location of the shoulder. He was placed in an ambulance, for removal to a hospital, by an interne who recognized the true character of the injury. On the way the horse became frightened and ran away, turning the vehicle over. When the patient was examined after this last accident it was found that the dislocation had been reduced by the fall.

I have already stated, in an earlier part of this article, that it is important for the surgeon to possess a complete and thorough knowledge of the structures entering into the formation of a joint. I deem this matter, however, to be of such importance that I now repeat the statement. Any one may, in certain instances, have the good fortune to succeed in reducing a dislocation, but if the medical man, after the employment of firm but gentle movements, with a strict avoidance of force or of anything like violent tugging at or twisting of the limb, fails to reduce the dislocation, it is far better that he should desist from further attempts until skilled technical aid can be obtained; and the same advice may be given with equal propriety to the physician or surgeon who does not possess a satisfactory knowledge of the joint involved. It is far better, both for him and for the patient, that other than the simplest efforts be deferred until such skilled assistance can be secured.

As regards the preliminary steps needed for the reduction of a dislocated joint, they may be stated as follows:

The joint and the limb should be properly exposed and the patient should be placed on a good, firm table, with one or two cotton quilts, or comforters, or blankets under him; these being preferable even to a mattress, unless it should be a thin or somewhat firm one. Even the floor or the ground prepared as above is preferable to the yielding surface and other inconveniences of a bed.

If the injury involves one of the larger joints, or if the patient's muscular development is far in excess of that of the surgeon, or if he is extremely nervous and is suffering from acute pain—the first slight shock which to some extent not only temporarily paralyzes the muscular structures but also obtunds the pain, having passed off—the use of an anæsthetic will be found of great service in establishing a correct diagnosis as well as in effecting the reduction of the dislocation. From the greater safety of ether, I rely upon it, as a rule, rather than upon chloroform; yet if the patient is either very young or of advanced age, or if there is any history of pulmonary or renal disease—which should always, if possible, be ascertained before the use of any anæsthetic—I prefer the latter more powerful agent. In a simple case, in which the diagnosis is free from all doubt, if nervousness and acute pain are the only factors to be overcome, the primary anæsthesia with ether, as first suggested by Dr. Addinell Hewson, may be all that is necessary; but if it be found that the local conditions are not so favorable as they often are, or if the patient is extremely nervous, feeble, or diseased, and especially if he be suffering greatly from shock, the anæsthesia should be pushed beyond the primary stage in order that complete relaxation may be secured before efforts at reduction are made.

Fig. 1598.—Clove Hitch.*

If the reduction is essayed without an anæsthetic, it is a good plan to keep up conversation on irrelevant topics during the examination and preparatory movements for reduction, thus diverting the patient's thoughts from the injury and from the preparations that are being made to relieve it. A short, sharp interrogatory or exclamation, made at the moment of greatest effort, has in many instances been of material aid in preventing or diminishing the contraction of antagonizing muscles.

*This and several other illustrations which appear in the present article were prepared from drawings furnished by Dr. Edward M. Moore, of Rochester, N. Y., for publication with the text which he wrote on this same subject fifteen years ago. (See Ref. Handbook, Vol. II., 1st edition.)

While a certain degree of force is required in many instances, and the movements must sometimes be made in a quick or sudden manner, we should bear in mind that violence is never to be resorted to in recent dislocations. Relatively, the force exerted should not be more than the weight of the limb if separated from the body. The untorn part of the capsule and the other ligaments being already under a marked degree of tension, and certain muscles being in a state of contraction, our aim should be to slip the head of the bone over bony prominences and back through the rent in the capsule in much the same manner as we would slip a button into a button hole. Beyond this our efforts should not go; and while they may be exerted with firmness and at times with rapidity, they should be gentle and not violent.

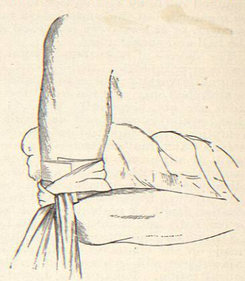

Fig. 1599.—Clove Hitch as Applied to the Humerus, with Bandage Underneath.

