TRANSACTIONS

OF THE

PHILADELPHIA ACADEMY OF SURGERY

STATED MEETING, HELD JANUARY 6, 1913.

President, DR. GWILYM G. DAVIS, in the Chair.

CARCINOMA MASTITOIDES.

DR. MORRIS BOOTH MILLER remarked that Dr. Schuman in a recent paper before this society clearly discussed the known clinical and pathological factors involved in cases of carcinoma mastitoides and gave abstracts of the previously published cases, twelve in number, including his own. To these he wished to add two cases, one of his own, and one which he had through a personal communication from Dr. Barton Cooke Hirst.

Briefly it may be defined as a rapid, almost fulminating form of mammary cancer occurring as a rule in the pregnant or puerperal woman which presents, at least during some portion of its course, a breast which resembles in a striking manner either acute or subacute purulent mastitis. It generally arises suddenly, it always progresses swiftly, and the end is early death with or without operation.

CASE I.—K. B., aged thirty-six, was seen at the Polyclinic Hospital on September 23, 1912, complaining of enlargement of the right breast. The family history was excellent. The patient had been married fifteen years, and borne three children, all of whom were living and well, and had had one miscarriage. Her babies were breast fed, she had never had any trouble with either breast.

She was several months pregnant. About two weeks after her last period she noticed that the right breast was larger than the left, especially about the upper and outer portions. This enlargement gradually increased and soon there commenced con-

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tinuous pain, with exacerbations, more recently referred to the axilla. Support and rest gave relief.

On the examination the whole right breast was uniformly enlarged from the sternum to the mid-axillary line. The skin over it was like pigskin; the feel was hard but not nodular; the surface was distinctly warmer than over the other breast; it was infiltrated, brawny, and dusky red; the nipple was retracted; the axillary and supraclavicular nodes were enlarged. In general appearance it closely resembled a neglected mastitis. (Figs. 1 and 2.)

Later ulceration appeared in the region of the nipple and immediate operation was postponed because it was believed a still birth would result. Judging from the probable character of the disease and its evident extent it seemed quite probable that her life would be forfeited anyhow and therefore the life of her unborn child was of first consideration. It was therefore agreed that she was to be kept under observation for a month when, in Dr. Nicholson's judgment, premature labor could safely be induced.

She was kept under observation for one month more and then admitted to the hospital on October 26, labor was induced on the 27th and on the 28th she was delivered of a healthy female child who weighed on the fourth day four pounds and six ounces. On November 4 under ether anæsthesia a large dinner-plate incision was made extending in three lines from the sternum, the clavicle, and the posterior axillary line. The whole breast was rapidly cut away clean from the chest wall. The axilla was dissected out both toward the clavicle and backward toward the scapula. It was seen that the nodal involvement was widespread, extending well above the first rib and therefore a prolonged and painstaking dissection was not attempted. By undercutting and the careful approximation of the flaps only a moderate sized triangular area was left uncovered. Recovery was interrupted and she was discharged on November 27, with a small granulating area still open. One month later there were already evidences of recurrence in the scar.

A pathological report by Dr. John A. Kolmer shows the presence of a relatively small amount of connective tissue stroma and dense infiltration with irregular masses of epithelial cells of

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FIG. 1.

Carcinoma mastitoides.

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FIG. 2.

Carcinoma mastitoides.

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the squamous celled type. The normal structure of mammary tissue with acini and ducts is entirely lost. In the superficial portion there is an area with total loss of epiderm and an ulcer characterized by leucocytic infiltration, extravasated blood and fibroblasts. This ulcer extends into the carcinomatous area. Sections of lymphatic gland show a capsule and narrow strips of lymphoid tissue, the major portion of the gland being infiltrated with masses of epithelial cells.

CASE II.—Dr. Barton Cooke Hirst's patient had borne eight children. He saw her for the first time eight months after the last delivery. The malignant disease of the breast had begun two weeks after the infant was born and was treated for some time as an abscess. When she came under observation the condition was inoperable, there being extensive involvement of the glands of the neck.

A good illustration in colors of this case appears in the 7th edition of Dr. Hirst's Text Book on Obstetrics.

DR. WILLIAM L. RODMAN remarked that he did not believe that this condition was as rare as was formerly thought, though of course, it was rare in comparison to the ordinary form of carcinoma. First, one should accurately differentiate between the true genuine carcinomatous mastitis, which does look very much like an inflammatory process from the beginning, and those cases of distinctly localized or discreet processes which may be outlying in the periphery of the breast and some of which, under the influence of pregnancy, take on later the seeming characteristics of acute carcinoma. In his opinion carcinomatous mastitis is just about as common in the non-pregnant as in the pregnant woman; in fact, of the four cases seen by him, three were women forty-five years of age, one had not been pregnant for 25 years, and another non-pregnant for 24 years; both had borne living children and neither had had miscarriages subsequently. The third case was seen in Dr. Estes' clinic; this patient also was about forty-five years of age. The case was brought into the clinic under the impression that it was an abscess but, on lancing it, there was no pus present and a complete amputation was done.

