessary repair parts, this home-made electric ophthalmoscope attracted much favorable comment in a number of clinics abroad and in the East last year.

801 Stevens Building.

Small hand battery, 2.7 volt flat top lamp; A, side view; B, end view; C, rod for nose and pharynx examination. D, glass rod. E, hard rubber syringe pipe. F, spring wire clip.

A CHEAP ELECTRIC HEATER

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The following device has been used as a substitute for a hot-water bag for over two years, and has proved effective, convenient and cheap.

The outfit consists of a 2-candle-power carbon filament lamp in an ordinary metal scoop-like reflector, with sufficient cord and a plug to connect with a convenient fixture. The reflector is converted into a metal box by a sheet of tin which is cut the proper size to close the open side of the reflector, leaving small ears to be bent over to hold the tin on. To prevent the metal from coming in contact with the skin, the box is slipped into a flannel or cotton bag with a drawstring. The arrangement is made clear by the sketch.

A 16-candle-power lamp burning twenty-four hours in this box will not light even paper; therefore with a 2-candle-power lamp there is no danger of fire. Still, such a small lamp yields all the heat that one can stand.

The ease with which one can use it without getting out of bed renders it especially convenient, and gives it an advantage over the rubber bag. It cannot leak. It is not heavy. When placed over cloths rung out of hot water, and the whole

Electric heater; a, 2-candle-power lamp; b, tin cover, c, plug.

covered with flannel, an application is obtained superior to the ordinary poultice, and not requiring renewal.

Any electric house can put the parts together at a cost of not over two dollars. The cost of maintenance is practically nothing.

A CLINICAL METHOD FOR THE QUANTITATIVE ESTIMATION OF SUGAR IN SMALL AMOUNTS OF BLOOD*

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There are no *clinical* methods for the quantitative estimation of sugar in the blood. The chemical methods that are in vogue are also not specific for glucose. Certain of these methods determine the *reducing* substances in the blood. By the polariscopic method we obtain the total quantity of optically active substances in the circulation. Those methods in which the glucose in the blood is extracted by certain solvents have no clinical value, because the amount of blood necessary for each test is too great.

The test here recommended determines the quantity of "reducing" substance in the blood. It is based on Bang's process. Control tests were made with various known solutions of glucose and accurate quantitative results were obtained. The process is very simple and should require not more than from ten to fifteen minutes for the whole analysis. Two solutions are prepared:

1. Copper Solution: Five hundred gm. of potassium carbonate, 400 gm. of potassium sulphocyanate and 100 gm. of potassium bicarbonate are dissolved in 1,200 c.c. of water, warming if necessary to from 50 to 60 C. (122 to 140 F.), and then cooling to room temperature. One hundred and fifty c.c. of an aqueous solution of 25 gm. crystallized copper sulphate are added. The solution is then made up with water to 2,000 c.c. It keeps indefinitely.

2. Hydroxylamin Solution: Two hundred gm. of potassium sulphocyanate are dissolved in 1,500 c.c. of water and a solution of 6.55 gm. of hydroxylamin sulphate in water added. This is made up with water to 2,000 c.c. This solution also keeps well in a dark-colored bottle. Equal volumes of these two solutions should exactly correspond to each other. The presence of proteins does *not* interfere with this test.

Into a weighing flask from 15 to 25 c.c. of the copper solution from a graduated buret are put, and the flask weighed together with the liquid on a chemical balance. Fifteen drops of the patient's blood (taken from an arm vein or from an ear lobe) are allowed to fall directly into the copper solution in the weighing flask. In experimenting with rabbits it is quite easy to insert a needle of rather large caliber into an ear vein, and thus draw off from 15 to 20 drops of blood, the needle acting like a cannula. The flask is now weighed a second time, and the exact weight of the amount of blood taken for analysis is thus determined.

The blood and the copper solution in the flask are brought to a boil and filtered through a Gooch filter with suction. The coagulum is washed until the washings are perfectly colorless, from 10 to 15 c.c. of water being sufficient for such washing. The washings are united with the filtrate and titrated with the hydroxylamin solution, which is added slowly from a graduate buret until all trace of blue or green disappears from the filtrate. Since 1 c.c. of the hydroxylamin solution exactly decolorizes 1 c.c. of the copper solution, the amount of copper present in excess is thus determined, and the difference between the original amount of copper and the excess represents the copper reduced by the "sugar" in the blood.

With this method a number of determinations of sugar in the blood were carried out. In most instances the results obtained by the foregoing process were higher than the figures given by previous observers. This may be presumably due to less manipulation because of the simplicity of the method.

* From the Beth Israel Hospital Chemical Laboratory.