

SOME ACCIDENTS AND COMPLICATIONS INCIDENT
AND SUBSEQUENT TO ABDOMINAL AND
PELVIC OPERATIONS.

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THE time is come to acknowledge that the successes of abdominal and pelvic surgery are bounded and measured by the ability to master their complications. The field of gynecic surgery to-day is plowed and harrowed by as restless and motley a throng as ever surged upon the Pacific slope for gold. Too often their zeal is not for earnest work, but for local renown. They would build a tower to make themselves a name. The end must be confusion and complaint. These are troublous times for abdominal surgery and surgeons. They have their way to make and sustain both against the inherent difficulties of their work, and against the failures of those who insist on "opening the abdomen because it is easy." For this condition of matters abdominal surgeons are for the most part to blame, by reason of ill-advised expression as to the difficulty of the work. When Mr. Tait says in effect that the removal of the entire pregnant uterus is an easy matter that every country surgeon should be ready to perform, it is unnecessary further to explain this point. It is easy with special training in the technique of abdominal surgery, but most difficult without this. So it is in all the varieties of pelvic and abdominal work. The removal of an organ is often the least part of the operation. The attention to the minute details that alone can bring success to the operation is only attained by long and careful training. It has been asserted that the operation is nothing, that the after-treatment is the most important consideration. My own experience is diametrically opposed to this assertion. Prolonged treatment after abdominal section should be just or

almost as rare as repeated operation upon the same patient. In a majority of instances, the man who operates two or three times upon the same patient for the same or allied affection, has operated carelessly or inefficiently at first, and will probably do the same at last. This is the man who will find prolonged after-treatment necessary, and who probably considers the operation itself of secondary importance. Let us start, then, with the idea that the operation is a serious undertaking, to be seriously performed, after serious consideration; we are to remember, at the same time, that what appears the simplest may eventuate in the most complicated condition, and that herein the necessity for careful preparation in all that belongs to abdominal or pelvic surgery is the *sine qua non* of assured success. A knowledge of what may happen is the best protection against misfortune, and a chief factor of the extreme simplicity in the work of the best surgeons.

The accidents and complications must, of course, vary according to the organ dealt with or the nature of the operation. In the presence of adhesions we may have hemorrhage or intestinal rupture. These are most apt to occur in long-standing pelvic inflammations, and in extra-uterine pregnancy. Case XXVI. of my series well illustrates both these complications. Extra-uterine pregnancy with pyosalpinx produced a complication as hard to describe as to recognize. The intestine was torn off too low to bring the ends out for artificial anus, while the hemorrhage was such that the pelvis was packed to control it. The packing remained for sixty hours, when it was removed without return of the bleeding. The intestine was carefully sutured deep down in the pelvis, and, strangely enough, in the face of the extreme difficulty of this procedure, the woman recovered without fecal or other fistula. The case brings out the necessity of exact knowledge of intestinal suturing, and the importance of packing in pelvic hemorrhage. Half-way measures in these and similar cases must always result disastrously. In gonorrhoeal disease of the tubes and ovaries, where the disease is of long standing, there is frequently found such a degeneration of the tissues that it is impossible to make an ideal stump or button for safe tying. Luckily here, as in other degenerations, the bloodvessels are the last to yield their integrity; and when they are intact, though the stump is not ideal, the hemorrhage can be controlled. Case XXII. is a typical illustration of this condition in its extremity. The tissues

were so rotten that the ligature cut through broad ligament, vessels, and all. The cornu of the uterus was curetted, and the ligature applied directly to the uterine tissue. The degeneration of tissues, such as is here referred to, is not uncommon in all cases of pyosalpinx, whatever their origin. The importance of curetting away the diseased parts cannot be too strongly urged as the most important step outside the line of ordinary procedure. A complication of pelvic surgery, always vanquishing the neophyte and taxing the ingenuity of the experienced, is the tying off of rudimentary appendages (Cases XXIV. and XXVII.) at the bottom of the pelvis. Nothing is easier than to tie off the normally developed tube and ovary; but when these lie at the bottom of the pelvis, almost entirely bound down in its peritoneum, to tie them off—done, as it must be, by the ends of the fingers, through an incision two inches long—requires an amount of manual dexterity only attained by much and patient endeavor. Now, as the application of the ligature may greatly complicate and delay the operation, so slipping may give rise to greater trouble. After careful tying, the greatest safeguard against slipping is the leaving of a generous button. There is no necessity for complicated knots with fancy names. The ordinary surgeon's knot, applied as it should be, will never fail to hold.

The more deliberately the tying is done, thereby affording brief time for shrinkage, the less likely is oozing to occur. The smoother the ligature, the better it will tie. For this reason I prefer cabled to braided silk.

In deep pelvic surgery there is constant danger of wounding the ureters. This, in the present status of our knowledge, involves a most serious procedure—the removal of the corresponding kidney. There is open here a wide field for vivisection experiment, to ascertain with what anatomical and physiological success the ureters can be grafted into the intestine. If this can be successfully done in the human subject, another important stride in surgery will have been taken.

The presence of dense adhesions, especially visceral, and the consequent hemorrhage, for a long time baffled the best attempts of the surgeon. Clots and débris of every description found their way and remained in every nook and cranny of the peritoneal cavity, from diaphragm to pelvic floor. These could not fail to do infinite harm, and the drainage tube was entirely inadequate to

