

from $\frac{1}{2}$ to $\frac{3}{4}$ of an inch, no matter what plan of treatment we adopt. Exceptions to this rule are sometimes met with in cases of severe shock where the muscles are more or less paralyzed for a time and therefore do not exert their usual contractive power. I have only once seen such an instance in a man who had in addition to fracture of one thigh, compound comminuted fracture of both patellæ, Colles' fracture of both radii, two fractures of the lower jaw, and a rather serious injury of the thorax. In the case of young children recovery usually takes place with little or no shortening. This is probably chiefly due to the comparatively thick periosteum preventing much displacement of the fragments. Also the weak muscular action may account in some measure for the favorable result.

Fractures of the lower end of the bone are generally rather serious, because of the very great tendency there is to ankylosis of the knee joint in these cases. As to treatment, there is now a pretty general consensus of opinion that Buck's method of extension by means of strips of adhesive plaster to the sides of the limb, and the attachment thereto of a weight and pulley, is the best method to employ in order to avoid an excessive amount of shortening. Counter-extension is best got by raising the foot of the bedstead. As to the accessory application of coaptation splints, and the use of a long outside one to prevent eversion of the leg, opinion seems to be more at variance. Some employ sand-bags in lieu of both these. It may do to pursue this plan in hospital practice where a house surgeon is on hand all the time to rectify any displacement of the limb or bags, but in ordinary private practice, especially in country districts, it will be found that both the coaptation splints and the long outside one will be necessary to insure continued rest of the fragments of bone and the avoidance of eversion. In fractures of the neck it is well to mould a broad splint of poro-plastic felt to the outer side of the hip, while the long wooden splint will also be required to prevent eversion.

In fracture of one condyle, as there is no shortening, there will be no need of any extension. The broken fragment must be brought into position as well as possible and maintained there by the use of a well-padded splint of poro-plastic felt or binder's board, and perhaps a long wooden splint

to either the outer or inner side to correct the lateral bowing of the knee, which is apt to occur. Gooch splints may be substituted for poro-plastic material or the binder's board in many cases for coaptation purposes with good results. Little or no extension will be required in the partial fractures of children, but with the above exceptions extension will always be necessary in fractures of the thigh.

There exists some difference of opinion in regard to the weight to be attached to the leg in order to counteract the muscular contraction. Some surgeons advise the use of as much as thirty or forty pounds for this purpose. As far as my observation goes, however, I think that so great a weight will often give rise to a good deal of pain and discomfort, while I believe it defeats its own end by causing more or less spasmodic action of the over-stretched muscles. In children, from $1\frac{1}{2}$ to 6 pounds, will generally be found sufficient, while in adults, 8 to 12 or 13 pounds will retain the limb at the greatest attainable length.

As to the coaptation splints, in the upper third of thigh the tendency of the upper fragment to outward and forward displacement must be met by a broadish splint, running well up over the hip-joint, also an inner one will be required to aid in pressing the lower fragment into line with the upper end of the bone. In the middle third three splints will usually suffice to retain the bone in position; one for the outer, another for the anterior, and the third for the inner side. The mattress, on which the patient should always be placed, will support the parts sufficiently posteriorly. In fractures of the lower end of the femur especial care should be taken to bring the fragments into good position, and then a plaster or poro-plastic felt splint, well padded, should be applied posteriorly from six or eight inches above the fracture to below the calf of the leg. This may be supplemented by other splints of similar material to the sides, if the case is one which seems to demand it. A slight amount of flexion is generally to be allowed to the knee, so as to aid in coaptation of the lower fragment, which is apt to be turned backwards by the action of the popliteus muscle. If in spite of flexion of the knee, the lower fragment still projects very much, the tendo-achilles may be divided, with good effect. McIntyre's splint is sometimes used in these fractures, but in that case one must sacri-