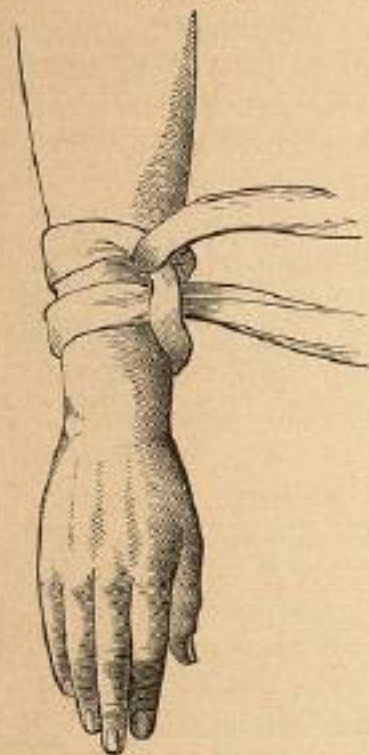


As a means of disarming the muscles, or of placing them off their guard, we often practise successfully the diversion of the mind of the patient. At the very moment that the limb is moved or extension is made, a question is addressed to him, or he may be suddenly surprised by some unexpected intelligence.

Extension and counter-extension, made with our own hands or with the hands of assistants, constitute the second resort where manipulation alone has failed. The surgeon, seizing upon the limb firmly with his

FIG. 261.



Clove-hitch. (From Erichsen.)

hands, makes the extension, while the assistants make the counter-extension; or, instead of grasping the limb directly, the operator may use for this purpose circular and longitudinal bandages, or the bandage or handkerchief tied in the form of the clove-hitch. Extension is thus applied in connection with manipulation, aided, perhaps, by direct pressure upon the head of the displaced bone. Failing in this, we employ some one of the various mechanical contrivances which, while they are capable of exerting much more power, possess also the important advantage of operating gradually and steadily, by which mode the resistance of the muscles is always more speedily and more completely overcome.

For this purpose, Legros and Anger¹ have proposed the use of India-rubber tubes, to the number of five or six, extended gradually and successively to a proper tension, and maintained in this degree of tension for twenty or thirty minutes; and others have advised the use of the pulley and weights, the latter of which methods I have often employed myself; but surgeons employ generally, in the case of the large limbs, the compound pulleys, or the simple rope windlass, which latter is thus described by Dr. Gilbert, of Philadelphia: "Place the patient, and adjust the extending and counter-extending bands as for pulleys; then procure an ordinary bed-cord or a wash-line, tie the ends together, and again double it upon itself, pass it through the extending tapes or towels, doubling the whole once more, and fasten the distal end, consisting of four loops of rope, to a window-sill, door-sill, or staple, so that the cords are drawn moderately tight; finally, pass a stick through the centre of the double rope, then by revolving the stick as an axis or double lever, the power is produced precisely as it should be in such cases, viz., slowly, steadily, and continuously."

Jarvis's adjuster, although very complex, possesses some advantages over the pulleys, which may, perhaps, entitle it to the preference in a few cases. (See Dislocations of the Thigh.)