remove them. This is, indeed, no easy task. As ordinarily attempted with the syringe, it is often unsuccessful, because the current of water is not strong enough to find egress with sufficient momentum to bring away the particles—often, indeed, masses—of lymph and clot. At the present, the gravity tube gives the best method of thorough cleansing. The water is poured into a funnel elevated according to the effect desired, while the other end fitted with a nozzle is directed all over the peritoneal cavity, under the broad ligaments, mesentery, liver, spleen, and, in fact, everywhere that clot can lurk. The free drenching or flooding of the abdominal cavity need not be feared; the heat is an important desideratum in relieving shock. I have constantly employed it, even where drainage was afterward found unnecessary, and have yet to find a single bad result. This has also been the experience of my friends operating more frequently than myself. Operation with existing pregnancy is a complication not much referred to. It is, no doubt, frequently met, and just as frequently concealed. In one such case I have operated to save life. The woman did not think herself pregnant, was suffering from peritonitis, belly tympanitic and tender, had high fever, and I felt, as I delayed operation a day or two while I tried without success to relieve her with salines and external applications, that I was treading upon dangerous ground. Operation revealed general pelvic peritonitis with pus in the tubes. The uterus was enlarged, which previously was in doubt, owing to the size and distention of her belly. Three days later the patient miscarried, her pain, in the meanwhile, being controlled with morphia and atropia. She recovered, and is now among the best of my results. It is evident that in cases such as this the tying of the ligatures is an important consideration, owing to the increased strain put upon them, both by uterine contraction and abdominal tension. I believe in these cases morphia or other anodyne is of distinct advantage. Here I met also another complication. The unrest of the patient, before I put her under anodynes, was so great and violent that the drainage tube was displaced. I felt there was need of it, owing to the extreme inflammation, and tried to reintroduce it. In this I failed, and had to remove it. For a day or two the symptoms were urgent, and I made preparation to reopen and drain, but, happily, under free

purgation, she became comfortable, and this was unnecessary. This was Case XIV.

The careful disinfection of suspicious tubes, before the stumps are allowed to drop, is a step, I am convinced, should never be omitted. I believe that failure to do this in one of my cases, apparently very simple, was the cause of peritonitis and death. A previously induced abortion, of which I was ignorant at the time, was, I believe, the immediate cause of the sepsis.

Among the immediate post-operative complications, peritonitis was until lately reckoned as most likely and most fatal, excepting, perhaps, hemorrhage. This is, in great measure, no longer true. Peritonitis must be distinguished from simple serous exudation. This latter is the result of simple oozing from wounded capillaries, broken-down adhesions, or even, perhaps, from the sometimes necessarily rough handling of the peritoneum. In the absence of specific cause, this, if drained away, does not cause peritonitis. Hence the philosophy of draining—both to remove possible pabulum for infection, and to take away the serum which hygroscopically attracts fluids by its presence. It is a physical law that moisture attracts moisture, and in the abdomen there is no exception to the rule. Where chemical antiseptics are used, there is greater liability to this serous exudation. There is thus also greater danger of post-operative visceral adhesions. This is illustrated in Case VIII. The patient had before been operated upon for uterine fibroid. A drainage tube was put under the care of her husband, and the abdominal cavity washed out with carbolic solution, of whose strength I am ignorant. When the abdomen was opened, the intestines were found matted together and out of all natural position. The transverse colon was adherent to the old incision. The remainder of the colon almost throughout its whole length was adherent to the other viscera. To free them, nearly all the intestines had to be handled. No other cause for this condition need be sought than the free use of carbolic acid.

That the saline or calomel treatment of serous exudation is of undoubted value after operation, does not admit of dispute. It is just as clear that it excels all other remedies. This is at least true so far as abdominal surgeons are concerned. It has now been so long insisted upon that it is an old story, and were it not that

general practitioners fail to appreciate its value for the most part, its mention here would be superfluous. Case XXIX. in my list is indisputable evidence of the value of this treatment. The condition of the woman was such that after all preparation for operation had been made, by the advice of Dr. Joseph Price, I postponed operative interference. The woman's pulse was thready and frequent, her belly tympanitic and tender, with every evidence of peritonitis. I at once put her on the mercurial treatment, administering a grain of calomel every hour, until twenty-four grains had been taken, stimulating her at the same time. The result was a complete subsidence of the acute symptoms and a vast improvement in the pulse-rate, and after a few days I operated. The peritonitis was general, and of a virulent type, the tubes being full of pus. After rather a tedious convalescence she recovered. Her only inconvenience now is a fistula, through which a ligature lately has escaped. This, I think, is owing more to her condition at the time of operation. Her bodily condition was such that none of the stitches held, the abdominal incision falling apart, and the entire wound had to heal by granulation. This brings us in sequence to the consideration of fistulæ. The drainage-tube is often charged with producing this complication. I can readily understand how this may be the case, especially in the causation of fecal fistula, where the tube is allowed for a long time to make harmful pressure upon the intestine. I believe, however, that in a great majority of cases the fistula has its origin in the ligature applied to the pedicle or in systemic vice. One of the most annoying fistulas I ever encountered, occurred in Case XXI., where no drainage-tube had been used at all. In the course of time it healed, and the incision is now perfect. In another case, just now closing, the operation was for the removal of the appendages, after a puerile attempt by another to hold the uterus in position by stitching it against the abdominal wall, while the ovaries were bound down by adhesions. The persistence of the fistula here, Case XXIII., may be due to incision through cicatricial tissue. I am certain I can give no other reason. For fecal fistula, except where the bowel is extensively injured or deeply torn without chance of suture, I think there is little excuse. Carelessness in examining the intestine after extensive breaking up of adhesions, or careless tying and omental inclusion, are perhaps generally at the bottom of the calamity. A tedious closing of an

incision I do not regard as a misfortune. It keeps the patient longer on her back, thus favoring more solid cicatrization and diminishing the chance of that other reproach of abdominal surgery—hernia. This accident I have never had to occur primarily. It exists in two of my cases, but it was present at the time of operation. In fact, in Case II., the operation was done to relieve strangulation, after the woman had vomited immense quantities of fecal matter. Her belly was and is enormous, and though she has never had trouble since her operation, a large hernia still exists. Certain it is that no drainage-tube was the cause in this case. In a discussion of this subject, Mr. Skene Keith some time since reported the accident's occurring in some cases, all of which had a short incision. He argued that apparently the short incision favors the complication, because of all the abdominal tensions being directed to a small, weak cicatrix. The fallacy lies in supposing that a long weak line, will be stronger than a short weak line, of incision. If the line is short, the mass of intestine able directly to impinge upon it, is correspondingly less. I cannot conceive that the law of hydrostatic pressure applies mathematically in the abdomen. My own experience contradicts this presumption, as does also that of many of my fellow-operators. From my own observation, I entirely believe in the correctness of Priece's view, that three causes contribute most hernias, to wit: Imperfect suturing, in which the abdominal tissues are not brought into proper juxtaposition; too early rising after operation; the too early abandonment of the abdominal supporter. To these may be added as a cause the very long incisions.

