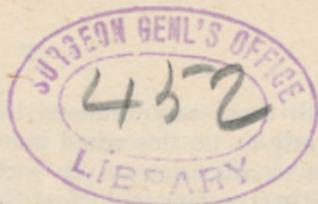


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## A Combined Laparotomy and Gynecological Operating-Table.

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AN operating-table claiming to meet all the requirements of modern abdominal and gynecological surgery should combine the following features :

1. Its construction should be simple, so as to permit of ready and thorough cleansing of all the parts, and, if need be, of sterilization of the entire table.

2. It should allow of irrigation *ad libitum* without wetting the clothing of patient, operator, or assistants.

3. It must provide for elevation of the pelvis—the so-called Trendelenburg posture—in the performance of abdominal section.

4. It should permit of ready turning, so as to allow the axis of light to fall as needed upon different portions of the field of operation, a point of especial importance in intra-pelvic surgery.

5. It should afford facilities for the ready performance upon the same patient, at the same sitting, of combined operations ; and by this term I mean more particularly the combination of abdominal section with operations upon the uterus, vagina, and perineum.

6. It should enable us to dispense as far as possible with superfluous assistance and accessory apparatus, thus simplifying operative procedure.

With these requirements in view, the operating-table presently to be described was designed and constructed. It is a modification of the writer's laparotomy table presented to the Gynecological Section of the Tenth International Medical Congress. The modifications were chiefly for the purpose of adapting it to the performance of operations upon the uterus, vagina, perineum, etc., and to the readier employment of the Trendelenburg posture. As the table now stands, I have had it in continuous use since February 6, 1891, and for the purposes of my special work it leaves very little or nothing to be desired. In addition to the purposes for which it was especially designed, it meets most of the requirements of general surgery, and could be readily modified to meet them all. Such a modification has, I believe, already been attempted by one of our leading New York surgeons.

Polished plate glass and galvanized metal are the only materials which enter into the construction of the table. Galvanized iron and brass will not rust, and are not affected by even strong solutions of sublimate. A piece of either of them allowed to remain over night in a 1 to 500 bichloride solution comes out bright and untarnished. All parts of the table can thus be freely scrubbed or immersed in a bichloride solution, and the entire table can be subjected, without injury, to prolonged steaming, boiling, or to a dry heat of  $100^{\circ}$  C. and over. By this means the table, howmuchsoever fouled, can be sterilized and rendered aseptic.

The frame *A* of the table-top is cast in one piece of metal, with all corners and angles well rounded for purposes of ready cleansing. After uniting frame and legs all joints are filled, the metal surfaces smoothed, and the table finally galvanized as a whole. This secures the filling of any crevices and makes a practically unbroken surface continuous over the entire framework of the table.

The table-top (Fig. 1) measures 20 x 49 inches over all, and consists of two plates of polished French glass, *B*, *C*, one-half inch thick, with rounded and polished

edges and corners, and of a smooth metal surface, *D*. The glass plate *B*,  $19\frac{1}{2}$  inches square, supports the head and shoulders of the patient. It is removable from the frame for purposes of cleansing. The greater part of the trunk and part of the thighs of the patient rest on plate *C*, which is  $19 \times 16\frac{1}{2}$  inches in size, and also removable. The metal surface *D* is 15 inches wide, 7 inches long in its horizontal, and 12 inches long in its vertical portion. The horizontal part supports the lower portion of the thighs, while the legs are flexed so as to bring the calves against the vertical prolongation. Two metal bars, cast

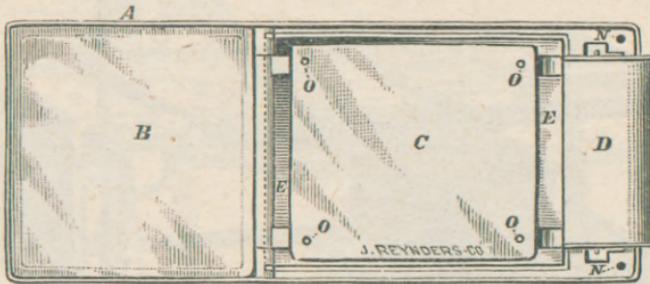


FIG. 1.—Top of Table. *A*, metal frame; *B*, polished glass plate for head and shoulders; *C*, ditto, for body; *D*, metal surface; *E*, trough; *N*, holes for foot supports.

in one piece with *D*, pass under *C*, supporting the latter, and are hinged upon a pinion passing across the table between the two glass plates. This pinion can be withdrawn, allowing of removal of all the parts for easy cleansing. Two projecting pins pass from each of the two metal bars through corresponding perforations, *O*, in the glass plate *C*, to keep the latter from sliding when *D* is elevated. The glass plate *C* is separated by intervals or spaces,  $1\frac{1}{2}$  inch wide, from *B* above, *D* below, and the frame of the table on either side. All fluids used in irrigation pass over the edges of *C* into a trough, *E*, swung beneath, which conducts them into a receiving vessel, *F*, standing on the glass shelf *G* (Fig. 2). This permits of

free washing of the abdominal walls before, or of flushing of the abdominal cavity during, an operation, without wetting the clothing of patient or operator.

