were also rather unintelligible. In an effort to remedy the multiplicity of findings, recourse was had to diagrammatic drawings representing the hand and fingers. These drawings were made free hand, and in them a single line or succession of lines represented forearm, wrist, and each of the three phalanges. They were used in conjunction with the Hart House charts and

HART HOUSE CHART

Middle Finger (Left)	Movement	
	Active	Passive
Prox. flex.	20°	35°
Ext.	Lacks 5° of full	Full
Med. flex.	40°	45°
Ext.	Lacks 20° of full	Full
Dist. flex.	20°	45°
Ext.	Lacks 30° of full	Full

This is quite an accurate record of the finger, but takes a very long time to estimate and put down, and equally long to get a connected idea from reading it.

had the advantage that they showed at a glance the position of the various joints of wrist and fingers. No attempt was made to record strength of movement graphically, but active and passive motion, whether in flexion or extension, was shown on the diagram.

We have so far found the graphic method of such benefit to us in our hand cases that its use is now gradually extending to the larger joints.

Fig. 4.—Graphic records, simplified and as in actual use. These take very little time to sketch free hand. If actual measurement in degrees of a joint is wanted, the sketch is used and the angles are measured

A few illustrations are appended of the graphic methods as used at the Clinic for Functional Reeducation in the hope that reconstructive surgery in general and the work of the War Risk Insurance Bureau in particular may be lightened.

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Platinum.—In an article on platinum in *Commerce Reports* it is said that previous to the war 90 per cent. of the world's output of platinum was produced in Russia. The Russian field and the newer and less developed field in Colombia, South America, constitute the world's two important sources of this valuable metal. Notwithstanding the great demand for the metal in carrying on important processes during the war, the production in Russia fell off from about 300,000 ounces in 1911, to about 78,000 ounces in 1916. To counteract this in part, production in the Choco district of Colombia increased from 12,000 ounces in 1911 to about 50,000 troy ounces in 1917, an increase of 300 per cent. in this practically new field. In addition to the usual employment of platinum in electrical apparatus, crucibles, etc., the requirements were greatly increased during the war on account of the greatly enhanced needs for internal combustion engines for airplanes, automobiles, tanks and motor boats, the manufacture of fuming sulphuric acid, in which platinum is employed as a catalyzer or changer, important in munitions manufacture, and in the manufacture of nitrogen from the air, also required for explosives.

Clinical Notes, Suggestions, and New Instruments

HERNIA THROUGH THE FORAMEN OF WINSLOW: REPORT OF A CASE

J. E. ENGSTAD, M.D., GRAND FORKS, N. D.

H. B. was referred to me by Dr. Knutson of Buxton, N. D., and admitted to St. Michael's Hospital in this city, about midnight, August 3, suffering from intense pain in the epigastric region.

The patient gave a history of sudden attack of pain while lifting a heavy object about twelve hours before admittance. The family physician was called, who immediately recognized the gravity of the case and ordered the patient sent to the nearest hospital. The journey of more than 20 miles was accomplished in an automobile improvised as an ambulance.

The abdomen was very rigid and sensitive to pressure, and a tense mass was felt in the right epigastric region. The pulse was about 36, heart beats 90, the organ being in a state of auricular fibrillation, and temperature, 103. The kidneys and lungs were normal. After a speedy preparation a long incision was made, and immediately there protruded large masses of dilated and congested intestine filled with fecal accumulation.

The strangulated intestine was soon recognized as being a part of the upper portion of the jejunum, about 75 cm. from the fossa of Treitz, the strangulated portion being caught in the foramen of Winslow. Traction was first made to relieve the impacted intestine, but the strangulated loop had already become edematous, and it was found necessary to introduce the tip of the index finger into the tight opening, carefully severing first the peritoneal covering and gradually the connective tissue of the opening, extreme care being exercised not to injure the immediately overlying structures, the portal vein or the common duct. All the structures underlying these canals had to be cut before the impacted loop could be released, the latter being accomplished by application of moderate traction.

The loop was immediately covered with warm packs; the intestine was then opened and emptied of pancreatic fluid and bile, after which the opening was closed by the usual intestinal sutures, silk and catgut being used.

