Essay on some of the stages of the operation of cutting for the stone.

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ESSAY

ON

SOME OF THE STAGES

OF

THE OPERATION OF CUTTING

FOR

THE STONE.

ILLUSTRATED WITH AN ENGRAVING.

BY

CHARLES BRANDON TRYE, F.R.S.

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AN ESSAY

ON SOME OF

THE STAGES

IN

OPERATING FOR THE STONE.

FROM several periodical publications, and from conversing with students in different schools of surgery and anatomy, I learn that some controversy exists respecting the use of the Gorget, in Lithotomy.

As, in the course of twenty-five years, I have had a tolerable share of experience, as well as of success, in this operation, I hope I do not need an apology for publish-

ing any remarks on the question above alluded to.

I do not intend to treat of every particular in Lithotomy. I pass over the anatomy of the parts, together with many other circumstances, with which, I presume, the reader is fully acquainted.

It will be my task to explain the instruments of my choice; to describe how I have used them; and, from the result of my experience, to deduce some practical considerations on the propriety of dividing the integuments, muscles, urethra, and prostate gland, with the scalpel alone.

I begin with the Staff.

This instrument, for adults, should be twelve inches long; and its diameter should be as large as the urethra will admit,

without excessive distention. Its groove should be as deep as its substance will allow it to be. Its form should be such as will preclude it, when once introduced into the bladder, from easily slipping out of it again.

If its shape be such as I have seen given to many staffs, unless extraordinary caution be used, both by the lithotomist and the holder of the staff, it will be very liable to slip out of the bladder; and consequently to give a wrong direction to the gorget, or knife, to the irreparable injury of the patient.

There are two stages of the operation, in which the staff may slip out of the bladder: the first is, when the operator is bringing the handle forwards, and passing it over the right groin, in order to make its

convexity project in the perineum, previously to delivering it to his assistant. The second is, in the act of taking it from the assistant, and elevating the handle, preparatory to inserting the beak of the gorget into its groove, for the division of the prostate gland.

When in either of these stages of the operation the end of the staff slips out of the bladder, it is lodged in that part of the urethra which is immediately before the prostate. This part of the urethra has a great deal of loose cellular substance about it; is very dilatable, and very yielding; and the extremity of the staff will easily push it behind the prostate; and, if so, it will direct the gorget to take its course between the bladder and the rectum: for, from the great dilatability and non-resistance of this portion of the urethra, the operator may be easily imposed upon, and think the staff is still in the bladder, nor suspect his error till too late.

In operating with the knife alone, the slipping of the staff will not happen in the second stage, because the surgeon will not often take the staff from his assistant, till he is about to withdraw it.

But, in the other stage, the error may occur. I suspect it befel Mr. Bromfield, when the accident happened to him of the peritoneum and some of the intestines coming out of the wound, before he introduced his gorgeret.

For it may happen, that the staff shall not be in the bladder, and yet the beak of the gorget luckily take its road into that cavity. Therefore the subsequent passing of * Mr. Bromfield's gorgeret, and his extraction of the stone, do not disprove my suspicion.

* Bromfield's Observations and Cases.

In the early part of my life, I accompanied the late Mr. Russel of Worcester, (than whom a more correct, and expert operator has rarely existed) in his attendance on an operation, performed by a gentleman long since dead; the stone was extracted with great difficulty. Mr Russel told me he was very certain the staff was out of the bladder, at the time the gorget was introduced. And I once saw a large stone finally extracted where neither staff nor gorget had got into the bladder; and the latter was thrust between the bladder and the rectum.

For the use of surgeons who operate with the gorget, Sir Charles Blicke has invented a staff, which, if placed and maintained in its proper situation, protects the gorget from error; but the staff itself must be so placed and maintained; and the staff of which Sir James Earle has given a plate,

