Lithotomy simplified, or, A new method of operating for stone in the bladder : to which is appended, an interesting and unique case of Caesarean section / by George Allarton.

LITHOTOMY SIMPLIFIED,

OR

A NEW METHOD OF OPERATING

FOR

STONE IN THE BLADDER,

TO WHICH IS APPENDED,

AN INTERESTING AND UNIQUE CASE

OF

CÆSAREAN SECTION.

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ILLUSTRATED WITH SEVEN WOOD CUTS.

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" Il est des operations dont le nom seul exerce sur l'imagination des malades la plus fâcheuse influence ; la taille est de ce nombre."

M. VIDAL, *(de Cassis.)*

PREFACE.

In making an effort to simplify the only remedy for one of the most redoubtable maladies to which humanity is subject, I feel that I need make no apology. Our own Profession has furnished more victims to this relentless disease than contributors to its relief. The illustrious names—*Harvey, Fothergill, Scarpa, Portal, Dubois, Lisfranc, Boisseau, Linacre,* and *Mascagni,* among others, may be cited. Science and Literature have offered up some of their choicest spirits,—*Leibnitz, Newton, Bossuet, Linneus, Garrick, Voltaire, Volney, Goldsmith, Playfair, Calvin, Erasmus, Rousseau, Franklin, Walpole.* And the great historic names—*Napoleon, Peter the Great, Julius Cæsar, Colbert, George the Fourth,* add their undying testimony to the long list of sufferers from this direful scourge.

1, *Kirkdale,*
Upper Sydenham.

TO THE

COUNCIL OF SYDENHAM COLLEGE,

BIRMINGHAM,

THIS EFFORT TO SIMPLIFY

ONE OF

THE MOST FORMIDABLE OPERATIONS OF SURGERY,

IS

MOST RESPECTFULLY AND GRATEFULLY

DEDICATED BY

THE AUTHOR.

LITHOTOMY SIMPLIFIED.

In publishing this short sketch of a modified operation for stone, I trust that I shall not be considered premature in recommending it to the notice of my professional brethren, as it is now fourteen years since I first attempted this mode of operating; nor do I consider it necessary to justify an effort to improve an operation so fearful and so fatal as Lithotomy, since recent disclosures, both in town and country, in hospital and in private practice, incontestably shew that there is yet much room for improvement in the ordinary modes of operating for stone. The recorded experience of some of the greatest Surgeons, in this and other countries, clearly shews that after practising the lateral operation during a series of years, they were dissatisfied with its results, and anxious to substitute some safer and less fatal method.

Stone in the bladder is by no means unfrequent, it exists in all localities, at all periods of life, and in all classes of society, yet how few Surgeons ever venture upon the operation of Lithotomy! and why?—on account

of its difficulties, dangers, and never-varying mortality; and now that operators are made amenable to public censure, pecuniary extortion, and even criminal proceedings, we shall indeed be surprised if Surgeons can be found daring enough to risk their reputation in attempting any modification of this fatal operation.

The operation at present commonly practised is the lateral one, and is described by Mr. Coulson, in his excellent work on the subject, as "the most perfect of all methods, and the one now adopted in preference to all others;" yet it is so fatal (says Dr. Willis,) that one in seven or eight will be lost immediately, and of those who are in years, when the life of man is most truly precious, one, at least, in three or four will fall its victim,—in fact Mr. Coulson, himself, admits that one-fifth or one-sixth of all the patients cut for stone die. Lisfranc says, "I have often performed Lithotomy myself, and I have often seen it done by others, both in hospital and in private practice, and the mean mortality has appeared to me to be one in four of all who were operated upon"—further he says, "I insist on the accuracy of this proportion as regards Paris." Where the operation has been reported to have succeeded it may have been merely a temporary relief in very many cases, as it is too frequently followed by incontinence of urine, or stillicidium, or impotence, and at some not far distant time, death. Dr. Willis says, "we seldom meet with

any one beyond the middle age who was cut for stone, some eight or ten years back;" but this may have arisen from delaying the operation, thereby allowing the bladder and kidneys to take on diseased action, which the subsequent removal of the stone was inadequate to arrest. That there is much truth in the above estimate of the mortality attending the lateral operation of Lithotomy, there can be little doubt.

Sir A. Cooper, in speaking to the late Mr. Pattison, said, "I may not live, but probably you will, to see the neglected and despised Marian method, under some slight modification, revived."

Sir C. Bell says, in his *Institutes of Surgery*, "As we turn from one scene to another, we know not which is the most important duty of the Surgeon,—there are so many occasions on which self must be forgotten, and devotion to the duties of humanity must overcome all lesser considerations. I have felt that there is no reward sufficient to compensate for the anxieties attending the task of the Lithotomist; and let not the unfeeling suppose that they are better suited to the duties of the Surgeon,—we owe the improvement of the operation of Lithotomy to those who felt severely the responsibility of their office."

Liston says, "Lithotomy is an operation which never ought to be undertaken without due consideration of all the circumstances that may arise; and the Surgeon who

does undertake it must have resources within himself to meet and overcome difficulties in all the various stages of the proceeding."

CHESELDEN is reported to have said, "I never go to operate for Lithotomy but I feel sick and faint."

CRICHTON, of *Dundee*, remarking upon the difficulties of the operation, says, "In an operation such as this, unaided by the eye, and dependent upon a deep and just conception of all the concomitant circmstances, more *previous intentness of thought* and abstraction of mind, leading to calmness and self-possession during the operation, are necessary than the generality of Surgeons are able to bestow."

DUPUYTREN, after a life's experience, asserts that in spite of the variety of procedures which encumber the history of Lithotomy, there is still great room left to desire a method of performing it which should be less *murderous* than any of those now in use.

DESCHAMPS, the great French Surgeon, exclaims "Who knows but at some future time Surgeons may not be tempted to return to the Marian method.

In reviewing the above opinions and expressions, can we for a moment doubt that "This," (as Mr. Coulson says) "most perfect of all methods," is beset with difficulties and dangers?—that it is a "bloody and murderous" procedure, and that it is eminently unsuccessful in its results. Can we be astonished that so much has

been written upon the operation? that so many attempts have been made to diversify the modes of performing it? that so few Surgeons in private practice have ever ventured to do it?

I shall proceed to relate some of the principal causes of failure in the operation; but first let me dwell upon the greatest of all causes, the too free use of the knife in the deep seated parts,—an extra half inch or inch in the integuments, is of comparatively little consequence, and not unfrequently enables us to complete the operation more speedily and more safely; but every fraction of an inch of incision into the deep structures, including the prostate and neck of the bladder, may be looked upon, as regards the success of the operation, as an ill omen and a step to be carefully avoided. The most successful operators have been those who spared the deep structures.

Liston remarked that the Neck of the Bladder is capable of dilatation without any incision, and speaking of a case of abscess in the perineum, he says—"I introduced my finger into the membranous part of the urethra and found that by the most gentle movement I could not only reach the bladder, but dilate the opening into it to a very considerable extent."

Sir A. Cooper and Deschamps had evidently in view this capability of dilatation on the part of the prostate and neck of the bladder, when they made the remarks just quoted.

Sir C. Bell says the first and especial cause of death is violence; violence in extracting the stone, and that either owing to its great size or to a bad incision.

We have also extravasation of urine.

Hœmorrage, avoidable and unavoidable.

Size of stone.

Depth of perineum, particularly in old persons.

Great extensibility of parts in children, by which the bladder is very apt to yield before the knife, and subsequently before the finger.

Thickening of the neck of the bladder in old persons offers great impediment to the introduction of the forceps, and still greater to the withdrawal of the stone.

Spasmodic contraction about the neck of the bladder—an interesting case, of which is given by Deschamps, where the catheter could not be introduced through the internal wound, although freely made with the lithotome caché.

Enlargement and induration of the prostate gland often presents great obstacles to the performance of Lithotomy, and when considerably enlarged is a cause of difficulty and annoyance, and the lithotome caché has even been broken in attempts to cut the indurated prostate, but the great obstacle is the seizing of the stone.

Morbid condition of the bladder, such as hypertrophy, contraction, and morbid irritability.

Relaxed and plicated condition of the bladder.

Encysted Calculi and irregular position of the stone, such as over the pubes.

The number, size, form, and consistence of stones, their chemical composition, &c.

We have also numerous accidents, which may tend to make this operation fatal, such as passing the instruments between the bladder and rectum, instead of into the bladder.

Cystitis, from long pinching or groping about the bladder.

Wounding the rectum.

Nervous shock, from which many patients die.

Retention and incontinence of urine.

Impotence from injury to or division of the ductus seminales.

Fistulous opening in the perineum.

Suppuration and abscess of the cellular tissue.

Peritonitis.

Purulent infection.

Secondary diseases of kidneys.

Laceration of prostate.

Secondary hœmorrage.

Internal hœmorrage.

In introducing a safer method of operating, we shall still have many of this long catalogue of ills to bear up against, although, comparatively few of them could much interfere with the success of the operation which I am about to recommend.

As there is nothing new under the sun, so this operation is merely a modification of the Marian which was performed with such great success for nearly 200 years by all the Surgeons in Europe.

M. Coulson says it had been abandoned 100 years when Dr. Willis endeavoured to revive it, though with some modifications, and although the dilatation was conducted in these cases much more slowly than even Deschamps recommended, yet the method had merely time to be baptised with a new name, Lithectasy, when it died a natural death, and no one will probably be tempted to revive it."

After this sweeping denunciation and consignment to oblivion, I confess that, had not the success attending the operation been great, I should have felt some diffidence and delicacy in venturing on so bold a step as flying in the face of so great an authority, but we shall see how far Mr. Coulson is correct in his view of the subject.

In describing the various operations for stone, which bear upon my immediate subject, I shall not fatigue the reader with any unncessary detail of operations which have not dilatation as their distinguishing feature—for this reason I shall not treat of the lateral operation as usually performed, but content myself with giving a sketch of the various methods employed for removal of calculi by dilatation, commencing with the Marian

method, which during two centuries was practised by all the Surgeons in Europe.

In the *Marian Operation* a grooved staff was introduced and cut upon in the middle line, and various instruments were then employed to dilate the opening into the bladder.

Mr. Coulson here remarks "Dilatation was the theory, laceration the practice; the fact is, that the whole of the canal, from the opening in the bulb to the body of the bladder—that is to say, the membranous portion of the urethra, the prostate and neck of the bladder are more or less contused, lacerated, and injured in a frightful manner."

Willis remarks on this method "No time was allowed for stretching, and as a consequence the parts were torn." Now, the real truth is, that the parts were not injured by the rapidity of the stretching, but by the nature of the instruments employed to stretch them, as we shall hereafter see. Nevertheless, in spite of this frightful laceration and bruising, the operation was so successful that we find Surgeons disposed to recur to it even in our own time.

