FOREIGN BODIES LEFT IN THE ABDOMEN AFTER LAPAROTOMY.

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I DESIRE to-day to call the attention of this Society to one of the accidents of laparotomy—an accident which is frequently discovered during life, occasionally discovered after death, and, as I believe, very often never discovered: I refer to foreign bodies left in the abdominal cavity after this operation.

I am convinced that this is a much more frequent cause of death than any of us suppose, and, if we were able to collect the number of fatal cases resulting from this source, we would be surprised. Unfortunately, many of the known fatal cases are not published, because they are damaging to the surgeon's reputation in the profession, and in the community in which he lives. Hence these cases are rarely given to the world.

Moreover, in a large proportion of deaths resulting from laparotomy, we are unable to obtain post-mortem examinations, and to know exactly what was the cause of the fatal termination. We can truly fill up the death report with peritonitis, septicemia, vomiting, a ruptured internal abscess, and the like; but, whether a sponge, a pair of forceps, or some other foreign substance was at the bottom of the immediate cause, is never known.

I know enough from my own observation, from the private admissions of others, and from the published cases of this kind, to warrant me in bringing this subject prominently before this Society. I have been very unsuccessful in my

efforts to collect statistics of this accident, for the reasons given above, and because every honorable gentleman is unwilling to speak of such an accident in the hands of a brother practitioner, when the latter has not published it himself.

In this paper, I propose to give the number of cases I have been able to collect, in which foreign bodies have been left in the abdominal cavity after laparotomy; to report a case of my own, and to draw the conclusions arising therefrom.

The whole number of cases which I have been able to gather amounts to twenty-one, and of these only five have been published, which, with my case contained in this paper, makes six. This shows that more than two thirds of all the known cases never come to light; and I am sure, from the want of autopsies, that the unknown are much larger than the known accidents of this kind.

Six of these twenty-one occurred in this country, and fifteen in Europe.

Of the above six, my case is published to-day, and the other five are unpublished. Of the fifteen in Europe, five have been published and ten unpublished. Of the six American cases, sponge was the substance left in five, and a pair of forceps in the sixth. Two were fatal, and four recovered by the timely discovery of the foreign body. In one of the above six, the surgeon, who was a most careful operator, was closing the abdomen, when his assistant reminded him that he was sure a sponge was left behind. He ceased sewing, and found the sponge among the intestines. In a second of the above six, the operator had applied all his stitches, and was in the act of closing the wound, when an assistant told him a sponge was missing. The wound was opened, and, after some time, the sponge was found behind the intestines.

In a third, one of the sponges was found absent after the abdomen had been closed. The wound was opened, the sponge discovered and removed, and the patient recovered.

In a fourth, the absence of the sponge was not discovered till revealed by a post-mortem examination.

In a fifth, a post-mortem examination disclosed a pair of forceps. In the sixth—my case—the presence of the sponge in the abdominal cavity was not suspected, till it worked its way to the surface, months after the operation, and was removed by Dr. George H. Hocking, with recovery of the patient.

Of the fifteen European cases, ten have been unpublished, and I can give no history of them. I mention them on the authority of Mr. Lawson Tait, who, after describing his own fatal case, says, "I happen to have heard of ten other cases in which sponge has been left behind."

Mr. Lawson Tait describes his fatal case as follows: "In one of my early operations, a by-stander, hearing me ask for a small sponge, tore one in two, so that there were thirteen sponges in use, instead of twelve, and both the nurse and myself were ignorant of the fact. The gentleman who tore the sponge alone knew of his act, and he left the room before the operation was finished. The result was, that we found the thirteenth sponge four days after, and the horror of the circumstance is as vividly in my mind now as if it had happened yesterday."

The twelfth of the above fifteen cases is thus described by Sir T. Spencer Wells: "I was just finishing an operation, when one of the gentlemen who was assisting me, said, 'You left a sponge in.' I said to the nurse, 'Count them.' She said, 'They are all here—I have sixteen.' I said, 'Are you quite sure you have them all?' I was feeling about the peritoneal cavity to see if I could find a sponge, but could not find one. The nurse again said, 'I am quite sure I have got them all.' So I was satisfied, and sewed up the wound. This was about two or three o'clock in the afternoon. At eight or nine o'clock at night, they came round to me to say the nurse missed one of the sponges. 'It must be in the patient.' It was difficult to know what to do for the best. The patient seemed pretty well, and I did not like to open the abdominal cavity again to see whether a sponge was there; so I decided to wait. In the morning she was very

ill. I took out two stitches, and the instant I put my finger in, I felt the sponge. I took it out, reclosed the wound, and the patient was not much the worse for it."