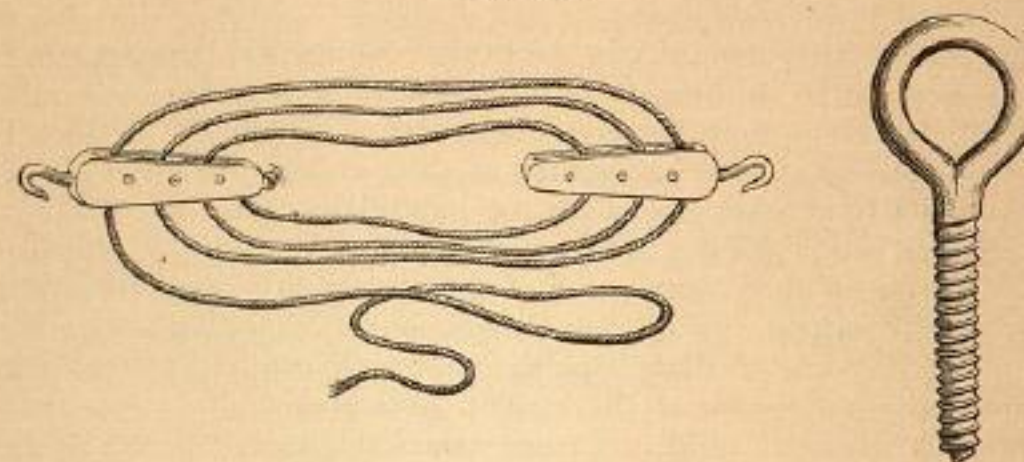
Sédillot,² recognizing the danger of over-extension in the employment

¹ Legros and Anger, Arch. Gén. de Méd., 1867.

² Sédillot et Gross, Art. Luxations, Dic. Encyc. Sci. Méd., Ser. 2d, t. 3, p. 295.

of mechanical apparatus, and especially in the employment of the pulleys, conceived the idea of attaching to the latter a dynamometer, by which the exact amount of force applied could be determined. It is not, however, by any means certain that the dangers would be lessened by this means, since the amount of force which can safely be employed is seldom the same in any two cases which may be presented; but, depending, as it must, upon the limb to which the traction is applied, its muscular power or resistance, the age, sex, and general condition of the

FIG. 262.



Compound pulleys, and ring to which one end of the pulley-rope is fastened.

patient, it is apparent that the limits of safety must be determined by the constant and careful observation of the limb while the extension is being applied, and, in short, by the judgment of the surgeon rather than by any fixed dynamic rule.

Among the constitutional means, ether and chloroform occupy the first rank; indeed, they are, at the present day, almost the only means of this class to which surgeons resort, and their value in this point of view can scarcely be over-estimated. Only when some unusual circumstance or condition of the patient forbade the use of an anæsthetic, would the surgeon return to the ancient practice of bleeding *ad deliquium*, of prostrating the system with antimony, or to the use of those vastly less efficient agents, opium and the warm bath.

CHAPTER II.

DISLOCATIONS OF THE LOWER JAW (TEMPORO-MAXILLARY).

THERE are two principal forms of this dislocation, namely, the double or bilateral dislocation, and the single or unilateral; in both of which the direction of the displacement is forwards. To these there may be added as having been occasionally observed an outward displacement accompanied with a fracture, and occasionally a backward dislocation, with fracture of the meatus auditorius externus.

§ 1. Double or Bilateral Dislocation Forwards.

This form of dislocation of the lower jaw is much the most frequent, being met with in about two out of every three cases. It appears also to occur oftener in women than in men, and usually between the twentieth and thirtieth year of life. In infancy and extreme old age it is exceedingly rare; yet Sir Astley Cooper mentions a case in which, "two boys" being at play, one had an apple thrust into his mouth, producing a double dislocation; and Nélaton saw the same accident in an old man of seventy-two years, who was toothless.

This comparative immunity in youth and old age has been ascribed to certain peculiarities in the form of the jaw at these periods of life. Nélaton attributes its more frequent occurrence in middle life to the great length and strong anterior inclination of the coronoid process.

In a majority of cases the direct or immediate cause has seemed to be muscular action alone. Malgaigne found this cause to prevail in twenty-five out of forty cases; and of the twenty-five cases fifteen were occasioned by gaping, five by convulsions, four by vomiting, and one by rage. Dr. Physick, of Philadelphia, found both condyles dislocated in a woman in consequence of the violent gesticulation of her jaw while scolding her husband. But in a more remarkable case still, this surgeon found the jaw dislocated after recovery from a profuse salivation, and of the cause of which, or the time of its occurrence, the patient, a young girl, could give no account. Dr. Physick made several ineffectual attempts at reduction, and only succeeded at last after he had made her completely intoxicated with ardent spirits.¹

Dr. E. Andrews, of Michigan, found both condyles dislocated by a lobelia emetic. The patient had often taken these emetics before, and had frequently experienced a sensation "of catching" at the joint, but the jaw had always until this time resumed its position spontaneously.²

Dr. A. H. Steen, of Minnesota, met with a bilateral dislocation caused also by vomiting.³ Dr. Edwin Morris⁴ has seen the same occur during sleep with a young lady who from infancy had been accustomed to suck her tongue.

