TRANSACTIONS

OF THE

PHILADELPHIA ACADEMY OF SURGERY

Stated Meeting Held October 10, 1927

The President, Dr. Charles F. Mitchell, in the Chair

TOTAL CARCINOMA OF RECTUM

Dr. Hubley R. Owen demonstrated a specimen consisting of the rectum and part of the sigmoid, which showed total carcinoma. This had been removed a few hours before by the abdomino-perineal route from a patient who had had symptoms for only a few weeks.

SPLENECTOMY FOR BLOOD DYSCRASIA

Dr. A. P. C. Ashhurst presented a woman, a patient of Dr. Alfred C. Johnson, aged fifty-one years, whose spleen had been removed by Doctor Ashhurst at the Episcopal Hospital, June 1, 1927. The patient had entered the hospital after a few months' illness, suffering from jaundice and anæmia, the diagnosis being acquired hæmolytic icterus. Her improvement after the operation was rapid and she is now in very good health.

Also a female child, a patient of Dr. William H. Crawford, aged seven years, whose spleen had been removed by Doctor Ashhurst at the Episcopal Hospital, March 5, 1925, for chronic purpura hemorrhagica. She had had attacks of purpura for a year or more and had been in the hospital on four former occasions. Her improvement after the splenectomy was immediate. She has had no return of her bleeding and has remained in excellent health.

Dr. James E. Cottrell said that the woman presented by Doctor Ashhurst was under his care in the medical ward. The salient points in the condition at that time were jaundice, anæmia of the secondary type and increased fragility of the red cells. There are two types of hæmolytic icterus, namely, the congenital and the acquired. Congenital types are by far the milder. They may persist for years and the patient suffer little from the condition, the health being interrupted at times by blood crises in which hæmolysis of the red cells with severe anæmia takes place. This is followed by return to the usual state of slight anæmia. In the acquired type, the cause of which is still unknown, a more severe condition obtains which progresses usually to a fatal termination, if not interrupted. The treatment indicated is splenectomy, which usually results in recovery. This patient had anæmia of the secondary type. No obvious source of hemorrhage could be found to account for such anæmia. In this case a most useful adjunct was the administration of a liver diet as outlined by Minot and Murphy, of Boston, which is useful not only in the treatment of pernicious anæmia—for which it was originally suggested—but for almost any severe anæmia. This case was an example of the comparative hopelessness of the condition

if allowed to run its usual course, and the excellent results which can be obtained by splenectomy, although the physiology of the process is shrouded in mystery as is the physiology of the spleen in general.

DR. A. P. C. ASHHURST said, in referring to the patient with purpura hemorrhagica, that he had been surprised that although the child had been in the hospital three times before no one else on the surgical staff had taken her spleen out. These patients with chronic purpura are known to be curable by splenectomy; the mortality is low and the results are admirable. In acute cases, however, the mortality is very high, and splenectomy is rarely if ever justifiable.

As to the adult woman, there is still some dispute among the pathologists and clinical men as to whether it is a case of pernicious anæmia or of hæmolytic icterus. He believes it is the latter, and the patient has certainly been vastly improved by the removal of the spleen. There is nothing mysterious or miraculous about the operation of splenectomy; if the spleen is diseased, the surgeon removes it; if the pathologist cannot determine by histological study of the spleen after it is removed the exact nature of the disease, that is the misfortune of the pathologist.

