The Regular Dislocations of the Hip Joint.

Before proceeding to the examination of the Regular dislocations of the Hip joint, we shall make a few brief remarks on this most beautiful and important articulation itself, with reference to which the sound and learned Baerhaue says, "In sinuabile articulatione mensis creatorem adoramus." On comparing the Hip and Shoulder joints with one another, one cannot help observing that the former is constructed on principles well fitted to render it particularly strong, while the latter unmistakably points out that great mobility was aimed at in its formation and construction. No joint enjoys the same extent and freedom of motion as the Shoulder articulation, for there is no part of the body beyond the reach of the hand, so that the joint belongs to that class of articulations to which Mechanics have given the appellation of "universal."
coxal joint belongs to the ball-and-socket or
enarthrodial species of movable joints, the globular
head of the os femoris being accurately de-
termined in the recent state into the cup-shaped
cavity of the acetabulum. Indeed, with such
nicety does the one bone fit into the other that
even when the general ligaments forming the
bond of union between the two bones have
been divided, the head of the femur still retains
its normal position in the cotyloid cavity, and that too
even when the lower limb with all its soft parts
is allowed to hang pendulous from the joint.
The only resistance to the force of gravity, in this
instance, is atmospheric pressure, which has been
estimated to act with a force equal to 25 lbs.
On measurement, the head of the femur is found to
form more than half a sphere, while the head of
the humerus forms but a third of one, so that the
movements of the hip joint are of necessity much
less extensive than those of the shoulder joint.
Receiving the head of the os femoris is that part
of the os innominatum, which from its fancied
resemblance to the ancient vinegar cups of the
Romans, has been denominatated acetabulum.
This cavity is deep and hemispherical and admirably
adapted to afford a secure lodgement to the articulating portion of the head of the femur. In the margin of this cavity near the iliopectineal eminence is situated a small notch which allows the free flexion of the thigh towards the abdomen. On the inner side of this same margin is another and much larger notch, called the cotyloid notch, the final cause of which is manifestly to permit adduction of the thigh and the transmission of nerves and nutrient vessels to the ligamentum teres and the fat at the bottom of the cavity. In the case of the hip joint, it sometimes happens when matters have gone on to the formation of pus, that this mixed product finds its way with no very great difficulty into the cavity of the pelvis, from the remarkable thinness of the bone forming the bottom of the acetabulum. Fracture too in this situation from a fall upon the great trochanter is easily explicable when this fact is taken into account. Binding together the os femoris and the os innominatum are the following ligaments: the capsular, the ilio-femoral, the cotyloid, the transverse, the ligamentum teres, and lastly, the synovial membrane. The capsular ligament is a fibrous, loose
investment, taking its rise from the margin of the acetabular cavity and being inserted into the neck of the femur. It is lowest and longest below, where there is the least resistance required, whereas superiorly and anteriorly where great strength is absolutely demanded, here the capsule is strong intimately connected with the capsular ligament is a band of fibers extending from the anterior inferior iliac spine process to the anterio retro-auricular line of the femur.

From its connections, this ligament has received at the hands of descriptive anatomists the appellation of ilio-femoral ligament, and from its strengthening the investing capsule of the joint, it has, in addition been called the accessory ligament. Attached to the margin of the acetabulum is a firm fibro-cartilaginous band which has been denominated the cotyloid ligament. This ligament is prismoid in shape and the broad base is fixed to the bone, while the thin edge is free and extends inwards, so diminishing the cavity and embracing firmly, like a socket, the head of the coxal bone. The strongest part of this ligament is that portion which is situated at the upper and posterior part of the edge of the acetabulum. This ligament is the exact
analogue of the pleurid ligament of the shoulder joint. Extending across the cotyloid notch is that portion of the cotyloid ligament which has been called the transverse ligament, and which converts the notch into a foramen, through which pass the nerves and vessels for the supply and conveyance of the joint. On cutting into the hip joint through the capsular ligament and dragging out the head of the femur we expose to view the ligamentum teres capitis femoris. One would be very liable to form an erroneous idea of the shape of this ligament from the name that has been applied to it by anatomists. The ligament is not round as its name implies but triangular, the apex being inserted into the head of the femur and the base which is flat and divided into two bundles of fibers being passed to the edges of the cotyloid notch and blending with the transverse ligament. In the cavity of the acetabulum there is a space made of cartilage intended for the reception of the sacroiliac ligament. As to the special function of this ligament, there has been great diversity of opinion among physiologists. This is certain, however, that the ligament is not destined to keep the head of the femur in the cavity of the acetabulum, for when the ligament
has been divided. The parts forming the joint remain in their normal relative position. The function of the round ligament would appear to be to steady the pelvis on the lower extremities, when the body is in the erect position, preventing the pelvis from rolling to the opposite side and the femur from being too much adducted. Rotation of the thigh both inwards and outwards would also seem to be limited by this ligament. The hip joint is lined by a synovial membrane. In relation with the hip joint behind are the following muscles: the Pyiformis, Gemellus inferior, Obturator internus, Gemellus inferior, Obturator externus and Quadratus femoris. In front of the joint are the Pes an and the Thiers, which are separated from the strong and closely enveloping capsular ligament by a very important synovial bursa. Situated about the joint are the short head of the Rectus and the Gluteus minimus, the latter being closely adherent to the capsule, while internally are the Obturator externus and Pectineus.

