On lithotomy / by William Frederic Teevan.

ON LITHOTOMY.

BY

WILLIAM FREDERIC TEEVAN, F.R.C.S., B.A.

SURGEON TO THE WEST LONDON HOSPITAL,

SURGEON TO ST. PETER'S HOSPITAL, AND LECTURER ON ANATOMY AT THE

WESTMINSTER HOSPITAL.

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It would be difficult to select, from the entire domain of Surgery, any operation which has attracted more attention than Lithotomy. Volumes have been written about it, and still more said about it. A few years ago there was no operation the rules of which were so dogmatically laid down, or so universally accepted as those of Lithotomy. The competition, however, to which Lithotomy has been subjected, by its rival operation, Lithotrity, has been the means of awakening increased attention to Lithotomy, to see, if that procedure could not be in some way made more successful than it has hitherto been.

At the present time the various modes of performing Lithotomy are subjects of controversy, and it is my object to bring forward certain facts which I hope may be the means of narrowing the questions at issue.

I will, firstly, make some remarks regarding certain points in connection with Lateral Lithotomy.

1.—Regarding the particular kind of sound to be used. There are two kinds of sounds in use—those which are similar in shape to a catheter, and those which resemble a lithotrite. I have no hesitation in saying that the latter ought always to

be employed. I have on several occasions made lateral sections of the adult male pelvis and compared the merits of different shaped sounds, in order to ascertain which were best adapted for the particular end in view. I found when I used the catheter-shaped sound that a stone would often elude discovery, even after a prolonged examination, and I ascertained the cause of failure to arise from the beak being too long and curved—its point becoming entangled in the folds or fasciculi of the bladder, and hence, when the sound was moved to the right or left, it did not roll to either side of the bladder, but simply carried the bladder to the right or left of the pelvis. It is for this reason that it is often so difficult to detect a stone with a staff. Surgeons sometimes experience considerable delay when trying to hit the stone with a staff. I have generally found that by introducing the finger into the rectum and tilting up the bladder quickly the stone will be jerked against the staff and the wished for click elicited. If a short beaked sound be used, its end is so free that it insinuates itself into the vacuities of the bladder and a stone rarely eludes discovery. I would here remark that a stone may be struck and yet no metallic click elicited. In Guy's Hospital Museum, No. 2091 [56] and 2091 [57], I have seen two calculi which were composed of alternate layers of fleshy and earthy matter. Each stone being about the size of a walnut with a fleshy covering. They were removed from a boy about two years old, and when first extracted were thought to be Hydatids.

How is it that surgeons have occasionally cut into the bladder and found there was no stone? They felt there was something which seemed of tolerable dimensions and gave forth a dull sound when struck. What was it? It was the promontory of the sacrum. It is well to bear this in mind, or a young operator may be puzzled.

2.—A very important point in the operation is that the

staff be firmly held. If the eye be kept on the handle of the staff, as usually held, it will be observed, at the moment the surgeon is entering the groove with his knife, the handle of the staff gives a succession of small jerks as the knife is running along, and it will be perceived that the surgeon's knife does not run smoothly into the bladder but has a tendency to stop at points. This results from the impossibility of keeping the staff fixed in the position in which it is generally held. The truth is the slightest pressure of the surgeon's knife is sufficient to make the staff jerk. The steadier the staff, the easier and quicker it is for the surgeon's knife to glide into the bladder. The greater the amount of force the surgeon uses in driving his knife along the groove of the staff, the less the liability for the knife to slip. The surgeon, however, cannot as a rule use much force, as he would either slip out of the staff or else drive the latter before him. But if the staff be very firmly fixed there is much more comfort and safety for the operator. Now in the way the staff is usually held it possesses but little fixity. The hand of the assistant is kept unsupported in the air, and the little fixity the staff may have is derived from pressing the instrument against the symphysis pubis—a process which is not devoid of danger, for the instrument may recede an inch or so from the bladder. I believe in many of those cases in which the operator has not succeeded in reaching the bladder, or only reaching it after much difficulty, the fault has often rested with the assistant who has allowed the staff to recede. When required to hold a staff, I always use both hands, one being placed over the other, the lower one resting on the crest of the pubis. In this way the staff can be held with a fixity which is unattainable by any other method. The penis can be compressed into a very small space against the crest of the pubis, and another assistant can keep the scrotum out of the operator's way. I may state that most staffs are

too long—the shorter the staff the steadier will it be. If a long staff be used the point nearly always presses against that part of the bladder which is close to the sacrum. Now such a procedure is very dangerous in boys, because if the surgeon's knife should slip as he is driving it home the point will most likely perforate or wound the opposite side of the bladder. Specimen No. 2104 [75] in Guy's Hospital Museum, illustrates this accident. The point of the knife penetrated the right side of the bladder opposite to the place of incision and the boy quickly died of peritonitis.