Reoperation brings with it its own peculiar complications. Usually these are in the form of adhesions. This has been the condition in three of my cases, XX., XXIV., and IX. In all of them adhesions were present between the intestines and the abdominal cicatrix. This evil is best avoided by a careful bringing down of the omentum, over the intestines and under the incision before closing it. This is a point too often neglected. A complication the cause of which is, for the most part, at the present only guessed at, and alike worrysome to both patient and surgeon, is post-operative hemorrhage. In most cases the patient, after the removal of the tubes and ovaries, is encouraged to believe that her hemorrhages, whether catamenial or otherwise, will cease. Everything goes on according to promise, until suddenly, from three to six months after the operation, hemor-

rhage suddenly occurs, to the fright of the patient and the disgust of the surgeon. This has happened in a number of my cases. The cause is still a matter of conjecture, hyperplasia of the intra-uterine mucosa being apparently a factor in most cases. Why this should supervene is not clear.

Curetting, hot douches, and iodine are efficacious in some cases, while in others the bleeding continues at various intervals. A rational explanation of this condition is much to be desired. Under this head I do not mean to include hemorrhage from malignant degeneration.

With this brief consideration of some of the difficulties of abdominal section, it would appear clear that operation is not a matter of routine, but rather of inspiration. Each separate case is a study of itself, and its complications a separate study. Successful operation means first a study of details, after this, careful observation and a gradual comprehension of principles. No operator of the present day has a right to start out with the mortality of ten years ago. No man has a right to record a death because he does not know how to tie a ligature. Operators are required, but only those are fitted to operate who are content to study principles and learn to apply details under efficient direction.

Appended is a table of all my cases to date, a study of the individual operations of which has afforded the subject-matter of this paper.

Examination of the figures shows that the drainage-tube was used in thirteen cases, or in about 40 per cent. of all operations. Had it been used in another case I believe I would have one fewer death to record. No hernias have occurred.¹ All but four of the patients operated upon are alive, two having died since operation. All the others save one or two are able to attend to their household duties. No patient is worse for her operation, unless I am ignorantly in error.

The number of deaths is two: one patient dying of sepsis the tenth day after the operation; the other never rallied, and died of shock. In the last twenty-eight operations one death occurred. In the last eighteen cases all recovered, and, with one exception, are doing their household duties.

¹ Since writing the above, the fistula in Case XXVI. has closed, but a small hernia has developed.

The complication that has been most annoying is post-operative menorrhagia.

No.	Date.	Disease.	Result.	Drainage.
1	July, 1886	Cirrhotic tubes and ovaries	Recovery.	
2	Sept. 4, 1887	Strangulated ventral hernia	"	
3	May 15, "	Suppurating appendix; hæmatoma	"	Yes.
4	May 21, 1888	Ovarian and tubal adhesions	"	
5	June 8, "	Septic salpingitis	Death.	No.
6	June 30, "	Double pyosalpinx	Recovery.	Yes.
7	July 22, "	General adhesions of tubes and ovaries	"	"
8	Aug. 3, "	{ Ovarian, tubal, abdominal, and pelvic } adhesions	"	"
9	Aug. 14, "	Occluded tubes	"	
10	Aug. 16, "	Ovarian and tubal inflammation	"	
11	Sept. 23, "	Adherent tubes and ovaries	"	
12	Sept. 23, "	Double pyosalpinx	"	Yes.
13	Sept. 27, "	Papilloma; exploratory	"	"
14	Sept. 30, "	Pyosalpinx; pregnancy	"	"
15	Oct. 17, "	Double pyosalpinx; ovarian	Death.	"
16	Oct. 24, "	Omental hernia	Recovery.	
17	Oct. 25, "	Exploratory	"	
18	Nov. 5, "	Salpingitis and ovaritis	"	
19	Nov. 9, "	Ovarian cyst; salpingitis	"	
20	Nov. 25, "	Adhesions to old incision	"	
21	Dec. 8, "	Salpingitis; ovarian hypertrophy	"	
22	Dec. 18, "	Double pyosalpinx	"	Yes.
23	Feb. 17, 1889	Adhesions, salpingitis, ovaritis	"	"
24	Feb. 23, "	Dermoid, infantile uterus	"	
25	March 6, "	Cyst and salpingitis	"	
26	March 17, "	Extra-uterine pregnancy and pyosalpinx	"	Yes.
27	March 19, "	{ Ovaritis; adhesive rudimentary tubes } and ovaries	"	
28	March 29, "	Chronic salpingitis	"	
29	April 5, "	Double pyosalpinx	"	Yes,
30	April 12, "	Dermoid cyst	"	"
31	April 19, "	Chronic salpingitis	"	
32	May 19, "	Ovarian cyst	"	
33	June 1, "	Chronic salpingitis	"	

DISCUSSION ON THE PAPERS OF DRS. BABROW AND HOFFMAN.