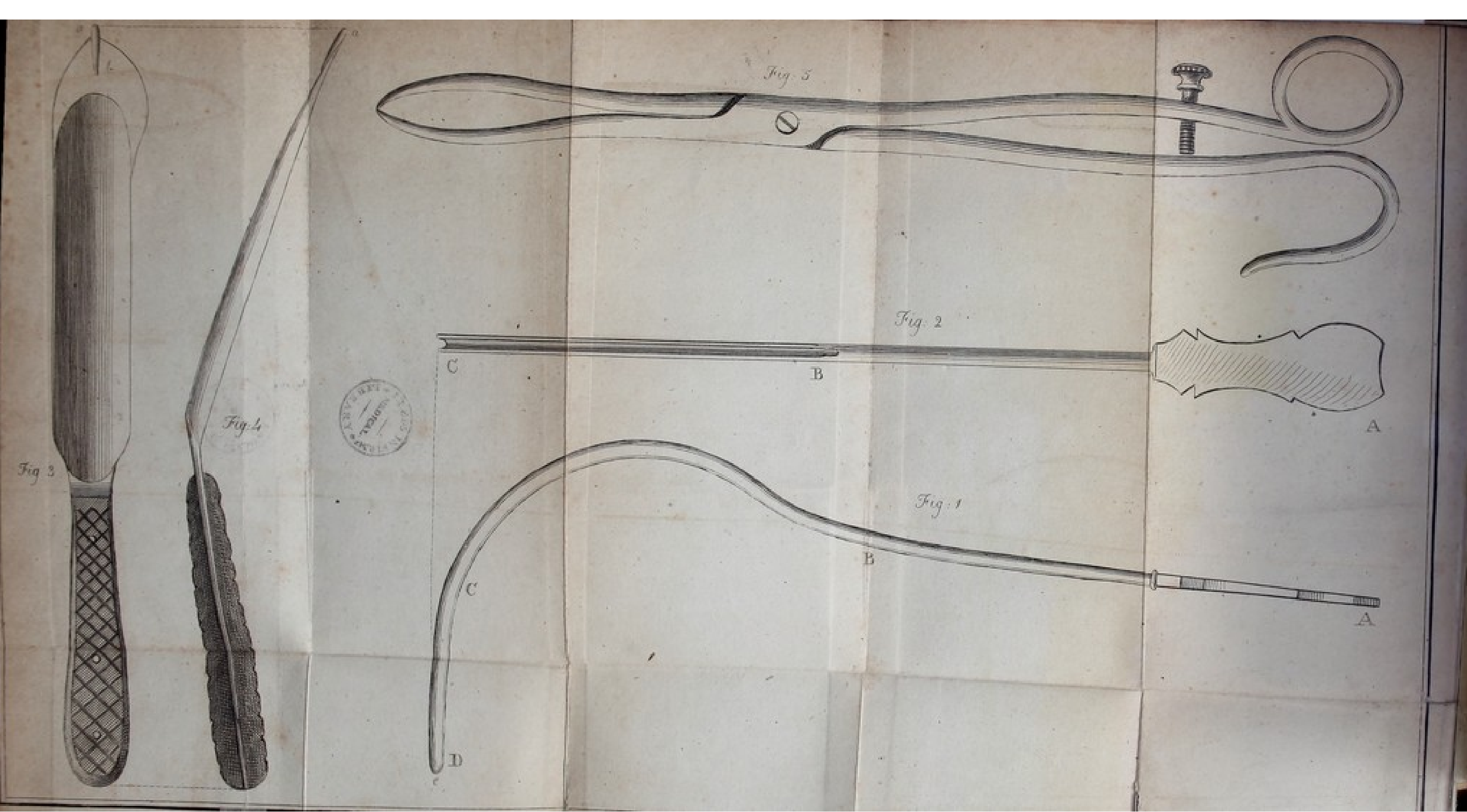
Fig. 5
Fig. 2
C
B
A
Fig. 4
Fig. 3
Fig. 1
B
C
A
D

(see Earle on the stone) is extremely liable to slip, on account of its form, in the way above described; and if it should so slip, then the gorget cannot possibly go right.

In the annexed plate, figure 1 and 2 represent the staff, consisting of the handle, the middle, and the extremity.

A. to B. *the handle,* quite straight.—B. to C. *the middle,* forming nearly the segment of a circle.—C. to D. *the extremity,* making a right angle with the handle, and nearly straight.

The shape of this staff makes it less easy of introduction; but, by proceeding slowly and with gentleness, the purpose of the operator will be accomplished. Many staffs have the usual shape of the catheter; but let it

be remarked, that the object of shaping the catheter should be different from that of shaping the staff. Facility of introduction is the first object of the former; but that of the latter is to give the surest direction to the other instruments required in the operation.

The extremity of the groove should be closed at *e*, and the closed end should be perfectly round on the outside, and square within, that it may slide easily on the one hand; and that on the other, a complete stop may be opposed to the beak of the gorget, if inadvertently and suddenly pushed forwards with too much force.

When this staff is once fairly got into the bladder, any byestander may be entrusted with holding it, as there is no danger of its slipping from its proper situation.