It is often a difficult matter to strike the stone with the staff; and yet I consider no operator is justified in performing the operation without having first done so, for although he may have, with a sound, struck the stone a few minutes before he introduced the staff, yet it does not follow that he has introduced the staff into the bladder. The late Professor Liston put a staff into the bladder without ever passing through the prostatic urethra, (Univ. Coll. Museum, No. 803). If when the staff is in the bladder there is any difficulty in striking the stone the finger ought to be introduced into the rectum and the stone made to strike the staff by tilting up the bladder quickly.

3.—Regarding the size of the knife to be used. When we are about to open the prostate I consider that we ought not only to know the size of the opening we intend to make, but we ought also to be aware of the opening we really make. Any size opening may be made with a narrow bladed knife, but it is far better to make a definite opening with a broad bladed knife than an indefinite aperture with a narrow knife. In one case we know exactly what we are doing, whereas in the other we do not.

Most surgeons use a different sized knife when operating on children to what they employ for adults. Not only is the boy's knife much shorter, which is only perfectly right, taking into consideration the difference in the depths of the perinea in

either case, but it is also much narrower in the blade. If a surgeon, when making his deep incision, withdraw his knife through the same parts by which it entered, and this is the safest plan, he will find that he will have considerable difficulty in getting his finger fairly into the bladder, and he will either have to use considerable force to enlarge the opening by laceration or will have to re-apply the knife to widen the slit. The aperture which is made by the boy's knife is only sufficiently large to admit the tip of the little finger. Now one of the most unpleasant things which can happen to a young surgeon, when operating, is to fail to reach the bladder, and find his finger wandering in the loose cellular tissue between the bladder and rectum. This mistake arises entirely from the smallness of the opening; the point of the finger pressing against an aperture in the prostate which is not sufficiently large for its admission, and then pushing the bladder backwards into the pelvis till it leaves the staff. This misfortune rarely occurs except in operating on children, and its cause is to be sought for in the fact that the narrow bladed knife is used.

It is stated by some surgeons that the cause of the above accident arises from the connexions in the pelvis and perineum being more lax. I look upon this however as incorrect, as a cause. In each case we cut against the staff, which is equally fixed in either instance. The only difference in the method of performing Lithotomy in the adult and the child is, that, in the latter, most surgeons use a smaller knife than in the former, although they desire to introduce the same sized instrument—the left forefinger.

I consider, whether we are about to operate on a boy or on an adult, we ought in either case, to use a knife of the same breadth of blade, and I found my opinion on the simple fact, that as in either case we desire to introduce the same sized instrument—the left forefinger—so ought we also to use the same sized knife.

The knife ordinarily used for Lithotomy on the adult is too narrow, for the forefinger can scarcely be introduced into the bladder without rupturing the tissues in its path. In fact, the moment the surgeon gets the point of the forefinger into the bladder he uses his finger as a lever to break down tissues and insinuate the rest of his digit.

But surgeons say they do not lacerate, they only dilate; and as proof of this, they adduce the fact, that when the point of the finger enters the bladder a firm ring is felt tightly encircling the finger, and that it yields like a sphincter to pressure. It is generally supposed that this constriction results from the muscular fibres encircling the neck of the bladder being firmly contracted on the finger. I have, however, ascertained, by experiment, that this is not correct. The same constriction is equally experienced on the dead body as on the living, and its cause must therefore be a physical and not a vital one. The constriction is produced by the submucous fibrous coat of the bladder, and can be imitated by trying to thrust the entire forefinger through a button hole which is only sufficiently large to admit the tip of the forefinger.

If the breadth of the knife were similar to the gorget, the surgeon would never experience any difficulty in reaching the bladder, and the parts would escape that bruising and laceration which give rise to suppuration, phlebitis, and pyemia. I therefore always use a large sized knife when operating on children.

4. Why do the forceps so often let the stone slip? It is because the ends are not sufficiently bent inwards towards the median line passing through the hinge. Forceps will not let a stone slip if the blades are well bellied.