DR. L. S. McMURTRY, of Danville, Ky.—I am sure these very instructive papers just read will elicit most thorough discussion. There is one point in Dr. Barrow's paper which should be somewhat elaborated. I allude to his remarks upon the importance of curtailing as much as possible the time of operations, in view of the shock incident to prolonged anesthesia. This is a very important consideration, and

has received marked attention in the practise of those surgeons attaining the best results. Yet, in applying to general surgery this feature so prominent in abdominal surgery, there should be a clear distinction made between rapid work and hasty work. Conversation about the table should be dispensed with, and the attention of surgeon and assistants concentrated upon the work in hand. All possible complications should be considered; difficult and doubtful points decided promptly but thoughtfully; and action taken decisively, aiming at precision, but always being thorough, and, at the same time, avoiding dangerous haste. In this connection I wish to allude to the dangers that come from incomplete operations. Dr. Hoffman touched incidentally upon the fact that secondary operations are often the results of incomplete operations. The results of uncompleted operations are most disastrous. The class of cases justifying tentative and incomplete methods has steadily been lessened as the technique has improved, and as skill and courage on the part of operators have increased. And, as operative work is more thorough and complete, the mortality is assuredly lessened.

I was pleased at Dr. Hoffman's plea for simplicity in instruments and apparatus. In the first ovariectomy I ever witnessed I was impressed with the extent of the armamentarium. I had never before seen as many instruments collected for an operation. As knowledge has increased and skill has advanced in abdominal surgery, the technique has been simplified. Like all artistic work, with perfection comes simplicity. In regard to drainage, abdominal surgeons are very generally adopting the views so persistently advocated by Dr. Joseph Price, and the number of cases in which drainage is applicable is increasing. In one of my own cases where, being in doubt, I did not drain, I was compelled to reopen the abdomen three weeks after the first section. The patient made a good recovery, but the second operation would not have been required had a drainage-tube been inserted at the first.

DR. A. VANDER VEER, of Albany, N. Y.—Dr. Barrow's paper is one that emanates, beyond a doubt, from a mind that has been dwelling upon abdominal surgery until he has perfected himself in all the technique; but I take it that some of us who have been in the rough-and-tumble fight of general surgery for a number of years, and have gradually concentrated our time and labors upon abdominal surgery, will perhaps take a somewhat different view of a few of the points he presents. I remember the late Dr. Peaslee as a general practitioner and surgeon. I remember him as the neatest of all surgeons I ever saw operate. I believe that had some of us paid more attention to his

early introduction of drainage, we would have been very much better off regarding our statistics of abdominal surgery. When he finally confined himself entirely to the surgical diseases of women, he carried out this point of drainage in abdominal surgery in theory and practice ahead of his time, for he gathered many of his points from general surgery. I believe that abdominal surgery has done a great deal for general surgeons. Lister undoubtedly started in the right direction, but we cannot make use of Lister's spray and many other things he does while the work is going on. I look back with regret upon a case where I used the Lister method very carefully, but lost my patient—undoubtedly from carbolic acid poisoning. Dr. Barrow's views regarding drainage we must all agree with.

Dr. Hoffman has presented that kind of a paper, touching upon occasional cases and incidents in abdominal surgery, that is instructive to us. I believe that Mr. Tait's remark has been misinterpreted. I have looked over the *British Medical Journal*, but it is not to be found there—the remark that any country practitioner should be able to do the operation of removing the pregnant uterus.

DR. HOFFMAN.—It is in the *New York Medical Journal*, over his own signature.

DR. VANDER VEER.—I do not believe that abdominal surgery can be done by every country practitioner. I do not believe there is any portion of the practise of surgery where experience is of so much service as in doing abdominal work. As Dr. Hoffman has touched upon the drainage-tube in one or two instances, I desire to speak of the use of the drainage-tube regarding the complication of resulting fistula. I do not think it responsible for it at all. I think we will find it occurs more often where the drainage-tube has not been used. I know the weight of testimony in my own mind is in this direction—that we occasionally get a fistulous opening where the drainage-tube has not been used at all. I have had one such case in my own practice. Regarding the use of the drainage-tube as Dr. Hoffman refers to it, it seems to me that the use of it in all cases where there is any complication at all is wise; that it really relieves us sometimes of the use of ligatures; and, again, we can use them with greater freedom when necessary. As to hernia, it is hard to account for it at all times. No doubt our patients get up too soon—this and a long incision tend to that condition. I have had two cases under my observation where hernia seemed due to these two factors—one where the nurse allowed the patient to get up too soon, and the other by taking off the bandage too early. Regarding hemorrhage after our operations, I have one

case that annoyed me very much, due to endometritis, which finally got well after a thorough curetting.

DR. W. W. POTTER, of Buffalo.—In discussing the two papers just read, the most I shall hope to do will be to emphasize some of the points made by the authors; for I confess that I feel like endorsing them substantially from beginning to end. While listening to them I was reminded of an expression which fell from the world's greatest captain, when he was writing his memoirs at St. Helena. Said Napoleon, "In war *men* are nothing; a *man* is everything." It seems to me that this aphorism will apply with great cogency to the subject which is now being discussed here.

In abdominal surgery it may well be said, "a *man* is everything;" his individuality, his personal courage, his amiability, his knowledge of his work, his ability to deal with complications, and his cleanliness, are all important elements in the character and person of the abdominal surgeon. While all would regret to see the late war reënacted, no doubt should that dire calamity befall us, though the surgery that was then done was better than any military surgery the world ever saw before, yet, in our present knowledge, it would be greatly improved upon, and many lives saved that were then lost. The surgery of the great cavities of the body has so improved—the cavities of the cranium, the thorax, and the abdomen—that it would result in a great saving of life; and, it must be confessed, the refinements of abdominal surgery have exerted a great and abiding influence upon all other surgery.

Dr. Hoffman has, among other things, alluded to the knot, which was a point that impressed me with considerable force. There is probably as much confusion among the average readers of the literature of abdominal surgery on the subject of knots, as upon any other one point. We are constantly asked, What is the Staffordshire knot? What of the Bantock knot, and various other knots that have taken the names of men or localities? How many here present can answer these questions clearly, or describe them with precision? I was pleased to hear Dr. Hoffman say that it did not matter greatly what kind of a knot was employed, or what its name, if it were only well tied, and, withal, tied in the right place.