Moreover, a staff of this form is not

readily felt in the perineum, till the knife has divided the integuments and the fat; and then, indeed, its guidance is first wanting.

The next instrument, figure 3 and 4, is the *Prostatome*, a substitute for Sir Cæsar Hawkins's gorget. It is, in fact, a broad, double-edged scalpel, with a short beak at the point.

a. the beak, *b.* the cutting part, one inch long, scarcely an inch broad: the beak is exactly not in the middle, but so placed, that the edge makes an incision two lines deep or broad on the left side and rather more than half an inch on the right side.

These dimensions are laid down from incisions made in several prostates examined in full grown subjects. As there was no material difference in those which were in a natural

state, this report of the dimensions is sufficiently accurate. The left side of the prostate will be divided pretty nearly through its length and breadth, the right side but partially; for it seems neither safe nor necessary to cut the whole of the prostate on both sides through; but, at the same time, some room is gained for the passage of the stone, by the little wound on the left side. The beak is very short, and when buried in the groove of the staff, nothing is presented to the undivided parts but a sharp cutting edge; so that the instrument may be pushed on as slowly, and with as little force, as the operator pleases.

Where the lanceolated part ends, the blade becomes a wide channel, adapted to receiving the fore finger of the left hand, to be introduced previously to withdrawing the staff.

The blade is of the same length, and the handle forms an obtuse angle with it, as in the common gorget.

FORCEPS, FIG. 5.

The blades of the common forceps do not meet at their extremities when shut, but approach each other within about the distance of the eighth of an inch.

The extremities of mine meet when shut, but in the handles is a screw, which, when turned, separates them to the proper distance.

OF THE OPERATION.

I suppose the integuments and fat to be cut through, and the staff felt by the finger.

The muscles will be next divided. The groove of the staff is now to be aecurately distinguished; then turn the edge of the knife towards the symphysis of the ossa pubis; enter its point close to the prostate gland into the groove; continue a smooth incision along the urethra towards the penis, for the space of half an inch.

In very young subjects, the prostate is not to be felt; but its situation may be judged of by the vicinity of the anus; and at any rate, we may keep the knife within the membranous portion of the urethra. Having incised which, as directed, introduce into the groove the nail of the fore finger of the left hand, and, by the side of it, insert the beak of the prostatome, and carry it a little backwards and forwards two or three times, in order to be assured that it is actually in the groove of the staff, which, receiving from your assistant, rise from your seat, and bringing the handle of

the staff nearly opposite, but a little to the right, of the symphysis of the pubis, cause the prostatome gently to glide along the groove, keeping the beak *perceptibly* close to the bottom of the groove, till the urine freely flows out; or, that criterion being wanting, as will be the case sometimes by reason of the emptiness of the bladder, till you think you have gone through the prostate. If you have any doubt of your having done so, return the staff to your assistant, and carry the fore finger of your left hand along the channel of the prostatome, and ascertain the necessity of a farther division of the prostate.

The staff being withdrawn, which should be done with great gentleness and deliberation, (for its shape is unfavourable to a quick extraction,) always carry the finger along the channel of the prostatome, into the bladder; and keep the cutting part of the instrument whilst it is being withdrawn

on the underside of your finger. This will defend the parts against any additional wound. Feel the stone, (which you will always be able to do, unless it be embraced near the fundus) with the finger still in the bladder, introduce the forceps on the inside of the finger, which will direct them to the stone.

I have been apprehensive, that the common forceps, being introduced naked and without the guidance and protection of a gorget or conductor, might catch between their points some portion of the wounded parts in passing into the bladder; and thus occasion, if not mischief to them, at least a little embarrassment to the operator. I therefore cause mine to be made so as to perfectly meet at their extremities, and then they pass through the wound as a hollow cone, and without hesitation; and when the blades are in the bladder, the screw in the handle

being turned, separates them to the common distance, and then all danger of their pinching the bladder is obviated.

Of the taking hold of, and the extraction of the stone, I shall say nothing, except, that in the extraction, the force should be applied alternately upwards and downwards, that is, to and from the sacrum and pubes, after the manner of extracting a child by the forceps in artificial delivery; and not by a rotatory motion; the latter being more likely to bruise and tear.

If there be an extraordinary resistance to the passage of the stone, which sometimes is beyond what is in proportion to its size, in such a case, I have, without letting go the stone, carried it backwards towards the fundus vesicæ; then, rested a little while, turned the stone round in the bladder, and afterwards found less force necessary to

extract it than I had before tried ineffectually.