In the year 1727 Douglas, having observed the capability of distending under a gradual dilatation of the male and female urethra, suggested making an opening through the perineum into the urethra, and then dilating with gentian and other tents, and came to the conclusion

that "these artificial fistulas may be dilated so as to extract any stone without cutting the body of the bladder or lacerating any of its parts." In this conclusion, says Dr. Willis, I unreservedly agree.

In 1796 DESCHAMPS proposed a mixed method, but his incision, though directed to the membranous portion of the urethra, was oblique and not in the median line, but he dilated as in the Marian method, but more slowly.

In 1819 SIR ASTLEY COOPER, with Drs. Neil and James Arnott, succeeded in extracting a stone through a fistulous perineal opening, enlarged by the beautiful hydraulic dilator of Dr. Arnott. The dilatation lasted thirty hours—the stone was as large as a small walnut, the diameter of the passage being dilated to three quarters of an inch in diameter.

In 1826 MONSIEUR GUERIN, of the Bordeaux Hospital proposed an operation as follows: On the grooved staff an incision was made, commencing at the bulb, and carried down the raphé through the sphincter ani into the rectum. The groove was then entered by the membranous portion, and a director carried on into the bladder, and the staff withdrawn. The forefinger was now gently pressed into the bladder, where it was retained sometime, and the dilatation completed with dried tents pierced with a canula for the escape of the urine.

In 1830 DR. BUCHANAN, Surgeon to the Royal Infirmary of Glasgow, recommended an operation similar

to the one known as Dr. Arnott's method, ignorant that it had already been carried into practice by Sir A. Cooper, at the recommendation of the Arnott's.

In 1840 I performed an operation subsequently described, for the removal of a calculus, by cutting in the median line, and dilatation.

In 1843 a successful operation on Dr. Arnott's plan was performed by Mr. Elliot. Another by Dr. Wright, of Malton, and in the same year an unsuccessful case by Mr. Ferguson, of King's College Hospital, upon, if I remember right, an aged man, who died from exhaustion.

In 1846 was published in the *Medico Chirurgical Review* an account of, perhaps, the most successful method of operating that has ever yet been practised, and as it appears to be scarcely known to the profession, I shall take the liberty of extracting verbatim, the portion of the review which especially treats of it.

Extract from *Medico Chirurgical Review* : "This operation is published to the world by an Italian named Joseph Bresciani de Borsa, in an essay on *Theoretical and Practical Surgery*, published at Verona in 1843, and *Theoretical and Practical Observations* published at the same place in 1844.

The Reviewer says, "It is not often that works on Medicine and Surgery by Italian practitioners come into our hands, and judging from the specimen before us, we regret that we do not see more of them in this country.

Dr. Bresciani de Borsa is in large practice in Verona, and is Surgeon to the General and Lying-in Hospitals of that city. The author details at great length the symptoms, modes of detecting, and prognosis of stone in the bladder. After dwelling minutely and ably upon the Anatomy of the parts concerned, and describing all the various operations which have been devised for the removal of the Calculus, he presents us with an account of his own mode of procedure, which he states to have been attended with an amount of success which seems to us almost incredible, much as we are disposed to rely upon the veracity of so industrious and candid an observer."

This operation is, in fact, a modification of that of which Signor Manzoni of Verona published an account in 1808; and Dr. De Borsa declares that of one hundred cases operated upon by that gentleman and himself, only one has died, and that from causes irrespective of the operation.

Manzoni's operation consisted in cutting into the spongy portion of the urethra only, and then dilating the bulbous and prostatic portion sufficiently with the finger to admit of the introduction of the forceps and the removal of the stone. Dr. De Borsa, however, judging it more reasonable to cut into the more dilated portion of the urethra, carries his incision from the bulb to the prostate, and even unavoidably scarifies the latter, when

it advances more than usually forward. As the admission of such an operation depends upon the dilatability of the prostate being satisfactorily proved, the author advances several reasons for this, founded on the nature of its anatomical structure, and cites various facts observed by himself and others. He then details the various steps of his operation. Having placed the patient in the usual position, (it is much preferable to retain him in this by means of assistants than by ligatures, for the mere ceremony of adjusting these, causes a great dread to the patient, which may alone suffice to induce a low and fatal form of fever) introduced the staff, and made a sufficiently large external incision, I open with a small lancet pointed, double-edged, strong scalpel, the whole of the membranous portion of the urethra, so as to expose the instrument to the extent of about ten lines, in doing which, it may in some cases easily happen that the apex of the prostate is also cut; although, in the case in which the patient died it was found entire. I now take hold of the handle of the staff, and passing my left forefinger into the wound, feel the groove exposed; and as others would pass some sort of gorget through the prostatic portion of the urethra and neck of the bladder, I only introduce my finger into the bladder, being certain that it never can make a false passage, since I keep it in contact with the metallic instrument. I take care, nevertheless, not to pass my finger along the groove because

I should then thrust it against the internal or posterior angle of the wound, and then against the great bulk of the prostate.

Scarcely do I touch the groove before, instead of following it, I pass my finger upon the right side of the staff (as regards the patient), and carry it quietly and without any obstacle into the bladder. One of the advantages of this modification is that it enables me, in most cases, to come at once in contact with the stone. I then remove the staff, still, however, retaining my finger within the track of the incision, and gently moving it about in a semi-rotary manner, effect a much greater dilatation of the prostatic urethra and neck of the bladder. Next I pass in the forceps, behind my finger and seize the stone.

It has to pass along a track of only from twelve to fifteen lines, or even less, since the inverse cone formed by the forceps approximates the neck of the bladder and urethral aperture, for which reason the space is shorter and more easily dilated. I remove the stone with two, or at most three semi-rotations, performed with circumspection and care along an axis, which commencing at the neck of the bladder, should pass through its neck, and following the centre of the prostatic urethra, terminate in the centre of the perineal aperture.

I am, in general, not more than a minute after opening into the urethra before I have extracted the stone,

and the operation has always succeeded in my hands. Safety, simplicity and celerity, I have already said are desiderata in every operative process, and I am in a condition to prove that they attach to this one recommended by me. All I employ are simply a bistoury, and the forceps, simplicity surely, in comparison with the multiplicity of instruments which has been recommended in the various and numerous modes of performing cystotomia.

By passing my finger along the staff, I secure that safety which is not usually a characteristic of operations for stone. It is related that even the celebrated Scarpa passed the gorget, which was looked upon as the palladium of his fame, in between the bladder and the rectum. The same thing has occurred to many, otherwise skilful operators. I am certain of not injuring either the pudendal artery, the prostatic venus plexus (so frequently in a varicose condition in the aged) the body of the bladder or the rectum. Farther, by the preservation of the whole of the prostatico-vesical canal, inflammations between the rectum and bladder are avoided, inasmuch as urinary infiltration is prevented, in consequence of the prostate not being divided. The rapidity of the operation is shown by the fact, that instantly after I have opened the urethra I have the stone in my hand; and any one who has even once performed this operation will bear witness to my assertion.

I may observe, that it seems almost impossible that so many operators, at all periods, have written so much, and cudgelled their brains to invent new operative proceedings for Lithotomy, by deep prostatico-cystic incisions, while with a simple urethrotomy the desired end may be obtained, as I can prove by so many cases.

The Author next enters into a detailed account of the twenty or thirty modifications of the operations of Lithotomy which have been at various periods devised, exhibiting the particulars in which his own may be advantageously compared with these, and terminates his essay with a report of the discussion upon the dilatability of the prostatic portion of the urethra, which took place in the medical section of the scientific congress held at Padua two or three years ago. At this, several eminent practitioners expressed doubts of the feasibility and safety of his proceedings; but he truly observed that facts are far beyond theoretical objections. Upon it being insinuated by some that success attendant upon the removal of small stones ought not to confer approval upon a method, De Borsa replied by exhibiting large calculi which he had removed. He stated, however, that neither this nor any other form of operation can be universally practised, and that the bilateral operation of Dupuytren is best adapted for stones of great magnitude, and the hypogastric operation when this is excessive. So, too, when the prostate is much diseased, the hypo-

gastric operation may be more eligible. The dilatability of the prostatic urethra, independently of incision or laceration however, was considered so doubtful by many, that a commission was appointed to conduct some experiments on the dead body. However, the commission was formed, and he consented to exhibit the celerity with which the finger and forceps might be introduced into the bladder, but declined allowing the soundness of his practice to depend upon conclusions drawn from circumstances so different from those prevailing in the living body. Here he only exercised a sound discretion. In the two instances experimented upon, upon examination afterwards, the prostate was found to be only slightly lacerated to the extent of two or three lines, although the forceps had been introduced, and the stone removed by the aperture.

This for the dead body; but the Author reiterates, that in the living subject, a division of even the apex of the prostate is exceptional and unessential, and that in the only case in which death allowed of an examination being made, the part was found entire, as testified by competent witnesses, although the stone was fourteen lines in diameter.

He observes, moreover, of those who persist in maintaining that he must lacerate the prostate in dilating it, that they must find great difficulty in explaining Manzoni's great success, who only opened into the spongy