Among the causes from outward violence, the introduction of some foreign body into the mouth, and the extraction of teeth, occupy the most important place. In fifteen cases seven were from the former and six from the latter cause.

My former pupil, Dr. A. W. Gilbert, has related a case which came under his own observation, produced by a similar cause. During his apprenticeship with Dr. Parsons, a dentist, he was requested to insert a set of teeth for a young man residing in Cattaraugus Co., N. Y., and while opening his mouth to take an impression of his gums, he dislocated "both condyles forwards, under the zygomatic arches;" but so perfectly were the muscles relaxed, that he immediately reduced them, without the

¹ Physick, Dorsey's Elements of Surgery, vol. i. p. 202. Philadelphia, 1813.

² Andrews, Peninsular Journ. Med., vol. iii. p. 101, 1855.

³ Steen, Virginia Med. Monthly, June, 1878, p. 220.

⁴ Morris, Brit. Med. Journ., Aug. 31, 1872.

least difficulty, by placing his thumbs as far back as possible upon the molar teeth, depressing the back part of the jaw, and at the same moment elevating the chin.¹

Prof. James Webster, of Rochester, N. Y., dislocated the jaw of a lady while attempting to pry out a root of one of the molars.

Pathology.—In order that we may better understand the pathology of this accident, it will be proper to say a few words in relation to the anatomy of the temporo-maxillary articulation and the other parts concerned in the dislocation now under consideration.

The articulation is formed by the condyloid process of the inferior maxilla and the glenoid fossa of the temporal bone, in front of which fossa, and at the root of the zygomatic arch, is a slight elevation, called the articular eminence. Between the joint surfaces, both of which are covered with cartilage of incrustation, is placed an interarticular cartilage, which divides the joint into two cavities, one corresponding to the condyle of the inferior maxilla, and the other to the glenoid fossa, each of which is furnished with a distinct synovial membrane.

Properly there is but one ligament—namely, the external lateral—which passes from the outer surface of the articular eminence to the corresponding surface of the neck of the condyle. What is called the internal lateral ligament arises from the apex of the spinous process of the sphenoid bone, and is inserted into the margin of the dental foramen, and has therefore no immediate connection with the articulation, although it tends to strengthen the joint. The same is true of the stylo-maxillary ligaments.

The lower jaw is drawn upwards, or closed upon the upper jaw, by the action of the temporal, masseter, and internal pterygoid muscles; it is drawn downwards by the action of the digastricus, mylo-hyoideus, and genio-hyoglossus muscles; forwards by a few fibres of the masseter and by the external pterygoid muscles; and laterally by the alternate action of the external and internal pterygoid muscles.

When the mouth is open to its utmost extent, the maxillary condyle rises upon the articular eminence until it rests upon its very summit. Indeed, it is probable that in most persons it advances rather in front of the centre of the eminence; so that in order to become actually dislocated it only needs that the capsule shall be somewhat relaxed, or that it shall actually give way in front, when the condyles slide forwards and occupy a position directly in front instead of behind this eminence.

It is easy to comprehend how the combined action of the two external pterygoid muscles, with a portion of the fibres of the masseter, may alone produce the dislocation when the mouth is wide open, and especially when, in consequence of a slight blow upon the chin, the anterior portion of the capsule becomes lacerated; for it must be noticed that the ascending ramus, with its prolonged condyloid process, constitutes a lever of the first kind, in which the temporal muscle, attached to the coronoid process, the masseter, and even the mastoid process, constitute the fulcrum, the anterior portion of the capsule, the weight, and the force acting against the front of the chin, the power.

