

the upper end of the humerus, and the belly of the biceps was full and flabby.

Wallace was examined by me at Bellevue Hospital in March, 1875, about eight months after the injury was received. The belly of the biceps had shortened upon itself, and made a very remarkable prominence on the front of the arm, but he could not render it firm by contraction. He could flex the arm slowly, but not against any considerable resistance. The head of the humerus was not advanced in the socket. I could feel the tendon of the biceps in its groove, and inferred that the rupture took place near its insertion into the muscle.

J. L. Petit has reported a similar case, in which the rupture was caused by the extension employed in an attempt to reduce a dislocation of the arm.¹

Poinsot records an example of rupture of this tendon in a man, caused by lifting, and in which the head of the humerus was not displaced. Three weeks later the same accident was reproduced in a similar manner, and Poinsot remarks that the phenomena presented were the same as in Wallace's case.

Dr. Arpad G. Gerster, in a paper read before the Society of the Physicians and Surgeons of the German Hospital and Dispensary of New York, Oct. 12, 1877, on "Subcutaneous Injuries of the Biceps Brachii,"² has made some historical notes and observations which seem deserving a place in this connection. He says: "Older surgeons (Stanley, Bromfield, Knox, Monteggia, for instance), up to the middle of this century, diagnosed as dislocations of the long head of the biceps, cases similar to the one related" (case of partial rupture of the tendon, and of the corresponding part of the sheath of the long head of the biceps). "They supposed that the tendon left its groove, and slipped upon the major tubercle. True, none of them ever found the tendon in its dislocated condition, but they assumed that a spontaneous reduction took place by a rotation of the humerus, before a competent judge could ascertain the nature of the injury. William Cooper and Boerhaave accepted the possibility of such an injury. Fergusson expressed himself cautiously on the subject. Bardeleben, Pitha, and Volkmann deny its existence, referring to a series of exhaustive articles in the *Gazette Hebdomadaire* (2d sér., iv. [xiv.], 21, 23, 25, 1867), written by Jarjavay, which completely disposes of this 'mysterious dislocation,' as Pitha sarcastically calls it."

Gerster states, moreover, that Pouteau had long before doubted the existence of this dislocation, and that Malgaigne had expressed scepticism as to the true character of Mr. Soden's case. In short, Dr. Gerster claims that its existence, uncomplicated with other accidents, has never been demonstrated satisfactorily upon the living or dead subject; and that, to say the least, it is doubtful whether it has ever occurred. The entire argument, together with the anatomical reasons assigned, are very ingenious; and while they do not settle conclusively in my own mind the question of its possibility, they seem to throw a doubt upon the true nature of some of the cases reported.

¹ Malgaigne, op. cit., Paris ed., 1855, vol. ii. p. 145.

² Gerster, N. Y. Med. Journ., May, 1878, p. 487.

Dr. White,¹ of Philadelphia, in an excellent *résumé* of this subject, concludes that the occurrence of a traumatic dislocation of the long tendon of the biceps, unaccompanied with a dislocation of the humerus, has not been absolutely proven. He reports, however, a case which both Dr. Agnew and himself believed to be such a dislocation. A man, æt. 37, had fallen upon his shoulder from a considerable height. Seen by these surgeons soon after the accident, it was thought that the empty bicipital groove and the displaced tendon could be distinctly felt. At the end of two years the displacement continued, and at this period the patient had recovered nearly, but not wholly, the free use of his arm.

CHAPTER VIII.

DISLOCATIONS OF THE HEAD OF THE RADIUS (HUMERO-RADIAL).