The injured intestinal tract at once showed unmistakable signs of restored circulation. The operation was completed by the introduction of two small drains and the usual closure.

No effort was made to close the large foraminal opening, this omission being based on, first, the supposition that an enlarged opening would not again implant any loop of the intestine that might be forced into the cavity, and secondly, the great danger of traumatizing the vein.

The drains were removed the second day.

The patient rallied immediately, and the progress toward recovery was rapid and without any incident up to the tenth day, when, without any previous warning, there was a rise in the temperature, the wound opened up, and a profuse serous discharge appeared. This rapidly changed in character, at times to bile and pancreatic fluid. The fat underlying the skin rapidly sloughed away, and on the whole the case looked rather unfavorable. On the thirteenth day an orange seed appeared in the discharges, which immediately relieved our misgivings, for instead of a fistula of the common duct, we now knew that we had a small intestinal leakage from the drainage incision in the intestine, which was about 40 cm. from the duodenojejunal fossa, or 60 cm. from the ampulla of Vater. The secretions from the fistula appeared at times almost unchanged bile and pancreatic fluids.

In due time the opening was packed, which controlled the discharge of the secretions, and the wound healed rapidly. The patient was discharged from the hospital five weeks after the operation, with good health, the wound being healed with the exception of a space about an inch square, filled with granulation tissue.

COMMENT

The large death rate from operative procedure for hernia into the foramen of Winslow is due, no doubt, in a great measure to the constriction of the intestine in its most vital portion, the so-called medulla oblongata of the intestinal tract, where are located the secreting glands of the upper bowel, whose functions are to supply the still partially mystifying hormones, whose reabsorption is speedily followed by death.

Bile and pancreatic fluid are constantly pouring into the distended intestine, adding their quota to the rapidly accumulating deadly contents of the dilated intestine.

The vital point of any operation for the relief of accumulation in this part of the intestinal tract is the mechanical emptying of all accumulated fluids by a large transverse incision in the intestine at a point midway between the normal portions. The emptying should be performed by gentle milking; otherwise the traumatized blood vessels might become injured and emboli might rapidly form in the mesentery veins or arteries, which, of course, is concomitant with death of a segment of the bowel.

Whether the introduction of the drains predisposed to the fistula is a problematic question.

REPORT OF CASE OF FAT EMBOLISM

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History.—A married woman, aged 56, rather compact and stoutly built, sextipara, weighing 150 pounds, had had normal health in every respect until two years before admittance to the hospital, when she suffered an attack of appendicitis which passed off in three or four days. Aug. 12, 1918, there occurred a more severe attack in which the bowels had been made to move with difficulty. Two months later there was another attack with diarrhea, and subsequent difficulty was experienced in moving the bowels. This attack passed off in ten days, leaving tenderness diffused over the right abdomen. This persisted until the attending physician advised the patient to enter the hospital, November 15.

Examination.—The heart and lungs were normal, and blood count revealed: red cells, 3,860,000; white cells, 7,400; hemoglobin, 80 per cent.; polymorphonuclears, 63 per cent.; large lymphocytes, 3 per cent.; eosinophils, 1 per cent.; small lymphocytes, 32 per cent. Urine and feces were negative. Palpation revealed a diffuse induration in the right lower quadrant. The barium-buttermilk meal revealed normal size and motility of stomach and delayed passage at ileocecal valve, and then stagnated at the caput coli at forty-eight hours. A colon injection of barium-buttermilk joined this delayed bolus.

Operation and Result.—A diagnosis of intestinal obstruction from adhesive remains of a previous peritonitis was made, and laparotomy advised and executed. After morphin-gas-ether anesthesia, through a 6 inch right rectus incision there was revealed a diffuse matting of coils of the lower ileum about the ileocecal junction. The operation was tedious, and the manipulations were severe, lasting two and one-half hours. The remains of the appendix lay buried in dense adhesions in the right iliac fossa. In the dissection of these bands of adhesions, quite a portion of the parietal peritoneum was destroyed, and it was found impossible to cover the denuded area.