The thirteenth was also a case occurring in the hands of Sir T. Spencer Wells, where he was removing both ovaries. He says: "I took off, as I thought, every pair of torsion forceps, closed the wound, and everything seemed quite as it should be. About two hours after the operation I received a message from a friend, saying there was a pair of forceps missing, and probably they might be in the patient. Imagine the sort of feeling with which one would receive this intimation! I went at once. She seemed so well that I did not feel like disturbing her. I waited till night. She still seemed pretty well, and I thought I would wait till morning; but in the morning I found she had spent a very restless night. I then made a careful examination by the vagina and rectum, and abdominal wall, to see if I could feel the forceps, but they were nowhere to be felt. Still I was uneasy, and I thought I had better open the wound. I asked Mr. Thornton to throw some carbolic spray over the abdomen, and, making some excuse to the patient, saying I thought it necessary to change the dressing, and it would be well she should not feel it, we gave her methylene, and took out two stitches. I put in two fingers and found the forceps wrapped up in the omentum. From the way in which the omentum had insinuated itself into the ring-handles of the forceps, and between its blades, it is easy to understand how difficult it was to find and remove the instrument; but I did it; returned the omentum, closed the wound, and the patient was none the worse. She got perfectly well, and to this day does not know that anything unusual occurred."

The fourteenth of these European cases was that of Dr. Carl Braun, in which a post-mortem revealed a sponge in the abdomen.

The fifteenth case was that of Dr. Gustav Braun, in which a post-mortem revealed a pair of bull-dog forceps.

The case which has induced me to present this paper to

the Gynecological Society is my own, in which I operated for an ovarian tumor, on a woman five months advanced in pregnancy; and where a piece of sponge was left in the abdominal cavity, and remained there for five months, when it worked its way to the surface, and was removed by Dr. George H. Hocking. The patient made a perfect recovery, and is now in excellent health.

This is the only case on record that I am aware of, in which such a foreign substance remained undiscovered in the abdomen, after laparotomy, and the patient recovered.

I herewith exhibit the sponge which came away through the abdominal walls from July 20 to August 7, 1883.

The uniqueness of this case induces me to report it in full, even at the risk of being tedious to the Society. I copy from my notes from day to day during its progress.

Mrs. ——, aged twenty-nine; married seven years; had three children, the youngest twenty months old. She came under my care at St. Vincent's Hospital, February 16, 1883. She first felt pain, and perceived an enlargement in the right groin eight months after the birth of her last child, or twelve months ago. She nursed her child for sixteen months after its birth. Recommenced menstruating two months after its birth, and so continued regularly for fifteen months, when menses ceased, and have not since reappeared. Has had occasional nausea since their cessation. Her general appearance is healthy. Has not the "facies ovariana." Says she always looks more healthy, and feels better, when she is pregnant.

After a careful examination, I diagnosed "pregnancy" at about the fifth month, with an "ovarian tumor" growing from the right ovary. The uterus containing fetus was lying well over to the left side. I was unable to hear the fetal heart, or placental souffle. Doubtful fetal movements on the left side. Percussion was clear in the right, but obscurely clear in the left lumbar region. My diagnosis of pregnancy was made on the history of the case, and especially on the mulberry-blue color of the vulva, vagina, and cervix. Her general appearance was different from any ovarian case I have ever seen.

On February 20, 1883 (having been chloroformed by Dr. William P. Chunn, after she had taken a liberal drink of whisky), I performed ovariotomy on Mrs. L. I was assisted by Dr. Robert T. Wilson; and Drs. Hocking, Alan P. Smith, and Robert Randolph were present. The carbolic spray had been going in the room till the operation commenced, when it was stopped. All instruments, ligatures, sponges, and hands were carbolized.

I made an incision of four inches in the median line between the umbilicus and pubes. Two inches might have been enough, but I prefer not to make too small an opening, as it heals no better than a large one, and we have a better opportunity to see what we are doing, and better check all points of hemorrhage. The abdominal cavity was entered without difficulty. A mixed tumor (solid and fluid) was found growing from the right ovary and also from the fundus of the uterus. There were two separate and distinct pedicles. The uterine pedicle was thick and strong, and could not be ruptured. The cyst was tapped, and over two gallons of a dark, ropy fluid were drawn off. The uterine pedicle was transfixed with a needle armed with a double carbolized silk ligature, which was cut and tied on either side, and the tumor was then severed from the uterus. The ovarian pedicle was treated in the same way, and the tumor removed.

After its removal, and not till then, it was found to be a dermoid cyst. The ovary was in a state of fatty degeneration, very much like mutton-suet, and growing in this fat was a mass of long black hair. I could find no teeth nor bones. The tumor weighed twenty pounds, and was white and shining. The impregnated uterus was a dark mahogany red, as if intensely engorged with blood. Blood oozed from its surface on the slightest manipulation, and at several points I was obliged to paint it with Monsell's solution of iron. Both pedicles were touched with the same, as well as several bleeding peritoneal surfaces near the uterus. Although unconscious, she vomited throughout the operation, but the chloroform was continued notwithstanding. The incision was closed with five silver-wire sutures. No drainage-tube was used. The wound was covered with a wet carbolized cloth, and over it a cotton

bandage. The operation lasted forty minutes, but could have been done in half that time but for the interruptions from vomiting.

Having been placed warmly and comfortably in bed, and recovering from the chloroform, she complained of great abdominal pain, so that in an hour I gave her thirty-five minims of Magendie's solution of morphia, hypodermically, in two doses. This promptly relieved the pain. Nurse was ordered to give ten gtts. of black-drop as often as necessary, to restrain all indications of labor-pains. She complained of her bladder being full, but on passing the catheter it was found empty. There was no shock. Extremities warm and pulse good very soon after recovery from the anæsthetic.

