trunk. The time of the operation was night, and the illumination consisted of the light of a kerosene lamp and a candle with a reflector.

The first case occurred in Manchester-by-the-Sea during the time of my summer's practice. I was called in consultation by Dr. Blaisdell, the older of the physicians of the village, to see a woman who had been in labor for about twenty-four hours. She was about thirty-eight years old, had recently married for the first time, and this was her first pregnancy.

The labor was at term, and the pains had been strong but did not seem to accomplish much. The os was so slow in dilating that the doctor had tried to dilate artificially, but found much resistance, and found also that the child's head did not seem to engage at the brim, or come down low enough to be an efficient dilator of the cervix.

It was decided that the pelvis was too small to allow the large head present to pass. The obstetrical conjugate was a little over three inches. Fetal heart was strong and good. Preparations were at once begun for operation. A few of the things in the room were removed and an operating-table improvised by laying an ironing-board across a trunk and two boxes. Over this was thrown a boiled sheet. Sheets and towels were sterilized by boiling in the wash-boiler. Dr. James M. Jackson very ably assisted me, and Dr. Glendenning, of Manchester, gave the ether. Dr. Blaisdell was ready to take the baby and resuscitate it. The patient's abdomen was scrubbed and rendered aseptic with permanganate and oxalic solutions followed with alcohol, ether and finally a lysol solution.

The abdomen was opened by a long incision in the median line, through which the uterus was lifted, or rather squeezed, out of the peritoneal cavity and packed around with hot, wet towels. A rubber tube was slipped about the cervix to be used in emergency, but dependence was placed on manual compression of the arteries in the broad ligaments, by an assistant. With one hand compressing each broad ligament, the bleeding can be absolutely controlled. The uterus was now cut in the median line, the cut passing through the placenta.

The child was seized by the head and neck and lifted out, the cord cut, and the child handed to the doctor to be started breathing. The placenta and membranes were torn off rapidly; the uterus washed out with hot lysol solution, the washing being down through the cervix and vagina; a strip of iodoform gauze was packed into the uterus and down through into the vagina. The uterus was sewed up by a double row of sutures. The muscular portion was sewed with No. 3 Leavens catgut, the stitches being about an inch apart. The sero-serous layer was sewed by a continuous suture of smaller size catgut. This prevented absolutely any bleeding from the uterus, which was well retracted. The uterus was returned now to the abdominal cavity, and the wall united by silkworm-gut sutures, and a simple aseptic dressing applied.

The patient was returned to bed in excellent condition. The baby was resuscitated quite readily, and was found to weigh eleven pounds.

The convalescence was not absolutely good at first, owing to the fact, that in the effort to be rapid in stripping off the membranes from the uterus some portions tore off and were left inside. These pieces

came away in a couple of days after an intra-uterine douche; and after that the progress was good. She was up and about in five weeks, and three months later considered herself perfectly well. She felt so well that she got out of bed several times when the nurse was out of the room, during the first ten days.

The second case was in the town of Hamilton, a patient of Dr. Thayer's. The woman, a healthy Irish woman, apparently of good build, had been in labor for a day and a half without much progress, when he called Dr. James M. Jackson in consultation. After some delay he put on high forceps, but could not bring down the head at all. I was sent for, and found the woman somewhat tired from the long-continued labor, but otherwise in good condition. The fetal heart was of good strength and regularity. Conjugate diameter three inches, os fully dilated, pains of fair strength, but accomplishing nothing.

A Cesarean operation was decided upon and preparations made at once. A fourth assistant, Dr. Swan, of Beverly, was sent for and arrived just in time to help resuscitate the baby. Sheets and towels were boiled and the same antiseptic preparations made as in the last case. Bleeding was controlled by an assistant holding the arteries in the broad ligament.

A little more time was taken in this case to peel off the membranes from the uterine wall. A lysol solution was used to wash out the uterus down through the vagina, and a strip of iodoform gauze passed through. The uterus retracted well. To prevent the collection of clots in the uterus, a good-sized strip of iodoform gauze was packed into the uterus while the stitches were being passed, and while the uterine muscle was retracting. This was taken out before the deep layer of stitches was tied. Leavens catgut, No. 3, was used for the deep sutures; No. 1 for the sero-serous continuous suture. As soon as the deep sutures were tied the compression of the broad ligaments was relaxed. The second layer of suturing made everything perfectly tight and dry.