Professor Liston loved a large powerful forceps. No doubt. The peculiarity in his method was that he tore the stone out of the bladder, and the spectators wondered at the ease with

which he extracted. Little resistance indeed could any prostate offer to a Liston's forceps in a Liston's hand.

The young surgeon ought to use a smaller and lighter pair of forceps than what Liston would have recommended, for he will not be able to use much force, and will learn that most essential of all things—to extract slowly and gently.

5.—Regarding the distance above the anus at which the external incision ought to commence.

Some surgeons begin as high as one inch and three quarters above the anus; others as low down as one inch above the anus—Which incision is the better? I am in favor of commencing the cut low down, for when we want to extract a stone we do it in a direction downwards and outwards. The desired object is to open the membranous urethra as near the prostate as possible. If the operation be commenced low down, a surgeon can thrust in his knife more boldly than when the high incision is used, and hence will generally at the very first incision hit, or get close to the staff. Not so, however, when the high incision is adopted, for it does not do to drive the knife in boldly as the bulb will very likely be wounded, and a good deal of troublesome but not dangerous hemorrhage ensue.

I have observed that those surgeons who perform Lithotomy with the high incision, make, in all, three different cuts before entering the bladder; whilst those surgeons who adopt the low incision, generally get into the bladder with two cuts; that is to say, having made the external incision they have not to re-introduce the knife to divide any structures preparatory to entering the groove in the staff. Thus therefore the low incision simplifies the operation.

6.—Regarding the use of the gum elastic tube after Lithotomy. It sometimes happens that in the course of a few hours after the operation the edges of the wound becomes glued together, and bleeding goes on internally. Should the patient

appear at all blanched, the finger ought to be introduced into the bladder to see that there is a free exit. If the operator has a house-surgeon whom he knows will be prepared for the above emergency the introduction of the tube is useless.

I will now proceed to discuss the following proposition which I have laid down,—"*The limited incision of the prostate, in lateral Lithotomy, is wrong in principle and mischievous in practice.*"

Half a century ago there were as many great names to be found in favor of making a free incision into the prostate as there were against that procedure. As time wore on, however, it would appear that the supporters of the limited incision had it all their own way, and it was only now and then that a solitary voice was raised against their method. Professor Syme has always been opposed to the surgery taught by British surgeons on this particular point. The very thing which, up to a short time ago, nearly all British surgeons were unanimous in saying ought not to be done, Professor Syme declared ought to be done. When enumerating the parts to be cut, he states (at p. 413 of the 5th ed. of his work on Surgery), "The prostate gland through the whole extent of its left lateral lobe."

Professor Ellis has for years past, pointed out to his class that the so called dilatation of the prostate was in reality rupture, that surgeons exceeded the limits of the prostate in Lithotomy, and that infiltration of urine did not follow division of the capsule of the prostate, inasmuch as the most successful cases of Lithotomy were those in early life, when on account of the very rudimentary condition of the gland the incision must always exceed the limits of that organ.

Mr. Henry Thompson, when defining the incisions in the lateral operation, states at p. 4 of his work on "Lithotomy and Lithotrity,"—"They involve one side of the prostate gland, it may be nearly to its full extent, while in children, and in exceptional cases they go beyond it."

Professor Erichsen has given it as his opinion, that a stone must either be cut out or torn out.

On looking over most surgical works it will be observed the writers very determinedly state that one of the great dangers connected with Lithotomy is infiltration of urine following the free division of the prostate, and that, by merely notching the prostate, and afterwards dilating the aperture, it will be large enough to allow any ordinary sized stone to pass without exceeding the limits of the capsule, and thus the dreaded evil will be avoided.

Science profits as much by the elimination of error as by the addition of new truth, and much harm has accrued to surgery by the traditional acceptance of dogmas founded on assertion only. When we are told that a stone four or six inches in circumference, together with a pair of forceps, and the prostate gland, can all be contained in a fibrous ring only one and three quarter inches in its greatest diameter, and utterly incapable of dilatation, I think we are not wanting in respect even if we refuse to accept, without proof, the assertions of the most eminent surgical authorities.

Remarkable as has hitherto been, the almost complete unanimity of surgeons, as to the vital importance of not exceeding the limits of the prostate, the absolute absence of all proof on their part has been still more remarkable. Take for instance, the statement of the late Mr. Liston, that he could extract a stone four or six inches in circumference through the prostate by dilatation. He furnished no facts whatever in support of his statement. How indeed could any surgeon say that he had extracted, by dilatation only, a stone from the bladder of a man who had recovered after the operation? Not having seen the prostate of the patient upon whom he had operated he could not know whether he had, or had not, exceeded its boundaries.