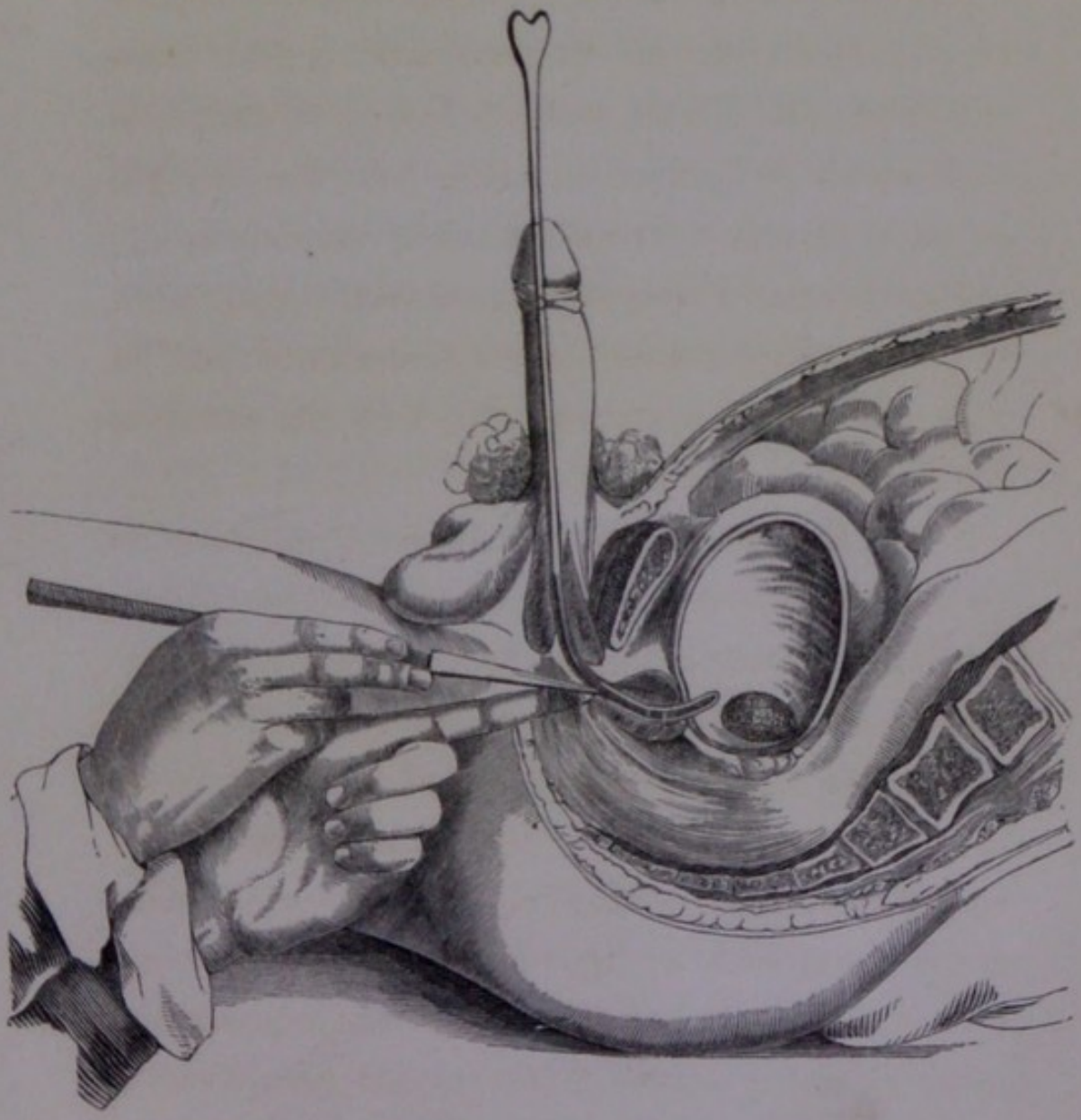
portion of the urethra, leaving entire between the end of his incision and the apex of the prostate, the bulb and the membranous portion of the urethra, and extracting the stones without any laceration whatever, and with uniform recoveries.

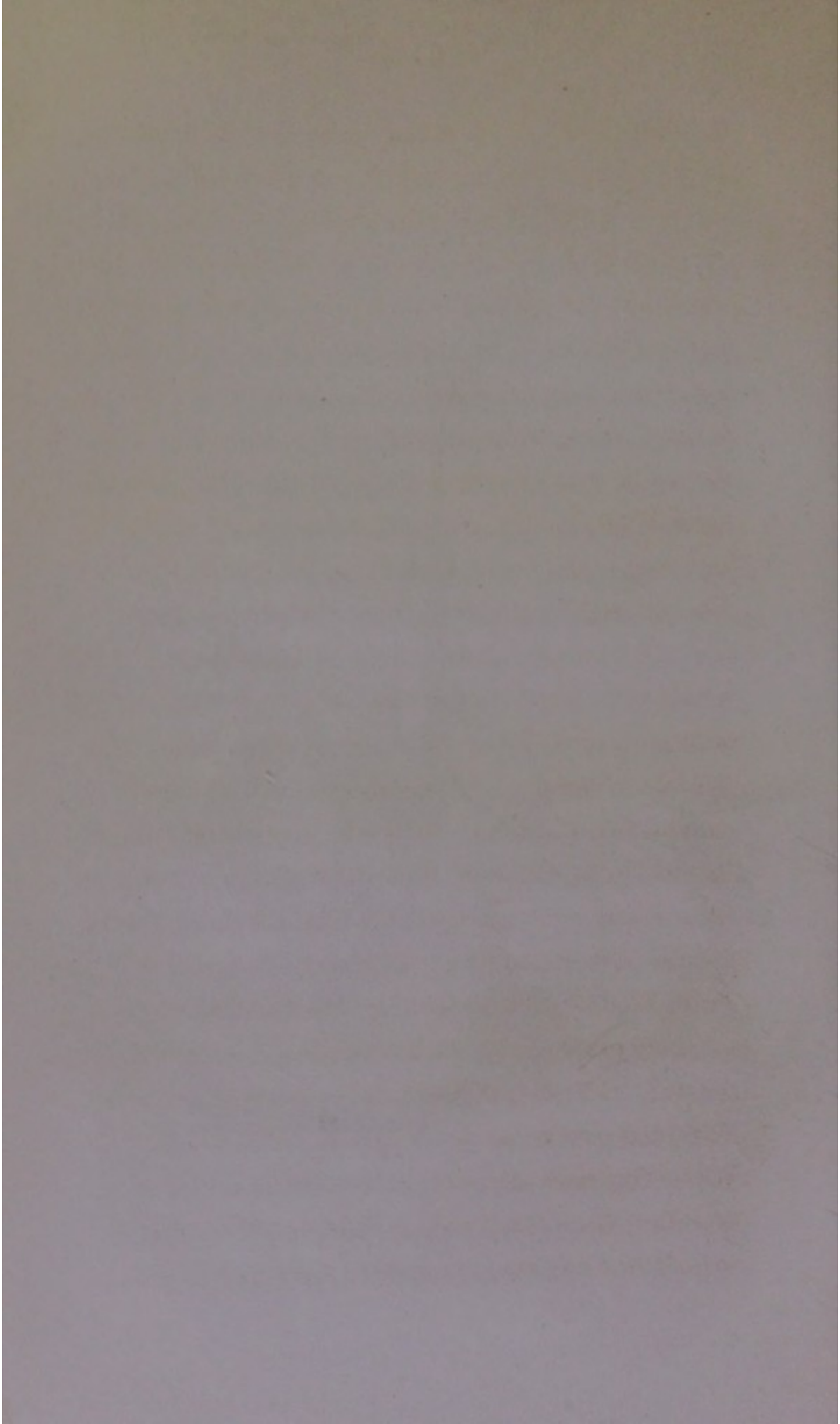
The position the Author occupies, as one of the élite of the profession, in his own country—his great experience and evident candour, lead us to accept his statements as well grounded, and to hope that they will be put to the test of experiment among ourselves."

I have made this long extract, considering it to be one of great importance, and as also necessary to shew in what respects my operation differs from the one here described.

I may first observe that the ligatures are not at all necessary to control the patient, unless we have a deficiency of assistants. The method I employ is simply this,—I introduce a grooved staff in the usual manner, and of the usual size, and confide it to an assistant, with directions to keep it perpendicular and hooked up against the pubes; I then introduce the index finger of my left hand into the rectum, placing its extremity in contact with the staff, as it occupies the prostate, and press it firmly against the staff, so as to steady it, then, with a sharp-pointed straight knife, with tolerably long and rough handle, I pierce the perineum in the middle line, about half an inch above

Plate I.





the anus, or at such distance as may appear necessary to avoid dividing the fibres of the external sphincter,—I carry the knife steadily and firmly on till it strikes the groove of the staff, the deep sphincter lying between the knife and the directing finger, which enables me to judge of the distance as the knife passes along. If the incision be not made exactly in the median line, the contracting fibres of the injured muscles draw the point of the knife from its direct line and interfere with the accuracy of striking the staff, hence the advantage of the long rough handled knife, which affords a firmer hold and better purchase. Having struck the groove of the staff, I move the point of the knife along the groove towards the bladder a few lines, and then withdraw it, cutting upwards, (as shewn in plate 1,) so as to leave an external incision of from three quarters of an inch to one and a half inches, according to the presumed size of the stone—the escape of urine indicates the entrance to the urethra. I then introduce a long ball-pointed probe or wire through the external opening into the groove of the staff and slide it into the bladder, to sufficient depth to insure its safe lodgment in that viscus, and withdraw the staff. I then well grease the index finger of the left hand and pass it along the probe, with a semi-rotary motion, through the prostate into the bladder; which procedure is achieved without difficulty, and when the stone is free it comes at once into contact with the finger,

and, if of moderate size, passes at once into the wound on withdrawing the finger, the patient having power to strain upon and thereby facilitate the extraction of the stone; this last-mentioned power being one of the great advantages of this operation; the incision being made strictly in the median line no muscles are divided and the integrity of the bladder being preserved, it is under the control of the patient, who exerts, at the wish of the Surgeon, a powerful propulsive effort which keeps the stone in or in contact with the internal extremity of the wound, where it is easily seized by the forceps and extracted by mild persevering traction. Now, as the aperture is necessarily the size of the finger which produces it, if the stone be large some other dilating power must be employed in addition to the dilating effect of the forceps and stone combined; for this purpose Weiss' three-bladed female dilator, Arnott's hydraulic dilator, or, what is at once ready and effective, the addition of the vulcanized india rubber finger stalls one over another until the finger is sufficiently enlarged for the purpose, the outer covering being well lubricated with lard before being introduced. But Arnott's dilator, where it can be procured, is by far the most efficacious though not the most expeditious means. Should the stone be of unusual size, it may be readily broken by a short, strong and straight lithotrite, or by a strong and suitable pair of forceps closed by a screw, if the stone be soft and yielding—I

say readily, because the stone is, in this operation, within so short a distance of the external aperture that mechanical aid can be brought to bear upon it without the slightest difficulty or risk; again, should the stone resist the efforts to crush or extract it, the wound can be readily enlarged upwards or downwards, by dividing the deep fascia, or even be converted into a bilateral aperture sufficient to extract any average sized stone. I believe the deep fascia to be the great obstacle to the extraction of the stone: I have observed that it acts like a ligature round the finger or forceps, and resists the extraction of the stone. The patient suffers little in this operation, and merely complains of the pricking-stabbing sensation of the first thrust of the knife, the subsequent extraction of the stone does not appear to cause pain; he passes his urine freely by the urethra as well as by the wound, from the time of the operation, and there can be little doubt that the wound might be nearly healed by the first intention with perfect safety. Two of my patients were up and out the day after the operation, and one was walking out on the third day (a cold, snowy, frosty day.) The wound left entirely to nature, without tents, &c., heals in about three weeks. The patient, from the completion of the operation, excites no anxiety for his safety—he usually sits up and moves about on the following day, and I cannot well imagine the advent of inflammatory or other bad symptoms.

