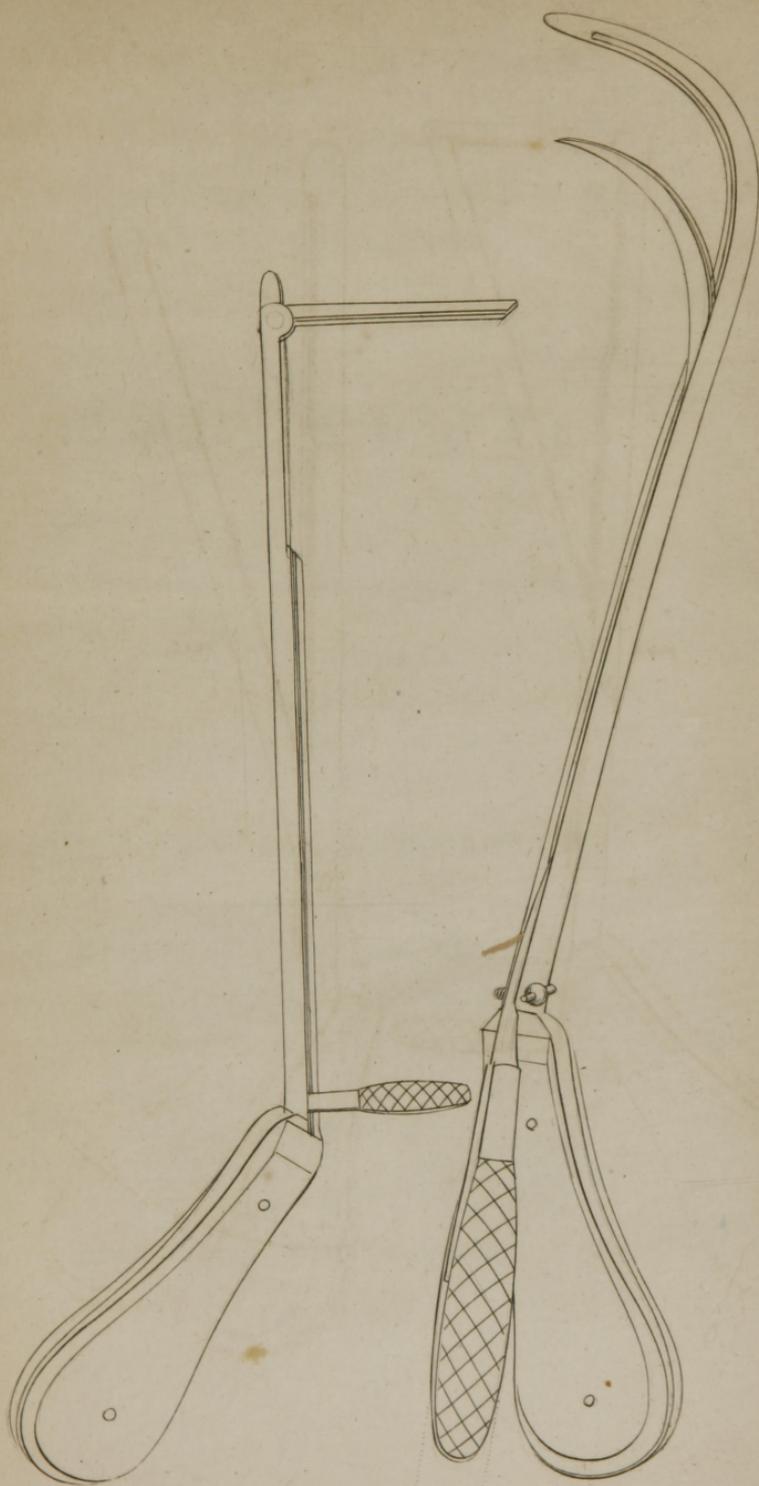


Fig. 2.

Fig. 1.



John R. W. Dumb

PRACTICAL OBSERVATIONS

ON THE

LATERAL OPERATION

OF

LITHOTOMY;

AND

ON VARIOUS IMPROVED AND NEW MODES OF PERFORMING
THIS OPERATION; TOGETHER WITH

REMARKS

ON THE

RECTO VESICAL OPERATION,



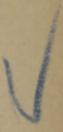
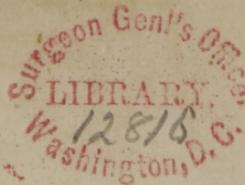
BY ROBERT MUTER, M. D.

MEMBER OF THE ROYAL COLLEGE OF SURGEONS IN LONDON,
AUTHOR OF OBSERVATIONS ON VARIOUS NOVEL
MODES OF OPERATING ON CATARACT, &c.

NEW-YORK:

PUBLISHED BY E. BLISS & E. WHITE.

1824.



Annex

WJ

500

M992p

1824

Film 7982. Item 6

TO

ALEXANDER FRASER, ESQ. M.D.

PHYSICIAN IN WISBEACH, CAMBRIDGESHIRE.

MY DEAR SIR,

IT is with the most sincere pleasure that I address this attempt to improve the Operation of Lithotomy to you.

During the time that I practised in the fens of Lincolnshire, you were not only a dear and an intimate friend, but you were also, on many occasions, an able medical instructor.

In addition to these obligations, I have likewise to remind you of another, for which I consider myself much indebted to you;—when I first announced my intention of publishing on this subject, you persuaded me to wait until greater experience should have, in some measure, matured my opinions. I therefore, after the lapse of many years, present these Observations to the public in general, and to you in particular; still sensible, that in many respects, I must yet claim your indulgence, and that of my professional brethren.

I am,

My dear Sir,

Yours sincerely,

R. MUTER.

*New-York,
Jan. 8th, 1824.*

PREFACE.

THE operation of Lithotomy may, perhaps, be thought by the greater part of physicians and surgeons, too far beyond their sphere, to make any attempt towards either understanding or practising it. I request, even of such, to read these few and concise observations on this operation, with the sincere hope that to many of them, the allegation may be no longer necessarily true.

Be this as it may. The rapid progress which surgical knowledge is making in the United States, must soon render the case far otherwise. And we may justly hope, in a very few years, that most young gentlemen, on entering upon the practice of medicine and surgery, will be fully competent to perform this operation, which an eminent modern surgeon has characterized as "the most important and hazardous in the whole circle of domestic surgery."

If these observations shall have any tendency to pave the way for so desirable an event, and if an attentive perusal of them shall afford any information to others, I shall consider the time well spent, which I have directed to this most important subject.

CONTENTS.

	Page
General Observations,	9
Symptoms of Stone in the Bladder,	23
Sounding for the Stone,	24
The Preparatory Treatment,	27
New Instruments,	29
The Use of the Staff,	31
The External Incision,	32
Advantages of an Extensive Dependent Incision,	34
Dangers attending the External Incision,	ib.
Incision into the Urethra,	35
Operation by the Gorget,	36
Dangers of this Operation,	37
Remarks,	ib.
Mr. Charles Bell's Operations by the Knife,	44
Remarks,	46
Operation by the Straight Staff,	54
Operation by the Bistouri Cache,	63
Objections to the Operation,	64
Remarks,	65
Two Instruments of New Construction,	67

	Page
New Operations by the Curved Staff,	71
Operation in the Perineum, :	76
The Recto-Vesical Operation,	78
Extraction of the Stone,	90
Hemorrhage,	95
The After-Treatment,	97
Summary Observations,	100

GENERAL OBSERVATIONS.

THE lateral operation of Lithotomy has already engaged the attention and exercised the ingenuity of such a host of surgical writers, that every attempt towards its further improvement, is unquestionably attended with the most consummate difficulties. Very true, and at some future period, when the human intellect, gradually matured and developed, shall, most probably, have rendered surgery infinitely superior to what it is now, how much more so will this be the case! But I must positively deny, that this operation has yet arrived at all that acme of perfection which it can possibly ever attain; and consequently, that there is not the least chance remaining of future

improvement. Indeed, unless I deceive myself, there is not a single mode of cutting for the stone, which might not be rendered more safe, and easier performed, than it is at present.

The expert and dexterous surgeon, it must be acknowledged, can perform the operation in a variety of ways, and with a variety of instruments too; and what is still more, generally speaking, he already performs it safely and expeditiously. The ignorant and awkward surgeon can never operate well, be the mode of operating what it may. But even these defects may be overcome by study and practice. Nay, they must be overcome. Inspire youth with the hopes of success, implant in their breasts the desire of becoming eminent, and withal render what is difficult and appalling easier to be accomplished—then shall lithotomy itself be stripped of half its terrors, both to the surgeon and patient.