I HAVE recorded thirty-two examples of traumatic dislocation of the head of the radius as having been seen and examined by me; of which twenty-seven were dislocated forwards, or forwards and outwards, and only five backwards: or, rejecting those cases which were complicated with fracture, I have recorded fourteen cases of simple forward dislocation, and three of simple backward dislocation. My experience, therefore, does not correspond with the experience of Boyer, Velpeau, Vidal (de Cassis), Chelius, B. Cooper, Guthrie, Gibson, and some others, who declare that the dislocation backwards is the more frequent of the two. Indeed, I ought to say of two of the examples of backward dislocation of the radius which have come under my notice, and which I have marked as simple, that they were ancient dislocations; and I am not entirely certain, therefore, that they had not been originally complicated with a fracture, although at the time of my examination they presented no such evidence. The third, which I believe to have been a genuine, simple backward dislocation, I will mention again in connection with this latter form of dislocation. I have seen one congenital dislocation of the head of the radius outwards and forwards, which I will describe more particularly in the chapter on Congenital Dislocations.

§ 1. Dislocations of the Head of the Radius Forwards.

Causes.—A fall upon the elbow, the blow being received directly upon the posterior face of the head of the radius; a fall upon the hand with the forearm extended and pronated; extreme pronation of the forearm; or, according to Denucé, a blow upon the inside of the elbow, which is equivalent to a violent adduction of the forearm.

¹ White, J. W., Surgeon to the Philadelphia Hospital, and Asst. Surgeon to the University Hospital, Amer. Journ. Med. Sci., Jan. 1884.

In children, and especially in those of a strumous habit, whose ligaments are feeble, a subluxation forwards, or even a complete dislocation, is occasionally produced by being lifted suddenly from the floor by the hand, or by an attempt to sustain the child when he is about to fall. I have seen examples of this dislocation produced in this way. Batchelder,¹ Sylvester,² Goyrand,³ and many other surgeons, have mentioned similar cases. In the case of Lydia Merton, four years old, brought to me in May, 1868, the dislocation was caused by holding on by the hands after having fallen from a swing.

Dr. Krackowizer related to the New York Academy, in 1856, a case of complete dislocation forwards, produced, as was supposed, in the act of turning the child in delivery. The arm was ecchymosed, and the dislocation was very distinct.⁴

Leisrinck⁵ saw an ancient dislocation forwards in both arms, which were said to have been produced immediately after birth by violent torsion of the forearms, practised for the purpose of resuscitating the child.

Pathological Anatomy.—The head of the radius is carried forwards upon the humerus, and generally a little outwards. In the case of Lydia Merton, already mentioned, the head of the radius, on the ninety-fourth day after the accident, was nearly in the centre of the humerus. The anterior and external lateral ligaments, with the annular, are in most cases more or less broken. Sometimes the anterior and external lateral are alone broken, the annular ligament being then sufficiently stretched to allow of the complete dislocation; or the anterior and annular having given way, the external lateral may remain intact.

In the specimens dissected by Danyau⁶ and Debrayn,⁷ and also in the specimen deposited by Prestat⁸ in the Dupuytren Museum, the annular ligament was not torn. In a specimen obtained by J. Hilton,⁹ this ligament was only partially torn. In each of these latter cases the head of the radius had formed for itself a new socket on the front of the humerus. The same is the fact in a specimen represented by Kronlein, and contained in the Pathological Museum at Zurich, so that the movements of pronation and supination were completely restored.

Symptoms.—The head of the radius can in general be distinctly felt in its new situation, rotating under the finger when the hand is pronated and supinated; we may sometimes also recognize a depression corresponding to its natural situation, behind and below the little head of the humerus. The external border of the forearm is slightly shortened, and the arm inclines unnaturally outwards. The tendon of the biceps is relaxed. The forearm is generally pronated, sometimes it is in a position midway between supination and pronation, but I have never seen it supinated. I have particularly noticed this fact in my report made to the New York State Medical Society in 1855; and Denucé, who has also examined

¹ Batchelder, New York Journ. Med., May, 1856, p. 333.

² Sylvester, Amer. Journ. Med. Sci., vol. xxxi. p. 206, Jan. 1843.

³ Goyrand, *Ibid.*, vol. xxxii. p. 228, July, 1843.

⁴ Krackowizer, New York Journ. Med., March, 1857, p. 262.

⁵ Leisrinck, Deuts. Zeitschrift für Chir., Dec. 12, 1873.