The three principal features in this operation, as differing from De Borsa's, are,—First, the introduction of the finger into the rectum as a guide, by which the staff is held steady,. and the course of the knife guided, so as not to approach too closely to the rectum and to insure the striking of the groove of the staff on the first attempt.

Secondly. The cutting on the staff daggerways, and completing the incision at one introduction of the knife,

Thirdly. The complete withdrawal of the staff on the introduction of a long probe, which renders the chance of lacerating the prostate less, on the forcible introduction of the finger.

The great advantages of this mode of operating can scarcely be estimated, since any Surgeon of average skill and anatomical knowledge may undertake the operation with every prospect of success, and with the almost certainty of his patient doing well: it is impossible to miss the bladder, and equally so not to extract the stone. Nothing but constant practice can make perfect, but if there be a great operation which can be done successfully with little practice, this is the one; to perform it first on the dead subject is no doubt a great advantage, but the operation on the dead is quite a different thing, there is little resistance to the passing of the finger, the sensation which it produces is totally different—there is no expulsive effort of the abdominal muscles, to propel the stone into the wound—there is no

blood—no evidence of feeling—yet I would recommend every man, about to operate for the first time, to try his hand upon the dead subject first. Let him learn to construct Arnott's dilator, and estimate the respective powers and advantages of different dilators,—reflect upon the anatomy and relative situation and distances of the parts to be operated upon.

The first operation which I performed for removing a stone on this principle, was fourteen years ago; the calculus was sharp at one extremity, and had become engaged in the neck of the bladder, whereby the flow of urine was arrested and the patient, a youth of about nine years of age, was suffering the most intense agony. A catheter was introduced which pushed back the calculus, but impelled by the efforts to pass urine, it instantly returned to its seat. I passed a staff into the bladder, introduced the forefinger of my left hand into the rectum, and then made an incision in the raphé just above the anus, and carried the knife on into the membranous portion of the urethra—here the extremity of the calculus was touched by the point of the knife, and I made an effort to seize it with a pair of dressing forceps, but it slipped back into the bladder.

I then passed a probe into the bladder, guided by the staff, and withdrew the latter instrument, I then thrust the index finger of my left hand slowly and carefully along the probe into the bladder, when the stone imme-

diately followed the withdrawal of the finger and was readily extracted with the forceps. A flexible catheter was then introduced through the urethra, and secured by means of a ring and tape to the penis. In the course of the night urgent desire to make water caused the little fellow to get up, when the catheter escaped and the urine followed in full stream. The next day my patient was up and about, and he never had difficulty afterwards in passing his water by the natural passage, the wound soon healed, as it was small, and very little urine escaped by it at any time.

The calculus was as large as a large French bean, but elongated and sharp at one end. This case produced a deep impression upon me—the facility with which I pursued the object of my search, the freedom with which the urine subsequently passed, the entire absence of any unfavourable symptom, and the patient getting about at once and without any apparent suffering, convinced me that an operation by dilatation was not only practicable, but free from danger.

In 1849 I was called upon to attend a little boy aged two years and seven months, who had been suffering for some months with symptoms of stone. During the few weeks antecedent to my attendance, he had prolapsus of the rectum to a frightful extent, the gut being ulcerated and inflamed and covered with particles of grit and dirt. I prescribed full doses of laudanum with a little bicar-

bonate of potash, which afforded great relief. I was in this case very anxious to try Dr. Arnott's operation, I wrote to Dr. James Arnott, of Brighton, on the subject, but the patient being a violent-tempered child, and residing two miles from my house, I felt that it would involve great trouble and delay in effecting the necessary amount of slow dilatation, although I had provided myself with all the instruments necessary for the operation. On pointing out to the Doctor the difficulties with which I should have to contend, he recommended me to try De Borsa's operation, and kindly referred me to the number of the *Review* containing its description, when I was not a little astonished to find that it was an operation very closely resembling the one I had performed in 1840. The morning for the operation arrived, I determined to try Arnott's dilator, but to employ it rapidly instead of gradually, and was only prevented doing so by discovering that the tube of the dilator had been imperfectly soldered, and consequently permitted the contents to escape. I, therefore, commenced the operation which I had before so successfully practised, and completed it in a few seconds, and with astonishing ease.

The child being bound, which in this case was essential, from its violence of temper, I introduced a grooved staff, which my friend, Mr. Hadley, of Birmingham, held firmly at a right angle with the body, and hooked steadily underneath the pubis. I then passed the index finger of my left hand into the rectum, when I could

readily detect the calculus alongside the staff—I pressed the point of the finger against the staff so as to steady it. I then entered a straight narrow-bladed scalpel about half an inch above the anus, and carried it forward to strike the groove of the staff in the membranous portion of the urethra, but did not succeed in consequence of the shortness of the handle, which prevented me holding it with sufficient firmness. I therefore withdrew my finger from the rectum, and passed it into the wound, feeling for the groove of the staff with the finger-nail, and then opened the membranous portion of the urethra.

I now introduced a long probe pointed wire through the groove of the staff into the bladder and withdrew the staff, then introduced my finger, previously greased with lard, with a semi-rotary motion into the bladder, where it came at once into contact with the stone, and so powerful were the expulsive efforts that I scarcely needed the forceps to extract the stone, which was an inch and three-eighths long, and seven-eighths of an inch wide.

During the night the urine passed freely through the wound, as well as the urethra.

The prolapsed bowel, which was most troublesome during the operation, had resumed its natural state and had acted freely during the night. The next morning I was both astonished and alarmed to find that my patient was out—in the temporary absence of his mother

he got up and crossed the street in his nightdress without any apparent inconvenience—and from this time he continued to run about and play as before the operation. The wound was healed in about three weeks.

The last case upon which I operated at the commencement of the present year, was a young man of twenty years of age, who had been suffering frightfully during the last two years, and latterly had passed large quantities of blood with his urine—he was excessively emaciated, and by no means in a desirable state for the operation, but by opiates and a few days quietude and careful diet his condition was much ameliorated, and I decided upon removing the stone (a large mulberry calculus). My friend, Mr. Hadley, with Mr. Duncalfe, kindly rendered me assistance, and the operation was performed as the others. I at once struck the groove of the staff, and completed the incision at one introduction of the knife. I had, however, not provided myself with a dilator, and the stone which was an inch and a quarter in diameter, and round, required some little effort to extract it, the forceps increasing its diameter to nearly two inches.

Yet the patient assured me that he suffered only during the stabbing incision, which was momentary, and, as in the previous cases, the urine flowed freely through the urethra from the first, and when the patient pressed his hand on the wound, which he generally did when he

wanted to make water, the urine flowed without obstacle by the natural passage. This man was operated upon on the Monday afternoon, and on the Wednesday following, when I called to see him, he was out walking in the frost and snow, and never had an unfavourable symptom—he rapidly acquired flesh, and was quite well and the wound healed in three weeks.

The advantages of this operation are these :—The impossibility of missing the bladder—the smaller amount of cutting than in the lateral operation—the neck of the bladder being uninjured—the smaller amount of blood lost—the prostate being merely dilated not incised—the urine being at once passed by the urethra as well as by the wound unless union by the first intention be effected—the facility with which the stone is reached, the patient being able to propel it towards the wound—the very short distance between the external opening and the interior of the bladder—the capability of breaking or crushing the stone, and washing out the bladder and freeing it from any minute particles—the small amount of pain—the absence of danger from urinary infiltration—no muscle or vessel of any consequence being divided, no subsequent imperfection can arise—no danger of wounding the rectum—the rapid recovery,—the patient being able to go about the next day—and the great facility with which the operation can be done by any practitioner of ordinary skill and ability.

The recommendations for guidance in the operation

are few :—Have your knife straight and narrow bladed, with long handle,—have a good long ball-pointed probe—take care to pare the nail of the dilating finger, so as not to injure the prostate—employ plenty of grease to lubricate the finger—mind that the probe is well in the bladder before you withdraw the staff—and if the stone be large, run a probe-pointed scalpel down the groove of the staff, and cut down towards the rectum through the deep fascia, the rectum still being protected by the finger; or, while your assistant is employing traction and the stone dragging forward the deep fascia, carefully divide with the point of the knife the obstructing margin of fascia downwards towards the rectum, which will enable you to extract the stone more easily—take especial care to have the means of dilating and instruments for crushing or breaking a large stone—have your forceps as light as possible —take care to wash out or inject the urethra, so that no coagula of blood obstruct the flow of urine—and after the operation place a piece of soft moistened sponge against the perineum to absorb any discharge.

Reflecting upon the unfortunate cases which have so recently and unjustifiably been dragged before the public, I cannot but regret that this novel and safe mode of operating has not been published and circulated sooner amongst the profession, as I flatter myself that its general adoption would render the mortality trifling

indeed, and put an end to the deplorable misfortunes which will occur occasionally to the best operators. Every Surgeon who has performed an important operation must have felt how cruel and unjust is the criticism too frequently indulged in by rival practitioners, and it is, but too true, that these criticisms and comments generally proceed from a class of men either incompetent themselves or jealous of the pretensions of their neighbours. That abuses should be enquired into, there can be no doubt, but that an error of judgment or manipulation should be visited by public censure, and exposure is monstrous. First, carefully select the best men for public appointments, then protect them to the uttermost in the exercise of their onerous and responsible duties, and let it not be imagined that a man who commits an error of judgment, by which the life of a fellow creature is sacrificed, remains unpunished—the accusing conscience is a far safer and more salutary monitor than the brawling censure of the unfeeling, the unprincipled, and the incapable.*

I am quite sure that a safe and easy method of removing stone is a desideratum which can scarcely be

* These remarks are not intended to apply, in particular, to the recent investigation in London, as, unfortunately, such disgraceful scenes have been also enacted in some of our large provincial towns within the last few years. What can the public want to know of the misfortunes of medical men? and how can they be competent judges of surgical practice? Then why are these exposures made? the answer will suggest itself to every honest man.

appreciated—had we but the correct statistics of Lithotomy in hospital and private practice, we should not find men always pursuing the too fatal steps of their predecessors, fearful of the result, yet dreading to deviate from the long beaten but treacherous track.

If, as I have shown, the calculus can be got at so readily in the median line, without dividing muscles, arteries, or other important parts—with the certainty of never missing the bladder, and never dividing the seminal ducts—with the capability of extracting large calculi or readily crushing them, the patient all the time retaining the expelling power of the bladder to aid the efforts to extract the stone—urinating freely by the natural passage—suffering little during the operation, and comparatively nothing after, and able to walk about on the following day; surely we may claim for such an operation the favourable consideration of the profession. That it should have a fair trial, I am most anxious—that it will succeed, I am most sanguine—and that it will be a great boon to sufferers from stone, I most firmly believe.