Some of the minor improvements which I am about to suggest, will appear, perhaps, to be of but little consequence. In this difficult and hazardous operation, where the patient's existence is, as it were, weighed in a balance, and life and death are suspended in awful equipoise, there is nothing little which can tend to preserve it. In difficult cases, therefore, even these minutiae may not be found altogether superfluous. But so long as the surgeon shall continue to use the common staff as a directory in forming the internal incision, so long must he proceed with the greatest caution, to prevent his doing mischief. Besides, the operation of lithotomy is no longer confined to the eminent surgeons of hospitals and great cities; it is also practised by many others. To these, especially, whatever enables them to operate safely, becomes doubly valuable. Could I prevail upon surgeons to lay aside not only the gorget, as really unnecessary,

and having formed the external incision, to withdraw the common staff, and to introduce the point of a curved staff across the neck of the bladder, the most adroit might outdo even himself, and many of those surgeons, who are now located in the back woods of America, would operate with success. Yes, ye illustrious surgeons of London and Paris, these very rustics would excel you in cutting into the neck of the bladder, if you continued to operate as you do.

Simplicity is the true characteristic of British Surgery. In fact, every thing English partakes of an elegant simplicity. In Great Britain, it is an established surgical principle, to place their chiefest confidence in manual dexterity, and to use no instrument but those of the simplest construction. To this doctrine I can now say a hearty amen; only adding that one good head to devise, is worth a hundred pair of hands to execute. The French, if I mistake not,

have a predilection to a more complex mechanism, in the formation of their instruments. And I voluntarily make the confession, that it has cost me some trouble to overcome an excessive hankering in my own mind after the same thing.

The simplest instrument is certainly the best, provided that in every thing else, it is equally well adapted to the purposes for which it is intended. But in lithotomy, the nice adaptation of the instrument to the operation, has hitherto been by far too little attended to. Nor have the just principles of mechanical adaptation been properly understood, or at least acted upon. Even system in operating has been greatly undervalued. I repeat the asseveration, this to this very day is the case in England, in France, and in the whole world besides.

In the delicate operations to which the eye is subjected for the removal of disease, surgeons could never have attained that

high degree of perfection in operating to which they have arrived, by the exercise of manual dexterity alone, however exquisite.

If we turn our attention from the oculist to the artisan, we may still learn a useful lesson. The present state of the arts in Great Britain excites the admiration of the whole world. Here we are presented with an almost infinite variety of tools, all nicely adapted to their still more multifarious purposes. I have therefore to express a conviction, deeply impressed on my mind, that an intimate knowledge of mechanics tends directly to promote the progress of scientific surgery.

Manual dexterity is an invaluable acquisition to its possessor ; and I am not desirous to depreciate its value, either in my own estimation, or in that of others. If we wish to attain it, we must accustom ourselves to the use of the knife in dissection ; we must witness operations performed by

good surgeons ; and in operating ourselves, in addition to an intimate knowledge of the anatomical structure of the parts on which we operate, we must have decided and correct views of every step of the operation.

Leaving these general principles of surgery to be more particularly illustrated, in their application to the operation of lithotomy, I shall take a short retrospect of my attempts to improve this operation.

About fourteen years ago, I suggested to several of my medical friends, a mode of performing the internal incision, by puncturing the neck of the bladder, on the left side of the prostate gland, and finishing the operation, by cutting towards the staff, from within outwards. By this operation, I conceived that neither the rectum, nor the internal pudic artery, were liable to be cut. The only innovation I then made on the structure of the staff, was a slit through it, from side to side, instead of a groove. The

bistoury had a stop or shoulder, near its point, upon which it rested, so that the point should not pass too far beyond the staff. This operation was not altogether new, as I then considered it. Besides, I afterward found, on performing the operation, that it was difficult to execute. Others, however, have occasionally operated on a similar plan.

The objections to the operation are, 1. It is difficult to puncture the bladder properly when empty and collapsed. Even when there is a little urine in the bladder, before the puncture is made, as soon as the point of the knife enters the bladder, the urine escapes. 2. In groping for the slit in the staff, with the point of the knife, you are apt to miss it, and to wound the back part of the bladder; the consequence of which would be fatal.

It afterward occurred to me, that as I had found my operation to be objectionable from

the common staff's not approximating sufficiently close to the neck of the bladder, I should obviate these objections, by using a staff which formed a better directory across the prostate gland, and neck of the bladder. On this subject, I had the pleasure to learn, that my opinions were corroborated by those of several eminent surgeons, whom I consulted.

In order, therefore, to avail myself of those advantages, which this mode of forming the internal incision, from left to right, was generally admitted to possess, I desired Messrs. Everill and Mason, surgeon's instrument makers, in London, to make me a staff, on a construction similar to the bistouri cache; the grooved part separating from the back, near the point, opening by a spring, and coming across the prostate in the direction of the incision.

These gentlemen perceiving that it would be difficult to make a staff, of the usual

length and shape, so as to be introduced through the urethra, the spring being closed ; and that the staff would be liable to be injured, and not to act properly, wrote me to this effect. It was my intention, however, to have introduced the staff through an incision of the membranous part of the urethra. As I lived at some distance from London, circumstances occasioned a considerable delay.

In the interim, a celebrated French surgeon came over to London, on purpose to exhibit several new instruments, perhaps thinking by his mechanical ingenuity to have improved English surgery. The result was somewhat different from what he probably contemplated. Among other instruments, he had a staff, (as I was informed, for I did not see it) of a somewhat similar construction to the one to which I have just now alluded. This staff, and the greater part of his instruments, were thought too

complex. I will not take it upon me to say, whether or not he returned satisfied, that they understood these things better in France. For myself, on hearing this from Messrs. Everill and Mason, and having learned a little from my own experience, I concluded that the era of mechanical surgery had either not yet arrived in England, or that period was gone past. After all, except the too great complexity of my staff, I know of no other objection to it.

Since my arrival in this country, I have invented a staff and bistoury, of simple construction, which I shall presently describe. Indeed, the improvement of the staff may already be anticipated. The bistoury, although perhaps a useful adjunct, is not especially requisite. I have, therefore, after the lapse of a series of years, merely arrived at a result, which a knowledge of the anatomy of the parts should have taught me

in a few days. But we all cannot do all things.

On the preparatory arrangements, and external incision, I have nothing new to offer; I shall, therefore, be as concise on these topics as possible. But in this country, at least, it would by no means be proper to pass them over altogether; the more especially, as I am desirous of drawing the attention of physicians and surgeons who do not operate, as well as those who do, to a close inspection of the various modes of operating for the stone, and to a minute investigation of their advantages and disadvantages. I have also considerable hopes of being able to point out to the unexperienced surgeon, a cautious, and, I trust, systematic mode of operating, which shall enable him to perform this hazardous and precarious operation deliberately and safely. If, however, after all my efforts, and they have been more determinedly persever-

ing than they have ever been, or perhaps, ever will be on any surgical subject, my overweaning fondness for innovation has misled me to consider as improvement, what turns out to be thought no improvement ; I may regret, that my abilities have been inadequate to execute what I had the hardihood to design : I will listen to others, but I will still think for myself. For there is not a single surgical principle, or fact, of which I am more convinced of the truth, than that to cut through the prostate and sphincter of the bladder, we have no occasion whatever to endanger the fundus, by thrusting or guiding, however deliberately, any cutting instrument deep into its cavity.

SYMPTOMS OF STONE IN THE BLADDER.

A dull obscure pain in the loins, and region of the bladder, attended with occasional lancinating pains in the glans penis.

Pain in making water, especially in voiding the last drops of urine.

Difficulty of retaining the urine.

Bloody urine.

A mucous sediment in the urine.

A sense of weight and fulness in the rectum, accompanied with piles, tenesmus, or prolapsus ani.

A numbness of the thighs.

A painful and retracted state of the testicles.

A sudden stopping of the urine when flowing in a full stream.

These symptoms are mostly all aggravated, by intemperance, violent exercise, riding on horseback, or in a rough jolting carriage. Some of them, however, may also be produced by disease of the prostate, or of the bladder. They, at least, afford good reason to suspect stone in the bladder, and the more so, when several of them occur together, or in succession.

SOUNDING FOR THE STONE.

The sound is a steel instrument, very much like a catheter; not hollow, but solid, the better to convey the vibration to the hand, when its point strikes on a stone in the bladder. Every one accustomed to pass the catheter into the bladder, knows how to introduce the sound. The surgeon should have a variety of sounds, of different lengths and curvatures, with a view to reach the

different parts of the bladder. When the sound strikes a stone, there is generally a very perceptible rubbing or grating felt; sometimes a hard stone causes a chink loud enough to be distinctly heard at a short distance. It is occasionally proper to turn the sound in every direction, and also to change the position of the patient, that the stone may shift its place. In such cases, the finger should be introduced into the rectum, to press up the lower side of the bladder, and to bring the stone within reach of the sound. If this precaution is not attended to, there may be a stone in the bladder without the surgeon's discovering it. If he is still unable to satisfy himself, a silver catheter should be introduced when the bladder is fully distended with urine, he will then be able to feel in every direction with greater freedom. The water may next be drawn off; when the bladder, contracting closely around the catheter, the surgeon should

withdraw it, and introduce the sound, as he knows the exact situation of the stone, and where to search for it.