The details of the operation were practically the same as in the first. The baby was resuscitated with more difficulty. The convalescence was excellent and uneventful. There was a slight rise of temperature on the second day, which promptly disappeared after free emptying of the bowels. At last accounts mother and baby were both very well.

TWO CASES ILLUSTRATING THE VALUE OF EXPLORATORY LAPAROTOMY.¹

APPENDICITIS. — VOMITING OF PREGNANCY.

BY EDWARD REYNOLDS, M.D.

CASE I. Mrs. C., seen with Dr. A. L. Flanders, of Jamaica Plain, on December 2, 1897. Forty-eight years old; catamenia ceased one year before. Has had six children. Has been separated from her husband for ten years, during which time she has considered herself in absolutely good health except for chronic constipation. Was thoroughly well on the morning of November 21st, but towards afternoon became chilly and feverish, and felt her clothes tight around the abdomen. The next day remained in bed, with sharp pain in the iliac region. On November 23d

¹ Read before the Obstetrical Society of Boston, February 15, 1888.

was seen by Dr. Flanders, with general abdominal tenderness and a temperature of 101.5° , which rose to 105° in the afternoon. Constipated. Both tenderness and temperature gradually decreased during the succeeding four days, and the bowels were then freely opened by a cathartic. A few days later, during apparent convalescence, moderate vesical tenesmus appeared, but decreased under medicinal treatment. December 2d there was a sudden recurrence of temperature to 102° , and with it renewed frequency of urination.

December 2d, when I first saw her, I found the whole pelvis filled with a resistant mass, of rounded outline, from the midst of which the cervix uteri seemed to project. The mass was largest on the right, and was generally sensitive and tense. On abdominal palpation there was moderate tenderness in the right iliac region, but no mass could be felt. I thought that the diagnosis lay between a local peritonitis around a probably necrotic tumor (fibroid or ovarian) and a pelvic abscess of cause unknown, appendiceal abscess being of course included. I recommended her immediate removal to a private hospital for operation.

On December 3d, the next morning, the urine contained a large amount of pus and the tumor seemed somewhat less tense, temperature 102° . The tongue was excessively furred and dry, the patient's general condition far from good and somewhat worse than on the preceding day. Under ether the uterus could be distinctly outlined. There was some boggiess on the left side of the pelvis, and a rounded, oblong mass, the size of a very large orange, could be plainly made out on the right side and very high up, the feeling and situation suggesting an ovarian cyst rather than any other lesion. The abdomen was opened by a small median incision, when the cecum was seen to be adherent to the uterus, roofing in the right side of the pelvis. The whole pelvis, both right and left, was walled off by very old, tense and white adhesions, that looked much tougher than the intestinal wall. It seemed to me that any attempt to disturb them would result in the sort of prolonged operation which could hardly fail to be fatal in the poor condition of the patient. I therefore closed the abdominal wound with a sponge held in place by a single provisional catgut suture, and turning to the vagina made a broad incision through the vaginal mucous membrane to the right of the cervix and carried this upward by blunt dissection between the layers of the broad ligament nearly to the level of the fundus uteri, working mainly with the finger. At this level and at a little distance out from the uterus toward the side of the pelvis the finger came into close contact with the oblong mass previously felt. A pair of scissors was easily thrust into it under the guidance of the touch and from four to six ounces of foul-smelling pus and fecal matter escaped. The opening was enlarged by the fingers, the cavity and vaginal wound were packed with iodoform gauze, and the abdominal wound was reopened by Dr. Flanders, whose hands had been kept free from the pus. The adhesions were carefully looked over and it being found that no damage had been done to them, he closed the abdominal wound.

On the following day a large drainage-tube was inserted in the vaginal wound, and it was washed out daily for about three weeks, at the end of which time the patient went home with a small sinus discharging but a few drops of pus. The temperature fell imme-

diately after the operation, and the patient's general condition rapidly improved. At irregular intervals during the convalescence considerable quantities of pus appeared in the urine, but a careful visual inspection of the bladder by the Kelly method immediately before the patient's discharge failed to show any abnormality and the source of this discharge was never known. (As the urine was not drawn by catheter the pus may possibly have been an admixture from the vagina.) The sinus closed a few days after the patient returned home, and she has been well ever since.

