

A treatise on the high operation for the stone ... / By William Cheselden.

Contributors

Cheselden, William, 1688-1752.

Franco, Pierre, approximately 1500-approximately 1575. Traite des herniers.

Rousset, François, 1535?-1590? Hysterotomotokias (ik est) Caesarei partus assertio historiologica.

Piètre, Nicolas, approximately 1569-1649. Ad extrahendum calculum dissecanda ad pubem vesica?.

Fabricius Hildanus, Wilhelm, 1560-1634. Lithotomia vesicae.

Tolet, François, 1647-1724. Traité de la lithotomie.

Dionis, Mr -1718. Cours d'operations de chirurgie.

Le Mercier, Pierre, active 1635.

Publication/Creation

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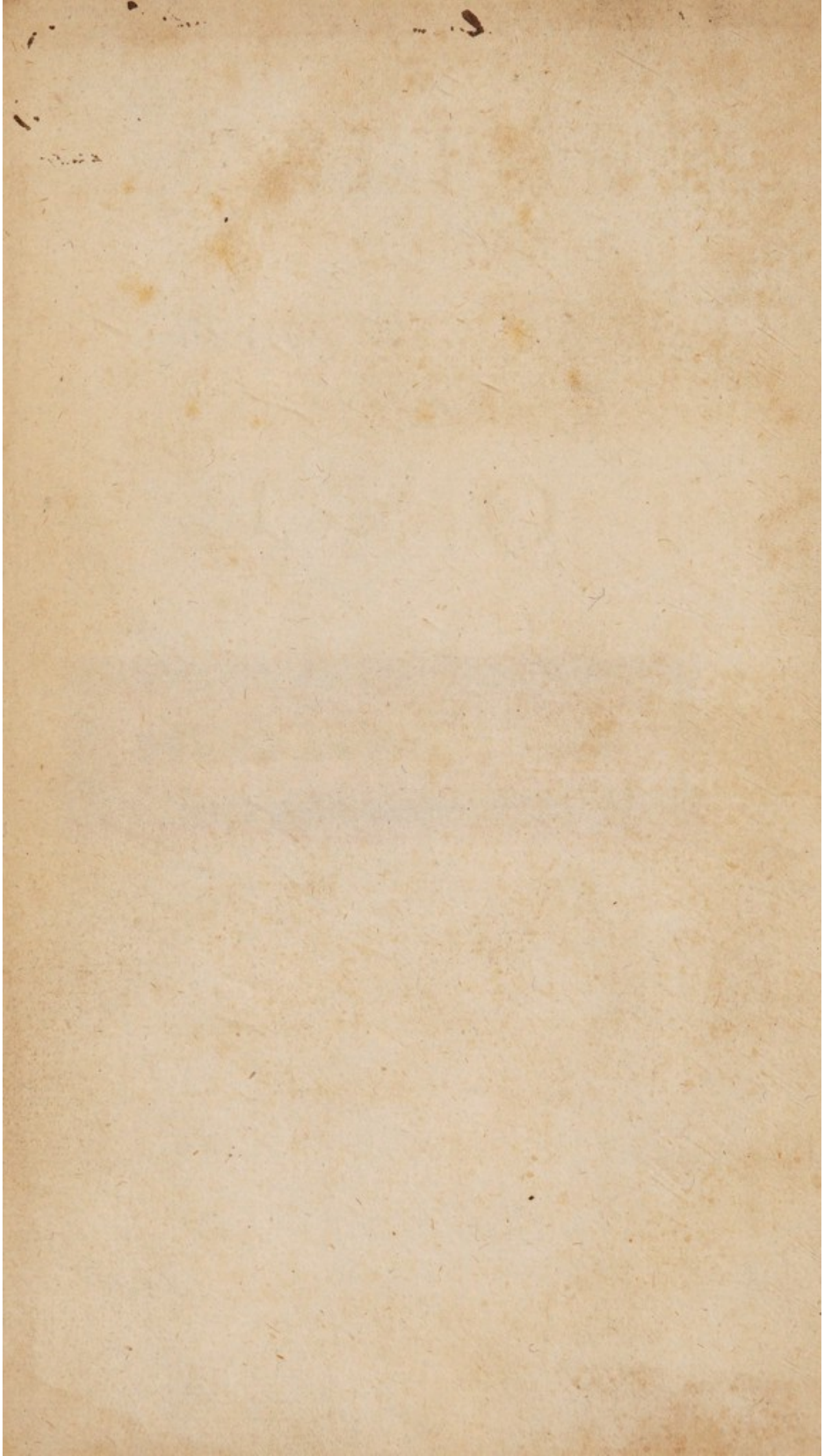


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John Allen
A
TREATISE

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High Operation

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FOR THE

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STONE

WITH

XVII. Copper-Plates.

By *WILLIAM CHESELDEN*

Surgeon to *St. THOMAS'S HOSPITAL*

in *Southwark*, and *F. R. S.*

L O N D O N :

Printed for *JOHN OSBORN*, at the *Ox-*
ford Arms in *Lombard-street*.

M. DCCXXIII.

TREATISE

High Operation

STOMACH

WITH



By WILLIAM CHESTER
Surgeon to St. Thomas's Hospital
in London, and F. R. S.

LONDON:
Printed for John Osgood, at the Ox-
ford Arms in Lombard Street.
M. DCCXIII.



TO
D^r RICHARD MEAD

*Fellow of the College of
Physicians in London;
and Fellow of the ROYAL
SOCIETY.*

SIR,



THE success of
these operations being great-
ly owing to
the encourage-
ment you gave me, both by
your presence, and favour.

A 2 able

The DEDICATION.

able opinion of my undertaking:

I beg leave to make this public acknowledgment of it, and to subscribe my self,

Sir,

Your most obedient

Humble Servant,

Will. Cheselden.



THE
PREFACE.



THE most ancient way of cutting for the stone is that described by Aulus Cornelius Celsus, as it was practised by the Greeks and Romans, now called cutting upon the Gripe, or with the lesser Apparatus. This way is scarcely practicable but in young persons, and as Celsus relates, was esteemed so hazardous, that it was not performed, but upon Persons between nine and

and fourteen years of age. But Rosset (*Vid. Pag. 477. in his treatise De Partu Cæsareo*) thinks this was some mistake in the manuscript from which Celsus was printed, and I think, with good reason, seeing younger persons are much fitter for this Operation.

In the year 1524. Marianus published an account of the way of cutting upon the staff, or with the greater Apparatus, which his Master Joannes de Romanis of Cremona in Italy, invented and practised with good success. This Operation excels the former chiefly in this, that it may be done without difficulty upon men full grown.

In the year 1697. Frere Jacques, as Dionis relates, an ecclesiastick in France came to Paris to practise his new invented way of cutting for the stone, which was by the direction of a staff into the Bladder,
near

near the Rectum, but being ignorant of anatomy, he often cut thro' the bladder, and wounded it in many places, in some he cut off its Neck, in others, into the Intestinum Rectum. Nevertheless, those he cur'd raised him universal reputation. He was sent for to Court, and by the King ordered to cut at both the Hospitals, where the crouds that came to see him were so great, that guards were placed to keep them out. But the mischief he did, and the numbers that died, being not to be concealed in these places, he lost his reputation, as fast as he had obtained it. Nevertheless, until his patients that died, were dissected, the people (so great was their partiality in his favour) rather believed that the surgeons had poisoned them, than that he could be thus unsuccessful in his operations. But the late Mr. Rau, professor of anatomy

tomy at Leyden, performed it afterwards in Holland, cutting exactly between the entrance of the ureters, and with great success. In my opinion, this way of cutting exceeds the two former, and would be yet better, if the bladder was filled with water before the operation.

Prosper Alpinus mentions a way, that he had seen practised among the Ægyptians of drawing stones through the Urethra, but these can be no other, than very small stones, or gravel, and surely such as first lodged there, though the operator pretended to raise them out of the bladder.

Pierre Franco (*vid. pag. 34.*) is the first Author that mentions cutting for the stone above the os pubis, he says his operation succeeded in an extraordinary manner, yet he discourages others from performing it, for which Rosset censures him severely (*vid. pag. 67.*) Rosset

Rosset (vid. p. 37.) recommends the doing this Operation in another way; he describes the parts like a good Anatomist, and judiciously shews what should be done, and what avoided. Yet his best method of operating, in my opinion, is not altogether perfect. He exhorts Surgeons to make this Operation; Sine metu calumniæ, --- possit, & debeat, though he never did it himself upon living bodies, and for some time deferred even the publishing his thoughts about it, Per abdomen cystotomiam absolvi feliciter posse jamdudum augurabar, sed operis novitas & thraasonum quorundam os infrene mihi silentium imperabant.

Le Mercier (vid. pag. 141.) in a thesis made upon a question proposed by N. Petreus moderator of the
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physic

physic school at Paris, maintains the fitness of this Operation, but there is nothing in it that was not said before by Rosset.

Gulielmus Fabricius Hildanus (vid. pag. 151.) writes a chapter upon this Operation, in which he censures Rosset, and raises many Objections. But if he had seen the book he so freely criticis'd, he would have found every one of his own Objections there fairly stated, and fully answered.

Monsieur Tolet (vid. pag. 164.) relates that the High Operation was tried in the Hotel Dieu, after the manner of Franco, this way was found inconvenient (vid. pag. 4 and 5.) and so discontinued.

*Monsieur Dionis (vid. pag. 163.) judiciously observes, that to do this
Ope-*

The PREFACE. vii

Operation well, the bladder ought to be full of water, but the way he proposes to perform it, is in my Opinion scarcely practicable.

*In the year 171 $\frac{7}{8}$. Dr. James Douglas presented a Paper to the Royal Society, in which he demonstrated from the Anatomy of the parts, that the High Operation for the stone might be performed safely, and though most were convinced of it, yet either no one understood which way to do it, or cared to venture his Reputation upon it, 'till his Brother Mr. John Douglas a good Anatomist, (and formerly a Pupil in St. Thomas's Hospital) performed it, his method is nearly the same with Rosset's (*Vid. Mr. Douglas's Treatise called Lithotomia Douglassiana*) though, as he declares, he had never heard of that Author at that time. He performed his Ope-*

a 2

rati-

rations with success, and if he may not be called the Inventor, he was surely the first Man that ever practised it this way upon living bodies, (his Operation and Franco's differing as much as the ways by the greater and lesser Apparatus) for which the company of Surgeons (forward to encourage every improvement in surgery) have presented him with his Freedom, with an exemption from several expensive Offices.

In my own account of this Operation I have fairly set down every thing that I judged most material to be known, without the least disguise or partiality to my self, and that the Reader might see what had been before done, and that I might not be suspected of arrogating to my self any part of this Operation, which was not my own invention
(which

(which I confess is very little) I have added to it a translation of what had been writ upon the subject by several Authors, and though that of Rosset may appear in some places not very intelligible, yet those who know the Author will find he has had no injustice done him; in this Author particularly, every objection that may be raised against this way of cutting is fully answered, except that of the intestines being liable to be let out of the abdomen, which indeed is terrible, but even that is not mortal, as I have shown by the two cases in the Appendix.

The following part of a Letter from Mr. Macgill Surgeon at Edinburgh to Dr. Campbel, I did not receive 'till the rest of this book was printed off, and it being too material to be omitted, I therefore
insert

x The PREFACE.

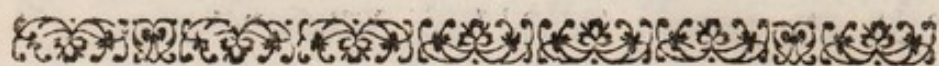
*insert it in this place. Dated 16
July, 1723.*

*“ Seven weeks ago I cut an old
“ Gentleman for the stone in the
“ bladder, after the new manner,
“ he is by his own confession 67,
“ and some of his friends say he is
“ 72 years of age, I extracted two
“ stones, one weighing four Ounces
“ seven drops, and the other four
“ Ounces five drops. I was obli-
“ ged to cut open his bladder to
“ the bottom before I could get out
“ either of the stones, one of them
“ lying cross the neck of the blad-
“ der, and the other stood per-
“ pendicular on it, with its lower
“ end placed in a hollow on the su-
“ perior side of the inferior stone,
“ and it's other end reached to the
“ bottom of the bladder. He was
“ mightily worn out, notwithstand-
“ ing which, and his great age, he
“ has*

“ has recovered without any bad
 “ symptom during his cure, that
 “ could be reckoned a consequence
 “ of the Operation.

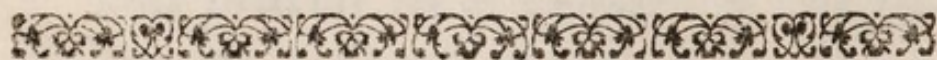


THE



Advertisement.

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publish'd a Third E-
dition with Additions of
the Anatomy of the Human
Body ; by *W. Cheselden*,
Surgeon to *St. Thomas's*
Hospital, and *F. R. S.*





THE
HIGH OPERATION
FOR THE
STONE.



Nothing can contribute more to the well performing any difficult operation, than the exact knowledge of the parts upon which it is to be performed ; we should therefore first consider the parts, which are either to be cut or carefully avoided in this operation. The outer skin, the membrana adiposa, and the linea alba, through which we cut, are so well described by every anatomist,
B and

2 *The* HIGH OPERATION

and so generally well understood, that it is needless to say any thing of them here. But the peritoneum being principally concerned in this operation, I shall give a particular description of it. It lines the cavity of the abdomen, and contains the liver, spleen, omentum, stomach, guts, and mesentery, with all their vessels and glands. The upper part of it is no other than the proper membrane of the diaphragm; and but for compliance with custom, there is no more reason for calling that, part of the peritoneum, than there is for calling the membrane on the other side of the diaphragm, part of the pleura or mediastinum: The forepart next the abdominal muscles, may be divided into two laminae; yet I think anatomists, in describing the duplicature or laminae of the peritoneum, have not always meant this division, but have taken
the

the tendons of the transverse muscles for the outer lamina, and considered this membrane as single, seeing it is between these that the water is usually found in that kind of dropsy, which they call the dropsy of the peritoneum. That part next the spine, though its inner lamina is smooth, yet the outer part is no other than a loose membrana adiposa, in which are contained the aorta, vena cava, vasa spermatica, and the pancreas, which is but thinly covered with the inner lamina, with other parts of less note. The middle of the peritoneum upon the loyns is joyned to the mesentery in such a manner, as made the antients call it a production of the peritoneum; and some part of the external membrane of the duodenum becomes one membrane with the inner or smooth lamina of the peritoneum, and the beginning of the mesentery.

4 *The* HIGH OPERATION

And part of the rectum is covered in the same manner. But the kidneys and the bladder of urine are contained in a duplicature of this membrane which makes an investing membrane for the musculus detrusor urinæ, or muscular coat of the bladder. The bladder being empty, it lies within the os pubis, (vid. tab. I. A.) and the peritoneum joyns to the os pubis: (vid. tab. II. A.) in this state the bladder cannot well be cut above the os pubis, without passing first through the peritoneum and then into the bladder, on that side next the abdomen, which will let the water out of the bladder directly into the abdomen. This certainly happened to those who cut in Pierre Franco's manner, and, I doubt not, was the true reason why that operation was discouraged by those who tried it, though none of them have been so ingenuous as
to

to own it. But when the bladder is filled, and the wound made between the urachus and the os pubis, though the peritoneum should be cut or broken, the urine may come all the right way, and the patient be in no great danger from such an accident.

The bladder being filled with water, (vid. tab. III. IV. and V.) the inner lamina of the peritoneum with the urachus is raised from the os pubis, and leaves a sufficient space between the urachus and the os pubis, to divide the bladder without danger of cutting into the abdomen, which is carefully to be avoided. But the bladder in this state being connected to the abdominal muscles only by loose membranous fibres, as the skins of rabbits and hares are to the bodies of those animals; great care must therefore be taken, not to make a
ny

6 *The* HIGH OPERATION

ny separation of these fibres in passing the fingers, or forceps into the bladder.

Before we go about this operation, it seems necessary that the intestines should be emptied, to prevent their pressing upon the bladder. For this purpose, I ordered my patients a slender diet, for about two days, and clysters a little before the operation.

The patient being placed upon a bed, or quilt laid upon a table, with his head on a pillow, his legs off the table, his thighs raised, and his back a little hollow, so as to relax the abdominal muscles; then we pass a ligature loosely above each knee, and fasten it to the outside of the table, an assistant on each side holding his hands. And having passed the catheter; another assistant grasping the penis gently with his hand, to prevent a reflux of the water; we inject as much
warm

warm barley water as will fill the bladder to its utmost natural distention, more being of little or no use to the operation ; but very painful, if not dangerous, to the patient. Into a man full grown may be injected near twelve ounces, and into a boy nine years old, about eight ounces ; allowance being made for the size of the stone, which being difficult to do exactly, the proper quantity for every patient, may, I think, be more certainly known from the swelling of the abdomen just above the os pubis, if the integuments are thin ; by the patients growing uneasy from the extension of the bladder ; and from the resistance which the operator feels to the injection. And that we may better judge with what quantity of water we distend the bladder, the urine should be discharged, before the injection is made. And because an immediate connection of the syringe and the catheter, with-

8 *The* HIGH OPERATION

without the intervention of a flexible tube, would make the catheter too liable to be moved in the bladder, and give great uneasiness; I therefore joyned them together by an oxes ureter (vid. tab. VII.) which effectually prevented that inconvenience. But before we leave this part of the operation, I must recommend the passing the catheter deliberately, and gently, choosing rather to seem less artful in doing it, than secretly to hurt the patient, for the reputation of doing it quick and dextrously: and indeed I judge this no unnecessary caution in every part of the operation.

The bladder being filled, and the catheter drawn out the assistant must continue to hold the penis until the incision is made into the bladder; I think it may be best held between the fore-fingers, or the fore-finger and thumb, the assistants hand being placed
be-

between the patient's thighs, for in this manner the penis may be so held, that neither the skin of the abdomen shall be any way extended, nor the assistant's hand interrupt the operator. The first incision may be made with a round edged knife (vid. tab. VII. A.) through the skin, the membrana adiposa, between the muscoli recti and pyramidales, even to the bladder near the os pubis; for in that part it may be done safely, the bladder there not lying close to the integuments: (vid. tab. V.) this first incision in a man may be about four inches long, one end of it extending almost to the skin of the penis. Then introducing a streight edged knife (vid. tab. VII. B.) with the back lying upon the foremost, or middle finger of the left hand to direct it, the incision may be securely finished upwards, and the bladder layed bare from the os pubis, near three
C inches

10 *The* HIGH OPERATION

inches long. Then passing a crooked knife (vid. tab. VII. C.) into the bladder near the urachus, until the point is near the centre of the bladder, so that bringing it out it may cut under the os pubis; and immediately, while the water is flowing out, a finger should be introduced into the bladder, with which the forceps (which may be very thin) will be directed to take hold of the stone, which, if large, should not be extracted hastily, because that encreases the resistance: the wound may be dressed with any digestive medicine, upon which may be layed a soft compress, kept on with an easy bandage. The digestive I used was this, \mathcal{R} ceræ flav. \mathfrak{z} iv ol. lini \mathfrak{z} iiij tereb. venet \mathfrak{lb} j. The wounds for sometime were fomented at each dressing, which was at first every six hours, except they were asleep, and as long as the urine came through the wounds, the parts about were
con-

constantly anointed, to preserve them from being excoriated by the urine, which happened to my first patient.

I have cut only nine patients this way, and that this treatise may be the more useful, I will here relate the History of each patient.

James Shorter, of Oxfordshire, aged seven, and John Deval, of Shorn near Gravesend in Kent, aged fourteen, were cut May the fifth, 1722. They were both easy soon after the operations, and had no complaint until two hours after, when the bandage, which was flannel, growing wet became too streight; but that being loosened they were easy, and went to sleep presently after, and continued asleep between three and four hours without any opiate, when a quantity of urine coming through their wounds, it gave them some uneasiness, and made me think it necessary to dress them. They took an opiate at night, and slept well; next

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morning they complained of a little foreness, which fomentations and embrocations soon eased. Thus they continued five or six days, in which time their wounds were perfectly digested, and in about three weeks all John Deval's urine came the right way, which gave him some uneasiness for a day or two, after which his wound cicatrised apace, and in seven weeks was perfectly cured. But James Shorter being the first patient I cut the high way, the operation was a little longer than any of the rest, which happened from my making the wound too small, and endeavouring to take out the stone with my fingers. From this smallness of the external wound, the urine was confined, and made a large abscess between the bladder and the integuments; which I did not at first perceive, and hoping that it might contract, I took care to
press

press the matter out often, nevertheless it encreased even to the discharging near a pint of matter and urine at one dressing: upon which I dilated the wound with a gentian tent, which was taken out to let the matter discharge it self, once in two hours: whereby I procured in six hours time a fair opening, which perfectly cured all this impostumation in a few days time. If the amendment had not been so sudden, I intended to have used a hollow tent.

This abscess happening near three weeks after the operation, just when all the urine began to come the right way, it protracted the cure about a month longer, than otherwise I should have expected. However, I think this accident can be no objection against the operation, since it is, what is not very liable to happen to any operator who is apprised of it, or
if

14 *The* HIGH OPERATION

if it should, I think the remedy both easy and certain.

Richard Smith of London, aged eleven, Joseph Reynolds twelve, William White nine, both living in Southwark, were cut May the twenty-second, 1722. Joseph Reynolds never complained during the operation, and they were all easy soon after. In these three there was nothing remarkable during the whole cure; the urine in Reynolds and White came all the right way in about three weeks; but in Smith (who was of a weak constitution) in a month, and it was two months before he was perfectly cured: But the other two much sooner.

John Clark, of Braintree, in Essex, aged eighteen, was cut July the twelfth, 1722. He had a very hectic constitution, which occasioned me to delay cutting him for some time, to try if physick would do him

him any service ; but he continuing very ill, and earnestly desiring to be cut, being never free from fits of the stone ; and we hoping that his continual pain had been the only cause of his hectick fever, in compassion to his entreaties, I cut him, tho' not without strong apprehensions of an unsuccessful case. In the infancy of this operation, he had two stones in his bladder, the largest broke, being very soft, and taken hold of by the forceps the wrong way (which made me in the following operations, feel with my fingers whether the forceps had hold of the stone the best way, before I extracted it.) But I easily extracted all the bits without any force or tearing the parts, using my fingers instead of the forceps, to take out the lesser stone, and the smaller pieces : He was uneasy at first, but in about three or four hours he fell asleep, and

and slept the greatest part of that afternoon ; but when he waked, he complain'd his belly was sore : Then his first rowler was taken off, and being fomented and fresh dressed he was much releived, and rested well the first night, and from that time was very easy, and his wound digested very well ; but for fear any little bits of stone should have remained in his bladder ; when he wanted to make water, I directed him to turn himself upon his belly, which he could do with a great deal of ease ; then taking off the dressings, the urine came out the first time full of small sands, the second time less, and afterwards scarce any : In ten days he was well enough to walk about his room ? but his hectick fever continuing upon him, and he thinking himself out of danger, on the 15th day, when no body observed him, he went to

a pump soon after getting out of bed, and washed his hands and face in cold water, and drank near a pint of it, which immediately disordered him, and threw him into a diarrhæa, which we could never stop, he languished for ten days, and then dy'd the twentyfifth day after the operation. He was opened in the presence of the physicians and surgeons of the hospital; there was nothing amiss in relation to the wound, nor any gravel in the bladder, but in the right kidney about four ounces of matter, and ten distinct stones, which weighed four drams, besides one very large one in the ureter of the same kidney, near the bladder, which stoped up the passage. The most considerable of these stones are expressed in tab. IX. This was a sufficient cause for his hectick fever; and I think it no small credit to this operation, that he lived so long,

D

which

18 *The* HIGH OPERATION

which in the opinion of Dr. Cotesworth, who attended him, was longer than he could have lived if he had not been cut, and notwithstanding his ill habit of body, the wound digested and incarned very well, till the diarrhæa came upon him by the accident before mentioned.

Stephen Jennings, of Southwark, aged nineteen, and Henry More, of Gloucestershire, aged eleven, were cut August the fourteenth, 1722.

These operations, tho' the stones were very large (one weighing three oz. and a qr. vid. tab. IX.) were very quick and easy. These boys scarce complained during the operation, and both went to sleep soon after, and continued asleep four or five hours, after which they were dressed, and declared themselves perfectly easy. The greatest part of the next day they played at cards, as I afterwards learned,

learned, and complained of nothing but hunger. They slept well every night without opiates, he only who had the largest stone taking one the first night. The third day More was taken with a pain in his head and back, with a reaching to vomit, and his urine, instead of coming through his wound, passed through his penis, it was expected he would have had the small-pox, but a rash coming out the next day, freed him from these symptoms. They both continued very well, their urine coming through their wounds for about three weeks, at which time it all begun to pass the right way, which gave them some uneasiness for a day or two, soon after which their wounds healed, and they are both perfectly well.

Harris Weston, a child of four years old, cut October the tenth, 1722. out of the hospital, he ne-

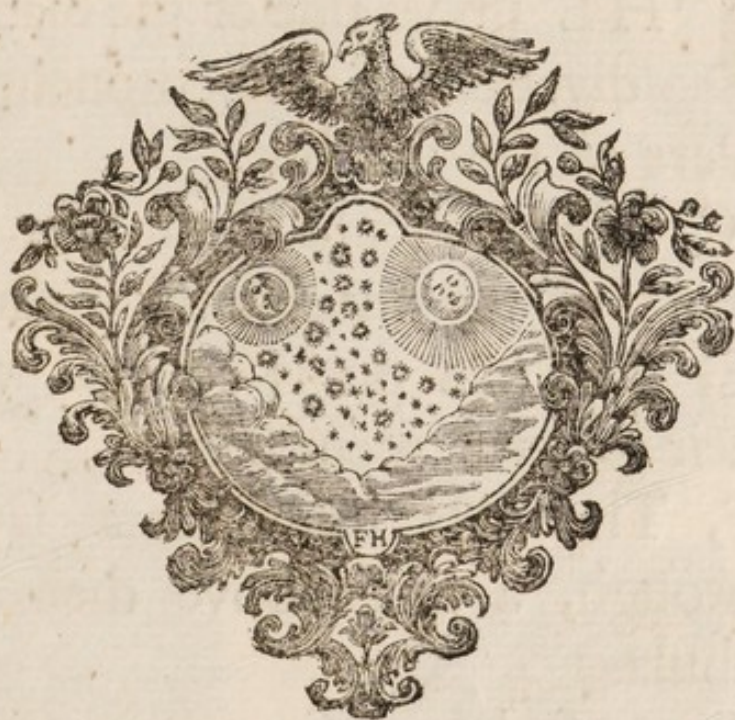
20 *The* HIGH OPERATION

ver had any bad symptom, and was cured in about five weeks.