In sounding, it is likewise proper, that the surgeon should form as correct an idea as he can of the size of the stone; because this enables him to proceed more decidedly in operating. And should it become an established fact, that there is a certain determinate size of the stone best suited to each of the various situations in which the operation may be performed, he can determine, beforehand, which of the operations he ought to adopt. Should a celebrated oculist avail himself of this hint, as he formerly did of one of mine, viz. of placing the lens in the anterior chamber of the eye, and with his delicate hand and fine tact, become a cutter for stone, he might some day amaze us with a hatful of them, cut out in a way the most speculative among us never yet dreamt of.

PREPARATORY TREATMENT.

It is always advisable to attend to the general health of the patient, and to the state of the digestive organs. In full habits, low diet is certainly proper, with a few small doses of some saline aperient, previous to the operation. When the patient is in a state of debility, he should be nourished by a light nutritious diet. If he is exhausted by fatigue, he should enjoy rest. If he suffers much pain, he should be relieved by the warm bath, warm fomentations, and an opiate. If inflammation exist, it should be allowed to have subsided. If there is much pain in the region of the kidneys, the operation should also be delayed, as a stone may be descending through the ureter.

Boys are particularly liable to the formation and descent of new calculi. This happened to a boy on whom I had operated.

A few months afterward, he had fresh symptoms of stone ; the calculus was small, and passed through the urethra, when he did well.

Old men, who have long suffered from stone, are liable to a diseased state of the bladder, which will not admit of an operation being performed.

Before the patient is laid upon the table, the perineum may be shaved, and the rectum completely emptied by an enema. It is proper to retain a few ounces of urine in the bladder, or tepid water may be injected, which, however, does not answer so well.

INSTRUMENTS, &c.

A staff,—a scalpel—the gorget—forceps, of various sizes, straight and curved—a scoop—sponges—a tenaculum—tape, to tie the patient—an injection bag and pipe, or syringe.

NEW INSTRUMENTS.

A short staff, six inches in length, having a slit through it, from side to side, to receive the point of the scalpel, or to contain a bistoury. The point of the staff is turned to the right, with a sudden, short curve, so as to come across the prostate gland and neck of the bladder, on the left side. The point terminates in a blunt beak, to suit the groove of the common staff. The handle is turned to the left, to be conveniently held by the surgeon's left-hand.

The common scalpel, having a shoulder or sudden thickening of the back, answers during the whole operation ; or should the surgeon prefer the curved bistoury, adapted to the staff, it has a straight handle. The staff and bistoury are readily united so as to be introduced together into the bladder ; and easily separated when the incision is to be made. Other new instruments will be taken notice of hereafter.

THE POSITION OF THE PATIENT.

The patient is placed on a strong table, with pillows under him; the head and shoulders are supported. The staff, with a groove on the convex lower side is introduced. A noose of tape is then put over each wrist; and making the patient grasp the sole of the corresponding foot, the hand and foot on both sides, are firmly secured, and tied together. The breach is presented over the table: the knees and feet are kept steady, and the thighs separated by the assistants: the surgeon is conveniently seated. He takes hold of the handle of the staff, and places it in the position which he wishes it to be held. The assistant grasps the handle firmly in his left-hand, retaining it in the position he receives it, and with his right-hand he supports the scrotum. The handle of the staff is generally held a little inclined to the right groin, so that the convexity is distinctly felt in the perineum. Others direct

the staff to be held upright, that is, neither to the right nor left. Care should be taken that the staff is not withdrawn by the assistant towards the neck of the bladder, by depressing the handle too much upon the belly of the patient.

Care

THE USE OF THE STAFF.

The staff keeps the perineum tense, rendering it easier to cut by the knife. It serves as a guide to the surgeon, in making the incision, by affording a distinct boundary on the right side, as the bones of the pelvis do on the left. It also enables him afterward to divide the membranous part of the urethra with facility.

It therefore appears to me, that the natural and unrestrained position is the most proper; in any other, it can only distort the parts. The whole of the staff, however,

should be pressed a little to the right side, as this increases the distance between it and the bones of the pelvis.

THE EXTERNAL INCISION.

The surgeon feels with his finger the direction of the bones of the pelvis, from the descending ramus of the pubes, to the tuberosity of the ischium; and casting his eye on the raphe of the perineum, and prominence of the staff, determines on the situation, direction, and extent of the incision. As it ought to be dependent, it must not be commenced too near the pubes. He places the fingers of his left-hand on the right side of the nates, and makes the skin tense with his left thumb. He now enters the knife, in the space betwixt the cruss penis of the left side, and bulb of the urethra; and

with a deep steady incision, carries it downwards a small distance below the verge of the anus ; cutting directly betwixt it and the tuberosity of the ischium. This free division of the integuments is of considerable use to him, by exposing to his view the transversalis perinei, the levator ani, the ligamentous connexions of the urethra, as he cuts down upon them. All of which he divides with the knife ; and cutting deep towards the prostate, finishes this first part of the operation. In cutting these muscles, the finger of his left-hand presses down the rectum, and prevents it from being wounded. He takes care also to turn the edge of the scalpel obliquely outwards, cutting from the staff by the side of the rectum. Lastly, he examines the wound, that it present no impediment to the extraction of the stone, and that the prostate gland, having been sufficiently exposed, is distinctly felt by the finger.

ADVANTAGES OF AN EXTENSIVE DEPENDENT
INCISION.

These are—the stone is easily extracted ; the parts are not bruised nor lacerated. A free exit is given to the urine. Thus inflammation of the bladder and peritoneum, together with extravasation of urine, are prevented.

DANGERS ATTENDING THE EXTERNAL INCISION.

These are—by beginning the incision too high, and cutting too close on the staff, the artery of the bulb and artery of the penis may be wounded. By neglecting to press down the rectum with the finger, when dividing the muscles, and cutting directly downwards with the edge of the knife, the rectum may be wounded. By cutting too far from the staff, and too near the bones of the pelvis, the pudic artery may be wounded. As

this is a large artery, it will bleed freely, and should be tied immediately. But of this hereafter.

INCISION INTO THE URETHRA.

The assistant now inclines the handle of the staff towards the right groin, causing the convexity of the staff to bulge towards the left side. The surgeon putting the point of the knife anterior to the prostate, and turning its edge upwards, towards the groove, cuts freely into the membranous part of the urethra, and opens it outwards, in the direction of the bulb. Or he pierces it behind the bulb, and opens it inwards towards the prostate, turning the edge of the knife inwards and downwards. He feels the opening through the urethra into the groove with the nail of his left forefinger, where he retains it, until he enters the beak of the gorget into the groove of the staff.

OPERATION BY THE GORGET.

The surgeon, rising from his seat, takes the staff from the assistant, in his left-hand, and drawing it a little out of the perpendicular, towards himself, ascertains the point to be home in the bladder. He next depresses its point, in a line with the axis of the pelvis. To secure the beak of the gorget being still fairly in the groove of the staff, he moves the gorget backwards and forwards, making its beak grate in the rough groove. Recollecting the curve of the staff, and that he has to carry the edge of the gorget in the axis of the pelvis, and not directly forwards, he moves it slowly at first, until he sees the urine begin to trickle, (and feeling the beak to be securely in the groove) he slides it onward more speedily. The flow of urine shows the gorget to have entered the bladder.

DANGERS OF THIS OPERATION.

The gorget has been thrust between the bladder and the rectum—between the pubes and bladder. The prostate has been severed from the urethra, without being cut, and pushed before the gorget on the staff. The gorget has been pushed too far into the bladder, and cut the opposite side. A broad gorget has frequently cut the pudic artery.

REMARKS.

All these disastrous occurrences have attended a blunt, badly-constructed gorget, in the hands of unskilful surgeons; and they have been brought forward in judgment against this instrument from its earliest introduction to the present day, yet it has had

the general suffrage among surgeons, in despite of them all. But I am about to take no ex parte view of the matter, and therefore, consider the unskilfulness of the surgeon as having nothing to do with the point at issue ; the bluntness, the bad construction as little. I am noways prepossessed in favour of any of the present operations of lithotomy ; but I shall, notwithstanding, as far as I can, do them all impartial justice.

We are accustomed to speak of the manœuvre of the gorget as if there was only one way of directing it into the bladder. Instead of one, there are four distinct ways of using the staff and gorget.

4 The first, is to hold the staff with its point in the axis of the pelvis, and to run the beak of the gorget closely along the groove of the staff, depressing the handle and elevating the beak, according to the convexity of the staff. This is the most usual way of operating.

The second, is to elevate the point of the staff a little above the axis of the pelvis ; the gorget is used as before, but the handle of the staff is depressed towards the belly of the patient, with a gentle sweep ; and by a consent of both hands, a conjoint motion is given to the point of the staff, and beak of the gorget. This is by far the best check upon the surgeon's thrusting the gorget violently into the bladder.