Having described what small deviations I have made from Sir Cæsar Hawkins's practice, let me consider what advantage can possibly arise from confining the cutting part of the process to the knife.

Is it probable, that this part of the operation will be done with equal safety, more expeditiously, and less painfully? In particular, that the prostate will be divided with equal precision, as to direction and dimensions, and that the adjacent parts will be equally protected, if we reject every instrument besides the scalpel? I know before hand the size of the wound which the prostatome produces, and by observing the relative position of the staff, in what direction it will be made. For as the handle of the staff is inclined more or less to the right groin of the patient, so will the wound in the prostate

deviate, more or less, from a right angle with the wound in the urethra. How many surgeons are there, possessed of such a delicacy of touch, as to conclude the work with the knife, with equal exactness? The knife cannot here be directed by the groove of the staff, as it is, in other cases, by the groove of the common director. For the staff, in dividing the prostate, is merely a goal, from which the knife must set out, and to which it is to return. During the immediate act of dividing, it must move at some distance from the staff; that is to say, if the prostate be cut by a wound, forming more or less a right angle with the wound through the integuments, muscles, and urethra, which, to ensure the safety of the rectum, must be always done. Mr. Allan's description of the operation by the knife alone, as well as his plate of the lateral incision of the prostate, demonstrate the correctness of my statement. *(See Allan on Lithotomy)*

'Tis true that, in the living body, the feel of the prostate is very different from that of every thing beside in its vicinity; and every part of it may be distinguished by an experienced touch. But the finger will rarely have attained that advantage the first time the surgeon is called to cut for the stóne; it cannot have acquired it by exersise on the dead body, in which the feel excites a different sensation from what it does, applied to living parts. Whereas, if a surgeon, having that anatomical knowledge, without which no man deserves the name of a surgeon, is cool and steady, and in the habit of using instruments, and attends to rules, he will, in his first operation, equally as in subsequent ones, make his way correctly into the bladder. He is guarded against wounding the rectum, vesiculæ seminales, and seminal ducts, all exposed to injury, even from the most skilful hands, provided with the knife

alone. Though the wounding of the seminal ducts may not endanger the safety of the patient, yet it may obstruct the future regular flow of the semen.

In respect of the rectum, I can assure Mr. Allan, who appears to speak from theory, that a wound of it in this operation is a very alarming circumstance; and that I have seen lasting misery follow its infliction. I am very confident, that, if it were frequently to follow any specific mode of operating, the good sense of the profession would very soon reprobate and abandon that mode.

There are two circumstances which appear very unfavourable to cutting with the knife alone: the patient being a very large and tall man, and the patient being a very small child. I have this day, March 8th 1809, operated on a very tall man,

sixty three years of age, and while I was dividing the urethra, I paid particular attention to the prostate. I am convinced, though I am tolerably accustomed to the use of the knife, and not very deficient in anatomical knowledge, that if I had attempted to have divided the prostate with the knife, I should have certainly been embarrassed by the great depth of the prostate, nor have perfected my task with accuracy.

As, in early childhood, the prostate is too small to be felt, we want its guidance, as to the situation and extent of the incision to be made by the knife. Whereas by our previous consideration of the size, and other circumstances of the prostatome, we can predetermine the situation and dimensions of the finishing wound.

And here I will subjoin a reflection applicable to every mode of cutting: name-

ly, that a stone of a given size does not require so large a wound in a child, as it does in an adult, in order to its being extracted with equal ease. Because, in an adult, if the prostate be not divided nearly, or quite to its edge on one side, the principal impediment to the passage of the stone is not removed; but in a child, a very small division of the expellent orifice of the bladder, assimilates his condition to that of a female, and large stones may be passed through the female urethra without incision, and the largest, with but a small incision. Whereas in the adult, a perfect division of the prostate must be made, in order to give him the like assimilation.

In accurately performing lithotomy, the last wound, by whatever instrument, should, for the reason already assigned, divide one half of the prostate, but should not extend

the least beyond it, into the substance of the bladder.