Apparently the patient stood the operation well, reacting to consciousness promptly, and all the time retaining a pinkish color. Just before operation the pulse was 84 and temperature 97, and she left the operating table with a pulse of 98, which remained unchanged for seven hours, when it rose to 106 and then to 124. She had had two doses of morphin, one-eighth grain each. She became restless, with occasional vomiting. One quart of saline infusion had been given by rectum. Twelve hours after operation she complained of air hunger, yet the skin remained somewhat pinkish. The pulse was imperceptible at the wrist, and the heart sounds seemed frictioned and souffled. As we feared a concealed hemorrhage, the incision was opened after nitrous oxid-oxygen anesthesia, which was preceded by one-fourth

grain of morphin and $\frac{1}{150}$ grain of atropin. The peritoneum was tense and, when opened, about 100 c.c. of a soupy fluid escaped from tension. The patient died twenty-four hours after operation.

Necropsy.—The incision was opened, and 30 c.c. of fluid, aspirated from the pelvis, showed globules of fat. The left ventricle was tapped, and 50 c.c. of blood had the appearance of dark reddish orange juice. This specimen within ten minutes formed a firm coagulum quite the size of the original quantity of blood. This specimen was beaten up and washed with ether, which was then evaporated. The residue, on being stained with sudan III, showed fat. The peritoneal fluid was treated in the same way and showed quantities of fat.

INTRAPERITONEAL ABSCESS CONTAINING ROUNDWORMS

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This case is reported because of its rarity. In the surgical literature cases have been reported in which the ascaris has entered the larynx and various portions of the hepatic system. Intestinal obstruction has been caused by masses of the parasite, and other cases similar to this one have been reported.

History.—B. B., a girl, aged 16, was admitted to the Madigan Memorial Hospital under my care, April 27, 1917. She had been operated on in the same institution, Jan. 20, 1916, for an intraperitoneal abscess caused by a ruptured appendix. Following the operation she had been critically ill for a number of days, but was discharged as well, March 4, 1916. The hospital records do not have any statement from the attending surgeon as to whether or not the appendix was removed. April 27, 1917, she came for relief of very severe pain in the entire lower abdomen. The temperature was 101, the pulse 120, and there was intense nausea and profuse vomiting. The present severe clinical condition had been present about thirty-six hours; but for several days the patient had not felt entirely up to par. Up to about forty-eight hours before her admittance to the hospital she had felt well excepting that for about two weeks she had had more or less residual tenderness in the lower right abdominal quadrant, cramplike pains that at times were quite severe, and more or less tendency to nausea. The climax seemed to come about thirty-six hours before admittance, when she had a frightful sudden attack of pain in the lower abdomen. The bowels became distended, no relief was obtained from cathartics, which were promptly vomited, and very little from enemas.

Examination.—The girl looked far more ill than the recital of the history would indicate. She was of a dirty greenish yellow color, was covered with a cold, clammy sweat, and moaned with pain. The lower abdominal muscles were extremely rigid, and there was abdominal distention. The muscular rigidity was of a boardlike nature on the right, and one got the indistinct feeling of a mass in the lower right quadrant. In view of the previous operation and the present findings the diagnosis was an intra-abdominal abscess, of appendical origin, with a low grade intestinal obstruction.

Operation.—Entrance to the abdomen was through the old operative incision, taking out the scar. The omentum was adherent to the intestine and pelvic contents. A large abscess was found on the right at the level of the pelvic brim. I went through the adherent omentum into the abscess, because removal of the adhesions seemed unwise in the condition of the patient. The abscess contained something like a quart of intensely fetid pus, the odor of which was frightful, and two live lumbricoid worms. The abscess wall had a look that was very suspicious of tuberculosis. No search was made for the appendix, and only a very limited one to see if there was any opening between the intestine and the abscess cavity. None was found, and the cavity was drained by a large cigaret drain, the abdominal incision being left with a rather generous opening. It was felt that one had better take chances with an incisional hernia than with any failure to drain such a fetid mass.

Postoperative Course.—The condition of the patient for the first seventy-two hours following the operation was critical.