In all these cases some of the urine came through the penis from the beginning, and from the time the wounds were digested, it came daily less through their wounds, till all came the right way.

Joseph Reynolds, who was cut May the twentysecond, 1722. and discharged cured, in the beginning of July, was about the middle of October following taken ill of a fever, with violent vomitings, of which he died in a few days, having enjoyed perfect health from the time of his cure to this illness. I opened him, and found his kidneys and bladder free from any disorder, and the wound in the bladder united with a firm, smooth cicatrix, the outside of the wound being joined to the wound made through the integuments, it was perfectly empty of water, which
shows

shows this connection of the bladder to the integuments was not inconvenient on that account; and not only this patient, but all others have been able to contain as much urine in their bladders at once, as persons that have not been cut. Before I opened this boy, I thought no one could be cut twice this way, which I am now satisfied may be done.



T A B.



T A B. I

Shows the bladder of urine empty, in the bottom of the pelvis of the abdomen, the body being cut through horizontally, a little above the ossa pubis.

A, **T** H E upper side of the bladder divested of the peritoneum.

B, Part of the urachus.

C, C, The vesiculæ feminales.

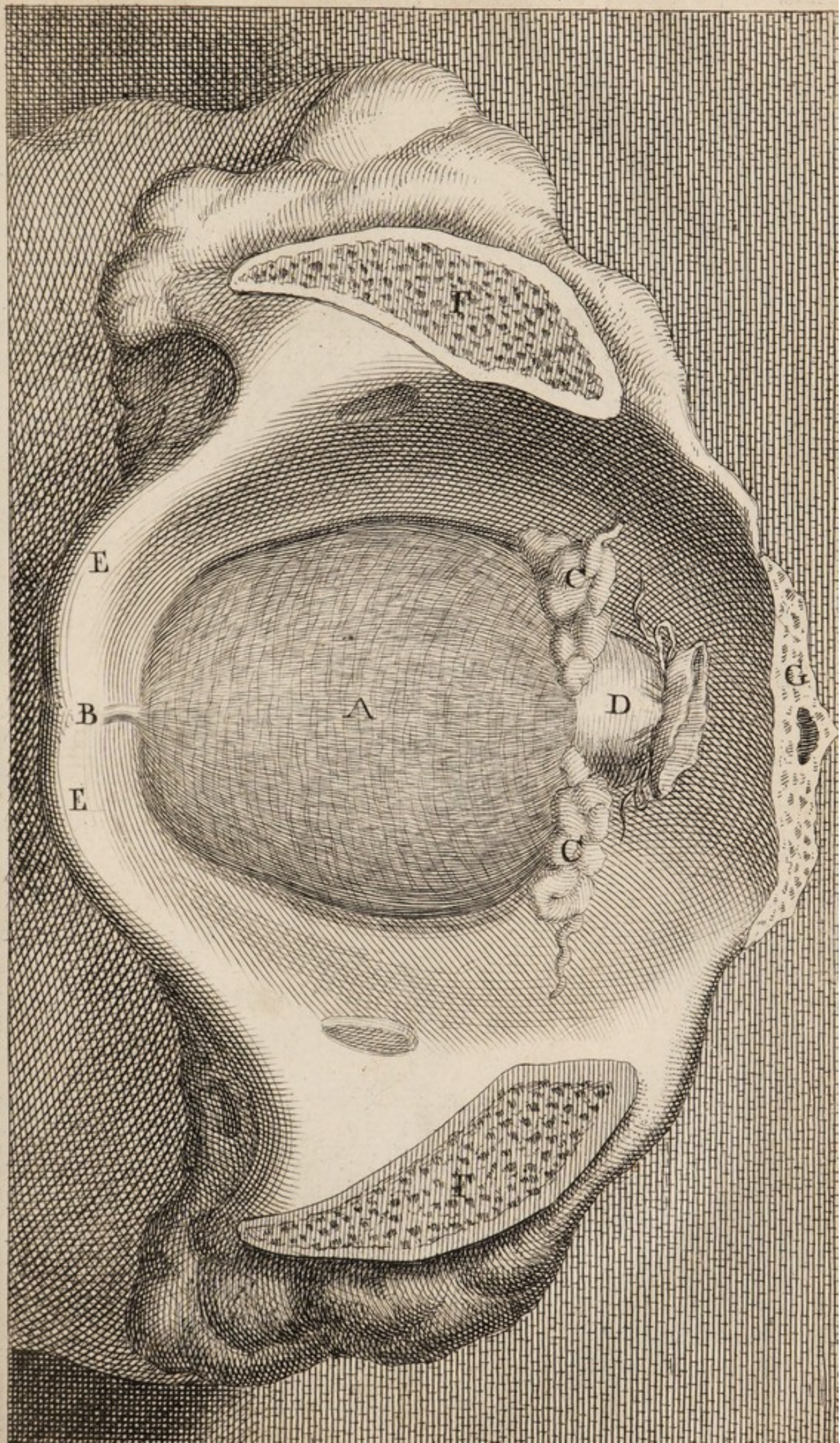
D, Part of the intestinum rectum.

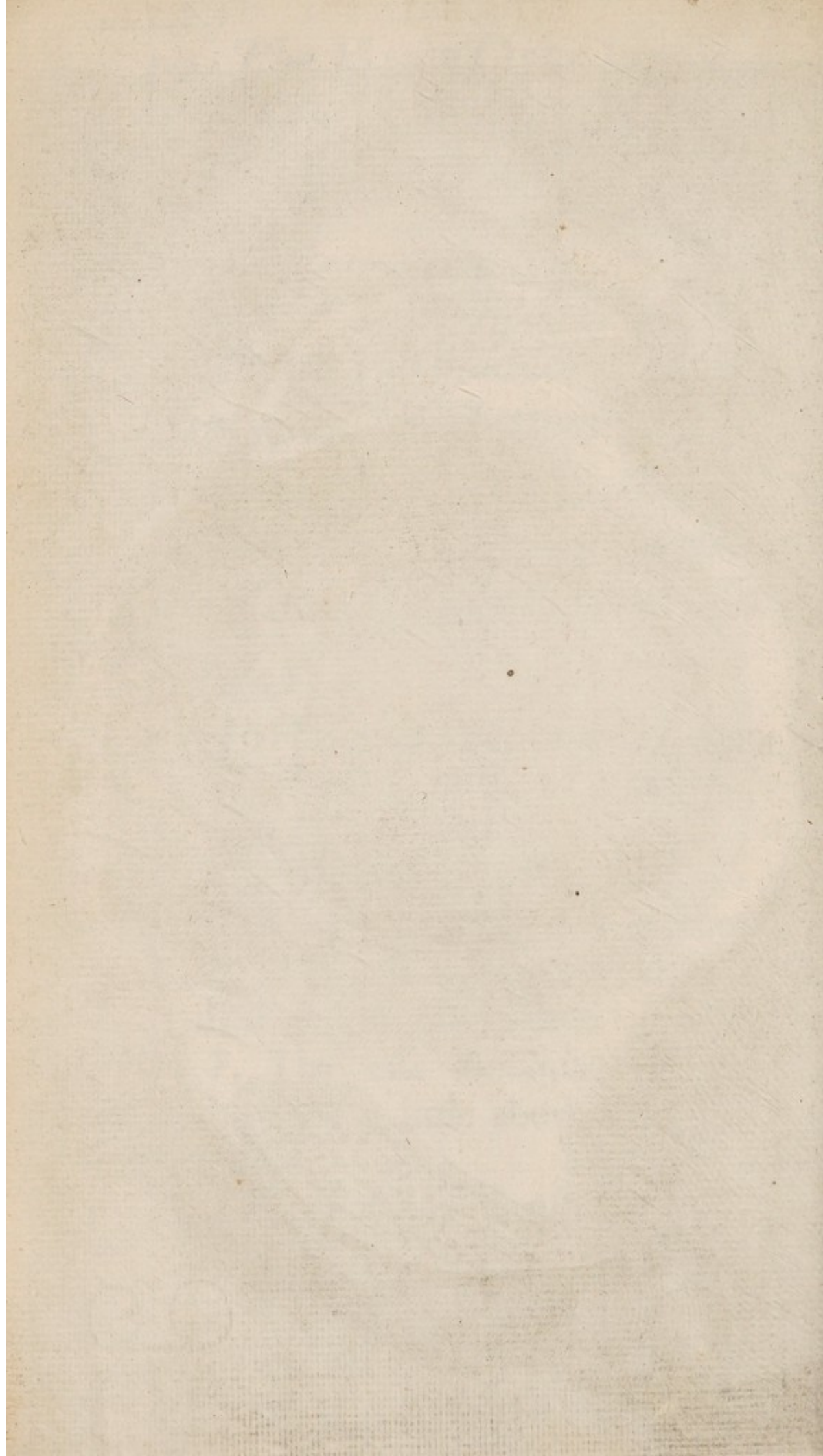
E, E, The ossa pubis covered with their proper membrane.

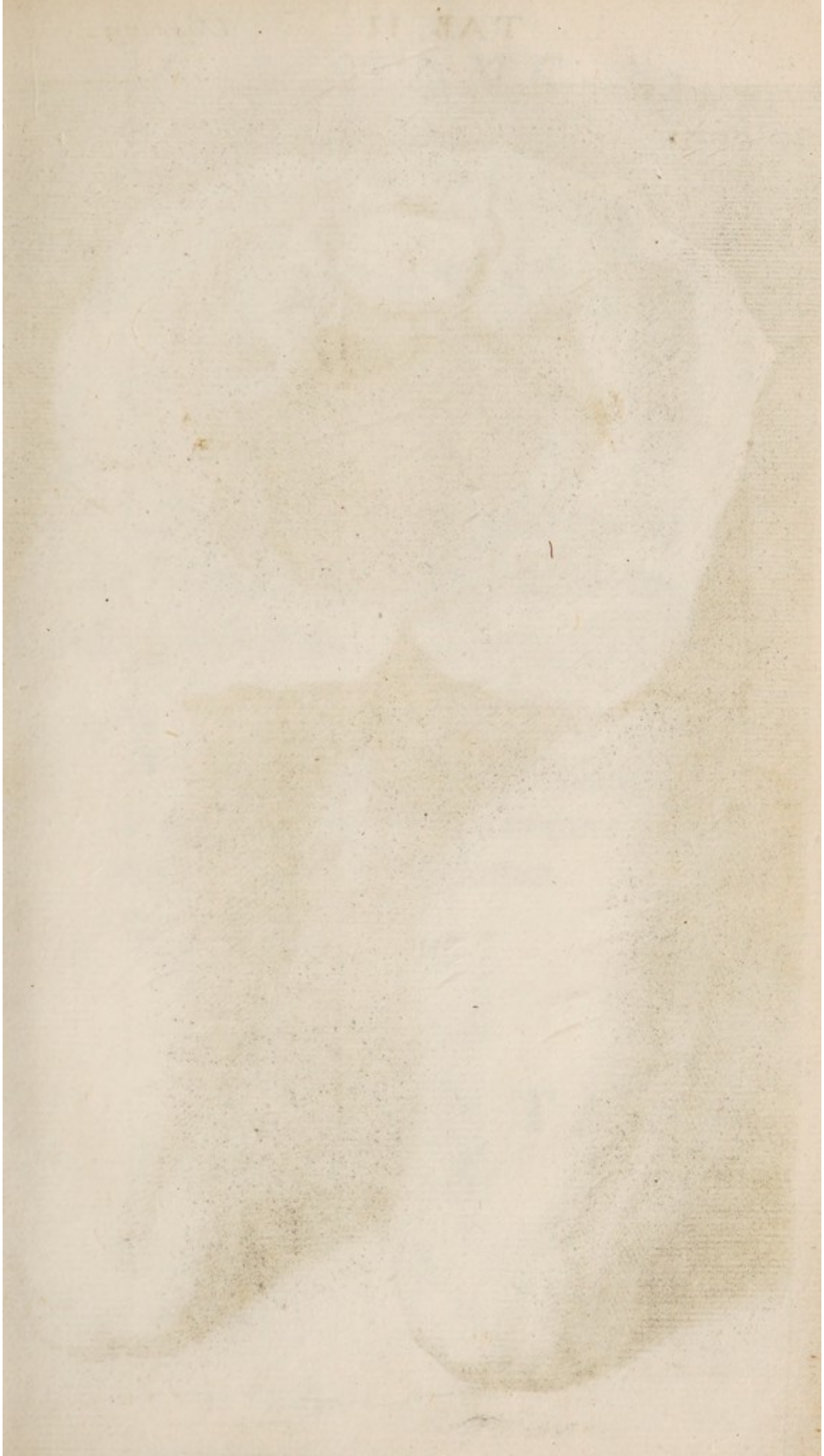
F, F, The ossa innominata sawed through, a little above their acetabula.

G, Part of the os sacrum.

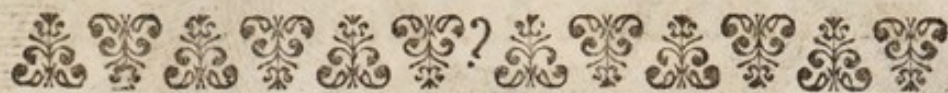
T A B.











T A B. II

*An horizontal section of
the body, between the two low-
est vertebræ.*

A, **T**HE inner lamina of the peri-
toneum, covering the bladder
of urine empty, in the bottom of
the pelvis of the abdomen.

B, The lowest vertebra.

T A B.



T A B. III

Shows the peritoneum covering the intestines, and the bladder of urine filled with ten ounces of water.

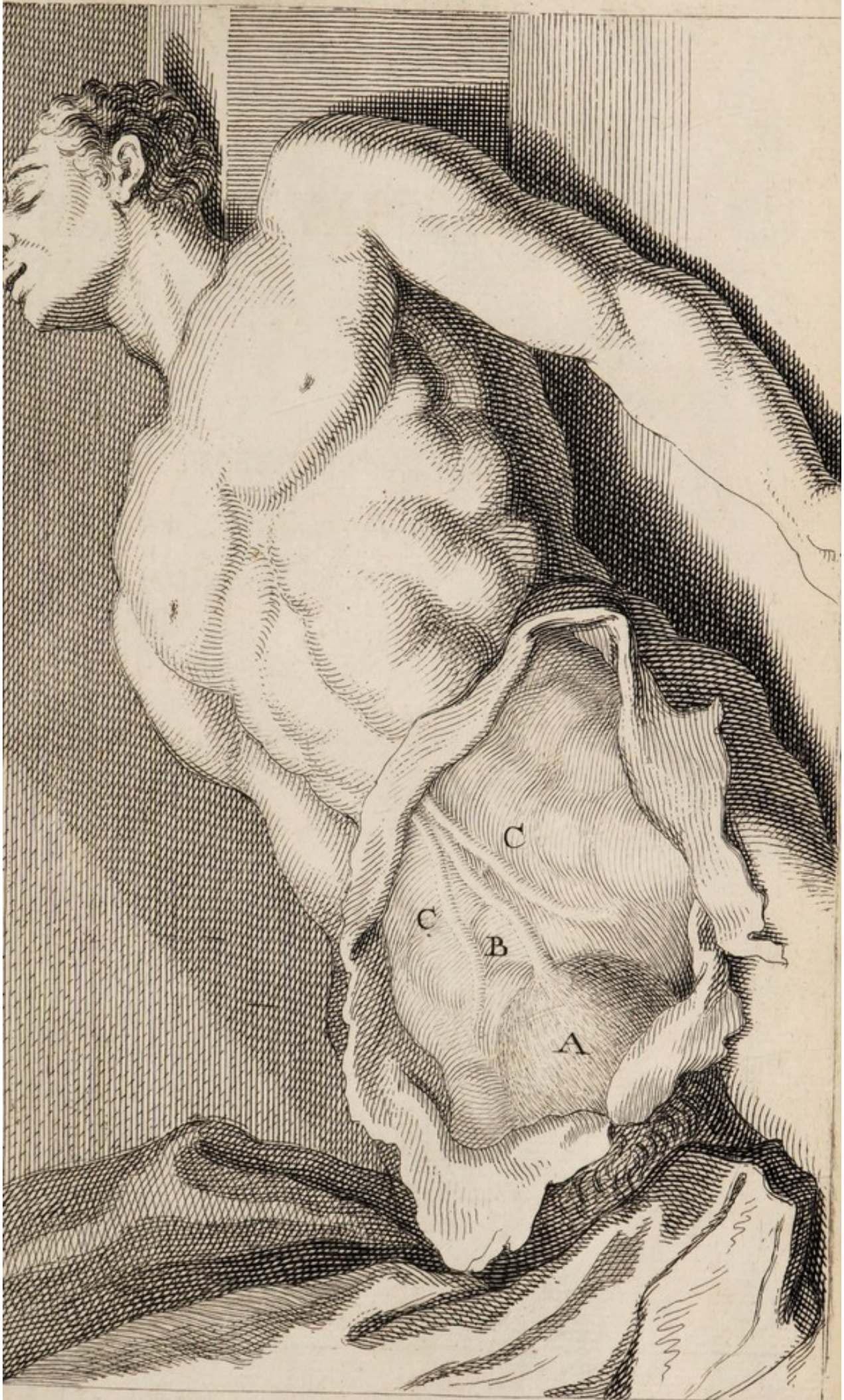
A, **T** H E bladder of urine.

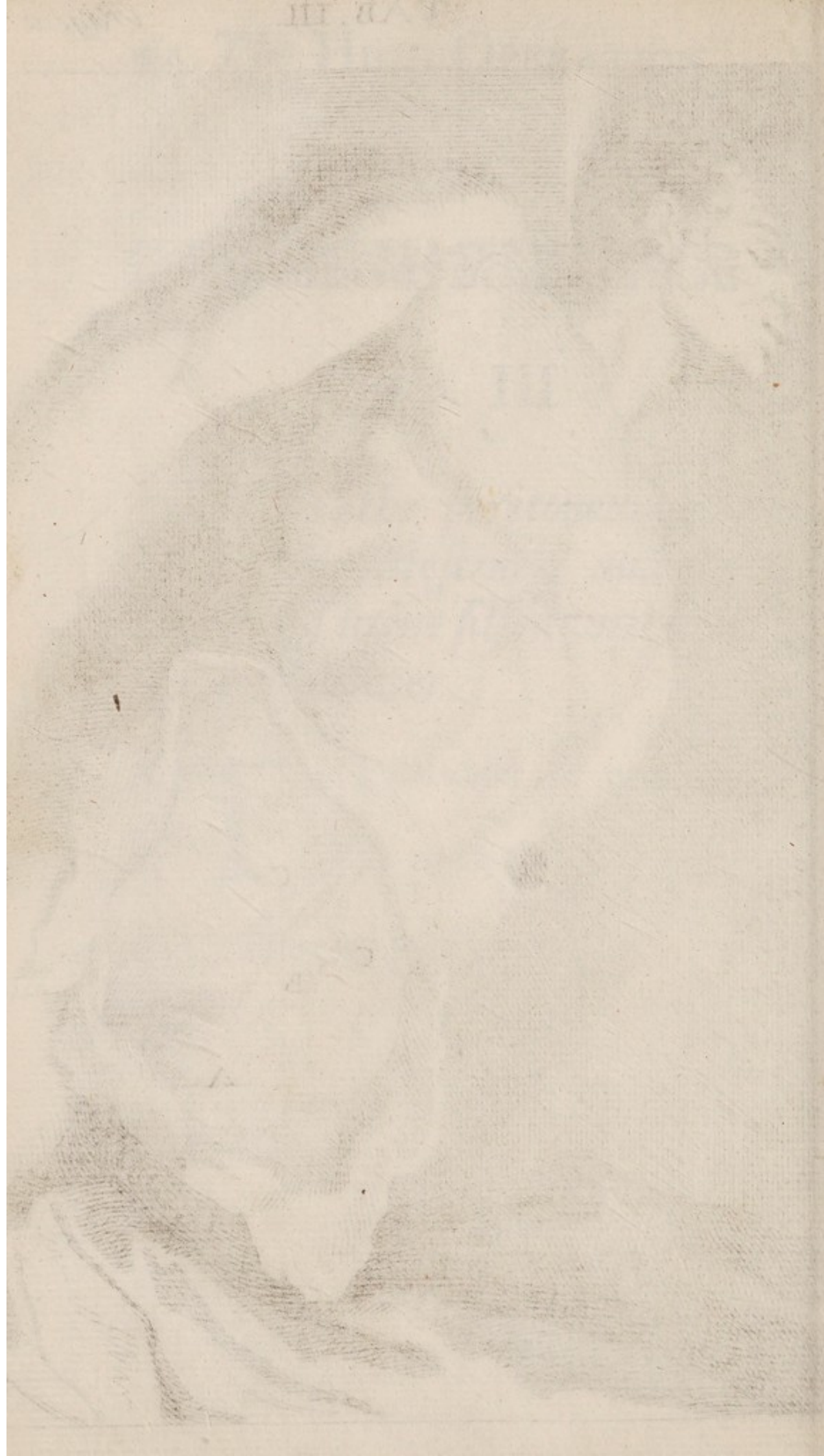
B, **T** The uracus,

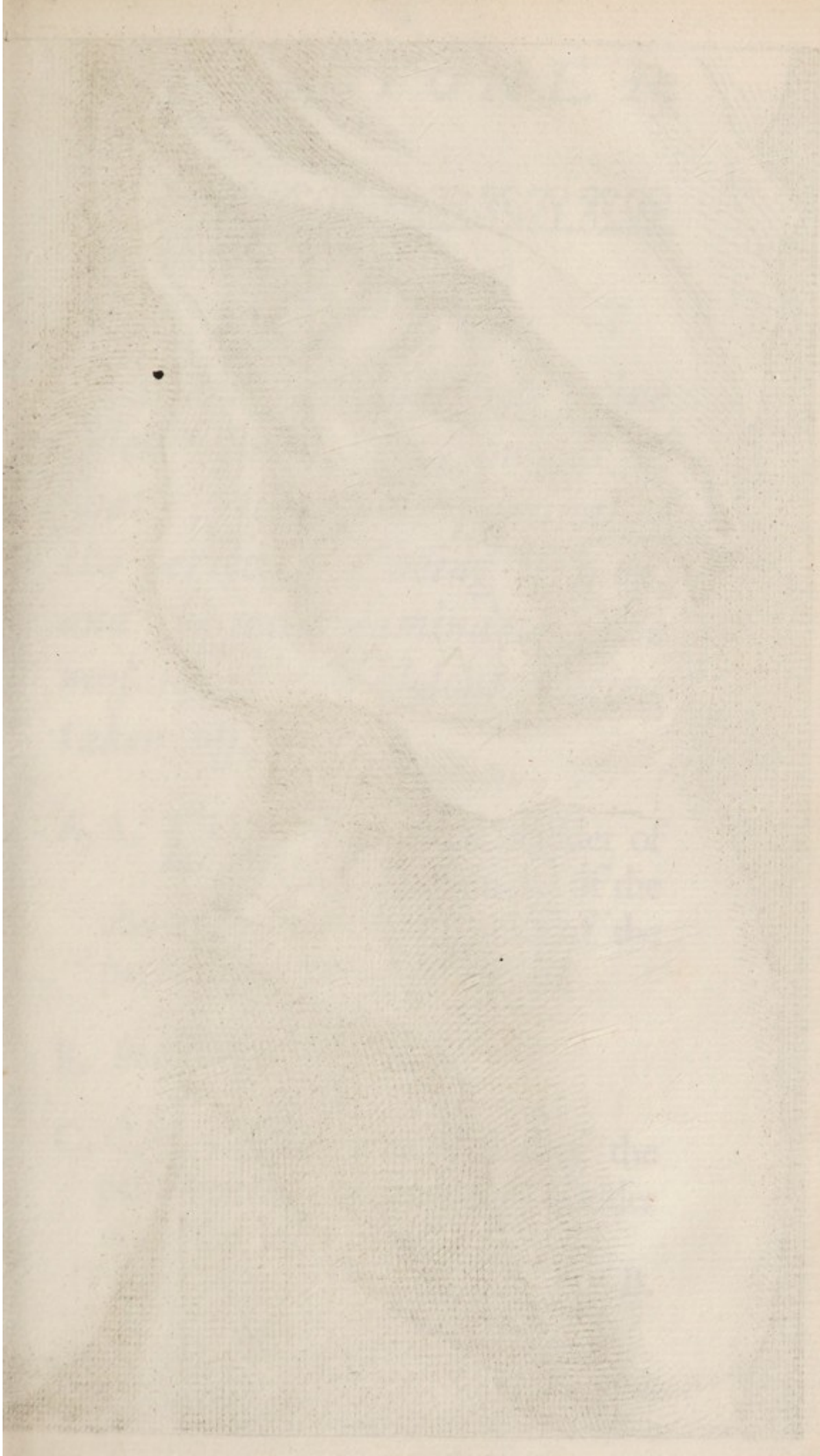
C, C, The umbilical arteries,

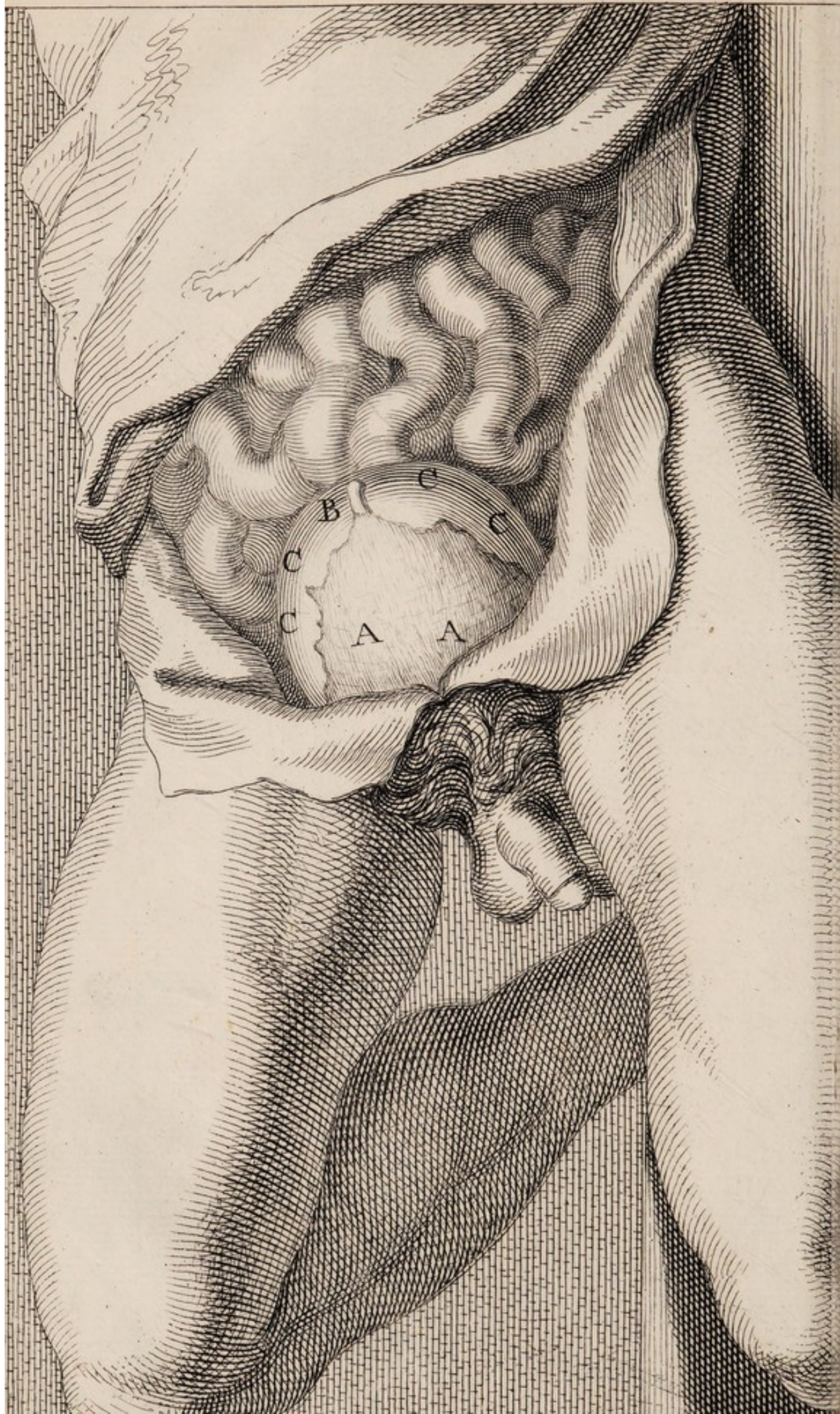
} Contained in
the duplicature
of the perito-
neum.