RUPTURE OF BOWEL AT THE DUODENO-JEJUNAL JUNCTION

DR. E. L. ELIASON reported the case of a man, twenty-six years of age, who was admitted to Service C under the reporter's care at the University of Pennsylvania Hospital, at 11 P.M., May 7, 1927, complaining of abdominal pain associated with nausea and vomiting. He gave the history that while at work at a buzz saw at 8 o'clock that morning he was struck in the left upper abdomen with the end of a long plank, eight inches wide, thrown from the revolving saw. He was unconscious for a few moments. Since that time he has had severe pain in his upper abdomen with continuous nausea and vomiting. His physician gave the information that he was subject to epileptic attacks. On admission the T.P.R. was 99–84–24 with a blood-pressure of 110/70. The blood picture showed white blood-cells 20,400 and the man looked "hard hit." The abdomen presented a contused area the shape of the end of the plank over the left upper abdomen, extending from the tenth costal cartilage almost to the midline. The abdominal muscles were board-like in their rigidity and peristalsis was absent. There was generalized tenderness and pain. A tentative diagnosis of a ruptured hollow viscus (jejunum) was made. Operation was performed sixteen hours after the accident. The abdomen was opened through an upper paramedian incision. The peritoneum was markedly injected and filled with lymph and fluid. On delivering the great omentum and transverse colon, much of the patient's partially digested breakfast was found among the jejunal loops. Further examination disclosed a ragged tear about three inches long extending obliquely from in front of the first inch of the jejunum near the mesentery around the free border and across the posterior wall of the last one and one-half inches of the duodenum. In a word, the wound circumscribed the gut spirally, with the exception of a strip about three-quarters of an inch wide at the mesenteric attachment. The tear was closed by a double row of sutures and the abdomen then flushed free of food with salt solution and drained suprapubically and locally.

The patient left the operating table with a pulse of 156, but reacted

promptly and experienced a very smooth convalescence until the afternoon of the seventh day, when he had an epileptiform convulsion which lasted six hours. A few hours later, because of its being blood stained, the abdominal dressing was removed thereby disclosing a ruptured wound with omentum and a loop of jejunum 10–12 inches long lying on the anterior abdominal wall. Under gas anæsthesia these viscera were replaced and held within the abdomen by packing, no attempt being made to suture the wound. Three weeks later the granulating wound was grafted by the Reverdin method. The patient was discharged June 18, 1927, in good condition.

At the follow-up three months later he was credited with being in perfect health.

DOCTOR ELIASON remarked that this case belonged to that group termed by Sternberg, of Vienna, as "Zureckschlagen" or "kickback". L. P. Kuhn, of Chicago, in 1925 reported the following statistics to date: He quotes Sternberg as stating "that woodworkers using the revolving saw (2000 to 3000 revolutions per minute) are very prone to injuries by the wood being thrown or kicked back by the saw. In Austria of 519 accidents caused by planing machines, 221 were due to kickback. Of 135 accidents by trimming machines, 85 were due to the same, and of 514 circular saw accidents, 204 were of similar cause. Kuhn reports 55 "kickback" accidents from a ripsaw or planer. Monro states that a hollow viscus filled with food is the commonest ruptured and of these the jejunum and ileum predominate. Massie reviewed 34 cases of ruptured viscus and found the greater number occurred in the jejunum and ileum. Most cases were partial ruptures rather than a complete division of the gut. J. T. Bottomley, writing on injuries of the jejunum and ileum states that unfortunately the early symptoms may not be of serious significance." In the experience of the above writers many of these patients have either continued to work or have returned to work in an hour or so, only later reporting abdominal distress. This was the case with his patient.

BULLET WOUNDS OF BOWEL AND OF ILIAC VEIN

DR. E. L. ELIASON presented a boy, aged thirteen years, who was admitted to Service C, under the reporter's care, at the University of Pennsylvania Hospital, January 18, 1927, giving the history that four hours previously he had been shot in the abdomen by a .22-calibre rifle bullet. On admission the T.P.R. was 98.3–100–24 and the blood-pressure 110/70. The blood count showed 12,500 white blood-cells and 60 per cent. hæmoglobin. The record of the red blood-cell count was lost.

The patient, although having considerable generalized abdominal pain, had not vomited. There was no restlessness, thirst, air hunger or apprehension. The skin was warm, but it, and also the mucous membranes, were pale. Examination of the abdomen revealed a bullet wound in the midline two inches below the umbilicus. The abdominal walls were quite rigid, peristalsis was absent and there was movable dulness in the flanks. The tentative diagnosis was that of intraperitoneal injury with hemorrhage, and operation was undertaken at once.