Another point of great importance in this work is the question of irrigation. I have only lately made one of the most trying sections I ever had personal knowledge of, and I believe had I not been familiar with the potency of irrigation I should have lost my patient. She was literally dying of sepsis before the operation commenced, and was well-nigh collapsed before the abdomen was closed. It was a very dirty operation in every way, where more than a gallon of pus was drawn

from a dermoid cyst, where the adhesions were many and strong, and where considerable time was required to release them; but a continued flush of the hottest water that could possibly be borne—quarts of it poured into the abdomen—served to rally her before she was removed from the table, and she never had an unpleasant symptom afterward.

Where the gravity irrigator is not at hand, water poured from a pitcher will answer as a substitute; but this is not as efficient as the irrigator that I see lying on the table before me, and which Dr. Price will show. By this application of prolonged heat, we meet three important conditions: first, it closes the oozing vessels with which the adhesions frequently abound; second, it cleans out the abdomen of all clots and dirt; and third, it rallies the patient from shock. Probably no two additions to the armamentarium of the abdominal surgeon have contributed to save as many lives as the irrigator for the flushing of the abdomen after operations and the drainage-tube.

Passing over many of the points that were presented in the papers, or have been suggested in the discussion, I come now to the question of time. While it is eminently proper to minimize everything connected with abdominal operations, and especially to make them as short as is consistent with an intelligent dealing with any complications present, yet it is well to bear in mind the dictum of Sir Astley Cooper, that "An operation well done is done soon enough." A prominent operator, whom we all know, told me that not many weeks ago, while making a section, he was surrounded by fifteen or twenty very competent physicians, intelligent men from the surrounding neighborhood. The operation was a simple one; the cyst, a small one, came out easily and was tied off; when all at once he heard eight or ten watch-cases snap, which warned him that these men had been observing their watches rather than the operation. Further comment on this point is unnecessary; for the time has surely passed when the skill of an operator is to be judged as resting alone upon his ability to do an operation speedily.

DR. JOSEPH PRICE, of Philadelphia.—Perhaps sufficient has been said, and quite sufficient in the papers, to cover the whole ground. I accept the papers—hook, line, and sinker. There are a few points I might, purely from a practical standpoint from my own experience in the pelvis and abdomen, talk about briefly. There was something said in the paper, and also by Dr. Vander Veer and others, about Lister's contribution to surgery. I have but little to say about it, as I have but little to thank Lister for. I think Dr. Vander Veer, Keith, and others have but little to thank Lister for. Surgeons worked away for some years with spray and carbolic acid, until they recognized that hundreds

— you may swell the numbers if you like—died from carbolic-poisoning. Many surgeons suffered from the carbolic acid. They ceased to use the acid because they themselves were crippled by it. I myself was at one time the victim of renal disturbance, not, however, in my own work; I never use it. It is not in my house, nor in the hospitals I am connected with. I should look upon it as I would upon a rabid dog.

Cleanliness.—Years ago, you remember, it was the practise to clean up yourself and your surgical case after examining a woman. It was not the practise to do so beforehand. You could throw off your pair of sealskin gloves you had worn for ten years, then examine the woman, and then wash your hands. Now it is a rule, before you touch your patient, to cleanse yourself thoroughly—as thoroughly as soap and water and brush will do it. Some take the precaution to use chemical solutions, so that they may have some irritant upon their hands.

I find the country practitioners rather broad and strong men; rather keen in diagnosis. They tell you what they have before you go, and you do what they call you to do. Dr. Barrow quotes from Dr. Goodell. While discussing the question of cleanliness, I would simply allude to the first edition of his book, wherein he gives a long list of necessary articles, comprising about half a column, to be procured by the family. In one list he gives “old sheets, old comforters, old pillows, and old carpets,” and all the abominations from the cellar to the attic. Now in the last edition they are not to be found. Clean sheets and clean articles are to be provided by the family. I call attention to this to emphasize the importance of cleanliness. It is difficult to have a patient clean enough, and it is exceedingly difficult to have sufficiently clean nurses, that will keep their hands off chairs, door-knobs, and other articles of contamination. A surgeon doing an operation should control everything, from the door-knob to the incision. Dr. Potter has called our attention to the greatest of all soldiers, whether dead or living, and he had nobody about him but marshals. An abdominal surgeon should have nobody about him but marshals.

In regard to who should do the work, and where it should be done, Dr. Vander Veer has clearly indicated that a man should never begin the study and practise of surgery in the abdomen. An abdominal surgeon should have at his hand all surgical resources, and should have had thorough training in general and special surgery. The abdomen is not a skating-rink, a natatorium, or anything of that sort. The difficulty in the beginning was that plain obstetricians, even public vaccinators, commenced removing ovarian cysts without any knowledge of surgery whatever. Surely, those men began the study and practise of surgery in the abdomen, and you can pick them out by their mortalities. It

was not so with McDowell, Dunlap, or with the Atlees. They were all surgeons. The first operation done by Atlee, in 1843, has not been improved upon. It was the first pelvic operation I have any knowledge of, and was the most complete and ideal of any I know of. The surgeon succeeds in getting at a specimen by enucleation, the pathologist only by scissors and knife—difficulties and complications. The Atlee patient was placed on the table with a pulse of 104, without ether, and it was a general enucleation. He tied and dropped his stump, cleansed thoroughly and put his patient back to bed in thirty minutes, with a pulse of 100, four beats less a minute than before the operation, and no collapse.

A word in regard to ligature and tying: I feel that in the hands of men of little experience, this is an important question. Beginning with the Staffordshire knot, I believe it has done a great deal of harm. But few know how to tie it. I am satisfied that hemorrhage has been a cause of death in abdominal operations, where the Staffordshire knot has been responsible. I counsel that men without much experience use the figure-of-eight instead. Mr. Tait uses the Staffordshire, but I notice he uses two hemostatics to make a strong tie.

Drainage.—I agree with Dr. Vander Veer wholly as to the tube not being the cause of fecal fistula. It is rare for the tube to be in apposition with the sigmoid or a knuckle of the ileum. You may separate an adhesion on the cecum and break it through to the mucous coat, begin your enucleation and soon discover that you have a flap; and, if you reverse your enucleation, you will leave that flap on the bowel and can stitch it neatly down. You will frequently have a fecal fistula following angry pus operations. Often you have a history of fecal fistula before operating.

