is strongly rotated outwards. These considerations, it seems to me, must exclude the supposition that there is here only a rotation of the trochanter outwards, and a consequent muscular displacement.

Whatever difficulties there may be in the way of supposing that this is a dislocation, they are not insuperable if we assume the existence of some abnormity in the construction of the joint and of the neck. It is possible even, that what we believe to be the trochanter moved back is actually the head of the bone, and that it is the trochanter which is lost; for the change of position occurs so suddenly that neither by the sight, nor with the hands placed upon the trochanter, can we follow the change of position. I only discover, after a sudden commotion, that there is no longer a projection where the trochanter was felt, and which I marked with a pencil in order not to be deceived; and that there is a projection which resembles it precisely, so far as we can determine, two inches farther back and upwards. Possibly, I say, this new projection is really the head, somewhat changed from its normal form; but I do not think so. Perhaps nothing but an autopsy can determine this and other points connected with the case.

Knee-joint; Rotation and Subluxation.—Mr. Warren has no power to displace the knee-joint by muscular action; but seizing the leg while it is flexed, he can rotate the tibia laterally very freely, and cause the head of the tibia to project beyond the line of the articulation half an inch or more.

Patella.—He has no power to displace this bone.

Ankle-joint.—With his hands he can abduct and adduct this joint almost to a right angle with the leg.

Tarsal Joints.—By the aid of his hands he can imitate the extremes of varus and valgus.

Phalanges of the Toes.—They are loose, but not so loose in their articulations as the phalanges of the fingers.

Adams,[1] of Glasgow, describes the case of a young man who, when 20 years of age, in trying to imitate an acrobat dislocated his thigh, which he reduced without assistance. After this he found himself able to dislocate either hip at pleasure. In order to accomplish this he raised the foot of the limb which he wished to dislocate, until only the toes touched the floor, and then suddenly flexed and adducted the limb. On ceasing the muscular contraction the bone returned spontaneously to its socket. This patient, who was examined three years after the original accident, was able also to displace voluntarily the inferior maxilla.

Chassaignac[2] furnishes an account of a vaulting mountebank, who had a congenital dislocation of both hips upon the iliac fossæ, which he was able voluntarily to convert into ischiatic dislocations.

[1] Adams, Glasgow Med. Journ., Oct. 1882, vol. 8, No. 4.
[2] Chassaignac, Bull. Soc. de Chir. de Paris, Séance du 28 Janv. 1853, p. 391.

CHAPTER XVIII.

DISLOCATIONS OF THE PATELLA.

§ 1. Dislocations of the Patella Outwards.

Causes.—In the majority of cases this dislocation has been occasioned by muscular action; and especially is this liable to occur in persons who are knock-kneed, or whose external condyles have not the usual prominence anteriorly. It may be caused by suddenly twisting the thigh inwards while the weight of the body rests upon the foot, and the leg is thus kept turned outwards; or by falling with the knee turned inwards and the foot outwards. Occasionally it is the result of a blow received upon the inside, or upon the front and inner margin of the patella. In some persons there seems to exist a preternatural laxity of the ligamentum patellæ or of the tendon of the quadriceps extensor, which exposes the subject to this accident from very trifling causes. Fergusson says he has known it to be occasioned by a child's stepping upon the knee of a person lying in bed; and Skey says he has seen two cases which occurred spontaneously during sleep. B. Cooper has seen a young lady who frequently dislocated her patella outwards by merely striking her toe against the carpet, or in dancing. Boyer, Sir Astley Cooper, and others mention similar examples.

FIG. 363.

Dislocation of the patella outwards.

Pathological Anatomy.—Most frequently the dislocation is only partial, the inner half of the patella resting upon the articular surface of the outer condyle; and in consequence of the peculiar obliquity of these surfaces, together with the action of the vasti and rectus femoris, the outer margin of the patella becomes tilted forwards.

