

CONTRIBUTED ARTICLES.

COMMON FRACTURES AND THEIR TREATMENT.
FRACTURES OF THE SHOULDER AND ARM.

BY DR. STOCKLEY.

THE fractures of the upper extremity may be divided into those of 1. Clavicle; 2. Humerus; 3. Forearm; 4. Wrist.

1. *Clavicle*.—The Fracture of the clavicle or collar bone is one of the commonest injuries in civil practice and is not uncommon in the war surgery of to-day. The weakest part of the bone is the middle third and it is in that part that fracture most frequently occurs. Fracture of the collar bone is often produced by the recoil of a gun, or a fall on the outstretched hand, or by some direct violence as the falling of a beam upon the shoulder.

One of the simplest methods of treatment is by adhesive plaster (Wharton Hood's method). After the fracture has been reduced three strips of adhesive plaster about $1\frac{1}{2}$ inches wide are applied from a point immediately above the nipple over the shoulder to a point below the angle of the scapula or shoulder blade. Instead of adhesive plaster Sinclair's glue could be used spread on thick calico bandage, and this acts very well indeed.

Other methods have been devised to avoid the stickiness of adhesive plaster and are usually rather complicated ways of bandaging.

Professor John Chiene used to lay the injured arm across the chest with the hand resting on the sound shoulder. Then place the tail of a bandage on the hand of the injured side; carry it down the back of the forearm, round the elbow and up the upper arm to the outer tip of the injured shoulder. Then down and across the back to the opposite axilla round the front of the chest over the forearm and round the elbow again but carrying the bandage over the arm missing the shoulder to the back. Bring the bandage over the sound shoulder and then begin as at first. Over all a circular body bandage may be applied to keep it further in position.

The patient should be encouraged to sleep without a pillow flat on the back, and the nurse should reapply the adhesive plaster or bandage when either get slack, for these are so frequently the causes of deformity and malunion.

When the fracture is compound it is wise to use a wide piece of adhesive plaster and to cut a window in the plaster to avoid the wound and this enables the wound to be dressed as frequently as desired without removing the plaster.

All other fractures of the collar bone and shoulder blade may be treated in the same way.

2. *Humerus*.—"The commonest fracture is that at the surgical neck," which is the slender tapering portion of the bone just below its upper end or head. It is attended with little displacement. After the fracture has been reduced or 'set' the simple ones are treated by a bandage put on in the reverse way to Chiene's method described above. The tail of the bandage

being applied first along the upper arm round the elbow and then along the forearm and hand. The arm is put in the same position across the chest, but a cone-shaped pad of cotton wool is put into the axilla to keep the contiguous skin surfaces apart and also to push out the head of the bone.

In the more severe types of fracture a wedged shape poroplastic or a triangular splint after the type of Middeldorph may be used. Sir F. Treve's aluminium splinting used as a shoulder cap has often been very successful.

Massage should be begun early, even on the first or second day if possible.

Fractures of the shaft of the humerus are usually transverse in children and oblique in adults. It is in these fractures that the nerve trunks to the arm are likely to be damaged. The nurse should watch carefully for any sign of weakness or paralysis which gives rise to the very characteristic 'wrist-drop.' Union of the bones is often delayed in this fracture owing to contusion of the soft parts and the frequency with which soft muscles and other structures come between the fragments." On the battle field the handiest splint has been the bayonet and it has given many a man much comfort when well applied.

Simple fractures are usually treated by Gooch splinting made to surround the bone combined with a rectangular splint.

When there is a large wound and perhaps sinuses going down to the broken fragments it is the septic condition that claims attention. In these cases the "Arm Thomas splint either of the original type in which the side bars are perfectly straight similar to Thomas knee splint or a better type of Robert Jones in which the side bars are bent to a right angle at the level of the elbow." Here counter extension may be obtained against the lower part of the ring under the axilla by bandaging the forearm firmly down to the lower half of the splint. In one case in which I used this splint I was able to pursue a course of irrigation by having a douche can attached to the head of the bed and a tube down to the wound with a stop cock. This tubing was attached to the tubing in the wound, which pierced the arm, by a glass connection. The tubing in the wound on the other side of the wound was also connected by a glass connection with a tube running down into a receptacle. I resorted to this procedure on account of the large amount of pus coming from the wound and the unrestrained appetite of the ants. The smell of the pus from the wound of this patient was very offensive to the other patients, no matter how frequently he was dressed, but after two days' continuous irrigation the smell disappeared and the ants ceased from troubling. When ants are present it a good plan to dust a little 'mutrak,' or other insect killing powder, into the wool and bandage.

Some surgeons do not find the Robert Jones Arm Thomas a success and then the internal angular splint with a hinged back piece as devised by Captain Colin Clarke is good. Clarke's splint is a very comfortable one for travelling cases, and has been much praised in France.

3. *Forearm.*—In fractures near the elbow the commonest is that of the olecranon process of the ulna caused by a fall on the elbow. This is often treated by putting the arm in a sling in the flexed position.

In fractures of both bones of the forearm, so commonly compound when caused by shrapnel, the aluminium splinting or open trellis splint is very comfortable and light. It enables a wound to be dressed without removing the splinting every time and the splints can be fixed to the arm separately.

4. *Wrist*.—Fractures at the wrist are usually of the type of fracture of the lower end of the radius. The commonest is that described by Colles of Dublin in 1814 and called after his name. Here Carr's Gordon's and the pistol splint are applied according to the nature of the case and the fancy of the surgeon.

The use of massage in all fractures of the forearm and wrist is well-known and should be carried out judiciously under the surgeon's directions. Indeed many a soldier has recovered the use of his arm quite beyond the expectations of the surgeon through the assiduous and faithful massage treatment of the trained masseuse.

- References*.—(1) Thomson and Miles, *Manual of Surgery*.
 (2) *Practitioner*, May, 1917—C. H. Fagge, F.R.C.S.
 (3) *B. M. J.*, June 2nd, 1917—Bowley and Wallace.

BOILING OVER.

By J. WALLACE, C.E.

NO one can learn to cook without some experiences of boiling over or foaming, and yet many never seem to understand it and endless messes are the result, as when a gas or oil stove is used. The liquid boils over, extinguishes the light and fouls the burner. One of the largest Bombay hospitals had a gas outfit in the kitchen that was found by an expert to be in a filthy state because the cook was too lazy to clean the burners. Gas escaped unburnt from some hole and added to the unsavory smells of a dirty kitchen. This illustrates how things should not be done. Foaming is very easily explained. When the liquid begins to boil, bubbles of vapour form and rise to the surface. These bubbles take up space and raise the level of the liquid just as if so many round pebbles were put into the pan. If the pan is not big enough to hold the increased volume it boils over. Foaming varies with the nature of the liquid dealt with. Water is the least liable to foam because the steam bubbles escape most freely, and it foams less in a wide and shallow pan because the steam gets away quickly, but if filled up the shallow pan will boil over because when filled with steam bubbles the water is more bulky than before. Milk boils over more readily than water because the steam escapes more slowly and the bubbles accumulate. If heated slowly milk will not foam. An earthenware pot lets heat pass more slowly than a metal one and is safer for that reason. A sheet of asbestos placed below a metal pan has the same effect. But if heating is prolonged a deposit from the milk will adhere to the pan that prevents the liquid from touching it and carrying off