⁶ Poinot, *op. cit.*, p. 885.

⁷ *Ibid.*

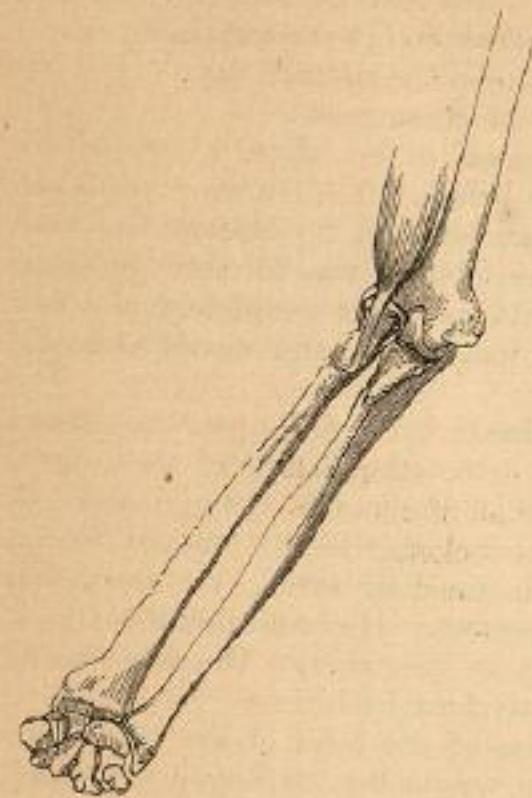
⁸ *Ibid.*

⁹ Hilton, Bull. Gén. de Thérap., t. 38, 1850, p. 113.

these cases carefully, affirms that it is seldom supinated, notwithstanding the general statements of surgeons to the contrary.

The arm is usually a little flexed, and cannot be perfectly extended without causing pain. In some cases, especially when the dislocation has existed for a considerable length of time, the arm is capable of extreme and unnatural extension. This was the case with Lydia Merton. There

FIG. 293.



Head of the radius forwards. Anatomical relations.

FIG. 294.



Head of the radius forwards. External appearance of limb.

is usually preternatural lateral motion; but, except in old cases, the forearm cannot be flexed upon the arm beyond a right angle.

Prognosis.—Denucé says: "The reduction is often impossible; more frequently still, difficult to maintain." In proof of which he refers to the observations of Danyau and Robert. In the case of recent dislocation related by Robert, it was found impossible to maintain a reduction which he thought he had several times accomplished, and he believed that the difficulty consisted in a portion of the torn annular ligament having become entangled between the head of the radius and the condyle of the humerus.¹

Sir Astley Cooper was unable to accomplish the reduction in two recent cases; and of the six cases which came under his immediate ob-

¹ Mémoire sur les Luxations du Coude, par Paul Denucé. Paris, 1854.

servation, only two were ever reduced. In Bransby Cooper's edition of Sir Astley's work, other similar examples of non-reduction are related.

Malgaigne says that in a collection of twenty-five cases which he has made, the accident was unrecognized or neglected in six, and ineffectual efforts at reduction had been made in eleven; so that only eight of the whole number were reduced.

I have myself met with six of these simple dislocations which were not reduced, three of which, however, had not been recognized, and no attempt at reduction had ever been made; one had been treated by an empiric, Sweet, a "natural bone-setter," but without success; one had been reduced, but it had become redislocated, and in the remaining example I was unable to reduce the dislocation on the seventh day.

The following are brief notes of four of these cases:

A young man, *æt.* 23, presented himself at my office, to whom the accident had occurred about one year before. The surgeon who was first called did not recognize the dislocation, and no attempt had ever been made to replace the bones. The forearm was forcibly pronated and could not be supinated, but he could extend it completely, and flex it somewhat beyond a right angle. It was strong, and nearly as useful as before.