The abdomen was opened about the wound, which was débrided en route. When the peritoneum was opened, considerable blood was evacuated. Eight through-and-through perforations of the small gut, making sixteen wounds, were found. They were sutured with silk. One wound of the gut which

did not perforate the muscular coat was also closed. Wounds in the mesentery were sutured. Bleeding points were caught and ligated. Further investigation of the abdomen showed no further wounds in the small gut, but there was a single perforation of the sigmoid with considerable laceration of the meso of the sigmoid. These wounds were closed. Further examination revealed a wound in the posterior parietal peritoneum over the left pelvic brim where the great vessels cross it, which bled profusely. It was found to be a vein of considerable size, probably one of the iliacs at the bifurcation of the artery, but positive identification was not made. The wound was found to have practically severed the vein. Both ends were ligated. He was transfused with 250 c.c. of citrated blood after his return from the operating room. The post-operative course was uneventful. The wound remained clean and the patient was discharged on the fourteenth day after operation. Examination three months later showed the wound perfectly healed, no swelling of the limb and the patient said that he had no complaints.

ACUTE SUPPURATIVE PANCREATITIS

DR. L. K. FERGUSON, by invitation, reported the case of a woman aged forty-five, who was admitted to the University of Pennsylvania Hospital in January, 1927, in the service of Dr. E. L. Eliason. The patient gave a history of having been in good health until 1925, when she had an attack of sudden severe epigastric pain accompanied by nausea and vomiting. A similar but somewhat less severe attack occurred four months later. Before and after these attacks the patient felt quite well, except for occasional "heartburn" which was relieved by soda. In January, 1927, a third attack occurred. There was no elevation of pulse rate or temperature and the pain was relieved by an injection of morphine. The vomiting continued and the pain became localized to the left hypochondrium with some radiation to the back. On admission her temperature was 99.4°, pulse 92, respirations 28, blood-pressure 160/70. The pain was intermittent and was confined almost entirely to the upper left abdomen. The whole abdomen was tender, especially in the left hypochondrium, and there was a slight rigidity of her left upper rectus. No masses could be palpated. Peristalsis was still present. The leucocyte count was 19,300. Because of continued pain and vomiting with increasing leucocytosis, operation was elected. As soon as the peritoneum was opened, chocolate-colored fluid escaped and several small patches of fat necrosis were seen. By elevating the colon, the posterior abdominal wall was revealed, disclosing considerable hemorrhage and retroperitoneal fat necrosis, especially on the left side. The pancreas was then exposed through an opening in the gastro-colic omentum; on opening the capsule of the gland, thin blood-tinged necrotic material escaped. The pathology seemed to be largely confined to the left side in the tail of the organ. Drainage was instituted. Her convalescence was marred somewhat by a right basal broncho-pneumonia from which she quickly recovered. She was discharged five weeks after operation, with the wound still draining slightly. She weighed 95½ pounds on the day of her discharge. During convalescence, the patient was watched for signs of diabetes. On the day after operation the blood sugar was 137 mgm. per 100 c.c., falling to 93 mgm. on the twelfth day. Sugar never appeared in the urine. Since her discharge, the patient has gained weight and is now in good health. This case presents several unusual and interesting features. (1) Three attacks of probable pancreatitis, with an interval of one and one-half years before the last attack. (2) Loss of weight, probably due to a chronic pancreatitis. (3) A final attack without the usual shock associated with an acute pancreatitis. (4) Pain and

tenderness confined almost entirely to the left upper side. (5) Pathology involving only the tail of the pancreas. (6) Recovery following drainage of the organ.

