THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

NOVEMBER 1, 1916.

PART I.

ORIGINAL COMMUNICATIONS.

ART. XIV.—*Fractures and Fracture Dislocations.*^a By JOHN S. M'ARDLE, M'Ch. (*Hon. Causá*) R.U.I., F.R.U.I., F.R.C.S.I.; Professor of Surgery, National University of Ireland; Senior Surgeon, St. Vincent's Hospital; Consulting Surgeon, National Hospital, Holles Street, and Children's Hospital, Temple Street, Dublin. (Illustrated.)

(Continued from Volume CXLII., page 79.)

FRACTURES OF THE BONES OF THE FOREARM.

AT one of the recent examinations I asked the simple question: How would you treat fracture of both bones of the forearm below the insertion of the biceps tendon? The answer revealed woeful ignorance. "I would apply plaster bandage and keep the forearm flexed." Now, if anything could be the opposite of sound surgery this is just it.

^a A Course of Lectures on Clinical Surgery delivered at St. Vincent's Hospital, Dublin.

The golden rule in the treatment of fractures of the radius and ulna, or of both of these bones, is: *after reducing the fracture, keep the bones apart*—the reason for this is: that any fixation between the radius and ulna renders pronation and supination impossible, and necessi-

FEMUR

HUMERUS

ULNA

RADIUS

METACARPALS

FIG. 26.

tates vigorous surgical measures if the limb is to become functionally useful.

Such a procedure you saw me carry out in the case of the patient in No. 11 bed. The gravity of the procedure has been greatly lessened since the days when such cases were treated by suture, as shown in Plate XI., Fig. 25, that was by separating the bones, refreshing the ends, and wiring. Such an operation is tedious, entails extensive dissection, and requires a large wound area, thus (as the

late Dr. J. B. Murphy pointed out) materially increasing the danger of local devitalisation and wound infection, conditions which delay healing, and often lead to complete failure.

The introduction of metal plates instead marked a great advance. Later, the use of partially decalcified bone

FIG. 27.

plates, held in position by bone screws, still further helped us to secure almost perfect results. But now, one attacks these cases with the utmost confidence, as there is at our disposal a very rapid method, which is capable of restoring the bone line and leaving no foreign body to interfere with muscular action.

The bone pegs which I show you, and which you have seen me employ, vary in thickness, according to the size of the fractured bone. As a rule, a bone two inches long

and six millimetres thick suffices for the forearm bones. I like unpolished pieces, and for choice porous ones, rather than ones that are eburnated.

I have used transplanted portions of the tibial crest, but see no advantage in them over those you have seen me employ with success. Still, another method demands attention, that is, the very rapid fixation of the fragments by metal bridges (as shown in Fig. 27). You see they are of many sizes, and their points are of varying lengths to suit different situations.

In dealing with recent fractures they are very effective, and when driven home they interfere very little with the action of superimposed muscles. To render driving easy and safe, a small drill hole should be made. This can be done rapidly with the drill I now show you. The operation is very rapid; a straight incision is made down to the bone, the soft tissues are held apart with retractors, the bones are supported by toothed bone retractors, and driving of the metal bridge completes the procedure. Elevators are not necessary in recent fractures, these hooks slip round the bone, and no contusion of the soft parts takes place during their use.

I would warn you that in ancient fractures—either for non-union or malposition—I do not use these bridges, as repair is slow, and before it is complete absorption round the points may render the bridge loose. If you make up your mind to use a bone peg in an old-standing fracture, have by you a drill, with burrs as you see here (Fig. 28), so that if the medullary canal is closed by callus, you can make a place for the peg.

The canal in the upper fragment must be made the full depth of the peg, in the other, only half that depth. This enables one to slide the peg well up out of the way, and then, while adjusting, a sharp hook brings it down into the lower fragment. These pegs form an admirable scaffolding for the developing new bone.

When both bones of the forearm are broken in the adult I am satisfied that plating is the proper treatment, and

the plates should be applied on the posterior edge of the ulna and the outer side of the radius. In the young, plating is not necessary, as rapid union occurs if the bones are supported by a broad posterior splint, and a narrow anterior interosseous one, which presses the flexor muscles well between the bones, so as to keep them widely apart. In all these fractures flexion and semipronation should be maintained. There are three muscles which play an

FIG. 28.

important part in all fractures of the forearm—the biceps, the pronator radii teres, and the pronator quadratus. When a fracture occurs below the insertion of the biceps the upper fragment is drawn upwards, and rotated outwards, while the lower is drawn inwards by the pronator teres, with a corresponding rotation. This case is dealt with by a splint such as is here shown (Fig. 29), a special interosseous pad being fitted along the forearm, and a straight posterior splint, one inch wide, between the radius and ulna on the posterior aspect.

The next fractures to which I wish to call your attention are those occurring at the lower end of the radius. Plate XI., Fig. 30, shows a fracture simulating a "Colles," but the treatment of which should be the opposite of that advocated for those immediately above the radio-carpal line. In this case a straight hand and an anterior interosseous narrow splint secured perfect adjustment. Traction towards the ulnar side would here be fatal to a perfect result.

Fractures occurring at the higher level than the one just described require immediate plating if we are to have success. When the lower fragment is left to the unin-

FIG. 29.

fluenced action of the pronator quadratus, this piece of the radius is drawn towards the ulna, and, becoming fixed thereto, pronation and supination are lost. Plate XII., Fig. 31, shows the result in a case of this kind. The patient, a keen sportsman, could not align his gun owing to fixation of the radius to the ulna. I was obliged to separate the bones by chiselling and to apply the plate shown in the picture. I have had the pleasure of seeing this patient during the present season shoot better than ever, pronation and supination being perfect.

When any doubt exists as to the type of fracture an x-ray should be obtained, and two views are necessary, because in one the line may seem quite good, while the other may show marked separation of the fragments. Plate XII., Fig. 32, shows a "Colles" in a fair position in

antero-posterior view, while the lateral view (Plate XIII., Fig. 33) shows a position so faulty that I was obliged to carry out a grave operation for the restoration of function in the forearm. This patient has since played in and won the greatest polo match of the Century.

The next case I would call your attention to so simulated a "Colles" that it was treated by applying two straight splints, and Plate XIII., Fig. 34, shows the result when the patient came under my care three weeks after the accident. This was a fracture by direct violence, and, as you can see, the bone is broken a long way from the radio-carpal joint. Extension and the application of a broad posterior and narrow anterior interosseous splint secured a very good union.

When examining injuries of the forearm bones at the lower end in the aged be careful lest you do more harm than good. Violent manipulation may lead to disimpaction should the case be such as I now show you (Plate XIV., Fig. 35). Here any interference in the way of so-called setting of the bones could only be harmful; the line of the bones is all right, and the lateral view (Plate XIV., Fig. 36) shows only a slight projection of the lower end of the radius which occasioned very little trouble after treatment.

Early passive movement, support by gamgee tissue, and gentle massage secured an admirable result.

ART. XV.—*Heliotherapy in Tuberculosis of the Bones and Joints.*^a By EILEEN MABEL HEWITT, M.D., B.Ch., B.A.O., B.A., Univ. Dubl.

It has now been universally recognised for a long time that the treatment of surgical tuberculosis must not be local only, but that every means at our command must be employed to improve the nutrition of the body and to increase the resisting power of the tissues. The fact that sunlight is of

^a A Thesis read for the Degree of Doctor of Medicine in the University of Dublin, June, 1916.