H. H. B., *æt.* 6; dislocation produced by a fall upon the elbow. The surgeon who was called did not detect the nature of the injury. Eighteen years after, I found the head of the radius lying in front of the old socket, having formed a new socket, in which it moved freely. From the elbow to the hand the arm inclined outwards, or to the radial side; pronation and supination were perfect. He could flex the arm to an acute angle, but not so completely as the other. The arm was as strong as the other, but it was frequently hurt by lifting.

Ira E. Irish, *æt.* 12, had a dislocation of the head of the radius forwards. Sweet, who is mentioned above, was at first employed, but failed to reduce it. Thirty-nine years after, when Mr. Irish was fifty-one years old, I examined the arm. He could not flex the forearm upon the arm beyond a right angle; and when the attempt was made, the radius struck against the humerus. Complete supination was impossible. The arm was as strong as the other, except in raising a weight above his head. Occasionally he was annoyed with slight pains in this limb.

Urias Lett, a colored barber of Buffalo, aged forty-eight years, was thrown from a carriage, producing a dislocation of the right radius, and severely bruising the elbow-joint. He did not see a surgeon until six hours had elapsed. The elbow was then much swollen, and exquisitely tender, and Lett would not permit much, if any, examination to determine its condition. The doctor applied simple dressings, and the next day requested me to see him. The whole arm was then swollen and tender, and very little examination was admissible. The dressings were, therefore, not completely removed, but only laid open sufficiently to enable us to see the joint. We suspected a forward dislocation of the head of the radius, but could not positively determine the point—the patient not permitting any kind or degree of manipulation. We decided, therefore, to wait a few days until the inflammation had somewhat abated, and then, if the existence of a dislocation was ascertained, to attempt its reduction. On

the seventh day the swelling had measurably subsided, and the diagnosis became satisfactory. We immediately placed him under the complete influence of chloroform, and made long-continued and violent efforts at reduction, but without success. Severe inflammation again followed these efforts, and Lett would never consent to another trial. After four years I find the bone still out. He can flex the forearm upon the arm almost as far as he can the opposite limb; he can carry it nearly to his mouth, the head of the radius sliding off upon the outer face of the humerus, and not resting plumply against it; indeed, the radius seems to have been gradually pushed outwards as well as forwards. The hand is forcibly pronated, and cannot be supinated. The attempt to supine produces a click in the neighborhood of the head of the radius, as if it struck against a bone. The arm is as strong as the other, and not wasted. He has constantly pursued his occupation as a barber, after only a few weeks' confinement.

If the dislocation is accompanied with a fracture of the ulna, unless the fracture is transverse or incomplete, reduction is not generally accomplished. When speaking of fractures of the shaft of the ulna, I have related several examples illustrative of this remark. Norris has made the same observation.¹ I have, however, three times met with this accident thus complicated in children, in the treatment of which a much better result has been obtained. In the first example, a lad, aged nine years, had broken the ulna in its upper third and dislocated the radius forwards. Dr. White, of Buffalo, and myself were in immediate attendance. Both the fracture and dislocation were easily reduced, and in a few weeks the limb was sound and perfect, except that a slight fulness remained in front of the head of the radius, and this continued for several years. In the second example, a lad, of the same age as the other, was treated by Dr. Austin Flint and myself. We reduced both the fracture and the dislocation by extending the arm from the wrist, while at the same moment pressure was made upon the head of the radius from before backwards. A right-angled splint was applied and continued during a period of four weeks, being removed daily for the purpose of giving to the joint gentle, passive motion, etc. After this the arm was permitted to straighten gradually, and at the end of a month more the joint was moving freely, and with no degree of displacement at the point of fracture or dislocation.

It is quite probable that in each of the above cases the separation was not complete, although crepitus was distinct, and the displacement of the broken ends was very marked. In the following case the fracture was certainly incomplete:

Elizabeth Carmody, *æt.* 4, was brought to me, August 6, 1851, with a fracture of the ulna, two inches below its upper end, the fragments being inclined backwards, while the radius was dislocated forwards. Both bones were easily replaced, and the functions of the arm were soon completely restored. This case was erroneously reported to the New York State Medical Society as an example of fracture of the *radius*, with dislocation.