DR. A. P. C. ASHHURST asked Doctor Ferguson how soon he withdrew the drainage in his case of acute hemorrhagic pancreatitis. Doctor Ashhurst had lost his first patient with acute pancreatitis, he believes, because he withdrew the drain too soon, forgetting that in pancreatic disease there is inhibition of adhesion formation; the pancreatic ferments prevent adhesions. The afternoon on which this patient had the drain removed, about the fourth day after operation, she developed general peritonitis and died a day or so later.

DR. L. K. FERGUSON said in reply that his patient had the pathology located almost entirely in the left side; as soon as the gastro-colic omentum was opened the lesion was apparent. Two kinds of drains were used: a split rubber tube, containing a wick, and a tube of soft rubber. One split rubber tube extended to the tail of the pancreas and the other was placed into the opening in the gastro-colic omentum. These were both coffer dammed with the soft tubes; four of the latter being used. The soft tubes were taken out gradually and removal completed in one week. The other tubes were allowed to remain for fifteen days.

UNILATERAL BRONCHIECTASIS—EXTRAPLEURAL THORACOPLASTY

DR. JOHN B. FLICK reported the case of a woman aged thirty-seven, who was referred by the Jackson Clinic to the Surgical Service of Dr. John H. Gibbon at the Jefferson Hospital in November, 1926, with the history that when five years of age she sucked into her lungs a coffee bean with the result that she became quite ill with an attack simulating pneumonia. One month after the onset, she coughed up the bean and her condition improved materially, but she never got rid of the cough. When eighteen years of age she was told she had bronchiectasis. For the past eighteen or nineteen years, she has had almost yearly attacks of severe acute infection of the respiratory tract. From March, 1925, until she was operated upon, she was confined to her bed almost continuously, had a fetid expectoration and brought up small amounts of dark blood on the slightest exertion. Prior to her admission to the surgical wards, she was studied by Dr. Louis H. Clerf of the Jackson Clinic and bronchoscopic treatment undertaken. Under bronchoscopic drainage her general condition improved. She gained in weight, brought up less sputum, and the fetid odor was definitely lessened. Bronchoscopic examination showed quantities of pus coming from the left bronchus. Iodized oil was introduced through the bronchoscope and Röntgen-ray studies made which showed extensive bronchiectasis and pulmonary fibrosis, involving the lower lobe of the left lung and a portion of the upper lobe. (Fig. 1.) Repeated sputum examinations failed to show tubercle bacilli. The amount of sputum at the time of the first operation varied from seventy-five to one hundred and twenty-five cubic centimetres in twenty-four hours. The temperature was normal, with occasional periods of low-grade fever.

November 19, 1926, under local infiltration (one-half of one per cent. novocain) anæsthesia and nitrous-oxide oxygen analgesia, through a posterior incision, sections of the eleventh, tenth, ninth and eighth ribs were

removed. Following this operation the sputum diminished about a third in amount. December 3, sections of the seventh, sixth, fifth and fourth ribs were removed. December 13, sections of the third, second and first ribs were removed. Following this she was sent to a Convalescent Home for two weeks.

January 31, 1927, she was readmitted to the Jefferson Hospital for further study. She had gained eight pounds in weight and was up and about for the first time in two years. Doctor Clerf again introduced iodized oil through a bronchoscope, and Röntgen-ray studies were made to determine if possible to what extent the bronchiectatic cavities had been collapsed. It was decided that further resection of ribs would be necessary. This was done in two stages. February 21, sections of the eleventh, sixth, fifth and fourth ribs, from the point of previous section to the costochondral junction, were removed through an axillary incision. March 4, an additional seven centimetres of the third and four centimetres of the second ribs were removed. The total amount of rib resected was one hundred and sixty centimetres. The patient made a good recovery and April 13 was permitted to leave the hospital. The sputum no longer had a fetid odor, had diminished in amount to ten or fifteen cubic centimetres in twenty-four hours and only occasionally contained blood streaks. October 6, the patient returned for observation. Her improvement in general appearance was most striking. She had gained ten pounds in weight, was able to be about and do part of her housework, which she had not been able to do for three years, and stated that she expectorated only in the mornings except when she had an acute cold. Her sputum had contained blood on three occasions only since her discharge from the hospital. Pneumonographic studies made at this time showed marked diminution in the size of the cavities. (Fig. 2.) The speaker said that surgery in the treatment of bronchiectasis, which involves more than one lobe, even if it be limited to one side, can at most be only palliative. Yet the amelioration of symptoms following surgical collapse of the affected side, as reported by Hedblom and others, would seem to justify its employment.