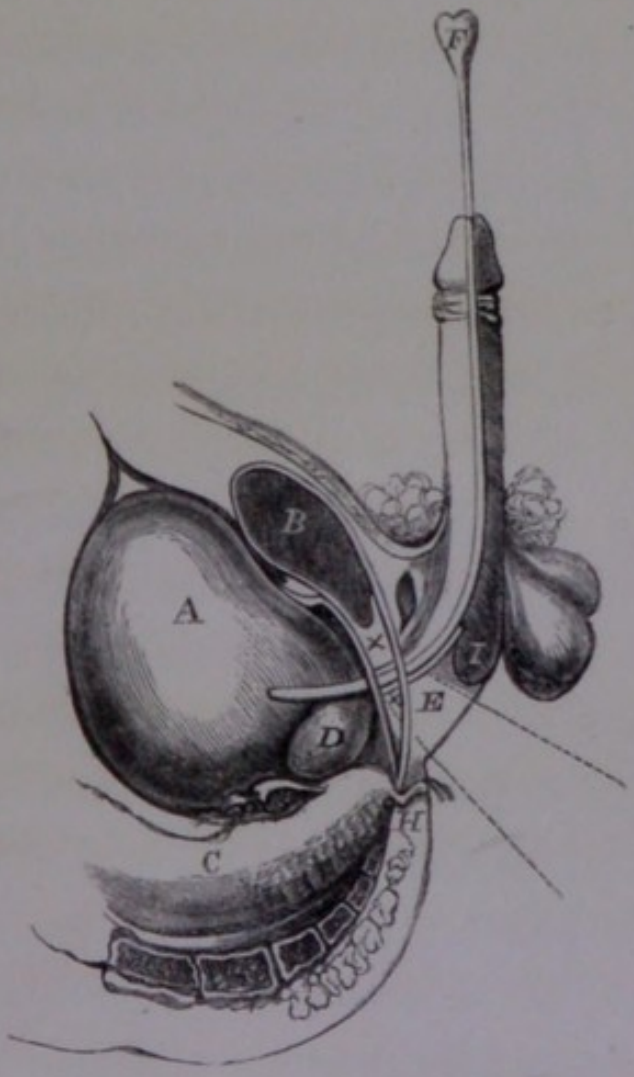
Having described the mode of performing the operation at page 22, I shall proceed to explain its anatomical bearings, and what I conceive to be its advantages over the ordinary lateral operation, enumerating at the same time the structures divided in the respective operations. To illustrate the subject, I have availed myself of the

talent of Mr. Davis, of Fleet Street, and Mr. Eidmans, of High Street, Southwark, who have admirably executed the woodcuts—one of which is copied from Mr. Coulson's work, and the remainder from sketches of my own.

On taking a survey of the perineal region, we cannot but be struck with the peculiar arrangement of the deep perineal fascia, which is destined to support the weight of the viscera, to resist the powerful action of the abdominal muscles, to give attachment to the perineal muscles, and to close in the great pelvic aperture. This fascia, so important in the median operation, is stretched across the perineum, and divided into two layers, separated above by the thickness of the pubes, in the middle by the length of the membranous portion of the urethra, and then becomes united at the anus. Between the layers of deep fascia are situated the membranous portion of the urethra, Guthrie's and Wilson's muscles, Cowper's glands, the arteries of the bulb, and part of the internal pudic arteries, but as we cut in the middle line in performing this operation, and the parts above mentioned are placed on either side of that line, it is obvious that they will not be divided or injured if the operator be careful.

I have here introduced an ideal section of the pelvis, (PLATE 2), for the purpose of elucidating the arrangement of the deep pelvic fascia. (A) represents the bladder, (B) the os pubis, (C) the rectum, (D) the prostate, (E)

Plate II.



the perineal space, (F) the staff, (G) vesiculæ seminales, (H) the anus, (I) the bulb. The two crosses shew the interfascial space, which contains above, Wilson's muscles,—in the middle, the membranous urethra, and Guthrie's muscles,—and below, Cowper's glands. The dotted lines, forming two sides of a triangle, represent the incision made in the median operation. The anterior layer of deep fascia is shown descending from the anterior surface of the pubes (B), to the anus (H), the posterior layer stretching from the posterior surface of the pubes to the anus, and touching the apex of the prostate, (D). It will be at once seen that the anterior layer only of the deep fascia need be divided in removing a moderate sized stone.

The posterior layer of the deep fascia is in contact with the apex of the prostate gland, and as we can remove all ordinary sized stones without incising that gland, the posterior layer of deep fascia need not be divided, but if the stone exceed one inch and a half in diameter, this fascia may be slightly divided with great advantage, as it offers immense resistance to the extraction of the stone. I have dwelt thus much upon the fascia, because it is really the principal structure divided in the median operation, as will be seen by the following comparative list of parts cut through in the two operations.

Parts divided in the lateral operation.

Integument.

Common superficial fascia.

Superficial perineal fascia.

Bulbous portion of accelerator urine muscle.

Transversus perinei muscle.

Transversalis perinei artery.

Anterior layer of deep perineal fascia.

Membranous portion of urethra.

Lower fasciculus of compressor urethra muscle.

Posterior layer of deep perineal fascia.

A few fibres of levator ani muscle.

Prostate gland.

Neck of the bladder.

Parts divided in the median operation.

Integument.

Common superficial fascia.

Superficial perineal fascia.

Anterior layer of deep perineal fascia.

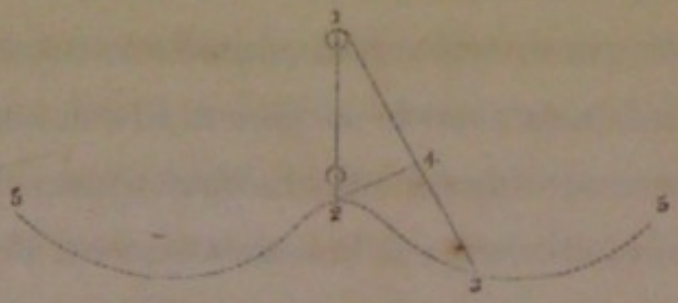
Membranous portion of urethra.

The spot selected for the incision in the median operation, Plate 3 (B), is little more than an amalgamation of aponeurotic structures formed by the fascia, and the interlacing of the aponeuroses of the various perineal muscles; it is little sensitive, and bears a great amount of injury without being followed by serious consequences.

The part selected for the lateral operation, Plate 3 (A), is one traversed by muscles, vessels, and nerves —the point sought and the object to be gained are

Plate III.

Plate IV.



the same in both operations. The accompanying diagram (PLATE 4) will serve to show the comparative extent of the cutting part of each operation.

The curved dotted line (5) (5) is intended to represent the outline of the parts exposed in the operation of Lithotomy, (1) representing the membranous portion of the urethra, (2) the anus, the line from (1) to (2) the median incision, and the line from (1) to (3) the lateral incision.

The incision in each operation is of triangular form, and the apex is the same, viz.—at the neck of the bladder, so that if we allow (3) to represent the apex of another triangle, and a line drawn from (4) to (2) its base, it will at once be obvious that the amount of cutting is nearly double in the lateral operation, to say nothing of the importance of the parts divided.

To make this diagram represent correctly the vertical incision in the median operation, it is only necessary to divide the paper from (1) to (4) and from (4) to (2), and then turn up the flap so formed at a right angle with the page.

In describing this operation to my professional friends, I find that they all put the same question—how do you manage to extract a large stone?

Now, on examining this diagram, it will be at once perceived that the means of extracting a large stone, so far as space is concerned, are the same, as in the lateral

operation, but I contend that we can extract a much larger stone with a smaller amount of cutting than in the lateral method, and if additional cutting be required, there is nothing to prevent it being resorted to after the first incision and dilatation have failed. We can then incise the deep fascia, prostate, and even the neck of the bladder, if necessary, and more easily than in the lateral operation, for the simple reason that we are close to these parts in the median operation, as shown in the diagram (1) to (2) PLATE 4.

As regards the dimensions of calculi, Mr. Coulson observes, "whenever the calculus exceeds one inch and a half in diameter, there will be difficulty in extracting it." "And we may safely lay it down, with a celebrated writer, that no stone exceeding two inches in diameter, or six inches in circumference, can be extracted by the lateral operation without the risk of disorganising the parts through which it is to pass."

By the median operation I have extracted, without using other dilating means than the forefinger of the left hand, which is $\frac{11}{16}$ths of an inch in its greatest breadth, a stone one and a quarter inches in diameter, which, with the forceps, measured two inches.

I firmly believe that calculi of two inches in diameter might be safely extracted by the median operation, providing Arnott's dilator were employed; and in addition the posterior layer of the deep perineal fascia slightly

divided at the apex of the prostate. Considering the rapid recovery which followed the extraction of the stone above mentioned, and that in this case the anterior layer of the deep fascia only was divided, that the dilatation was effected slowly by the finger first, and then by the forceps with the stone in its grasp, I cannot but imagine that the great resistance which the deep fascia offers, is a protection to the soft and more easily lacerable parts; for while our efforts are employed in overcoming the stubborn fascia, the prostate and neck of the bladder have time to accommodate themselves, by gentle yielding to the dilating power.

But why should we try what amount of strain human tissues can bear, in extracting large calculi, when we have lithotrites and forceps of sufficient power to crush any stone? and what is more, have that stone within a couple of inches of the power employed to destroy it.

Again, if any untoward circumstances should retard the completion of our operation, we have divided no important structure, we have wounded no important vessel; our patient has sustained no severe shock, by which his life would be endangered. We can again put him to bed, to await another attempt, without fear of fatal result; not so in the lateral operation,—few recover who have been unsuccessfully operated upon, as regards finding or extracting the stone.

From what has been already said, it is obvious that

whether in the lateral or median operation, the difficulty of Lithotomy is not in reaching the bladder, but in extracting the stone: what would be considered a large calculus in one operation would be considered equally so in the other, but the capability of crushing the stone, as well as extracting it, is decidedly in favour of the median operation. It is evident that all the muscles forming the floor of the pelvis act in unison,—to divide any one of them, or the fascia which supports them, destroys the integrity of the whole; hence we find that the patient, in the lateral operation, has not the same power to strain and cause the bladder to expel its contents—the *point d'appui*, of one side, is gone—the injured side ceases to be antagonistic to the other, hence the bladder recedes before the finger, and before the forceps, requiring the utmost stretch of finger, sometimes, to reach the stone; whereas, in the median operation, the finger readily explores the bladder, and the patient, by his voluntary efforts, can propel the stone towards the aperture, and materially assist the operator in its extraction. Any gentleman who has once explored the wounds made in the two operations, with his finger, will not fail to perceive and acknowledge the great advantage of the median over the lateral operation.