¹ Norris, Amer. Jour. Med. Sci., vol. xxxi. p. 21.

Where the restoration has been promptly effected and maintained steadily, the motions of the joint are soon restored; but in one case the head of the radius has been found to play very freely and loosely after the lapse of two years, and in others it has remained slightly prominent in front, as if it was a little in advance of its socket.

Treatment.—Extension and counter-extension should be made in the direction in which we already find the limb, namely, with the forearm slightly bent upon the arm, while at the same moment the surgeon should seize the elbow with his hands, and press the head of the radius back with his two thumbs.

Other methods will often succeed; but by this we relax the biceps, and put the parts in the best position to accomplish the reduction easily and promptly. Sir Astley directed to supine the forearm while the extension was being made from the hand, but Denucé prefers that the forearm should be in a position of pronation.

After the reduction is effected it is never safe to straighten the arm completely at once, nor indeed for some weeks; not until the ligaments have been sufficiently restored to resist the action of the biceps. The arm must, therefore, be flexed and placed in a sling, or, if the radius is disposed to become redislocated, a right-angled splint ought to be placed upon the back of the arm and forearm, and, by the aid of a compress and roller, an attempt should be made to retain it in place.

Nor will it be found safe at any period to compel the arm by force to resume the straight position, since this bone, when it has once been dislocated, will for a long time be liable to dislocation.

A boy, aged about four years, was presented at my clinic by his father, having a forward dislocation of the head of the radius. The dislocation had existed several months. The father's purpose in bringing the child was to ascertain whether he could not claim damages for malpractice. The account which he gave was as follows: The surgeon called it a dislocation forwards, and pretended to reduce it. A right-angled splint was applied with a roller. At the end of three weeks the father removed the splint, but did not discover anything out of place. Finding, however, that the elbow was stiff, he took measures to straighten it forcibly. In a few days he discovered the head of the bone out of place, and so it has remained ever since.

I explained to him that there was much reason to suppose that the surgeon had properly reduced the dislocation, and that he had himself reproduced the accident, by straightening the arm, through the action of the biceps upon the upper end of the radius. The father declined any further surgical interference, and no prosecution has followed.

The late Dr. Batchelder, of New York, in a very excellent paper on dislocations of the head of the radius, has described a method of reduction suggested to him first by Dr. Goodhue, of Chester, Vermont, and which he had himself found more successful than any other method; indeed, he says it never fails, yet he does not inform us in precisely how many cases he had made the trial. The plan suggested by Dr. Goodhue consists essentially in first making extension from the hand, and pressing at the same time downwards and backwards upon the head of the radius until it has descended to a level with the articulating surface

of the humerus. As soon as this is accomplished, the forearm is to be suddenly flexed upon the arm in such a direction as that the hand shall pass outside of the shoulder; at the same moment, also, the pressure must be continued vigorously upon the head of the radius.¹

§ 2. Dislocations of the Head of the Radius Backwards.

Denucé has collected fourteen examples of this dislocation; but Malgaigne, who rejects a portion of the cases, and adds one or two more, admits only twelve. In addition to those mentioned by these two writers, I have found recorded, or incidentally noticed, one by May,² one by Bransby Cooper,³ one by Lawrence,⁴ one by Liston,⁵ two by Case,⁶ two by Gibson,⁷ one by Parker,⁸ three by Markoe,⁹ two by Conner,¹⁰ one by Mack,¹¹ and one by Rivington,¹² and to these my own observations have added five more, in all thirty-three supposed examples.