¹ Gilbert, Thesis on Dislocation of the Inf. Max. University of Buffalo, 1858.

In this position of the condyle, drawn upwards and forwards by the action of the pterygoid and temporal muscles, the chin descends toward

FIG. 263.



Double dislocation of the inferior maxilla, forwards.

the neck, and the coronoid process rests against the back of the superior maxilla, or against the malar bone at the point of its junction with the upper maxillary. The temporal, masseter, and internal pterygoid muscles are very much upon the stretch, if not more or less lacerated.

In addition to the influence of muscular action and the hooking of the condyle upon the malar and maxillary bones in maintaining the dislocation after it has once taken place, and in offering an obstacle to its reduction, there is to be considered the occasional

displacement of the interarticular cartilages, as demonstrated by Demarquay,¹ Mathieu,² and Périer.³

Symptoms.—The mouth is widely open and the jaw nearly immovable. It has been noticed generally that, by pressure, the chin may be slightly depressed, but that, owing probably to the pressure of the coronoid process against the body of the upper maxilla, or against the malar bone, it is generally impossible to elevate the jaw in any degree whatever.

The jaw is also slightly advanced; a depression, covering a considerable space, exists between the auditory canal and the posterior margin of the condyle. A slight fulness is observed in the temporal fossa, and also upon the side of the cheek in the region of the masseter muscle.

Ordinarily the patient suffers considerable pain, but not always, from the pressure of the condyles upon the branches of the temporal nerves. There is a constant flowing of the saliva from the mouth; the patient is unable to articulate, and even deglutition is performed with great difficulty.

Prognosis.—When the dislocation remains unreduced, the lower jaw gradually approximates the upper, and its anterior projection sensibly diminishes, the saliva ceases to dribble from the mouth, deglutition and speech are restored, mastication is performed with considerable ease, and, in short, the patient comes at length to experience no great inconvenience from the displacement.

Robert Smith relates the case of a woman whose lower jaw was dislocated during an epileptic convulsion. She was at the time in one of the metropolitan hospitals, but the accident was not noticed by the surgeons, and it remained ever afterwards unreduced. At the end of a year she could close the lips perfectly, but was able to open the mouth only to a limited extent; the teeth of the lower jaw remained advanced, the

¹ Poincot, op. cit., p. 743.

² Ibid.

³ Périer, Bull. Soc. Chir. de Paris, 1878, p. 223.

involuntary flow of saliva had ceased, and the faculty of speech had been regained.¹ In Professor Webster's case, to which I have before referred, although the jaw was immediately and easily reduced, after the lapse of several years, when I saw the lady, she still complained that it hurt her whenever she ate, and that she often felt the condyles slip in their sockets.

Reduction was accomplished by Physick in the case already related, after the lapse of several weeks; Sir Astley Cooper reduced a double dislocation after a month and five days, which had been overlooked by the surgeon in attendance;² and Donovan succeeded after ninety-five days.³

In two cases treated by Michon and Gosselin the reduction was effected at one hundred and thirty days.⁴

Treatment.—Reduction may generally be accomplished with ease in cases of recent dislocation, in the following manner: The patient being

seated upon the floor with his head between the knees of the operator, a couple of pieces of cork, gutta percha, or pine wood are placed as far back between the molars as possible, when the surgeon seizing upon the chin draws it steadily upwards, taking care not to draw it forwards at the same time, since by this movement he would resist the action of the muscles which naturally tend to restore it to place whenever the condyloid processes are lifted sufficiently from the zygomatic fossæ. Many surgeons prefer to sit or stand in front of the patient, and depress the condyles by means of the thumbs placed inside of the mouth and upon the tops of the molars. If the thumbs are used in this way, it would be well to protect them with a piece of leather, or to slip them off from the teeth suddenly when the condyles are gliding into their places, as the muscles sometimes close the mouth with sufficient violence to bruise severely anything which might at that moment be interposed between the teeth.