The third, is to elevate the point of the staff considerably above the axis of the pelvis, and to place the gorget nearly parallel to a line, drawn from the anus to the umbilicus. The gorget is run, in this direction, straight home into the bladder. The staff should have a slit instead of a groove, through the convex part, in order that the back of the gorget, which should be considerably raised, may enter the convexity to some extent, to render it secure. The thumb is to be placed above the gorget,

2 | to prevent its entering too far into the bladder.

The fourth, is to elevate the point of the staff as in the last position, then to run the gorget straight onwards as before, until the urine begins to trickle, then to depress the point of the staff, until nearly in a line with the gorget, which is now to be pushed forwards in the same straight direction.

The surgeon, in the two last operations, should remain sitting, that he may see the direction of the gorget. It would, therefore, be injustice to say, that the gorget is necessarily thrust, at random, home into the bladder. Nor can the gorget slip in the straight forward direction, for as the beak leaves the groove, the back enters it. Or, should it slip, it is entirely the fault of the surgeon. He must be a very awkward surgeon, who cannot push the gorget in a straight line on the staff without suffering it to slip out of an opening cut fairly through it.

The slipping of the gorget arises wholly from the convexity of the staff. In fact, the opening through the staff, and carrying the elevated edge of the back of the gorget all the way to the handle, renders the use of the staff and gorget nearly as easy as rubbing the two palms of the hands on one another. By having a space left on the side of the gorget to receive the side of the staff, the convexity of the staff would be done away with, and would in effect become straight.

There is, however, an objection to the slit or opening through the staff, which I do not attempt to conceal. It renders the escape of a great part of the urine almost certain, as soon as the opening is made into the urethra. The opening, however, might be filled up with any soft ointment to prevent this taking place. It is true, I set little value on these views of the subject; nor do I consider it of importance, whether I have even adduced any thing new or not.

The third operation may be performed by a good surgeon with a considerable display of dexterity ; the gorget is run home into the bladder at once, in a straight and unrestrained direction. But the hazard of wounding the bladder is increased by the beak and edge of the gorget, leaving the staff, and passing under it at some distance. The fourth operation is, perhaps, the best, as the beak scarcely leaves the groove, and as the gorget is made to halt, as it punctures the prostate, and the point of the staff lowered towards it, when it is again run straight home into the bladder, almost in a line parallel to the staff. These varieties may appear superfluous, but they will at least arrest the attention of the young surgeon, and cause him not only to read, but to reflect on the nature of the operation. They will, in some measure, enable him to see why the beak is apt to slip, in the first operation ; and why the gorget requires so much force to be ap-

plied, not because it is blunt, but because the beak twists and turns round the convexity of the groove. This is illustrated by the ease which the same instrument cuts the same parts, when directed straight forward. And lastly, they will direct his attention to the hazard of wounding the fundus of the bladder, by introducing deep into its cavity, not only the gorget, but also the knife itself.

A broad gorget is a dangerous instrument; I therefore recommend a narrow one, on account of its being far more safe. It is an unpopular doctrine, to advise the use of more instruments than one, in dividing the prostate. I cannot help it; when the prostate is much enlarged, it must be done. And this too is the case, when the stone is of large dimensions. Of two evils, choose the least; use a small gorget, and enlarge the opening afterward: setting aside the peculiar dangers of the gorget, if the necessity of this double incision is admitted, and if it shall hereafter

be shown, that it is quite as easy to complete the incision at once as to enlarge it, I must conclude the use of the gorget to be altogether superfluous. But in doing so, I may be asked why I have given so minute a description of an operation which I believe to be unnecessary? The young surgeon will not have lost his time; many good surgeons approve of the operation, and it is not for me to condemn it any further than in pointing out its defects. Besides, the real value of my new operations can only be justly appreciated by placing them in fair competition with those already established.

MR. CHARLES BELL'S OPERATION BY THE KNIFE.

INSTRUMENTS, &c.

“A staff, grooved in the right side—a scalpel, with a straight back—forceps, &c.

OPERATION.

“The staff is kept in the centre, and well home in the bladder. The surgeon makes his incision under the arch of the pubes, and by the side of the anus, carries it deeper towards the face of the prostate gland, cutting near to the staff, but yet not into it, and avoiding the rectum, by pressing it down with the finger.

“Now carrying the finger along the staff, the prostate gland is felt. The point of the knife is run somewhat obliquely into the urethra, and into the lateral groove of the staff, just before the prostate gland.

“The knife is run on in the groove of the staff, until the urine flows. The forefinger follows the knife, and is slipped along the back of it, until it is in the bladder.

“Having carried the forefinger into the bladder, it is kept there, and the knife is

withdrawn ; then directed by the finger, the forceps are introduced into the bladder.”

REMARKS.

This is a very superior operation, and so long as surgeons shall continue to cut deep into the cavity of the bladder, and expose its parietes in a collapsed and contracted state, to be cut by any cutting instrument, so long must it stand proudly pre-eminent. There is a sanctity in this very operation, which has for many years been looked upon as the Ne Plus Ultra of lithotomy, and I almost shrink back, as being guilty of heresy in daring to surpass it. And did I even surmise, that this most excellent surgeon, from whose lectures and writings I have derived so much instruction, should think that I did not esteem it the more, knowing, as I

do, the quarter from which it comes, I should be truly sorry. But I must strike at the root ; be the operation, in other respects, as perfect as human ingenuity can make it, if the knife endanger either the pudic artery or the fundus of the bladder, I dare not approve of it.

This is a difficult operation, and if the high estimation in which it is justly held, should induce any surgeon, not intimately acquainted with the anatomy of the pelvis, and accustomed to use the knife, to attempt it, he might have cause to repent his presumption.

The knife has this decided advantage over the gorget, that the forefinger of the left-hand can be used to steady and direct it along the groove. The surgeon can avail himself fully of his anatomical knowledge, and bring his surgical talents to his aid.

The staff, that unaltered and legitimate instrument, affords him an ample opportunity to exercise his own resources, by avail-

ing him as little as possible in his greatest difficulty. It guides his knife, with the help of his finger, to divide the urethra and middle of the prostate gland, making him, even then, use both his hands, however, to do even this. By the by, this is rather new to him. But when the edge of his knife comes in close contact to the pudic artery, and side of the bladder, it keeps the same respectful distance that the whole onus falls on the finger ; upon which, the surgeon, if he dare and can, may divide the basis of the prostate and neck of the bladder, or leave it for a second enlargement of the wound. I must, therefore, pass sentence of guilty on the staff, or have it said of me, *judex damnatur.*

Did the staff, as it ought to do, come across the neck of the bladder, and afford the surgeon an unerring guide ; did it protect the parietes of the bladder from being cut by the edge of the knife, then the gorget

might be laid aside to rust; and to be exhibited among the relicks of antiquity by some future antiquarian, to show what great surgeons his forefathers of the eighteenth century must have been.

A very transient view of the position of the staff and knife, in finishing this operation, will place the matter beyond all controversy. If the point of the staff is directly in a line with the urethra, the back of the scalpel will be removed to a considerable distance from it, and the forefinger interposed between them. The edge of the knife is brought close to the pudic artery, while its point is in the centre of the prostate. This position of the knife is the very reverse of what it should be. For the prostate gland is of a pyriform figure, narrow at the apex, and broad at the basis. To divide the basis of the prostate, the point of the staff must be nearly in a line with the left side of the prostate. But this position of the staff endan-

gers the left side of the bladder being wounded.

This is no ideal objection, its truth may be demonstrated. It is no new objection; it has existed since the days of Cheselden. Klein has acknowledged, that he opens the prostate as he enters the knife, and enlarges the wound as he withdraws it. But this is a dangerous practice, and the staff is, comparatively speaking, of little use. Langenbeck has invented his broad convex edged knife, to obviate this charge against the staff, but his knife is only a disguised gorget. Thus the plain precepts of the mechanics of surgery are as much mystified as if they really were altogether incomprehensible to the human intellect.

The mechanical surgeon, or if you will, the philosophical surgeon, who views the matter in "the mild light of calm philosophy," sees his brethren as much in a dilemma as if they were mariners navigating

between Scylla and Charybdis. If they would divide the prostate directly, they must use the gorget, or broad-beaked knife; if they use the scalpel, or narrow-beaked bistoury, they must divide the prostate obliquely.

We are, therefore, like all others who travel in a circle, come back to the starting point. There is no alternative, if we will use the common staff, we must open the prostate, and enlarge the opening.

As I can foresee a kind of holy alliance among surgeons, striving *vi et armis* to maintain the legitimate rights of the common staff, I will, as it were to make my peace with them for the present, see whether or not there may be some popular prejudice against this opening and enlarging of the orifice in the prostate and neck of the bladder.

Klein, who, it is known, is no advocate for half measures, tells us that he places the basis of his success on a free and extensive division of the prostate and neck of the

bladder ; and that, when his first incision is too diminutive, he enlarges it with a knife introduced several times, if necessary. And what is very much in behalf of these measures, if strictly true, is, that the incision “on living and dead subjects, was always found to have the same appearance as if it had been a single cut.”

