For reduction, the patient ſhould be laid on a mattreſs on the ſound side, and a wooden roller covered with ſeveral folds of flannel placed between his thighs, and fixed firmly by ſtraps to the wall. A ſtrong bandage of buff leather, or ſomething ſimilar, ſhould be applied to the under end of the thigh, with ſtraps fixed to it to make the extenſion. The trunk of the body ſhould be properly ſecured, and the joint of the knee bent. The extenſion ſhould be made at firſt gently, and increaſed gradually, while, at the ſame time, the thigh is made to roll in different directions. When the ex­tenſion is sufficient, two aſſiſtants ſhould lay hold of the rol­ler, and attempt to raiſe the bone ; the extending force ſhould then be ſlackened, and the ſurgeon ſhould puſh the head of the bone upwards and outwards, while an aſſiſtant preſſes the knee forcibly inwards. The muſcles themſelves will then commonly bring the bone into its place; and this is done with ſuch a jerk and noiſe, that it is heard by the byſtanders. If the reduction be not obtained, the extenſion muſt be repeated with greater force. Inſtead of the roller a broad ſtrap or table cloth is frequently uſed. The limb ſhould not be uſed for ſome time after reduction, and inflam­mation ſhould be prevented by the proper remedies.

The patella can neither be luxated upwards or down­wards, without rupture of the tendons of the extenſors muſ­cles, or of the ſtrong ligament which fixes it to the tibia ; but it may be luxated to either side. The luxation produ­ces lameneſs, and much pain on attempting to move the joint. In recent caſes the injury is eaſily diſcovered ; but when the ſurgeon is not called immediately, the ſwelling may be ſo great as to render it more difficult. For reduc­tion, the limb ſhould be kept extended ; the ſurgeon, by de­preſſing the edge of the patella most diſtant from the joint, is enabled to raiſe the other, and puſh the bone into its place.

It may be necessary to remain a day or two in bed till the knee recover its tone. Sometimes, after the bone has been displaced, returns of the ſame complaint become fre­quent. In ſuch caſes, proper machinery applied to the side of the tumor, where the bone is apt to ſtart out, is uſed with advantage.

From the ſize of the joint, and the great ſtrength of the ligaments, luxations of the tibia from the os femoris rarely occur. When it does, it is eaſily diſcovered by the pain, lameneſs, and deformity of the limb. The patient ſhould be laid on a table, the muſcles relaxed, and the thigh ſecu­red by aſſiſtants ; the limb ſhould then be extended, and the bones cleared of each other, when they will be eaſily repla­ced. After the reduction, the limb ſhould remain for ſome time perfectly at reſt ; and inflammation, which is very apt to enſue, and is attended with very bad conſequences, ſhould be aſſiduouſly guarded againſt.

If the ankle joint be diſlocated forwards, the fore part of the foot is lengthened ; if backwards, the foot is ſhortened and the heel lengthened (this is the moſt common variety) ; if to either side, there is an uncommon vacancy on the one side, and a prominency on the other. Diſlocation, however, can hardly take place outwardly without fracture of the end of the fibula.

For reduction, the limb ſhould be firmly held by aſſiſ­tants, the muſcles relaxed, and extenſion made till the bones are cleared of each other, when the aſtragulus will eaſily slip into its place.—The ſame rules ſhould be obſerved in reducing diſlocations of the bones of the foot. Luxations of the metatarſal bones and toes are reduced exactly in the ſame manner as the bones of the metacarpus and fingers.

Chap. XXXΠ. *Of Fractures.*

Sect. 1. *Of Fractures in general.*

The *term fracture* is generally confined to ſuch diviſions in bones as are produced by external injury. When the integuments remain ſound, the fracture is called s*ιmple ;* when it communicates with a wound, it is called *compound.*

The general symptoms of fracture are pain, ſwelling, and tenſion in the contiguous parts. A grating noiſe when the part is handled, diſtortion, and a certain degree of loſs of power in the injured part, accompany almoſt every fracture, except when it runs longitudinally, and the divided parts are not completely ſeparated from each other. When there is only a single bone in a limb, a fracture is eaſily detected ; but where only one of two bones of a limb has ſuffered, it is often difficult to judge with certainty, eſpecially if the contiguous ſoft parts be tenſe and painful before the prac­titioner is called. In that case, the opinion muſt be regu­lated, not only by the attendant symptoms, but, lſt, By the age and habit of the patient ; for bones are more eaſily fractured in old than in young perſons. Different diseases,too, induce brittleneſs of the bones, as the lues venerea and ſea-ſcurvy. 2d, By the ſituation of the part ; for bones are more apt to be fractured in the ſolid parts of their bodies than towards their extremities, where they are more ſoft and pliant. 3d, By the poſture of the limb ; for a weight may fracture a bone lying on an unequal ſurface, which it would have ſuſtained without injury if equally ſupported. Fractures are ſometimes attended with a great degree of echymoſis, occaſioned by the ends of the fractured bones wounding ſome of the contiguous blood-veſſels.

In giving a prognoſis of fracture, various circumſtances are to be attended to. It is evident that ſmall fractured bones are more eaſily healed than large ones, and that the fracture of the middle of a bone is not near ſo dangerous as near the extremity. A cure is effected much more readily in youth than in old age, and in good conſtitutions than in bad. We ought alſo to attend to the concomitant symp­toms, and the injury which the neighbouring parts may have ſuſtained. The more moderate the symptoms, the more fa­vourable our prognoſis may be.

The treatment of fractures conſiſt of three particulars ; replacement, retention, and obviating bad symptoms.

1. When bones are fractured directly across the parts, they are often very little moved from their natural ſituation ; but when the fracture is oblique, they are apt to paſs over each other, and to produce much uneaſineſs and deformity ; the contiguous muſcles are severely injured, and the pain is ag­gravated by the ſlighteſt motion. The ſurgeon ſhould put the limb into the beſt poſture for relaxing all the muſcles connected with it, according to the practice firſt introduced by Mr Pott. If it be properly attended to, the ends of the bones will in general be eaſily replaced. When any difficulty occurs, a ſmall degree of extenſion may be made, taking care to keep the muſcles as relaxed as poſſible. Much at­tention ſhould be paid to replacing the bones properly, otherwise the limb will remain for ever after diſtorted,

2. After the bones are replaced, the limb ſhould be laid in the easieſt poſture, and the bones afterwards retained; in their ſituation by proper compreſſes and bandages, not applied too tightly, till the cure be completed. The time necessary for this purpoſe depends on the ſize of the bone, the age and habit of the patient, the ſteadineſs with which the limb has been retained in its place, and the violence of