From an examination of the anatomy of the hip joint we should be led to infer that dislocation of this articulation would
the all but impossible, the cotyloid cavity is so deep, the ligamentous tendes is so strong, the cotyloid ligament embraces the head of the femur so tightly, and the capsular ligament is so tough and so closely invests the articulation. Notwithstanding all these precautions, however, on the part of nature, duration of the hips joint is next in frequency to that of the shoulder joint, as will be manifest from the following table of statistics drawn out by Valgagne.

Of 491 cases of all kinds of dislocations, there were of the shoulder 321, of the hips 34, of the collar bone 33, of the elbow 26, of the foot 20, of the thumb 17, of the wrist 19, of the fingers 17, of the jaw 4, of the knee 4, of the patella 2, and of the spine 1.

Why this joint should be so frequently luxated notwithstanding its great natural strength, I believe that the explanation is not easily explained. I believe that the explanation lies in the fact that the joint is not generally dislocated by violence applied directly to the joint itself but to the bone or joint, so that the former acts with very great leverage advantage, especially when the latter organ is the spot at which the force is
applied. A remarkable influence on dislocation of the hip joint is exerted by age. In the very young this accident very rarely occurs, because at that tender period while the osseous system is still very imperfect, the force that would be sufficient to dislocate the head of the femur from the cotyloid cavity would be far more likely to sever the epiphyseal of the thigh bone. Nevertheless, however, there are instances on record, where the os femoris has been dislocated in the case of even the very young. For example Sir Astley Cooper records a case where the child was but 14 years of age. Mr. Benjamin Shaw saw dislocation of the hip joint in a child who was only 5 years of age and Mr. Surgeon of England had a case under his charge where the little patient was only 3½ years. But such examples are exceedingly rare. And equally infrequent is dislocation of the hip joint at the other extreme of life, but for a far different reason than in the case of the young. When violence is applied competent to effect luxation of the hip joint in the aged, fracture of the neck of the femur is the almost invariable consequence. This is explained by the fact that in old age the pubis is broad, the trochanter promi-
rent, the neck of the femur shortened by absorption so as to be nearly at right angles to the shaft. The cartilaginous matter is absolutely and relatively diminished, the earthy elements of the bone are absolutely and relatively increased, and in addition to all these predisposing causes, a peculiar process of atrophy goes on in the superior end of the thigh bone of the aged which has been admirably described by Sir Astley Cooper. As illustrative of the relative proportion of animal and inorganic matter existing in the bones of the child, the adult, and the aged we insert the following table of figures on the subject:

<table>
<thead>
<tr>
<th></th>
<th>Child</th>
<th>Adult</th>
<th>Aged</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Matter</td>
<td>47.20</td>
<td>20.18</td>
<td>12.2%</td>
</tr>
<tr>
<td>Inorganic Matter</td>
<td>48.48</td>
<td>74.84</td>
<td>84.1%</td>
</tr>
</tbody>
</table>