Of the examples brought under my own notice I have already, in the preceding section, affirmed that two of them were accompanied with fracture, and I am not entirely certain but that all except one were. Markoe, of New York, whom I have mentioned as having reported three cases, found in each case a fracture of the internal condyle of the humerus, and, after an examination of a number of the reported examples, he does not find any evidence that this dislocation ever occurs as a simple uncomplicated accident. It seems quite certain, however, that the backward dislocation does so occur, yet it is no doubt exceedingly rare; but the following case, brought to my notice by Dr. John James Berry, of Fall River, Massachusetts, must be accepted as a genuine example, inasmuch as the mode of its occurrence seems to preclude a fracture: "Frederick Kuger, of New York, was seen by me December 7, 1879, when he was fifteen years old, having a dislocation of the head of the left radius backwards, which the mother stated was caused by a convulsion when he was one year old. The button-like head of the radius could be distinctly felt, and there was no evidence of any other injury."¹³

The example reported by Parker as having happened in the practice of N. K. Freeman, of this city, is one of the few also which seems to admit of but very little doubt.

In July, 1850, Dr. Freeman was called to see a gentleman, æt. 37, who was seriously injured by jumping from the railroad cars while they were in motion, and found a backward dislocation of the head of the

¹ Goodhue, *New York Journ. of Med.*, May, 1856, p. 333.

² May, *Sir Astley Cooper on Dislocations, etc.*, by B. Cooper, op. cit., p. 403.

³ B. Cooper, *Ibid.*, p. 404.

⁴ Lawrence, *Pirrie's System of Surgery*, p. 259.

⁵ Liston, *Practical Surgery*, p. 88.

⁶ Case, *Amer. Journ. of Med. Sci.*, vol. vi. p. 254, from 11th No. of *Provincial Med. Gazette*.

⁷ Gibson, *Institutes and Practice of Surgery*, 6th ed., vol. i. p. 379.

⁸ Parker, *New York Journ. of Med.*, March, 1852, p. 188.

⁹ Markoe, *Ibid.*, May, 1855, p. 382.

¹⁰ P. S. Conner, *The Clinic*, Aug. 15, 1874.

¹¹ G. J. Mack, *The Med. Record*, Dec. 2, 1876, p. 779.

¹² Rivington, *Lond. Hosp., Lancet*, Dec. 27, 1879.

¹³ Berry, *N. Y. Med. Gaz.*, vol. vii. No. 6, Feb. 7, 1880.

radius of the right arm. "The symptoms," says Dr. Freeman, "were marked; the hand and forearm were prone, and the attempt to place them in the supine position caused great pain; while the head of the radius formed a considerable projection posterior to the external condyle of the humerus, where the cavity on its extremity could be distinctly felt. Assisted by Dr. Walsh, of Fordham, who firmly grasped the humerus, I was enabled to reduce it by extending the forearm and flexing it upon the arm, at the same time pronating the hand, and pressing forwards the head of the radius with my thumb. After the reduction was effected, I requested Dr. Walsh to examine it; when upon slight extension being made upon the forearm, with supination of the hand, the bone was again dislocated. I immediately reduced it in the same manner as before, and directed the patient to keep the forearm flexed and the hand prone, and, laying it upon a pillow, apply cold water. He complained of severe pain for two days, which gradually subsided, and on the fourth day he was able to move and extend the forearm."

The case reported to me originally by Dr. Mack, of Waterloo, Iowa, and already referred to as published in the *Record*, appears to have been clearly made out.

Causes.—The usual causes are, a direct blow upon the front and upper part of the radius; a fall upon the elbow, or upon the hand; a violent effort to supinate the forearm while it is grasped and held firmly in a state of pronation; and probably it is sometimes occasioned by a twisting of the arm in machinery, etc.

Pathological Anatomy.—In the case reported by Sir Astley Cooper, in which a dissection was made, "the coronary ligament was found to be torn through at its forepart, and the oblique had given way. The capsular ligament was partially torn, and the head would have receded much more, had it not been supported by the fascia which extends over the muscles of the forearm." The head of the radius was thrown behind the external condyle of the humerus, and rather to the outer side. This was an ancient dislocation found in the dissecting-room of St. Thomas's Hospital, and the accompanying drawing is copied from the sketch made at the time.