In cases in which reduction is prevented by the interposition of a part of the capsule, or by the presence of other tissues, such as a muscle or a tendon, an open arthrotomy may be required; and this step may be necessary even in the case of larger joints. When proper aseptic precautions are taken, the operation is reasonably safe, provided it is undertaken on or before the second day after the injury; but after this date we should wait until the third or the fourth week—*i.e.*, until after reaction and inflammatory fever have subsided, and until the extravasated blood and serum have to some extent been reabsorbed—before we attempt so serious a procedure.

In the event of failure by manipulation, and in the case of ancient or old dislocations, it will be found necessary to resort to extension and counter-extension, to be made by our hands and by those of assistants; and, in a few cases, mechanical appliances will be required. In the first instance the surgeon, taking hold of the limb firmly with his hands, makes the extension, while the counter-extension is maintained by his assistants; or, in some cases, both are made by assistants, and the surgeon simply manipulates the parts with his hands or fingers, or makes direct pressure on the bone in a proper direction. Finally, by employing his knee or his foot, as well as his hands, the surgeon can carry out both extension and counter-extension without the aid of an assistant. In order to make extension various contrivances may be required. Such are: a folded bandage or handkerchief forming a clove hitch (Fig. 1599) around the limb; the toy made of braided ash splittings known as the Indian puzzle; Levis' splint; Luer's or Charrière's forceps for the finger, etc. In order to apply the extending force effectively, broad strips of strong adhesive plaster should be attached along the anterior, posterior, and lateral surfaces of the previously shaved limb. They should be carefully adjusted and then they should be covered with a roller bandage, drawn moderately tight and forming loops which, in the case of shoulder, elbow, and hip dislocations, should extend beyond the extremity. Counter extension should be made by means of a folded sheet or towel placed in the axilla or perineum and firmly fixed or held there; or the shoulders or the pelvis may be kept immovable by means of properly padded straps that are fastened to the table or floor.

In ancient or old dislocations it is necessary first to break up those adhesions which keep the bone bound down in its abnormal position. This may be accomplished by

simple manipulations, or it may be necessary in some cases to resort to subcutaneous section or even to arthrotomy. In all these cases the employment of a general anæsthetic is imperative. If the manipulative efforts of the physician or attendants do not suffice, extension may be made by means either of the compound pulleys or of the Spanish windlass. The latter is made by taking a piece of strong cord or light rope of sufficient length, securing the ends (one to the limb and the other to some immovable object), forming a loop of two or of four thicknesses, placing a stick between the two single portions or two portions of two each, as the case may be, and then twisting the bundle of these portions of rope until the necessary degree of shortening is obtained. An ordinary Petit's tourniquet may supply the extending force, and Jarvis' adjuster is an old mechanical device that has its advantages for certain cases. A continuous extending force, which tends to overcome the contraction of the muscles and tendons, may be obtained by means of the weight and pulley, or by an elastic cord, or even by the mere weight of the limb alone, that of the body serving for counter extension.

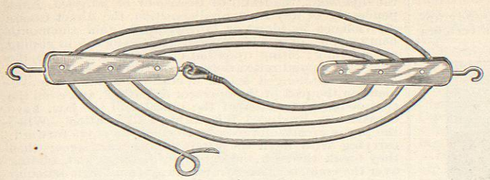

Fig. 1600.—Triple Pulley.

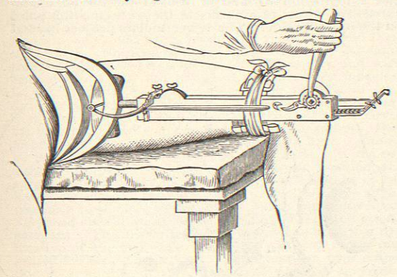

Fig. 1601.—Jarvis' Adjuster.

