

weeks have been unable to take solid food are able to masticate with comfort.

Lastly, the depression disappears and the men become fit and ready for active duty.

This subject is brought to the notice of medical officers not merely for their information, but in order that they may investigate and record how frequent is the condition and to what extent they are able to confirm the success thus far found to attend the treatment here described.

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### THE AFTER-TREATMENT OF AMPUTATION STUMPS.

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IN amputations performed for septic gunshot wounds it is usually necessary to leave the wound unsutured, and often a rapid operation has to be carried out with flaps insufficient to cover the end of the bone, which must be excised at a later date.

At the exhibition of fracture apparatus given at The Royal Society of Medicine in October last<sup>1</sup>, Sir George Makins showed a short Thomas's knee splint for exerting traction on the soft parts of an amputation stump. I have been using recently a simple and easily made arrangement which has the advantage of permitting the wound to be dressed without relaxation of the pull on the soft parts, a continual powerful extension of skin and muscles being kept up.

A ring of aluminium, having a diameter of eighteen inches, is made from a length of the splinting supplied in the regulation field fracture box. All round the amputation stump, from the joint above to about an inch from the edges of the wound, longitudinal strips of two-inch adhesive strapping are applied; these strips are prolonged about twelve inches beyond the end of the stump and attached to the aluminium ring. The ring is then suspended by three pieces of cord, tied to it equidistant from one another, the cords passing through pulleys hooked to a Balkan splint, to which an extra bar of wood has been bolted (figs. 1 and 2).

The free ends of the cords are tied together and one or more weights are hooked on, at or near the point of junction, so adjusted that the tension on the three cords is approximately equal. For a thigh amputation a weight of about eight pounds is used, and for the arm about five pounds suffices. For an amputation stump of the lower extremity the foot of the bed is raised on blocks to provide counter-extension.

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<sup>1</sup> *British Medical Journal*, October 16, 1915, p. 574.

The wound is accessible for dressing through the open ring, the pull on the soft parts being kept up uninterruptedly.

The method which I have described is made use of as soon as the acute inflammation of the wound has subsided. If long flaps have been fashioned they are pulled down by the appliance and their edges approximated. If it has not been possible to form long flaps the bone may not be covered, but the soft parts are kept from retraction until such time as a secondary removal of bone can be carried out.

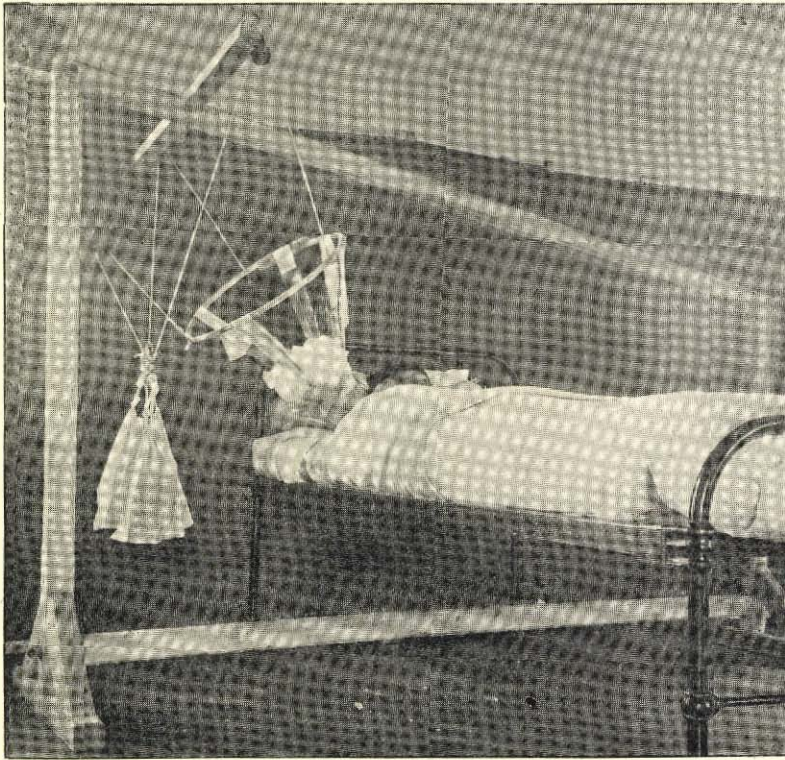


FIG. 1.—The extension apparatus applied to a stump after amputation through the upper third of the arm.

When the wound is granulating and sufficiently healthy to permit of its partial closure, the soft parts are dissected up from the bone and the necessary amount of the latter is removed; in some cases the skin edges can be approximated by a few mattress sutures, free drainage being provided. The extension is then reapplied and kept up until the wound is completely healed.

If at the first operation it is possible to suture the amputation

wound, it is advantageous to take the tension off the flaps in the way that I have described, and for the same purpose it may be of use for the amputations of civil practice.

The appliance allows the patient free movement and encourages mobility of the joint above; if necessary the position of the Balkan splint is moved from day to day for this purpose.

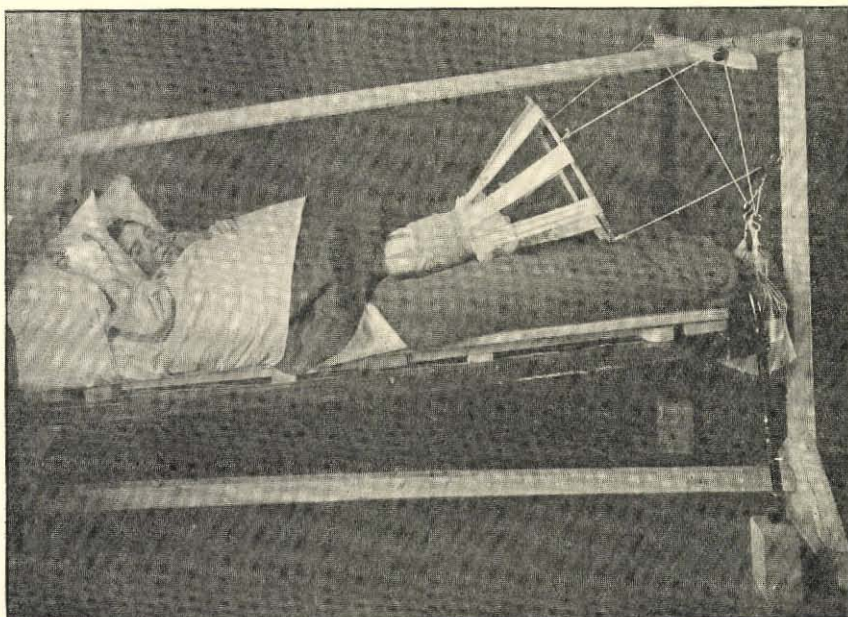


FIG. 2.—The extension apparatus applied to an amputation stump of the thigh.

I have used the aluminium ring attached to a Thomas's ring, but the method of extension by weight and pulley gives more powerful and continuous traction than a fixed extension, it allows more movement in the joint above, it adjusts itself to the patient's movements in bed and he is more comfortable and more easily nursed.