On the living subject, the wound cannot be very nicely inspected ; the shrewdness of some surgeons may lead them to conclude, that in this case, the matter is not sufficiently tested. This much I can say, the incision of the cornea is often made small on purpose by the ablest ocular surgeons, and afterward enlarged. There can be no reasonable doubt entertained, that the lucid cornea requires a nicer incision than the prostate and neck of the bladder.

The after enlargement of the wound is, at all events, a very safe practice. And the surgeon should recollect, that by an almost

needless attempt to display his dexterity, a vain wish to save a few seconds of time in the operation, he may plunge his patient into eternity, and fill himself with remorse.

It is quite needless to introduce the staff a second time ; the finger answers better to direct the straight bistoury than the staff can do. But the finger and bistoury are, at best, but indifferent substitutes for more proper instruments.

As it may be some time before surgeons consent to withdraw the common staff, and to complete the whole internal incision with the lateral staff and scalpel, I will request of them, as preparatory to this event, to enlarge the wound by these instruments, whether they operate with the gorget or scalpel. A single trial will show it to be but of little consequence, how much or how little remains to be cut. The short lateral staff has so complete a control over the parts, gives them the proper tension, brings

them so fairly into view, holds them in the proper position, and the scalpel or curved bistoury divides them to the very extent, in the very direction they intend, they must succeed.

OPERATION BY THE STRAIGHT STAFF.

The straight staff is introduced after the first part of the operation has been accomplished. The usual incision is made into the urethra, through which the short straight staff is passed along the groove in the staff, when it is withdrawn. The straight staff is held in the position which the knife is intended to be directed into the bladder, and the knife run home upon it.

The intention of introducing a straight staff is obviously to direct the knife in a straight line into the bladder. So far the intention is very proper; and I consider

it as affording ample proof, that the convexity of the common staff has been found inconvenient, since a professor of surgery in a celebrated university has been at the pains to recommend a straight staff.

He must have been short-sighted enough on the present instance ; otherwise, it could never have escaped his notice, that this short straight staff was even less useful than the common staff. For no sooner is the urethra divided by the knife, than it becomes quite loose in the incision, having no control over the parts, and the parts no control over it, and of course it becomes no directory at all. Those who have incorrect ideas of the use of the staff, have yet something important to learn.

I have better motives and higher views in introducing this operation, than to hold it up to ridicule, or to wound the feelings of the respectable gentlemen who proposed it. I look upon it as affording evidence, that the

convexity of the staff has been found objectionable. It also elucidates a very important practical principle, the necessity of keeping the directory firm and steady ; and the parts to be cut as tense as possible in dividing them ; and enables me to show, that the practice of cutting into the bladder, is, in this respect, absolutely on wrong principles.

This charge may fairly be brought against the whole system of operating, with the exception of the double-edged gorget. It makes not the slightest difference whether the surgeon uses the single-edged gorget, the scalpel, or beaked knife, or bistoury ; or in fine any other instrument, which divides the urethra before the incision of the prostate is completed. Although prematurely slitting open the urethra is an obvious defect, yet with these instruments, it is impossible to be avoided ; because the incision commences from the staff, consequently the urethra must be cut before the prostate.

The inconvenience of this circumstance must have been felt even by the best surgeons, although but few of them have acknowledged it in their writings. The best operators are not always the most correct thinkers, or necessarily the nicest observers. It is therefore no great breach of charity, to suppose that it has wholly escaped the attention of some of those who have operated with a good deal of self-complacency, and with no small share of public reputation; many of them have never dived deeply into the fountain of surgical knowledge.

The introduction of the double edged gorget is alone sufficient to show, that surgeons have not been insensible to this objection. But the thing is so evident, that no one can deny it who is at the trouble to give it a thought.

If I have objected to the operation of the straight staff and knife, it is because that it very

greatly increases the difficulty of performing the internal incision, instead of lessening it. But the straight staff does not render it necessary to divide the prostate through the urethra. The double edged gorget does not cut the urethra before the prostate, but the prostate first, and the urethra last. The direct blame is, therefore, to be attributed to the knife, and not the staff, for so long as the urethra is uncut, the staff remains sheathed and enclosed by the urethra, and retains its control over the neck of the bladder.

We need not be surprised that the oblique single-edged gorget should have supplanted the double-edged gorget, because of all the instruments that ever surgeons compelled to twist and twine around the convexity of the staff, it is the most unmanageable. But the very attempt betrays a want of information, that would bring discredit on the common artisan.

Do away with the convexity, direct the gorget on the straight staff, and I know of no other mode of dividing the neck of the bladder from without inwards superior to it. In more respects than one, it surpasses them all. Whether surgeons will be at the trouble to make the necessary exchange of instruments, is for themselves to decide.

I do not choose to indulge in venting a little caustic humour at my neighbours' expense, well knowing that they might soon find an opportunity to repay me the same compliment; and yet it requires an effort to keep our gravity, in witnessing how surgeons are put to their shifts, to accomplish what is abundantly easy to be effected, if gone about in the right way. The surgeon who operates with the gorget, instead of sitting at his ease, and operating deliberately, rises from his seat, draws in his breath, and putting himself in the attitude of a pugilist, makes a determined and des-

perate thrust. He who operates with the knife, takes it in the one hand and guides it with the other. Neither mode can, with propriety, be affirmed to be very surgical; and all this ado, to surmount an obstacle of their own making. They both cut on the staff, and they both are at great pains to render it unsteady as possible, by prematurely slitting open the urethra. But I will leave them to laugh at one another, and say no more on the subject.

Their opinions are occasionally fully as discordant as their practice. The young surgeon is not a little puzzled how to proceed; one tells him that the bladder should always contain a few ounces of urine previous to the operation, (and I am of this opinion, providing it were always practicable,) another says, that it is of no manner of use, alledging still farther, that an irritable and contracted state of the bladder will not admit of it. And this state of the

bladder, of all others, renders it the most desirable. But as mechanical contrivances are my main stay, I recommend that the staff, especially the straight one, be constructed with a guard which folds into the groove or slit, and in operating is pushed open by the beak of the gorget, and brought across the neck of the bladder, between it and the edge of the instrument. This is a sure way of protecting the parietes from being wounded, and obviates one of the chief objections which I have brought forward against the usual mode of cutting into the bladder. This objection was the more important, because the edge of the knife, having fairly entered the bladder, becomes hid from view, and in a conjugated state of the bladder, no degree of skill will enable the operator to avoid wounding the parietes. I have always attributed a great deal of the hurry, with which the gorget is

Copy

often thrust home along the staff, to the dread of suffering the bladder to collapse by the escape of the urine. By adopting this device the escape of the urine is no longer of any consequence.

Lastly, to protect the pudic artery, an assistant may interpose a thin shield of wood, or ivory, between it and the edge of the cutting instrument.

To return to the mechanical adaptation of the instruments used in the operation of lithotomy, I cannot help remarking, that, in them all, it has been "just no better than it should be."

The gorget, it has been shown, goes along into the prostate like a plough in its furrow. And to speak the truth, like one of our American ploughs, it is unsteady enough. For my own part, I never saw the propriety of either elevating or depressing the formation of the edge of the gorget. The

long handle is too powerful a lever to be held in any check by a shallow groove, which allows the edge so much play.

As to the knife and staff, the adaptation is even worse than that of the convex staff and gorget. The point of the knife is very apt to hitch and stick in the groove. I do not speak from theory only; I have found this to be the case in practice. We now proceed to a very different mode of operating, namely, that of cutting from within outwards.

OPERATION BY THE BISTOURI CACHE.

The common staff is introduced into the bladder, the external incision is made, and the urethra cut in the same manner as for the operation of the gorget. The bistouri cache is then introduced along the groove

in the staff into the bladder, and the common staff withdrawn.

The surgeon takes the instrument in both his hands, and turns it so that the edge of the knife shall present to the left side of the prostate. He then presses upon the spring, and raises the knife from the groove in which it has lain concealed.

The bistoury is raised a little towards the pubes, and with one uniform pull, withdrawn from the bladder. The incision is thus made in the same place, and to the same extent as usual.

OBJECTIONS TO THE OPERATION.

It endangers the whole side of the bladder being cut, when empty and collapsed. It is apt to wound the rectum—to cut the pudic artery—to cut too much of the neck of the bladder.

REMARKS.

This operation is admitted to have the advantage of great simplicity, and to be easily performed. Mr. Barlow, of Blackburn, Lancashire, has operated on sixty patients very successfully, with this and another instrument, substituted for the gorget, having only lost two. His instrument was improved by a beak on the bistoury, to prevent its wounding the bladder. A contrivance too obviously useful to need any commendation. After the knife is raised it does not admit of being moved about in the bladder. This instrument is required to be used with judgment, although it has unjustly been said that it affords no opportunity for exercising it. That the case should be otherwise, would indeed be very strange; for there is no mode of operating where a

certain degree of anatomical knowledge is not necessary.