Those who advocate the limited incision of the prostate do so on the principle, that inasmuch as the great danger connected with Lithotomy is infiltration of urine, causd by the deep fasciæ being opened up, it follows that if the operation can be performed without opening the deep fasciæ the chief danger will be avoided,—that the operation can be so performed inasmuch as the prostate can be sufficiently dilated to allow any ordinary sized stone to pass through without destruction of the capsule.

It will be seen that everything hinges on the capability of the prostate to dilate, for, if it can be shown that no ordinary sized calculus can pass through the prostate by means of a limited incision, and the subsequent so-called dilatation, then it is useless to attempt to do that which is a physical impossibility. Even were it true that infiltration of urine were one of the consequences most to be dreaded after Lithotomy it would matter nothing, for if it were impossible to prevent it from taking place it would be useless to attempt by any means to avert it.

I will now proceed to enquire whether any ordinary sized prostate can after being partially incised, be sufficiently dilated to allow an ordinary sized calculus to be extracted without exceeding the limits of the gland.

It is well in the first place, to re-call some anatomical facts connected with the prostate. It is situated between two very dense fasciæ, whicn are absolutely incapable of being stretched. I mean the pelvic fascia and the recto vesical fascia. It has two fibrous jackets—a plexus of veins separating one from the other.

It will thus be seen that the prostate is not only hemmed in on all sides, but has a close fitting coat which can only be ruptured, not dilated. The greatest diameter of the fibrous ring which surrounds the prostate is only one and three quarter

inches, whilst the average diameter is little more than one inch. Judge therefore of the impossibility of extracting a stone four or six inches in circumference, together with the forceps, through a fibrous ring of an average diameter of little more than one inch, and filled with the substance of the prostate gland. I have very frequently performed Lithotomy on the dead body and dissected the bladders and prostates to see the results. The last five cases on which I experimented were exhibited by me to the Pathological Society, last May. I have also lately made a personal examination of all the pathological museums in London.

The following are the results, which I have experimentally ascertained:

1.—If the tip of the forefinger be introduced into the prostatic urethra, either from the bladder or through the membranous urethra, it will be found that the prostatic urethra will only admit the terminal joint of the forefinger without laceration.

2.—If the introduction of the forefinger be continued, the mucous membrane splits longitudinally as the second joint is passing through. The urethra splits in the roof, because the convexity of the joint is pressed against that part. In lateral Lithotomy, the incision into the prostate prevents laceration of the roof of the prostatic urethra.

3.—If a stone, half an inch in diameter, be extracted through a prostate in which no incision has been made, the mucous membrane of the floor of the urethra is lacerated, and the prostate slightly torn; the capsule remains perfect, but the orifices of the ejaculatory ducts are often with difficulty recognised.

4.—If a calculus, half an inch in diameter, be extracted through a prostate which has been partially incised, as in lateral Lithotomy, the capsule and the orifices of the ejaculatory ducts remain perfect.

5.—Stones upwards of half an inch in diameter, when extracted by the median operation lacerate, more or less, the prostate and its capsule, and obliterate the orifices of the ejaculatory ducts.

6.—Calculi, of one inch in diameter and upwards, when extracted through a prostate which has only been partially incised, in the lateral operation, lacerate the gland and its capsule completely, in a direction downwards and outwards, and obliterate the orifices of the ejaculatory ducts.

7.—If a calculus be extracted through an aperture which was made by cutting and not by lacerating, then the orifices of the ejaculatory ducts can always be distinguished.

8.—When a stone is extracted from the bladder by means of a limited incision, and subsequent so called dilatation, either in lateral or median Lithotomy, there is always more or less eversion of the gland; that is, in such cases, the stone has a tendency to enucleate the gland from its capsule in a direction forwards.

Thus, therefore, only a very small stone can be extracted through a partially incised prostate, without completely lacerating the gland and its capsule.

The specimens of bladders and prostates after Lithotomy which I have exhibited show that after an ordinary sized calculus has been extracted by lateral or median Lithotomy, the prostate is always found split into two—the halves being held together by a fibrous remnant of the capsule about half an inch broad.

Some would object to the deductions drawn from experiments on the dead body, and say, that results obtained after death must be very different to what happened after Lithotomy on the living. It must be remembered, however, that the mechanical properties of the fasciæ are not altered for some time after death, and therefore experiments made a few hours post mortem afford similar results to those that would have ensued on the living.