T A B.











T A B. IV

Shows the bladder of urine filled with twenty ounces of water, the inner lamina of the peritoneum being left on, and the outer lamina next the muscles of the abdomen being taken off.

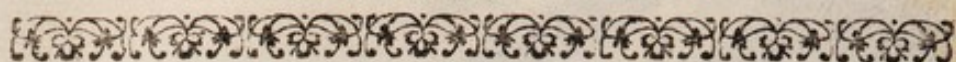
A, A, **T**HAT part of the bladder of urine next the muscles of the abdomen, the outer lamina of the peritoneum being taken off.

B, Part of the urachus.

C, C, C, C, The inner lamina of the peritoneum covering the bladder next the intestines.

E

T A B.



TAB. V

Part of a body, the intestines and the integuments of the right side of the abdomen being removed.

A, **T**H E bladder of urine covered with the inner lamina of the peritoneum.

B, That side of the bladder next the abdominal muscles.

C, C, The right umbilical artery.

D, The urachus.

E, Part of the integuments upon the os pubis.

F, The ligamentum latum of the liver.

G, Part of the liver.

H, Part of the right kidney.

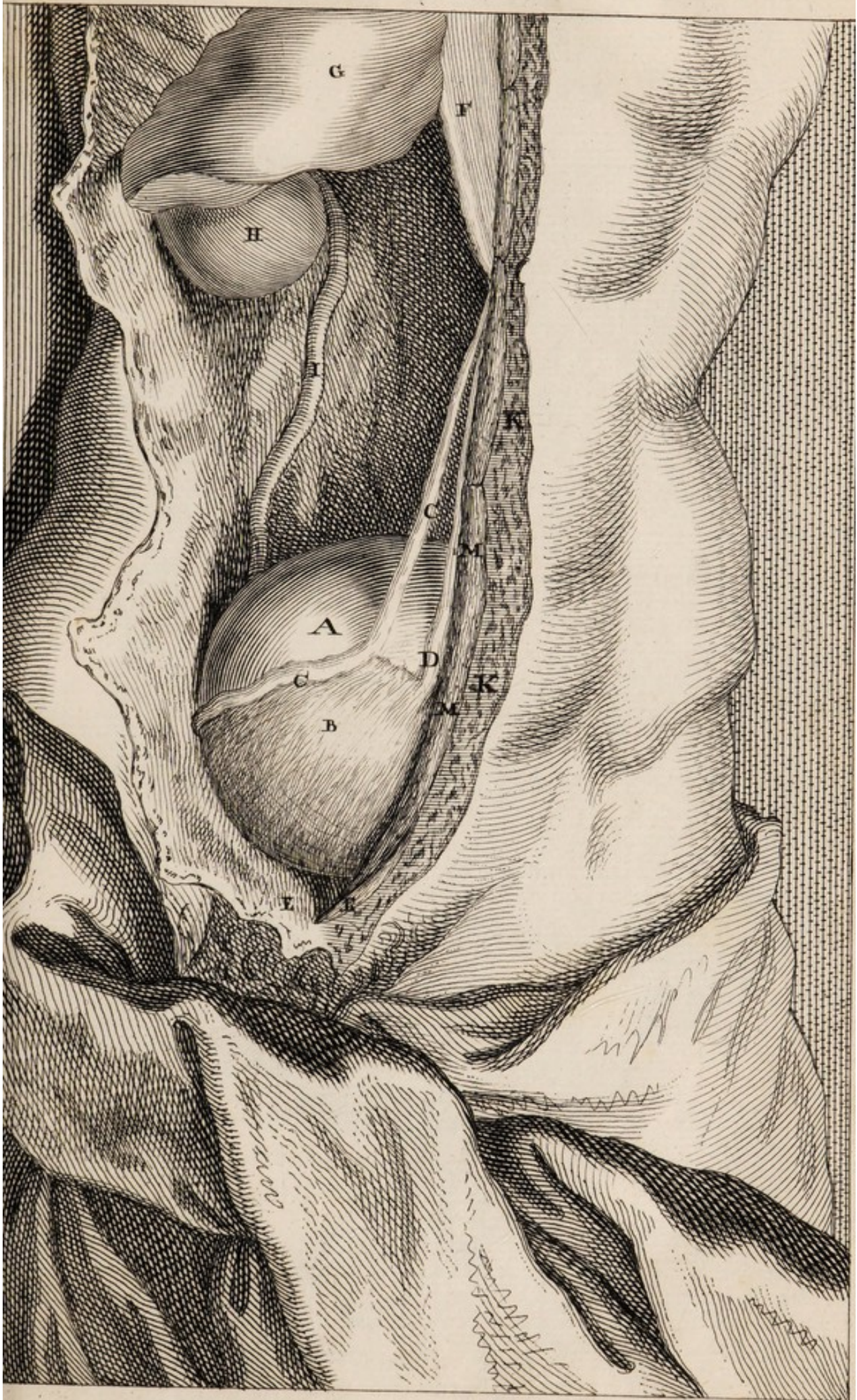
I, Part of the right ureter.

K, K, The membrana adiposa.

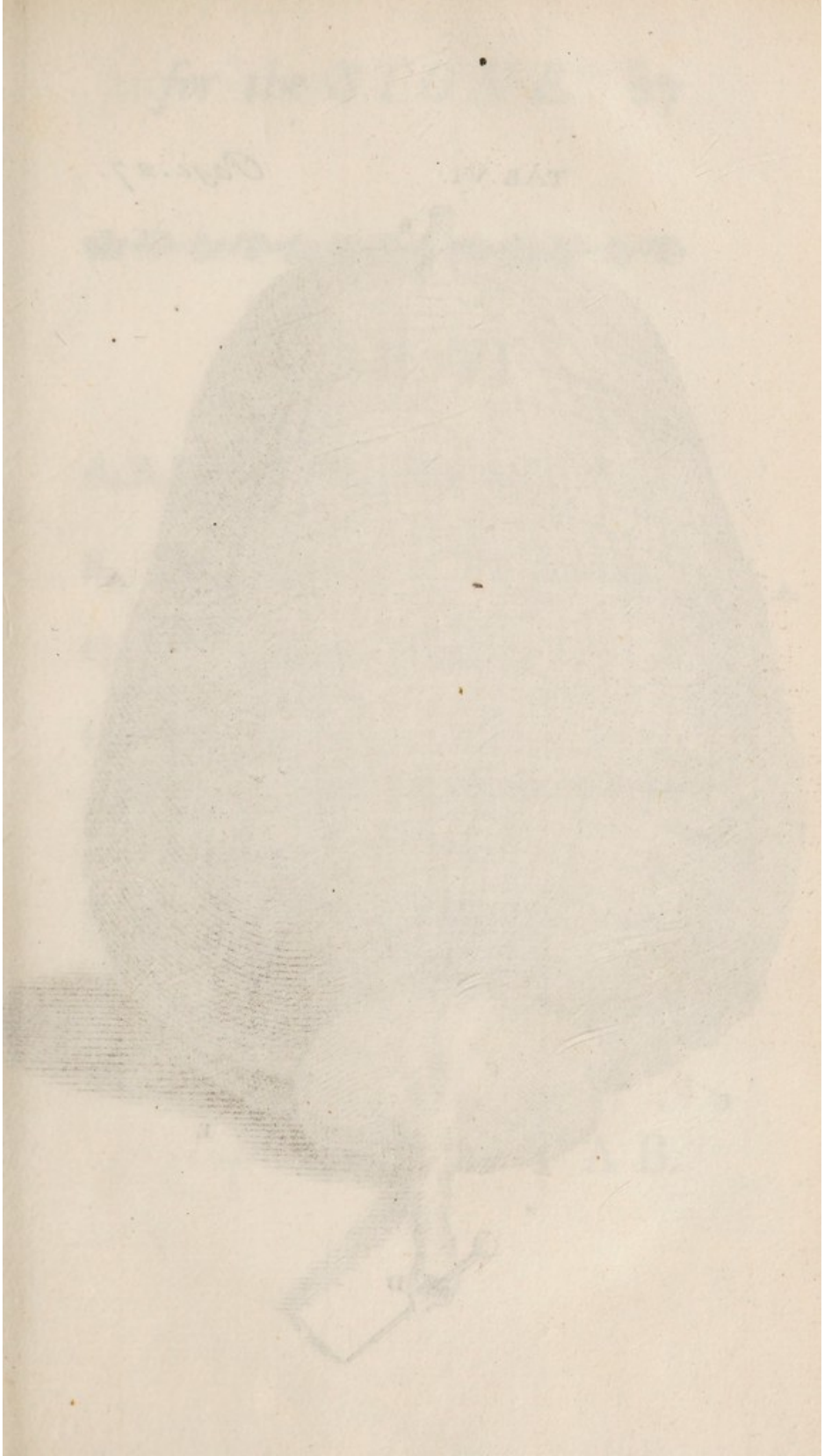
L, The left pyramidal muscle.

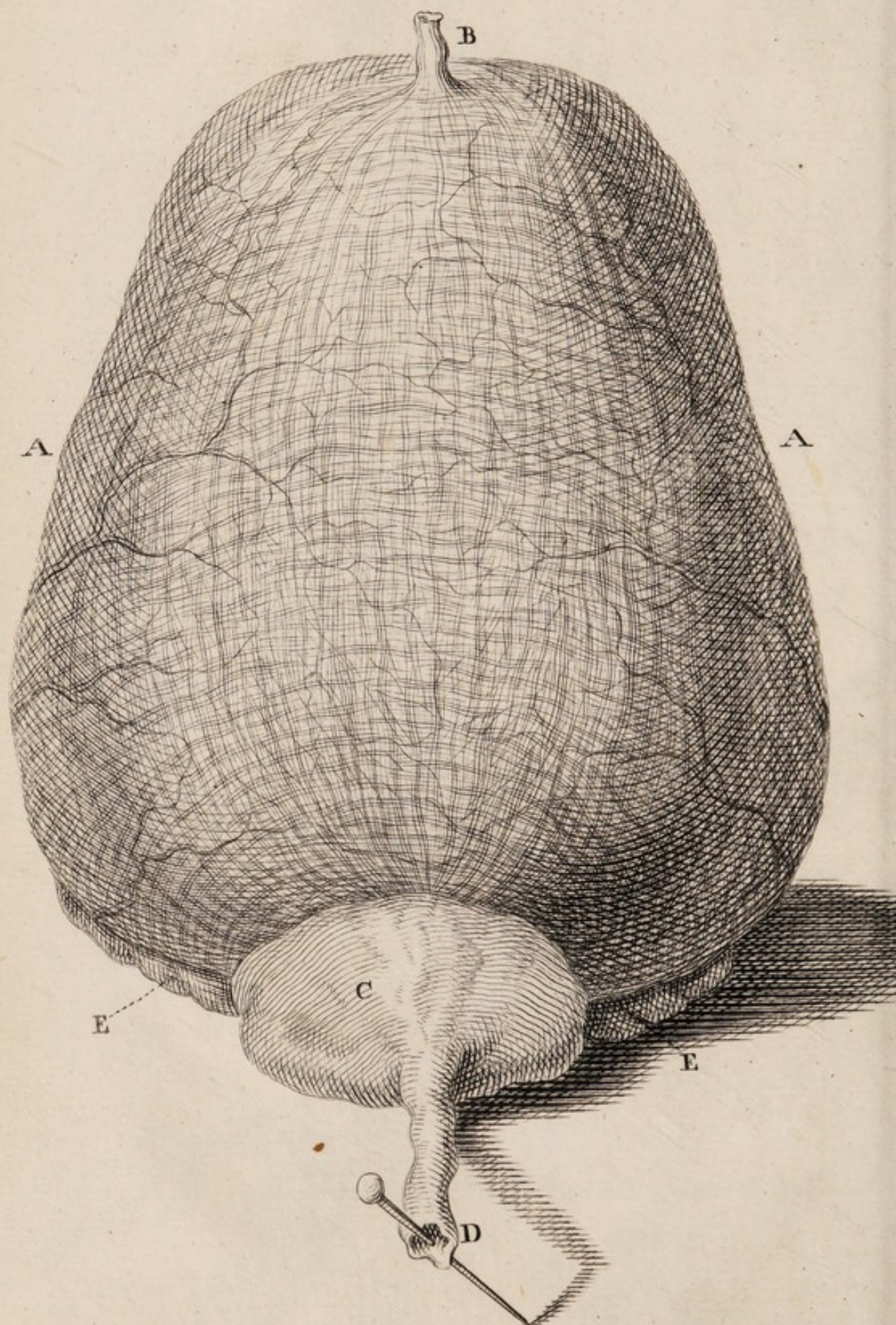
M, M, The left musculus rectus.

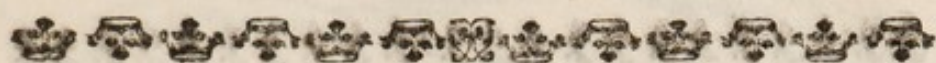
T A B.











TAB. VI

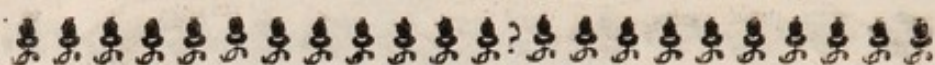
A, A, **T**HE bladder of a man.

B, The beginning of the urachus.

C, The prostate gland.

D, The part of the urethra, which
is cut into, in the common ope-
ration.

E, E, Part of the vesiculæ femina-
les.



T A B. VII

A, A, **P**ART of the injecting
fyringe which holds ten
ounces.

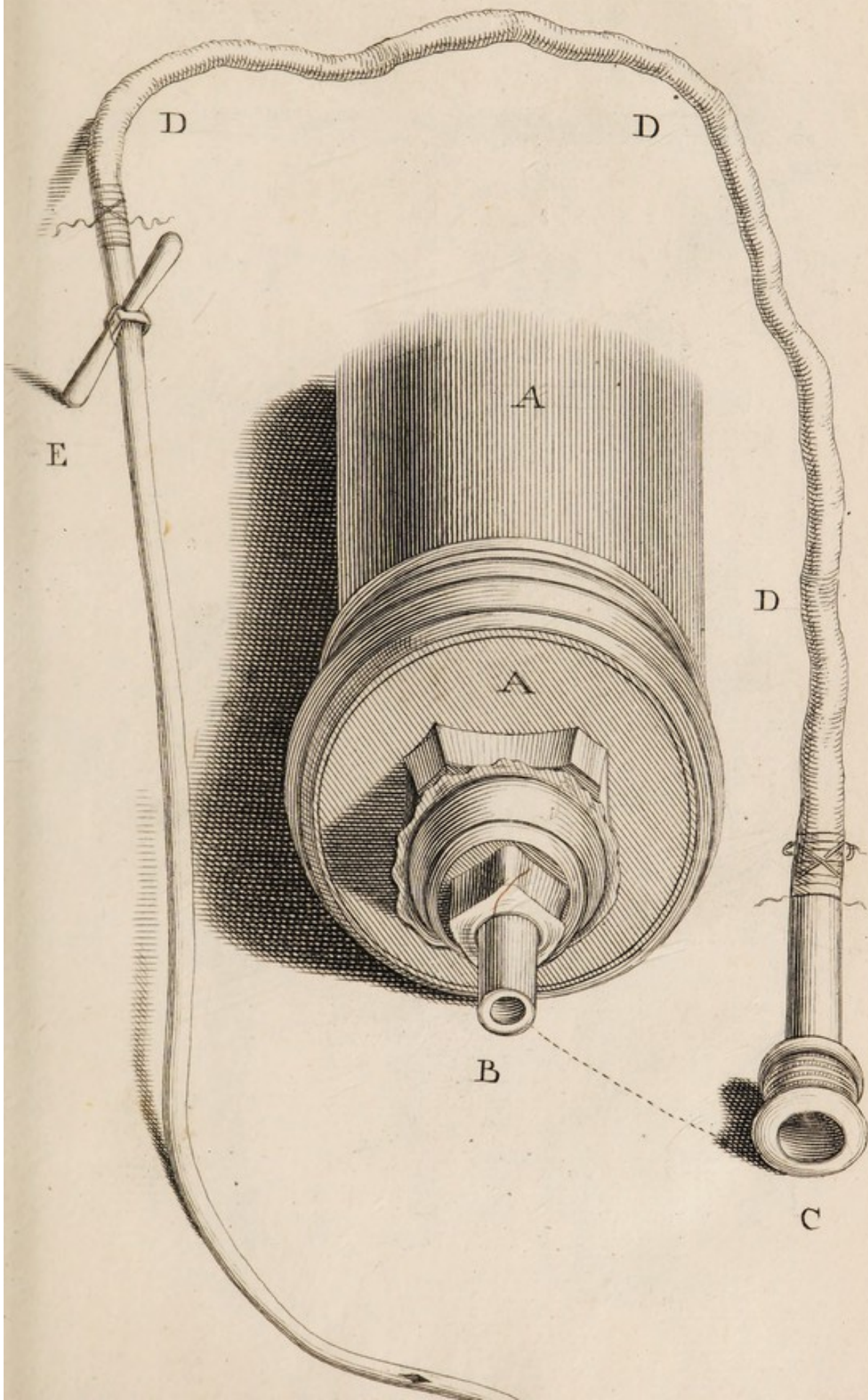
B, The end of the fyringe fitted in-
to the pipe C.

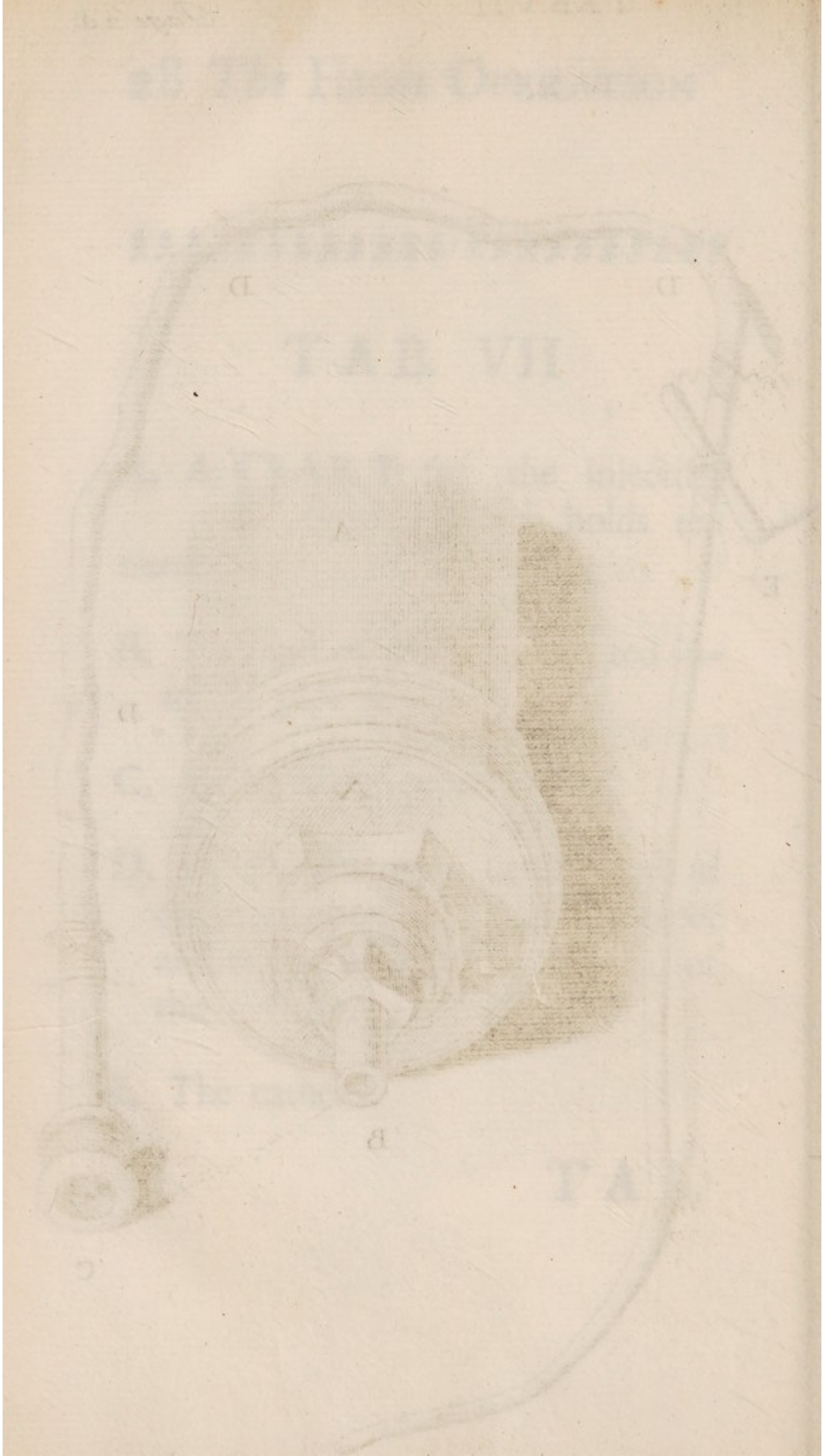
C, the injecting pipe.

D, D, D, An oxes ureter tied at
one end upon the injecting pipe,
and at the other upon the end of
the catheter.

E, The catheter.

T A B.





THE S. P. CAMP

THE S. P. CAMP

PART VIII

The first part of the book

is devoted to the study of the

history of the S. P. Camp

and the progress of the

work of the S. P. Camp

in the S. P. Camp

and the progress of the

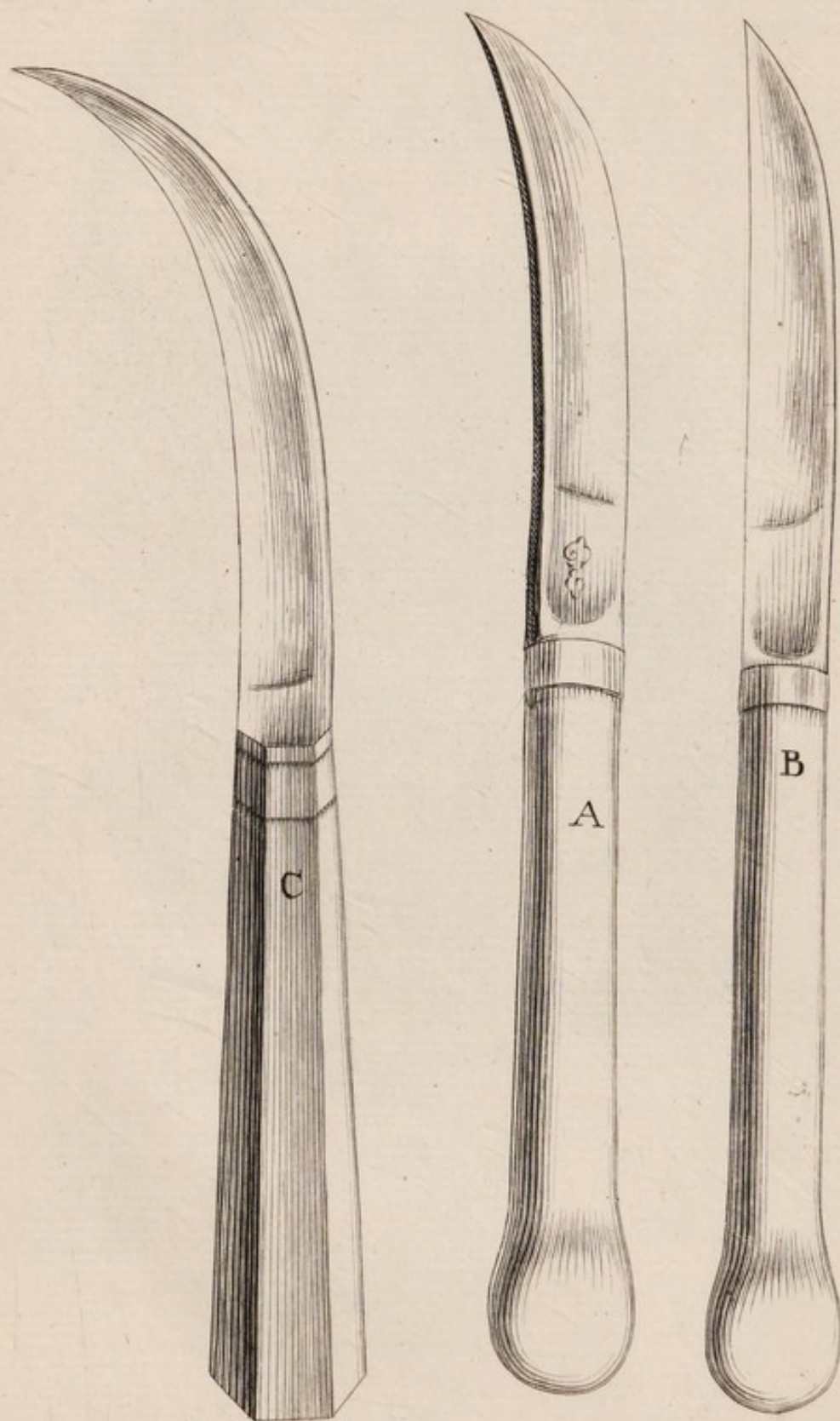
work of the S. P. Camp

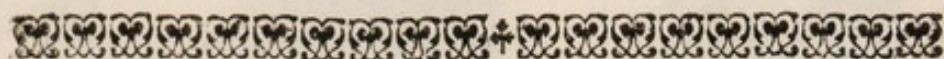
in the S. P. Camp

and the progress of the

work of the S. P. Camp

in the S. P. Camp





T A B. VIII

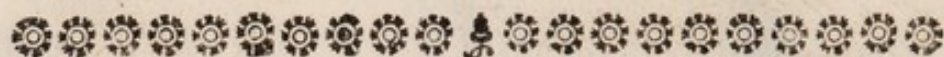
The knives used in this operation.