Wednesday, February 21st, 4 P. M.—Slept some during last night, but since yesterday has taken thirty gtts. of black-drop by the mouth and ten minims of Magendie's solution, hypodermically, to stop pains. Has slight nausea. Has taken very small quantities of lime-water and milk and crushed ice whenever she desired them. Temperature has varied to-day from 99° to 99¾°, and pulse from 120 in the morning to 104 in the afternoon. Is free from pain this afternoon, and comfortable.

Thursday, February 22d, 9 A. M.—Temperature 98¾; pulse 100; respiration 20. Slept a good deal last night. Took 75 gtts. of black-drop from 8 P. M. yesterday to 9 A. M. to-day, which quieted all pains. Has much nausea, I think, from the anodyne. Nothing by the stomach but a little ice. I gave chloroform and aromatic spirit of ammonia for the nausea, but they did no good. 5 P. M.—Temperature 99½°; pulse 100; respiration 16. Has much nausea, for which I ordered small quantities of lemonade, but it did no good. She takes no nourishment, has no pain, and is doing well.

Friday, February 23d, 9 A. M.—Temperature 99¾°; pulse 108. Has less nausea, and got several hours of good sleep last night. Keeps nothing on her stomach but a little ice and a teaspoonful of ice-water occasionally. 5 P. M.—Temperature, pulse, and respiration same as the morning; stomach more settled, but takes nothing but the ice and ice-water, as in the morning.

Saturday, February 24th, four days after the operation.—

Temperature 100°; pulse 92; respiration 18. Nausea gone. Slept about six hours last night, and had several naps to-day. Has had no anodyne for over two days. Says she feels quite well. Takes beef-tea and relishes it. Looks well. No unpleasant symptoms. Slight suppuration in the tracts of several of the wire sutures; removed three of them; wound well united. Has taken and enjoyed two crackers to-day. Bowels well moved naturally for the first time since the operation.

Sunday, February 25th.—Temperature 99⅘°; pulse 100; respiration 20. Stomach settled; appetite good; took a little solid food; feeling well and cheerful.

Monday, February 26th.—Temperature and pulse normal. Feels well; appetite good. It is almost incredible that she has undergone so severe an operation, and endured so much pain and vomiting, and not to have miscarried.

Thursday, March 1st, nine days after the operation.—Has been doing well up to this date. Sitting up in bed; enjoying her food; bowels regular; was taken to-day with severe pains in right groin radiating over the whole abdomen. Temperature 100°, pulse 110. I gave twenty minims of Magendie's solution hypodermically, and forty gtts. of black-drop by the mouth during the day. Belladonna plaster over the seat of pain. She has been eating too freely. All stitches removed; wound perfectly united.

Friday, March 2d.—Has still severe pains all over the abdomen, radiating more particularly to-day from the left groin; much like colicky pains, not like labor-pains; has much gaseous distention. Ordered a purgative to-night, to be followed by a turpentine enema in the morning. Has much nausea. Had twenty gtts. of black-drop early in the day.

Monday, March 5th.—For the last few days her temperature has varied from 99° to 100⅘°, her pulse from 100 to 112. She has continued to have more or less severe pains over the abdomen. Has had more or less constant nausea, due, I think, to the anodynes given to check the persistent pains, which if they continue must result in miscarriage. Tincture of nux vomica and tincture of camphor were given for the gaseous distention, but gave no relief.

Wednesday, March 7th.—Temperature and pulse normal.

Complains of great pain, starting from the left groin and running over the whole abdomen, coming and going. A miscarriage is imminent, pains so severe. She had taken sixty gtts. of black-drop to-day before I saw her. At 5 P. M. I gave her twenty minims of Magendie's solution hypodermically, and ordered a suppository containing $\frac{1}{4}$ of a grain of morphia and $\frac{1}{2}$ of a grain of extract of belladonna every three hours; but all the anodynes we could give her did not quiet the pains.

Friday, March 9th.—Mrs. —— miscarried this morning, on the eighteenth day after the operation. Labor easy; fetus and placenta coming away without difficulty or assistance; no hemorrhage. She was attended by Dr. Robert T. Wilson in my absence.

Saturday, March 10th. — Temperature 100°; pulse 100. Complains of such severe after-pains as to require anodynes.

Sunday, March 11th.—Temperature 99¾°; pulse 96. After-pains very severe. Had taken so much anodyne before I saw her, without relief, that I stopped it.

Monday, March 12th.—Temperature and pulse normal. Had a good night. At 9 A. M. was free from pain. Word was sent me at 7 P. M. that she was in so much pain she could not stand it. A dose of thirty grains of bromide of potash, and half a grain of codeia, in half an ounce of camphor-water, was given every two hours. A few doses relieved her, and she had a good night.

Thursday, March 15th.—Since last note she has pain all over the abdomen, most of the time—sometimes so severe as to require large doses of anodynes to get any relief. Slight tenderness around the navel and fundus uteri. Whole abdomen very tympanitic. Have been much puzzled to account for the continued and severe pain. Still has nausea and vomiting, which may be due to the large amount of anodynes taken.