The method practised by Ravaton, of simply lifting the chin gradually and forcibly toward the upper jaw, was essentially the same, but far less efficient; for, although he placed nothing between the molars to serve as a fulcrum, the backmost teeth themselves must in some

FIG. 264.



Double dislocation of the inferior maxilla, forwards.

¹ Robert Smith, on Fractures and Dislocations. Dublin, 1854, p. 288.

² Sir Astley Cooper, on Disloc. and Frac., Amer. ed., p. 316.

³ Donovan, Amer. Journ. Med. Sci., Oct. 1842, p. 470; from Dublin Med. Press, May 25, 1842.

⁴ Poincot, op. cit., p. 744.

degree perform this service whenever, the lower jaw being dislocated and drawn upwards, the chin is forcibly approximated toward the upper.

In other cases it has been found necessary first to disengage the coronoid process, by depressing the chin gently, and then pressing backwards in the direction of the articulation; a method which would certainly deserve a trial in case of the failure of that first described. This was the method practised by Hippocrates. Lateral pressure made directly upon the condyle may facilitate the reduction.

A more effectual expedient, however, consists in reducing one side at a time; taking good care always that the side first reduced is not redislocated while the attempt is being made to reduce the other, a thing which happened in one of the cases treated by Sir Astley Cooper, and has happened many times in the practice of other surgeons.

Finally, if all other expedients fail, we ought not to hesitate to resort to anaesthetics, nor indeed could any objection exist to their employment at any period of the treatment, were it not that in a large majority of cases the reduction is effected so easily and promptly as to render their employment wholly unnecessary.

After the reduction is accomplished, it will be a matter of wise precaution to sustain the jaw by a double-headed bandage passed under the chin, and secured upon the top of the head; so as to prevent the mouth from being accidentally opened too far, especially during sleep, since experience has shown that a tendency to a reproduction of the dislocation remains for some time. It will be prudent to continue these measures of protection for at least one week; after which the danger of ankylosis should be borne in mind, and the extent of passive motion should be gradually and cautiously increased. In illustration of this tendency to redislocation, Malgaigne refers to the case mentioned by Putégnat of a woman whose jaw for many years became dislocated at least once a month; but she was always able to reduce it herself.

§ 2. Single or Unilateral Dislocations Forwards.

The causes of this accident are in general the same as those which produce double dislocations, and it occurs most often in middle life. Tartra has seen one exceptional example in a child only fifteen months old, and Levison saw a case in an old man who had lost all his teeth.¹

Symptoms.—The mouth is open, but not so widely as in double dislocation; the jaw is nearly immovable; the teeth are advanced; the condyloid process can be felt in front of the articular eminence, leaving a depression in its natural situation, and the coronoid process is more prominent than in the bilateral dislocation.

It will be remembered that we have already pointed out an important diagnostic mark between a fracture of the neck of the condyloid process and a dislocation of one condyle. In the latter the chin inclines to the opposite side, while in the former it falls toward the side upon which the accident has occurred. According to Hey, this lateral deviation of the

¹ Levison, Boston Med. and Surg. Journ., vol. xxxiv., 1846, p. 388, from London Lancet.

chin is not always present in dislocations; and Robert Smith mentions one case in which the surgeon was misled by this circumstance so far as to attempt a reduction upon the left side when the dislocation was upon the right.

Treatment.—The same rules of treatment which I have established for dislocations of both condyles will be applicable to the single dislocations, with only such modifications as will be naturally suggested to the surgeon.

In the case mentioned by Levison, the dislocation was constantly recurring upon the left side; and it was especially liable to happen when just awakening from sleep. "He would then pull his jaw, press it backwards, when, after about half an hour's work, bang it seemed to go, and all was right again." This old gentleman was finally relieved of these annoyances by a band fastened under the chin. In such a case, an apparatus constructed after the same plan as my lower jaw apparatus might perhaps serve a useful purpose.