Two specimens have been presented to the Anatomical Society of Paris of complete ancient dislocation backwards, one by Guion¹ and one by Petit.² In Guion's specimen the man was at the time of his death about fifty years old, and the ligamentous apparatus of the joint seemed to be unaltered; a fact which might easily be explained by supposing that in the great lapse of time since the accident it may have been reconstructed. The same was the fact in Petit's case, and probably admits of the same explanation. The accident had happened in childhood, and death occurred when the patient was twenty-eight years old. Osteophytes existed to a considerable extent, and the trochlear surface of the humerus was notably deformed.

If the dislocation is not complete, as I have before stated occasionally happens with children, the annular ligament may not be torn. In

¹ Guion, Bull. Soc. Anat. de Paris, 1859, p. 350.

² Petit, *Ibid.*, 1874, p. 904.

such examples the projection of the head of the radius may not be easily recognized, but the motions of flexion and rotation would be impaired. The reduction is sometimes effected spontaneously, or with slight manipulation. In some cases, however, the reduction is difficult or impossible, owing perhaps to the slipping of the annular ligament over the head of the bone, or to some other interarticular complication.

Poinsot, in a note to the French edition of this treatise, has seen fit to recognize these partial dislocations forwards or backwards, when occasioned in childhood by lifting the body by the arms, as a distinct variety of radial dislocations, or, as he has designated them, "dislocations of the head of the radius downwards (by elongation)". The grounds upon which he bases these distinctions are ingenious and specious, but they do not seem to me satisfactory.

Symptoms.—The head of the bone is felt rotating behind the outer condyle, and a depression exists corresponding to its original position. The forearm is slightly flexed and prone; and the whole arm is deflected outwards from the elbow downwards; flexion and extension are difficult, while supination is impossible.

Treatment.—Most surgeons have taught that while extension and counter-extension are being made, the forearm should be forcibly supinated, and that at the same time the head of the radius must be strongly pushed forwards. Martin recommends to extend forcibly, and then suddenly flex the arm; in a manner very similar to the plan recommended by Batchelder in dislocations forwards. In Dr. Freeman's case, just quoted, the reduction was effected while the forearm was pronated, and supination seemed to throw it again out of place. Dr. Middleditch, in the case reported by Mack, succeeded in his first effort, by making extension, with the arm flexed to a right angle, while pressure was made upon the head of the radius.

According to Markoe, where the accident is complicated with a fracture of the inner condyle, when the reduction is accomplished the arm should be placed in a position about ten degrees less than a right angle, and supported by a splint with bandages, etc.

If the dislocation is simple, however, I can see no objection to its being nearly or quite extended, since in this dislocation the action of the biceps would only tend to retain the head of the radius in place.

§ 3. Dislocations of the Head of the Radius Outwards.

Denucé has collected four examples of this accident, unaccompanied with a fracture, and he proceeds to speak of it as a distinct form of dislocation. In two of the examples, however, mentioned by him, it was consecutive upon a forward dislocation, and I have several times seen the head of the radius very much inclined outwards in what are properly

FIG. 295.



Dislocation of the head of the radius backwards.

termed forward dislocations. For these reasons it is not very plain to me that we ought to consider this as a distinct form of primary dislocation; but it would seem that we ought rather to regard it as a consecutive dislocation, or at least as only a modification of the forward or backward dislocation. Indeed, I think the radius never will be found thrown directly outwards, but always in a direction inclining forwards or backwards.

Parker, of this city, mentions a case which came under his notice, in a child four years old, who, six weeks before, had fallen down stairs "backwardly, with the right arm twisted behind the back, in such a position that the whole weight of her body came upon her arm." No attempt was ever made to reduce the bone, and the head of the radius continued to project externally. By pressure it was easily reduced, but became immediately displaced when the forearm was either flexed or extended. The motions of the joint were completely restored. Dr. Parker recommended no treatment.¹

CHAPTER IX.

DISLOCATIONS OF THE UPPER END OF THE ULNA (HUMERO-ULNAR).

§ 1. Dislocations Backwards.