Friday, March 16th.—I find her greatly exhausted to-day, with constant nausea and vomiting, having suffered intense pain all night. Has taken very large doses of opium and eight ounces of brandy in twenty-four hours. I discovered to-day a large firm cake about the umbilicus, eight inches in diameter. It feels like a well-defined tumor. The whole abdomen is very much enlarged and tympanitic. She looks like a woman

about eight months advanced in pregnancy, being especially prominent around the umbilicus. A vaginal examination showed the external os uteri and cervical canal patulous, so that the finger very easily entered the uterine cavity. Nothing wrong there, except that involution was not going on as it should. I am puzzled to make out what the above lump is, unless it is a phlegmon, originating with the pedicle of the ovarian tumor removed, or situated deep in the abdominal walls, close to the peritoneum. Her bowels are regular, or are moved with purgatives when constipated by the opiates. I ordered a poultice over the whole abdomen, to be covered with oil-silk, one grain of codeia, and one third of a grain of extract of belladonna, as a suppository into the bowels, every three hours, in addition to one half of a grain of codeia, and thirty grains of bromide of potash by the mouth, every three hours, as might be sufficient to allay pain. At 9 P. M. I was sent for on account of her agonizing pain. Dr. Robert T. Wilson visited her in my absence, and was obliged to give her fifty minims of Magendie's solution hypodermically within the space of twenty-five minutes to relieve her pain.

Sunday, March 18th.—Since last note, the history of one day has been very much that of another. She has not had much febrile disturbance; her temperature varying from 98⅘° to 100⅘°, and pulse from 75 to 120. She has had constant nausea, and almost incessant vomiting. Can retain very little nourishment. Takes a little ice, and milk and lime-water (a teaspoonful of each), as often as she can. To keep her at all quiet, we have been obliged to give, hypodermically, 30 minims of Magendie's solution, night and morning, every day, and even then her suffering is intense. There is great tympanites over the whole abdomen. The lump around the navel is becoming more prominent, like a well-defined tumor. On pressure it is firm, and feels solid, and does not yield, but when percussed is tympanitic. Its limits can be well defined, and it feels like a tumor within the abdominal cavity. There is not the slightest indication of fluctuation, although I have repeatedly examined for it.

Thursday, March 22d.—The history of this case for the past few days has been very much as that noted on Sunday

last. Pain, nausea, vomiting, and hypodermics—without much relief to the patient. I have tried to find fluctuation, but in vain. I propose at my next visit to pass an exploring needle deep into the tumor. There is no redness about it, nor any indications of an abscess, except the circumscribed swelling; but, as stated before, this seemed more like an abdominal tumor.

Friday, March 23d.—The tumor around Mrs. L.'s navel turned out to be a deep-seated abscess. It broke this morning in the upper angle of the incision made for ovariotomy. This incision had been firmly united for several weeks. It opened unconsciously to the patient. She was awaked by her person and bed being very wet, and then discovered matter pouring from the above opening. The tumor has disappeared. The abdomen is soft. The patient bright, cheerful, and free from pain and nausea.

This abscess burst thirty-one days after the operation for ovariotomy, and fourteen days after the miscarriage. I am sure now that this abscess has been forming from a short time after the operation, and that it was the sole cause of the miscarriage. All fears of any such result had been absent from my mind for ten days before it occurred, and it was not until a day or two before this that the pains (which I am now sure originated in the abscess) gave me any apprehensions that the uterus would empty itself.

Throughout this period it never crossed my mind what was the source of this whole trouble; and, if any one had intimated that I had left some foreign body in the abdominal cavity during ovariotomy, I should have been indignant, feeling assured that I had been so careful that this was impossible; and I was none the wiser now, and should never have been the wiser, but for the fact that the sponge which I had left behind worked its way to the surface. Had death claimed its deserts, I would not have been here to-day to weary you with the narration of this case. She would have gone to her grave, as many such cases have gone before, not by right, but by an accident, which should have been avoided.

Mrs. —— improved slowly after the abscess was emptied, until April 12th, when I sent her to her native mountain home, under the care of Dr. George H. Hocking—a most intelligent

and skillful practitioner. When she left, all discharge from the abscess had stopped. The fistulous opening had closed, but a hard circumscribed tumor remained, at times giving much pain, and requiring anodynes for relief. I considered this mass to be lymph, which surrounded the abscess, and which would be gradually absorbed by the improvement of her general health; but in this I was mistaken, as seen by the sequel.

I copy from Dr. Hocking's letter to me, dated December 6, 1883, nearly eleven months after the ovariotomy. He says: "The patient came under my care April 16, 1883, somewhat emaciated and anemic, complaining of much abdominal pain and tenderness. Examination showed the cicatrix of recent operation entirely healed.

"One and a quarter inch above the umbilicus, directly in the median line, extending about three inches from side to side, and one inch from above downward, the abdominal wall became thickened and indurated, forming a tumor-like mass, which, on being grasped with the hand, was found to be closely connected with the surrounding parts. There was no fluctuation, and percussion gave tympanitic sounds. The patient was placed on tonic treatment, and gentle exercise ordered; but there was no improvement in her condition.

"At the end of three weeks the tumor softened, and on May 14th, one month after her return home, and three months after the operation, it broke and discharged a large quantity of dark-colored, horribly offensive pus. It continued to discharge freely for the next month, when I commenced injections of a solution of carbolic acid and glycerine in water, intending, should there not be early improvement, to throw in diluted tincture of iodine.