If the dislocation is more complete, this margin begins to fall over backwards, as in the accompanying drawing; and in more extreme cases the patella lies flat upon the outer side of the condyle, with its inner margin directed forwards.

When the dislocation is partial, it is probable that neither the capsule nor the ligamentum patellæ usually suffers much laceration; but in complete dislocations the capsule at least must have given way more or less. Norris, of Philadelphia, reports a case of partial dislocation in which the complications were more serious. John Scanlin, æt. 32, was admitted to the Pennsylvania Hospital, on the 27th of August, 1839, in consequence of injuries received a short time previous by having become entangled in machinery. In addition to several fractures in other limbs,

he was found to have a subluxation of his left patella outwards, its outer edge being much raised, and resting on the side of the external condyle of the femur, while its inner edge was depressed, and firmly fixed in the hollow between the condyles. The internal lateral ligament of the knee was ruptured, allowing the head of the tibia to be moved considerably outwards. A depression existed, also, between the tubercle of the tibia and the lower end of the patella, at the middle and inner side of the knee, evidently produced by a rupture of the ligamentum patellæ in nearly its whole extent. There was almost no swelling, and the limb was moderately flexed. By firm pressure the patella could be restored to position, but as soon as the hand was removed it returned to its original position. At the end of two months "a good degree of motion existed at the knee-joint, which was in no way inflamed or painful."[1]

M. Berger has gathered six examples of ancient complete dislocations outwards, which have been examined anatomically, namely, two by Verneuil, two by Tainturier, and two by Philipeaux and Führer. In each of these examples the patella rested upon the tuberosity of the external condyle, which in two cases of Philipeaux and Tainturier, had become articular, flattened, and covered by newly formed cartilage of considerable thickness. The patella was thickened and globular in the case of Verneuil. It was also rather triangular than rounded in the case described by Tainturier. In Philipeaux's case it was atrophied to about the size of a two-franc piece. The diarthrodial cartilages in one of Verneuil's cases, upon both the femur and tibia, were entire: the external condyle was flattened, and in consequence of the pressure the intercondyloidean space was diminished posteriorly. Tainturier has noted a sort of tortion of the femur from without inwards. In two or three of these cases there was observed a laceration of the internal ligaments of the patella, and in one of Verneuil's cases the tendon of the vastus internus was torn also.[2]

Vesale,[3] Textor père,[4] Vering,[5] Monteggia,[6] Dupuytren,[7] and Hamoir[8] have also observed cases in which the displacement interfered but little with the usefulness of the limb.

In a case seen, however, by Bérard, the patient had a dislocation of several years' standing, and there was partial anchylosis of the knee in a position of semiflexion. Stromeyer and Hopfe have each met with a similar example.

Fowler[9] met with a case in a girl æt. 21, which dated from her fifth year, and who was so much maimed that Dr. Fowler thought it proper, first, to divide subcutaneously the "patellar tendon," but without any satisfactory result. Eighteen days later he excised the patella. From the report of this case it must be inferred that her condition was not improved by this operation.

Symptoms.—The limb is slightly bent, but immovable; the breadth of the knee is considerably increased; the inner condyle projects un-

[1] Norris, Amer. Journ. Med. Sci., Feb. 1840, vol. xxv. p. 276.
[2] Berger, Art. Rotule, Dic. Encyc. Sci. Med., ser. 3, t. 5, p. 343. (Poinsot.)
[3] Berger, loc. cit., p. 341. [4] Ibid. [5] Ibid.
[6] Malgaigne, op. cit., p. 906. [7] Ibid. [8] Ibid.
[9] Fowler, The Lancet, May 6, 1871.

naturally, and the patella is distinctly felt upon the outer side. If the dislocation is partial, the outer margin of the patella forms an irregular sharp ridge in front of the external condyle. If it is complete, the inner margin presents itself in front of the external condyle, and the outer margin looks backwards. Unusually the patient suffers great pain as long as the dislocation remains unreduced.