As regards the instruments employed for distending the aperture made into the bladder, we may mention Weiss's two and three-bladed female dilators, which will

Plate V.

Fig. 1.

Fig. 2.

Fig. 3.

answer very well where the dilation is not required to be considerable; but no instrument can approach Dr. Arnott's Hydraulic Dilator—it is one of the most beautiful applications of Physics to Surgery that has ever been made,—and so manageable yet so powerful is this instrument, that we can dilate with it suddenly—or, almost imperceptibly, and to any required extent,—at the same time feeling sure that however much the parts are stretched they cannot be bruised, since the pressure is distributed so equally over all the parts submitted to it.

The accompanying wood cut (PLATE 5) will serve to elucidate the description of this instrument. *Fig.* 1 represents a brass Syringe, (1), the piston of which (2) is worked with a screw, instead of by direct pressure, as in ordinary syringes. It is provided with a stop-cock (3) which screws into the tube of the Dilator (6) at (4). This Dilator is also provided with a stop-cock (5), which enables us to detach the Syringe to refill it. The Dilator is composed of a silver tube or catheter, *Fig.* 2; its extremity (B) screws upon the Syringe, and should be provided with a stop-cock—its extremity (D) is rounded, so that we can pass it into the bladder without injuring the soft parts. Upon this catheter are two rough surfaces (A A), which serve to attach the membrane and silk tube, and to prevent them slipping. *Fig.* 3 represents the Dilator prepared for use,—a piece of thin gut, of the necessary diameter, is first tied upon the catheter, and then a tube or cylinder of silk—these

are firmly secured at each end by waxed silk, and the fringed ends neatly trimmed off; it is then ready for use, and when distended has the appearance represented at (6), *Fig.* 1. As the Syringe is small in proportion to the Dilator, it might be provided with a small stop-cock at its lower end, upon which could be screwed a vulcanized India-rubber bottle as a reservoir, thus enabling us to re-fill the Syringe without the necessity of removing it. The fluid employed to distend the tube should be thick mucilage of acacia. I should have observed that in the Catheter (*Fig* 2) there is a small aperture through its side, which permits the fluid to pass into the Dilator. In the instrument used by Dr. Arnott there was a double catheter, which allowed the urine to escape drop by drop during the time dilatation was being employed, and this was necessary, as from twenty-four to forty-eight hours were occupied in the distention; but where the dilatation is rapidly effected, this precaution is not required.

Considering the remarkable success which has attended this operation, although the dilatation has been sudden and merely effected with the finger, I really think that we should not be justified in protracting the operation to twenty-four or forty-eight hours;—parts quickly and carefully distended are more likely to recover their normal condition rapidly, than where they have been a long time under the the devitalizing effect of pressure. Moreover, there is no time given for the inflammatory process to commence, and increase the sensitiveness of

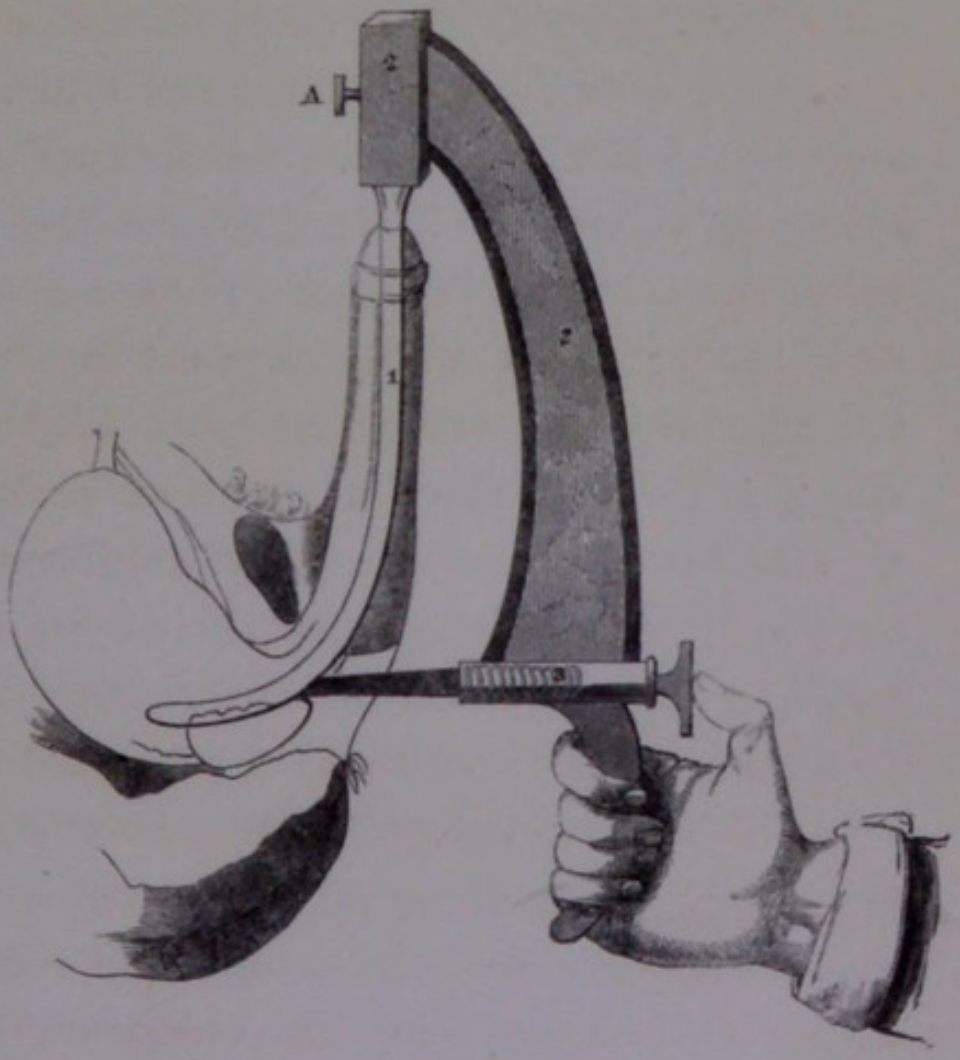
the divided structures, and both Surgeon and Patient have the satisfaction of feeling that the object of all their anxiety is accomplished.

I have often been asked, could you not invent some kind of instrument to cut into the groove of the staff, which should render such step sure and safe? I have done so, but should always prefer operating with the simple knife,—an instrument which we are accustomed to use,—and with which, with a tolerably steady hand to guide it, and a thorough knowledge of the parts it has to divide, we may almost invariably succeed in our first effort to hit the groove of the staff; and even if we should fail in doing this, we have but to introduce our finger into the wound, and with the nail feel for the groove and open it. In this operation, more than in the lateral one, we can afford to dismiss from our minds the arrangement of the structures which we have to divide; it is only necessary to keep in view the spot at which we strike,—we estimate mentally, and also by the directing finger of the left hand, the precise depth of parts to be incised, and being in the middle line, we have nothing to fear from anatomical casualties:—again, the index finger of the left hand is not only a guide, but a safe-guard,—by its firm pressure against the staff, it steadies that instrument, and by fixing the soft parts against it, prevents them rolling or slipping away from the point of the knife, which they are apt to do in the lateral operation.

The instrument here represented (PLATE 6) would answer the purpose for which it is designed, viz: to cut with certainty into the groove of the staff. It is composed of a grooved staff (1) with a square handle, which fits into the socket (2), and is firmly fixed by the set screw (A), so that it cannot deviate from its position.

The knife, contained in the sheath (3), and retained there by a spiral spring, is represented striking the groove of the staff, under pressure of the thumb. The sheath, handle, and rib, (2), are all united to the socket, and composed of metal and wood. To use this instrument, the staff should be first introduced, the handle then attached by the socket to the square shank of the staff, and fixed by the screw (A). An assistant supports the instrument—the forefinger of the left hand is then introduced into the rectum, and, with the right, the handle of the instrument is grasped, as shewn in the wood cut. The knife which, when not pressed upon, remains in the sheath, is now forcibly propelled through the perineal structures; and while the point is in the groove of the staff, the handle is raised, at the same time causing the instrument to dip towards the patient's chest, when this movement is completed, the pressure is removed from the knife, which, on retiring into its sheath, divides the structures which were previously pressing against its edge—the incision is thus triangular, as in the operation with the knife. The staff and handle are now separated—a probe passed along the staff into the

Plate VI.



bladder—the latter instrument withdrawn, and the operation completed, as described page 22.

It has been represented that the Marian is a most painful operation, but so far as I am able to judge it is attended with very little pain. The parts divided are certainly not so sensitive as in the lateral operation, and the efforts used to extract the stone, even when considerable, if carefully made, do not appear to give pain.

In conclusion, I beg to express a hope that I shall have explained myself to the comprehension of my readers. I have been most desirous to omit all useless quotation and description, and to curtail as much as possible those which I have thought necessary to introduce, with one solitary exception; and that is the long extract from the *Medico Chirurgical Review*, which I considered too important to abbreviate.

For years past I have devoted much time to the consideration of this operation—I have never lost an opportunity to recommend it to the notice of my professional friends, all of whom have appeared to take much interest in it, and many have expressed their intention of resorting to it on the first occasion; but none of them had ever heard either of the operation before, or seen the notice of De Borsa's operation in the *Medico Chirurgical Review*.

When on the eve of leaving West Bromwich, where I have practised upwards of twenty years, I received a

most flattering invitation from the Council of Sydenham College, Birmingham, to read a paper upon the foregoing subject. I cheerfully acquiesced, and was honoured with the attendance of a numerous, intelligent, and attentive audience; among whom were many of the most eminent practitioners of Birmingham. Dr. Bell Fletcher, Physician to the General Hospital, did me the honor to propose a vote of thanks, and accompanied it with a request that I would publish my paper; this proposal was kindly seconded by Pye Henry Chavasse, Esq., and unanimously responded to.

Although this mode of publication is expensive, it has the advantage of bringing the subject more prominently before the eye of those members of our profession who have the opportunity, if they possess the will, to deviate a little from the old system.

To Dr. James Arnott, of Brighton, and to Dr. Willis and Mr. Coulson, of London, I beg to offer my grateful acknowledgments; to the former, for his prompt and courteous replies to my letters, and the information he so willingly communicated; to the latter, for the valuable aid which the perusal of their works has afforded me, as well as for the quotations which I have so liberally made from them.