"On the 15th of July, after using the syringe, a dark-colored object, about half the size of a silver three-cent piece, was observed to float out with the contents of the syringe. On examining this closely, it was observed to be a piece of sponge. To determine whether this had been the cause of all the trouble, I enlarged the opening, and, introducing an ordinary dissecting forceps, with the blades closed, I allowed them to expand, when I seized and removed a piece of sponge as large as a hickory-nut.

This produced such free bleeding, that I made no further attempt to remove forcibly what remained. This was taken away piecemeal from day to day, till the 7th of August, when the last vestige was removed.

"From this time the patient improved rapidly, gaining in strength and bodily weight, until now (December 6, 1883) she weighs more than ever before, and has been doing her own house-work for the past month."

This case, so far as I am aware, is unparalleled in the history of abdominal surgery. A woman, five months advanced in pregnancy, has an ovarian tumor removed from her, has a large piece of sponge left in the abdominal cavity, miscarries eighteen days after the ovariotomy, has the sponge to remain in her body five months and eighteen days before it escapes through the abdominal walls, and yet the woman is now living, and in better health than ever before. I do not report this case as an example for the improvement of women's health.

By what accident this sponge was allowed to remain in the abdominal cavity I do not know. Before closing the wound I directed the sponges to be counted, which was done and reported all correct. They may have been incorrectly counted, as in Sir T. Spencer Wells's case, or some one may have torn a sponge in two, as in Mr. Lawson Tait's case, or it may have broken off from a sponge which I was using, in cleaning out the abdominal and pelvic cavities.

I have been able to collect twenty-one cases in which foreign bodies have been left in the abdomen after laparotomy, and I am sure that, if the whole truth were told, this is not one third of such cases that could be recorded. It behooves, then, that operators should be more circumspect in every step to guard against such accidents.

The experience which I have gained has taught me, not only to count sponges, but to count every instrument used in the operation, and record them, so that there may be no doubt as to the number used, for an exact tally at the close.

As few instruments and sponges as possible should be

used in every operation. I have rarely done, or seen, a laparotomy in which there were not too many of both present.

The operator should do his own sponging, and should always have a fixed number in use. They should be handed to him as he wants them by a good assistant on the opposite side of the patient, and should be selected for perfectness and strength as well as softness. He should never allow a sponge to be divided during an operation, and he should use as few small ones as possible. They must all be undivided sponges. One of the chief duties of his opposite assistant is to watch him and see that, amid the excitements and terrors of an operation, no foreign body is left behind at its close.

Compression and torsion forceps should not be too small, and the same number should always be at hand. When small they are more easily overlooked.

There should not be too many assistants. Two good ones, in addition to the gentleman who gives chloroform, are an abundance. I had rather have one than three, and none than five. Sponges and instruments are sure to be left where they should not be, when in the hands of so many.

After all instruments and sponges have been counted by an assistant to see if they tally with the recorded number in use, the operator himself should not fail to certify the count.

Since writing the foregoing paper, seven cases have been reported to me in which foreign bodies have been left in the abdomen after laparotomy.

Of these, one was reported by Dr. T. Gaillard Thomas. He made an exploratory incision into the abdomen, and, as expected, the case did not justify an operation, the tumor being malignant in character. The wound was closed. Death resulted a few days thereafter, and a post-mortem revealed a piece of sponge in the abdominal cavity. In this exploration but one sponge was used, and this was in the hands of one of the most distinguished and careful surgeons of New York city, so that the accident could only have occurred by a piece of the sponge breaking off from the single one in use.

The second case was reported by Dr. George J. Engelmann, of St. Louis, in which a post-mortem, after an ovariotomy, revealed a sponge in the abomdinal cavity. This occurred from the meddlesomeness of an assistant, which even the watchfulness of a careful operator could not restrain.

Three cases were reported by Dr. A. Reeves Jackson, of Chicago, in which sponge was found in the abdominal cavity after death in two cases, and a pair of hemostatic forceps in one case. As the gentlemen in whose hands these accidents occurred had not published them, their names were not given.

A sixth case was reported by Dr. William T. Howard, of Baltimore, as occurring in the hands of an English operator. The case has never been published, but sponge was found in the abdomen after death.

The seventh case in which sponge was found in the abdominal cavity after death occurred in the practice of one of the most eminent surgeons of this country; but, as he has never published it, I must refrain from mentioning it further.

These seven cases, with the twenty-one which I have reported in my paper, make twenty-eight cases which I have been able to collect, of foreign bodies left in the abdomen after laparotomy.

NOTE.—Since writing the foregoing, I have received a letter from Dr. Walter F. Atlee, of Philadelphia, in which he says: "I was in Lancaster last winter at my father's—Dr. John L. Atlee—when he received a letter containing news of the death of a patient from lock-jaw, from whom he had successfully removed a large ovarian tumor. When the body was opened, a half-sponge was found in the abdomen, and it was then discovered that one of the assistants had divided a sponge during the operation. When the sponges were counted, after the operation, the number was reported correct, and my father was satisfied.

"This was the last case upon which he operated before his health broke down, and it may have had something to do with his stroke."

Dr. William Wotkyns Seymour, of Troy, New York, calls my attention to the case of Dr. Howitz, of Copenhagen, in which a sponge in the abdomen was found to be the cause of death after laparotomy.