Ligatures applied in cheesy, disorganized tubes with unhealthy disorganized tissue, are in many cases bound to come away. They are in unhealthy tissues, and I do not see why you should look upon it as an accident while operating to save life. These operations are done to remove useless organs; organs not only useless, but far advanced in disease, killing the patient; purulent changes, pus-tubes, and abscesses. I rarely see anything else.

I do not believe a general hospital is the place in which to do abdominal surgery; I scarcely believe it the place to do any surgery. I look upon it as a great, big neglected water-closet; forty, sixty, and one hundred stools a day to contaminate the atmosphere of a ward. I could demonstrate, in the maternity hospital under my charge, the location of the water-closet by temperature charts. Before a circulating atmosphere was placed between the water-closets and the hospital,

it was common to have a temperature of 101°. After the closets were put out of the hospital, the temperatures fell to 98½° for the next forty or sixty patients. I am myself not much in favor of general hospitals.

Sequæ.—Hernias and fistulas seem to puzzle many abdominal surgeons. I have seen but few cases of hernia. I know that it has occurred, and will continue to be a source of trouble. I think it is due largely to few stitches imperfectly applied; stitches that cut and strangulate; stitches that provoke stitch-hole abscesses. Erichsen says that a tight stitch has killed a patient. A great number of well-applied, not very tight stitches introduced with a small needle, not the big bayonet with the handle. Now that we are using a small needle, we seldom hear of tetanus. Years ago, Sir Spencer Wells and others had a good many cases while using the large needle.

Much has been said about adhesions. The adhesions in chronic and inflammatory troubles are usually well organized, and difficult to deal with. It is a matter of practise only, to familiarize yourself just how to shell out pus-tubes and abscesses of the ovary. Though many are prone to look upon these troubles as rare, they are really exceedingly common. There are even hundreds of patients in every city dying of pus to-day. A surgeon must have the abdominal instinct to save these patients. It is surprising the number of women dying of small cysts and from pus-tubes and ovarian abscesses, closely adherent to coils of intestine and important viscera. And some have carried the pus all the time from one month to thirteen years. Some are still living who had sponge tents introduced fifteen years ago, when the use of them was exceedingly common. Two weeks ago I incised a pus-sac, in Pottsville, and evacuated over a gallon of pus. Thirteen years ago a prominent Philadelphia teacher introduced a sponge-tent, and she remained in bed six months from an angry peritonitis. She has been an invalid ever since that time. She suffered along until three sinuses appeared about the sacrum. Eight years ago a prominent teacher in gynecology made vaginal drainage which relieved her temporarily, but it was not thorough. She suffered on until her bones were like knife-blades. Now she submits, after carrying pus thirteen years, to section and drainage; and, to my great surprise, is doing fairly well. Physician and patient both think she will get well. About drainage—I would stop pelvic surgery if there was legislation to prevent my using it. My ability to apply it is a constant stimulus to do pelvic surgery. Without it, the mortality would be too great for practise.

I herewith present a drainage-tube where the perforations are small. There is no need to use a large tube. A small tube will drain as freely

as a large one. The object in this work is to minimize every risk. I do not like hospital anesthesia; it should be as short as may be, and as little ether used as possible. It is well before you irrigate to suggest to your anesthetizer to crowd the ether a little.

If a large funnel with a gravity-tube is introduced, with two fingers in the upper angle of the incision and your fingers separated, you make a very nice trivalve speculum, and everything is flooded up nicely and rapidly. I have been in the habit of closing the abdomen full of water, in bad pus cases, chronic peritonitis, appendicitis, etc. Simpson prefers the dry treatment, without any irrigation, using sponges. I do not think it is possible to make a perfect toilet with sponges. Allusion has been made to Martin's drainage and results; I think it is high time American surgeons ceased following Martin's, or other German methods. We cannot afford to risk the lives of our patients by following the methods of a man who lost fourteen patients out of seventy cases. Surely, such an alarming mortality should stay a man's hands in all pelvic surgery. The mortality should not be greater than five per cent. in unselected cases.

THE PRESIDENT.—About seventy years ago McDowell made the first ovariectomy. It is almost true to say that the operation for the time being died, after McDowell's time.

In the year 1843, in July, the operation referred to by Dr. Price was made by Atlee. Two months later, forty-six years ago yesterday, the first ovariectomy of the West, after McDowell's, was made by Dr. Alexander Dunlap, whom I now have the pleasure of introducing to the Association.

DR. ALEXANDER DUNLAP, of Springfield, Ohio.—The last speaker stated that Atlee and Dunlap were surgeons before they attempted these operations. Gentlemen, I do not claim to have been a surgeon at all when I did my first ovariectomy. I was forced into it. But what I do claim for every one who is a good and successful surgeon is, that he has a gift from nature which he never would be able to learn; namely, that of keeping his mind perfectly steady in high periods of excitement. A man who cannot keep himself perfectly calm and his mind free from excitement, under all circumstances, is not a safe surgeon, no odds how well he may understand its principles or its practise. That is all I claim for myself at my first operation. I had done some surgical operations, and when I look around and see the heads of those men before me, there are very few of you that know personally what surgery was forty-six years ago. My friend, Dr. Tate, here at my right, in whose office I was a student, said to me once that if I happened in at the proper time, he would give me a case of obstetrics;

