

A new forceps for intestinal anastomosis / by Ernest Laplace.

Contributors

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ANNALS
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A MONTHLY REVIEW OF SURGICAL SCIENCE AND PRACTICE

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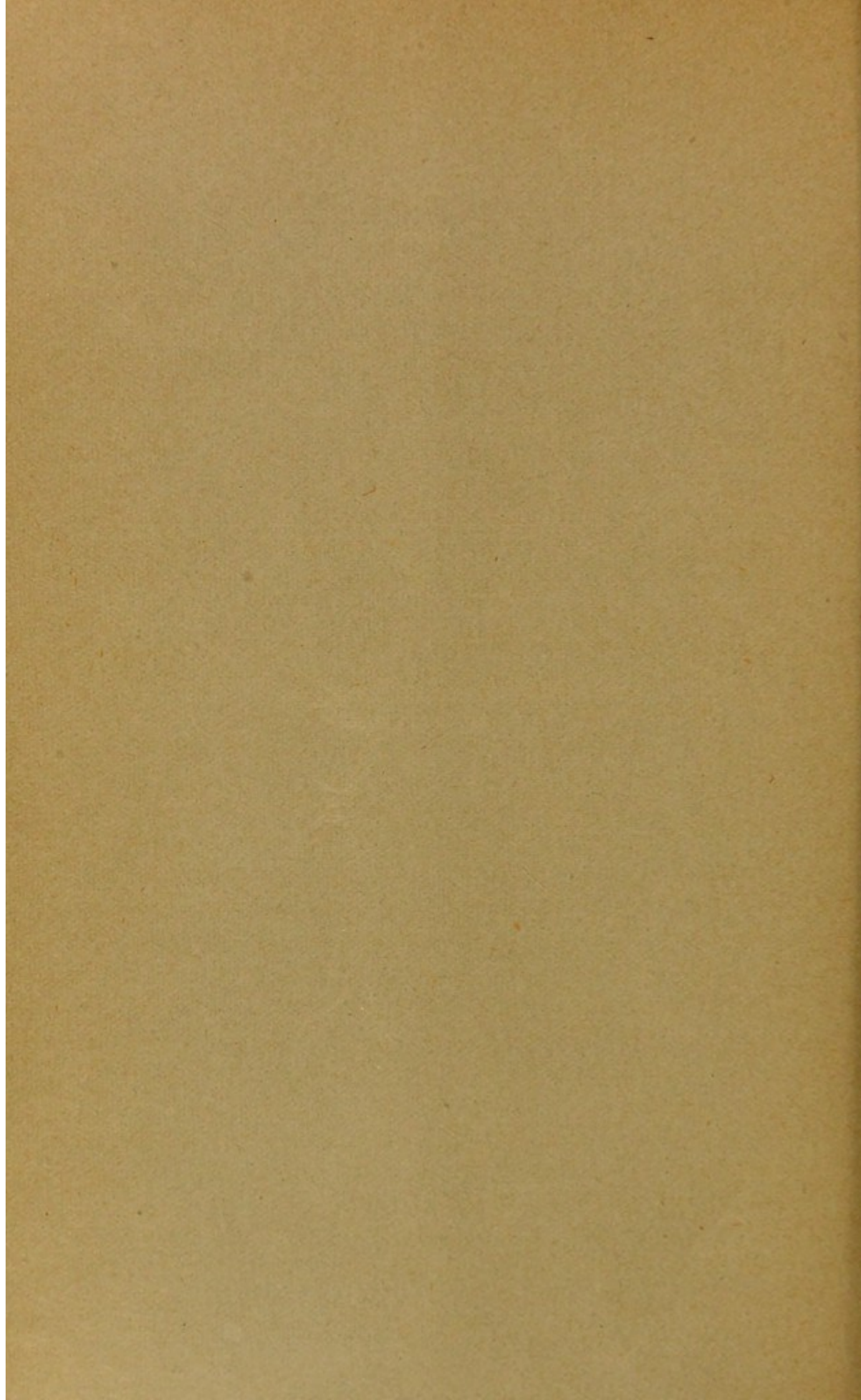
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MARCH, 1899

A NEW FORCEPS FOR INTESTINAL ANASTOMOSIS.