§ 3. Dislocations Outwards, with Fracture.

Robert¹ was the first to observe this fact. The dislocation (left side) occurred in a man whose face had been traversed by the wheel of a cart, and was accompanied with a fracture in front of the ascending branch of the jaw on the right side. The dislocated condyle projected outwards and could be distinctly felt and seen under the skin. The chin was inclined to the same side.

In 1879 Dr. Neis² observed a second example of this dislocation, which he describes as "outwards and upwards into the temporal cavity," unaccompanied with fracture of the jaw. The subject was a young man whose chin and occiput were pressed between two boats. Dr. Neis supposed a fracture of the glenoid cavity, but he was not able to establish it.

§ 4. Dislocations Backwards, with Fracture.

Baudrimont,³ of Bordeaux, relates the following case: "September 25, 1879, Marianno M., a cartman, aged 63, who had lost all the teeth of the upper jaw, and a number of the molars of the lower, fell violently on his chin, experiencing at the moment a violent pain in both ears, and when he arose he found himself unable to move his jaw. There was a wound on the chin, absolute deafness existed, accompanied with an otorrhœa which continued until the following day. He was on the same day admitted to the Hospital of St. André, of Bordeaux. His mouth was half open, the chin receded behind the upper jaw, as determined by the position of the incisors, fifteen millimetres. The lips could be closed, but the jaws could not. The backward displacement of the lower jaw caused a flattening of the cheeks, and gave to the mouth a peculiar grimace. The posterior portion of the jaw touched the sterno-mastoid muscle. The

¹ Robert, Journ. de Chir., 1844, p. 266.

² Neis, Thèse de Paris, 1879, No. 252. (Poincot.)

³ Baudrimont, Journ. de Méd. de Bordeaux, 1882, 13, 20, 27 août. (Poincot.)

condyle was absent from its socket. Both auditory canals were closed by hard antero-inferior projections, which obeyed the slight movements which alone could be given to the jaw. The reduction was immediately attempted."

M. Baudrimont describes his method of procedure as follows: "The patient is seated on a chair, his head slightly thrown back and held by an assistant. Both thumbs are with difficulty introduced on both sides between the jaws, which can only be done by exaggerating the backward rocking movement of the jaw; the thumbs press, by their palmar surfaces, on the lower molars. The other fingers brought under the chin, seize the body of the jaw, in a firm grip, on both sides. I press progressively and very energetically downwards at first, then downwards and forwards. A sudden disengagement of the right condyle, which regains its place, is at first obtained with comparative ease. The dislocation is now single. The chin is deviated to the left. The same attempt is then made on the left side, but I then experience far more difficulty; a considerable effort proves insufficient; but with the help of the fingers pressing upon the condyle which is disengaged, the jaw rotates on itself and seems to make the hand which accompanies it describe a large circle, and the condyle resumes its articulation with a noise heard at a distance. The last phase of the reduction seems very painful, and as soon as the condyle leaves the ear the blood begins to flow from the left side. The movements of the jaw are re-established, and are not very painful. Deafness partially disappears.

"Examination of the ears shows that the membrane of the tympanum is torn on the right side, and there are in both auditory canals wounds of the integuments in which the probe detected bony splinters. Different local accidents ensue; sero-sanguinolent, serous, and sero-purulent discharges take place; also a swelling of the articular regions, and, later on, suppuration. The patient left the hospital in a good condition. Three months after there still remained some swelling, articular stiffness, and a certain degree of deafness."