From a personal examination of all the pathological museums in London, I have ascertained the following facts :

1.—Out of the many specimens of bladders and prostates after Lithotomy, there is no unequivocal specimen which shows that an ordinary sized stone can be extracted through a medium sized prostate by means of the limited incision and subsequent so-called dilatation, without complete rupture of the prostate and its capsule.

2.—That in extracting ordinary sized calculi through the prostate, not only are the gland and its capsule completely ruptured, but the rent extends into the bladder as far usually as the orifice of the left ureter.

3.—That where there has been much laceration or bruising of parts, the orifices of the ducts are no longer to be distinguished.

4.—That there are several bladders and prostates of persons who have lived upwards of ten years after lateral Lithotomy, and in each specimen the cicatrix can be seen extending into the bladder nearly to the orifice of the left ureter.

5.—That a fistula in the bladder communicating with the rectum, is not an uncommon occurrence after Lithotomy,—that such fistula is the result of bruising or laceration, and would not appear to be of any moment.

6.—That in ordinary Lithotomy, the prostate is completely split into two,—the halves being held together by a remnant of the capsule, about half an inch broad.

7.—That the most frequent cause of death after Lithotomy would seem to be the extensive suppuration set up by the bruising and laceration of parts, followed by phlebitis and pyemia.

8.—That infiltration of urine after Lithotomy must be regarded as a surgical curiosity.

It will thus be seen, whether we examine cases after Lithotomy on the living or dead, the same conclusion must be

arrived at,—that an ordinary sized stone cannot be extracted through an ordinary sized prostate by means of a limited incision, and subsequent so-called dilatation, without complete rupture of the gland and its capsule.

A subject of very great importance, which has not yet received any attention from the profession, is the occurrence of impotence after Lithotomy. When it does take place, it is from the laceration of the mucous membrane around and lining the orifices of the ducts, and their subsequent plugging, My objection to the median operation is that the mucous membrane generally gets lacerated in the floor of the urethra, and the prostate occasionally split into halves in the paths of the ducts,—thus interfering with their integrity.

The practical conclusions at which I have arrived are :

1.—That when lateral Lithotomy is performed, the stone ought always to be cut out and not torn out.

2.—That the median operation is not justifiable for the extraction of calculi which are upwards of half an inch in diameter, for if such sized stones be removed by that process, obliteration of the orifices of the ejaculatory ducts and permanent impotence will ensue.

Lateral Lithotomy in the boy is such a very successful operation, and if performed without laceration of parts, causes no injury to the seminal ducts, that no possible advantage can be gained by substituting the median operation for it, inasmuch as that procedure cannot often be accomplished in the child without lacerating the very parts we ought to avoid—the floor of the prostatic urethra.

The only cases in which the median operation is eligible, is in those rare instances in the adult, in which there is a small stone, and in which Lithotrity may not be considered admissible.

I have now shown by examination of parts after Lithotomy

on the living, and by experiments on the dead subject, that no ordinary sized stone can be extracted through an ordinary sized prostate by means of the limited incision and so-called dilatation, without complete rupture of the prostate and its capsule, and frequent injury to the ducts, and other important parts. The surgeon is, therefore, reduced to the selection of one of the following methods of extracting the stone:—by tearing it out, or by cutting it out. I will show that the latter method is the preferable one. When a stone is extracted by a combination of cutting and dilatation (laceration), the surgeon does not know what mischief he may have caused, for when once he begins to tear, he cannot possibly tell where his rent will terminate. I have already stated that the laceration may extend into the rectum, far into the bladder, or destroy the seminal ducts. Now although these injuries are very serious, they are not positively fatal, and therefore the deadly consequences resulting from the effects of laceration, are to be found in the extensive smashing of the plexus of veins round the prostate and neck of bladder. At all times a clean cut wound is preferable to a lacerated one, for not only is the latter attended with considerable local destruction of tissues, but it is more often followed by phlebitis and pyemia, than the other. Now the plexus of veins surrounding the prostate, cannot be smashed with impunity. If such be done, extensive suppuration may follow, and we are exposing the patient to all the chances of phlebitis and pyemia. In the adult, the veins often attain an enormous size, and any destruction of tissue must be at the expense of running a serious risk. An examination of the specimens in the museums teaches that, above all things, force ought to be avoided;—gentleness implies cutting—force laceration.