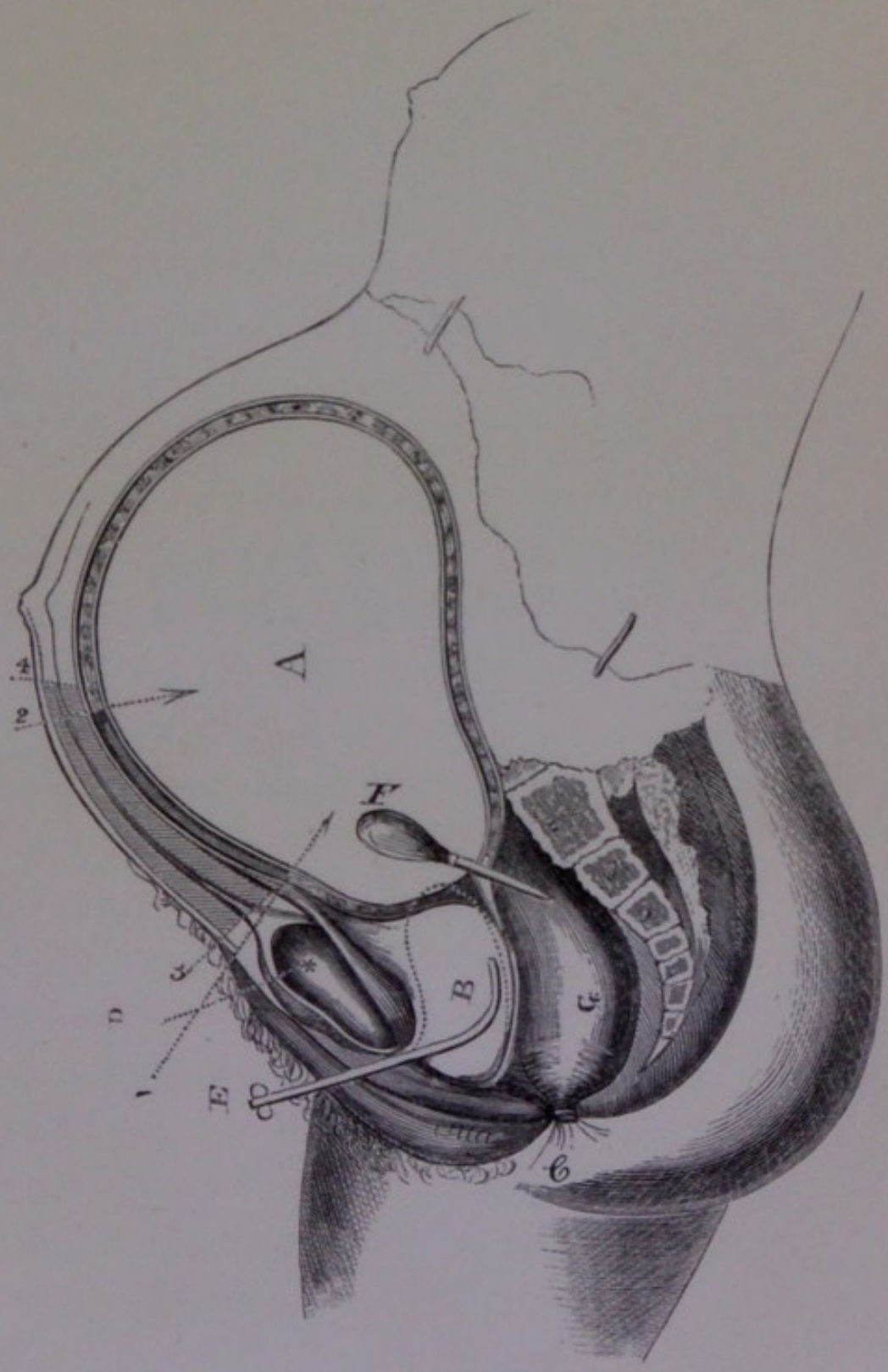
THE END.

INTERESTING AND UNIQUE CASE

OF

CÆSAREAN SECTION.

Plate VII.



INTERESTING AND UNIQUE CASE

OF

CÆSAREAN SECTION.

In the turmoil of an active professional life, I have omitted to give publicity to a most interesting and unique case of Cæsarean Section which I performed in the year 1844 with the assistance of my friends, Dr. Ingleby, Mr. Wickenden, and Mr. Lawrence, of Birmingham, and Mr. Jackson, of West Bromwich.

The patient, Mary Llole, aged 32, and in strong robust health, sent for me on *Monday*, October 7th, in consequence of smart labour pains recurring at intervals and accompanied with vomiting.

She had experienced slight pains on the 5th and 6th.

As there had been no vaginal discharge, and the pains were not urgent, I made no examination, but administered an opiate, and desired to be sent for again should the pains get worse. *Tuesday*, 8th, sent for again—the pains had become stronger, and the vomiting continued.

I made an examination, and was astonished to find the vagina completely closed, so that I could not intro-

duce the first joint of the finger. I introduced a catheter into the bladder, and found that it occupied the whole vaginal space, and seemed firmly attached to the rectum. Under these circumstances, I consulted Dr. Ingleby, of Birmingham, who kindly offered to render his assistance when the pains of labour should demand our aid. It was not until the evening of *Wednesday*, the 9th, that I heard of our poor patient again, when I was hastily summoned in consequence of the pain becoming more urgent. I at once despatched a messenger to Dr. Ingleby, who promptly attended, accompanied by Mr. Wickenden and Mr. Lawrence.

On their arrival we proceeded to examine the precise condition of parts—the result of which was the firm conviction that the vagina was completely obliterated, and that without the Cæsarean Section it would be impossible to deliver our patient. The bladder occupied all the space between the external aperture and the os-uteri, nor could we with the aid of the finger in the rectum, discover any distended spot, although the pains had continued at intervals from the 5th, which would give ample time for the liquor amnii to have distended any distensible part. Under these circumstances, and after mature deliberation, during which time the pains became so strong as to alarm us for the safety of the uterus, we represented to our unfortunate patient the dreadful position in which she was placed, and pointed out to her

the only resource which our art offered to save her from impending death, and Dr. Ingleby, moreover, represented to her the probability that even this resource might fail to save her life, although it would to a certainty prolong it, and save the life of her child. After a few minutes consideration, she courageously and resolutely said, "Do what you think necessary, I shall be satisfied." Mr. Wickenden having again examined the rectum, and being convinced that delay might extinguish all hope, it was decided that I should at once proceed to the operation.

The apartment having been well warmed, and everything prepared, the patient was placed on her back upon the bed, and assistants stationed on each side of her to prevent the escape of the intestines, which in this case seemed to defy every effort, the pains of labour forcing them out in immense quantities, our patient being in robust health and very muscular; however, by the persevering efforts of Dr. Ingleby and Mr. Wickenden, who undertook this office, the difficulty was overcome. An incision was made in the linea alba about eight or nine inches in length, and the uterus soon exposed to view the intestines escaping most profusely at the same time. As soon as the intestines had been properly returned and secured, I made a rapid incision through the walls of the uterus, commencing below the fundus and extending to its neck,—(*vide* PLATE 7.) As the knife

traversed the irritable fibre, the wound gaped forcibly, and the child was expelled with a jerk upon the bed, amidst a perfect fountain of blood and liquor amnii which deluged operator and assistants. I then separated the placenta, divided the cord, and the young Cæsar was handed over to the maternal care of a bystander, who, laying aside her own child, placed it to her breast, and it commenced its first repast before the operation which released it from captivity was yet completed. The coagula having been removed, the question presented itself, how is the lochial discharge to escape? We soon agreed that a puncture should be made through the posterior part of the os-uteri, as low down as the bladder would permit, into the rectum, and this was effected with much difficulty from our having only a straight trocar to use,—(*vide* PLATE 7.) I, however, introduced the finger of my left hand into the rectum, and with the trocar in my right, I pushed the point through on to my finger, and guided it out through the anus, so as to be certain that the perforation was properly accomplished.

During this part of the operation, I found the greatest difficulty from the contracting fundus of the uterus urging on the trocar, in spite of my efforts to guide it, which endangered the bladder, in consequence of its attachment to the rectum, and its close proximity to the seat of puncture.

The operation being thus far complete, we neatly

adjusted the abdominal incision, and secured it by means of quilled suture longitudinal compasses, and long adhesive bands, a tolerably thick tent of lint being left in the lower angle of the wound, to serve if necessary as a vent, and which subsequently rendered good service, as will be seen.

The patient bore the operation with great fortitude, and even talked cheerfully during greater part of the time. Forty-five drops of liquor opii were administered immediately after the operation, and in a few hours twenty-five drops more. Everything seemed now propitious except the want of proper outlet for the lochial discharge, and the consequent risk of inflammation.

Thursday, 10th, I visited my patient at an early hour and found that she had slept well. Her pulse was quick, countenance somewhat anxious, had occasional after pains, slight cough and occasional efforts to vomit, had passed no urine, nor was there any discharge from the wound or rectum. As the cough and vomiting threatened mischief to the wound, I prescribed small doses of morphia with hydrocyanic acid, which speedily afforded relief. About half-past four, p.m., I visited my patient again, and as she had not made water, I introduced a catheter and drew off about a pint of high coloured urine.

I then injected about half a pint of warm water into the rectum, to clear away any coagula which might tend

to plug up the puncture made by the Trocar; the water was retained a few minutes, when a smart pain came on, and it was expelled, together with a large quantity of coagulated blood, through the lower angle of the abdominal wound. I commenced the administration of small doses of calomel and opium, frequently repeated, so as to get the system gently under its influence, lest we should require to push it for combatting the peritonitis, which must necessarily follow. About eleven, p.m., I visited her again, and found that she had been greatly relieved by the escape of the pent up matters, and the withdrawal of the urine.

Her pulse was 120, but countenance less anxious and breathing less hurried. There was no swelling or tenderness of the abdomen. I removed the tent from the lower part of the wound, which permitted the escape of a very considerable quantity of thick sanguineous discharge, and having drawn off about five ounces of water, which again relieved her, I left for the night.

Friday, 11th, passed a comfortable night, slept well, had little pain, but considerable discharge from the wound during the early part of the night. At ten, a.m., I introduced the catheter, and drew off about twelve ounces of dark coloured urine; the bowels had not acted, so I administered one ounce of castor oil. In the evening I found my patient much better, the discharge from the wound had become more like the ordinary lochial dis-

charge. The bowels had not acted. No pain, countenance cheerful, respiration natural, and pulse much less frequent, about 90; as the bladder had not been relieved I introduced the catheter again.

The cough still continued, and she had twice vomited during the day, but without injury to the wound.