For this last proceeding may produce all the inconveniencies of the respective operations of Foubert, Garangeot, and the first of Cheselden, done in a mistaken imitation of Raw* of Amsterdam, and this

* It is impossible to imagine that Raw could have been so eminently successful, as to obtain Albinus's eulogium, "*respondisse ei successum, ut haud sciam an sic ulli alteri*," if he had operated in the same method which his imitators so unsuccessfully practised. Mr. Cheselden, and, I presume, others, collected their ideas from Albinus, Raw's pupil. But Albinus, before his death, published a complaint, that Cheselden, Sharpe, Camper, and others, had grossly misunderstood him. He says, "*Non scripsi incidendam vesicam* a latere prostatæ, *quod Sharpe de me tradit ; non plagam vesicæ super prostatam infligendam quod Camperus ; sed scripsi vesicam prope cervicem sive collum incidere me proposuisse, ubi certe prostata incidenda est*." So that by the neck of the bladder he understood what anatomists generally consider the beginning of the urethra, which lies within the prostate gland : and he says, that Bortel, who followed, cut the *neck*, the *orifice*, and the nearest portion of the bladder itself. It appears, then, from Albinus,

without the proposed advantage of leaving the urethra untouched, and thereby preventing future incontinence of urine.

It is easier to cut into the bladder directly beyond the termination of the urethra in the prostate, than to perform with accuracy the lateral operation, from which, indeed, to the eye of a common spectator, the method just supposed will not appear to differ, but will give an idea of rather superior dexterity in the operator. Still it is hoped that the evidence of its

that Raw cut nearly, or altogether, in the lateral method, which was finally practised by Cheselden; and this accounts for Raw's eminent success.

That Raw did not cut into the bladder, beyond the prostate, is evident from what Albinus testifies, to wit, that the staff used by Raw could not reach so far; which Cheselden, upon trial, found to be a fact, though the opinion which he had erroneously collected from Albinus led him to this mistaken imitation of Raw, with the addition of injecting the bladder to distention, with warm water, and using a longer staff, or catheter, channelled on the convexity of the outside.

frequent bad consequences, will prevent the revival of its practice. However, if the knife become the sole cutting instrument employed in lithotomy, I fear the bladder will be so often extensively wounded, that the increased simplicity of the apparatus, and shew of expertness in the operator, will not compensate for the mischiefs experienced by the patients. Mr. Bromfield, whose experience and skill as a lithotomist were very great, was decidedly against wounding the body of the bladder. I am persuaded, not only from reflecting on its structure, that his decision was right, but also from direct evidence of some disadvantage in an opposite practice.

In the first very young subject who fell under my hands, I felt that I wanted the guidance of the prostate, to lead me to the exact point at which the urethra should be pierced; nor had I reflected that a less open-

ing is required for the extraction of a stone in a child, than in an adult; a circumstance which I had never seen or heard noticed. I made the final incision with a broad gorget, whose wound of course extended into the body of the bladder. A moderate sized stone was extracted with the utmost facility. The event, however, was the bitter mortification that the wound in the bladder was never healed, that ulceration increased the loss of continuity, and that within six weeks the child died. Nothing requiring notice appeared upon dissection, except that the wound had been carried into the substance of the bladder, beyond what is called its neck. and that ulceration had somewhat extended the wound beyond its original size. One kidney was found to be merely a kind of leather bag of matter—this circumstance might perhaps account for the ill success of the operation, and may impeach the justice of my imputing it to the extent of the

wound made by the gorget. But whatever may be doubted of this case, the next is conclusive.

A well-made, healthy, middle aged man, was the subject. It appeared to me, who was the assistant, that the operator before he quitted his knife, was cutting into the bladder, beyond the prostate; a very small stone was extracted, and the patient suffered no violence beyond that of a clean, simple wound. In a few days he had a considerable swelling of the scrotum, in which matter was formed, and afterwards in the thighs, and about the os pubis. Sinuses were formed in a variety of directions, and in six months he died, worn out by irritation. Dissection manifested, that the knife first penetrated into the sulcus of the staff, beyond the prostate gland, and that this substance had never been wounded. Mr.

Allan says, that Cheselden, in the last improvement which he made in the lateral operation, struck his knife into the groove of his staff, through the coats of the bladder, and then, drawing it towards him, divided laterally the neck of the bladder* and membranous portion of the urethra. In Cheselden's own *Historical Account of Cutting for the Stone,* it does not appear that the bladder was intentionally wounded at all. He says, "I then search for the staff, holding down the gut all the while with my left hand, and cut upon it (the staff) in that part of the urethra which is beyond the corpora cavernosa urethræ, and in the prostate gland, cutting from below upwards, to avoid wounding the gut."

The term, neck of the bladder is not a proper term. The human bladder has no neck, but the body or irregularly globular, cavity, begins as soon as the urethra terminates.

This must have been written many years after Douglass published his report, which Mr. Allan quotes; for when Cheselden wrote, he says he had cut two hundred and thirteen patients; whereas, Douglass speaks only of his having cut fifty-two.