Watson, of New York, saw a case of complete dislocation of the patella outwards in a fat young lady with lax fibre, and occasioned by dancing. He says the knee was slightly but firmly flexed. It was reduced by very slight pressure with the fingers, and although some inflammation with effusion into the joint ensued, the use of the limb was completely restored in a week or ten days.[1]

Prognosis.—Reduction is in general easily accomplished, but a redislocation is very prone to occur. In a few examples reported of a permanent dislocation, the patients have eventually recovered the use of the limb in a great measure. Boyer saw four cases of this kind, in three of which it existed in the left leg, and had remained from infancy. The patellæ were easily replaced, but unless confined they soon became displaced again; not one of them found it necessary to apply for surgical aid, as "they suffered no great inconvenience from the dislocation, and it exempted them from military service."

After reduction very little or no inflammation usually follows. Mr. Key, has, however, narrated a case in *Guy's Hospital Reports*, of death from suppuration in the knee-joint, following upon the reduction of an *inward* subluxation. The dislocation was produced by a fall while carrying a pail, and was reduced by very gentle pressure; but the patient, a girl æt. 20, although apparently in good health, was believed to be somewhat strumous.[2]

Treatment.—In order to relax completely the quadriceps extensor, by whose action chiefly the patella is held in its unnatural position, the body should be bent forwards, while at the same moment the leg is extended upon the thigh and the thigh flexed upon the body. The surgeon will accomplish these indications in the most simple manner by placing the patient in a chair and then lifting the foot upon his own shoulder, as he kneels or sits before him. Sometimes the patella will resume its position at once when this manœuvre is adopted; but if it does not, slight lateral pressure, made with the fingers, will generally be found sufficient to accomplish the reduction.

A man, æt. 27, was sitting on a box, and in jumping off tripped himself with his right leg, causing a partial dislocation of the patella of the left leg outwards. Half an hour after the receipt of the injury I found him sitting with the knee bent, and in great pain. The patella lay upon the outer half of the articular surface, with its outer margin a little tilted upwards. Lifting the leg and thigh to a right angle with the body, and making very slight pressure upon the outer margin of the patella, it immediately resumed its place. Very little inflammation ensued.

In some instances, where other means have failed, the reduction has

[1] Watson, New York Journ. Med., vol. i. p. 306.
[2] Op. cit., vol. i. p. 260.

been effected by violent flexion and extension of the knee, aided by lateral pressure.

I have already mentioned, when speaking of dislocation into the foramen thyroideum, the case of N. Smith, in whose person I found at the same moment a dislocation of the thigh, a subluxation outwards of the tibia, and a complete outward dislocation of the corresponding patella. This was occasioned by a fall from a height upon the inside of the knee. I reduced the tibia first, and then easily replaced the patella by lifting the leg and pushing with my fingers against its outer margin.

In many cases the patients themselves have reduced the dislocation immediately, and the surgeon is only consulted in relation to the after-treatment. Liston says that this is so constantly the fact, or else such dislocations are really so rare, that it has never happened to him to have an opportunity of reducing any form of dislocation of the patella.

A young gentleman, æt. 25, residing in Somerset, N. Y., called upon me in consequence of having discovered a floating cartilage in his knee-joint. His account of the matter was that on the 1st of February, 1858, he was kicked by a cow upon the outside of the right leg, about six inches below the knee, and that he immediately found the patella dislocated outwards. After several efforts, he finally succeeded in reducing it himself. His knee soon became greatly swollen, so that for five weeks he was unable to walk, and he has been more or less lame to this time. Six months after the accident he discovered a floating cartilage on the inside of the patella, about one inch in diameter, which occasionally slips between the joint surfaces, and suddenly trips him up.