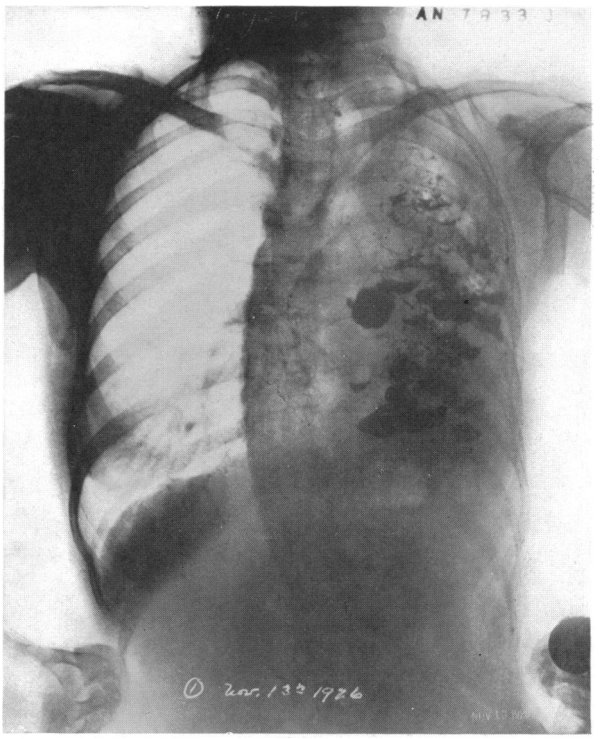

FIG. 1.—Röntgenogram made after bronchoscopic instillation of iodized oil, showing extensive bronchiectasis and pulmonary fibrosis involving the left lower lobe and a portion of the upper lobe. (Report on Röntgen-ray by Dr. W. F. Manges.)

DR. LOUIS H. CLERF said this patient had been an invalid for a number of years, and was constantly in dread of pulmonary hemorrhage. Bronchoscopic treatment was instituted and was followed by definite improvement. Realizing that bronchoscopy has definite limitations in these cases in so far that pus will reaccumulate following aspiration, if nothing is done to remove the diseased area, the speaker believed that the surgeon should be given an opportunity to consider the advisability of surgical interference. Doctor Flick saw the patient and thought that much could be gained by operation. The improvement which resulted was remarkable. From the standpoint of the bronchoscopist, one outstanding feature is the aid which can be given to the surgeon; often after a course of bronchoscopic treatments the patient improves to such an extent that he is in better physical condition to be operated upon. The bronchoscopist can also be of great assistance in locating bronchiectatic cavities; no one, not excepting the röntgenologist, had an idea the cavity in the left chest was as large as the pneumonograms showed. By the bronchoscopic instillation of iodized oil it was possible to give the surgeon information as to what had been accomplished and the last pneumonographic studies made October 8, showed a marked contrast when compared with the original studies.