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THE many short-comings of the present mechanical means for facilitating intestinal anastomosis have resulted in a general tendency to abandon them in favor of the suture method, unaided by any artificial means. The necessity, however, for rapidity and accuracy in suturing while performing the various operations for anastomosis of the intestines, as well as the simplification of the procedure, has led us to devise a forceps which presents the following characteristics:

(1) It consists of two rings, introduced into the intestines to be anastomosed, and acts as a support to the parts while suturing them.

(2) The forceps, being separable into two halves, can be gently withdrawn from a small aperture still unsutured, and the anastomosis is completed by adding one or two sutures.

The method offers the following advantages: First, rapidity and accuracy of suturing without leaving any foreign substance within the gut; second, an absolute control of the field of operation by means of the assistance of the handles of the forceps; third, the facility with which the forceps are applied, preventing the escape of intestinal contents during the operation.

There are five sizes of the forceps, for intestines of various calibre, as well as for the more delicate work on the gall-bladder (cholecystenterostomy). (Fig. 4.)

The preceding illustrations (Figs. 1 to 22) give a fair idea of the appearance of the instrument, as well as the various steps in the technic.

DESCRIPTION OF THE INSTRUMENT.

The forceps consists of two parts, which are really hæmostatic forceps, curved into a semicircle on each side (Fig. 1); only held together by means of a clasp, they open as two rings (Fig. 2). They are opened within the intestine, and serve the same purpose as Senn's rings or any other ring that has been devised, bringing serous membrane to serous membrane. Accurate suturing is the operation of the present. Therefore, if these forceps are within the gut, and sutures are applied, as they would be with the help of Senn's rings, it follows that sutures are introduced all around, except where the forceps penetrate the parts that are sutured.

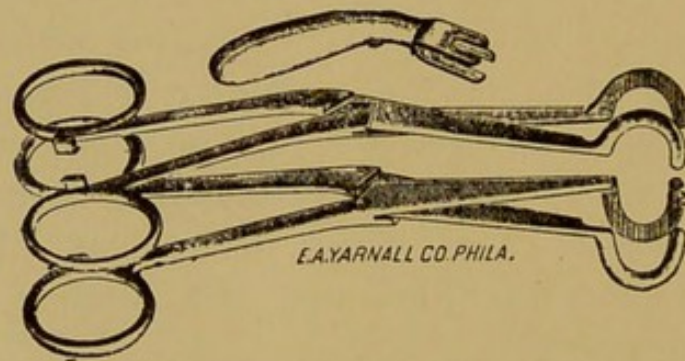


FIG. 1.—The hæmostatic forceps bent into semicircles, and clamped to hold them together.

The suturing being done, the forceps are released by loosening the clasp, and then withdrawing the forceps out of the small opening; first one-half, then the other, when the operation is finished by a stitch or two. This forceps will serve for the operation of end-to-end anastomosis, and also of lateral anastomosis.

Gastro-Enterostomy (Lateral Anastomosis).—An incision is made in each part to be anastomosed about the length of the diameter of the rings to be used. In our illustration gastro-enterostomy is performed. An incision has been made into the stomach and one into the gut. Opening the forceps one blade has been introduced into the stomach, then the other blade is put into the intestine, and the two blades are then closed. This holds in close contact the serous mem-

brane of the stomach and intestine, while sutures are applied all around, except, of course, at the small place where the instrument penetrates the stomach and the gut. Continuous sutures are used in the illustration, but any suture may be employed. The handles are made to raise the parts up, and afford support as well as a broad surface to work on. Having united the stomach and intestine, as far as is desired, the forceps are easily loosened by removing the clasp.