When *C* and *D*, with the patient in position, are elevated—the Trendelenburg posture (Fig. 3)—the ratchets of *H*, catching upon the bar *F*, allow of any desired height being maintained, or of an almost instantaneous change in the degree of elevation being effected at any time.

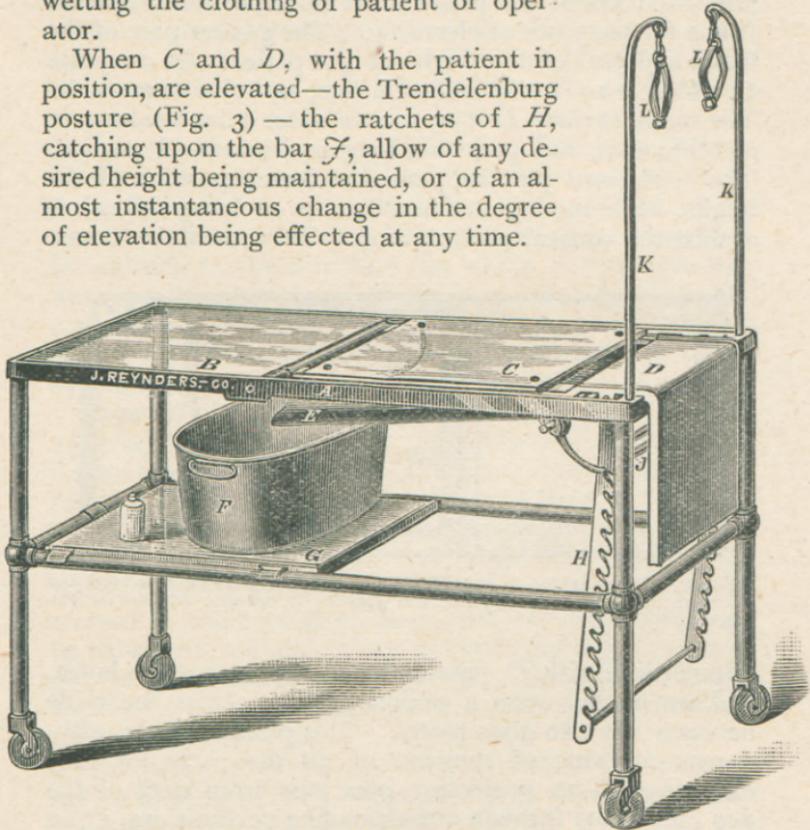


FIG. 2.—Table, complete, with foot-supports, *K*, and ankle-straps, *L*.

The table stands thirty-two inches in height, and is mounted upon casters to permit of ready turning during an operation. The height may of course be varied to suit the height or fancy of the operator.

The table, as already stated, is designed for the per-

formance of both laparotomies and the various operations upon perineum, vagina, and uterus. It has also served me well in the performance of Kraske's operation, the patient being placed upon the abdomen with the lower extremities pendant over the lower edge of the table, which is then elevated until a comfortable height for the operator is attained. The head and lower extremities being thus lower than the buttocks, an artificial ischæmia

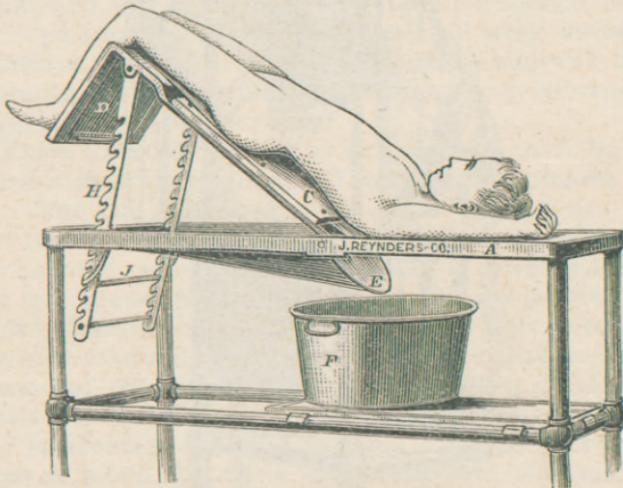


FIG. 3.—The Trendelenburg Posture. Any position between the horizontal and an inclination of  $45^{\circ}$  may be obtained on the table.

of the field of operation is produced and the hemorrhage greatly lessened.