A, **A** round edged knife to cut through the integuments.
Pag. 9.

B, A strait edged knife to lay the bladder bare as far as is convenient.
Pag. 9.

C, The knife to cut the bladder.
Pag. 10.

T A B.



T A B. IX

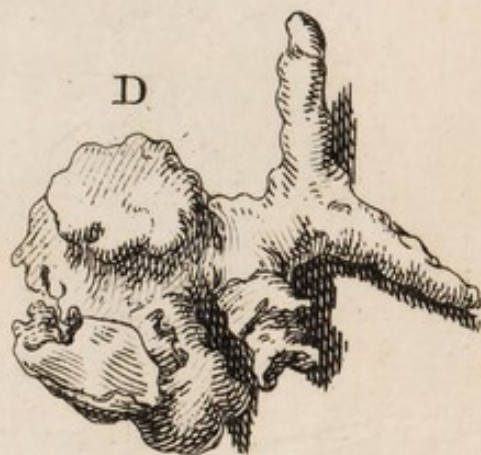
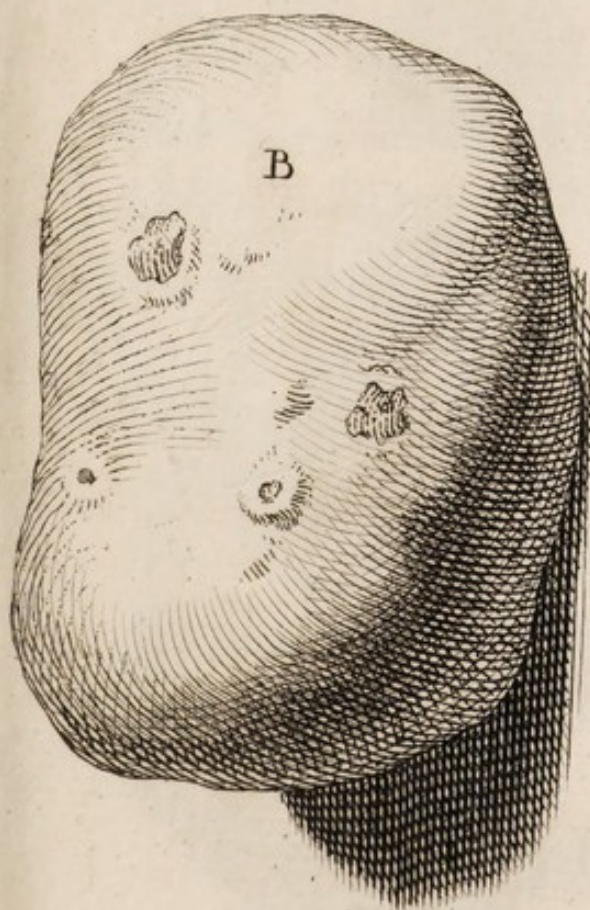
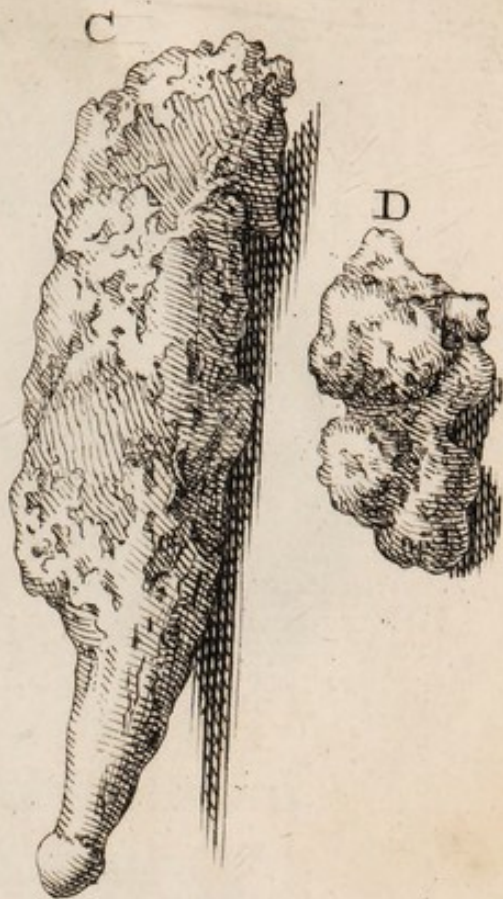
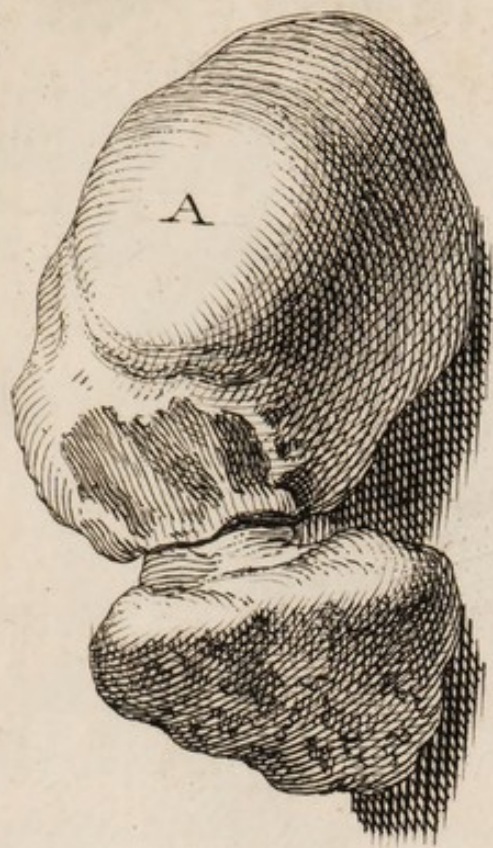
A, **H**ENRY More's stone. Pag. 18.

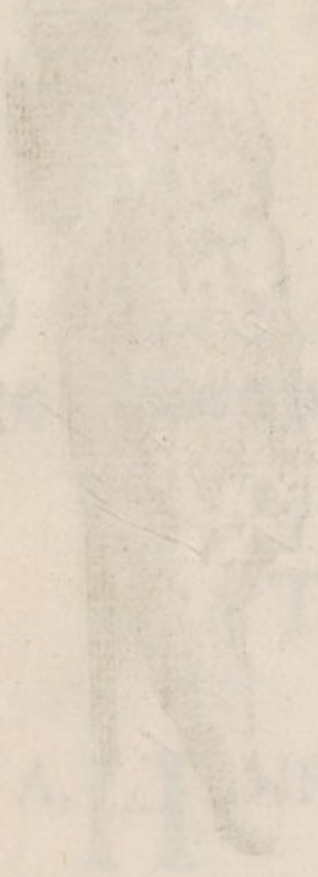
B, Stephen Jennings's stone. Pag. 18.

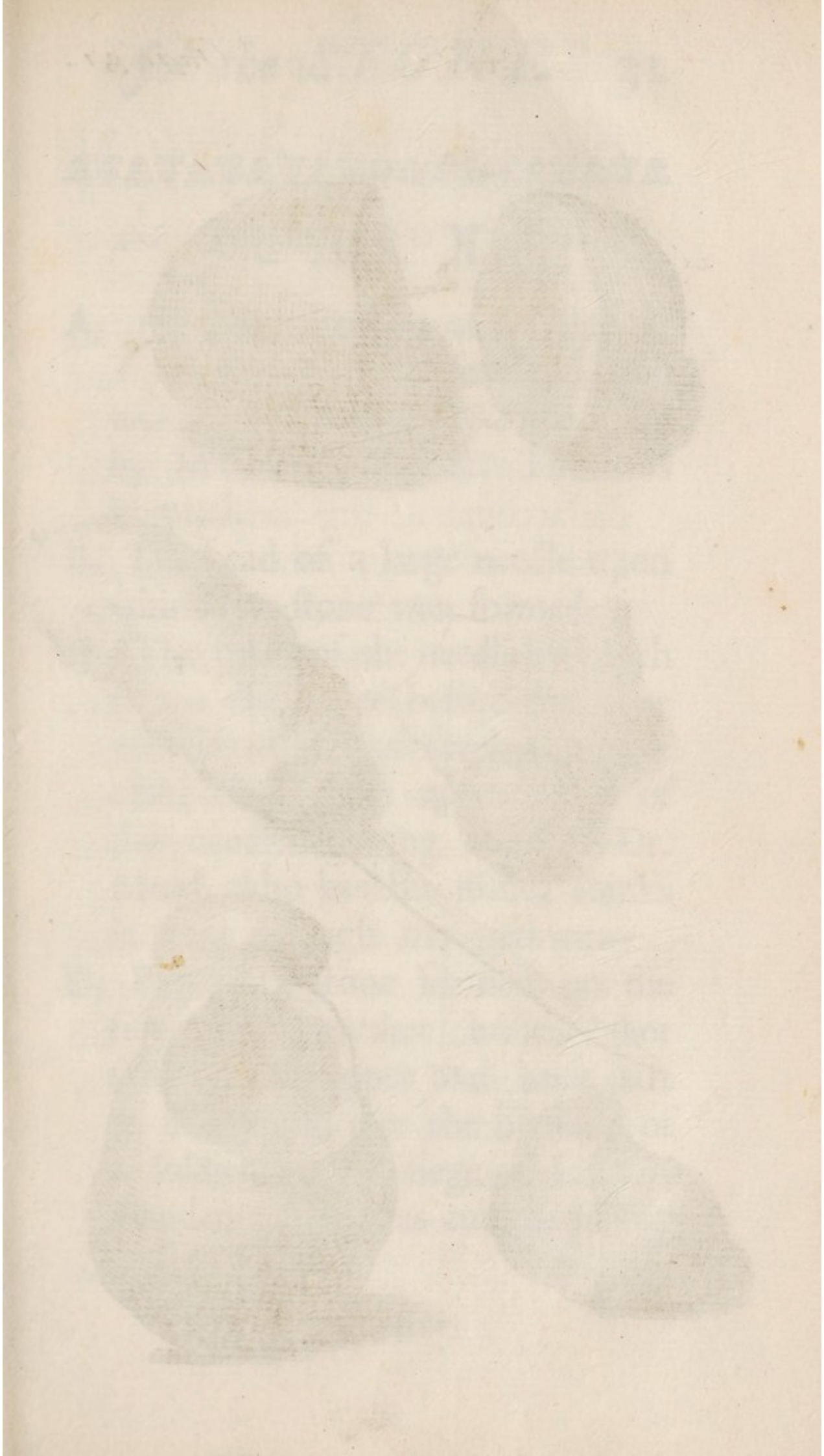
C, The stone found in the right ureter of John Clark. Pag. 17.

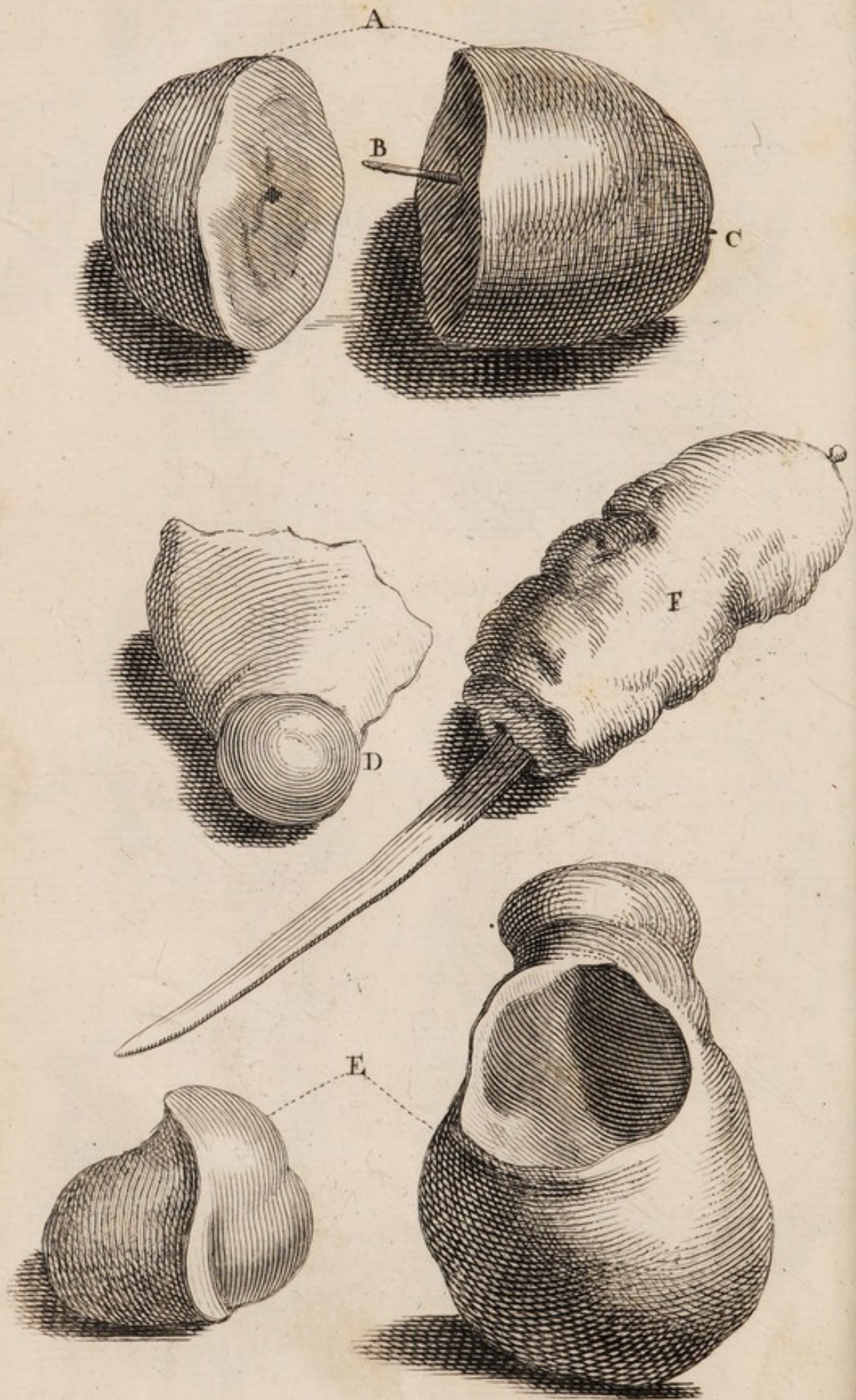
D, D, D, Three of the ten stones found in the right kidney of John Clark. Pag. 17.

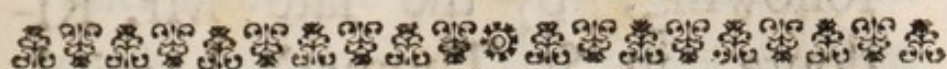
T A B.











T A B. X

- A, **A** stone taken out of the bladder of a boy five years old, who was cut for the stone, and cured by Mr. Ferne, in St. Thomas's hospital.
- B, The head of a large needle upon which the stone was formed.
- C, The point of the needle by which it was discovered before the stone was sawed. The mother of the child could give no account of this needles getting in; but Dr. Mead, who has this stone, thinks it went through the perineum
- D, Part of a stone formed on the side of a musket bullet, shot through the upper and back part of the thigh, into the bladder of a soldier, at the siege of Lisle in Flanders; who was cut the spring follow-

32 *The* HIGH OPERATION

following, by the late Mr. Ridoute, in St. Thomas's hospital. This stone is in the possession of Dr. Mead.

E, Two stones with a polished joint, taken out by Mr. Sturgeon, an eminent surgeon at St. Edmond's Bury in Suffolk, I had formerly the account of this case from Dr. Craske of Bury, who visited the patient; but I choose rather to give it from Mr. Sturgeon's own account.--'My patient had never before any symptoms of the stone; 'he had a total obstruction of urine for ten days before I was sent for: I found a mortification begun on one side of the perineum, 'the same side of the scrotum and 'penis, with all the region of the 'os pubis. I first passed a catheter, 'and finding the stone, I immediately cut through the mortification in perineo without a staff, and

‘ and took out the bigger stone, and
‘ upon observing the joint in the
‘ stone, made a farther search and
‘ took out the other stone, and then
‘ took care of the mortification,
‘ which in time cast off. The urine
‘ came through the wound twenty
‘ days ; and now the patient is in
‘ every respect well.

F, A stone formed upon a bodkin in
a woman’s bladder, communicated
to me by Sir Hans Sloan. She had
put it up the urinary passage to put
back a stone which caused a suppres-
sion of urine, and let it slip into the
bladder ; after she was dead,
it was found with this stone concre-
ted about the end, which lay in the
bladder.



F

Pierre



PIERRE FRANCO'S
High Operation. *Trans-*
lated from his book, enti-
tuled, Traité des Hernies,
&c. Page 139. Prin-
ted at Lyons in the year,
1561.



E reciteray. I will recite
what once happened to
me, intending to extract
a stone from a child of
two years old, or thereabout; in
which having found the stone of
the bigness of a hen's egg, or very
near,

near, I did all I could to bring it down, and finding that I was not able to bring it forward by all my endeavours, the patient being exceedingly tormented, and also the parents desiring that he should die rather than live in such misery ; add to this, that I was not willing to be reproached, with not being able to extract it, (which was great folly in me) I determined, with the importunity of the father, mother, and friends, to cut the said child above the os pubis since the stone would not fall down ; and he was cut above the pubis, a little on one side upon the stone, for I lifted it up with my fingers which were in the anus, and on the other side holding it down, by the hands of a servant, which pressed the belly upon the stone, by which means the stone was extracted, and a little after the patient was cured, (notwithstanding

36 High Operation.

he had been very ill) and the wound healed. However, I do not advise any man to do the like.



A
TREATISE
ON THE
High Operation
FOR THE
STONE.

By FRANCIS ROSSET.

Taken from his Book, Entituled.

ΥΣΤΕΡΟΤΟΜΟΤΟΚΙΑΣ,

(I D E S T)

Cæsarei Partus Assertio Historiologica.

PAG. 236.

Printed at PARIS in the Year 1590.

A
TREATISE

ON THE

High Operation

FOR THE

STONE.

By FRANCIS ROSSET.

London: Printed by J. Baskin, 1784.

TRITOTOMOKIAZ

(10 521)

Certain Parts Affected Histologically.

PAG. 226.

Printed at Paris in the Year 1780.



*The cutting of the uterus,
with the cutting of the
bladder for the Stone,
Analogically compared.*



I Shall (before I come to treat of our new method of cutting for the stone) compare our way of cutting the uterus, (which though it be an operation not often practised, yet it is sometimes a very necessary one) with both ways of cutting for the stone in the bladder, namely, the ancient and modern, both of which are indeed common, but oftentimes not very necessary, and very often mortal. But both ways are more dangerous than ours for many reasons: yet
some

some few persons having done well under this operation give us the greater hopes of the success of ours. For first, in this operation, the uterus is indeed cut, and this is a part in women not much more necessary to every individual, than perhaps every man's scrotum is to him. For I here take no notice of the testicles, which are reckoned by many among the principal parts, nor likewise of the penis, all which the Asiatic eunuchs tho' employed in very hard labours, are very well without. But in the other operation, the bladder (without whose continual service a man cannot live a moment safely) is to be terribly and mischievously wounded. And that this is truth, we learn from Galen, in his book, *De sectione vulvæ*. ' Since
 ' the bladder, says he, grows bigger
 ' in proportion to all the other parts,
 ' it being of equal service to every
 ' age,

‘ age, it not being necessary that
 ‘ the uterus, neither while animals
 ‘ are growing, nor when they are
 ‘ grown old, should perform its of-
 ‘ fice ; neither does it indeed al-
 ‘ ways rightly perform it in the
 ‘ time proper for bringing forth
 ‘ young.’ Thus far Galen. Hence

I suppose it is, that he with Hip-
 pocrates, in the eighteenth aphorism
 of his sixth book, enumerating the
 parts that used not to be cut with-
 out harm, namely, the bladder in
 the first place, the heart, the dia-
 phragm, and other parts, yet he
 makes no mention of the uterus.

Secondly, the uterus being laid
 open to the sight, after an incision
 has been skillfully made in the ab-
 domen of a woman big with child,
 and that is not able to bring forth,
 does immediately so present it self
 to the operator, that he has all the
 opportunity of observing with his

eyes and fingers, and of directing his instrument with his careful hands to the part that is to be cut; and that most plainly, because the uterus is very turgid and distended in a woman in labour.

But the bladder in both the common methods of operation (for we intend to introduce another) lying, the abdomen not being cut, very deep under the os pubis, the urine being discharged by the catheter (as is to be done before the cutting) out of the bladder, the bladder lies much lower and becomes lax, so that it often escapes the perception of the most skilful operator. Whence it happens, that the stone being oftentimes very large, cannot be certainly perceived, either by the searching with the fingers or the catheter, (the folds perhaps of the emptied and contracted bladder interposing) or being perceived, cannot be brought to the
part

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part to be cut, or being brought, cannot be laid hold of, or being laid hold of, cannot be extracted, either by reason of the bigness of the stone, or the narrowness of the incision, though perhaps made as large as the operator could with safety do it; the incision, to wit, being so very narrow, that a person cannot hope to draw out through it the stone or stones; so that the operator must either altogether forbear extracting it, or the wound must be enlarged with no small danger, by resuming the knife, or else not only a great part of the neck of the bladder must be violently stretched by the dilator, but likewise no small part of the membranous body, as we may see in great numbers of bodies, which we daily behold torn after that butcherly manner, a thousand times worse than it is possible to be in all the cutting of the abdomen, peritoneum and uterus.

Thirdly, they that are to cut the bladder there, after the common way, must of necessity cut not only veins, but many arteries, and those not small ones, that are very necessary to the part that is to be cut, and most of the neighbouring parts, but likewise they must cut the fibres of the sphincter of the bladder, as likewise of other muscles and of the perineum, not to mention some other parts of the body, as the genital vessels of men, reaching almost so far and being there liable to be hurt; also the rectum intestinum, which is often troubled with varices, condylomata, and turgid hæmorroides. But he that cuts the uterus, works safely, and without fear of hurting those parts, if what has been sufficiently proved with relation to the veins and arteries, in the second treatise, be not again called into question.

Fourthly,

Fourthly, when by the thrusting in of the hollowed catheter, by the deep wounding with the knife, and by the cruel tearing of the flesh by the dilator, a passage is made, with much ado, into the bladder, obtained by several sorts of instruments, in so dangerous a place, that through it a way may be forcibly made for extracting large, and oftentimes very many stones; what great difficulty, what great pain, what new danger is it found to be, carefully to lay hold of (as it becomes one so to do) those stones wandring in their mines, and oftentimes baffling and envading the uncus and forceps, gently to move them, to turn them in a proper manner, and safely to extract them?


But that, you may object, will happen take what care you can. I grant that, most kind reader, to be true, and I own it ought to be forgiven,

given, if it be not well done, with all that to do, since they think it cannot be better done, what must be done some how or other. Truly the searching for the stone by instruments, has hitherto been attended with no small difficulty, and less secure hopes, neither can it possibly be otherwise, for it uses to have many more pains attending it, and those more cruel and severe than the first, so that it often happens, that not a small part of the bladder being laid hold of by one instrument or other, with the stone, is torn, and so plainly known to be drawn out with the stone, that it could be evidently proved, that the death of the patient has been the necessary consequence of it. But these operators, to evade the accusation of this their ill management, feign a story of I know not what skin that covers the growing stones.

It



*It is a crafty device to say,
that the stones in the
bladder are covered with
skins.*


 U T of what, or how, I beseech
 you could such coats grow in
 the wide cavity of the bladder,
 as they pretend, could it be by the
 accretion of the pituitous matter co-
 ming thither with the urine? but
 that I suppose no body will grant,
 although stones may arise and grow
 from thence, nature ceasing to per-
 form her operations in a regular man-
 ner. For as the pituita comes with
 the urine, and is thoroughly mixed
 with it, within the bladder; so also
 being mixed flows out with it, al-
 though

though after the making water, it subsides apart, neither is there sufficient time enough for the turning it into a skin, or for the skins concretion together with the bladder and stone, as happens in many other places, sometimes in the very uterus itself, as Hippocrates says, Epid. 5. In which places stones are sometimes produced, from a glutinous or binding humour, subsiding there a long time, and at length fixt, but never from a floating one, and quickly passing, as is hourly done through the bladder. Besides, who ever wrote, or saw, or can imagine any membranous thing to be produced from that pituita, which always hinders consolidations, not to mention assimilations and concorporations, it preventing likewise cicatrices, and much more the formation and generation of membranes, for which a desiccation is required? I desire to know
where

where will be the origin or beginning of the membrane that covers, or is to cover the stones. It is either at the stone or at the bladder; if that basis or beginning be at the stone, growing big after the manner of an additional bark, how will it not prevent the growing of the stones, to which it adheres, and which it encompasses on every side? when it is plain, that the stones do grow. For the basis will lye in the middle, between the stones and the pituitous matter, that is the cause of their growing.

But who will be so trifling as to say, that a membrane is formed from a stone, or that any coat can arise from it? But if the basis of the membrane, that covers the stone, arises from the bladder it self, how will it be possible, that any stone can be covered with the cloathing of its membrane,

H

brane,

brane that is still growing and very small ? But as small and middle-sized membranes could not contain a large stone, so they would not let a small one grow bigger.

In like manner, the same middle-sized and great membranes being produced from the body of the vesica would contain, I warrant you, a growing stone within it self, whose substance is determined to be a pituitous and binding humor, which unless it be combined to the stone just begun, it cannot grow, for those very coats that cover the stone would hinder the combination. But whoever talkt of any great membrane at the beginning, that is so large as is fancied to cover great stones ? Besides, if the membrane was large before the entrance of the stone into it, how would it easily be broke, that opening it might receive a large stone ? But again, supposing according

According to the dreaming notions of some people, the membrane has received the stone, how will it close again, that it should enclose it within it self, and if it does entirely enclose it, how will they afterwards make it out that it is not prejudicial to the parts adjacent? they will perhaps reply, that those membranes are formed of the pituita. That is pretty talk indeed.

For who would ever say, that those membranes commonly appearing so solid, that they are not unlike vesicular substances, and that they cannot be burst and worn away by the stones, could be produced and bred from that meerly excrementitious matter: if it be true that all things resemble and are like the principles from whence they spring and rise.