I have only to add, that it is now nearly twenty years since Dr. Jeffrey, professor of anatomy and surgery in the University of Glasgow, re-introduced this instrument; and that it first led me to attempt the improvement of the staff. To this illustrious gentleman, I am also under infinite obligations for his most excellent instructions during the period which I attended his lectures.

The affinity which the above operation bears to several others which I am about to describe, will presently appear. It has, however, often surprised me, that the bistouri cache should have made its second appearance, under so high authority, with no improvement of its mechanism.

TWO INSTRUMENTS OF NEW CONSTRUCTION.

FIRST.

This instrument may be very intelligibly described, by saying that it has a great resemblance to a pair of crooked scissors; only reversing the back and edge of the right blade. We have next to substitute the concealed bistoury for a blade, and by an easy transition, we have a distinct idea of the instrument. Should this allusion not sufficiently bear me out, instead of a more accurate description, the plate of the instrument, (Fig. 1, Plate 1,) will make up the deficiency.

The extremity of the bistoury terminates in a blunt point, having also the cutting edge rounded off to a short distance, to protect the side of the bladder from being cut. Such an instrument might be safely

introduced into the cavity of the bladder, notwithstanding any thing which I have, apparently, said to the contrary. In fact, I did not intend to have said any thing about this and the following instrument, as I considered their application superseded by better instruments, and better devised operations. But the truth is, I accidentally learnt that a certain surgeon in this city was about taking a patent for some instrument, adapted to the operation of lithotomy, and I considered it a duty which I owed to my fellow-mortals to set my face against every species of quackery. If in this instance I have anticipated him, by describing the instrument, I shall have saved him from useless expense and from infamy. If I have not described it, I have, at all events, not left this instrument in his way, lest he might stumble upon it.

This instrument was among the first of my early inventions, and I formerly

attached more estimation to it than I do now. Its construction is superior to that of the bistouri cache, being not only more simple, but far more safe. It has also this in its favour, that it makes the incision larger or smaller as may be necessary. The handle has a graduated arc, which indicates the distance of the point of the bistoury from the staff. And the blunt point of the bistoury, together with the manner of extending it, renders it as safe as any instrument of the kind can well be made.

In opening the bistoury it should be well introduced into the bladder, and must be held in the same position it is to be withdrawn, or it will make a double incision into the prostate. Hence arises the chief objection to its use. The arc attached to the handle, indicates not only the distance of the bistoury from the staff; it also points out the direction in which it must divide the prostate. As the bistoury and staff form two

sides of a triangle, having its apex to the right side of the prostate, it cuts the parts very easily. The incision being completed, the blunt point of the bistoury renders it proper to close the instrument before it is wholly withdrawn from the bladder.

SECOND.

The appearance of this instrument, when the bistoury is concealed, is similar to a straight staff, with two handles, that of the staff is inflected to the left, the handle of the bistoury is straight. The bistoury is projected from the groove, by pushing the its handle on a slide of the staff. The instrument should be so far introduced into the bladder, that it does not cut the prostate by raising the bistoury. It is also provided with a scale to regulate the incision.

The construction of this instrument is as simple as it can be made, yet it is too complex to be generally approved of. The point of the bistoury is also guarded from wounding the side of the bladder. Both these instruments are used in the same way as the bistouri cache, and they are both constructed on better principles. We have, however, great plenty of instruments without them. I shall now describe two far superior modes of operating.

OPERATIONS BY THE CURVED STAFF.

FIRST OPERATION.

The common staff is introduced into the bladder. The external incision and division of the urethra are performed as before. The short lateral staff, armed with a bistoury, concealed in the slit of the staff, is introdu-

ced along the groove of the staff into the bladder, and the staff withdrawn as soon as the point of the armed staff enters.

In introducing the lateral armed staff, the instrument is turned to the left side, until the point is introduced, and the common staff withdrawn. The instrument is now brought with a gentle sweep towards the centre of the pubes, bringing the point now in the urethra across the prostate and neck of the bladder.

The surgeon is seated ; he takes the handle of the staff in his left hand, and places the staff in the direction he intends to make the incision. Having given the proper position to the armed staff, he draws it gently towards him, gives a slight tension to the parts to be cut, and brings them a little forwards into view. He is therefore enabled to withdraw the bistoury, under the guidance of his eye. His right hand is at liberty, and with the point of his right fore-

finger, he feels the parts before he divides them. He then presses the urethra with the staff to the right or left, as he sees to be necessary, according to the size of the incision he purposes to make.

He now takes the handle of the bistoury in his right hand, and bringing the point of the staff a little forwards, he detaches the handle of the bistoury from the staff, and drawing the bistoury towards him, completes the incision.

REMARKS.

I have been somewhat minute in the description to point out the advantages which this operation possesses over that of the bistouri cache. I do not choose, however, to enter into any further detail respecting these, as I think them sufficiently obvious.

SECOND OPERATION.

The short lateral staff is introduced as before, now without the bistoury. The operation is the same as the last in every respect, saving that the parts are cut from left to right by the scalpel.

The surgeon holds the handle of the staff in his left hand, and brings forward its point as before. He feels the point of the staff with his right forefinger, and having the scalpel in his right hand, introduces it through the neck of the bladder into the slit of the staff, directed by his finger. He then cuts along the direction of the slit from left to right, and completes the incision. The scalpel is laid aside, and the staff is retained in the bladder, to search for, and bring forward the stone. If the stone is small, by the help of the finger in the rectum, it is protruded through the wound. If

it is large, he turns it in the situation most favourable to its easy extraction. The staff may either be withdrawn when the forceps are introduced, or it may be retained in the bladder to assist the forceps in extracting the stone.

REMARKS.

This is the simplest and easiest mode of performing the lateral operation, and, I believe, is the only one that need ever be practised.

As I am desirous to illustrate the application of mechanics to surgery somewhat amply, I shall here introduce an improved construction of my first staff. The staff is straight; the directory which comes across the prostate, opens on a hinge, and having been introduced closed, it is opened by a slide in a groove of the staff. The handle is bent

to the left. This staff is easier introduced than the curved staff; it answers the same purpose equally well, and although somewhat complex, it is hardly objectionable on that account. A drawing of the staff is given.

OPERATION IN THE PERINEUM.

Surgery also has its creeds; and even in this department, the shackles of authority are drawn tight enough to be comfortable. The lateral operation is, in most instances, so greatly superior to any other, as to be beyond all comparison the best. But it is a circumstance greatly to be lamented, that the size of the external incision must always be of the same dimensions. It is certainly mortifying to perform so great an operation for a very small stone.

To the best of my belief, we have high authority for extracting small stones through an opening in the perineum. I once performed the operation with success.

The staff was introduced into the urethra, and I cut directly upon it through the bulb. I then run the scalpel, with the edge to the left side, and cut the whole of the parts intervening, and the prostate horizontally.

Through this incision, I extracted a stone as large as the first joint of my little finger. The patient recovered in less time than usual, and had not a single bad symptom after the operation. A short straight staff is the best to perform this operation.

In the lateral operation, the whole extent of the prostate should always be cut, together with the sphincter of the neck of the bladder. In this operation, the incision must not be so large; it would be a most serious accident to cut the pudic artery. Through so small an incision, it would be next to im-

possible to tie it. Nor can it ever be necessary, for it is only applicable to stones of very small dimensions. Sir Astley Cooper has published an account of an instrument for extracting small stones.

The sequelæ shall hereafter be attended to.

THE RECTO-VESICAL OPERATION.

This is an operation which I have long contemplated, but which I could never make up my mind to perform; however, I have not come to any resolution that I never will perform it. Neither, therefore, do I pass the severe sentence on those who have performed the operation as being, in any way, too rash and precipitate; nor on the operation itself as being at all undeserving of our serious consideration. But it is, by no

means nowadays, a topic wet with the dewy freshness of novelty. I know better ; the close propinquity of the bladder and rectum is too apparent to have escaped the notice of the intrepid surgeon ; and nature itself, the ever watchful eye of providence, as sympathizing with suffering humanity under the agonies of stone in the bladder, has, in the formation of the parts, done much towards the favourable exit of the stone in this situation.

False passages, as they are called, of the rectum and bladder, are really often attended with those disastrous consequences which render the prolongation of life scarcely desirable, or even supportable. This fact sufficiently accounts for the secret dread which has damped the ardour and held in check the hand of the surgeon from dividing parts which he did not know would ever heal.

In suppression of urine, when an artificial opening becomes indispensably necessary,

we often, in preference to all other situations, puncture the bladder through the rectum, and the wound heals readily. The ease with which the puncture is made, the speediness with which it almost always heals, leads us very naturally to inquire, whether a small incision would not also heal readily, and whether or not a large one would heal at all.

This much we do know, and have long known, that a wound which admits the urine, but not the fæces to pass through, heals without trouble ; but when flatus and the fæces pass into the bladder, the wound does not heal, but becomes fistulous.