In 1870 M. Duplay[1] found in the Hospital Beaujon, a man æt. 25, with an incomplete external dislocation of the patella, of recent occurrence, and which he was unable to reduce by any of the ordinary methods. Duplay then, the patient being chloroformed, introduced through the integument, and fastened firmly into the projecting portion of the patella a strong hook, by pulling upon which the bone was restored to position.

In a case of recent dislocation which proved to be irreducible, Moreau[2] opened the capsule and passed an elevator between the patella and the femur, but he was then unable to reduce the dislocation. "The consecutive accidents were formidable."

It seems proper to repeat here what has been said before, that the facts of modern surgery do not justify the assumption occasionally made by my contemporaries, that the knee-joint can be invaded with impunity, and that "formidable accidents" are not likely to ensue despite antiseptics, drainage and the other appliances of modern surgery.

§ 2. Dislocations of the Patella Inwards.

The existence of a complete inward dislocation has been denied by Nélaton, Streubel, and questioned by Malgaigne.

[1] Duplay, Bull. Soc. de Chirurg. de Paris, 1870.
[2] Moreau, Poinsot, op. cit., p. 1121.

One example of incomplete dislocation has been described anatomically by Key, and which has been already referred to as having terminated in death from suppurative arthritis. In this case there were found laceration of the outer portion of the capsule, and a partial rupture of the tendon of the vastus externus.

Causes.—They are occasioned generally by direct blows received upon the outer margin of the patella.

The symptoms and treatment will be the same as in dislocations outwards, except so far as these must necessarily vary from the opposite position of the patella.

FIG. 364.

Dislocation of the patella inwards.

§ 3. Dislocations of the Patella upon its Axis.

(a) VERTICAL.

Syn. — "Semi-rotation;" Miller. "Luxation Verticale;" Malgaigne.

These accidents, of which I have found recorded about twenty-four examples—and one additional case has been seen by myself—seem to be the result of the same causes which produce lateral dislocations; and, indeed, they may be regarded as only exaggerated forms of incomplete lateral dislocations. In these latter accidents, as we have already noticed, the external or the internal margin of the patella, according as the subluxation is to the outer or inner side, is thrown more or less obliquely forwards; a position into which it is carried partly by the peculiar form of the articulating surfaces, and partly by the action of the vasti and rectus femoris muscles. If now these muscles were to contract suddenly and violently, and the return of the patella to its normal position were prevented by the lodgement of one of its margins in the intercondyloidean fossa, the other or free margin would be compelled to rise until it became perpendicular to the limb, or it might perhaps even become completely reversed.

Symptoms.—The signs of the accident are such as to render an error in the diagnosis almost impossible. The limb is generally found forcibly extended, occasionally it is in a position of moderate flexion, but the projection of the sharp border of the patella directly forwards under the skin is itself sufficient to determine the true nature of the injury.

Treatment.—Reduction may be effected by the same manœuvres which I have recommended in lateral dislocations; but if these measures do not succeed, we may direct the patient to make a violent effort himself to flex and extend the limb, or the surgeon may force the limb into flexion and extension alternately, or he may rotate the tibia upon the femur, and then flex. Finally, he ought to make use of lateral pressure also, upon both margins of the upright patella, but in opposite directions.

In all cases it would be advisable to put the patient under the influence of an anæsthetic before attempting reduction. In a case reported by Dr. H. Hunt, of Beloit, the reduction occurred spontaneously as soon as

the patient was chloroformed, although it had resisted all the efforts previously made.[1]

Watson, of New York, has related the following example of rotation of the patella upon its inner margin ("Luxation Verticale Externe," *Malg.*):

