week after the operation the ligatures may generally be re­moved with eaſe ; but if they do not ſeparate readily, they may be gently pulled at every dreſſing, when they will, in a ſhort time, be brought away, and the wound will be ſoon healed by the firſt intention. The roller ſhould be cleaned and renewed as often as it is found ſullied ; nor ſhould it be laid entirely aſide till the end of the third or fourth week after the operation, When the roller is removed, we may depend upon the straps or tapes for keeping the parts to­gether till the cure be quite accompliſhed. When the in­flammatory ſymptoms are entirely gone, no medicines ought to be given which would debilitate the patient, nor is any thing more necessary than to keep the bowels gently open till a complete cure be made.

Sect. IV. *Of Amputating the Leg.*

The leg may be amputated for a diſeaſe in the foot at two different parts ; the one a hand-breadth under the knee, the other a little above the ankle. The former makes a sufficient ſupport for the body to reſt upon an ar­tificial leg ; but the latter does that equally well, and likewiſe preſerves the motions of the knee.

In performing the operation a little way under the knee, the patient is to be placed and ſecured in the same manner as in operating upon the thigh. The tourniquet is to be placed a little above the knee, with the cuſhion upon the artery in the ham. The ſurgeon places himſelf upon the inside of the leg, and makes a circular inciſion through the integuments down to the muſcles. The place where the inciſion ſhould be made muſt depend upon the length of the limb ; but in general it may be between six and ſeven inches under the top of the tibia in an adult, or far enough down upon the limb to save as much integuments as will cover the ſtump. After the integuments are cut through in the manner already directed, as much of the muſcles are to be divided by the knife as can be done by a circular inciſion ; and the interosseous parts are to be divided by a ſcalpel or catline, (fig. 121.). The retractors are then to be applied, and the bone ſawed off immediately below the inſertion of the tendons of the flexor muſcles. In ſawing, the operator ought to begin upon both bones at the same time, that he may finiſh upon the tibia, lest ſplinters ſhould be formed. The veſſels are next to be ſecured ; the ſoft parts drawn over the bones ; the adhesive plaſters and other bandages applied in the ſame manner as directed for amputating the thigh, only that here the roller need not be applied ſo high as in the former operation. Two or three turns above the knee, however, are necessary to prevent the dreſſings from slipping down.

In amputating upon the ankle, the operator ſhould fix upon that ſpot which will leave the ſtump of ſuch a length as may be moſt convenient for being fitted with an artificial machine reſembling the other leg. Nine inches from the joint of the knee, in a leg of ordinary length, was found by Mr Wilſon, a late ingenious artificial limb-maker in Edinburgh, to be the beſt part ſuited to this purpoſe, on account of the equal pressure it makes upon the ſurface of the leg, without making any upon the end of the tender ſtump. The ope­ration is performed in the same manner as that a little below the knee.

Sect. V. *Of Amputating at the Joints of the Extremities.*

The circumſtances moſt to be attended to in performing amputation at the joints are, firſt to ſtop the circulation by the tourniquet ; or, where that is impracticable, to take up the trunk of the artery by a ligature ; to make a circular inciſion in ſuch a place as may, after the operation is over, be sufficient to cover the wound ; Then a longitudinal in­ciſion is to be made upon the oppoſite ſides of the limb, ex­tending from the joint to the circular cut, and as deep as the bone, by which two flaps will be formed to cover that part of the joint which remains after the operation is finiſhed. The ligaments of the joint are next to be divided, and the affected limb or part of the limb removed.

After this part of the operation, it was formerly a fre­quent practice to ſcrape off the remaining cartilage, to unite the parts more firmly together. But this is now ſound to be unnecessary ; for when the fleſh is applied properly to the bone, if it do not grow to it, the union at leaſt is ſo cloſe that it afterwards gives no inconvenience to the patient.

Any branches of arteries which may have been cut during the operation are now to be ſecured ; clotted blood is to be removed ; and the muſcles and ſkin are to be brought into cloſe contact with the ends of the ligatures hanging out of the wound. The parts are to be retained by adhesive plaſters, or twiſted future, or both ; and proper bandages applied in ſuch a way that a cure may be made by the firſt intention.

Amputating the arm at the ſhoulder-joint has always been conſidered as a dangerous as well as a difficult operation. It ſhould never be attempted, when the same purpoſe can be accompliſhed by operating lower down. But caſes occaſionally occur, where the life of the patient cannot, in any other manner, be saved.

Amputation may become neceſſary here in conſequence of abſceſſes of the joint ; caries of the hurnerus reaching to the joint; compound fractures, eſpecially thoſe from gun- ſhot wounds, extending to the head of the bone ; and of mortification.

In performing the operation, the patient ſhould be laid upon a table of convenient height, covered with a mattreſs. He is then to be brought as near to the edge of it as possible, and ſecured by aſſiſtants. The circulation of the blood in the arm is next to be stopped, by an aſſiſtant preſſing strongly with a firm compreſs over the ſubclavian artery where it paſſes over the firſt rib ; or an inciſion may be made along the courſe of the artery, which may be ſecured after ſeparating from it the contiguous nerves. When the artery is compreſſed, it will readily be known whether the compression proves effectual, by obſerving when the pulse at the wriſt is entirely stopped. As ſoon as this is the caſe, a circular inciſion is to be made through the integuments at the inſertion of the deltoid muſcle into the humerus. An assistant then draws the skin a little back, and at the edge of the retracted ſkin, the muſcles are to be cut in a circular direction to the bone.

If the artery has not been taken up at the beginning of the operation, it is now to be ſecured, as well as any branches which come in the way.

The amputation-kniſe is now to be laid aſide, and the reſt of the operation finiſhed with a ſtrong ſcalpel. A perpendicular inciſion is next to be made at a little diſtance from the outſide of the artery, beginning at the acromion, and terminating in the circular inciſion, cutting as deep as the ſurface of the bone. A ſimilar inciſion is to be made upon the back part of the arm, ſo that the flaps may be nearly of an equal breadth. The arterial branches are here to be ſecured ; the flaps are to be ſeparated from the bone, guarding againſt wounding the trunk of the artery ; the flaps are to be ſupported by an aſſiſtant ; and the capſular ligament of the joint is to be cut from the ſcapula : and thus the arm will be entirely ſeparated.

After the arm has been ſeparated, any arteries which appear about the joint are to be tied, and all the ligatures brought over the edges of the wound. The parts are to becleared of clotted blood, and the two flaps drawn over the ‘