The few instances in which the recto-vesical operation has been performed, leaves us still in considerable doubt as to its utility, and in still more anxiety regarding its future issue. Hitherto, it has neither been peculiarly successful, nor otherwise. Out of eleven cases, two died, and two had fistulous sores ; seven

recovered. This is rather discouraging; still we may justly hope that a judicious and discriminate use of the operation will render it more successful.

THE HIGH RECTO-VESICAL OPERATION.

Respecting the mode of performing this operation, little need be said. An incision should be made through the rectum and bladder into the slit or groove of the staff, in the same place where the bladder is punctured for suppression of urine. Cutting a little towards one side, to avoid wounding an artery, which runs along the middle of the anterior surface of the rectum. If in any instance, it is justifiable to attempt to extract a stone in this situation, it must be when we are certain that it is exceedingly small; too large, however, to pass through

the urethra. To extract a large stone, I consider truly reprehensible, even should the operation succeed. To extract a smaller one than a pea is unnecessary, as it might be extracted through the urethra. To be as definite as possible, I should say, that I believe this situation to be greatly preferable to all others, when the stone does not exceed the size of a pigeon's egg.

I consider it the duty of surgeons to give this operation a fair trial ; we shall then have matter of fact to satisfy us ; now we have at most but opinion. A few judiciously conducted operations, beginning with stones of small dimensions, and proceeding to those of greater magnitude, will be of far greater value to the practical surgeon than any reasoning on the subject can be, however erudite and ingenious.

I may at least be indulged to observe, should the issue be favourable, the prospect is cheering, the dread of lithotomy would no

longer appal the patient, and the earliest symptoms of stone would be watchfully attended to. A most distressing train of symptoms would by these means be prevented, the lateral operation itself, and all others, in a great measure superseded.

An honest writer must speak his mind freely ; the Sansonian operation, as hitherto performed, has not displayed much to excite our admiration. I wish I were not compelled to say, that its history bears record against those who have sometimes practised it, as having done so in despite, and in open violation of the precepts, of good surgery. First, let us learn whether a small stone can be safely extracted, it will then be time enough to provide for the extraction of great ones afterward.

THE LOW RECTO-VESICAL OPERATION.

There is another situation towards the verge of the anus and perineum, where a somewhat different operation may be performed, and a very large stone extracted. If I have maintained that a stone of small size, only, ought to be extracted by the last, by this I now assert that only a large one should be extracted.

We are told by Professor Vacca, that the fæces may be excluded from entering the bladder, by his mode of forming a valve of the rectum, opposite the wound in the prostate and neck of the bladder. His description of the first incision is not concise enough to be here introduced, nor is his mode of executing it sufficiently expedite to be imitated, as a single cut of the knife should accomplish it.

The incision is to be made anterior to the prostate, and carried through the rectum, urethra, and sphincter of the anus, an inch into the perineum, cutting along the slit in the staff.

He then runs the knife along the groove in the staff, and dividing the prostate and cellular membrane, leaves the rectum uncut. This valve of the rectum extends about an inch lower down than the opening into the bladder.

This may be thought an ingenious enough precaution. But it cannot be denied, that it must be exceedingly difficult to avoid including the rectum also in the incision. In which case there would be no valve.

But granting that he had so far succeeded. This valve would be directly in the very place where it should not be, when he came to extract a large stone. This valve would cause a stricture of the wound, and impede

the exit of the stone. Besides, it would obviously be exceedingly liable to be torn.

The lateral division of the prostate gland is both so difficult and hazardous, that I hope it will not be attempted. The side of the prostate is not exposed in this as in the lateral operation, and it is next to impossible to divide it laterally without cutting the pudic artery, and mangling the urethra. I am therefore decidedly against forming a valve.

If we could extract a large stone, we must pierce the rectum and neck of the bladder just behind the prostate, and with the point of the knife, firmly and securely in the slit of the staff, divide the whole parts at once.

Now indeed we have obtained a most extensive opening, and may certainly extract a larger stone than can be done by the lateral operation; but we have wounded parts essential to the generative faculty.

The operation must therefore be limited to cases of large stones in boys or very old people.

I have now completed my chief design in this publication, and as I have embraced a variety of topics, I have been as concise as I could. My respect for the opinion of my surgical brethren, prevents me from expatiating on the advantages to be anticipated from the improvements which I have suggested. I shall await in silent and respectful expectation, the award of a discerning and enlightened public, be what it may.

American surgeons, to you in particular I appeal; for if I have had an up-hill game to play among you, I have also felt the cheering influences of this land of liberty, where man is restored to the birthright of his native dignity, where I have breathed the air, and seen the light of heaven; and where I have read the broad page of nature, written in legible characters,

but he must not run that reads. Nor have I stood on the giddy pinnacle of the liberty staff, but on the wide domains of freedom, where thrones have perished, "and left not a wreck behind."

While the sacred love of truth keeps me from flattery, I am compelled to say, that if the arts and sciences are here yet but in their infancy, in no country under heaven is there so much general knowledge so widely diffused among the people.

Like the swan, singing his death song, on the present occasion, I feel an inward foreboding that I have made my best, if not my last effort, and I bid the application of mechanics to surgery good-bye, at least till some future period.

I feel satisfied, however, that I have not passed before the reader as the fleeting shadow of a cloud, nor have I, with the shrewd flippancy of erudition, darkened counsel with words; but I have presented myself

without this fig-leaf, and if I have not spared others, neither have I flattered myself.

In some things, "what man dares I dare," and although an obscure alien, I have contented myself to pass among the medical profession without reputation, and with but few friends to recommend me. I have neither condescended to the chicanery of quackery, nor to the mean finesse of low cunning; for I have cultivated and nourished a respect for the talents which nature has lent me. Surgeons, do unto me as I have done and shall do unto you. I do not set you at defiance; I seek the truth; where I have erred, point out to me the right path, and I will endeavour to pursue it.

Could I foresee, by what less hazardous operations future surgeons shall extract the stone, it would be truly gratifying. But prescience is not allotted us; an inexorable fate awaits us all. I conclude this digression in the emphatic language of our immortal

Scottish bard, "O could we see ourselves as others see us."

I now proceed to the extraction of the stone, and after treatment; on these subjects, I have nothing new to offer; I only introduce them for the information of those who are juniors in the practice of surgery.

EXTRACTION OF THE STONE.

Supposing the lateral operation to have been so far completed that the forceps are introduced, the surgeon withdraws his finger from the bladder. For it may be observed, that as soon as the internal incision is made, all cutting instruments are laid aside, and the staff immediately withdrawn. The finger only is now used, to introduce the forceps through the wound in the bladder.

If the short curved staff has been used, it serves very well to search for, and bring forward the stone.

If the stone is large, the forceps will grasp it the more readily, by having it brought forwards. The stone should be turned in the position most favourable to its exit. The curved staff may either be retained to assist and direct the forceps, or it may be withdrawn.

If the forceps are used to search for the stone, they should not immediately be opened, but the situation of the stone should first be ascertained. If the point of the forceps have overreached the stone, the handles should be raised, and the point directed towards the rectum. If any difficulty now arises in grasping the stone, the surgeon must feel with his finger that he has not pushed the side of the bladder before the forceps.

Should there be large coagula of blood in the bladder, the forceps should be withdrawn, and the bladder well washed out by a tepid injection.

If there is any impediment produced by the external incision, the knife must again be used, to divide any muscular fibres that come in the way of the forceps; at the same time, pressing the rectum down by the finger, to prevent its being cut. If the stricture is in the neck of the bladder, we have already advised the surgeon to use the curved staff and scalpel, as the best means of enlarging it.

When the surgeon has grasped the stone securely with the forceps, he must proceed to extract it slowly, taking care that he draws it properly through the orifice, and does not raise the forceps and the stone against the bones of the pubis, otherwise the stone must slip back into the bladder, and the urethra be torn.

The handles are to be depressed by the side of the rectum, and without being pulled too violently, one blade is first to be brought down, and with a gentle sweep of the han-

dles, the other brought down, until the parts are dilated, and the stone extracted.

In cases of great difficulty, two of the fingers should be introduced into the rectum, to prevent the stone from slipping out of the forceps, and to assist in its protrusion. The surgeon should bear in mind, that although an operation has, in all other respects, been well performed, a patient may be lost by violent and protracted efforts to extract it.

If the stone is found to be rough on all sides, it is probably the only one. If it is rough on one side, and smooth on the other, it affords a presumption that there are other stones. At all events, we must take care not to leave a stone in the bladder, as it is highly dangerous after the operation.

If the stone is broken, all the portions must be extracted, and to ascertain that this is the case, the fragments should be put together, and the bladder examined by the

finger. The loose sand should be well washed out with tepid injections. Sacculated stones are very rare, and seldom give much occasion for an operation.