The forceps constituting one-half of the ring is loosened, and drawn out with a semicircular motion, then the other is removed in the same way. Finally one or two more stitches are applied to close the opening through which the forceps were removed. This completes the operation, which shows

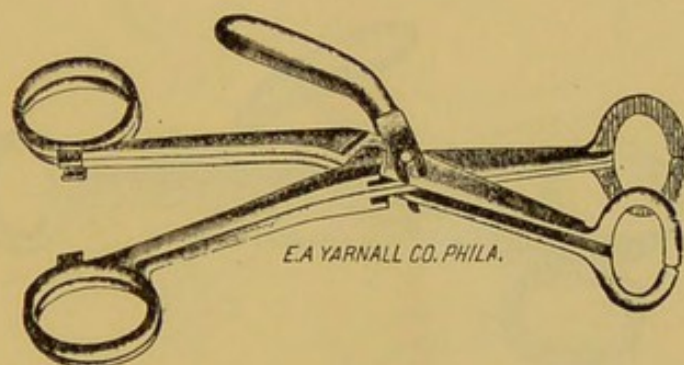


FIG. 2.—The forceps clamped together, and opened as two rings.

that the suture was more regular than could possibly have been applied without a support and the support did no harm to the intestine. The mechanical means only serve to make the manual execution better. The guidance of the ring forces us to preserve the proper direction in suturing.

End-to-End Anastomosis.—Having resected the required amount of intestine, the two ends are first united by a fixation stitch at the four cardinal points. This assures the right relation of the mesentery in the two ends of the gut. The forceps are introduced between two of these stitches. The blades are opened apart so that one penetrates one end and the other the other end. The serous surfaces are inverted, or pushed in. This may be facilitated by drawing a thread around the united ends between the two blades. The forceps

is clamped. When the forceps is clamped serous membrane is in apposition to serous membrane. The sutures are then applied all around the clamped surfaces, to the point where the forceps penetrates the gut. The clamp is removed; one-half of the forceps is removed. The other half is then removed. The operation is completed by adding one or two stitches to close the opening through which the forceps were removed. The calibre of the gut is preserved.

Invagination.—Should it be desired to make an entero-enterostomy with invagination of the ends of the gut, the accompanying forceps (Fig. 5) facilitates the invagination, and obliterates the end of the gut. It consists of a long, slender, straight hæmostatic forceps. The end of the gut is

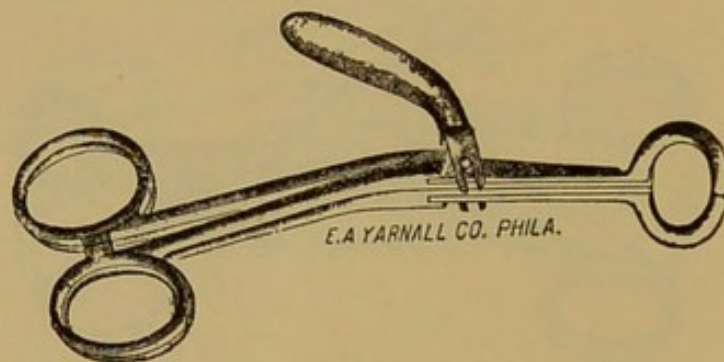


FIG. 3.—The forceps closed.

clamped and pressed down within the calibre of the gut; the serous membrane on each side thus rises and is rapidly sutured under the control of the instrument. When the suturing is done, the instrument is loosened and withdrawn; one more suture is applied at the point where the instrument penetrated. This makes a very good stump, and is very expeditious.

This method was presented to the American Medical Association at Denver, Colorado, June 9, 1898. A full description of it appeared on the same date in the *Philadelphia Medical Journal*. Since then its use has become widespread, and the results obtained on the living have demonstrated its usefulness.