Saturday, 12th, passed a good night—free from pain, except slight after-pain—bowels acted scantily—made water for the first time. Pulse soft, and about 90—no tumefaction of abdomen, or tenderness—a sanious discharge from the wound accompanied each pain. The mercury had evidently taken some effect as indicated by the gums; and altogether the condition of our patient was most promising, when unfortunately one of those pests to our Profession who manage to insinuate themselves wherever a case of interest or danger occurs, called to talk with her, and recommended that she should take a pint of old ale with a quantity of flour mixed in it—this was administered, and on my next visit I found our poor patient with anxious countenance, embarrassed respiration, tympanitic belly, and rapid feeble pulse. On enquiry into the cause of the change, I learned that she had been prescribed for by one of those gossiping creatures who ever haunt the habitations of the sick; and who, instead of ministering to the mind, as they profess to do, too frequently undertake to guide or change the treatment of the medical man.

I need not say how much annoyed I was at this change in the aspect of things, especially as I had strictly prohibited the visit of any one except the nurse and myself.

On *Sunday*, the 13th, I was sent for at an early hour, in consequence of the enormous distension of the abdomen, which had already caused separation of the edges of the wound to a great extent. Her countenance was bad—pulse extremely quick and thready—intense thirst, but not much pain. It was now but too evident that our poor patient was doomed, and that in all probability a few hours would close the scene.

At her urgent solicitation, and in consultation with a medical friend, I consented to puncture the distended stomach with a trocar, when an incredible quantity of gas made its escape, and the relief was so complete and instantaneous that she loudly expressed her gratitude.

About mid-day she requested to have the puncture repeated, but as death was evidently near at hand, I declined to protract an existence which was as painful to witness as to endure.

She died about one o'clock, having survived the operation four days.

The boy, who was christened Cæsar, is now living, and a fine healthy fellow.

I should observe that this was her second child; she was delivered about ten years before, after a severe and protracted labor, of a dead child.

AUTOPSY.

At the request of Dr. Ingleby, I made an examination of the body twenty-four hours after death. On opening the abdomen, we found that all the adhesions had been separated by the flatulent distension. The uterus was gaping, and covered with a considerable quantity of thick grumous-looking fluid. The intestines were glued together, and fibrinous bands connected the convolutions; we could with difficulty detect the puncture in the stomach, as it was almost obliterated. The intestines did not shew any particular patches of inflammation, but rather a general inflammation of the peritoneal covering. I removed the whole of the contents of the pelvis, together with the bones of the pubes, in order that we might more carefully ascertain the pathological condition which gave rise to the necessity for the operation. These parts were removed to Birmingham, where they were minutely inspected by those gentlemen who assisted at the operation. The bladder, and rectum were inseparably connected up to the os-uteri, so that there was scarcely room to puncture into the rectum without wounding the bladder. The trocar had passed through the posterior part of the neck of the uterus, close to the os. We tied each end of the rectum, after filling it with water, but were unable to force any of the water through into the uterus, so completely closed was the small aperture—in fact it was with great difficulty that we could discover its trace. The examination satisfied us all that

nothing but the Cæsarean Section could have effected delivery.

REMARKS.

There are some points of interest in the foregoing case, *e.g.*, the peculiar nature of the deformity, which is of very rare occurrence. The patient assured us that during the earlier months of gestation the vagina was natural; she had, however, led a dissolute life, and we had reason to fear that the occlusion was occasioned either by vaginitis having caused adhesion, or the union of chancrous ulcers; it could not have arisen from contracted cicatrices, for there was no vestige of a canal left, nor was there the indurated feeling that such a condition would necessarily have given rise to. It could not have arisen from any injury sustained in her previous accouchement, for that was ten years before, and although a difficult and protracted labor, was accomplished without instrumental aid. She had not been impregnated again until the time which cost her her life. Her husband, although frequently interrogated, either could not or would not enlighten us as to either cause or condition, but from what we could glean, the complete occlusion had not existed during the earlier months of pregnancy. Mr. Jacquemier gives a case in his *Manuel d' Accouchements*, in which an injection of sulphuric acid had caused inflammation and total obliteration of the vagina and its conversion into a fibrous

cord. Monsieur Lombard, who attended the patient, is said to have established a passage for the fœtus, but rupture of the uterus had already given it another means of escape.

In cases of complete obliteration of the vagina up to the neck of the uterus in females not pregnant, Velpeau says it would be almost impossible, and consequently rashness to attempt an artificial passage, unless the patient's life were menaced.

A case is mentioned by Valentinus, in which, with complete obliteration of the vagina, the patient was delivered safely of a boy, by re-establishing the vaginal canal. But in this case the adhesions could not have been firm.

It will be observed that in the case of Mary Llole, smart uterine pains had expanded the os-uteri, and had not the whole lining of the vagina been most firmly adherent, the liquor amnii would have dilated it.

Dr. Ingleby was so anxious about the case, lest delivery might have been effected without resorting to so fearful an operation, that it was only on minutely inspecting the parts after death that this kind and amiable man could reconcile the terrible necessity.

The pathological specimen was left with him for the purpose of elucidating the case in a lecture on the Cæsarean Section, which he intended to deliver at

Queen's College, Birmingham, but over-worked and over-anxious, he fell a victim to his untiring exertions for the welfare of his patients, and the total neglect of his own.

After his death I applied for the morbid specimen, and was mortified to learn that, from want of care during his illness, it was totally destroyed by decomposition.

As regards the treatment, would the chances have been more favourable to the patient if we had passed a tent from the abdominal wound through the punctured uterus and rectum, and allowed it to hang out of the anus, so as to have facilitated the discharge, by drawing it down occasionally?

Again,—although calomel and opium had been steadily administered up to the morning of her death, and the gums indicated its absorption, yet a very large deposit of coagulated lymph was discovered over the surface of the intestines.

THE END.

CONTENTS.

DESCRIPTION OF PLATES.

PLATE I, Page 22,—Represents the Median Operation. In commencing this operation, the position of the operator's hands would be considerably lower than here represented, but having entered the membranous portion of the urethra, he is represented about to commence slitting it up towards the bulb. The direction of the first incision may be imagined by carrying a line from the point of the knife along the lower border of the index finger of the left hand. The finger is then gently raised to form a fulcrum for the back of the knife, while slitting up the Membranous Urethra, and this is the position depicted in Plate I. The engraver, Mr. Davis, had represented the staff too short, and in altering it has not given the correct curve, but this defect can readily be overlooked.

PLATE II, Page 39,—Is intended to represent an ideal section of the parts concerned in the Median Operation, but more particularly to display the two layers of the deep perineal fascia with the interfacial space containing Guthrie's and Wilson's Muscles, Cowper's Glands, &c., &c.

(A) Represents the Bladder.

(B) The Pubes.

(C) The Rectum.

(D) The Prostate Gland.

(E) The Perineum.

(F) The Staff.

(G) The Vesiculæ Seminales.

(H) The Anus.

(I) The Bulb.

The two layers of fascia are represented stretching from the anterior and posterior surface of the Pubes (B) to the Anus (H). The two × × indicate the interfacial space. The Membranous portion of the Urethra is seen crossing it. The dotted lines show the incision made in the Median Operation. The posterior layer of fascia is in contact with the apex of the prostate gland (D), and unless the calculus be very large this layer need not be divided. The resistance which it offers to the extraction of the stone can readily be imagined, being attached above to the pubes below to the coccyx and laterally to the ossa ischii; if the stone be large, it would be better to incise this layer of fascia to a trifling extent. The index finger of the left hand in the rectum, pressing up against the staff, where it traverses the prostate, not only serves as a guide to the knife but also fixes and steadies the staff.

PLATE III, Page 43.—This Plate, copied from Mr. Coulson's work, is merely inserted to show the situation of the external incision in the Lateral and Median Operations. (A) represents the line of incision in the Lateral, (B) the line of incision in the Median Operation.

PLATE IV, Page 45.—Is a diagram intended to represent the internal incisions in the Lateral and Median Operations. The dotted line (5) (5) is the outline of the parts exposed.—(1) the Membraneous portion of the Urethra, (2) the Anus. The line from (1 to 2) the internal incision in the Median, and (1 to 3) the internal incision, in the Lateral Operation. Thus it will be seen, that the cutting in the Lateral Operation, is nearly double that of the Median Operation, in addition to which the great depth of the Bladder in the Lateral Operation (1 to 3) is easily explained. If the depth be $1\frac{1}{2}$ inches in the Median, it will be 3 inches in the Lateral Operation. We need only add

that the line (1 to 3) intersects Muscles, Arteries, Veins, and Nerves—that an incision in this line destroys the integrity of the parts; prevents the patient assisting our efforts by straining, and if the Calculus be unfavourably placed for extraction, adds materially to the difficnlty.

PLATE V, Page 51.—Is intended to represent Dr. Arnott's Dilator. (Fig. 1.) is the instrument dilated to its fullest stretch, with a thick mucilage of Gum Acacia—the Syringe (1) contains a Piston, worked with a screw instead of a slide, so that it cannot recede when the pressure is removed. The power exerted by fluid pressure is enormous, if the tube (6) were composed of thin gold instead of thin gut and silk, it would readily burst by the multiplied pressure of the Screw Piston over the whole surface of the fluid contained in the tube. (Fig. 2) represents the Catheter upon which the silk tube is tied, and (fig. 3) the instrument, as it is introduced into the Bladder, before inflation.

PLATE VI, Page 57.—Is intended to represent a new instrument for opening the Urethra. The Pelvis is in section—(fig. 1) is the staff, having a square handle which fits into a socket, (2) and is fixed there by a set screw (A). (3) is a hollow sheath containing a knife retained by a spiral spring. When the staff is introduced, the handle fixed, the fore finger of the left hand inserted into the Rectum and pressed against the staff, the knife is forcibly pushed through the Perineum into the Membraneous portion of the Urethra, and the operation completed as with the knife.

PLATE VII.—Is intended to represent a section of the Abdomen Pelvis of a female at the full term of Gestation, (A) is the Uterus, (B) the Bladder, occupying the situation of the

Vagina—the latter is indicated by dotted lines. (c) is the Anus, (d) the Pubes, (e) the Catheter, introduced to show that the Bladder occupies the whole vaginal space, (f) is a Trocar, perforating the side of the Os Uteri and entering the Rectum (g) allow the lochical discharge to drain from the Uterus into the intestine. The two arrows indicate the extent of incision in the walls of the Uterus—the dotted lines (3 and 4) indicate the external incision through the Abdominal parieties. In this case the sides of the Vagina were firmly adherent up to the Os-Uteri, and although the patient had endured severe labour pains at intervals during two or three days, there was no pursing of the liquor amnii in the Rectum, as would have been the case, if the Vaginal walls had been only partly adherent.

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