For if it does not seem that any of these membranes which those impostors (with the leave of the honest

and skillful operators be it spoken) put upon us, is different from the solid body and substance of those bladders that are found in the bodies of them that are newly dead, and such a substance (to wit, as the spermatick) no physician will allow to be bred from meer excrements, since from them alone flaccid and insensible hypersarcoses cannot be made, unless there happen to be at the same time an afflux of kind aliment, and that is prepared for assimilation : how much less then shall such solid bodies of membranes, as they call them, be made up from them, and that do so closely adhere to the bladder, that they cannot be parted, but the bladder and life and all must be drawn away together. Besides, what need would there be of cutting the bladder, if the stone were invested with a membrane? for the membrane,
by

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by its soft smoothness, would prevent the stones sticking and rubbing against the bladder, and consequently would abate the pain, which nevertheless is then intolerable, as is plainly evident from this alone, that it forces the unhappy persons who are thus afflicted, to run, in spite of their teeth, upon this hazardous way of cutting. But this one thing particularly (they themselves being judges) is a plain proof of its being a lye, by which they excuse their killing of mankind. For every stone which they extract uses, before they extract it, to be perceived by the sounding noise the catheter makes on the stone: For if that be not heard, they never attempt the extracting it. But no stone invested with a membrane can be perceived by that sounding noise of the catheter against it, for the membrane intervening hinders it. Therefore no stone invested with a mem-

membrane is ever extracted by them, whatever they may prate to the contrary : but I shall leave this their excuse with them ; granting, they will have it so, that there are sometimes such coats to be found in the bladder, as they falsely devise, which arm or cover the stones.

From this, that in their opinion this operation is not only very difficult, but likewise mortal, there arises a greater proof and defence of our allegorical proposition. For here the stone, according to their hypothesis or supposition being concorporated with the vesica, cannot be extracted, unless very mischievously with the vesica it self, or a great part of it. But our uterus being cut by a line not yet finished, but only begun in the middle of the incision marked out for the eye, of its own accord immediately thrusts out the foetus, not only if it be already dead, being as-

sisted

lifted by the hand, but much more briskly, if it be yet alive, it naturally wanting and struggling for air, and endeavouring to get out, which way soever it can: as soon as this is done, the uterus begins immediately to close it self, so that that there is no need of any stitching, and hardly of any external help. But to return to the point.

Fifthly, It is then manifest, as well from the membranous pus in the urine of live persons troubled with the stone, as from the sight of their bladders when dead, that their bladders are seldom free from ulcers occasioned by the stones being grown larger; and oftentimes from its being rough, unequal, sharp pointed or prickly: and however the patients might be free from ulcers before their being cut, it must needs be that they will have them afterwards, and in that very place, into which, besides
the

the pus of the affected part ; the sink of the whole body is brought down as into a common shore : the miserable and every where frequent complaint (of many persons that have been cut for the stone) of the continual dripping of the urine through the perinæum, do sufficiently demonstrate how hard those ulcers are to be cured, by reason of that great quantity of filth continually washing that part : so that I hope no body will hereafter upbraid me with the hernias of my patients who have undergone the cæsarean operation, a slight misfortune indeed, in comparison of the calamity of ulcers, and if not avoidable, yet tolerable. But the uterus of those who undergo the cæsarean operation being sound and strong as to its internal situation, cannot receive from the parts placed above the incision, with respect to its lower situation, any flux of excrements into that

High Operation. 57

that part of it self, where the incision has been made, and is now hastening to a closure ; yea rather it is naturally ready to throw out quickly, easily, and safely, that filth that would issue from the wounded part, which is hurtful to ulcers ; by the way of the pudenda of a childbed-woman which is near, downward, and under the uterus, and at that time very much enlarged.

Sixthly, since it is most certain, that the uteri of women in travel, being cut prudently, and in due time, all things in their following teemings prove safe, unless something else hinders after the cutting ; but it happens very often to persons once cut for the stone, that not only the perinæum not admitting a coalition, for the above-mentioned reasons, that the urine runs disagreeably through it all their life-time, but likewise the sphincter

I of

of the bladder (whose office is by its contraction, to prevent the involuntary effusion of urine) being torn, cut, broke, and not restored to its former state, and for that reason scarce ever able to perform its office, there is caused a most troublesome and involuntary effusion of the urine through the penis: our new method of cutting ought therefore, without any manner of doubt, to be esteemed by every body, both more easy and safe, not to say by far more serviceable and more necessary, than that ancient method of cutting for the stone in the bladder, practised by so many very learned surgeons (which way was so dangerous, that Hippocrates himself, the greatest of surgeons, was afraid to attempt it) especially since this operation is never ordered for persons in labour, unless the life of the mother and foetus is in danger, and that

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that they are not like to be delivered otherwise, but the cutting for the stone may be deferred for a very long time, and oftentimes entirely let alone; and that in many instances, with no great inconvenience to the health of those who refuse it. For there are some who have undergone the operation, more from the uneasiness of suffering some small matter of pain, or from the fear, rather of a little constant trouble, than driven thereto by necessity, although it is called a miserable torment; and is really so to some. I have known persons that have been troubled with the stone for above thirty years, and more (as appeared from the pathognomonic signs) who happened to live pretty easy, and dying of some other distemper, being opened, had large stones found in their bladder. Yet there are some persons among them, who being

but slightly troubled with that distemper, and others being frightened from some slight fear of the distempers encreasing upon them, venture to undergo that torture, as appears from the fatal and common instances in every rank, sex and age. This perhaps was the reason, that Hippocrates (as he has wrote, Aphor. 1 8. lib. 6.) despairing that, the bladder once being wounded, could be healed, did neither undertake himself to cut persons for the cure of the stone (being afraid of his reputation in so hazardous an operation, leaving that work willingly to its practitioners, being himself modestly content to mind the business of his own profession) neither did he suffer his scholars to perform that operation, they being obliged by a solemn oath to the contrary, although after him some famous surgeons and physicians attempted it, having also pub-

published books to that purpose, from whose writings have been taken what Celsus, called the Latin Hippocrates, and Ægineta, as also others who followed them, have wrote concerning this operation; but then it was very poorly, as appears from thence, that they would not have the cure so much as attempted under nine years, and above fourteen, when now it is performed at three years and under, and at above seventy. But I have referred speaking of the so short a space of time allowed by Celsus for the operation, and his reason for it, and judgment of it, to the end of this discourse.





Stones may more easily and safely be extracted out of the bladder, by the section of the lower part of the abdomen, than by laying open the perineum, to which are subjoined three histories relating to this subject.



HERE have been two methods of cutting for the stone hitherto made use of. The old one of Celsus and the antients, which is also the same with that of Guido and the moderns, and the new one of Marianus Barolitanus, the latter operation is performed upon persons of any age, the former used of old to be performed

formed only on persons between nine and fourteen ; but afterwards it was practised upon persons of other ages. A new method was therefore found out, both because it seemed to be a very lamentable thing, that all persons afflicted with the stone, before the ninth, and after the fourteenth year, should be left as incurable ; and likewise because this method was believed to be easier and safer than the former. But the cutting in both these ways was in the same place, to wit, in the perinæum. But in the method that we propose, the cutting is to be in another place, which we shall show to be far easier and safer. Being moved then by so many and weighty reasons that I had, to dread both these terrible methods of cutting for the stone, and pitying on one side the deadly tortures of those that were cut either way, and on the other side, the perpetual

petual anxieties of those persons, who ought to be cut, but are deterred from trying the operation, as the fox was from visiting the lion, by seeing the tracks of abundance of feet towards the Lythotomists, but a few back again. I have very often thought of some other gentler method of cutting for the stone. For certainly it is lawful to make use of divers remedies against any one distemper, provided it be in common attempted by the easiest and safest that can be. And if that old method of Celsus and Guido has been changed for that of Marianus, why should not that method also be changed, as I hope, for a better?


Having then, after some time, tried the truth of this Cæsarean section, and an indication being taken from the parts on both sides, that are to be cut, I long ago conjectured,

red, that the cutting for the stone might be successfully performed through the abdomen. But the novelty of the operation, and the licentious prating of some impudent fellows, put a stop to my undertaking any thing of that kind.





THE FIRST
HISTORY.

N the mean time, I luckily met with a treatise of one Peter Franco of Hernias, written in French, in which that famous rupture-curer had wrote a remarkable history of a child of two years old, who was cured of the stone, by cutting into the bladder through the hypogastrium, near the os pubis, the child's parents begging him to try this way, because in the other way the operator had had no success, though he had made use of all ways to no purpose to bring the stone down to the perinæum.

But

High Operation. 67

But I cannot forbear very much wondering, why he should afterwards discourage others from attempting the like operation. Does that good man envy mankind the happiness of the invention (although accidental and forced upon him) or is he afraid it will lessen his own and collegiates gains? or does he dread their branding him with some mark of infamy, or their expelling him their fraternity and company, as if he had disgraced the rest of his brethren, by out-doing them? for what shall hereafter prevent that operation's being again successful, which has already been experienced to have been so? and why should not that operation be successful, where the patient has good strength, which has been known to have been so, where the patient was a little infant, almost dead, his strength being worn out, having been miserably tormented,

ted, all other methods being tried upon him before to no purpose? I suppose the reason of his dissuading from the operation was, because the child was ill after the cutting; but if the child had not been very ill before that, the operation would never have been undertaken. In the mean time, as it is impossible to think that he should not be ill, so it is much more to be wondered at, that he was not worse, considering he was but two years old, being worn with constant pain, and but just before fatigued by the operators thrusting his big fingers into the tender anus of the sick child, and by compressing the hypogastrium with his fist, as is the custom in the old operation: all which things, rather than the hypogastrick section must very much disorder him, and it is a wonder they did not occasion his death.

The



T H E S E C O N D

H I S T O R Y.



UT least any one should object that we ought not to depend upon one experiment alone, and that made perhaps by a person of no great note, in so dangerous a matter, and which equally concerns persons of all ranks and degrees, he may please to take notice, that that operation which Franco lately practiced with good success, had been long before successfully performed (as some people thought) in the most famous school of the world, that of the Paris physicians, and that by the order of the king and parliament, and

and in so solemn and publick a manner, that it was recorded among the publick transactions by Monstrelet, the most famous French historian of his time.

But I shall at more leisure examine in a short and clear problem at the end of this work, what is the true meaning of this story, and what may with good probability be said of it on both sides, and afterwards what I now think ought certainly to be determined of it, and why that operation was (as was some time thought by others as well as my self) begun and finished in the lower belly.

The physicians of Paris understanding that a French archer of Mudon, who was condemned to die for robbing, was afflicted with the stone, they obtained him alive of the king and parliament, that they might, in opening him for the publick good, make

make tryal of a new (as it is reasonable to believe) both gentler and safer way of extracting the stone than before: they having got of the king (if he out-lived the operation) his pardon, and a good reward was promised him for his enduring it by the school. Accordingly the operation being performed, and his intestines, as the historian expresses it, being re-placed, the wound sowed up, and he cured, got both his life, and the reward for his pains. This must be some remarkable rarity, that the historian should think it worth recording. And Pareus likewise in his 24th book, de monstis, makes mention of this operation as a miracle, which yet hath nothing at all wonderful in it, as we shall afterwards show. Being content then with this case of Franco's, I come now to give reasons not inferiour to any cases whatever, by which their belief, and the

the stress of the authorities on which they rely will be overthrown, who obstinately deny, that the stone in the bladder can be extracted by the way which we have pitched upon.

An answer to some objections made against the method of cutting for the stone in the hypogastrick region.

They object, that the place of incision in the hypogastrium, although you go as low as possible, is far distant from the neck of the bladder, near which the stone lies, and from whence it cannot be brought up to the upper part of the wound externally made, so that the stone can be extracted out of it lying open. But if the incision be wide enough to admit the fingers of either hand, or a proper forceps adapted to that purpose through it, that they may feel and lay hold of the stone, applying
ing

ing the fingers of the other hand to the anus, the stone will be brought up to the very incision, when it will be easily extracted through it, especially if the bladder before cutting, being filled with water, be raised above the pubis, as will afterwards be shown. The other objection that is raised, is, that granting the former, that having made an incision in the hypogastrium, wherever I please, it cannot possibly reach to open the neck and sphincter of the bladder, where alone an incision can be safely made. And to prove this, they quote the authority of Hippocrates, from the eighth Aphorism of his sixth book. But after I have answered the latter objection, I shall proceed to answer the former, telling the reasons, way and method, by which we hope to effect what we design.



The bladder may be wounded in the membranous part without harm.



OR there are many (among them Galen) who endeavour to make an excuse for Hippocrates, to those who cut for the stone in the bladder, upon the account of his judging, that the bladder being cut, cannot be healed ; when they themselves see it frequently divided by the Lithotomists, which he himself ought not to have been ignorant of, since he freely allowed that operation to be undertaken in his own time by the skilful. For the followers of Hippocrates say, that their master understood it of the membranous, nervous (as Galen

nies it concerning the brain, and in another place of the book de locis in homine, concerning the membranes of the brain. But it is plain from the testimony of Galen, that not only in the substance of both the membranes of the brain, which without doubt are membranous and spermatic, but also in the collection of the parenchyma of the brain, from whence a great quantity of sperma flows (as the same author has it in another place) that when no small part of its substance was both wounded and taken away, both in Smyrna of Jonia, under his master Pelops, as also else-where, yet the wounded out-lived it. But Galen writes, cap. 6. l. 8. de usu partium, that the wound of the Smyranean youth penetrated to the second ventricle of the brain, which had been both seen and written not long ago, both by Fallopius and

Galen says some where) and the spermatic part, and which, for that reason, cannot be united, Aphor. 18. l. 6. and not of that part which is divided by them at the neck of the bladder in extracting the stone, which is entirely fleshy and muscular. Aristotle says the same thing after Hippocrates, and also Cornelius Celsus, l. 7. c. 26. The bladder, says he, being wounded, causes distentions of the nerves, and danger of death. But although we grant that Hippocrates meant only the membranous part, yet that Aphorism is not universally, absolutely, and always true. Let it therefore be permitted us to make up the agreement with the venerable manes of divine Hippocrates, after the judgment even of Galen, who was his myſtagogus, for in that Aphorism, wherein Hippocrates denies it, concerning the bladder, he himself denies

Valeriola, and has been often observed and wondered at in the late wars at the sieges of Rupella, by several famous surgeons, who dressed those wounds when they were growing well. Besides whom, there are several witnesses now alive, not only the persons so wounded, but the chief of the captains and officers that visited those soldiers. And the same case was very well known to me above twenty years ago, in James Furneir, one of the king's messengers, who was so wounded; and in my presence and ordering, was cured by the care of Compagnetus Turreus, having lost part of the brain under the os bregmatis, about the bigness of a nutmeg. And I was going to say the same not only of the veins and arteries, since they seem to be either membranous, or not much unlike membranous bodies, and also spermatic, but al-

so of the tunic of the peritoneum, which is reckoned by Galen in his 7th book *de anatomicis administrat.* perfectly membranous, not to take notice of the periostia, and of the bones themselves, which the same author says, cannot be closed again, making use of this expression [*ἐξ ἑομ-φύεται*, i. e. are not united] of which parts, this tunic of the peritoneum, used to be closed by the gastroraphy, or belly-suture of the antients, in the curing of Hernias, although it be feminal, as *Ægineta* and *Celsus* tell us, was usually done.

But of those two, the artery and the vein being cut by the bleeder, near the skin, the artery is indeed often, though with some difficulty, (by reason of its swift motion, and the impetuosity of the thin blood) closed again, but the vein is very often, not to say always closed again, and that very easily, to wit,
only

only by the application of a liniment. But I foresee, that in all those cases, it will be objected, that neither a closing of the peritoneum is done by its own power alone, but by the help of the flesh of the muscles, and the cutis epigastrica, neither is the closing of the arteries and veins caused by any thing peculiar to themselves, but by the assistance of the cutis lying over them, and re-uniting. Which objection is of no force, since the vein has its cicatrix not in common with the cutis, but separate from it, as one may see in fat, or very fleshy persons, who have their veins cut and closed again far distant from the cutis. It is likewise well known, that the tunics of the eyes being divided, (especially the cornea) as being spermatic, is healed by a cicatricious union, although its natural tension, and its extrusion from the hu-

humours that lie under it, may seem to oppose its union, which tension, notwithstanding its being contrary to the union of the sides, is not in the wounded membranous part of the bladder, now freed from urine and the stone; in such a manner, that growing flabby by reason of that vacuity, it immediately returns to it self, and will soon naturally coalesce, just after the same manner as the uterus does, after its being cut: whence it follows, that the lips of the wound meeting together do naturally unite.

What then should hinder a wounds healing in that place? especially since the bladder is not merely membranous in animals, much less nervous (as most people, and with them Galen generally judge) as it then seems to us, when it is taken out of dead hogs and oxen, and having been some time pretty well beat against

gainst a smooth stone, then blown up and dried, becomes a fine plaything for boys, or else is dried by the apothecaries to hold ointments instead of bottles; and is made use of by them, as formerly in Greece, so now in England, to hold clysters. But the bladder lies within a living or dead body, so much more close and compact, like a kind of flesh, as being taken out of the body, and having been beat, blown up, and dried, and drained of all its natural moistness and mucus, even till it becomes perspicuous. But we must not say, that either the bladder (or the uterus) is without flesh, and so consequently cannot be united, since we learn from Galen, in his treatise de methodo, that there is more than one sort of flesh. For some sorts of flesh are parenchymatic, some either fibrous or membranous, others musculous,

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and these are most properly and strictly called flesh. Hence it is, that the same person, in his seventh book *de anatomicis administrationibus*, boldly pronounces, that there is not one and the same substance and colour in those sorts of flesh, for that flesh which is musculous, is softer and redder, says he, than the flesh of the ventriculus, uterus, bladder, and intestines.

But neither does that always hold which the same Hippocrates, in the same Aphorism, does in general pronounce, that the small guts being once cut do never close again. For as to what he says concerning the labrum, and the præputium, in the following Aphorism, is now so well known to be quite otherwise, that it is beyond contradiction. But the officious interpretation of Galen upon that place of Hippocrates, which may seem at first sight to be

against us, will appear to be for us, in opposition to the persons, who deny that the spermatic parts can be consolidated, while they in such a manner allow that that union is difficultly and rarely made there, and then only by accident, yet at the same time they cannot deny, but that it may be done. But his reason, or the reason of it is this, when a wound is there, medicines either cannot, or but with great inconvenience, be administered there.

But I believe Galen will readily grant, that the most internal parts are oftentimes more easily cured by nature alone, without any application of medicines, than the external parts by medicines, where the air often prevents their success: as appears by the instance alledged in the chapter of a wound in the uterus compared with that in the stomach.

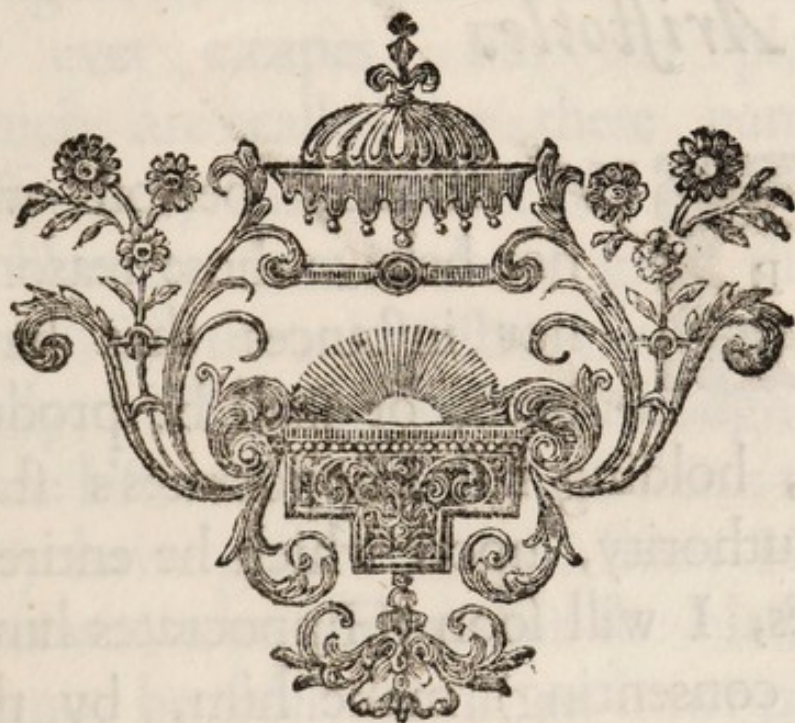
Hence it is, that we see not only the great guts are indeed more fleshy, and fitter to receive medicines by clysters, but likewise the small guts, (although Hippocrates does in the same place deny this) though they be more membranous, and very much hid are commonly healed, which we sometimes find to have been wounded only by the excrements, and after the excrements are voided, if the wounds lie hid, they may for the most part be seen by the naked eye, if the wound be pretty large, and the orifice be dilated. But in the curing of these wounds, art assisting nature endeavours to procure a small quantity of food, that has good juices, and is very soft and medicinal, least if there should be too great quantity of food, and that hard, it should dilate the lips of the wound in its passage, or having bad juices, should make it worse. But all these things

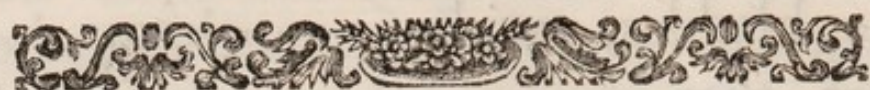
things will succeed better in the vesica, than in the intestine. For in the first place, only the thinner excrements are carried to the bladder, namely the urine, which will not be much if the patient drink but little, as the Lithotomists order their patients. The urine likewise will not be sharp or corroding, if so be things sweet, or productive of good juices, have been taken, and if the patient being cut, hath been purged before hand, as is usual, and especially if he were healthful when he underwent the operation. Secondly, the colour and smell of the urine shows the medicinal power of what is to be taken for the wound caused by the incision of the vesica, in those persons who take Rhubarb and Turpentine for other diseases of the urinal parts, which are very good for this complaint, as likewise for other ulcers. To which we may add, that
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the medicine may easily be so far injected by the catheter through the penis, without loosing any thing of its virtue, as it may be by clysters into the farthest parts of the crassa intestina ; besides the urinary excrements will not fall into the upper part of the bladder that is cut, but into the lower, which is then well and not hurt, whence they may be continually evacuated without any harm, as the patient pleases, because then the sphincter muscle, which hinders any urine passing against ones will, will as we here affirm, receive no damage. I knowingly pass by the easy retention of the tube in the penis, if the urine should happen not to pass well, which the common Lithotomists are wont often to make use of, before the closing of the wound. Hence it seems possible, that an incision may be
safe.

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safely made in the inner part of the bladder, without touching the part that receives the ureters, and this both reason persuades, and experience confirms.





*A definitive explication of
an Aphorism of Hippo-
crates from himself and
Aristotle.*



UT if any person will not believe those reasons, nor instances that have been, or shall be produced, holding fast Hippocrates's staff of authority, upon which he entirely relies, I will soon (Hippocrates himself consenting) make him, by the assistance of Aristotle, quit his hold. But it is best to hear himself explaining his own meaning.

Wounds, says he, (in the second prorrhetic) are in the first place more fatal, that are made upon the large
five-

vessels, in the neck, and in the groins.

Secondly, those that are made upon the brain and liver.

Thirdly, those that are made upon the intestines and the bladder. The wounds in all these places are very dangerous, but not so, that no body ever escapes. For the places which are called by these names, differ very much from one another, so likewise there is also a great difference in the very structure of the body. Thus far he. Although in these last words, they may think that they have good warrant from Hippocrates, who affirm, that the bladder cannot be safely cut in its inner part. Yet Aristotle, in the 15th chap. de historia animalium, hath restrained, what Hippocrates hath pronounced without any restriction of the fatal wounding of the bladder, to its membranous part, as is commonly done. But he seems

afterwards to go farther, either according to his opinion, or from his own experience, when he says, the bladder being cut, is not closed, unless it be at the very beginning of its neck, although I am not ignorant that its wound has sometimes grown callous. But away with these little objections, fetched from pieces of authors, and their doubtful refutations from books, since we have ocular demonstration for the proof of it. To which purpose we shall produce some histories, least we should too easily acquiesce in Monstreletus's history, of which we have not yet sufficient proof, or Franco's, which being but one single instance, cannot sufficiently prove it.





THE FIRST
HISTORY

Of the bladder being wounded in the membranous part without hurt.



THE famous Paræus, and that learned phyfician and furgeon, Francis Raffius, are fubftantial witneffes, having feen the fact, which hiftory I likewife heard as from many other people, fo particularly from the furgeon that was made ufe of; I have here faithfully tranfcribed it out of his written journal. I had indeed alfo heard the fame from the patient's own mouth; but to fpeak the truth, was

not sufficiently persuaded of it. For in cases of this nature, I do not easily suffer my self to be imposed upon.

A citizen of Orleans, on the tenth of February, A. D. 1560. was wounded in the belly with a broad dagger, a little below the navel. His urine for nineteen days and nights issuing through the wound alone, and by no other way at all, was a certain sign that the vesica was wounded; but when pure urine issued from that part less bloody, and less fibrous, it was justly conjectured to dribble down. Besides, the seat of the wound being pretty high, did of course signify, that that vessel had been wounded in its upper part, where indeed it seems to be least fleshy. Florentius Philippus, a skilful surgeon, having thrust a silver catheter thro' the urethra, easily brought off the urine, and very quickly cured the wound.

THE



THE SECOND HISTORY.



Shall here subjoin this history, because it favours the cutting of the bladder above its neck, and at the same time makes for the extracting of the stone through the hypogastrium. Catharine Biard, the widow of Mathurine Serre master of the hospital, called les verds galands, in the suburbs of Blois, called Burgneuf, being about sixty years of age, who for about twenty years used to go to stool with such pain and difficulty, that she was often constive for a month together; neither was she any whit benefited by medicines

dicines taken by the mouth ; but only by the help of clysters, she with her stools voided through the anus real stones as big as a filberd or walnut. After some time, she swelling with a large tumour, and harder than what is occasioned by an ascites or timpany, in appearance almost schirrous, she wondered to find a lumpish weight fall down through her pudenda ; for which complaint, it being taken for a bearing down of the uterus, when the phyfician had ordered those things that are usual for this distemper, and all to no purpose, having called to his assistance Carlomagnus, and James Bellay surgeons, they all agreed, that that thick weight, being of a ruddy colour, and like flesh, being bigger than ones two fists, and unequally hard ; and while they were examining it, making a clashing noise, was the inward body of the vesica filled

led with stones, and pressed down thither by the weight of the stones, the membranes by which it is fastned to the pubis, being loosed by that weight, and a good part of the neck of the uterus brought along with it. The distemper and its seat being thus found out, having made an incision large enough in the body of the vesica hanging down, they extracted eleven stones, all of them of a triangular form, some of which were as big as small hand-balls, others as big as large and middle-sized chesnuts, with a great deal of gravel; all which I saw and handled, so the vesica with the uterus being removed from the place where it had lain a whole month, was reduced to its natural place. But upon her rising up, it relapsed, by reason that the ligaments being now used to be relaxed, and to fall downwards from the accustomed pressure of the very hard stools. But

But yet in this condition she was able readily to manage her domestick affairs for above five years afterwards, her belly being supported by a swathe made for that purpose.