An easy method of reducing dislocations of the shoulder and hip has been suggested by Dr. Lewis A. Stimson in the New York *Medical Record*, of March 3d, 1900. It is described by him as follows:

"The patient upon a canvas cot, with the injured arm hanging through a round hole made in the middle and about eighteen inches from the end. The cot is raised to a sufficient height from the floor, and a ten-pound weight is fastened to the wrist of the dependent arm. Reduction is accomplished in a few minutes and without pain. It has been tried in ten cases, and has never failed, six minutes being the longest time required.

"In dorsal dislocations of the hip the patient is placed prone upon a table, with thighs extending beyond its end. The uninjured thigh is held horizontal, to prevent tilting of the pelvis. With the injured thigh vertical, and leg at a right angle to it, the surgeon grasps the ankle and gently moves it from side to side, perhaps making gentle pressure downward at the knee. If relaxation is slow to appear a sand-bag weighing five or ten pounds may be placed in the popliteal space to produce more traction. This simple procedure has succeeded in reducing the dislocation in more than four-fifths of the cases, and often without anæsthesia. In the two cases failing by this method, reduction was accomplished by traction in a line midway between right-angled flexion and full extension. In these cases the bone had probably left the socket at a higher point."

When it is necessary to resort to mechanical force or even to manipulations, in dislocations either recent or old, the surgeon must not lose sight of the fact of the possibility of injuring the patient by fracturing the bone or by lacerating or bruising the soft parts, especially the arteries and nerves. As a rule, the amount of force is to be determined by the surgeon in accordance with both the local and the general conditions observed in each individual case; good common sense and correct judgment must be his guide. While the serious accidents mentioned above have happened in the hands of some of the ablest surgeons, they are to be avoided rather than excused.

In simple dislocations the after-treatment consists in keeping the joint at rest for a variable length of time according to the joint involved, from ten days to two or three weeks usually sufficing; at the end of which time passive movements are carefully to be resorted to for several days, and then the patient may be permitted gradually and cautiously to resume the use of the joint. In some joints, as the clavicular, special dressings are essential, but ordinarily a sling for the arm, or a carefully adjusted bandage or other temporary support for a few days, is all that will be required. Compound and complicated dislocations require not only a longer time for

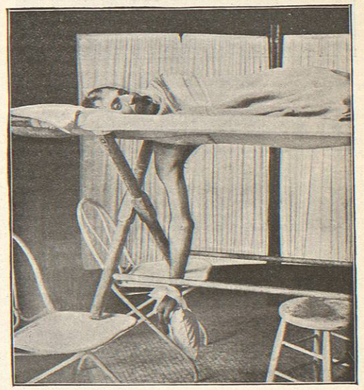

Fig. 1602.—Stimson's Method of Reducing a Dislocation of the Shoulder.

recovery, but, in addition, the special treatment indicated by correct surgical technique for the particular condition that may be present.

Special Dislocations.

Dislocations of the Spine.—As these occur so rarely unaccompanied by fracture of some portion of a vertebra

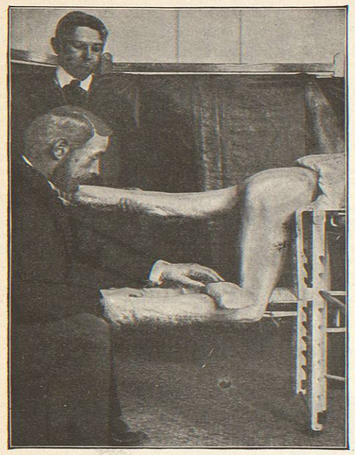

Fig. 1603.—Stimson's Method of Reducing Dislocations of the Hip.

that enters into the formation of the joint, their consideration will be found in the article entitled *Spine, Surgery of the*.