A demonstration of the workings of the forceps was

made before the Philadelphia County Medical Association, November 25, 1898, eliciting the following discussion:

DR. J. CHALMERS DA COSTA, who had previously seen the utility of these forceps demonstrated, by Dr. Laplace, on the intestines of a cadaver and on those of a living man, said that, to him, the instrument appeared to even greater advantage when used upon the thicker intestine of the living than it did when employed on the thinner intestine of the dead. The expediency of using a mechanical device in suturing had been largely debated and is still unsettled. The trend of surgical opinion is that, whatever disadvantages the

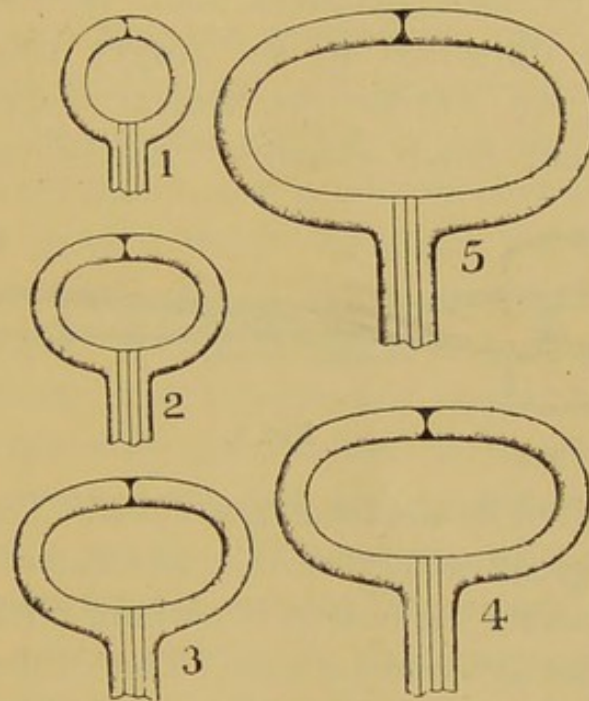


FIG. 4.—Various sizes of rings made for the forceps blades.

use of a mechanical device may possess, it greatly facilitates the application of sutures. The instrument of Dr. Laplace affords all the advantages to be gained from such mechanical devices as the Murphy button, bone-plates, etc., and yet it is free from their disadvantages, because the operator, having enjoyed all the benefit of the forceps, removes them, while such devices as the Murphy button must remain in the intestine, and be a cause of anxiety till they have separated and been discharged. A special virtue of the forceps is that they render it easy to place the sutures with mathematical cer-

tainty at the required distances. This is so because the rim of the instrument renders it extremely easy to catch the serous coat, and because the suture line not only is held in perfect and firm apposition, but can be kept under perfect control by the handles. The instrument is simple, and, unlike many other devices, may be successful not only in the hands of its originator, but of all who use it. It is destined to replace the mechanical aids of many other methods.

DR. ORVILLE HORWITZ said he had listened with a great deal of pleasure to the instructive demonstration of Dr. Laplace, and felt sure that his ingenious instrument will prove to be one of the greatest advances made in intestinal surgery in years. The objection to the catgut ring, bone-plates, bone-bobbins, and similar mechanical devices, is that in their employment much valuable time is consumed and a



FIG. 5.

foreign body is left in the intestinal canal. The Murphy button combines speed with a certain amount of safety, but no surgeon who inserts the button is without anxiety until it has been voided through the rectum. The rubber cylinder is a step in advance of either the rings or the bobbins. What Halsted claims for the cylinder is justifiable; the operator can dispense with clamps, the vermicular motion of the bowels is arrested, the adjustment of two ends of intestine, of unequal size, is facilitated, and, finally, valuable time is saved by its employment. The objection to the rubber cylinder is that it is a complicated device; often difficult to manage; its proper adjustment frequently requiring a good deal of time. Until the introduction, to the profession, of Laplace's anastomosis forceps, it was superior to any other mechanical contrivance devised to facilitate intestinal anastomosis, with the exception of the Murphy button, which was to be preferred

when time was an object. The anastomosis forceps will be found to be superior to the cylinder. The former is not so complicated, is easier of adjustment, and the operation can be performed with as much speed as in cases where the Murphy button has been used. Personal observation of the practical application of the forceps, in the hands of Dr. Laplace, at the Medico-Chirurgical Hospital, convinced Dr. Horwitz that this instrument is far superior to any contrivance that has been heretofore suggested or employed; and when the profession becomes familiar with the instrument, it will supersede any form of mechanical device at present employed in intestinal surgery.