It would seem, according to the researches of Baudrimont, that this accident had been described by Lanfranc, Guy de Chauliac, and Jean de Vigo, but that not until recently had any well-authenticated examples been published. Indeed, Baudrimont alone has recorded an example of bilateral dislocation backwards. In a case reported by Croker-King the dislocation was unilateral, and was reduced by a method similar to that employed by Baudrimont, but it was not followed by any accidents; while Lefèvre mentions a unilateral dislocation backwards which resulted in a cerebral abscess and death about five months after the injury was received. The dislocation was not recognized until the autopsy was made.

In all of these examples the condyle, which rests with its centre over the point where the bony portion of the external auditory canal joins the cartilaginous portion, being thrust backwards has broken the margin of the bony portion and displaced or torn the cartilaginous portion, but without rupture of the ligaments.

§ 5. Conditions of the Jaw simulating Dislocations.

There is a condition of the temporo-maxillary articulation called by Sir Astley Cooper "subluxation of the jaw," in which it is assumed that the condyles slip before the anterior margins of the interarticular cartilages, and thus for the time render the jaw immovable. No positive evidence, however, has ever been presented, either by Sir Astley or others, that any such derangement of the joint apparatus does actually take place, the opinion being based, not upon dissections, but only upon the symptoms which are known to accompany the accident. It is quite probable that this explanation of the phenomena in question is the true one, yet it is not impossible that, in some rare cases, it has no relation whatever to the interarticular cartilages, but that it indicates a true subluxation of the inferior maxilla upon the zygomatic eminences.

It occurs mostly in young people, and in those of a feeble or scrofulous diathesis. Relaxation of the capsule, ligaments, and muscles about the joint may, therefore, be regarded as the principal predisposing cause. The exciting causes are generally yawning, or biting upon some very hard substance.

The symptoms are a sudden arrest of the motions of the jaw, with the mouth about half open, the arrest of motion being accompanied or preceded generally with a sensation of slipping in one of the articulations. The chin is slightly inclined to the opposite side. The condyle may be felt somewhat advanced in its socket, and while it remains in this position the patient experiences some pain.

In most cases the condyle resumes its place spontaneously, or after a slight lateral motion of the jaw; but at other times it requires some little manual force to replace it.

I have myself, during several years of my early life, while pursuing my studies at college, experienced this accident many times. It was peculiarly prone to occur in the morning, and it became necessary that I should eat with some care at my first meal. Sometimes the locking of the jaw was upon the right and sometimes upon the left side; it was always slightly painful. Generally the condyle was made to fall into place by a voluntary lateral motion of the jaw, but occasionally I was obliged to press gently against the chin with my hand. I never adopted any measures to remove the predisposition, but as I became older the annoyance gradually ceased.

Benevoli, in a dissertation published at Florence, Italy, in the year 1747, describes another condition very analogous to this which we have now described, but which evidently depended upon a contraction of the muscles. A priest, having opened his mouth very widely in gaping, found himself unable to close it. A surgeon who was called diagnosed a dislocation of the jaw, and attempted to reduce it, but failing, Benevoli was called, who, observing "that the jaw was not absolutely immovable, that the articulations were not separated, and that the chin did not incline outwards or toward the sternum," concluded that it was only a contraction of the depressing muscles. He therefore prescribed fomentations and oily unctions. The same night the temporal muscles

had acquired the size of a couple of eggs, from contraction, but the next day the patient could shut his mouth, and by the following day the tumefaction of the temporal muscles had also disappeared, and the restoration of the functions of the mouth was complete.

Malgaigne, to whom I am indebted for the above case, relates two others, one in the person of the surgeon Mothe, and the other in a young man who was suffering from paralysis and spasmodic contractions of the muscles. Mothe observes that it had occurred to him very often, and that it still continued to happen sometimes, and when he gaped pretty widely, the genio-hyoid and mylo-hyoid muscles contracted with so much force as to render it impossible for him to close his mouth; these muscles being thus in a state of cramp, their bellies became hard under the chin, and so painful that he was obliged immediately to press upwards against the under surface of the chin in order to oppose their action. This condition would last from one to three minutes, and was relieved, generally, by frictions made with the hand over the contracted muscles. Sometimes he actually believed that the lower jaw was dislocated, although the result always convinced him that it was not.