Dislocations of the Ribs, always the result of direct violence, may take place at their junctions with the vertebræ, the sternum, or the cartilaginous extensions. A fracture, however, is the more common occurrence; the differential diagnosis between the two conditions being, in many cases, very difficult to establish, if not actually unattainable. If the vertebral extremity is involved, but little can be done toward reduction. We may apply to the neighboring skin strips of adhesive plaster (perforated in the same manner as is a porous plaster), and then furnish the additional support of a well-applied and carefully adjusted bandage, to keep the parts at rest as much as possible. This is about all that can be done. If the displacement is outward, a compress may be needed in addition. Persistent pain more frequently results after a dislocation than after a fracture, and the possibility of resection of the head of the bone for its relief may have to be considered. In inward dislocation of the sternal end, keeping the shoulders well thrown back by an ordinary shoulder brace, properly fitted with adhesive plaster placed over the rib in the manner described above, will accomplish the most satisfactory results. If the dislocation is outward, the need of a compress and bandage will naturally suggest itself.

Dislocations of the Lower Maxilla are comparatively rare. They constitute about four per cent. of all dislocations, being most common in males and most rare in childhood. They may be complete or partial, unilateral or bilateral, the former being by far the most frequent. Congenital dislocations are almost unknown. A predisposition may be furnished by a shallow glenoid cavity, the eminences being unusually low, or by relaxation of the ligaments, the result of disease or of fatigue. Independently of any such predisposition, the direct causes are violence by blows or falls upon the chin, the mouth being open; over-wide opening of the mouth in gaping or hallooing; biting upon hard substances, etc. In the over-fatigue and relaxation of the muscles of the jaw incident to prolonged dental operations, a sudden movement on the part of the operator or patient, and even the spasmodic contraction of the muscles of the jaw, have occasionally produced this form of dislocation. When the jaw is greatly depressed, the condyles move forward, carrying with them the interarticular cartilages; then they break through the capsular ligament and, gliding over the eminences, are drawn away from their articular surfaces by the action of the external pterygoid, the temporal, and the masseter muscles.

Symptoms.—In bilateral dislocation the mouth will be found open and fixed, the lower teeth projecting beyond the upper, the chin prominent, and the patient in great pain. The glenoid cavity is empty, and the locality is marked by a depression; the coronoid process and the tendon of the temporal muscle causing a prominence just behind the malar bone. In unilateral dislocation, the jaw is drawn to the sound side, giving the lower part of the face a twisted appearance; the jaws are somewhat separated and fixed; the mouth is partially open; and a depression is found in front of the ear on the injured side, with a prominence at the corresponding point on the opposite side. The lower molars project beyond

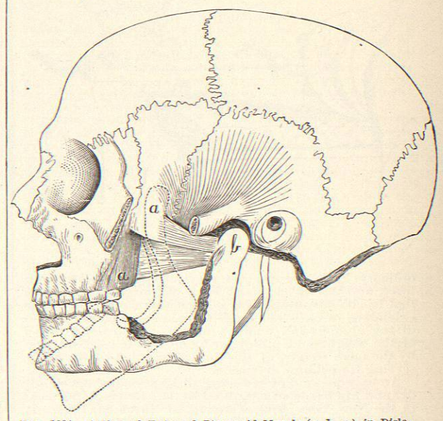

Fig. 1604.—Action of External Pterygoid Muscle (*a, b, a.*) in Dislocation of Lower Jaw; the Dotted Line Shows Position of Bone when Displaced.

the upper ones on the sound side, while on the other side the upper ones are external to the lower; the incisor teeth of the lower jaw project beyond those of the upper jaw and are carried toward the sound side. Dislocation is differentiated from fracture by the absence of crepitus, by the immobility of the jaw in the former condition, and by the prominence which a fragment of bone would cause below the zygomatic line in the latter. Furthermore, the chin is drawn toward the injured side in unilateral fracture.