In young men of about the age of 20 or 25, luxation of the hip's joint frequently occurs, but the period of life when it takes place most frequently is between the ages of 25 and 45. Above the age of 50, fracture of the neck of the femur is much more frequent than dislocation for the reasons formerly assigned. Men, from the nature of their pursuits, are much more liable to this accident than women.
The regular dislocations of the hip joint are usually seen rotated four in number, the head of the femur being capable of displacement in the following directions: upwards upon the dorsum of the ilium; backwards into the pelvic cavity; forwards into the hypochondriac, and forwards upon the pubic bone. According to the relative frequency of these dislocations, Sir Astley Cooper, who enjoyed ample opportunities of coming to a pretty correct estimate, calculates that of 20 cases of luxation of the hip joint, 12 would be of the first species, 5 of the second, 3 of the third, and 1 of the fourth. Some, however, have denied the possibility of the third variety at all taking place. In all these dislocations, the head of the femur is completely removed from the cotyloid cavity, the capsular ligament being invariably ruptured and the ligamentum teres very generally so. Dupuytren and Sedillot record cases of dislocation upon the dorsum of the ilium in which the ligamentum teres was not ruptured. To cause this accident, the degree of violence required must be very great, and it would appear that the more the violence
is diffused, the dislocation is accomplished with the greater facility. Luxation by muscular contraction, which occasionally happens in the case of the shoulder joint, does not seem capable of taking place at the hip. Action, for so far as our reading goes, we have failed in finding a single example of the accident being caused in this fashion. Repeated dislocation of the hip joint is an exceedingly rare event, nevertheless some years since, a case occurred in the practice of Dr. Syrell where the os femoris had been displaced for the ninth time. The dislocating force is generally applied indirectly but sometimes directly.

1. Dislocation forwards and backwards upon the dorsum ilii.

This luxation happens most frequently in males, who are in the prime of life, and who are exposed to accidents from their peculiar occupation. It occurs oftener as the result of a fall, while the man is bearing a prominence on his shoulder, or it may be occasioned by a heavy weight falling on the back of the patient, while he is leaning forwards. A blow upon the limb while the horse and the foot are inverted, or a fall upon
the side when the extremity is in this position will also be likely to cause the accident. The accident frequently occurs from the giving way of an embankment and a large quantity of the material falling upon the person sustaining the injury, while he is in a stooping position below. Terrible adduction, a fall on the knee, a cart passing over the upper part of the thigh, or once the pelvis have all been reasons to dislocate the head of the os femoris upwards and backwards upon the dorsum ilii.

As to the symptoms of this dislocation. Great stress has been laid upon, and very properly too, upon shortening of the line of this dislocation, but the following case recorded by Sir Astley Cooper will show that we may meet with a case of dislocation of the head of the femur upwards and backwards and yet no shortening of the extremity be apparent. The eminent surgeon above named relates, "I once witnessed a case, which I mention rather for its singularity than for any practical inference which it furnishes. A man had received, I forget how, a severe hurt on one of his hips. When laid on a bed for examination, the thigh bone was found not to be broken, and the limbs were exactly of the
same length; but the foot of the injured side turned somewhat inwards, and any attempt to move the hip joint was extremely painful. On a more careful examination of the parts about the hip, it was plain that the thigh bone was dislocated and that its head was on the dorsum of the ilium, and yet the limb seemed not at all shortened. A brief inquiry, however, led to an explanation of this apparent anomaly. It appeared that the opposite thigh bone had been formerly broken, and had united in such a way as to leave the limb several inches shorter than it had originally been, and the dislocation of the other thigh upwards had caused enough that to a corresponding length. It is scarcely needful to add that the reduction of the dislocation restored the patient to his former lameness and to the deformity produced by limbs of unequal length. The extent of shortening of the limb varies according to the space of time that has been allowed to elapse since the receipt of the injury. At first the shortening is the result of the head of the bone lying removed
from its natural situation on to the close
sum of the ilium by violence whether di-
rect or indirect. But after some time, the
muscles affected by the injury begin to contract
and the shortening is increased. The shortening
varies from 1.2 inch to 3.5 inches. In a case of
nine years standing, recorded by Sir Astley Cooper,
the shortening was to the latter extent. This
dislocation was successfully reduced, although
it had happened so long previously. Another
symptom of very great value in the diag-
nosis of this injury is inversion of the thigh,
the knee, and the foot. The knee is not only
inverted but also adducted and placed
somewhat above and in advance of the
corresponding part of the other lower ex-
tremity. The patient of the dislocated limb
reaches the tarsus of the sound limb, while
the heel is greatly elevated. On endeavours
ing to rotate, abduct, or extend the limb, it is
found to be impossible except at the ex-
 pense of very excruciating pain to the poor
patient. Adduction and flexion are prac-
ticable to a small extent, but the limb
is immovable to the voluntary efforts
of the patient. Unless there has been great extravasation of blood around the head of the dis placed bone along with swell ing of the soft parts in the vicinity, the head of the bone may be felt in its abnor mal situation. There appears to be a diver sion of opinion among surgeons as to whether or not the great trochanter is more or less prominent. Dr. Gross maintains that the specific part of the femur is rendered much more protrudent than when the head of the thigh bone is in a freely made cavity. Sir A. Cooper, on the other hand, and the British school of surgeons, so far as I have been able to make myself acquainted with their writings, are of opinion that the great trochanter is less prominent in dislocation upwards and backwards of the head of the thigh bone. One is surprised that there should exist any diversity of opinion about a point which appears so easy of solution. In the dislocation, the great trochanter is situated across the anterior superior epicondrous process.
of the ilium than when the parts are in their normal relative position. Sensibility of the foot is sometimes suspended until reduction is performed. Although we have stated above that the limb is immovable to the voluntary efforts of the patient, yet a case is recorded by the late Dr. Licton in which the patient had the power to move the extremity upwards and forwards to some extent. The axis of the dislocated thigh is directed towards the scapul bone.