I shall here quote, and likewise endeavour to answer in order all the objections made by Mr. Allan, to the use of the gorget; and from the use which he makes of Mr. Bell's name, I must suppose them to be also those of that gentleman.

1st. "The beak of the gorget is apt to slip from the groove of the staff, before it reaches the neck of the bladder. This has often happened in the hands of good operators, and assuredly will happen."

If this happens, the staff and beak of the gorget must be both very ill made, or the surgeon must enter the urethra too

soon, for instance, in the bulbous portion; whereas, he ought never to pierce that canal but in the membranous portion, and within half an inch of the prostate gland; and as then the gorget will not have more than the third of an inch to traverse, before it comes to the prostate, it will scarcely lose its way in this distance, and in the hands of a good surgeon the handle of the gorget is always depressed, in proportion as he depresses the handle of the staff.

Obj. 2. "If the operator presses his gorget onwards too horizontally, the prostate gland, being moveable, will recede, the gorget slip from the groove, and be driven between the rectum and the bladder."

It is here assumed that the surgeon operates with a very dull edge to his gorget; whereas it should always make its way as easily as a scalpel would do; as will be the case, if its shape be good and its edge keen and smooth.

Obj. 3d. "If the surgeon, or assistant, depresses the handle of the staff too much over the right groin, with the idea of making its bend or heel be distinctly felt in the left side of the perineum, the point of the staff will slip out of the bladder, and when the surgeon has completed his external incisions, it will start through the membranous part of the urethra; and, in this case, pushing his gorget by this false guide, he will drive it between the bladder and rectum."

If the staff be started through the membranous part of the urethra, it will also misguide the knife of the operator, so that this is no specific objection to the gorget, but only to an awkward surgeon, using an ill contrived staff, and having an awkward assistant. However, I hope I have freed the staff from being liable to its share of this censure.

4thly "It is uniformly acknowledged, by the best surgeons, that the gorget cuts the prostate gland very imperfectly. Its incision sometimes admits, with difficulty, the introduction of the forceps; and, if the stone be large, is quite inadequate to its extraction, without dreadful laceration."

If the gorget does not divide the prostate sufficiently, the fault is in its make, not in the principle of using it. It is not necessary nor expedient that the wound, through which the stone is to pass from the bladder, should be of the same length as the longest diameter of the stone.

Sir James Earle has given plates of the very large stones, which he has successfully extracted after using the gorget; and larger than those will rarely occur to any operator: and after all, if the surgeon finds he has a stone too large to be extracted without dreadful laceration, he can enlarge the

wound of his gorget by his scalpel, just as well as if he had never used the gorget at all; for we cannot suppose, that a prudent surgeon, even if he confines himself to the knife, will make his incision with his knife of the greatest possible size, before he has ascertained that the stone is of an extraordinary magnitude; which he cannot certainly do, till he has got his forceps and finger into the bladder. Neither the staff, nor feeling through the medium of the rectum, will enable him to ascertain the size of the stone.

Obj. 5 "If the cutting part of the instrument be made broad, to provide against the last accident, it enters the pubis with great difficulty, grates the bone, by which the pubic artery is sure to be wounded, and the patient brought into great danger by the hæmorrhage, which commonly proves fatal."

I admit the objection; but I should be

sorry to see any surgeon operate with a gorget, which justified the expectation of its doing so much mischief.

Obj. 6. " Whenever the gorget enters the bladder, the patient feels an irresistible inclination to bear downwards, by which the fundus of the bladder is pressed against the point of the instrument; and if it be kept long in the bladder, to serve as a conductor to the forceps, this generally happens."

I never felt this descent of the fundus in using the prostatome; and my finger has always been so instantaneously introduced along its channel, that it could not have happened without my perceiving it: and as I never keep this instrument long in the bladder, nor use it as a conductor to the forceps, at all events, I obviate in practice, this part of the objection, whatever its force may be.

"It is also possible for a rash surgeon to push it on with such violence, as to transfix the bladder."

There is no guarding against the mischiefs of rashnesss, whether a man use the knife or any other invention. However, if a square stop terminate the groove of the staff, as in that which is here delineated, it must be a very rash surgeon indeed, using a very strong hand in a very violent hurry, who, notwithstanding this defence, can pierce the opposite side of the bladder.

Obj. 7 "When the gorget has been successfully introduced into the bladder, and all these dangers have been avoided which we have enumerated, unless the operator be very careful in withdrawing it in the very position in which it enters, it will make another incision."