Henry Burton, aged about thirty-five years, of rather slender frame while riding on horseback in a crowd, received a blow upon his knee from a horse ridden by another person. When seen by Dr. Watson, soon after the accident, the leg was perfectly straight, but could be flexed to about an angle of 140° without causing pain. "The patella appeared to be slightly drawn up, and it was twisted upon its axis, presenting its outer edge, in a prominent hard line, in front of the knee; its inner edge was resting either in the groove between the condyles of the femur, upon which its posterior face should naturally play, or in the small depression on the anterior face of the femur, immediately above this groove. The anterior surface of the patella was turned inwards, its posterior surface outwards, and it rested nearly at right angles with its natural position. Its upper and lower attachments were both preserved, and could be distinctly felt; and a sort of band appeared to pass from its under, or, as it now lay, its outer face, inwards to the deeper portion of the knee-joint. This band, as I conceived, was caused either by the tension of the capsular ligament, or by the rupture of its edge, as it passes from the outer side of the patella. The position of the bone was so well marked that no one at all acquainted with the anatomy of the part could mistake the nature of the accident.

"With the leg extended, and the anterior muscles of the thigh forced downwards as much as possible, pressure was made upon the patella, with the expectation of forcing down its prominent edge. The effort was followed only by an increase of pain, the bone remaining permanently fixed. Another attempt was made to cant its posterior edge inwards, and to bring its anterior edge outwards, without pressing against the condyles of the femur, by forcing the head of a key against the posterior, now the outer, face of the patella (using this as a fulcrum), and pressing the prominent edge of the bone toward the outer condyle. This manœuvre gave him no pain, but was as fruitless in its result as the other. At length the knee was forcibly bent and immediately straightened again; and then, by canting the patella as before, and pushing it slightly downwards and inwards, it sprung with a sudden snap into its proper position."[2]

Dr. Joseph P. Gazzam, of Pittsburg, Pa., has met with a similar case. On the 10th of September, 1842, James Porter was thrown while wrestling, and immediately found himself unable to rise. Dr. Gazzam saw him about an hour after the accident, and found the patella of the right leg dislocated on its axis, and resting on its inner edge in the groove between the condyles of the femur. Dr. G. proceeded to attempt reduction, but failed, after having made repeated trials by lifting the limb toward the body and by pressure in opposite directions. In consultation

[1] H. Hunt, M.D., The Medical Record, April 1, 1873.
[2] Watson, New York Journ. Med., Oct. 1839, p. 302.

with Dr. Addison, it was now determined to divide the ligamentum patellæ, which was done by introducing beneath the skin a narrow-bladed knife, and cutting close to the tubercle of the tibia. Again the attempts at reduction were renewed, but without success. The patella could be moved on its edge more freely than before the cutting, but resisted every effort to replace it. The patient was now bled in the erect posture, and until the approach of syncope, but to no purpose. On the following morning it was determined to adopt, with some modification, the mode practised so successfully by Dr. Watson. "The thigh was strongly flexed," says Dr. Gazzam, "on the pelvis, and the heel elevated. Then the leg was flexed steadily and forcibly on the thigh, and suddenly straightened. At the moment of straightening the leg, I pressed very strongly against the lower edge of the patella from without, with the head of a door-key well wrapped, while Dr. Addison pressed with both thumbs against the upper edge of the bone toward the external condyle. On the fourth trial this manœuvre succeeded, the bone springing into its place with a snap." Recovery was uninterrupted, and two or three months after, the patient had the complete use of his limb.[1]

The following case is reported by Dr. S. F. Morris, New York:

"Mr. B., aged 27, of slender build, while playing at ball, in endeavoring to strike the ball had to jump up and turn partially round, when, on resuming his former position, he fell, his leg refusing to bend. He appreciated the nature of his injury, and, with the aid of the men in the store, endeavored to 'push it back.' Failing in this, surgical aid was sought, but, despite three attempts at reduction, the patella remained displaced. He was then taken to his home.

"I saw him about two hours after the accident. He complained of severe pain when any manipulation was made. The leg was perfectly straight. The patella was firmly wedged (its outer edge) in the intercondyloid fossa; its anterior surface looking outwards and slightly downwards, its posterior face looking inwards and upwards. The prominence of the edge of the patella, thus twisting on its longitudinal axis, left no doubt as to the diagnosis.