It has appeared remarkable in the eyes of surgeons, that in this injury the great trochanter shall be invariably directed forwards, while the direction of the head of the bone is backwards. Various explanations have been ventured to throw light on this point. That of the French surgeon Roger appears to be the most satisfactory. He is of opinion that the reason why the powerful rotator muscles do not turn the great trochanter backwards instead of forwards is that the strong accessory ligament of which we have already spoken in a former part of this thesis, prevents the great trochanter from being directed backwards. The lead
of the bone is lodged upon or under the Clitaeus minimus. There is more or less extravasation of blood around the head. To permit of the head assuming this unnatural position, the capsular and round ligaments must of necessity have been torn. The cotyloid ligament is also more or less injured. The Puboischial, Femoroc, Pyiformis, the two Petitioli and the two Obtura-
tors are put greatly upon the stretch and are occasionally ruptured. On the other hand, the Clitaei, the Adductors, the Gissus and Plantar and the Pectineus are relaxed. The question may be asked: How is the immobility of the limb affected? It is believed that the fixations of the thigh is accomplished chiefly through the immobility of the External Obliector.

The diagnosis of this injury is happily not be great difficulties. Intracapsular fracture of the neck of the femur might be mistaken by a careless surgeon for dislocation of the head. But in fracture, the great trochanters is turned upwards and backwards upon the ilium, the bone and the foot are everted, the limb is shortened from one to two inches, but by slight extension the affected extremity can
be made of the same length as the reduced one. When the extending force is intermittent, the limb again shortens. If the limb be rotated when sufficient extension has been made, crepitation may be elicited. No crepitus can be evoked when the limb is shortened because the fragments require to be in apposition. The thigh is readily bent upon the abdomen but with some pain to the patient. Fracture of the neck rarely occurs but in advanced life; when from that remarkable instestinal absorption which takes place in the neck of the femur in the aged, the accident is very rarely caused by the application of but trifling violence. With equal facility is fracture of the neck external to the capsule diagnosed from dislocation. On extension, rotation and compression of the great trochanter crepitus is readily obtained. If, however, the fracture be extra-capsular and impacted with inversion of the knee and foot the diagnosis becomes very difficult indeed, demanding of the surgeon the greatest care and minuteness of examination in order to avoid mistake. It is hardly possible to compound disease of the hip
joint and dislocation of that articulation, the symptoms of the former are so gradual and characteristic in their progress.

To compare the present mode of treating surgical cases with that which prevailed some years ago, and to mark the great progress made by the science in the intervening time is both interesting and instructive. If we consult, for example, Sir J. Cooper's work on Dislocations and Fractures, we shall find him the author recommending for the reduction of this luxation, the loss of from twelve to twenty ounces of blood, or even more, if the patient happen to be robust; a warm bath at 100°F. gradually raised to 110°F., half a pain of tartarised antimonium every ten minutes until nausea has been induced. The patient is then to be rolled up in a blanket and laid on his back, upon a table of convenient height placed between two staples. A strong padded leather girth is then put round the injured limbs pressing upon the perineum on the one side and on the crest of
the ilium on the other. This girdle is attached to the staple towards which the patient's head is directed. By this part of the apparatus the pelvis is fixed and counter-extension is afforded.