Treatment.—If the dislocation is of recent occurrence, the patient should be seated in a chair while the surgeon stands in front of him. Having protected his thumbs

Fig. 1605.—Method of Reduction of Dislocation of the Lower Jaw. (Helferich.)

by several thicknesses of bandage, by stout leather thumb stalls, or by leather gloves, to prevent injury to them by the involuntary closure of the jaws while reduction is being accomplished, the surgeon should pass them well back over the molar teeth of both sides, the jaw being firmly grasped by the fingers under the chin as it rests in the palms of the hands. Using the thumbs as a fulcrum, he should press firmly first downward and then slightly backward on the molars, the chin at the same time being elevated as a lever. In this manner, and with the aid afforded by the temporal and masseter muscles, he will probably be able to restore the condyle or condyles to their natural position. When these slip into position, usually with an audible sound, the surgeon removes his thumbs laterally to prevent their being bitten. Dislocations of some weeks' standing have been reduced by manipulation and without an anæsthetic. If the patient is compelled to occupy a recumbent position, the surgeon will find his most suitable position to be on his knees, astride the patient's chest, or on his knees at the patient's head, the position of his hands being reversed. The head should, in all cases, be firmly fixed by a strong assistant. The discomforts and inconveniences of a dislocation of the jaw are so great that they are rarely permitted to become ancient; but in such event, or if reduction is found difficult or apparently impossible by reason of muscular rigidity and contractions, or on account of the patient's timidity or for other valid reasons, I do not hesitate to use the proper anæsthetic, the patient being placed in the recumbent position and proper precautions being taken. In some instances wooden levers, or a strong-bladed knife, or a thin chisel may be needed to depress the condyles while the chin is being elevated.

In partial dislocations or subluxations, which are sometimes habitual and which are indicated by sudden immobility of the jaw, by a slight separation of the incisors, and by inability to approximate the teeth, the accident usually comes on while the patient is chewing or biting some hard substance. In this form of dislocation the articular surfaces do not leave the glenoid cavity; the interarticular cartilages merely slip behind the condyles and become fixed on the articular eminences. Under such conditions, therefore, it is usually an easy matter to effect a reduction by pressing with the fingers downward and backward on the coronoid processes, or by introducing a narrow wooden wedge or the blade of a dull table knife between the teeth and prying them open.

The after-treatment consists in applying a roller bandage, Barton's, a four-tailed bandage, or a mento-cervico-occipital cravat or bandage to prevent or somewhat restrict the movements of the lower jaw for about ten days or two weeks, by which time the rent in the capsule will be closed. At the same time it is well to restrict the patient to fluid or semi-fluid diet, and he should be cautioned as to the movements of the jaw during this time and for some weeks after the dressing has been removed. Recurrence is by no means uncommon in luxation of the jaw. In one case, a hysterical female, I was required to reduce a bilateral dislocation seven times in thirty-three days.

Occasionally, from too great laxity of the ligaments of the lower jaw, during ordinary movements, the condyles slip forward on the articular eminences when the mouth is opened, and then as suddenly slip back, producing a slight noise as the mouth is closed. Drs. Wharton and Curtis in their recent work* mention the injection of a few drops of absolute alcohol into the ligaments as having been practised with success.

Dislocations of the Hyoid Bone are so rare that nearly all surgical works ignore them. Hamilton, in his very complete work, limits himself to quoting the two cases from Holmes' "Surgery" and the summary of the papers of Dr. Ripley of South Carolina and of Dr. Gibbs of London. Stimson's monograph on dislocations does not mention this bone, and Dr. Moore's article, in the preceding edition of this Handbook, gives the report of a single case which came under his observation. It also quotes the cases that are referred to in Holmes' "Surgery." In the case of the young man who was seen by Dr. Moore, it appears that he had always been able to restore the position of the bone except on one occasion. Ordinarily, he accomplished the reduction by bending the head forward and in the opposite direction from that in which the dislocation had occurred, and then rubbing the part. On the exceptional occasion referred to, it was found necessary to employ the suspension apparatus ordinarily used for applying a plaster-of-Paris jacket. When the suspension had been pushed so far that the patient was obliged to rest upon the tips of his toes, the bone suddenly snapped back into place.

Dislocations of the Sternum, although considered as such by many authors, scarcely deserve the name. While the union between the ensiform process and the middle portion or meso-sternum does not take place until old age, and that between the meso-sternum and pre-sternum or manubrium not until after the fortieth year, the points of junction present scarcely any of the characteristics of a joint at any time, the movements being limited to the resiliency of the cartilaginous junction. However, we do in rare instances have displacements of the upper and lower portions from the middle. As a rule, these are the results of direct violence, and the injury partakes more of the nature of a fracture (resembling an epiphyseal fracture) than of a true luxation.