"No attempt was made at reduction by me until the patient was etherized, when, assisted by Dr. C. M. Bell, of this city, it was easily performed in the following manner: The leg was raised from the bed, the thigh flexed on the pelvis. Dr. Bell then placed his thumb, as a fulcrum, beneath the under (posterior) surface of the patella, and pressed on the upper (anterior) surface; at the same time I slightly flexed, then suddenly extended and rotated the leg inwards. The patella immediately resumed its natural position."[2]

Dr. Sternberg, Assistant Surgeon U. S. A., has also published a case in the *Medical and Surgical Reporter*, reduced readily when the patient was under the influence of chloroform. I am unable to find the date of the record, but I think it was in 1869.

The following case is reported by G. P. Davis, M.D., of Hartford, Conn.

"A few weeks ago I was summoned to a nurse girl, who was reported to have 'put her knee out of joint.' On entering the room, I found the

[1] Gazzam, Amer. Journ. Med. Sci., vol. xxxi., April, 1843, p. 363.
[2] Morris, The Med. Record, May 15, 1869.

patient laying on her face, both legs extended, and the left foot pointing toward its fellow.

"On turning the patient upon her back, the left patella was plainly seen in a condition of "vertical" displacement, *i. e.*, turned upon its inner edge, so that its upper surface looked toward the opposite knee. It was rigidly fixed, and the limb was entirely helpless.

"I learned that while sitting upon the floor, playing with the baby under her charge, she suddenly reached forwards, at the same time twisting her body partly around, in order to seize the child, who was a little out of her reach, and who, she feared, was about to fall. She immediately became conscious that an accident had befallen her knee.

"The patient was etherized as she lay upon the floor. The whole limb was then elevated by an assistant, so as to relax the muscles in front of the thigh, and, by forcibly crowding down these muscles toward the knee with one hand, manipulating the patella at the same time with the other, reduction was effected with the utmost ease."[1]

April 1, 1875, through the courtesy of Dr. A. R. Robinson and of Prof. S. B. Ward, of New York, I was permitted to see a case of "semi-rotation" of the patella. The accident had happened the day before, in the person of Susan Newman, æt. 31, a muscular Scotch woman, while wrestling. Dr. Robinson being called, attempted reduction by pressure and by other means, but without success. About seventeen hours after the accident I found her in bed with the left leg extended upon the thigh, and the patella standing upon its inner margin, which rested in the inter-condyloid notch. The patella was not vertical, but leaned over toward the outside of the knee.

While placing her under the influence of chloroform, she bent her leg to a right angle, but the patella continued to occupy its abnormal position. When completely under its influence, Dr. Ward extended and flexed the leg with no result. He then tilted the patella down until it lay flat upon the outer condyle (this was the position it took also when, being partially chloroformed, she flexed the leg); and after a second attempt, with moderate pressure against the outer margin of the patella, it suddenly resumed its position. None of the tendinous or muscular attachments were ruptured.

Dr. J. M. Boyd, of Thorntown, Indiana, reports a case of vertical dislocation, the patella resting upon its internal margin, in a negro 38 years old, and which was caused by muscular "spasms." Attempts were immediately made by a surgeon to reduce it, but without success. Subsequently Dr. Boyd tried also and failed; but at the end of two weeks the muscular spasms returned, and before Dr. Boyd could reach the house the bone had resumed its position spontaneously.[2] Malgaigne has reported, also, a case in the *Gazette Médicale*, for 1836, in which reduction was accomplished spontaneously during an attempt made by the patient to walk. The same writer refers to a case reduced under the influence of chloroform. Mr. Flower (Holmes's *Surgery*) records a similar case.