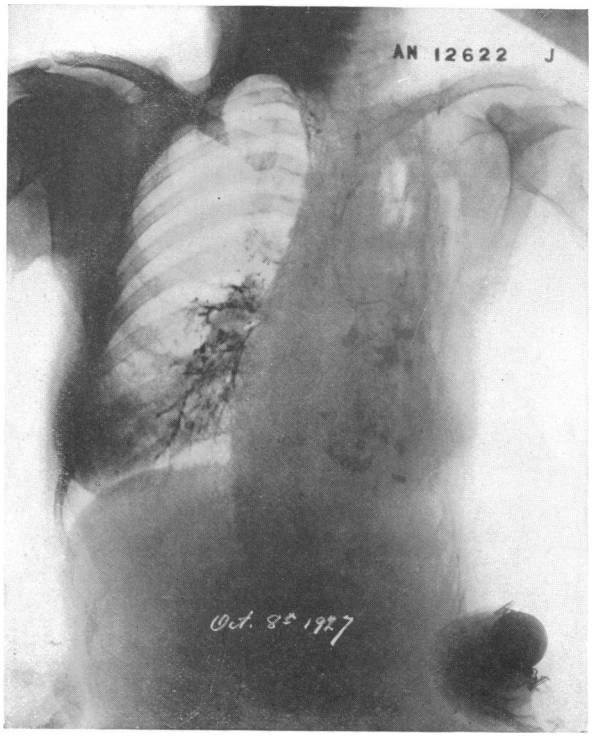

FIG. 2.—Röntgenogram made after bronchoscopic instillation of iodized oil, shows diminution in size of bronchiectatic cavities, following extrapleural thoracoplasty. (Report on Röntgen-ray by Dr. W. F. Manges.)

ABDOMINAL INCISIONS, THEIR MAKING AND CLOSURE

DR. IRVINE M. BOYKIN read a paper with the above title, for which see page 74.

DR. A. P. C. ASHHURST said, that he wished to discuss especially two points in Doctor Boykin's paper: first, the exposure which one can secure by the incisions described; and second, the complication of the wound breaking open.

As all know, the linea alba and the linea semilunaris are the two resistant structures in the abdominal wall: if one cuts across one or both of them, one can get a great deal more exposure through a small incision than if one cuts between them. The gall-bladder incision Doctor Boykin describes is better than a transverse incision, because it affords an exposure high up in the midline, as well as sufficient exposure of the fundus of the gall-bladder. Professor Terrier long ago pointed out that biliary surgery tended to become more and more *canaliculaire;* and it is because one cannot get sufficient exposure of the ducts through the longitudinal portion of an upper rectus incision, that Mayo-Robson added the extension of such an incision upward to the ensiform below the costal border. For a time Doctor Ashhurst had used Mayo-Robson's incision; but very soon a patient returned complaining of a large bulge caused by paralysis of the rectus muscle between the incision and the midline. The patient wanted to know what could be done for him, and Doctor Ashhurst had told him "nothing"; because it would be next to impossible to find and to suture all the nerves that had been cut. About that time an article on abdominal incisions, written in 1908 by a Doctor Collins, a gynecologist, of Peoria, Ill., had come to Doctor Ashhurst's attention; and this incision for gall-bladder operations which Doctor Ashhurst has used for many years is the same as that described by Collins, only longer. By cutting the linea alba at the upper end, and (when necessary, also) the linea semilunaris at the lower end, the two most resistant structures in the abdominal wall are cut, giving admirable exposure of the bile-ducts.

Concerning Doctor Boykin's remarks about the draining of appendix incisions, Doctor Ashhurst was not convinced that one gets fewer hernias if the drain is placed at the linea semilunaris rather than at the outer end of the incision, where one has the entire thickness of the transversalis and internal oblique muscles, as well as the muscular fibres of the external oblique; because a drained incision is often long enough to involve some of the muscle fibres of the external oblique. The speaker makes a practice of placing the drain at the outer end of the incision. Doctor Crossan had called Doctor Ashhurst's attention to an observation by the late Dr. James E. Thompson, of Galveston, to the effect that while many of the transverse incisions seem to have hernias at the end of six months or a year, in one or two years more the hernia has disappeared and the wound is firm.