These two, with the above-mentioned twenty-eight, make thirty cases in which this accident has occurred.

DISCUSSION.

Dr. T. Gaillard Thomas, of New York.—Dr. Wilson remarked in his paper that he did not wish to give the practice in his case as a method of restoring the health of women. I of course agree with him upon that point, but I think that he has given us an example which we should all follow, namely, that of bringing before the Society just such papers as he has given us—papers characterized by professional frankness, and a desire to avoid injury to our patients by accident. I think the paper is one which has been needed for some time. In an experience in laparotomy now covering between four and five hundred cases, I have as yet met with but one accident of this kind, and that occurred some two years ago. I mention it here not only as adding to the doctor's testimony, but as illustrating how, even under the most careful medical skill, foreign bodies may remain in the abdominal cavity. My case, as I have already stated, was one which occurred two or three years ago, and in a patient at the Woman's Hospital. She had an enlarged spleen, and at the same time Bright's disease of the kidney. It was a hopeless case from the very onset, but the patient's family clamored for an operation. I attempted to avoid it, on the ground that it was not necessary with regard to diagnosis; but the friends desired an exploratory incision, and I made one nearly over the spleen, and only sufficiently large to admit the ends of my fingers. The patient was exceedingly ill at the time, and I felt that I was hardly warranted in making even this small incision. I did not have a sponge in my hand during the entire operation, and there was but one sponge used, and that was used by my most accomplished assistant at the Woman's Hospital, Dr. James B. Hunter. I passed in my hand, discovered the case to be one of cancer of the spleen undoubtedly, and closed the abdominal wound. The patient took ether, which at that time we did not regard as dangerous, but which has since been pointed out by Dr. Emmet as being especially dangerous when the patient has disease of the kidneys, and being particularly liable to be followed by cessation of secretion from the kidneys, which result

does not follow the use of chloroform. When, therefore, we have any evidence that there is renal disease present, we now give preference to the use of chloroform.

But, as I have said, in this case ether was given, and after the operation, which was an exceedingly trivial one, the patient did not secrete a drop of urine, although strenuous efforts were made to bring on the secretion by the use of baths and administration of remedies, etc., and she soon after died. At the autopsy, made a few hours subsequently, a small piece of sponge was found in the abdominal cavity. It was a very small piece, but it might have occasioned trouble. Dr. Hunter had used an ordinary sponge-holder, and it must have been that a small portion of the sponge broke off while he was sponging the surfaces, and was left in the abdominal cavity. This is my only experience with regard to leaving any foreign substance in the abdominal cavity after laparotomy. The case illustrates the great difficulty which attends the avoidance of such an accident. In many operations it is not practicable for the operator to do the sponging himself. In many cases both hands of the operator are constantly engaged. Hemorrhage is encountered, and the operator must distinguish between tissues, and, if he has to sponge, his attention is diverted from the main object.

The method of counting sponges and instruments to prevent the leaving of anything in the abdominal cavity is a most excellent one. I suppose all operators do it now. It is my constant practice to have it done. I also never have more than three assistants: one assistant, who takes charge of the instruments, sees that they are cleansed properly, but who never puts his hands near the abdominal cavity; another, who gives the assistance alluded to by Dr. Wilson; and a third, who gives the anesthetic. There are other assistants in attendance, but they never discharge any duties unless called upon especially. Even the method of counting sponges and instruments leaves a liability for the occurrence of an accident, but especially if it is left for the nurse or assistants to do. The nurse will always make her tally agree with the number of sponges, and, if a sponge is cut in two, she will always have a distinct recollection about it. The method which I invariably follow with regard to

sponges is this : I attach to each sponge a piece of tape about six inches long. It is not likely that this piece of tape will all disappear in the abdominal cavity ; some trace of it will be found which will lead to the avoidance of the accident of leaving the sponge inclosed. With regard to instruments, we can guard against their being left in the abdominal cavity in only one way, and that is by not leaving any instrument upon vessels in the abdominal cavity for any great length of time. I have a great dread of leaving the pressure forceps upon the vessels, and always ligate the vessels and remove the forceps at the earliest possible moment, to make certain of preventing anything remaining in the cavity. I have no doubt that, if all the cases were published, as has already been remarked by Dr. Wilson, it would be found that this accident has occurred in a very much larger proportion than the doctor has already represented.

Dr. A. Reeves Jackson, of Chicago.—I can add but a word with regard to the statistics of this accident. In this city I know of three cases in which foreign bodies—sponges in two, forceps in one—were left after operations for ovariotomy, and in each case they were discovered after the death of the patient. During the reading of Dr. Wilson's paper I wrote briefly upon a card my own rules with regard to the prevention of this accident ; but they accord with his son early that it seems unnecessary to read them. It is my habit to have a written list of the number of sponges and all the instruments which are laid aside for the operation, and I always instruct the assistants not to tear a sponge under any circumstances. After the operation, and before the abdominal wound is closed, I personally inspect all the instruments and sponges, and compare them with the list which was laid by at the commencement. I do not trust to either assistant or nurse in the counting of these.

I regard the paper, as Dr. Thomas has already said, as a practical and useful one, and I think that, if such papers were more frequently read, they would be very valuable lessons for us.