DR. EDWARD MARTIN greeted the forceps as an admirable mechanical device that will improve intestinal technic. He applauded the modest manner in which Dr. Laplace had presented his instrument, and predicted that since it had done so well on the dead it would be much more efficient when used upon the living. It facilitates the operation, it expedites it, and finally makes the sutures very much more accurate. Moreover, the forceps are simple in construction. Yet facility in handling them should be thoroughly acquired, as the management of any new instrument should be, before employing it on a patient. This experience may be gained on the dog, but is preferably obtained upon the intestines of the recently dead. The technic of this instrument can be acquired much more rapidly than that of the ordinary intestinal suture, and an added advantage not mentioned by Dr. Laplace is that the metal instrument will guide the surgeon in suturing. Improvements short of being revolutionary in the field of surgical appliances rarely have a widespread adoption. This is to be deprecated, and while Dr. Laplace does not claim for this instrument any revolutionizing power, still any one who has attempted suturing through a thick abdominal wall with a short mesentery will probably supply himself with this forceps.

DR. HEARN expressed his belief that surgeons who opposed mechanical aid in intestinal anastomosis will be glad

to use Dr. Laplace's forceps. He advocates the use of the Murphy button where hurry is imperative to combat shock or long exposure, but recognizes that the sequences of the Murphy button are sometimes unpleasant,—*e.g.*, sloughing. Dr. Laplace's instrument is ideal.

DR. A. J. DOWNES was impressed by the ease with which Dr. Laplace used the forceps. He said that intestinal anastomosis only attained success with the advent of the Murphy button, the objections to which are well-known. From experimentation on animals, Dr. Downes was convinced, until very recently, that the ideal method of doing anastomosis was by the use of inflatable rubber bulbs or cylinders. But seeing Dr. Laplace use his forceps at a private demonstration, about two weeks before, he thought that forceps on this principle would prove the instrument of the future.

DR. RODMAN, who had seen several demonstrations by Dr. Laplace of his forceps, had been each time most favorably impressed by the instrument. Like Dr. Da Costa, he thought it the best of the mechanical aids that have been used in intestinal work, and predicted that it will displace all others. It is not quite so rapid a method as that of the Murphy button, but is free from the latter's many objections. Use of these forceps will not be attended by the same danger of pressure necrosis, of leaking from an intestine, of septic peritonitis, of intestinal obstruction, and of the lodgement of a foreign body in the stomach, as has been reported by Willy Meyer and many others who have used the button, and therefore the Laplace is an ideal method.

DR. M. PRICE pronounced the instrument perfect in its accomplishment of anastomosis, and said it would displace other devices. Although the Murphy button is the most rapid method, it cannot be any more accurate than the Laplace forceps, and has an exceedingly dangerous complication when a small intestine is fastened by it to the stomach, because there are two ends to the intestine, into either one of which the button may drop. If the case is cancerous, or of a similar character, a button that has gone the wrong way

will stay and ulcerate, and the complication ends the patient's life. This is also true in the anastomosis of a small intestine to a large one, in order to switch off a cancerous portion, and complete the lumen of the bowel. The forceps fulfils the indications in another way, and is absolutely clean. No matter how expert an assistant, it is almost impossible in performing intestinal anastomosis by former methods to keep fæces and gas from extravasating. The forceps keep the parts clean, and also in apposition throughout the suturing, which it much facilitates. End-to-end union in bowel of the same calibre it accomplishes with perfect ease. In anastomosis, the instrument of Dr. Laplace will be of great help; with a little ingenuity, it should meet all the complications to be dealt with. It is, probably, the best mechanical appliance yet seen in intestinal surgery.