The displacement of the manubrium may be either forward or backward, the costal cartilages retaining their attachments; and with the displacement may be associated a fracture of the upper ribs or their cartilages.

The Symptoms are, projection of the lower portion of the manubrium upon the anterior surface of the chest in a forward displacement, and of the upper portion of the meso-sternum if the manubrium is displaced backward; either of which alterations will be quite apparent from the limited amount of the tissues which cover the sternum at these points. Usually, the respiration is somewhat embarrassed, and there is pain, especially with the respiratory movements.

Treatment.—After the patient has been anæsthetized—if there are no contraindications to the use of an anæsthetic—the trunk should be flexed or extended and at the same time direct pressure should be made over the projecting portion of the sternum. In some cases a successful reduction may be obtained by these measures. No violent attempts, however, should be made, as the pain will in a few days disappear under rest, and recovery may be expected, although some deformity will remain.

The ensiform portion is occasionally displaced back-

* "Practice of Surgery," by Henry R. Wharton, M.D., and B. Farquhar Curtis, M.D., p. 560, revised edition, 1900; J. B. Lippincott & Co., Philadelphia.

ward by a direct and sudden force applied over the epigastrium. Ocular inspection with palpation suffices to indicate the displacement, which may be accompanied by pain in the stomach, and occasionally by vomiting and labored or painful respiration. If reduction cannot be accomplished by passing the fingers below the ensiform cartilage and pushing it forward, an incision may be made under rigid asepsis, and the process drawn into position with one or two tenacula. The suggestion of Drs. Wharton and Curtis,* to excise the process, if the failure to effect a reduction should be followed by troublesome symptoms, is worthy of consideration.

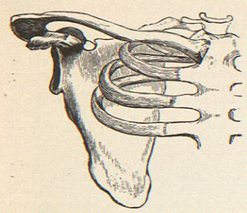

FIG. 1606.—Luxation of Sternal Extremity of the Clavicle.

Dislocations of the Clavicle may occur at either end, the sternal or the acromial. If the usual custom as to dislocations in general were followed, a dislocation of the acromial end of the clavicle would more properly be designated as a dislocation of the scapula, but the term now used is so well established as to make it difficult to change it. These dislocations are usually single, yet Hamilton† cites a very interesting case of a double dislocation; and while it may be "entire"—both ends of one bone being displaced at the same time—this is so very rare as not to necessitate consideration here.

"Of 57 dislocations of the clavicle"—says Professor Hamilton, in his introductory paragraph to this subject —"observed and recorded by me, 13 belonged to the sternal end and 44 to the acromial. Of those belonging

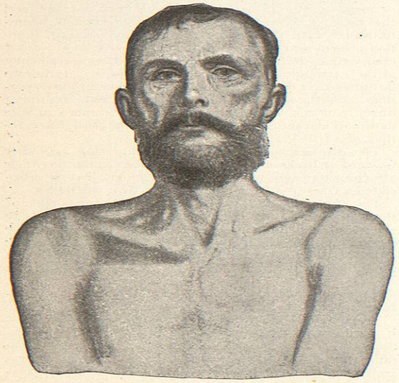

FIG. 1607.—Forward Dislocation of Sternal end of Clavicle. (Helferich.)

to the sternal end, 11 were dislocations forward, forward and upward, or forward and downward, and 2 were upward. I have never met with a dislocation backward. Of the acromial dislocations the whole number were dislocations upward, or upward and outward."

The sternal end is usually thrown forward by a fall on the outer surface of the shoulder, in which event, as the force comes upon the anterior and outer surface of the shoulder, the clavicle is driven inward toward the median line and glides up on to the face of the manubrium, while the leverage exerted backward upon the acromial end tears loose the attachments of the opposite extremity. A direct force sufficient to drive the sternal end backward is more likely to result in fracture at or near the point of impact.