Dr. A. Dunlap, of Springfield, Ohio.—I was a little astonished, as I listened to this paper, which is admirable and useful, if this is the real state of affairs ; that is, if men are operating in abdominal surgery and leaving such a number of instruments

and sponges in the cavity. I have heard of some one having left a sponge in, but I never dreamed that there had been more than one or two accidents of this kind. I have never left anything of the kind in my cases, unless the patient recovered without its being found out. I use but very few instruments, and do not allow any one to hand me these instruments; I always take time to pick them up and use them myself. An assistant hands me sponges; but of these I have only very few, and always use them myself. My instruments being so very few in number, I readily recognize them, and am always sure, before closing the wound, that they are all there. I admire the way which Dr. Thomas adopts in order to prevent the occurrence of this accident, and I can now also see another reason why the incision into the abdominal cavity should be made more extensive than is commonly done. I always open the abdominal cavity sufficiently to permit the introduction of my hand, and I never allow any assistant to use a sponge in the abdominal cavity. I slip a large sponge in which holds up the intestines, and I have the patient in a partially reclining position, which favors the drainage of everything into the *cul-de-sac*. I then have sufficient light so that I can see to the very bottom of the pelvic cavity, and sponge it until it is thoroughly dry; and after getting that dry I have her elevated sufficiently so that everything which is in the abdominal cavity will pass down into the pelvic cavity, and there be discovered.

I have no dread whatever of making the abdominal incision sufficiently large to expose the cavity so that I know exactly what I am doing. The danger with reference to the Péan forceps is, that they are the only instrument which require to be somewhat numerous. Of these we have to have a sufficient number to seize the blood-vessels; but, as Dr. Thomas says, these forceps should not be left very long upon the vessels, but a ligature should be applied and cut short, and the vessel allowed to return.

I think that one of the greatest cautions against leaving foreign bodies in the abdominal cavity would be to make the abdominal incision sufficiently free to allow us to see everything that is going on in there. Then use few instruments and large sponges. If you have little sponges on ends of sticks,

and go punching and poking about here and there, you can not see what you are doing, and it would not be certain whether a sponge was left or not. Make the abdominal incision free, and I have never had a failure to have the wound closed entirely within three days after the operation.

Dr. W. T. Howard, of Baltimore.—Recently, while in London, I had an opportunity to visit the Samaritan Hospital, and was struck with the admirable method which was practiced there to prevent the occurrence of this accident. They have two women who attend to the sponges, and before the wound is closed the operator says, "Count the sponges"; and the women count alternatively, "One, one," "two, two," etc.; and it seems to me that this would be a better method than even that which Dr. Thomas has mentioned. That method was adopted in consequence of an eminent surgeon of this hospital performing gastrotomy, and afterward finding that a sponge had been left in the abdominal cavity. The incision was reopened and the sponge removed. The patient recovered.

Another distinguished surgeon told me, while in Europe, that in one case he feared that he had left a sponge in the abdominal cavity, and consequently removed the sutures, but found that no sponge had been left. The patient died, and the death was attributed to the opening of the abdominal wound.

There is one question which I would like to ask before taking my seat, and that is, Did I understand Dr. Thomas to say that it was dangerous to use ether with disease of the kidneys, and this danger did not occur with chloroform?

Dr. Thomas.—Yes, sir; according to the observations which I referred to, and according to my own observations, suppression does not occur after the use of chloroform.

Dr. Howard.—I would say that cases have been reported, but that they do not occur so frequently with chloroform as with ether. In the *Medical and Surgical Reporter*, for October 14, 1882, p. 426, Dr. Turnbull, of Philadelphia, gives an abstract of a paper, "On the Fatal Influence of Anesthetics in Diseases of the Kidneys," and says that, while a considerable number of deaths have occurred after the administration of ether from this cause, there have been very few from chloroform. I have a case in mind—that of a colored woman, who was confined

with a hydrocephalic child. The anterior as well as the posterior vaginal wall had been torn extensively, but in the course of a few weeks it healed to almost the size of a silver quarter of a dollar. When the patient was about to be examined preparatory to an operation for closing the opening entirely, one of the assistants was directed to give chloroform, and less than half a drachm had been used when the patient died suddenly. The post-mortem examination revealed disease of the kidneys. Dr. Emmet first directed attention to this subject, and states, in the second edition of his *Gynecology*, that six deaths have occurred in his public and private practice from uremic poisoning after ether. But, as is well known, it is not necessary that there should be suppression of urine for death to occur from this cause.

Dr. THOMAS.—Yes, but Dr. Howard's case was one of sudden death produced by chloroform, and does not belong to the class of cases to which I refer. I alluded to the effect produced upon the *secretory* action of the kidneys with chloroform and with ether. It was not to the immediate effect of the anesthetic at all, but to the fact that ether produced suppression of urine when disease of the kidneys was present, and that this had not occurred, according to my observation, after the administration of chloroform.