Two remarkable things to be taken notice of in this history.

Here reader you see, that long before the falling down of the vesica, that the stones used to pass out of its wounded body into the rectum intestinum, which were afterwards ejected together with the excrements. And that after its falling down, the same inward body was cut in the forepart, so that eleven stones were taken out of its orifice, which I had in my hands a good while. Now consider with me. If we can do this in the vesica, and even when its inward part hangs quite out, what may we not hope for, when the vesica is not hurt, after a skilful

ful section of it in the hypogastrium, or when the uterus is not hurt after the Cæsarean section.

The third case from John Centiman, a german physician, in his eleventh history of humane stones. In the year 1558, Conrade a Bernhein a Trooper in the expedition of Philip king of Spain, against Henry the second king of France, was wounded by his fellow soldier with a bullet, which recoiling against his pouch made of a plate of steal, and full of gunpowder and ball, near the abdomen, and within a hands breadth of the navel, entring into his body and wounding the vesica, remained there; its force being before broke by its striking against the steel pouch, he must needs be wounded in the lower belly near the os pubis, even if he had been pot-bellied. Being carried thence to Leipstick to the Surgeons almost dead, and being by them given over

because in searhing and binding him they found the vesica to be very much wounded, (according to the prognostick of Hippocrates l. 6. Aphor. 18.) he had a mind to be carried to Torga to his own home, where he began to be cured by that very learned phyfician Centimane, calling in to his assistance Leonard Wolcias a furgeon, who having opened the wound, and perceiv- ing the danger, as the other furgeons had done, refused to attend him. But being prevailed upon by the intreaties of the patient, and the compassionate phyfician he carefully binds up the wound (which I suppose ought to be done by what they call the dry future) but a certain glutinous matter, mixing with the urine that flowed that way, adhered to the cutaneous and fleshy substance, which (as their custom is) after the late blow had been cauterized, contused, and so suppurated round the edges of the wound
which

which of course would happen, the pituitous matter not only causing gravel, and that gravel abiding there, but likewise the pus, and also some part of the wounded bladder with the urine that is emitted thro' the wound, being retained there, and concreted with the new flesh. But the corruption being taken away about five weeks after the wound was received, and the largeness of the wound decreasing, a sand stone was taken out of the wound by an instrument, and it was invested with a sort as it were of burnt skin being about the breadth of one finger, and the thickness of two straws. The stone being taken out, the wound dilated and cleansed from filth, gravel, viscosity, corrupted blood, and from whatever else that remained, which had entered with the bullet, and was corroded by the acrimony of the urine, and which had for a long time stopt up the natural

orifice of the bladder, the wound through which the urine (which I would here have particularly observed) had passed for twelve weeks, was at length intirely cured, and that in so short a time, considering the nature and time of the wound, and of the parts wounded, and so perfectly, that he found no inconvenience either in walking, riding on horse-back, or in a coach; and having Married some-time after, he continued always very well.

Another thing that deserves to be taken notice of in the dead bodies of persons cut for the stone, and which is as good a proof as a history.

I shall here mention what I remember, I once observed, and what I have heard upon enquiry from several learned men (among whom one was a famous professed lithotomist in this city) unanimously affirming that they had dissected several
bodies,

bodies, not only of young men, who had been cut in their infancy, but likewise of grown persons, who had been cut in their youth, in which bodies the mark of the cicatrix that was grown over in the vesica that had been cut a long time before, was plainly seen to reach as far as to the membranous part of the inner vesica. Neither is it to be wondered at. For how is it credible that such great stones can be brought out of such small parts of bladders, as we with admiration behold to be there heaped together, without cutting or tearing of no small part of the inner vesica? whose neck alone one would think is not capable of having so great an orifice made in it, as is necessarily required for the passage of a great stone, unless a good part of its membranous body be before cut with it.

Another reason to prove the safety of cutting at the hypogastrium in the
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operation for the stone, against those persons who are fearful of cutting the membranous part of the vesica, granting them that it ought not to be hurt, and also proving that the membranous body of the vesica is never wounded in that operation.

But now being compleatly armed, and provided with their own weapons, I enter the lists against them, making large concessions of what I just before stiffly denyed them. Namely that the vesica can be safely cut only in its fleshy part, and then only at the beginning of its neck. Which if I should say is done in this hypogastric section, I fore-see they will say I tell them some new thing : but I think I am certainly in the right.

I here then lay down two things, and those very true ones. The first is that the hypograstric section (when the vesica shall have been raised above the os pubis after the manner that we

shall shew) is not to be made in its very internal and membranous, part to wit, in its fundus ; but in a part as near to its neck (upward and forward, towards the pubis) as used long ago to be done through the peritonæum, downwards, backwards, and toward the intestines, so that the main body of the peritonæum is left untouched by us (which no body ever knew before) which main body is notwithstanding wounded in both their ways of cutting through the perinæum. Neither can it possibly be otherwise, but that part of the peritonæum being brought down must be cut and torn by them, if the section be made very deep : which again, if it be not made deep, then harm is done to the sphincter of the bladder, and that harm is so great, that although the wound do close in some persons ; yet a great and hard cicatrix being caused, it prevents the close shutting

shutting of the sphincter, and so causes a continual dripping of the urine through the penis. But if the wound cannot be cured, and well closed by a cicatrix, then the urine will run through the wound drop by drop into their breeches, but in our way of cutting there is no danger of that inconvenience. The second thing that I lay down is, that that place (which we cut in the most distended bladder even to its utmost distention that we can artfully make, which place lies under the bladder and the os pubis, and hath in a good part of it a membrane coming from the os pubis to the bladder, and is there dilated) is so nigh to the neck of the bladder (but in its upper part) as the other lower place is to the perinæum, as we have very often observed with our eyes and finger, and never found it otherwise: which reason makes both places so far equally easy to be joined or closed together,

ther, (for they are both alike fleshy) but the place in the hypogastrium does so much the more easily close, by how much less the urine, and the fordes of the urine, and the pus issuing from the wound come to that part. But the sphincter of the bladder being untouched in our way of cutting makes a free passage for that fordes through the penis, just as the patient pleases, which inconveniences are not to be avoided in the cutting thro' the perinaeum; to which inconveniences there are in the common ways of cutting dangers arising upon the neck of one another from the neighbouring parts, namely, by reason of the nearness of the intestinum rectum loaden with hard excrements that are often retained there, or oppressed by very loose stools, or putrifying by putrid faeces, and stopped up with hard and swelling

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condylomata, or else troubled with hæmorrhoides, either with a soreness internally or externally, or oftentimes both ways; not to take notice of the prostatae in men, or the neck of the uterus in women, liable to abundance of diseases upon every slight occasion, which parts there is no fear of hurting, in our way of cutting for the stone.

Note, the same reasons make for our method of cutting, not only in the stone, but also in the curing of a compleat, and otherwise fatal ischury or suppression of urine, whether it proceeds from the stone, or a pituitous matter, or from a renal pus, or from an inflammation of the sphincter or penis being swelled, or from an hypersarcotic obstruction within the urethra, provided the operation be performed in a seasonable time, skilfully, and the patient be in good strength.

How



How a surgeon may, and ought to perform the operation of cutting for the stone at the hypogastrium, safely, and with as little pain as possible, and that without fear of bringing any disgrace on himself, or endangering the life of the patient.



A S it is the duty of every man to promote and advance the welfare and interest of all mankind, but especially of his countrymen and friends : so it is the duty of a

christian to do good to, and serve both strangers and enemies. It is likewise the part of every kind christian man, but especially of a physician, so to preserve and take care of the health of all men, (which as it is the sauce of life, and so is life it self, so it is the chief end and design of physick) that to contrive the destruction, or impairing of that health in any man is the greatest of crimes.

Whence it is, that those physicians ought to be branded with the title of manslaughterers, who upon any pretence whatever of any publick good, practice and make doubtful experiments, as it were in sport, upon the poor worthless lives (as they call them) of the ordinary people. Since then this new method of cutting for the stone, seems to be of that nature, and necessarily requires a great many experiments to prove
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and warrant it, before it be admitted into common practice : I judged it proper that we should observe the same method in inquiring into the nature, situation, and nearness of those parts, which are to be applied to, or avoided in those places that are to be wounded in this hypogastrick section, as used to be observed by the good natured professors of humane anatomy, (who hating the ancient method of dissecting persons alive) in the dissection of humane bodies, and most times even in the dissection of living brute animals. It would perhaps be more serviceable to dissect living bodies ; but to dissect humane bodies alive, as it would be cruel to the patient, so it would be inhumane in the operators. It is indeed lawful to dissect brute animals alive, but it would be but of little service in this matter to our instruction,

tion, and it is difficult to take any pattern from thence for our method of working, neither is it to be hoped for. For in brute animals, the bladder has not the like situation as in men (which hath been observed by Vesalius) since providence has so ordered it, that in us it adheres closer to the os pubis (under which it lies) but in brutes more loosely, and that, in my judgment, that while we are standing upright, it may be fixed more firmly to the os pubis, to prevent its swagging downwards. But in quadrupedes it must needs lie upon that bone, and lies as it were supported by it, which is of service to them. Moreover the lowest part of the hypogastrium in them, (which ought here to be cut) being there possessed or taken up in the males by their penis reaching as far as the umbilicus) cannot be a proper place for the section of the vesica, as it is
in

High Operation. 111

in us, whose penis is not fixt to the hypogastrium, neither does it cover the pubis, near which the section is made. But perhaps this experiment may be made upon the females of quadrupedes, if the vesica could be filled thro' their urethra, and the liquor filling it could be retained till the section was made in the hypogastrium.

We ought therefore to make our experiments upon humane subjects, but first upon dead ones. Afterwards we may pass on to certain living ones, without any offence or blame; and such subjects, in my opinion are they, who cannot fear any harm from this operations being tried upon them, but may hope either for the recovering their health, or of saving their neck from the gallows. And both these sorts of experiments are very necessary to be made for our most sure instruction in this operation.

peration. For some things may be pretty well known from dead bodies alone; and some things are not to be thoroughly learned, but from the section of living ones. For in dead bodies, whose containing parts of the belly, when you shall have laid open, before the section of the vesica, it will plainly and safely appear how the bladder, after its being filled with liquor, does gradually swell, and show it self above the os pubis. You will likewise perceive, after the cutting, what internal or external parts have been well or ill cut; that these experiments being made without harm; and these things being known by these preliminary tryals, we may in good earnest undertake with greater safety and assurance the section in living bodies by the same or better steps. For those things which ought to be known before hand in the cutting of dead
bodies,

bodies, no man can trace out and learn in living ones, without killing them. But whether the life is indangered by this section of ours, can only be known by the success in cutting living bodies. But to be short, I shall present you with several experiments that have been made upon dead bodies, in the presence of several skilful and learned surgeons of this city. Having sent for three of the most eminent of those surgeons, we filled the vesica of a certain britain, who was troubled with the stone, and died of a dysentery, with hot water, by a syringe through the pudendum. Having divided the skin of the lower belly, and the adeps, and the region between the two succenturial muscles, the knife being past from thence downwards, towards the inside of the os pubis, and having put our finger into the anus, we made an incision into the vesica as long as the breadth of

Q

three

three fingers, the catheter being put into the penis by the other hand, we easily thrust forth through the wound a stone as big as a hens egg; having found in the same body that was afterwards opened not only the intestines unhurt, and the peritonæum intire, but likewise that internal side of the membranous and inner part of the vesica untouched, which covered the intestines on the back part.

I made the same experiment also on two persons, a man and a woman, who had been just hanged, but who had not been troubled with the stone, the peritonæum being unhurt, altho' we put a walnut through the wound into the vesica, and took it out thence through the same, by the help of our finger being thrust into the anus of the man, and into the neck of the uterus of the woman.

I made likewise the same experiment upon the body of a person who had
been

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been afflicted with the gout, in the presence of a surgeon well skilled in the Anatomy, and who was very much surprized at the operation. And again, on the body of one who had had the dropsy, but died of an hæmorrhage, into whom we had injected with difficulty through the penis a little water, which run out in a small quantity, (as there was but little of it) the bladder yet being largely wounded, and the aforesaid place of the hypogastrium having a large aperture, whereas the water would have come out in a large quantity from the cavity of the hydro-pick belly, if the peritonæum had been wounded in that part, as afterwards it did abundantly, as soon as the lower belly had but a small opening made in it by a puncture in the peritonæum.

I never found the peritonæum hurt in any of these bodies ; neither had I as yet seen the vesica swelled up from the injected water with my own eyes.

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But

But afterwards I saw it in a certain body, whose gastric muscles, Mr. Piney a most skilful Surgeon, and a lithotomist by profession, with his father in law Mr. Collot, in his anatomical lectures upon the belly, which he had only laid open with the upper part of the peritonæum, the lower part at my request being untouched.

For that upper fundus of the bladder orbicularly distended (here reader pray mind) hath on its upper part from whence the urachus begins, and to which the umbilical arteries descend, hath on that side towards the intestines, and on the backside, as far as the sphincter muscle and the perinæum, the main body of the peritonæum strongly connected to it, which we do not so much as touch. But those arteries have not the use of arteries after the child is born, but are yet very useful as they degenerate into a membranous hardness, together with the

the urachus serving to strengthen the peritonæum in that lower part. But the other half of the same bladder forwards from the same beginning of the urachus towards the pubis, with which we are to be concerned, is covered on the upper side with a membrane proceeding from the os pubis, to which it is thereby connected, and not as some think by the main body of the peritonæum, so that in that part the vesica seems to be, and really is without the peritonæum, and constitutes a kind of a little fourth venter : But if any shall obstinately contend that that membrane is a portion of the peritonæum, (altho' besides that it appears otherwise to the eye) the forementioned experiment of the incision made in the hydropic body, through which no water would run out, manifestly convinces him of an error, yet let it be granted that it is a certain production of the peritonæum,

um, but a small one, and perhaps such as the peritonæum distributes to some bones, yea to the liver, spleen, reins and intestines; but more extensible, and hardly distinguished from the periostick membrane of the os pubis, when the bladder is filled, the foreside of the bladder is distant from the backside, four or five fingers breadth or more, so that the intestinum is not in danger, nor the peritonæum it self of being hurt by the point of the knife, being directed to the fore part of the vesica: Nay, nor the back side of the vesica, which is contiguous to the intestines, and covered below by the peritonæum. These things can be learnt only in dead bodies, and they ought to be learnt, since they are very necessary to be known.

But I do not think we are sufficiently sure whether a wound in that internal and external part which we speak of be mortal or no, but that
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can only be tryed in living subjects ; which may be done without blame or crime on either of these two ; to wit, first the poor who have the stone, and live a life which is worse than death by the extremity of their pain, and in this their exigence can get no help from the lithotomist by reason of their poverty ; (upon them it is better by hypothesis to try a doubtful remedy, than none at all.) Or secondly on condemned malefactors, the princes promising them pardon on that condition. For kings may (as saith Galen, 1 chap. lib. 3. simpl. med.) grant those experiments to be made by the right of their regal authority. If those men shall have the stone, it were better to imploy a lithotomist, that can go through the whole work, and compleat the cure, and not barely make the forementioned experiment ; but if the operator be not thus qualified, it may be throughly known whe-

whether this section be mortal or no. But I shall here propose three ways of making this operation.

But in every one of these I would have the bladder be filled with liquor. For this is a sort of necessary rule or direction for the safe performing this operation. But the manner of filling it is threefold, and the instruments by which it is filled are divers. In the two first ways the bladder is filled by art, the operator using the same sort of syringe, but to be fitted on to catheters of different sorts, as I will show in its proper place. But in the third way we are to wait for the help of Nature to which art will be assisting, if it cannot be artificially performed by either of the two fore-mentioned ways.

As for the first way, the patient ought in my judgment to lie flat on his back. For thus the intestines will fall back downward from the anterior
place

place of the designed section, and the urine or injection and stone (if any be there) will run together from the neck of the bladder to its fundus, which will then be lowermost, and the intestines will very conveniently be removed from the place where the incision is to be made.

This appears in those that have ruptures, whose intestinal ramex is protuberant forward, while they stand upright; but as soon as they lie upon their backs, the intestines recede, and that tumour sinks of its own accord; and in those who have the strangury, occasioned by a stone plugging up the sphincter of the vesica, which being removed from thence, they are relieved. For, as Hippocrates says in his Coaca, those that have the stone make water easily, if the stone does not fall down to the meatus urinarius. Therefore Galen,

l. i. de locis affect. will have them so placed, that the stone being moved by the shaking of the body from that place (being then higher) may descend towards the fundus by its own weight (being then lowermost) and give a passage to the urine by the help of the hand compressing the vesica. But here care must be taken, that the urine does not flow out, which will be done by the compression of the penis. So the patient lying on a bed, table, or bench, having his arms, and legs, bound with strapes, swathes, as is usual, the bladder must be distended as much as possible with barley water, or milk, or a vulnerary decoction being injected into it through a silver catheter, fixed on to a pⁱxis clysterica thrust into the penis, which when it is sufficiently done, will appear by the rising of the lower venter.

And

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And that the injected liquors may not run out again, the penis must be griped by the hand of an assistant, or tied by a soft twist of cotton or tow, till the injected liquor begin to spurt out through the wound that is then to be made. Thus the work is to be done upon men. But in women you can only stop in the injected liquor, in the same manner as we use to do clysters, by pressing wads of tow to the anus. But if the liquor will not pass through the catheter into the bladder in either men or women, then let the woman lie on her back, and hold in her urine; and let the man lie on his back, and have his penis tied with a soft ligature, and let the cutting be delayed till the vesica appears to be swelled by the urine dribbling into it from the kidneys, as it uses to be in those who are troubled with the strangury. But this belongs to

the third way of filling the bladder. We are next to treat of the places where the incisions are to be made, and the instruments to be used in that operation. The place is twofold, exterior and interior. The exterior contains the cutis and the adeps under it, near to the os pubis. The interior place is in the same region, in the middle between the two musculi recti, in the lower part of them, or rather between the short muscles that are subsidiary to them, under which lies the membrane proceeding from the os pubis, and perhaps (tho' I can hardly grant this) as it were joined with a small portion of the peritonæum, reaching from thence to the fundus of the bladder to which it adheres, where the urachus is placed, as I said before, largely dilating it self together with the forepart of the bladder, at the time when it is filled. Moreover the ends of
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the musculi recti (as Galen calls them, but as Vesalius more rightly the beginnings) being but a little distant one from another, do but in few bodies unite in the middle of the pubis, but do turn each to its own side of that bone, so that the incision may there be more safely made. Above them is the adeps, and above the adeps the cutis, which must be cut upward from the os pubis, by an incision, as long as the breadth of three or four fingers; the adeps, which is senseless, is to be cut next, and then the region in the middle, between the succenturiat muscles, and that cautiously. But the latter place (which is the internal) is to be cut more artificially, the point of the crooked knife, of which we give you the figure hereafter, being passed near the os pubis, and that not with a strait direction (which the French call *Le-droit*

droit estoc) nor upwards, but somewhat downwards, to wit, towards the upper part of the collum vesicæ, which is not far off, yet so as not to touch either the collum or the bone; and that with an orifice very small, lest the injection should too copiously flow out, yet so wide, that another lenticular knife may be passed in, which is hooked, not sharp pointed as the former, but lenticular and blunt at the point, but having its edge very sharp, which must be presently passed into that wound with the greatest care, with which the incision already begun, must be finished. Then the middle of its edge moved upward, shall make the incision, care being taken that nothing be wounded by pushing it too far inward. Wherefore here are to be three knives in readiness, one like a barber's razor, to be used in cutting the skin and the
adepts,

adepts, the other crooked, not two-edged, but having a blunt back, which is its upper part, but in the lower part sharp, being thus adapted for dividing the middle of the membrana vesicalis, and the vesica, as we said before; but it must not be thrust far in, being only used to prepare the way for the third knife, which is to finish the begun incision. This third knife must also be hooked, but not sharp pointed, least it prick the bladder in the inside, or hurt some intestine, but lenticular towards the point, like the knives of those women who slit beasts guts to prepare them for the kitchen; or at least, if it be broad at the point, it must be blunt there, yet exquisitely sharp in its edge. Then must be made an incision upward from the pubes, as long as the breadth of two or three fingers; or thereabout, and the liquor being let run out, the finger
of

of one hand being thrust into the anus of men, or in the neck of the uterus in women, the stone being felt, shall be raised to the orifice of the wound, and shall be taken out with two fingers of the other hand, or shall be taken hold of by a forceps and pulled out. Where, if other little stones or sands shall be found, they shall be taken out by a scoop, prepared for that purpose, or shall be drawn out with a vulsella, or crooked forceps, and that very easily, for the wounds in all these places, may be very much dilated, certainly much more easily and largely, than in the perinæum, where other lithotomists make the incision; so that no mischief is to be feared from rending these parts in taking out the stone, for which those operators are forced to use their dilator in a very cruel manner. These things being performed, the penis shall be untied, and

and a silver catheter put into it, if need be, and remain there if you please, as uses to be done by other lithotomists, that through it a way may be open for the urine and pus, (which people that have the stone are seldom free from) and for the blood and sanies of the fresh wound, of which two sorts there cannot be much here.

Thus I have given you an account of all things that I think considerable in this operation, for there will not be much need of stitching of the belly, as the custom is, if the legs being a little drawn up and tied together, the patient lie still on his back, for the lips of the wounds will lie close enough one to another. But if by chance a ramex, of which there is not much danger, should remain that inconvenience will be sufficiently helped by a bandage. In the meantime, the patient must use a slender

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and drying diet; and also clysters rather frequent than large, but such as have in them vulnerary ingredients. Thus much concerning the first way. The second differs not from this first with respect to the instruments, with which the incision is made, but it has another kind of catheter, which very same catheter will serve to fill the vesica, because it is fistulous as the former, but crooked in that part which is received into the bladder, and will serve also for supporting it, as being strong enough, that it may receive the stroke of the knife cutting the bladder in the hypogastrium, as in the Marianian method, it receives the same in the perinæum; and it must be such a one as they use, with this exception, that ours is hollowed and fistulous, whereas their catheter is solid. But least our catheter should be too weak, by reason of its hollowness, as soon as the water or decoction

coction is injected, we thrust into it a silver stilet, which both strengthens the catheter, and stops in the injected liquor, which instruments ought not to be made of pure silver, as being too soft, but with silver mixed with a third part of copper. For thus it will be the stronger to support the vesica in the operation, when it shall be turned to the lower part of the belly, where the incision is to be made. But that fistulous bore of the catheter, into which the stilet is thrust, presently after the injection, cannot reach beyond the beginning of the bending which enters the bladder, where the hole is, by which the injection runs out into the bladder; but in the other part of the catheter, to wit, where it is crooked, the back of that bending is furrowed, that it may receive the knife and direct it, that it may not slip aside, as soon as it being raised up shall have

shown the place of the future incision in the hypogastrium, as the Marianists are wont to do, directing their incision in the same manner in the perinæum. But to this catheter, a syringe filled with the aforesaid decoction is so to be fitted, as we said before, it ought to be done in the former way. Which decoction, that it may not presently run out, the forementioned stilet must be presently thrust in, and must be armed with stupes rowled about it to stop in the injected decoction.

The third way shall be made use of, if the filling of the bladder shall be found too tedious, laborious, or impracticable in either or both of the forementioned ways, and is as follows.

Let the bladder be filled in a natural way, as it will be of course, by retaining the urine, for the space of two days, or till the bladder appear

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pear to the eye and hand to swell so outwardly, as it uses to do in the strangury; to which end it will be necessary to make a gentle ligature upon the penis, and to make the patient lie upon his back, and to use drinks not acid, but moderately diuretical, especially the Spaw-waters, or Poguension-waters in the Nivernois, or white wine with a decoction of diuretic roots, and the seeds of lithospermum being bruised. These waters, besides the deriving the urine to the bladder, will secure the parts to be cut, from inflammation, to which end, he who designs professedly to practice this method of operation, must take care always to have in readiness, those waters in glass bottles well stopped. And so much concerning these three ways.

But I had a mind faithfully to lay before the reader the experiments which I had made in dead bodies,
and

and what I have seriously and diligently thought might be safely done upon living patients, designing to give instances of observations of such operations made on living persons, if any poor creature troubled with the stone had offered himself to me, or if the late deservedly lamented death of king Henry, had not deprived me of that opportunity, who, at my request, had promised their lives to four, or if need were, more condemned criminals, if they should have safely gone through our operation. But I would have it here observed, that the decoction, with which the vesica is to be filled, ought to be moderately warm; for, as Hippocrates saith, Aphor. 20. l. 5. whatever is cold is hurtful to ulcers, which the bladder of one troubled with the stone is seldom free from, and for that reason, I would not have it distended by inflation,

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as some advise, as well least it should be chilled with cold, as least the air should fly out, as soon as the vesica is wounded by the first touch of the knife : for then the bladder becoming flaccid sooner, than if it had been filled with injected liquor or urine, it would happen that it would presently fall back under the os pubis, under which it lay before, and so deprive the operator of the opportunity of working easily and safely. But that upon which the safety of this operation chiefly depends, is that the bulge of the bladder being raised from under the os pubis, be raised upwards as high as can be, which I think cannot otherwise be done, but by one of the aforesaid three ways. Whoever can contrive a better, easier, shorter, and safer method than this, let him in God's name do it for the publick good, and may he meet with a good and favourable acceptance.

T H E



T H E

APPENDIX.



UT if the bladder cannot be filled by any of those ways, either because the operator has not such instruments, or cannot procure them, or knows not how to use them, or because the patient will not bear the use of them; nevertheless, this hypogastric section is not to be despaired of, but will be practicable in this manner. Let the bladder be filled with urine as much as it can be, the penis being bound with a gentle ligature, as was before described. Then let the patient be placed in the usual manner, and let an incision

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cision be made near the os pubis upwards, through the cutis, adeps, and the region between the muscoli recti with great care, as long as the breadth of three or four fingers, or thereabout; so that that part being laid open, and the intestines, if any should appear there, being put aside, the vesica may then be cut in the anterior part of its fundus. Then let the urine run out through the orifice, and let the fore-finger and middle-finger be thrust into the anus of men, and into the pudenda of women, which fingers meeting with a stone will strongly raise it upwards to the os pubis. Then even without instruments either one or more stones shall be easily taken out with the fingers of the other hand, the two aforesaid fingers being underneath, thrusting them forwards. This bringing up of the stone to the epigastrium by the help of the
T fingers,

fingers, is much more easily done by the operator, and more easily born by the patient, than the pushing it down to the perinæum, as the lithotomists in the common method use to do.