Treatment.—In most or all of the cases of this peculiar derangement of the temporo-maxillary articulation, which have come under my notice, a spontaneous cure has been soon effected. It will be proper, however, in all cases, to instruct the patient to avoid using the jaw in a manner to produce the sensation of slipping; and if the general health is impaired, to adopt suitable measures to improve his condition. Cold water affusions to the side of the face and jaw would seem also to be rational measures, and I have generally recommended their use.

CHAPTER III.

DISLOCATIONS OF THE HYOID BONE (THYRO-HYOID ARTICULATION).

So far as I know, Dr. Ripley, of South Carolina, and Dr. Gibb, of London, have alone furnished us with examples of this accident, but as I am unable to consult the original communications of either of these gentlemen, I will take the liberty of reproducing the brief summary of their papers contained in Mr. Durham's contribution to Holmes's Surgery.¹

Gibb² has recorded in the following words a case of dislocation of the hyoid bone in a patient under his care: "The patient, a man, æt. 45, would feel a sudden click in the left side of his neck, which produced a sensation as if something was sticking in his throat. On examination, this appeared to me to depend upon a displacement of the left horn of

¹ Holmes's Surgery, 2d Amer. ed., vol. ii. p. 460. Art. Injuries of the Neck.

² Gibb, on Diseases and Injuries of the Hyoid Bone, by G. D. Gibb, M.D., Churchill, London, 1862, p. 20, and Trans. Path. Soc. London, vol. x. p. 66.

the hyoid bone, and was generally reduced by throwing the head backwards, toward the right side, so as to stretch the muscles of the neck, and then suddenly depressing the lower jaw, and so putting the depressors of the hyoid bone into operation. He died some years after of pulmonary consumption. On examining his throat after death, I found a sort of pouch, which answered the purpose of a synovial capsule, embracing the horns of the left thyro-hyoid articulation. It was filled with a clear fluid, had a comparatively large rhomboid sesamoid bone developed in its outer wall, and permitted an extraordinary amount of motion. This was the fourth case of the kind which had come under the notice of Gibb. All the patients were males. He subsequently met with a fifth case in which the patient was a female.

Reference is made in the work quoted to a paper, read in 1848 before the Parisian Medical Society, by Dr. Ripley, of South Carolina, on 'Dislocations of the Os Hyoides, especially illustrated in his own person, and the manner of reducing them.' The latter process consisted in throwing the head backwards as far as possible, so as to place the muscles of the neck on the stretch, then relaxing the lower jaw, at the same time gently pressing or rubbing over the displaced part, when the displacement becomes reduced after a few attempts with a click.

"Two cases of dysphagia described by Abercrombie are considered by Gibb to have been examples of double displacement of the thyro-hyoid articulation."

CHAPTER IV.

DISLOCATIONS OF THE SPINE.

DELPECH and Abernethy denied the possibility of a dislocation of the spine, either in the cervical, dorsal, or lumbar region, without the concurrence of a fracture.

Says Sir Astley Cooper: "I have never witnessed a separation of one vertebra from another through the intervertebral substance, without fracture of the articular processes; or, if those processes remain unbroken, without a fracture through the bodies of the vertebrae." He would not, however, be understood to deny the possibility of a dislocation of the cervical vertebrae, their articular processes being placed more obliquely than those of the other vertebrae.

The accident is, no doubt, exceedingly rare, at least without the complication of a fracture, and it is not improbable that the actual number is smaller than the reported examples would indicate. Those who make autopsies do not always perform their duties with that exact fidelity which might be necessary to determine so nice a point as a fracture of an oblique process, and it is quite likely that the circumstance may have been overlooked in some cases; but a considerable number of well-authenticated examples of simple dislocations of cervical vertebrae have accumulated within the last fifty years. The reported examples of