In dislocation of the sternal end forward, even in fleshy individuals, the head of the bone can be distinctly felt and seen lying on the front of the sternum, the shoulder on that side falling slightly back, and the head inclining slightly to that side, through traction on the muscles attached to the clavicle. The attachment of the sterno-cleido-mastoid muscle to the clavicle is sharply defined, and by measurement the acromion can be shown to be nearer to the median line of the sternum. At the same time the movements of the arm are embarrassed, and there is acute pain at the site of the luxation. If the shoulder is elevated the head of the bone overlying the sternum will descend; if, on the other hand, it is depressed, the head of the bone will rise, and by drawing the shoulder back, the deformity may be made to disappear or at least to become less noticeable. A tumor of

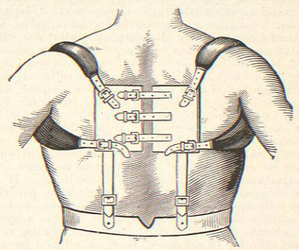

FIG. 1608.—Sir Astley Cooper's Apparatus for Dislocated Clavicle.

the head of the bone or the presence of some other hyperplasia may mislead, and we must be on our guard not to overlook a fracture near the sternal end of the bone.

This variety of dislocation of the clavicle, though easy of reduction, is difficult if not impossible to maintain in the position of reduction. Hamilton says that in not a single one of the eleven forward dislocations seen by him was the treatment successful. Stimson is equally unfavorable as to complete correction of the deformity; and Wharton and Curtis* say: "The prognosis is unfavorable as regards complete correction of the deformity, but favorable in respect to the restoration of function."

Reduction is effected by drawing the shoulder outward and slightly backward, pressure being made at the same time directly backward on the head of the bone as it is brought opposite the joint. For maintaining it in this position for the five or six weeks required for complete repair of the injured tissues, a variety of expedients have been suggested. A figure-of-8 bandage with a firm compress over the head of the bone; Récamier's dressing for fractured clavicle; Sir Astley Cooper's apparatus aided by direct pressure over the head of the bone; the application of a plaster-of-Paris dressing according to the principles advised for reduction; and even keeping the patient in the horizontal decubitus for the necessary period of six or eight weeks—all these have been tried and have

* *Op. cit.*, p. 561. † *Op. cit.*, p. 661. * *Op. cit.*, p. 176.

proven ineffectual. My preference is for a carefully applied figure-of-8 bandage, with compression over the head of the bone, to be maintained for six or seven weeks, and with the elbow secured in proper position by means of a sling and bandage confining the arm to the chest. I believe that this plan of treatment will afford the greatest certainty of restoring a fair degree of functional activity while at the same time fulfilling the other indications and contraindications. In the case of a young female, we might be justified, for the sake of preventing any deformity, in keeping the patient on her back for the necessary length of time, her general condition being carefully watched during this period.

Backward dislocations may be produced by a direct force acting near the sternal end, but not of sufficient strength to produce a fracture; or they may result from a force acting indirectly upon the posterior and outer surface of the shoulder. In this form of dislocation the end of the clavicle may be found below and behind the sternum or slightly above it; the shoulder may drop forward, and the displaced end of the bone may press upon the trachea or upon the œsophagus, thus producing dyspnœa or dysphagia, together with pain more or less severe in the locality. In some instances there may also be a partial arrest of the circulation in the arm, due to pressure on the subclavian artery.

In order to effect a reduction the shoulder must be carried upward, outward, and backward, and the parts may then best be maintained in this position by keeping the patient on the back with a firm cushion beneath the shoulders; or a bandage may be applied in the manner suggested for the relief of a dislocation of the clavicle forward—no compress, however, being needed. This form of dislocation is not only readily reduced, but the parts can more easily be maintained in the desired position than in the case of the other variety. The restoration of function may be complete, although some deformity is likely to remain.