This accident is very effectually pre-

vented by me, and, I suppose, by all operators who do not introduce the forceps on the gorget, by withdrawing it with its cutting edge under the fore finger of the left hand, which certainly keeps the bladder from coming in contact with it, while the instrument is being withdrawn by the right hand.

There only remains to be noticed the general objection: "that no man of feeling ever witnessed the *plunge* of the gorget, when *driven* into the bladder, without horror, or did it without reluctance."

To this appeal to our sensibility, I must briefly reply, that the gorget, or whatever instrument be used, should never, in its introduction, excite the idea of *driving* or *plunging*. The operator should carry forwards his instrument as coolly, deliberately, and with as much manifest com-

mand of his hand, as he would in bleeding open the basilic vein, with the artery placed immediately under it.

My prostatome glides, and does not rush to its home.

Thus have I endeavoured briefly to answer the several objections made against the dividing of the prostate, according to the principles of Sir Cæsar Hawkins; and therein, I think, I have met with no great difficulty; for the abuse of it seems to be first assumed, and thence the arguments to be deduced against the use of it.

There are other instruments employed for dividing the prostate, which, as I have never seen them used on the living body, I should not criticise, if, at the same time, that Mr. Allan admits them to be dangerous, his abhorrence of the gorget had not

led him to speak of them as free from its peculiar objections, and having advantages beyond those which that instrument possesses.

I doubt not, that the gentlemen in London who use *Frere Cosmés bistouri cáché*, operate with safety and success, as every skilful surgeon does with almost any instrument which has become familiar to his hands; but it appears to me abundantly less fitted for general use than a well-formed gorget, or the prostatome. These cut from without inwards. Cosmés instrument cuts from within outwards.

I think it will be easily conceived, that when the cutting part of my instrument has entered the bladder containing urine, the edge can no where come in contact with the substance of the bladder, till the urine has been evacuated; and the instant it has passed

through the prostate, the fore finger of the operator's left hand is introduced, and effectually preserves the bladder from the possibility of being wounded. But Frere Cosmés bistouri makes its wound with the bladder in a collapsed or contracted state; for if the bladder contains urine at the moment of its being introdueed, it must empty it; and when it is so emptied, if the blade of the instrument, in its being withdrawn, is thrown out by the spring sufficiently to divide the whole of the prostate (that is, on the left side,) then it must cut a portion of the bladder itself: and if it does not wound the bladder, then it cannot divide the whole of the prostate.

If I am right in two maxims, which I lay down for the correct performance of lithotomy; the first, that the body of the bladder should never be wounded; the second, that the prostate gland should be

fairly divided; I do not see how the operation can generally be correctly performed with the bistouri caché, to say nothing of the vesiculæ seminales, &c. being equally liable to be wounded by it, as they are by the common scalpel.

The cystatome of Le Cat, which Callisen, of Copenhagen, recommends in his *Systema Chirurgiæ Hodiernæ*, possesses no peculiarity, except that of dilating the wound previously to the introduction of the forceps, to which it serves as a conductor. But the finger is, if dilation is wanting, the best dilator, as it is also the best conductor. The late Mr. Justamond told me, he had seen the inventor operate with the cystatome frequently at Rouen with the utmost adroitness and success.

Finally, I do not condemn those who confine themselves to the knife. I think I

could do it an hundred times successively on the dead body without error: but I do not wish this example to be followed in the living, because I am persuaded, that though it has the appearance of greater simplicity and dexterity, yet I doubt if it can generally be performed with equal safety and certainty as operating with the prostatome, or any other well-formed gorget, taking the precautions laid down in this paper.

I do not assert that the instruments which I use are superior to those of other surgeons; but I recommend them, because I have operated with them on more than the last thirty patients successively, without embarrassment, and without loss.

Before I employed them, I lost the patient whose case I have above related. I soon after cut another boy with the knife only, introducing the forceps on a blunt

gorget. He had suffered much in his health before the operation, and died in a few days after it. On dissection, it appeared the wound had not been carried too far in the bladder ; there were no great signs of inflammation, nor was it explained why he died.

A third case, which completes the history of my losses, out of more than forty patients, was that of a healthy young man, in whom the prostate was freely divided, and a large stone was extracted with considerable force. After the patient had been placed in his bed, a violent hæmorrhage came on, which several times filled the bladder, even to distension, coagula blocking up the passage through the wound in perineo.