As to the question of wounds breaking open again, Doctor Ashhurst said that a few years ago he had been asked by a surgeon from another city how many abdominal wounds he had had that broke open after operation. Doctor Ashhurst had replied *one*. "Do you mean to say," replied Doctor X, "that in your *entire* experience you have had only one wound break open?" To which Doctor Ashhurst had replied he thought one was enough. Doctor Ashhurst had then inquired from his friend, who seemed to be troubled so often by his incisions breaking open, what was the method he used in closing his abdominal incisions. "In layers, and with mass sutures of non-absorbable material, such as silkworm gut," was the reply. To Doctor

Ashhurst's query whether Doctor X ever closed his wounds with nothing but through-and-through sutures of silkworm gut, the reply was a hesitating "yes", with the explanation that this method was not popular with Doctor X because he had several times had loops of bowel prolapse and become strangulated between these sutures, not so far out as to reach the skin, but at least through the peritoneal surface of the wound. Then Doctor Ashhurst had suggested that perhaps the through-and-through sutures had not been placed closely enough, since in his own experience such an accident had never occurred. Doctor X replied that in an incision about 15 cm. long, he was in the habit of inserting two or three such through-and-through sutures. Now this, Doctor Ashhurst believed, was the explanation of the apparent frequency with which Doctor X's wounds, even when closed in layers, had broken open. Doctor Ashhurst was convinced that if only through-and-through sutures were used, they should be placed not more than 1 cm. apart; and when the wound was closed in layers, the splint sutures should be not more than 2 cm. apart. Moreover, it was very important not to remove either the splint sutures or the through-and-through sutures too early: the former seldom in less than ten days, and the latter scarcely ever in less than two weeks after operation.

On carefully searching his records, Doctor Ashhurst had found a second patient in whom this accident occurred, but it was not an incision in the epigastrium, where most of such disasters have occurred in the experience of others, but a long left paramedian incision, made for purposes of complete exploration and which had been closed in layers and with six splint sutures; moreover, in this case the interne by inadvertence had removed the splint sutures on the eighth day after operation. In the other case, where an incision 15 cm. long (for gastrojejunostomy) had been closed in layers and with five splint sutures of silkworm gut, the wound broke open on the fourth day after operation, and the transverse colon protruded: the two silkworm gut splint sutures at the middle of the wound had broken, but the lowermost and the two upper splint sutures had held. The wounds of both these patients were re-sutured under gas anæsthesia, with nothing but through-and-through sutures of silkworm gut placed 1 cm. apart. Both patients made an uneventful recovery: the first patient, a man sixty-one years of age, developed an incisional hernia, partly because he rapidly gained 40 pounds in weight after operation; the second has a firm incision without any tendency to hernia. Both patients have been followed for six years after operation.

Dr. George P. Muller said that for many years he used the right rectus incision in the lower abdomen and believed this to be the usual practice among Philadelphia surgeons. Of late years the speaker has used the paramedial incision. His reason for preferring this to the right rectus incision being that in the former, one did not encounter the deep epigastric vessels. The speaker still uses the right rectus incision in the upper abdomen, particularly in gastric work, and finds that if the wound is carefully closed and

rigid asepsis is maintained, hernia does not often occur. In gall-bladder work Doctor Muller uses the incision described by Doctor Boykin and has found it satisfactory. In all acute cases of appendicitis the speaker uses the McBurney incision; this differs very little from the Davis incision except as regards the direction of the skin incision. The successful healing of wounds depends on the prevention of infection, the elimination of rough handling and a neat, accurate approximation of tissues without tension. The only cases in which the speaker has had wounds break open are in extensive exploratory operations, for cancer of the stomach where closure has been difficult, due to strain. Surgeons are apt to concentrate their interest in the main features of an operation and have the work undone by the condition of the wound.

DR. I. M. BOYKIN said that his sutures embrace all structures down to the posterior sheath of the rectus and are placed two and one-half cm. apart. He thought that Doctor Muller was mistaken in saying that the McBurney and Davis incisions are the same except for the skin incision. He will find in the follow-up clinic that in the McBurney incisions, that had to be extended, there is permanent damage done to the abdominal wall. This is not true of the transverse incision.