A wetted linen roller is next applied tightly above the knee and upon this a leather strap is buckled with two short straps at right angles to the circular one. These short straps have small rings at their distal extremities for linking on the system of pulleys connected with the opposite staple. Instead of the circular and lateral straps, a wound towel or bank of wetted made into the Knot called the Clove-Hitch and applied in the same manner as the leather apparatus will answer equally well. The knee of the dislocated limb, on which the apparatus last described has been adjusted is slightly bent and brought across the other thigh, a little above the knee, in a position which is suited to extension and for preventing the apparatus from slipping. To the two rings of the lateral
straps or to the towel or hank of worsted attached is connected one end of a system of pulleys, the other extremity of which is connected with the opposite staple. Everything is now ready for the application of the extending force. The surgeon should now draw the cord of the pulleys so as to tighten the whole apparatus. The patient having been so placed as to form of the extending and counter extending forces together a straight line in the direction of the long axis of the dislocated limb. The extending force is to be gradually, slowly, and steadily increased, and if the patient complains of the pain the extension is to be intermittently to afford the muscles time to relax. After a little, renew the extension and when pain is again complained of again let the extension be intermittently, until by degrees the muscles yield and the head of the femur approaches the rim of the acetabulum. The surgeon should never give the management of the pulleys to an attendant who should be desired to preserve the same state of extension, while the surgeon rotates the limb gently outwards as a
not to excite the muscles to opposition. During this act on the part of the surgeon, the head of the bone usually slips into its place. When pulleys are employed there is no slip and the return of the head of the femur into the acetabulum. To ascertain if the dislocation has been reduced, lower the bandage and see if both limbs are of the same length or measure the distance intervening between the trochanter major and anterior superior spurious process of the ilium and the sacro-lumbar joint articulations. If these distances are the same on both sides the dislocation has been reduced. Should the apparatus require readjustment, it should be done expeditiously to prevent the muscles from contracting. Great difficulty is often experienced in getting the head of the femur over the edge of the acetabulum. To obviate this obstacle, put a towel around the thigh as near to the luxated joint as possible and give it in charge to an assistant to raise the limb. When the dislocation has been reduced it is advisable to keep both limbs parallel and in contact with one another by means of a bandage, for the muscles being relaxed...
There is great risk of relaxation if much force has been employed in attempting to reduce the dislocation, it is well administer both local and constitutional remedies to combat the inflammation that is subsequently likely to be set up. The patient is to be kept in bed for at least a fortnight after the reduction in order to allow the injured structures time to repair. And even after that time has elapsed before he be permitted to use the side, precaution should be employed. This is the mode of reduction generally adopted at the present day by most surgeons with slight variations, but instead of the percussion, warm bath, and antimony chloroform is used which not only effect all that these means accomplish, but in addition anesthetizes the unfortunate patient, so that he is rendered unconscious of the exacerbating pain which but for this invaluable medicine he must inevitably endure.

Since the discovery of Chloroform surgery has made great and rapid strides. The following method of reduction which I highly approve of, would be all but impracticable were it not that by means of chloroform the unendurable pain is not experienced by the patient.
In 1851, Dr. T. J. Reid of Rochester, America, proposed to reduce this luxation of the hip joint in the following manner: "The operation may be described, for the sake of greater simplicity, as consisting of three stages. In the first, the surgeon, grasping the Knee with one hand, and the leg just above the ankle, with the other, flexes the thigh upon the pelvis, and the leg on the thigh, carrying the limb across the body, and the Knee over the abdomen as high up as the umbilicus. In the second stage, the Knee is turned outwards on a line with the injured side, a procedure which will draw the big toe from its inverted into an inverted position, and, of course, incline the heel proportionately inward, or in the opposite direction. In the third stage, the foot is carried across the second limb, and the Knee pushed outwards and downwards, when, the thigh being gently rotated, the head of the bone slips at once into its socket, with an incredible jerk, and the injured limb resumes its natural position."