but I happened to be at lectures and did not get the case. I went home from medical college with my diploma, thoroughly satisfied that I knew nothing about medicine, excepting one thing, and that was, that I could cure fevers. Prof. John T. Harrison told us that if we had a case of fever to salivate it, and as soon as we saw signs of ptyalism, we could turn to the friends of the patient and say that "their loved one is saved." He repeated that over until I was thoroughly impressed that I understood it. My brother, with whom I was going into partnership, when I went home said to me, "Don't disturb me in obstetrics; I have learned enough to know that if you can make the community believe you can do any one thing well, they will take all the rest for granted. I advise you to take surgery." I told him I had never read a book clear through on surgery. "Well," he said, "you turn in and do surgery." He was afraid of that. I said to him, "If you will give me cases of fever I will attend to them, and I will make a living. There are lots of fevers around here, and Harrison tells me there is no use of their dying if we can salivate them." My brother said that fevers only came in the autumn, and I would starve the rest of the year. Said he: "Get something that is running the whole year round; if you do not like surgery take the diseases of women and children." I said that I knew as little about them as about surgery. After talking that way awhile, I told him I would think about it. He said, "If you take up anything, as your particular sphere of action, you must study it up and make a success of it, and then you can get credit for all the rest of your ignorance." This was in April, 1841, and the result was in the latter part of August for the first time I got to see a case of fever. It was the most terrific scourge of typhoid fever I ever knew in southern Ohio. I had two patients, and commenced to salivate them, and in a few days I wished to leave the State. I gave big doses and little doses, but there was no ptyalism, yet on the twenty-first day I thought the two young men to whom I had given that treatment were getting a little better and I could say to their friends that their loved ones were safe; but I could not see any salivation, and I could not understand why they were getting better. However, on the twenty-third day I was sure they were better, and on the twenty-fifth day I could smell the calomel. Then, for six weeks, I had a fearful time. The patients were getting well, but were cursing me for rotting out their mouths. These cases made me lose faith in my teaching of medicine, and if I ever knew anything about it I would have to learn it myself at the bedside of the patient. Two years after that I got hold of a case of ovarian tumor. I did not know what it was for a while. I had heard that McDowell had

operated, and in one little article in an old medical dictionary it stated that McDowell had done the operation, but it was now condemned, obsolete, and considered to be murderous. I happened to tell this to the patient when I was talking to her; nevertheless she insisted upon my operating. I debated with her until she was almost dead, but she said if I would not do it she would get a common butcher to cut it out. She said, "All I ask is, for you to cut me open and let me see what it is, and I will die happy." I did it the 17th of September, 1843, almost as perfectly as I could to-day.

My preparation for the operation was a careful study of the organs of the abdominal cavity, until I had them as plain to my mental vision as they would have been had the cavity been open to my eyes, and I said to myself I would not cut any of them out; but anything else that I found that ought not to be there I would cut out.

Fortunately, as soon as I opened the abdomen, I found what I thought ought not to be there. In running my hand around it I burst one big sac. I sponged out the abdomen and turned out the sac and there was a long pedicle. I could have almost shouted Glory! because I knew I could now control the hemorrhage. I finished the operation just as I do to-day. I pierced the pedicle and tied a double knot with silk; I always waxed the silk until I got it thoroughly imbued with wax. The woman lived nearly a month, and was out of all danger from the operation itself. I had been tapping her every ten days, for nearly six months, and drawing out a big wooden bucketful of water each time. The sudden checking of that flow of water from her system brought on a severe diarrhea, with large watery stools. I got that controlled, and she appeared to be doing well, when her kidneys began pouring out a flood of water and, as I could not stop that, she ran down and died.

I sent a report of the case to Prof. Harrison, and he returned it to me, saying he would not publish such an article, because it would only encourage some other man to do a foolish operation; and I tore it up—what would have been my first contribution to the literature of ovariectomy.

Since then I have done nearly four hundred laparotomies. The last was day before yesterday. The woman was doing well when I came away this morning. In my operations there has been a little over eighty-three per cent. of cured out of the whole number. Some were cases I would have preferred not to undertake. Some died from accidents that ought not to have happened. From the earliest point of my surgical practise my rule was perfect cleanliness, tying all the blood-vessels and controlling all the hemorrhage. The next six, after my

first ovariectomy, got perfectly well, and they were terrifically adherent. I then thought it was blood clots I had to fear, and that inflammation was the great secondary danger. I would roll the bowels and tumble them about until I was sure I had every particle of blood cleared away. I found the sponge was the best thing to get it out with. When I had the clots out I had all the serum out as well, but I did not then fear the serum. The ninth or tenth operation was the first one I found that was not adherent—a simple cyst with a long pedicle. I opened the cavity; took the cyst out; the assistants kept the wound closed around it; I tied the pedicle, and dropped it back into the cavity. The second day the girl did not look quite bright; the third day the bad symptoms increased, and at the end of the fourth day she was dead. I could not tell what was the matter, and yet I was satisfied I had killed that woman. I had not put a sponge into her abdomen; but I had left all the fluid in there. The moment that fluid comes in contact with the air, it changes its character, it dies; it becomes a foreign substance, and if dropped down into the cavity it kills all of the other fluid there. In such an imperfect operation I presume Dr. Price would advise drainage. I do not believe in drainage much, as I have never used it to any extent, and I have never put in a drainage-tube. I used to bring out the ligatures to facilitate drainage, but finally abandoned that.

My mode of operating is to cut a long incision, open the cavity, and get down and see what I am doing. I would not risk cutting a small opening into a woman's abdomen after my experience with that girl, and then tie a sponge on a little stick, and push it down into the cul-de-sac to get out the fluid. Sometimes one will bring out great clots of thick albuminous stuff, that could not discharge through a tube. The tube is necessary where the operation is not perfectly done. If you will do beforehand what is necessary to be done, you will not need the tube. I have sometimes cut off part of the ligature and left it in to keep the place open, so if there should be a great accumulation of serum I could get in a syringe and wash it out, but I have never had to do it. Put a cord in there, and the adhesions that form around it will render its removal difficult. My scepticism in regard to the drainage-tube is due, probably, to the fact that I have never used it, and I have been about as successful as most men who have performed the same number of operations, especially when I include this early period of darkness. I heard Lister when he came over to Washington, and wasted an hour in telling us how to use a spray. I told the man sitting by me, "That is all bosh; I have been through that carbolic acid craze and have killed one patient with it." The great sewerage system of the body is through

the kidneys. I say that any one of you here, sound and healthy as he may be to-day, whose kidneys stop carrying out the effete matter, in less than three days will be dead. You can live a great deal longer if your liver is inactive, but if your kidneys are inactive you will die quicker than if any other secretive organ in your body ceases to act. Your patient is in a bad condition when the kidneys begin to go wrong. They are the most efficient drainage-tubes you have.