It may perhaps be asked, what I mean by a free incision of the prostate as opposed to a limited one. I look upon the term,

free incision, as entirely relative. I consider that whether a stone be large or small, it ought to be extracted through an aperture which has been entirely made by cutting. An opening ought to be made sufficiently free to let the stone come out without using any force. It may also be asked, how the operator is to know before-hand, tho exact size which the incision ought to be,—He cannot know. Firstly, make an opening into the bladder with a broad bladed knife, taking care not to enlarge the aperture as the knife is withdrawn. The finger will press into the bladder with the greatest ease, and no tearing will be requisite to insinuate the forceps. Having seized the stone, commence its extraction. The moment the parts offer the slightest resistance to its exit, a straight probe pointed bistoury ought to be introduced into the inferior extremity of the wound, and a very slight cut made outwards and downwards. When parts are tense, a very limited notching gives a good deal of room.

I know that two objections will be raised against cutting in preference to dilatation (rupture). It will be said, that serious and fatal hemorrhage may arise, or that the deep fasciæ may be opened up, and infiltration of urine take place. Now as Professor Ellis truly remarked, the most successful cases of Lithotomy are in early life, when, on account of the rudimentary condition of the prostate gland, the stone cannot be extracted without exceeding the limits of the gland and its capsule—in fact opening up the deep fasciæ. So long as urine has a free exit it never occasions any harm.

The fear of hemorrhage must also be regarded as slight. Death from such cause is indeed so rare, that it must be looked upon merely as a curiosity. In the child, the parts are very vascular and bleeding often comes on when the patient has been in bed a few hours after the operation. The application of ice to the wound, and also to the hypogastric region, is

nearly always effectual. In the old, the prostatic veins often become greatly enlarged, and when divided in Lithotomy, give rise sometimes to very troublesome bleeding. In such cases pressure will be found more useful than the application of cold. The longer a patient has suffered from stone, the more likely he is to have hemorrhage, for the continual irritation of the parts about the neck of the bladder, gives rise to increased vascularity and thus considerably augments the chance of hemorrhage. A very slight continued drain of blood, for an hour or so, will often perfectly blanch the patient. A boy whom I lithotomised, was, in less than two hours after the operation, reduced to a critical condition from a slight, but continued trickling of blood. The application of ice to the wound and the hypogastric region effectually stopped the hemorrhage, and the case did well. The heat of the bed clothes greatly favours bleeding, and hence, I always order a patient upon whom I have operated, to be put to bed on his left side with the buttocks exposed.

To show that the free division of the prostate is a harmless procedure, I need only refer to the experience of Mr. Brett formerly surgeon to the Governor-General of Bengal. Mr. Brett had very great success as a Lithotomist. He cut for stone by the lateral method, no less than 108 times, and though two-thirds of his cases were under the age of puberty, yet, when we consider that his rate of mortality was only one in fifteen, we must regard him as a wonderfully successful operator. His last sixty-eight cases all recovered: many of them were Europeans.

Now what were his principles in operating. At page 206 of his work "On the Surgical Diseases of India," he stated "the prostate is completely divided on withdrawing the knife, cutting downwards and outwards with a slight pressure in the same line as the former incision." Further on, when discussing the causes of death after Lithotomy, at page 224, he said "It has certainly appeared to me, that the very result so much appre-

hended from a free incision of the neck of the bladder, seems to have followed in most of my unsuccessful cases, from a want of a sufficiently free incision. Whereas my unhesitatingly cutting all opposing textures has, especially in my last sixty-eight operations, been followed with the happiest results. Indeed I have almost felt conscious, whenever a case has terminated unfavorably, or the recovery has been slow, that my internal incision has not been sufficiently bold, and that the operation had been protracted thereby." Better surgical principles than these, no book contains. Mr. John Wood has written a paper, which is published in the third volume of the Medico-Chirurgical Transactions, "On an operation for extracting Stone from the Bladder by Urethrotomy, and dilatation of the prostatic urethra by means of an expanding staff." Dr. Willis has also brought forward a method, which he calls Lithectasy, by which the stone is extracted by opening the membranous urethra, and dilating the prostatic urethra very gradually. The same objection applies to the above proposed operations as to all operations conducted on the median principle—that the patient is exposed to the risk of being emasculated, inasmuch as I have shown, that laceration nearly always occurs in the median operations in the course of the seminal ducts.

I would therefore in conclusion, repeat—

1.—The median operation is not generally admissible.

2.—That in lateral Lithotomy the stone ought to be cut out, and not torn out.