The different means used to empty the

bladder of blood, to discover the bleeding vessel, and to restrain the hæmorrhage, were probably extremely injurious, as on the succeeding day, great pain and tenderness of the belly came on, with sickness and other symptoms of peritonitis, and he died on the third or fourth day. The nicest investigation after death could not discover the source of the bleeding, nor did dissection discover any thing unnatural, except an inflamed state of the bladder, and peritoneum.

I used in this case what I imagined to be an improvement on the invention of a gentleman in Dublin; after the urethra was pierced in perineo, a grooved straight conductor was passed along the staff into the bladder, by which conductor a beaked knife is guided to the division of the prostate. But such a conductor produces the disadvantage of evacuating the urine before

the prostate is divided, and of course exposes the bladder to greater risque of being wounded by the beaked knife. As no such misfortune occurred in this instance, Ido not impute the event to the instrument.

During the first six or seven years of my practice, I was contriving instruments for dividing the prostate with exactness: and for obviating the possibility of missing the road into the bladder.

Among others, I contrived a staff and gorget nearly similar to Sir Charles Blicke's. But my invention had this inferiority, that the button at the end of the gorget was flat, instead of globular, which defect occasioned it to stick in the staff. The consequence, when I came to operate, was the vexation of being obliged to withdraw both it and the staff, to re-pass a common staff, and finish the operation with a common gorget. Happily my disappoint-

ment and embarrassment did not take away the command of my hand, or my mind; no mischief was done to the patient, and he recovered as usual.

Reflecting on what I had seen befal others, as well as on my own experience, it occurred to me that the dangers and difficulties of lithotomy arose principally from the liability of the staff to slip out of the bladder, just before the entrance of the gorget into the prostate gland; and that the first object of the surgeon, after a correct anatomical knowledge of the parts, was to give that shape to the staff, which would guard it against that accident. This being done, it was easy to simplify Sir Cæsar Hawkins's gorget, and to fashion it so as to make it divide the prostate with ease and accuracy.

The patience of the reader will enable

him to turn back to the plate, and to notice that, for the space of half an inch before you come to *c.* the instrument is very little curved, and that from *c,* to the end, it is straight. The beak of the prostatome will enter the groove within that half inch, and will presently reach the prostate, which it will divide with as much ease and steadiness, as a scalpel running in a director, opens a deep-seated sinus.

Were my experience and success far greater, I should not arrogate a decided superiority to my instruments. I only mean to infer, from my having operated with them so repeatedly, and without being once embarrassed, or losing a patient, that it is not necessary for the profession to return to the exclusive use of the knife, in cutting for the stone, and that they will do well to pause, before they reject the powerful assistance derived from the ingenuity of Sir Cæsar Hawkins, and that it is adviseable

rather to apply themselves to the improvement of his invention, and the removal of its inconveniences.

Since the foregoing paper was written, I have read an essay in the Edinburgh Journal, by Mr William Lawrence, recommending the use of the knife alone in lithotomy. As that paper is written with the ingenuity and candour, which distinguish its author, I think it right, though his opinions differ from mine, to refer the reader to it, that he may acquaint himself with any opposing arguments which I may not have noticed and properly considered.

Postscript.

A FARMER, seventy-five years of age, six feet in height, having been long afflicted with a stone in the bladder, in other respects in good health, submitted to lithotomy last November.

The stone was small, and was extracted without difficulty. He was free from unusual pain till the second night, which he passed very uncomfortably, by reason of severe pain about the wound and along the urethra; the following day it was worse, and extended even to the hypogastric

region. From circumstances, it was evident that he was free from peritonitis, but that the bladder was suffering from being distended with urine. A female catheter being passed through the wound, did not reach the retained water: a caoutchac catheter was then introduced by the penis, and came out again through the wound: a male silver catheter, in the common way, drew off a large quantity of urine. The same instrument was had recourse to twice or three times a-day for a week, and then a caoutchac catheter being introduced with ease, a plug was inserted in its mouth, and withdrawn once in two or three hours, to discharge the urine. Thus went on the second week; after which the catheter was finally withdrawn: then the urine again issued through the wound. In a short time it began again to flow through the penis; in six weeks it all came that way; and he was able to leave Gloucester the seventh week,

though the wound was not entirely healed. This is the only instance which I ever knew or heard of in which ischuria vesicalis occurred during the cure of the wound made by lithotomy. As it was not the consequence of any particular mode of operating, it may perhaps be thought to have no place here. I flatter myself, nevertheless, that the singularity of the case will afford a sufficient excuse for its introduction.

THE END.

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