THIS accident, the existence of which, as a simple dislocation, is placed beyond doubt, has nevertheless been described so variously, and often indefinitely, that it is impossible to declare its history, except in a few points, with any degree of accuracy. No doubt many of the cases which have been reported were examples only of a subluxation of both radius and ulna backwards. In other cases, the radius or the external condyle of the humerus being broken, the ulna has been actually displaced, not only backwards, but upwards; indeed, it is very certain that without either dislocation of the radius, or a fracture with displacement of the external condyle of the humerus, or a fracture or bending of the radius, an upward displacement of the ulna, to the degree represented by the reporters of these cases, could never have occurred. The example mentioned by Sir Astley Cooper, and of which a dissection was made, is plainly a case of subluxation of both bones; or if the dislocation of the ulna may be regarded as having been complete, the head of the radius was also displaced more or less upwards from its original socket; a new socket, Sir Astley himself informs us, having been formed for its reception, upon the external condyle. But this is the only example, the actual condition of which has been proven by an autopsy.

Nevertheless, it seems certain that a simple dislocation or subluxation of the ulna backwards may occur without either of the above-mentioned complications, and that, to the extent of a few lines, it may be

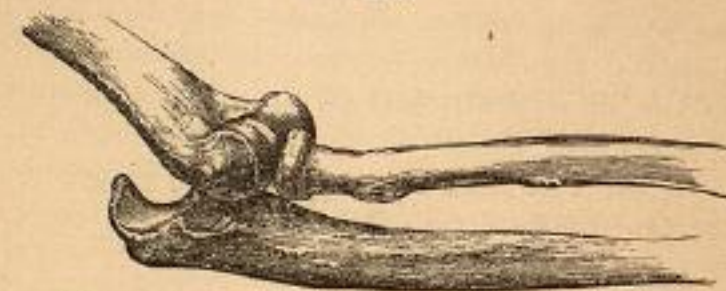
¹ Parker, New York Journ. Med., March, 1852, p. 189.

made to pass upwards upon the back of the humerus, by the falling of the forearm to the ulnar side; in which case the character of the accident would probably be recognized by the projection of the olecranon process, while the head of the radius might be felt moving in its socket; by the partial flexion and complete pronation of the forearm, and by the general immobility of the joint. In a case reported by Dr. Waterman, caused by a fall on the hand, the arm was at a right angle, and pronated.¹

Its reduction ought to be accomplished easily, one would think, by the same measures which have been found successful in reducing a dislocation of both bones backwards; but in Waterman's case this method failed, and the reduction was promptly effected by bending the forearm forcibly back.

Pirrie says that in a case occurring in the practice of Mr. Gosset, in which the coronoid process rested on the internal condyle, and the pain

FIG. 296.



Dislocation of the upper end of the ulna backwards.

on bending the arm was insupportable, owing, it was supposed, to the pressure of the coronoid process against the ulnar nerve, "reduction was accomplished by extension and counter-extension applied by two persons pulling in opposite directions, and by the pressure of the olecranon process downwards and outwards, while the forearm was suddenly flexed."²

Rosner³ employed with success the same procedure in a case of incomplete dislocation, which had existed eight months in a boy, set. 18.

§ 2. Dislocations Inwards.

In 1882, Dr. George Wright, of Toronto,⁴ reported an example in a girl nine years old, of dislocation inwards of the upper extremity of the ulna, the head of the radius remaining in place, caused, as was supposed, by a fall upon the elbow. Dr. Wright saw the patient the same day and recognized the dislocation, but as some of the surgeons who saw the case expressed a doubt as to the character of the accident, no attempt at reduction was made. Twenty-eight days after the accident, "A careful examination was made by almost all the members of the staff, and

¹ Waterman, Boston Med. and Surg. Journ., vol. iv., new series.

² Gosset, Pirrie's Surg., Amer. ed., p. 259.

³ Rosner, Wiener Allgem. Med. Zeitung, 1875, No. 32.

⁴ Wright, Canadian Journ. Med. Sci., Feb. 1882.