For the stone will be more readily felt by the fingers of the operator, and be more easily thrust upward thus toward the pubis, than it can in the Guidonian operation be felt, and laid hold on by the fingers on the upper and more remote side of it, and be pushed down from thence to the perinæum. I have been lately informed, that this has been done in the village of Brie by a person who trusting to what I had written of it, has with very good success performed the operation. I would have gone thither before now, to have been more perfectly informed of the whole affair, but the dangers of the journey hindered

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dered me; but as soon as I think I can safely go, I will not fail to publish whatever shall have happened there worthy of remark. But this last mentioned operator is not reported to have been solicitous about filling the bladder with urine, or any other way.

From whence it appears that there is not so much danger in that operation as is commonly thought. But if the operators fingers be too short to do their office, in raising the stone upwards to the os pubis, he may make use of artificial fingers made of prepared leather (which the French call *Cuir bouilly*) or of silver, into whose cavity he shall put in and fit his own fingers tightly and firmly, which this last mentioned operator had no need to do. All the other parts of the operation shall be performed as has been above directed.

A
QUESTION

PROPOSED

To be DISPUTED on

IN THE

PHISICK-SHOOLS

IN

P A R I S,

On *Thursday, December 13. 1635.*

By *PETER LE MERCIER.*

*Whether or no in cutting for the
Stone in the Bladder the incision
should be made at the pubes?*

A
QUESTION

PROPOSED

To be Disputed on

IN THE

PHISICK-SCHOOLS

IN

P A R I S

On Thursday, December 13. 1632.

By PETER LE MERCIER.

Whether or no in cutting for the
Stone in the Bladder the incision
should be made at the neck?



A
QUESTION
PROPOSED

To be disputed on, &c.

TH E stone in the bladder, which does in so dreadful a manner torment the patient, ought to be taken out by cutting at any age, without any regard to the time of the year, or the weather. It were to be wished that the stone could be dissolved and brought away with the urine. But since no way has been found out to do that

that, nothing but cutting the bladder can relieve the patient. Therefore, by the singular contrivance of God, providing for the relief of mankind, man alone of all animals has the bladder placed without the cavity of the abdomen, coming forth as it were, both in its upper and lower part, so that it may be safely cut.

In man alone the bladder is suspended. It is enclosed, as in a bag, in the duplicature of the peritonæum. It may therefore be safely cut at the pubes, without hurting the other viscera, the cavity of the abdomen being left entire and untouched. Its middle part lies under the os pubis; its neck is close to the perinæum, but its fundus near the pubes, at the bottom of the belly, is about three fingers breadth higher than the os pubis, that it may by a crooked catheter be held up to the pubes for cutting

cutting as conveniently as it can be held to the perinaeum. It has many veins coming from the hypogastrick branch, so that, although its substance be membranous, a wound in it may be easily closed, and healed as well in any other part of it, as in its neck; since the blood runs equally to any part of it that is cut, and like a kind of gluten, disposes it to heal: besides a good deal of adeps which by its own proper consistency forwards the same intention. There are near the bladder both the membranous tendons of the muscles of the abdomen, and also the pyramidal muscles, which so meet at its fundus, that, being distinct in their lowest part, they, as it were, mark the place of cutting, if there be need to cut the bladder near the pubes.

The manner of cutting the bladder at the pubes, is neither difficult nor operose. The hand of a skilful

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surgeon

surgeon is sufficient to manage, and finish this whole operation.

The patient being laid on his back, his legs held asunder and bound, the bladder is held up by a catheter being bent towards its end, the back part of it pressing the bladder toward the pubes : and a large incision is made into the fundus with a sharp knife. Then the catheter is taken out, and the surgeons fingers being thrust into the wound curiously search all the regions of the bladder, and the stone being found, is easily, and quickly taken out. If the stone adhere to the bladder, it must be loosened by the fingers, and taken out without violence. If a membrane grown there make the cavity of the bladder double, that membrane being separated by a small touch of the forceps is also taken out by the fingers. And in this operation the bladder is neither rent nor torn,
nor

nor at all bruised, which thing is chiefly to be regarded in the wounds of the bladder. When the bladder has only an incision made in it, the wound is not dangerous. How many have been relieved in the suppression of urine by cutting without danger of life? But if the bladder be not only wounded, but also bruised, the wound is then dangerous, and often mortal. Hence it follows, that it ought to be the principal concern of a Lithotomist, not only that the operation be performed expeditiously, and with the least pain to the patient; but especially, that the stone be taken out, so, as not to endanger life; so, as that no mischief be done to the bladder. That mischief is either the renting of the bladder, or the bruising of it. If either, or both of these happen, there will follow an inflammation, that will quickly destroy its natural heat, which is but small.

The bladder being cut at the pubes, if there be more than one stone they shall be taken out, and not one left behind. The clotted blood, which if it stay there, will bring on mischievous symptoms, will easily pass off by the urinary passage. Care must be taken, that the wound be not wetted with the urine, which would retard the healing of it. But the wound is so open to the surgeons view, that neither the cure of it, nor of the incision in the bladder will be difficult.

The patient shall not be troubled with the tubulus, which uses to be immediately thrust into the wound, nor with the long tent, which two things being used give the patient no small pain, and dispose the parts to inflammation, and make it almost impossible for him to take any rest: and he shall be free from that filth, which usually attends those, that
are

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are cut for the stone. For the excrements from the intestines shall be conveniently received in a bed-pan, and the urine in a urinal. He may also change his posture, and lie sometimes on the right side, and sometimes on the left, as he shall like best. In one word, in this method the management of the patient is far easier, and there is more reason to hope for a perfect cure, than in the other method.

Therefore, in cutting for the stone in the bladder, the incision should be made at the pubes.

Proposed at Paris by Peter le Mercier,
Anno 1635.



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Proposed at Paris by Peter le Moine

OF THE
High Operation
FOR THE
STONE.

FROM
Gulielmus Fabricius Hildanus,

THE
SEVENTEENTH CHAPTER

Of his TREATISE,
De Lithotomia.

*Printed with his Works at FRANKFORT,
in the Year, 1682.*

OF THE

High Operation

FOR THE

STONE

FROM

Carlsbad Fabricius Hildanus,

THE

SEVENTEENTH CHAPTER

OF HIS TREATISE,

De Lithotomia.

Printed with his Works at Frankfurt,

in the Year, 1683.



OF THE

High Operation

FOR THE

STONE, &c.



ASTER Peter Franco, in the 33d chapter of his book, gives us the following relation.

An infant of two years old was brought to him troubled with a
X stone

stone in his bladder, about the bigness of a hens egg. Who when he had done whatever he could to bring the stone downward to the neck of the bladder, and all to no purpose, the infant being likewise so pained and tormented by the aforesaid stone, that the parents were much more desirous that it should die, than live in such great pain and torture. Franco also thinking it would be a disgrace to him that he could not extract the stone, at length resolved with himself to cut for the stone in the groin, and in the upper part of the os pubis.

Although the stone could not be brought downwards, yet he so raised up the stone, by thrusting his fingers into the anus, (while one of the assistants on the other side should compress the belly, and thrust the stone to the place of incision) that he did there cut
for

for it, and the infant, although very much weakened, nevertheless was recovered, and the wound cured. From hence that most famous and learned person Francis Rosset hath concluded that the cutting for the stone ought to be always in that place, and that it may be done there with less danger, sect. 3. c. 6. and 7. de partu Cæsareo. And he therefore calls that method of cutting for the stone, the Franconian, or Franco's operation; when, notwithstanding, master Franco does by no means prescribe it for imitation, but plainly confesses in his book, that he acted foolishly, and therefore advises every one that he would not follow him in this particular way, but that he would make choice of the lower operation, and he is certainly right in so advising; for although experience confirms, that wounds in the bladder are sometimes cured, of which very

many instances might be produced, and I my self have cured such wounds, but yet that happens but seldom, and that stands good, which Hippocrates writes, l. 6. Aphor. 18. that wounds in the bladder are mortal; for as one swallow does not make a summer, so it is with the wounds in the bladder, and although some one may be cured, yet on the other hand, ten such patients, or more to one, die incurable, by reason that the flesh, or parenchyma of the bladder does not easily admit of a cure; and because the bladder is of a nervous kind, and commonly without blood, and therefore the wounds there, do difficultly, and rarely close together, and that chiefly because of the terrible and dangerous symptoms that arise thereupon; as are, a violent pain, an heat and inward inflammation, a swelling, the spasm, and such like.

It

It is carefully to be observed, that sometimes the urine cannot pass thro' the wound, but is gathered together in the lowest cavity of the belly, where it putrefies, and inflames and corrupts the circumjacent parts. Besides this, there is another difficulty that is to be regarded in this incision, that namely, this incision cannot be tried but upon infants, as the aforesaid master Franco writes, that that infant was about two years old.

You may say, why not as well upon adult persons? I answer for that reason, because your fingers are not long enough to raise the stone so far, until it shall come to the groin. These things, courteous reader, I could easily demonstrate to you in my study, where I keep skeletons of half a year, a whole year, and also of three and thirty years of age. I do therefore with
master

Franco again and again dissuade every faithful and industrious surgeon from making use of this dangerous operation of cutting for the stone. But if the stone be of that great bigness, as was that of which I made mention in the fifty-first observation of my fourth century, and the patient, and the by-standers, by reason of the great and extream pains under which the patient labours, do very earnestly press and desire help from the physician, then indeed having first implored the divine assistance, and a prognostick being made of the doubtful and uncertain events, I should prefer that cutting in the groin, of which master Franco writes c. 33. before the cutting in the neck of the bladder. For I am persuaded, if the stone be lifted up by reason of its largeness to the groin, that it may with less torture and danger be extracted in the groin, than

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than by the neck of the bladder, especially in men: and I know by experience, that it may be extracted in women by the neck of the uterus, and indeed without great danger, as the reader may see, chap. 22.

But before the surgeon undertakes this operation, he ought carefully to examine the bigness of the stone, for unless the stone be of that bigness, that it may be raised up to the groin, by the thrusting of the fingers thro' the anus, the operation is not to be tried. For our business requires, that the stone included in the bladder should in this operation lie firmly to the abdomen; for if there should be any empty space between the bladder with its stone and the abdomen, and the intestines should fill it, they may likely in the operation be hurt by the knife. But before we begin the operation, care must be taken to prepare the body according

according to art, by the best method of diet, as also by purging and bleeding, and other helps, of all which things we have sufficiently spoken in their proper place. But in the operation, let the patient be so placed upon a strong and firm table, that his buttock may lie somewhat over the table ; but let his legs (which are to be held by two discreet persons) be so extended to the sides, that the surgeon may stand between them both, close to the patient, and may be able to perform the operation in a convenient manner : the arms likewise, and armpits are to be firmly held by two strong persons, taking care in the mean time that the thorax be not compressed, for reasons which we have given in the 11th chap. the patient being placed after this manner upon his back, there is the less fear of swoonings or faintings away, and the internal

ternal viscera and intestines turn somewhat upwards, and the stone is more easily brought towards the groin.

Afterwards, the fingers of the left hand being thrust through the anus, the stone is to be raised up to the left groin, and on the right side one of the assistants may with his hand, a linnen cloth twice doubled being laid underneath, compress the belly of the patient as much as he can bear it, and may thrust back the stone towards the left groin, until it may be plainly perceived outwardly. While the operator is cutting with his knife the abdomen, together with the bladder to the stone, one of the assistants standing on the left side may immediately lay hold of the stone with his forceps, and extract it. But let not the operator, which is a thing to be taken notice of, take his fingers out of the anus, nor the assistant remove his hand from the belly, unless the o-

Y

ther

ther assistant hath before searched and examined with his stylus explorat : and cochleare, described in the 19th chapter, whether there be yet any more stones remaining in the bladder. But if by chance he yet finds another, he ought to take the greatest care, that he extract it with the hook, forceps, or other proper instruments, or else the operation would be to little purpose.

The stone being taken out, the wound of the abdomen is to be held open by tents, to which it is convenient to fasten a thread, lest they should slide into the empty space of the belly; and that ought to be done, lest the blood flowing down into the belly should putrifie, and cause most grievous symptoms; but by the kindness of nature, that being turned into pus, may be evacuated thro' the wound. But the tents are to be anointed with a digestive described in
its

its proper place ; let a basilicon plai-ster be applied, and all the abdo-men anointed with proper oils , of which we shall speak more largely in the 21st chapter. There are some persons who inject with a syphon vulnerary decoctions into the wounds of the belly ; but that is wrong : for those decoctions remain in the low-er belly, putrifie, and occasion very bad symptoms : and I am of the same opinion as to wounds in the breast.

The operation being made after this method, if so be, as has been already said, the stone can be raised up to the groin, it is certain that in the extraction of great stones, there is less danger of doing it in the ab- domen, than by the neck of the bladder : whereas a great and large stone takes up a great deal of time in extracting it through the neck of the bladder, by reason of its strait-ness ; the patient in the mean while

is afflicted with violent pains, the bladder and its fibres are torn, there is a large effusion of blood, the strength is weakened, and the patient either in the very operation, or soon after, dies in very great torture. But the operation in the groin is performed almost without any tearing of the bladder; besides there is not that danger of a flux of blood. Moreover it has been observed, that the bladder being wounded in its fundus may also be closed again: for its fibres are fleshy, by whose help the natural heat is maintained, and the wounds cured, as I have shewn in the 5th chapter. On the other hand, it is thence very evident, that the bladder being very much torn about its neck can very hardly be closed again; because that the ureters enter in that place, and continually wet the wound, and hinder the closing, and from thence follows a perpetual dribbling of the urine. *TO-*

T O L E T,

ON THE

High Operation

FROM HIS

B O O K

ENTITULED,

Traité de la Lithotomie.

Page 138.

The FIFTH Edition,

Printed at PARIS in the YEAR

1718.

T. O. L. E. T.

ON THE

High Operation

FROM HIS

B. O. O. K.

INTENDED.

Le Traité de la Lithotomie.

Page 138.

The Fifth Edition.

Printed at PARIS in the Year

1711.



T O L E T

ON THE

High Operation

FOR THE

S T O N E, &c.



IF one finds himself under a necessity of performing the high operation, it seems one might succeed in it by making the patient lie upon a mat-tress,

trefs, and holding him fast, a servant should introduce, if there were occasion, the fore and middle finger, one after another, into the rectum, to thrust up the stone as high as he can, and keep it firm ; at the same time the operator should make deliberately an incision above the pubis, and on one side of the linea alba. One should take care to open the fund of the bladder, without wounding the parts of the lower belly, because it is in the duplicature of the peritoneum, and the fuller the bladder is with water or the stone, the more it will appear ; the flowing out of the urine will facilitate the passing of the director, which will serve to conduct the forceps. And if there should be a reasonable conjecture that the stone is very large, so that the forceps cannot take hold of it, it would be right, as I think, to make use of two long crotchets, and to conduct them thro

thro' this place to the stone, one on each side to extract it, or to have cutting forceps to break the stone, and then to extract the fragments, by this means one might avoid the too great dilaceration of the parts.

The late Monsr. Jonnot told me once, that Monsr. Bonnet, a surgeon, who practised, a long time since, lithotomy, in the Hotel Dieu at Paris, had assured him, that he had cut after this manner. Monsr. Petit, a master surgeon of this hospital told me, that he had seen it practised upon a little girl by the same Monsr. Bonnet.

The cure will be like simple wounds of the lower belly, or else one must alter the method according to the symptoms which may happen. Experience teaches us, that wounds of the bladder are not always mortal.

If a person would practise the high operation, it would be necessary to make several experiments of it upon dead bodies, after having emptied them of urine.



DIONIS,

D I O N I S,

ON THE

High Operation,

FROM HIS

B O O K

ENTITLED,

Cours d'Operations de CHIRURGIE,

PAGE 195.

The SECOND Edition,

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1714.

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BY O. W. I. S.

ON THE

High Operation,

FROM HIS

B O O K

ENTITLED

CONCERNING THE CHIRURGY,

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1774

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D I O N I S

ON THE

High Operation

FOR THE

S T O N E, &c.



TO perform successfully this operation, the hollow catheter A must be introduced into the bladder, whose outward orifice must be large enough to receive the end of the syringe B, with

with which the bladder must be fill'd with water of the warmth of urine; we then make a ligature about the penis with the band C, that in syringing, the water may not return by the sides of the catheter; and when from the quantity of the injection we judge the bladder must be full, we draw out the catheter, and tie the ligature upon the penis a little tighter, to prevent the water's returning; after that, the patient being seated in a chair almost on his buttocks, we make the incision longitudinally with the knife D, between the two heads of the musculi recti and pyramidales; after which, putting a finger on the fund of the bladder, we feel the fluctuation of the water with which it is tumified; then we must make, with a large armed lancet E, a puncture in that part of the bladder; we may easily discover when the aperture is made in the bladder by the flowing out

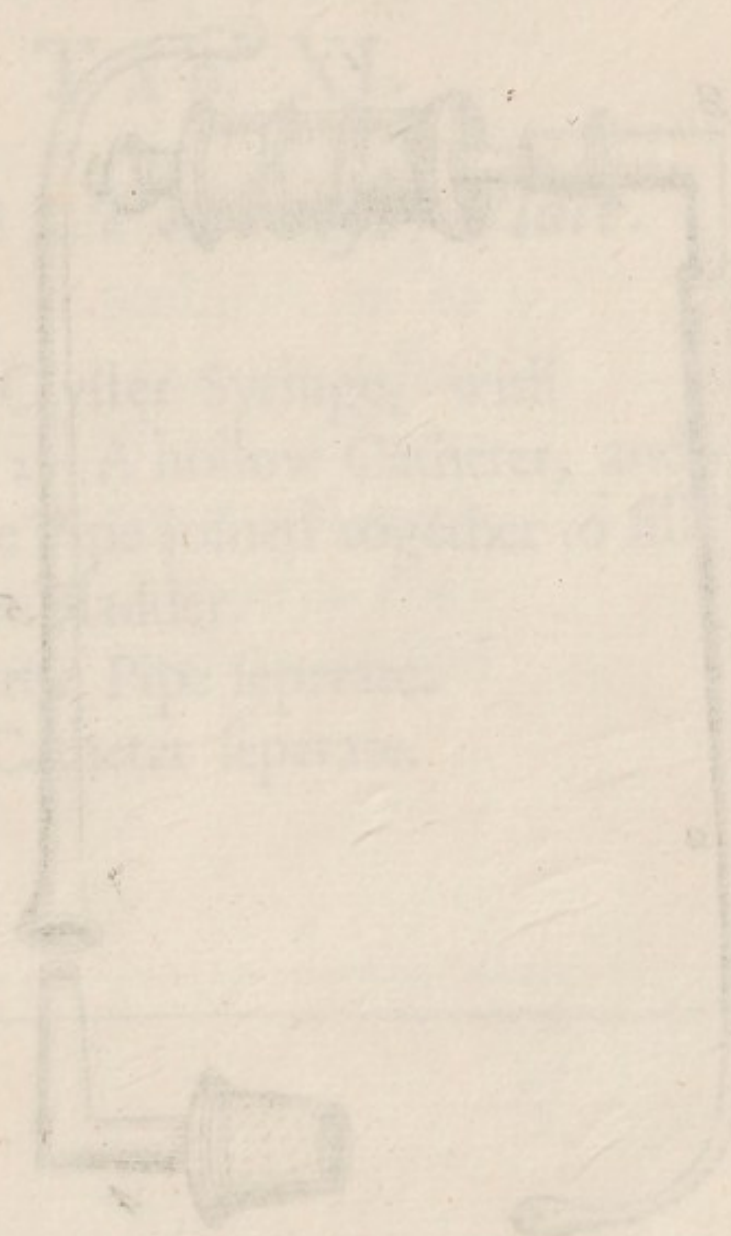
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out of the water; immediately after which, with the crochet F, we may draw out the stone, or else pass along a narrow pair of forceps G into the aperture thro' which the water flows out, and having found the stone in the bladder, it will be easy to take hold of it and extract it; the wound heals without pain, because keeping the patient almost erect on his bed, the urine which comes continually into the bladder, cannot rise to the wound to hinder its re-union, as it does in the two other operations; besides, the urine always finds its ordinary course to run off, if the incision on the belly should appear too large, and it be thought impossible to re-unite it with ease, we may make a stitch with the crooked needle H, threaded with the wax-thread I, and lay on the wound the pledget K, armed with linimentum arcei, then the plaister L, upon which the compress M,

M, and the rowler N, made of a napkin, in order to end with the scapulary bandage O, which will secure all the dressings.

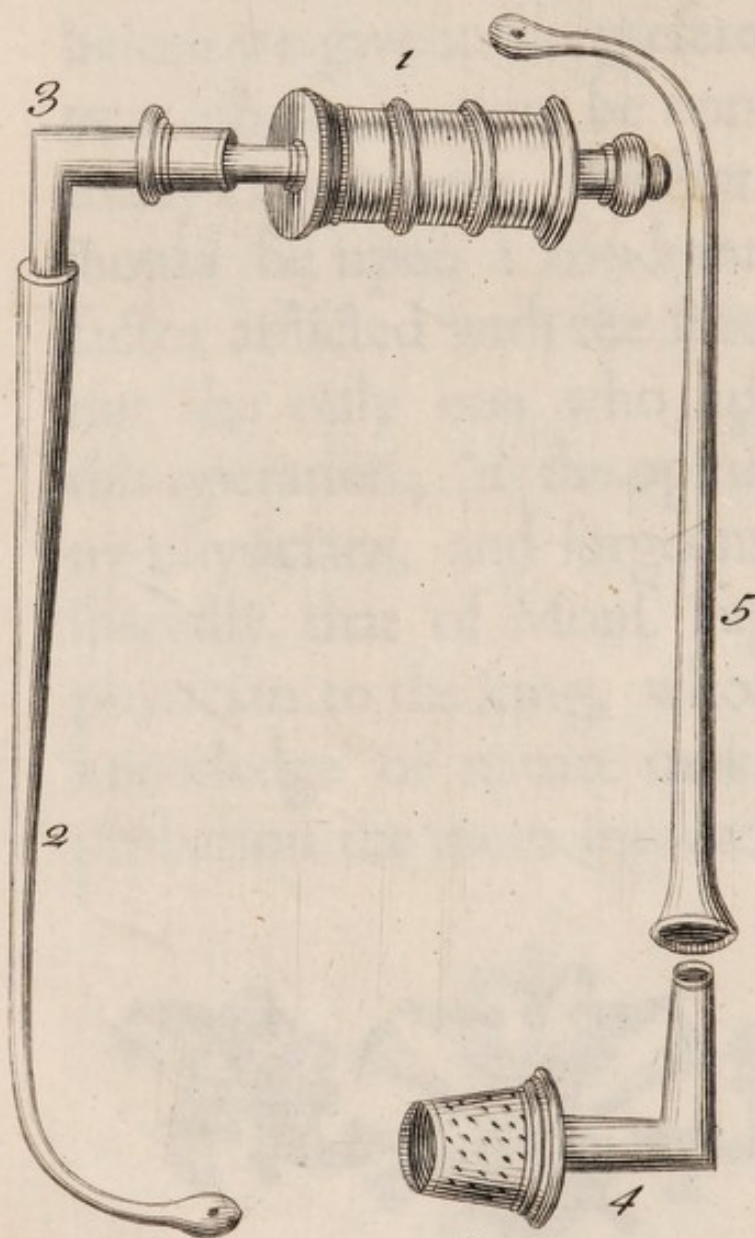
This manner seems the best; but before we give it the preference to the two others, it must be confirmed by many experiments, the first of which should be upon a condemned malefactor afflicted with the stone. I am not the only one who approves of this operation; 'tis the opinion of many physicians, and surgeons, and especially that of Mons. Fagon, first physician to the king, whose accurate knowledge of nature makes his approbation the more important.





- Ross
- A Cylinder Syringe with
A hollow Cylinder, and
A pipe joined together to form
the body.
4. The lower Pipe separates
5. The Cylinder separates.

Fig. 1.





T A B. XI.

ROSSET'S *First Plate.*

1. **A** Clyster Syringe, with
 2. A hollow Catheter, and
 3. A little Pipe joined together to fill
the Bladder.
 4. The little Pipe seperate.
 5. The Catheter seperate.
-

T A B. XII.

R O S S E T's *second Plate.*

1. **A** Catheter hollow in its straight part, channell'd in the back of its Bending.
 2. A Stillet to strengthen it when it is in the Bladder, that it may lift it up to the Abdomen to be cut, and hinder the Injection from running out.
-

2

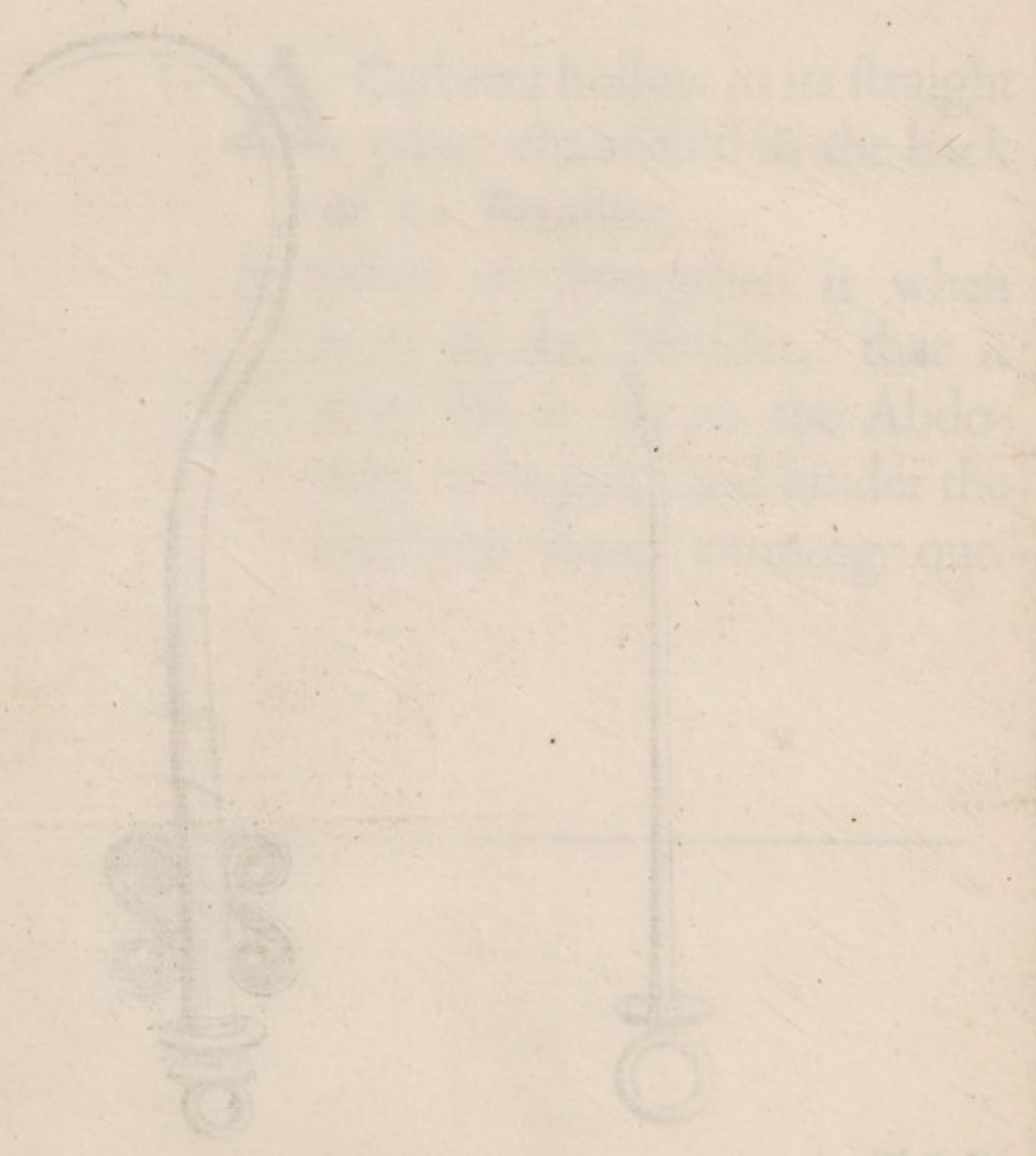


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1748

Second Plate.