CASE II. Seen December 11, 1897, with Dr. McKenna, of Jamaica Plain. Mrs. J., twenty-nine years old, the mother of five children. Has suffered with severe vomiting during each of her previous pregnancies, but it has always terminated abruptly at about three months. Is now two and a half months pregnant, and has been vomiting almost incessantly for six weeks. She had had no efficient treatment until seen by Dr. McKenna on December 9th.

When seen by me on December 11th she was much emaciated and very feeble, with a weak and irregular pulse of 135, and vomiting a greenish fluid almost incessantly. My notes say: "Has been in bed six days and has been much constipated. No motion of the bowels for the last three days. History otherwise very unreliable. Might easily have forgotten or failed to observe very prominent symptoms." On vaginal examination the size of the uterus corresponded to the alleged period of pregnancy. An oblong, dense mass, perhaps half an inch in diameter and two inches long, extended from the left cornu down the left posterior and lateral edge of the uterus. This mass was not especially sensitive, and she had suffered little or no pain. The diagnosis was thought to lie between a fibroid and a chronic enlargement of the left tube. The patient was excessively weak. I felt grave doubts as to her surviving any operative interference or even removal to the city; but I felt certain that no efficient treatment could be carried out in her home. She was brought into the Deaconesses Hospital by ambulance that afternoon, arriving with a pulse a little over 140. She was at once put onto enemata of one egg, two ounces of peptonized milk and an ounce of whiskey, made up to eight ounces with salt solution and given every two hours; nothing by the mouth.

December 12th, at 10 A. M., her pulse was 125, very compressible and weak; vomiting incessantly. Her general condition was a little better, and I thought it wise to seize the occasion of this improvement and empty the uterus while there was a possible chance of her withstanding the shock. She was placed upon the table, without ether, and a very rigid cervix was with difficulty dilated to a degree to permit the passage of a small curette. The curette entered three and a half inches, turning slightly to the patient's right and not seeming to be free in a cavity. No fetus felt. The patient's condition was so bad that I did not dare to risk a slow dilation of the os to a degree sufficient to admit the finger. Upon the other hand, with the possibility that the complicating mass might be a distended tube, and even if it were a fibroid, with an entire uncertainty as to its extent and relation to the peritoneum and uterine wall I felt unwilling to take the risk of a forcible dilatation.

Feeling that the patient's life depended upon an immediate emptying of the uterus, and that the possibility of that depended upon an exact diagnosis, I

had her etherized and made a rapid incision into the abdomen, lifted the walls as the patient was raised into Trendelenburg's posture, saw that the mass was a fibroid, that the uterus was probably pregnant at about three months, and immediately closed the abdomen, the time of the abdominal operation from the first cut to the tying of the last suture being exactly four minutes. The cervix was then seized with double hooks, and rapidly and forcibly dilated against great resistance with Wylie's steel dilators until one finger could be forced through the os and to the fundus of the uterus. The uterine cavity was found to be somewhat altered in shape and encroached upon by the fibroid, which was interstitial. A small ovum was found at the fundus of the uterus above the fibroid and was easily dislodged and extracted. The placenta was nearly formed, the fetus was probably crushed during the manipulation, at all events was not seen. The patient was put to bed with a pulse of but little over 100, and of much better quality than before the operation. On her recovery from ether the pulse had fallen to 90, and her expression was much less drawn and anxious.

It is worthy of note that the pulse was not varied a beat by the abdominal incision. Her next temperature was normal, the pulse at the same time 86. She never vomited again, took solid nourishment within three days, and went home a fortnight later, having gained greatly in flesh and appearance during her stay in the hospital. I saw her on January 12th in thoroughly good health. The involution of the uterus made the fibroid much larger than it had appeared at the time of the operation, and much more thoroughly subperitoneal. It was now about the size of a large hen's egg, and almost its entire substance projected beyond the uterine wall.

These two cases, though so dissimilar in their nature, to my mind illustrate particularly well at once the harmlessness of a mere abdominal incision and the great assistance which the knowledge gained in this way may prove to the surgeon in attacking the disease by the vaginal route. In the first case the diagnosis was uncertain and the vaginal method of attack seemed unwise, if not impossible, until I was in possession of the information gathered from the abdominal incision. In the second case the patient's condition was so bad that any prolonged and deliberate operating would in my judgment have been almost certainly fatal, and the conditions were such that without the information gained by a glimpse into the abdomen I should have regarded any forced and rapid work as most unwarrantably reckless.