In a case of the same kind, published originally in *Rust's Magazine*,

[1] Davis, The Med. Record, Dec. 1, 1874.
[2] Boyd, Western Journ. Med., May, 1868, p. 275, and June, 1868, p. 341.

and which is copied at length by Mr. B. Cooper in his edition of Sir Astley's great work, the reduction was found impossible, notwithstanding the surgeon finally had the temerity to sever completely the tendon of the quadriceps extensor, and the ligamentum patellæ. Extensive suppuration followed, under which the poor fellow finally sank and died.

Dr. Alexander N. Dougherty, of Newark, N. J., has reported a case in which he succeeded in effecting reduction by pressure made with his hand while the limb was in an extended position, and without anæsthesia.[1]

Dr. Wm. B. Bradner, of Warwick, Orange Co., N. Y., reports a case occurring in a boy, æt. 9 years, caused by a fall in wrestling. The limb —the right—was slightly flexed. Dr. Bradner describes the reduction as follows: "To relieve the strain upon the patella preparatory to reduction, I seized his ankle in my right hand, and raised it from the bed; then I placed my left hand over the patella and grasped the knee; then by depressing the knee forcibly with one hand, and raising the heel with the other, I found it a very easy matter to rotate the patella to its normal bed." The boy recovered at once the complete use of his limb.[2]

Dr. W. R. Cluness, of Sacramento, Cal., reports a case reduced by him in the extended position and by lateral pressure.[3]

In a case occurring in a lady, 36 years of age, solely from muscular action, the reduction was easily effected by Blair D. Taylor, Assistant Surgeon U. S. A., by bending the knee as much as possible, and then suddenly straightening it, while at the same moment the patella was pressed firmly over.[4]

In two cases Cuynat[5] has followed successfully the example of Moreau, already referred to in connection with dislocations outwards, by introducing an elevator through an incision; and without any of the "formidable" accidents which ensued in Moreau's case.

(b) Complete Version.

Syn.—"Renversement;" Malgaigne.

In the earlier editions of this treatise, this dislocation is referred to as representing the most advanced or complete form of patellar rotation; but I have decided hereafter to speak of partial version (vertical) and complete version as two distinct forms.

Complete version, like partial version, presents two varieties, namely, version *from without inwards* and version *from within outwards*.

Malgaigne[6] refers to a case reported by J. Sue in 1752, of version from without inwards, which was not however complete, and which was unaccompanied with a rupture of the ligaments. Later, Bruyères is reported to have said to the Royal Academy of Surgeons that he had seen a complete version of the patella, and without rupture of the ligaments.

[1] Dougherty, The Med. Record, Dec. 30, 1876, p. 840.
[2] Bradner, Ibid., Jan. 20, 1877, p. 46.
[3] Cluness, Ibid., Jan. 27, 1877.
[4] Taylor, Ibid., May 26, 1877 p. 336.
[5] Cuynat, Recuil de Mém. de Méd., de Pharm. et Chir. Milit., t. 16, t. 18.
[6] Sue, Malgaigne, op. cit., vol. 2, p. 918.

Castara[1] reports a case of complete version from within outwards, in a girl of 17 years; the tendon and ligamentum patellæ were twisted into a cord. Reduction was easily effected by seizing the patella between the thumb and index finger, and by rotation from behind forwards, and from without inwards made slowly and gently.

Berger cites a similar case as having been published by Gaulke[2] in a girl of 17 years, who had fallen from a horse. Gaulke, who did not see the case until after ten days, was at first unable to effect reduction, even when the patient was under the influence of chloroform. On the following day Gaulke procured a carpenter's wooden vice, and enclosing in its grasp the internal condyle and the outer margin of the patella, he succeeded, after several ineffectual efforts, in restoring it to position; but not without some laceration of the integuments. Recovery took place speedily, and without any inflammatory accidents.

§ 4. Dislocations of the Patella Upwards.