The use of the table for operations upon perineum, vagina, and uterus is depicted in Fig. 4. The patient, in the dorsal position, is brought to the lower edge of the table. The buttocks are supported upon *D*, while the ankles are encircled by the foot-straps *L*, and the feet held suspended two feet above the level of the table by the removable uprights *K*. (See also Fig. 2.) This method of securing flexion of the thighs is preferable to

any other with which I am familiar. It does away with the necessity of leg-crutches or Beinhalter, with the straps encircling and constricting the neck and shoulder of the

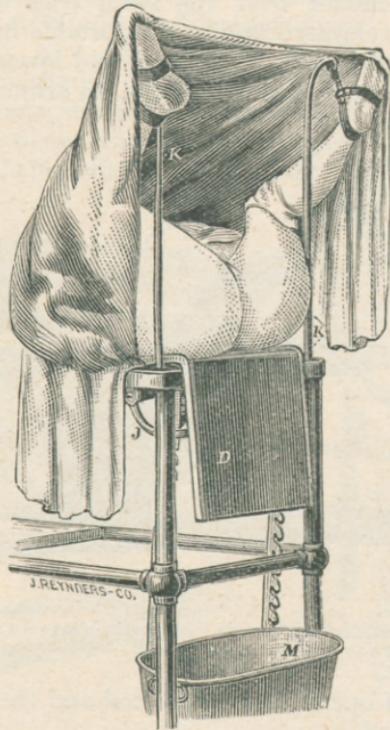


FIG. 4.—The Lithotomy Position, for Examination and for Operations upon Perineum, Vagina, and Uterus. *D*, carrying the buttocks of patient, can be raised to any convenient height.

patient, and keeps the feet well out of the operator's way. The uprights also prevent the assistants from leaning upon the legs of the patient during operation, and the resultant subsequent complaints of the patient. The clothing is tucked up on to plate *C*, and the freest irrigation

of the field of operation can be employed without wetting the patient.

The metal plate *D* takes the place of and renders superfluous the ordinary rubber perineal pad, and conducts all irrigating fluids into the basin *M*. This, to me individually, is a matter of considerable importance, since I have for some years past entirely discarded the use of sponges in operations upon the uterus, vagina, and perineum, and use in their stead constant irrigation during the operation, with sterilized water or weak antiseptic solutions. The ability to raise plate *D*, and with it the buttocks of the patient, to any height, is a convenience appreciated by the operator.

Every laparotomy table, to be complete, must be provided with facilities for the Trendelenburg posture (Fig. 3). The cut represents a patient of average size upon the table. Should the patient be particularly tall, a rubber-covered cushion placed beneath the calves will bring her into proper position. This posture has become well-nigh indispensable in pelvic surgery, and after a constant use of it extending over a period of more than two years, I can but reiterate what I said at a meeting of the New York Obstetrical Society, February 17, 1891:<sup>1</sup>

“Incidentally I would mention that the four operations at which the above specimens were obtained were all performed with the aid of the so-called Trendelenburg position—*i.e.*, with the pelvis elevated, the body resting upon an inclined plane, forming, with the horizontal plane of the table, various angles up to one of 45°. I desire particularly to call the attention of abdominal surgeons to this position, the manifold and obvious advantages of which, in the practice of pelvic surgery, are not yet sufficiently appreciated in this country. The obliging manner in which the intestines gravitate toward the diaphragm out of the operator's way; the increased facility with which the pelvic organs are rendered accessible to sight, touch, and manipulation; the ability to

<sup>1</sup> American Journal of Obstetrics, May, 1891, p. 597.

demonstrate these operations to spectators almost as well as those performed in other regions of the body, constitute a revelation when first brought to our notice. I have made use of the position in everyone of the laparotomies performed by me within the past eighteen months, and have recently completely reconstructed my operating-table to meet all its requirements. Roughly stated, it reduces by about fifty per cent. the technical difficulties of intra-pelvic surgery, and the wonder to me is now how I ever managed to get along without it. I am sure that I have, by its use, satisfactorily completed more than one operation which formerly I should either have abandoned or performed but imperfectly."