II Dislocation Backwards into the Siatic Notch
This luxation is generally caused by the application of violence to the knee or foot when the body is bent forwards upon the thigh or the thigh flexed upon the pelvis.

So similar are the symptoms of this dislocation to those of the preceding accident, that many surgeons consider the two luxations under one head, the symptoms of displacement of the head of the femur upwards on the dorsum of the ilium being merely exaggerations of those of dislocation into the sciatic notch. We shall, however, keep the two separate and examine each by itself.

Up to the time of Sir E. Coxe, it was very erroneously laid down in text books that there is elongation of the ilium in this injury. This egregious mistake no doubt arose from looking at the position of the head of the os femoris in the sciatic notch in a pelvis not held at the proper obliquity. Great confusion was the consequence of this blunder till the eminent surgeon above named put the profession right on this matter. Instead of lengthening of the limb, it is shortened from half an inch to an inch, most commonly to the latter.
extent. In consequence of the shortening, the great toe of the affected limb reaches but to the ball of the opposite great toe, the heel of the former foot being raised about two inches from the ground. The knee is bent and slightly advanced. The head of the femur is lodged deeply in the acetabulum and can be felt only in the lean and emaciated. The great trochanter is unusually prominent and larger than natural so that the normal distance intervening between it and the anterior superior iliacus process is increased. On traction, the dislocated limb is found to be immovable backwards and outwards but may be flexed on the abdomen to some extent.

In order to permit the head of the femur to assume its unnatural position in the acetabulum, the capsular and cannal ligaments are of necessity ruptured. The ball of the femur is directed backwards and the trochanter major forwards. Beneath the head of the bone lies the Piriformis muscle.

In the mean, the method to be followed in the reduction of this dislocation is the same as that already described in the femur injury.
It is worthy of note, however, that the patient is to be placed on his side and the extending force is to cross the middle instead of the lower third of the opposite thigh. Dr. Reid's mode of reduction may be employed with equal success in this as in the former luxations.

III. Dislocation downwards and forwards into the hip joint or obturator foramen.

This luxation is caused by falls on the knee or foot while the thighs are violently and suddenly separated. Falls from a horse with the head under the animal, ponderous weights falling on the thigh while adducted and the body bent forward, and the catching of one foot in the bed clothes while the patient is jumping hastily out of bed, one foot only reaching the ground, have all occasioned this accident. The head of the femur is tilted downwards and forwards against the inner side of the capsular ligament which gives way and the head of the bone is drawn into the hip joint foramen.

The symptoms of this dislocation are very distinctive and easily recognised. Perhaps the most characteristic of them is the elongation of the limb, a symptom which belongs to none of the other
dislocations of the hip joint. The lengthening is from one and a half to two inches. If the patient be thin and emaciated, the head of the femur may be felt with facility towards the upper and inner aspect of the thigh, the great trochanter being consequently further removed from the anterior superior spinous process of the ilium than on the sound side. As a consequence of this increase of the distance between these two points other symptoms have great light thrown upon them. If the agony felt with his fingers in the course of the Scarpa's region and the ischiadic nerve he will soon be sensible that these muscles are greatly put upon the stretch and this being the case, the advanced position of the knee and the inclination of the patient's trunk to the affected side is fully explained, for if he be desired to raise his body to the erect position, without at the same time advancing the dislocated limb, he will find himself utterly unable to do so. But the knee of the luxated extremity is not only in advance of that of the sound limb, it is also much adducted by the tension of the glutaei and Pyriformis muscles. Instead of the natural crescentic shape of the buttock...
There is decided flattening of there may be conical depression. The gluteal fold is lower in position than it is naturally. Some authorities state that the foot is better inverted not. Others, on the contrary, say it drawn as generally somewhat turned outwards, the toes resting on the ground and the hind a little elevated. The movements of extension, abduction, and rotation, it is found impossible to perform, but those of flexion and adduction may be made by the ligament at the cost, however, of great pain to the unfortunate patient.

All authorities are agreed that before the head of the femur can assume its abnormal position the capsular ligament must be ruptured but there is a difference of opinion as to whether or not the ligament is invariably divided. Delsarte maintains that the second ligament is occasionally left entire in this accident. Sir Astley Cooper, on the other hand, is of opinion that the ligament in question is always ruptured when the head of the femur is dislocated into the thyroid foramen. The ball of the femur lies upon the obturator externus with the trochanter major directed anteriorly, the glutal, pyriform.
and extensor muscles of the thigh being rendered extense.