DR. RUFUS B. HALL, of Cincinnati.—I approve the sentiment advocated in the papers read before the Association this morning; there are one or two points, however, that I believe ought not to be passed without comment.

I desire, first, to add my approval to the use of the drainage-tube. I am confident that in pelvic surgery, particularly in that class mentioned by Dr. Price in his discussion as filthy or dirty operations, we could not have the low mortality following them that we do at present, if we dispense with the drainage-tube. In fact, in all the operations in which the adhesions are firm and extensive, with pus in the tubes or the ovaries, I follow the method of practise so thoroughly advocated by a number of the speakers this morning. I put in a drainage-tube in all doubtful cases, and for the last three years in all cases not doubtful as well. I have had, indeed, but one operation in four years in which I did not put in a drainage-tube. In a few, I will confess, the drainage-tube was not necessary, but it was removed in a few hours—which can always be done if the tube is not needed—without any resulting harm. The one case in which I did not use the drainage-tube because I did not think it necessary, figures in my death-list.

The second point I specially desire to speak of was brought out in one paper in which the author dwelt upon the after-treatment. Dr. Hoffman, I infer from the words used, does not lay much stress on the treatment subsequent to the operation. He said that prolonged after-treatment is not necessary. I will admit that prolonged after-treatment is not necessary in the cases to which he referred. They do not usually require very careful attention for a long period of time; but, in all desperate cases, it is essential to have careful treatment the first three or four days. I never feel perfectly safe until after the fourth night has passed. Take a case requiring a drainage-tube: it may go on all right, and again it may not. Suppose you trust it to an assistant or nurse, or any one of you operates at a distance and the drainage-tube is not looked after as it should be, the patient will probably die; that very case, under the care of the operator, where he can see her as often as necessary, will probably get well. I advocate the practise of supervising the after-treatment in person in such cases.

Speaking of the time consumed in the operation, while I fully appreciate the propriety of a short operation for the patient, I do not think that in this, any more than in any other operation, a man should operate against time. The work should be done, and thoroughly done, if it takes nine minutes or ninety minutes. I have seen the same ovariotomist make one operation in nine minutes, and the next day take ninety minutes; and his work in either case was beyond criticism on that point.

In regard to flushing the abdomen, flushing it through a gravity-tube is much superior to turning in water from a pitcher. The end of the irrigator should be passed down as far into the bottom of the pelvis as possible.

DR. DUNLAP.—The first paper read told about hernias following the operation. Most operators have laid it to the stitches or to the drainage-tube. Dr. Price also alluded to the kind of needles. I take a big needle, a long one, so that I can pass it down through the edge of the abdominal wall until I get the edge of the peritoneum inclosed, and then carry it through on the other side, including the other edge of the peritoneum with one passage of the needle. It takes a good-sized, long needle to do that, and I am careful in tying to bring the parts in perfect coaptation. I put sutures in about one and a half inches apart; intervening I put the isinglass plaster, and at the end of three days I always take the stitches out, and the union is perfect. The stitches do no good after that, and there is danger of abscess if they are longer left *in situ*. I expect the abdominal opening to be closed at least on the fourth day. The cut surfaces will remain united, and there is no danger of their bursting asunder if you have the bandage well adapted. As soon as the patient sits up, I have a solid body-corset fitted and snugly laced over the abdomen with a small compress under it, and I tell the patient she will have hernia if she takes it off; but, if she will wear it for a year, she will never have any hernia.

DR. WATHEN.—What per cent. of hernia do you have?

DR. DUNLAP.—I never have had any when these directions were followed, and but two where they were neglected.

DR. WATHEN.—Have you ever had any tetanus?

DR. DUNLAP.—No; I never had any tetanus.

DR. WATHEN.—I desire to call attention to Dr. Price's assertion yesterday and to-day, that the use of large needles in abdominal and perineal operations caused tetanus. I am not able to appreciate the force of his argument, nor have I seen statistics to justify it; and I do not believe they can be found. We have had tetanus where small needles were used. Some of you will remember the report by Dr. Taber John-

son, at the Newport meeting of the American Medical Association, of a number of cases in which tetanus followed abdominal section in his practise and in the practise of other operators. These gentlemen used just such needles as Dr. Price and most abdominal surgeons use to-day. I am unable to find any evidence to justify the assertion that large needles used to close the abdominal or perincal operations play any part in causing tetanus.

DR. PRICE.—In the statistics given by Dr. Johnson, but one case was done recently.

DR. SEYMOUR.—I would like to suggest that perhaps tetanus in the early cases was due to the clamp.

DR. PRICE.—I would like to ask Dr. Dunlap a question regarding the use of the clamp. Dr. Dunlap commenced ovariectomies correctly. His series—eight—was the longest then ever completed without a death. No operator has even since *commenced* with eight operations without a death. It is the most perfect series on record. I want to ask Dr. Dunlap the question, Where and when, if ever, he adopted this clamp?

DR. DUNLAP.—Never.

DR. HOFFMAN (closing the discussion).—I feel very much ashamed of myself that I came here not knowing of Dr. Dunlap's remarkable record. I must confess that standing up before his great experience and wonderful success, I feel very much like the child reaching out for something beyond him. I do not know, veritably "desiring without hope," that I will ever live to do the work that he has done. If I do, I am sure I will never deserve so much credit for it. If the calumny, and slander, and all that was heaped upon a character so courageous as this man standing before us to-day, cannot teach us, more than anything else, charity to honest and earnest work and fraternal sympathy, we had better all go from here to-day mute and ashamed, and drop out from the ranks of those worthy to follow such as he.