Dr. GEORGE J. ENGELMANN, of St. Louis.—I will add one case to those reported by Dr. Wilson, although, when he sent his request to me, I refused to give the history of the case, because it implicated a prominent gynecologist who has since died. Laparotomy was performed for the removal of an ovarian cyst, occurring in a lady of prominence. Dr. Parvin had been summoned to assist, and a prominent gynecologist from the East, visiting in the city, was also requested to be present. I had placed him opposite me, and near the patient, for the purpose of giving him the best possible opportunity of witnessing the operation. He grew interested as the work progressed and difficulties accumulated; and, as there was considerable hemorrhage, he gradually took sponges from the proper assistant and began sponging, at the same time endeavoring to retain the protruding intestinal coils within the cavity, keeping the sponges, which he had removed from the sponge-holders,

in the abdominal cavity, notwithstanding one or two remonstrances. The operation was a difficult one, and before closing the incision I called for the sponges and instruments, and one sponge was missing. This gentleman assured me that it was all right, and that it had been thrown into the waste which had been carried out. The nurse assured me that no sponge was to be found in the waste. I examined the abdominal cavity at the place where we are most liable to leave a sponge, in the lower part of the small pelvis, but no sponge could be detected, and the assurance of the gentleman who had undertaken to supervise the sponging was so positive that I closed the abdomen. The patient did fairly well for two days, and then sank with peculiar symptoms of dementia, perhaps melancholia, with temperature good, but pulse somewhat rapid, and the brain very seriously affected, but no pain to speak of in the abdomen. The post-mortem revealed a sponge between the stomach, large intestine, and omentum, high up in the left side, perhaps an inch and a half from the median line. There was no inflammation, only a slight injection of the surrounding tissues. I may add that the sponge was perfectly pure and clean. Probably the accident would not have occurred, had it not been for the respect paid to the distinguished visitor. Each assistant should have one particular and well-defined duty, and be absolutely responsible for one act, and one act only. It was a neglect of this which permitted the accident to occur in my case. If this rule is followed, the number of assistants is immaterial. The sponges and instruments should, of course, be as few as possible, and they should be counted.

Dr. Paul F. Mundé, of New York.—It seems to me that there is one thing which has not yet been spoken of, namely, not the number of sponges, but their condition. Dr. Thomas's case shows that part of a sponge may be torn off, and that it may do possibly as much damage as leaving a whole sponge in. I would suggest, therefore, not to use sponges which have been used so often, or preserved in antiseptic fluids so long that they have become brittle, and when seized by the forceps are liable to crumble away. We all know how easily sponges become friable. I have seen it many times, and have experienced the danger of using sponges which are so brittle.

Again, never tear, but cut, a sponge which is to be used in an abdominal section.

In the third place, always wipe out the bottom of the pelvic cavity with small sponges, carefully and firmly attached to metal holders, and always have as many sponge-holders as sponges, and no more. Have the sponges firmly attached to the sponge-holders, and never, under any circumstances, allow them to be removed by the nurse while she is washing them.

The main point, however, which I wish to make is, not to use such friable sponges as will permit of a piece being torn off while they are being handled.

Dr. W. H. Baker, of Boston.—I have been interested and pleased with the courage exhibited by Dr. Wilson in reporting his case. We always learn most from such cases. There is one thing which I should have liked to hear included in his paper, and that is some remarks with regard to the class of substances which are of necessity left in the abdominal cavity after laparotomy, such as the substances used for ligatures and sutures. Whereas these usually give rise to no inconvenience, still they may do so; such cases have occurred. For example, wire suture after an operation has given the patient a great deal of pain, and has finally worked its way out, and it is a matter of some importance as to the selection of the class of substances to be used, in order to give the least possible inconvenience to the patient subsequently, and the least liability to do injury. Many of these substances are encysted and give rise to no inconvenience; but that exceptional cases do occur, I think, makes the question one of some importance.

Dr. Wilson.—I am glad to know that this paper has brought out so much discussion, which I did not expect it would. I was especially interested in Dr. Thomas's remarks and his mode of managing the sponges. I had not heard of it before, and I think it is a wise plan to adopt.

I agree with Dr. Reeve in the statement that there was something in using antiseptic sponges. The more I use antiseptics the more I am inclined to use them. I always use the spray before an operation in the hospital, but not in private practice. I always use antiseptics for instruments and other materials employed both in hospital and in private practice.

I agree with Dr. Dunlap with regard to the extent of the incision. Always make a liberal incision, which heals as rapidly as a small one, and through a large incision we can use large sponges, and are able to treat adhesions and bleeding points more efficiently. But I disagree with him in the statement that he would never use small sponges, as there are not infrequently small masses of coagulated blood in the pelvic cavity, which can not be removed except by the use of small sponges.

The point made by Dr. Mundé is an excellent one, and is one upon which I dwelt in my paper, that we should be careful with regard to the selection of sponges. No sponge should be used which has been cut or torn, before or during the operation. He is also perfectly right with regard to the friability of sponges. I regard the character as well as the number of sponges as exceedingly important. How this accident occurred in my case I do not know. I believe it occurred by a piece breaking off from the sponge which I was using. My own son counted the sponges, and announced that they were all present.

I have been able to collect in this audience this morning six additional cases, and these, together with one which I learned of while on my way to this meeting, make seven since I wrote my paper. Three have been mentioned by Dr. Jackson, one by Dr. Thomas, one by Dr. Howard, as occurring in the Samaritan Hospital, and one by Dr. Engelmann, and one I heard of while on my way to this place, making in all twenty-eight cases in which this accident has occurred.