Occasionally the ligamentum patellæ has been found so much elongated and relaxed, as to permit the patella to glide upwards upon the front of the femur. Heister and Ravaton have each seen an example in which a displacement from this cause existed to the extent of three inches. It is much more common, however, to meet with this dislocation as a result of a rupture of the ligamentum patellæ, as the following example will illustrate:

On the 18th of Dec. 1850, Dennis Mullards, æt. 50, was admitted to the surgical wards of the Buffalo Hospital of the Sisters of Charity. While at work on the same day, he had slipped and fallen, with his knee forcibly flexed under his body. I found the ligament of the patella torn asunder, and the patella drawn up two or three inches upon the front of the thigh. We applied at once the dressings used by me for a broken patella, and were able to bring the bone down completely to its place. Three weeks from the time of the receipt of the injury the dressings were removed, and the patella was found to be nearly but not quite in its original place. From this time we commenced to move the joint: in about ten days more he left the hospital, and I lost sight of him, so that I am unable to speak more definitely of the result.

Mrs. Fanny Neill, æt. 45, fell upon her right knee, causing a lacerated wound and a rupture of the ligamentum patellæ. Four years later, Oct. 28, 1880, I found the patella one and a half inches above its natural position. She was able to walk up and down stairs without difficulty, and while sitting she could lift the leg and straighten it upon the thigh perfectly.

The following case is unique: Miss M. E. Bracket was thrown in alighting from a stage, and, on consulting a druggist, was told that she had ruptured the ligamentum patellæ. Some time later, Oct. 20, 1880, she consulted me, when I found the lower edge of the left patella tilted forwards, with a manifest depression below the patella caused by the absence of the anterior, or most superficial fasciculus of the ligament. The posterior fasciculus, attached to the posterior margin of the patella, could be distinctly felt, and seemed to be normal in length and breadth. In walking the knee is apt to give way suddenly, as happens when there is a floating cartilage in the joint. I directed her to wear an elastic knee-cap; but she omitted to do this except occasionally, and when she again consulted me, about one year later, there was no appreciable change in the condition of the limb.

[1] Castara, Malgaigne, op. cit., p. 921.
[2] Gaulke, Deutsch. Klin., vol. 2, 1863.

In February, 1869, Dr. George H. Smith consulted me in relation to a gentleman who had ruptured the ligament of the patella in both legs, a little more than a year before, by catching his heel in descending from a carriage; the ligaments giving way in the powerful muscular effort which he made to prevent himself from falling.

Treated upon a single inclined plane in the same manner that I have recommended for a fractured patella, at the end of five weeks the patellæ were in place and the ligaments reunited. After walking about one month upon crutches he caught the heel of his right foot again and again ruptured the ligament of the patella in the same leg. A similar plan of treatment failed to accomplish anything, and when he consulted me the patella was displaced three inches upwards. He could raise the leg slowly to a position of extension while sitting, and was able to walk four or five miles a day.

Gibson has recorded a similar case, in which both patellæ were dislocated upwards by a rupture of the ligaments, occasioned by the exercise of leaping. He recovered the use of his limbs almost completely.[1]

(For examples of rupture of the quadriceps femoris, which some writers have incorrectly named Dislocations of the Patella Downwards, see Velpeau's Surgery, 1st Amer. ed., vol. i. p. 422; New York Med. Times, April 6, 1861, p. 226, and two cases reported by myself in the same volume of the Med. Times; Demarquay, Mém. Rup. Tend. du Triceps, Gaz. Méd., Paris, 1842; Renouard, Arch. Gén. de Méd., ser. 4, t. 15, p. 101; Binet, Rup. tend. triceps, et du Lig. Rotulien, Arch. Gén. Méd., ser. 5, t. 2, p. 687, 1858; Adams, Case of Rupture of the Tendons of both Recti Fem., Lancet, 1861, vol. 2, p. 226; Lorinser, Wiener Med. Woch., 1869, Bd. 19, S. 27; Berger, Art. Rotule, Dic. Enc. Sci. Med., ser. 3, t. 5, p. 330.)

[1] Gibson, Surgery, vol i. p. 395, 6th ed.