In this dislocation as in the two former Dr. Reid's method of reduction is perfectly applicable, the only exception being in chronic cases. Mr. Hey of Leeds adopted a very simple and easy mode. He made the patient sit on the edge of his bed with one of the bed posts between his thighs. Two tournets were then attached to the elevated limb and extension was made through these by two assistants. And while this was being done, Mr. Hey placed the injured extremity across the sound one and at the same time rotated the dislocated limb inwards. The bed post would thus serve as a pulley for the thigh to rest upon. Another case was successfully reduced by the same eminent by flexion and rotation inwards of the dislocated thigh. The following method has also succeeded: The patient is laid upon a table on his sound side and his pelvis is fixed to the table by means of a strong stitch. Round the injured thigh another belt is placed, one edge of
which touches the perineum. This belt is connected with a set of pulleys fixed above the patient. While the extension is being made the surgeon depresses the ankle of the injured limb and the bone slips into its place.

The last mode of reducing this dislocation we shall notice is that of Sir Astley Cooper. The patient is placed upon his back on a table and counter extension is made by means of a belt which embraces the pelvis and is fixed to a staple which is attached to some part of the bone on the sound side of the patient's body. The extending force is made upwards and outwards through another belt placed around the affected thigh close to the perineum. After the limb has been sufficiently extended, the surgeon passes his hand behind the sound ankle and lays firm hold of that of the injured limb and draws it inwards towards the medial line of the patient's body, and by this movement reduction is generally accomplished with facility.

IV. Dislocations forwards and upwards upon the os pubis.
From the great rarity with which this accident occurs, it might with perfect propriety be reckoned as one of the uncommon dislocations of the hip joint. This injury is generally produced by a person while walking, unexpectedly stepping into some hollow or ditch, and in order to avoid falling, he throws his body backwards, his thigh being kept straight by the action of the extensor muscle.

A case of pubic dislocation was seen in 1828 by Physic R. in which he states there was slight lengthening of the hinder. This symptom is certainly what we should not have expected from a knowledge of the anatomy of the parts, and according by we find the injured extremity shorter than the sound one by about an inch. On gently rotating the thigh outwards, the displaced head of the femur may with ease and readiness be felt in the groin, forming an unusual prominence, situated externally to the femoral artery, and above the level of Popesart's ligament. The rotundity of the buttock is obliterated on the affected side and the gluteal cross...
is placed on a higher level than naturally
one trial. The patient is unable to move the
thigh, but a little flexion forwards and
upwards is still capable of being made
by the surgeon, although rotation inwards
and adduction are found to be unprac-
ticable. The arm and foot are erected
and widely separated from the sound
limb, though to a less degree than in this
location into the obturator foramen. Som-
times numbness or pain is experienced
from pressure upon the anterior tibial
nerve by the ball of the dislocated femur.
As to the state of parts in this luxation,
the head of the bone lies on the horizontal
plane of the os pubis, usually above Pou-
parts ligament; but it has been seen be-
neath it. The displaced bone is covered by
the Pecos Magnus, Viscus Intemus and Pecto-
muscles; and the capsular and cancell
ligaments are ruptured, whilst the acces-
sory is injured more or less.

As in the other luxations already
spoken of, various methods of reduction
of this dislocation have been proposed
and put in practice by different surgeons. The mode, however, which appears to merit with most general acceptance is the following. The patient is placed on his back upon a table and a quilt, by which to obtain counter extension is on top of the pelvis and around the affected limb and carried somewhat across the trunk of the patient to a staple fixed on a level a little higher than that of the head. The pulleys are connected to the injured thigh a little above the knee in the manner formerly described. Extension is made in a line with the counter extending portion of the apparatus and downward and backward, and when the surgeon is of opinion that the limb has been sufficiently extended then a tunnel is to be placed round the dislocated limb close to the hip joint and by means of the tunnel an attempt is to raise the thigh bone, while the surgeon is to endeavour to lift the head of the femur over the rim of the cotyloid cavity, and so help the thigh to take rotated inward.
In conclusion, I would state that I was compelled for want of time to give up, for the present at least, the prosecution of some original investigations which I had intended making the subject of my Graduation Thesis.