TWO CASES OF TETANUS, BOTH TREATED WITH ANTI-TETANIC SERUM, BOTH FATAL.

REPORTED BY JOHN HOMANS, M.D.,
Visiting Surgeon to the Massachusetts General Hospital, Boston.

W. McD. and J. B. S., railroad employees, were brought to the hospital on the 21st and 23d of March, 1898, respectively. One had been run over on the Albany Railroad twenty minutes before entrance, and the other on the New York, New Haven & Hartford Railroad two hours before. Both were in a state of extreme shock forbidding any operative procedures beyond tying vessels and removing tourniquets.

They were unintentionally put in adjoining rooms. The first-named had both legs crushed and the second

one leg. On the 23d McD. had improved enough to submit to amputation of the legs, and on the 25th J. B. S.'s thigh was amputated. The flaps sloughed more or less. Both suffered considerable pain.

On March 30th McD. complained of stiffness of jaw; on the 31st there was less stiffness, but there was some pain on swallowing, and he complained that his face was sore.

April 1st there was pain in the right stump, which twitched frequently; tetanic symptoms increased; he got, at 1 p. m., 40 c. c. tetanic antitoxin, and at 8 p. m., 40 c. c. (Roux).

April 2d, sharp spasmodic pains in the right stump; little sleep; one mild general convulsion. In morning less marked rigidity; asked for beer, which he swallowed. At 2.45 p. m., 60 c. c. antitoxin (procured from the Massachusetts Board of Health). Spasms less marked in p. m., but occurring every few minutes. At 8 p. m., 120 c. c. antitoxin (State Board of Health).

April 3d, fair night; several hours sleep, but cried at times from pain in stump. Temperature rose. Spasms more frequent. In a. m. muscles of neck more relaxed. Swallowing easier; takes considerable liquid nourishment. At 3 p. m., 60 c. c. antitoxin. Spasms became more frequent; tendency to opisthotonos, but not marked. Slight spasmodic contraction of arms. Passes urine with difficulty. Temperature in a. m., 105°; later it fell to 101°. Pulse good.

April 4th, patient slept about four hours during night from the effects of morphia and chloral. Temperature in a. m., 102°. Spasms frequent; neck muscles less rigid; mouth opened one inch, and chin could be brought nearly to sternum by flexing head on trunk. Spasms increasing in intensity. At 11.30, chloroform inhalation to relieve pain and spasms. Quiet for half an hour, when spasms returned. At 2.30, 60 c. c. antitoxin; and at 8 p. m., 60 c. c. antitoxin. Chloroform at 1 a. m. Temperature at 5 a. m., 104.2°. At 5.30 urine passed involuntarily. At 9 a. m. temperature 105.4°; only partially conscious. Pulse more rapid and feeble. At 3.55 died quietly, not in spasm. At time of death the wounds were clean and healthy.

J. B. S.'s thigh was amputated on March 25th one and a half inches above the joint. On the 27th his condition had markedly improved, but there was some sloughing of the flaps.

On April 1st, at 4 a. m., nine days after the accident and seven after the operation, he complained of difficulty in opening the mouth and of stiffness of the neck. At 8.30 the mouth could be opened only half an inch, and swallowing was difficult; this increased during the day, as did the rigidity of the sternomastoids. At 1 p. m. 25 c. c. of tetanus antitoxin were given, and at 8 p. m. 55 c. c. The wound was bathed in foul pus.

At 2.30 a. m. on April 2d general convulsions began, and during the night rigidity of the thorax. The patient became cyanotic, the pulse weak and irregular. At 9.30 a. m. an attempt to swallow water brought on spasm of the glottis and extreme cyanosis. Death occurred at 12 m.

The bacteriological reports are appended:

Cultures on blood serum made from stump of leg of W. McD. on April 1, 1898. In twenty-four hours a luxuriant growth liquefying the medium. After ninety-six hours in the incubator, microscopic examination of cover-glass shows the typical pinhead rods of the tetanus bacillus. Many other bacilli and many coccus forms are seen. The