When laparotomy is to be performed the patient is placed upon the table and anæsthetized. Anæsthesia may be induced in an anteroom, and the table, with the patient upon it, be rolled into the operating-room when unconsciousness has been established. The clothing of the patient is next tucked up on *B* and down upon *D* when the abdomen may be thoroughly scrubbed with soap and water, followed by bichloride solution, ether, etc., all fluids running off glass plate *C* without wetting the patient's clothing. With the exercise of a little care the patient may be returned to bed as dry as she came to operation. This preliminary disinfection, as well as any subsequent irrigation of the abdominal cavity, is performed with the patient in the horizontal position. When everything is ready for the beginning of operation the pelvis is elevated by an assistant, who can, as often as desired or necessary during the operation, almost instantly lower the patient to the horizontal, or elevate the pelvis to any angle up to  $45^{\circ}$ . A greater elevation than this I have never found necessary or convenient. The operator may take his position either to the right or left of his patient. I prefer to stand on the right side.

The requirements of modern gynecology often call for the performance of several operations upon a patient at one sitting. Thus, in a woman suffering from laceration

of the cervix and of the perineum, it would hardly be excusable at the present day to perform trachelorrhaphy or an amputation of the cervix, and postpone the closure of the lacerated perineum to a later date. The performance of both operations at the same sitting is generally an easy matter ; indeed, the dexterous operator should be able to add thereto, if necessary, other operative procedures—a curettement and anterior colporrhaphy, for instance—at the same sitting without prolonging the time required for all these operations much, if any, beyond an hour. Frequently, also, it is to the interest of our patient to add one or another required plastic operation to one of the simpler laparotomies, as nothing is looked forward to by women with such great dread as a series of operations to follow each other at greater or lesser intervals of time. The prudent operator will not, of course, for these or any other reasons, be prevailed upon to jeopardize in the least his patient's chances of recovery from a severe or difficult laparotomy. I have, however, a number of times preceded abdominal section for ventro-fixation or for ovarian cystoma by trachelorrhaphy, or followed it by perineorrhaphy, and have not lost a patient upon whom the double operation was performed.

In the operative treatment of prolapsus uteri I have frequently combined ventro-fixation of the uterus with various plastic operations, and it is in these cases especially that the table has proved very serviceable, owing to the possibility of easy and rapid change from the laparotomy to the lithotomy position, and *vice versa*. In April of the present year a patient was sent to me for the operative treatment of a prolapsus uteri. I found a lacerated perineum with a large cystocele and rectocele. The uterus was large, retroverted, and prolapsed in the second degree, the badly lacerated and enormously hypertrophied cervix presenting at the vulva. In addition she was found to be suffering from fungous endometritis. On April 11th I performed curettement of the uterus, amputation of the cervix, anterior colporrhaphy, laparotomy for ven-

tro-fixation of the uterus, and colpo-perineorrhaphy in the order named, the time occupied in these operative procedures, inclusive of the necessary changes in the position of the patient, being exactly seventy-five minutes. All the wounds healed by primary union, and four weeks after operation the patient left the hospital cured, and remains so to the present day.

This is not the proper place for a full discussion of the subject of combined operations, an urgent topic of the near future, if I mistake not, in gynecology. Suffice it to say that judicious individualization, the personal equation of operator and patient, and the time element especially, are all factors which must be taken into account in reaching a decision in any particular case.

I have also found the table most useful for gynecological examinations. With the patient in the dorsal position as depicted in Fig. 4, the plate supporting the buttocks can be elevated to any desired height. This elevation causes the abdominal viscera to gravitate toward the diaphragm, and by strongly flexing the thighs relieves the tension of the abdominal walls. Conditions are thus established most favorable to an easy and thorough exploration of the pelvic contents by bimanual palpation. The advantages of this position in the examination of difficult cases must be tested to be appreciated.

To recapitulate briefly, the table here described possesses the following characteristics :

It is a complete laparotomy and general gynecological operating-table, as well as a useful examining-table.

It meets the requirements of modern antisepsis in material and construction.

As a laparotomy table it permits of free irrigation of the abdomen, without and within, without wetting the clothing of the patient or operator.

In the employment of elevation of the pelvis—the Trendelenburg posture—it furnishes facilities for almost instantaneous change, as often as desired, to any position between the horizontal and an inclination of 45°, and

permits of easy rotation for adjustment to the axis of light.

As a general gynecological operating-table it enables the operator to raise or lower the field of operation at will, and to dispense with all superfluous accessories, such as leg-crutches, straps, and perineal cushions.

The facilities for rapid interchange between the laparotomy and the lithotomy positions, renders the table especially serviceable in the performance of combined operations.

My thanks are due to J. Reynders & Co., 303 Fourth Avenue, for patient endeavor to meet my wishes in the construction of the table.