Dislocation upward of the sternal end of the clavicle is almost universally produced by a force operating on the end and top of the shoulder, throwing it inward and downward and causing the inner extremity of the clavicle to be torn from its attachments by the leverage exerted from the acromial end. When such an accident happens, not only the capsule with the ligaments closely investing it, but in some instances the costo-clavicular ligament and some fibres of the subclavian muscle are ruptured. In this form of dislocation the shoulder appears to be depressed, and the sternal end of the clavicle is so lifted as markedly to increase the space between it and the first rib. The suprasternal fossa is encroached upon, there is a diminution of the acromio-sternal distance, and the head of the bone, protruding between the sternal attachments of the sterno-cleido-mastoid and the sterno-hyoid muscles, may pass beyond the middle of the sternum and may overlie the sterno-clavicular junction of the opposite side. The sternal portions of the sterno-cleido-mastoid muscles on both sides may be raised and rendered tense by the pressure of the bone from behind.

"Reduction may be found easy," says Hamilton, "but Malgaigne thinks a perfect result is impossible—at least it does not seem to have been accomplished in any of the cases reported." Yet farther on he says: "In no case did the displacement seriously impair the functions of the arm."

In the Treatment of this variety of dislocation the arm should be drawn upward and outward, while at the same time the head of the clavicle is pressed down into the articular cavity. Maintenance is secured by drawing the shoulder back with a figure-of-8 bandage, placing a heavy compress in the axilla, and securing the elbow to the chest. As a further aid, a compress should be placed over the head of the bone, and upon this there should be brought to bear a force acting in a downward direction. If these measures fail, and if the necessities of the case demand it, from either a functional or a cosmetic standpoint, the joint may be opened and the head of the bone strongly wired to the sternum.

An important point to be considered in these dislocations is the strong necessity of preventing movement of the dislocated end of the bone,—a task which is rendered specially difficult by the nature and position of the joint and by the constant movements of the body and arm. Furthermore, if the case is one in which the question of deformity may be set aside, it is better to aim at securing the restoration of a reasonable degree of functional activity and not to undertake too heroic or violent measures for relief. As a rule, all efforts to secure reduction of the dislocation should be limited to a quite early period, and the danger of injuring important subjacent tissues and vessels must be kept constantly in view.

In dislocations of the acromial end of the clavicle, it is deemed necessary to consider only three varieties, viz., one in which the end of the clavicle is lodged above the acromion, or upward; another below it, or downward; and the third, below the acromion and coracoid processes —the subcoracoid variety of dislocation of the clavicle.

In upward dislocation we find drooping of the shoulder and a prominence produced by the end of the clavicle projecting above the acromion. With these conditions are associated pain and a greater or less degree of difficulty in using the arm. The dislocation may result from "force acting directly upon either the scapula or the clavicle," as happens very frequently.

The reduction is usually effected quite readily by pushing the head of the humerus upward, and at the same time making downward and slightly lateral pressure on the end of the clavicle. If the dislocation has taken place in an outward direction, the shoulder should be carried well backward, or outward and backward; or a pad should be placed in the axilla and the arm should be used as a lever, proper pressure being made at the same time upon the displaced end of the clavicle.

The maintenance of the joint in its natural position, after reduction, is a more difficult task to accomplish, owing to the fact that the weight of the arm, acting in conjunction with the contraction of muscles, drags the shoulder down, while at the same time the contraction of

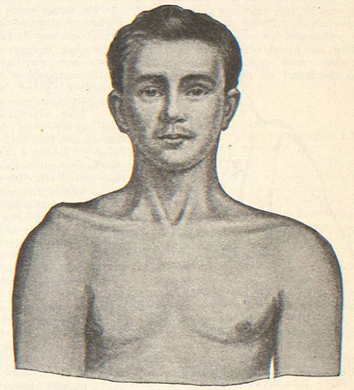

FIG. 1609.—Upward Dislocation of Acromial End of the Clavicle. (Helferich.)

the trapezius lifts the clavicle up. A variety of suggestions have been made as to how the purpose desired may be accomplished. Among them may be mentioned the following: most of the dressings used to correct fracture