If the operation has been performed posterior to the prostate, the stone, if possible, should be turned out of the orifice by a finger in the rectum, or it may be drawn out by a noose, as a cork from a bottle. If the incision is kept open by the point of the finger, and a tepid injection thrown in by the rectum, it may be brought within reach of the finger. I should be very loath to use the forceps.

In the operation through the perineum, I have already adverted to Sir Astley Cooper's instrument for extracting stones of small size.

HEMORRHAGE.

If, after the stone is extracted, there is much bleeding, or the blood is thrown out in jets, it is not from a small artery. It has already been observed, that if the pudic artery has been cut in making the external incision, it should be tied before we proceed farther. And if the incision has not been made too high, nor too close on the staff, the artery of the bulb cannot have been cut, much less the artery of the penis. In some few instances, the artery of the bulb passes so low as to be directly in the course of the incision, and must be cut. But I can see no difficulty in tying it, should this be necessary, which will very seldom be the case.

If the internal incision is performed in the manner I have advised by the curved staff and scalpel, the internal pudic can never be cut, because we cut from the artery. I there-

fore sincerely hope, that surgeons will take my advice. We shall not then shed so much blood on the table and floor, as some of us have witnessed, nor see our patient sink from exhaustion, by repeated hemorrhage after the operation.

The internal pudic artery sometimes runs in a groove along the bone, and should it unfortunately be cut, it is exceedingly difficult to tie it. But if the surgeon cuts in this case, he must be greatly to blame. And if he cannot tie it at one place, he must tie it at another, for tied it must be. Mr. Charles Bell observes, that when the blood flows from under the arch of the pubes, tying the common pudic stops the bleeding.

Compression should seldom be trusted to; it may command the hemorrhage, but it also frequently causes the blood to be forced into the cellular substance, occasioning the parts to suppurate. If after the hemorrhage is subdued, the bladder is filled

with coagulum, tepid water should be injected.

THE AFTER-TREATMENT.

Oiled lint, or some simple dressing, should be laid over the wound, and the patient put to bed, with a pillow between his knees, the thighs either left at liberty, or loosely tied, and an opiate exhibited. An assistant ought to remain by him, to see that the urine passes freely by the wound. To secure the free exit of the urine, a small piece of lint slightly twisted, and soaked in water, may be gently introduced into the orifice, and occasionally withdrawn, or, instead of this, an elastic gum tube may be left in the wound. For several successive days, the whole of the urine should pass by the wound. Should the edges of the wound become agglutinated by a coagulum of blood, or inflammation of the pros-

tate, the finger should be introduced, and the free passage restored. The parts should be kept clean, and care taken that urine does not lodge by the side of the rectum. Tepid water may also be occasionally injected into the bladder, by the wound, or through the urethra. By these means extravasation of urine may be prevented.

The violence of the operation sometimes causes the death of the patient in a few hours. To obviate this fatal issue, our chief resources are in large opiates, with some warm cordials, which should also be given freely, for the dread of inflammation is as yet out of the question.

The diet of the patient should be light, and the bowels kept open by mild aperients. He should drink plentifully, to dilute the urine, and render it but little irritating to the wound. When inflammation ensues, the stomach of the patient becomes irritable, he is affected with vomiting or hiccough, the

pulse becomes what is called suppressed, and the abdomen tense and painful. We must then have recourse to very free venesection, to local bleeding with leeches, laid over the hypogastric region, to warm fomentations, the warm bath, and anodyne enemata. A large blister should be laid over the abdomen, and if the state of the stomach will admit of purgatives, the bowels should be freely opened.

If the recto-vesical operation has been performed, it appears that we have not only the same dangers to encounter; but also several sequelæ peculiar to the operation, are to be guarded against. The diet of the patient should be barely sufficient to support nature. If he loses but little blood during the operation, he should be bled soon after it. The parts should be carefully kept clean. Opiate injections should be thrown up into the rectum, and leeches applied to the anus and perineum; and it also appears to be estab-

lished, that after the suppurating process has taken place, the edges of the incision should be touched with lunar caustic, which is said to be highly useful in obviating fistula, and causing the parts to heal.

Were I, however, on this occasion, to state my own opinion, I should give the preference to the actual cautery instead of caustic. Unsurgical as such practice may appear, I am fully sensible that in membranous structures, it causes less irritation, and is also attended with a lower degree of inflammation, more conducive to the process of adhesion.

SUMMARY OBSERVATIONS.

I have purposely avoided giving any anatomical description of the parts connected with the lateral operation of lithotomy, that I might render my views respecting the

modes of performing it the more plain from their simplicity. Had I done otherwise, my publication would have been more complete, but it would also have been more extended and intricate. My design has now been accomplished, and I have to refer the young surgeon and anatomist to those writers who have already written on the anatomy of these parts. It is with much pleasure that I recommend to their perusal, Mr. Anderson's work on the surgical anatomy of the pelvis, &c. lately published in this city. His mode, however, of dividing the prostate and the neck of the bladder to the necessary extent, by withdrawing the knife, has formerly been shortly, but decidedly, disapproved of, and I leave it to him, and all others who choose to practise it, to reconsider the matter. The application of anatomy to surgery has a twofold purpose to serve, namely, to point out what parts are to be cut, and in what direction. These being deter-

mined, the incision has distinct limits and boundaries, and may be illustrated by ideal lines and angles. Hence the application of anatomy to surgery bears a strict alliance to geometry. The course assigned by the anatomist is to be pursued by the knife of the surgeon, in the same undeviating line, as it must be drawn by the pencil, were we to take a trigonometrical survey of it, and represent it as we would any other line or superficies. In fact, be our anatomical knowledge of the structure of the parts as correct as possible, to have distinct ideas of their relative situation, we must assign to them figure and dimension.

I shall endeavour to illustrate this matter by example. Mr. John Bell observes, "that in the operation of lithotomy, the external incision passes by the side of the anus, and on the inside of the tuber ischii; and our knife accordingly cuts clean across the transverse muscles, which stand as a bar

across the perineum ; it passes by the side of the erector muscle, need not touch it, or touches it slightly, and by a sort of chance. It must not touch the accelerator muscle ; for whoever says he cuts the accelerator, cuts too low, and performs his operation ill. After the first incision we get deep into the pelvis, and cut the levator ani. The surgeon does not observe these muscles, on account of any danger which may attend wounds of them, but he takes them as marks for the true place of his incision.”

This anatomical sketch of the muscles connected with the external incision, is both very easily understood, and of the greatest importance to be distinctly recollected by the young surgeon : for this reason I have here introduced it ; that he might be emboldened in using the knife, from his knowledge of the parts to be cut, and those not to be cut in performing the operation. He knows the extent and the boundaries of

his incision, and he cuts freely those muscles which come in his way. Having divided the muscles, and cut down upon the anus, it becomes his guide in enlarging the opening to admit of a free exit to the stone, and to allow a direct and unimpeded passage to the urine. Before he commences, on the left, he feels the course of the bones of the pelvis with his finger; on the right, he surveys the raphe of the perineum, and the course of the staff. At the highest point of his incision, he enters the knife midway between the staff and the ramus of the ischium, at the lowest extremity he carries it below the verge of the anus, directly in the centre between it and the tuberosity of the ischium. His anatomical knowledge of the parts enables him to recognise them, as they present themselves in succession to his view; and cutting nearly in a line parallel to the staff, approximating a little more closely as he advances, he proceeds coolly

and without embarrassment in completing the external incision.

In dividing the prostate and neck of the bladder, the direction of the incision is abundantly obvious. Over the upper surface of the prostate, is the pelvic partition; towards its left side is the pudic artery, running closely along the inner edge of the ramus of the ischium; below the prostate, the vesiculæ seminales and rectum are situated. If the surgeon, therefore, cuts freely and obliquely upwards, he must divide the pelvic partition, and may wound the pudic artery. If he cuts directly across the prostate, the pudic artery will still be endangered. If he cuts too directly downwards, the vesiculæ seminales and the rectum must be wounded. The proper direction, therefore, is a little obliquely under a line drawn horizontally through the prostate. In this direction, the prostate and neck of the blad-

der may be safely cut, to an extent sufficient to admit the extraction of any stone, which in this situation can pass the outlet of the pelvis. To say more on this subject, would only be to repeat what has already been advanced.

Finally, while I readily acknowledge that the surgeon who is intimately acquainted with the anatomy of the groin and pelvis, and who, in operating, can concentrate his whole faculties to his immediate object, without losing his self-possession, stands but little in need of any other instrument, besides those now commonly used; yet I hesitate not to say, that even he should always use that instrument with which he can operate most successfully. I have probably said already as much as becomes me in behalf of the operation with the lateral staff and scalpel, yet I will add, that with the peculiar advantages which I believe

it to possess over all others, were I to fail in a single instance in performing it, I should consider my reputation irrecoverably lost.

ADVERTISEMENT.

DR. M. is preparing for the press, and speedily will publish, OBSERVATIONS ON THE TREATMENT OF GONORRHŒA, GLEET, AND STRICTURES OF THE URETHRA.