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PLATE XIII

PLATE XIII

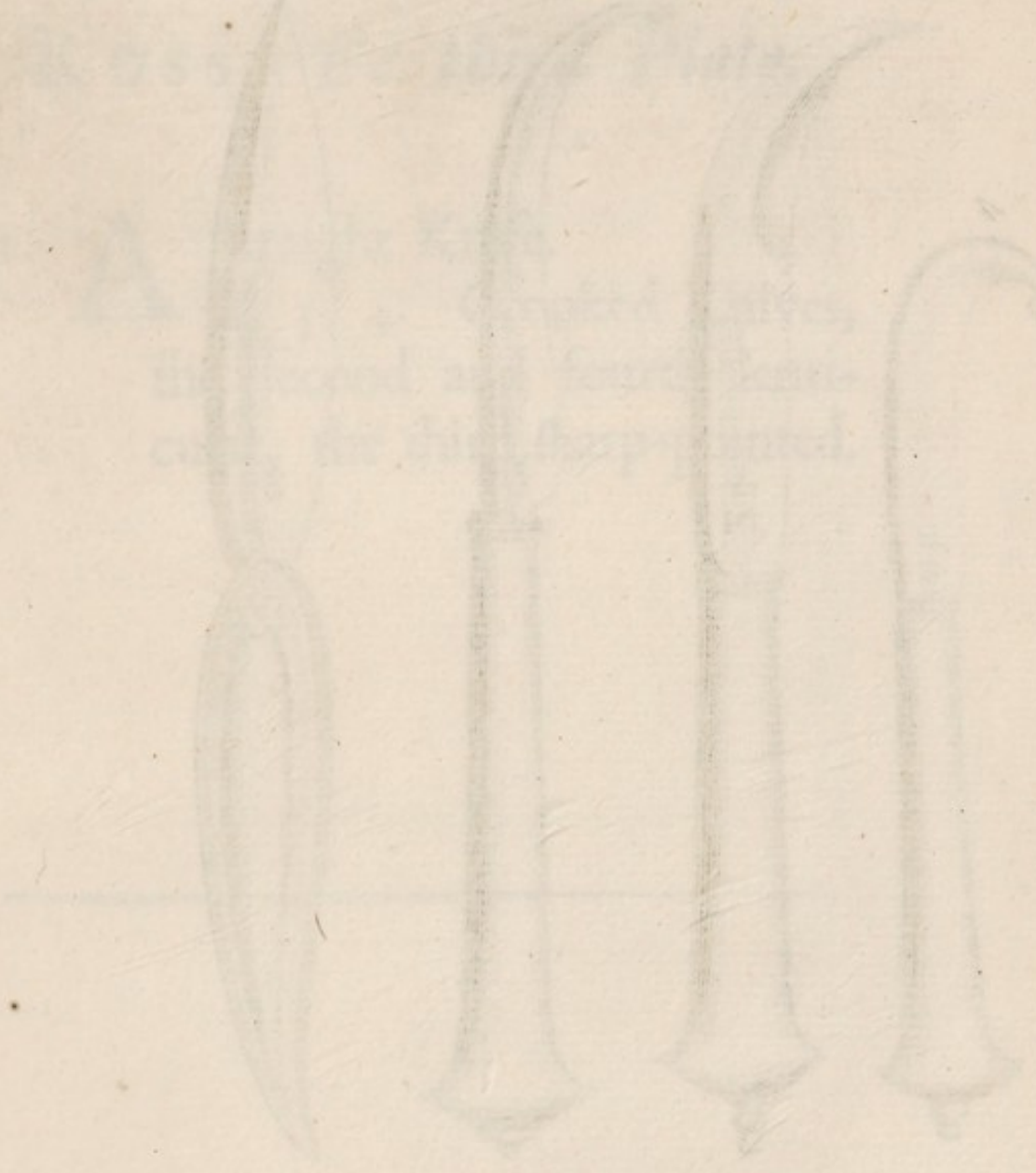
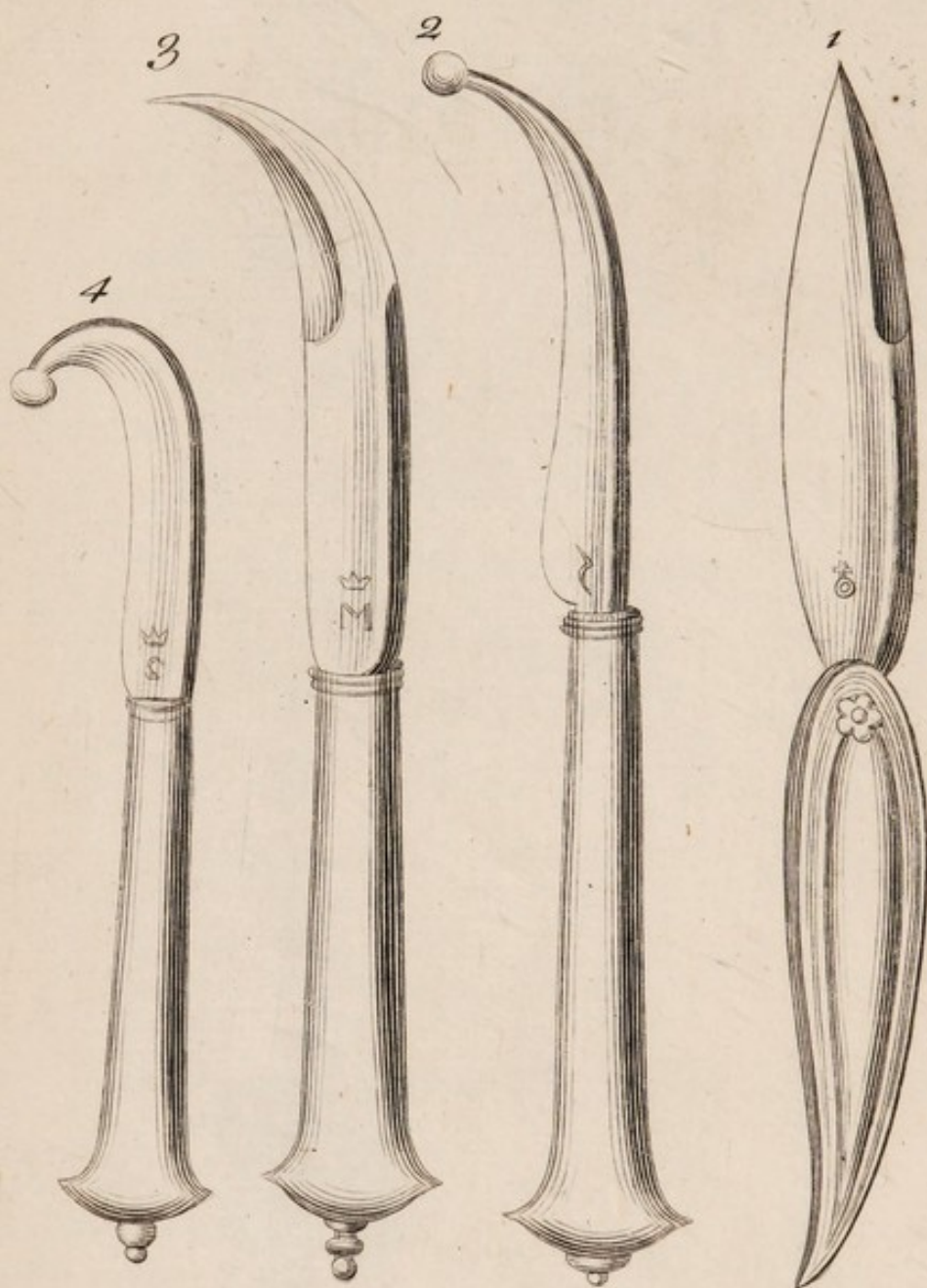


PLATE XIII



T A B. XIII.

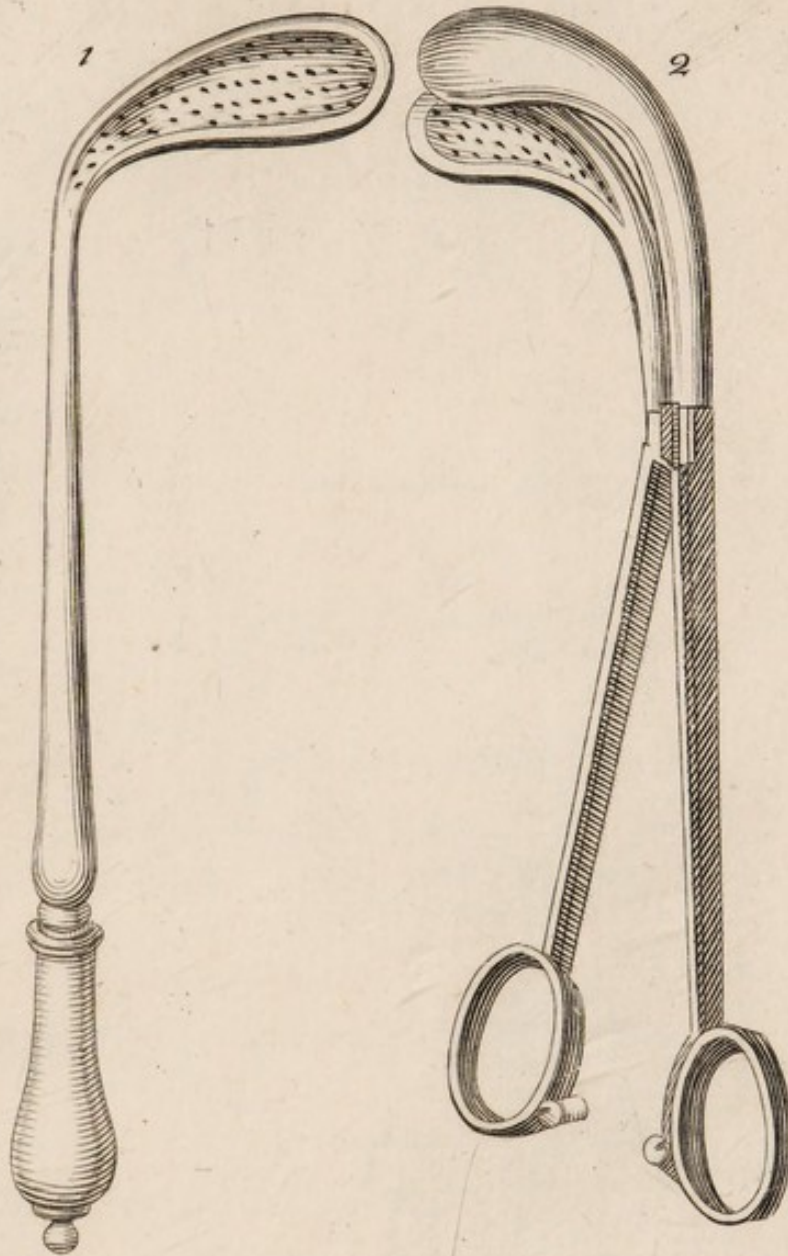
R O S S E T's *third Plate.*

1. **A** Straight Knife.
2. 3. 4. Crooked Knives,
the second and fourth lenti-
cular, the third sharp-pointed.
-

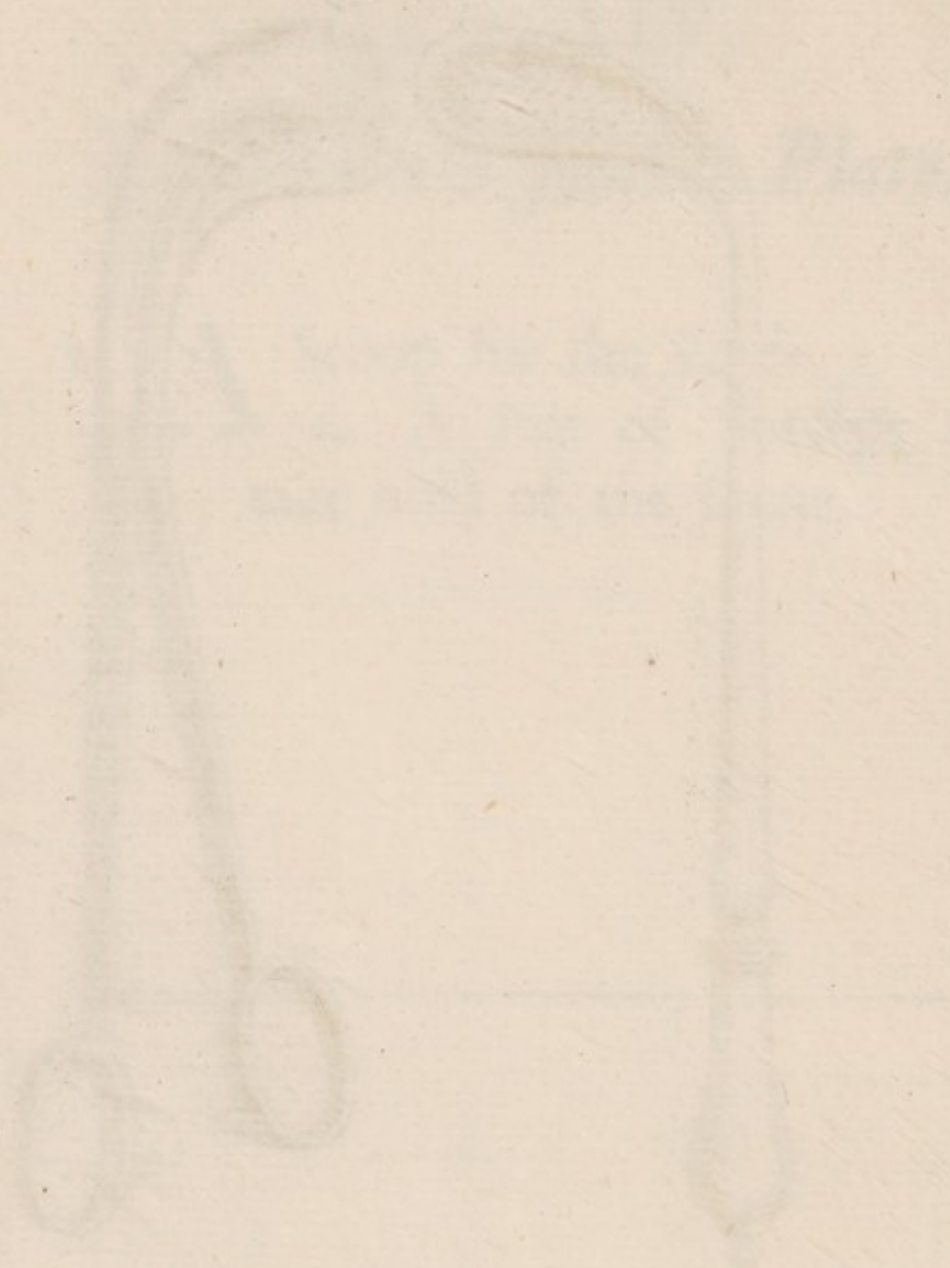
T A B. XIV.

R O S S E T's *fourth Plate.*

1. **A** Scoop for the Sands.
2. A Pair of Forceps to
take hold of the Stone.
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PLATE XV.

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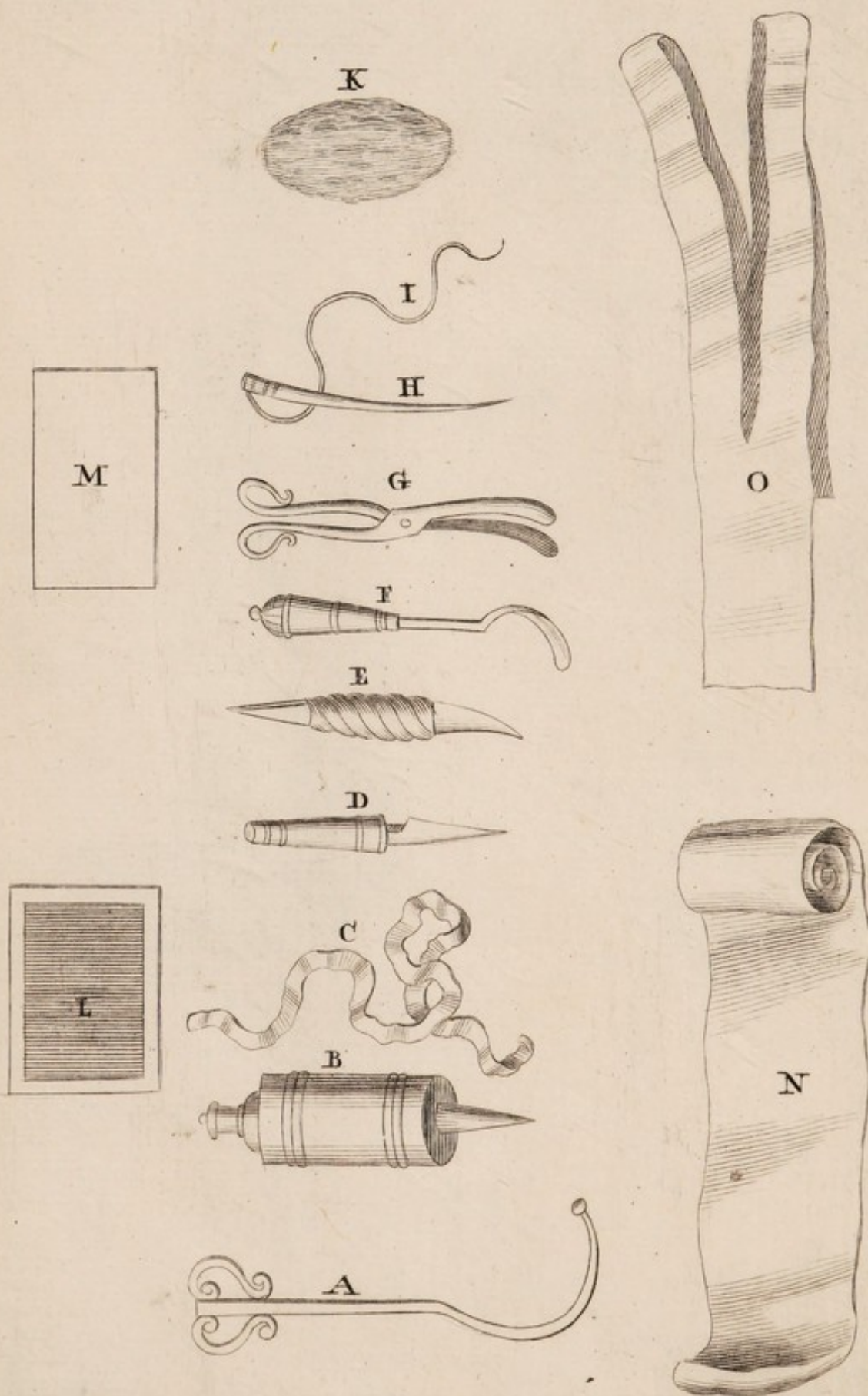
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E

I



T A B. XV.

Refers to DIONIS,
page 173.

APPEN.

A P P E N D I X.

T W O C A S E S

To shew that

W O U N D S

INTO THE

A B D O M E N

Are not exceeding Dangerous,

THOUGH THE

*G U T S should appear, or
thrust out at the Wound.*



T A B. XVI.

The C A S E of

Margaret White,

The Wife of J O H N W H I T E, a Pensioner at the *Fishmongers* Almes-houses at *Newington* in *Surrey*,

WH O, in the fiftieth year of her age, had a rupture at her navel, which continued till her seventy third year, when after a fit of the cholick, it mortified, and she being presently after taken with a vomiting, it burst. I went to her, and found her in this condition, with about six and twenty inches
and



and an half of the gut hanging out mortified. I took away what was mortified, and left the end of the sound gut hanging out at the navel, to which it afterwards adhered, and she recover'd. It's now above a year since this accident happened, and she continues perfectly well, voiding her excrements thro' the intestine D at the navel, and though the ulcer was so large after the mortification sepe- rated, that the breadth of two guts was seen ; yet they never at any time protruded out at the wound, tho' she was taken out of her bed, and sat up every day.

A. The gut hanging out at the navel.

A a

The

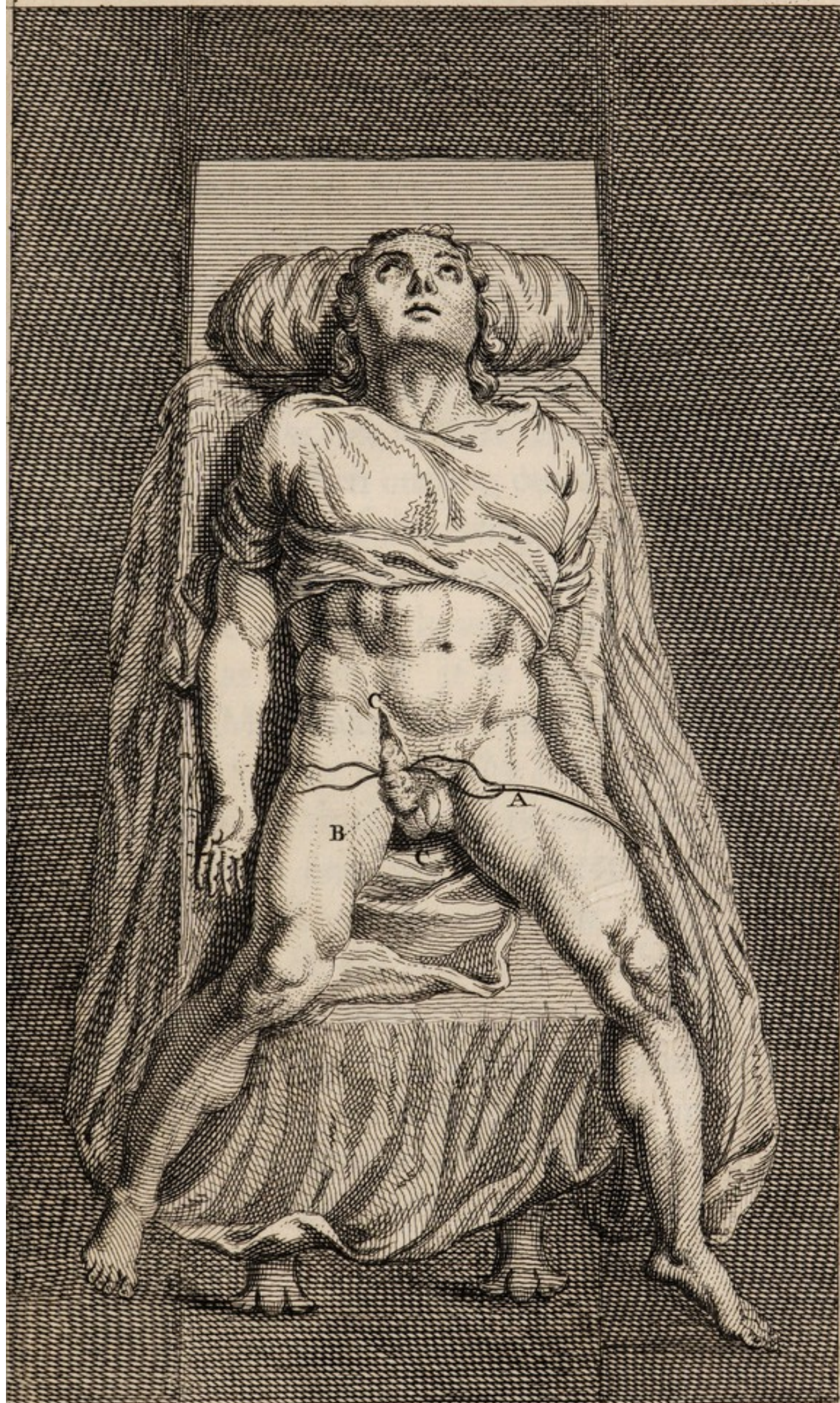
T A B. XVII.

The CASE of

Robert Heysham,

WHO,

THE friday before *Easter*, in the year 1721. by over-straining himself at work, had a rupture of his intestines into his scrotum, which could by no means be reduced. He was brought into St. Thomas's hospital the monday following, and I would have performed the operation immediately; but he refusing to submit, I deferred it till tuesday morning, when he being willing, I perform'd the operation; and making a large wound in the bottom of the abdomen, the intestines were easily reduced, and near a quart of water was discharged out





it of the scrotum at the same time. There had been a rupture of the omentum before, and it being united to the scrotum and spermatick vessels, I passed a needle with a double ligature (as is express'd in *Plate XVII.*) under that part of the omentum that adhered, so as not to hurt the spermatick vessels; then cutting out the needle, I tied one of the strings over the upper part of the omentum, and the other over the lower, and then cut off as much of it as was in the way. My reason for tying in this manner was to secure the blood-vessels, which I think could not be done so well with one ligature, because of the largeness of the adhesion, and the texture of the omentum, which renders it too liable to be torn by such a bandage. Three days after the operation, an erisipilas begun in his legs, and spread all over his body, the cuticle every where peeling off; yet

yet he recovered, and continues in a good state of health. After he was cured, at first he wore a small truss, but left it off in a short time, and feels no inconvenience from it, tho' he lives by hard labour.

- A. The needle threaded with a double ligature.
- B. The omentum.
- C. C. The extremities of the wound.



F I N I S.