In all of them the breast presented the same appearance, brawny, red and indurated, the skin having an appearance very much like orange peel, with indentations here and there. All three

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cases died very quickly in spite of operation. The first case died 3 months after operation with extensive metastasis to neck, lungs, and liver. A fourth case began as a discrete process at the sternal end of the gland, and at the expiration of the fourth month of pregnancy the entire gland was involved; her husband, a medical man, insisted on operation; she had a rapid metastasis to the liver and that with the pregnant uterus filled the abdomen very shortly after operation. At the 7th month of gestation the speaker was summoned by Dr. Nicholson and, finding her discomfort so great, concurred in his opinion that premature labor should be induced; she lived but a few weeks thereafter. Dr. Estes' case likewise lived but a few months after operation. The second case lived a year apparently in good condition, when there occurred involvement of the opposite breast which was removed. She died six months after the second operation. The prognosis in these cases is most deplorable, not one having been saved to his knowledge; yet if the cases are seen early enough, as the last case just referred to, who was seen within three weeks after discovery of the growth, there is more chance of prolongation of life and a possibility of cure.

The essential point is that the form of carcinomatous mastitis under discussion is to be differentiated from the local and discrete growth which is stimulated by pregnancy.

Dr. Astley P. C. Ashhurst stated that through the kindness of Dr. Miller and of Dr. Skillern he had seen this patient some months before operation, at which time she was pregnant about six months, and remarked that unless he had been told that it was a case of carcinoma mastitoides he should not have known it; that it seemed to him like an ordinary carcinoma simplex, neither a scirrhus nor an encephaloid. The microscopical examination showing that the tumor was composed of squamous cells, is certainly an unusual finding.

Dr. Miller, in closing, stated that he had gone over the pathological reports in some of the reported cases of this condition and found that there was a variety of cells concerned in this process, but in all there was leucocytic infiltration and sometimes abscess formation. Apparently the differentiation of carcinoma mastitoides is not a pathological but a clinical one, depending upon certain factors regarding which there is but little known.

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LUXATION OF THE PATELLA.

DR. MILLER, in reporting this case, stated that traumatic luxation of the patella occurred in three forms: (1) Lateral displacement; (2) rotary displacement; (3) backward displacement, with wedging of the patella between the tibia and femur. Of these lateral displacement is the most common and the case reported illustrates this type. When dislocated laterally it may be inward or outward, and complete or incomplete, depending upon whether the patella is in contact with the condyle or still touches the joint surface. Inward luxation is very rare and this rarity may be attributed to the greater size and more rounded form of the inner condyle; furthermore, the inner edge of the patella is thicker and hence more exposed to violence; and, finally, in the normal leg the extensor apparatus lies a little to the outer side of the midline and hence outward displacement can more rapidly occur. In the reported cases the violence causing these lesions may be described as a direct blow to the patella with sudden forcible contraction of the quadriceps, while the knee is bent and perhaps turned inward. In direct ratio to the completeness of the luxation the capsule is torn longitudinally and sometimes the extent of this tear may be felt through the skin. The knee is somewhat bent inward and there is a tendency to outward rotation of the foot. The patella is found on the outer side of the condyle and the trochlea is empty. Naturally in incomplete luxation the symptoms are less pronounced.

A much rarer form is that of rotary displacement where the patella is rotated on its long axis and stands vertically on its edge in the trochlea, or, in extreme cases, it may turn completely over so that its cartilage covered surface is beneath the skin. The rotation may occur inward or outward with equal frequency. There is tearing of the capsule longitudinally on the side from which the patella rotates, or in the extreme instances where rotation is complete the capsule is torn on both sides. The character of the causative factors seems the same as in lateral displacements. Reduction is sometimes easily accomplished by simple manipulation with the hip flexed and the knee hyperextended, but more often it is difficult and only possible with rather extensive open operation.

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The third type, that of backward displacement with wedging of the patella between the tibia and femur, is so infrequent that only four cases have been placed on record. In these cases the patella was driven into the joint by rotation on its transverse axis and the joint surface of the patella faced upward. Passive extension was impossible. In Szuman's case, which is accepted as typical, the crucial and external lateral ligaments were ruptured. Reduction has been done by manipulation after cutting the patellar tendon.

The present case was in the person of a well developed man of 28 years who was admitted to the Philadelphia Hospital, December 17, 1912, with the history that in July, 1912, he fell off a wagon and violently struck his right knee on the cartway. He received no treatment other than a bandage.

On admission the right limb showed moderate atrophy of the quadriceps, at the most amounting to 5 cm. less than the well leg. The calf measured 1 cm. less than its fellow. With the leg extended the difference in appearance between the two knees was not great, although the patella could be seen about half its diameter external to its normal position. On flexion, however, the difference was marked and caused a curious broadening of the knee. (Fig. 3.) The patella rested upon the epicondyle, and both the quadriceps and patellar tendons were tense and deflected to such an extent that they formed an obtuse angle with each other. The greater part of the surface of the femoral condyles, including the intercondyloid notch, could easily be palpated and the sharp edge of the tibia could be both seen and felt. (Fig. 4.) There was no effusion, no tenderness and no appreciable thickening of the ligaments. With the limb extended there was some turning outward of the foot and a slight degree of genu valgum was present. Very little disability attended this unreduced displacement. The patient said he was able to do everything he did before the accident except to walk up and down stairs easily. He showed some weakness in voluntary extension.

Under ether anæsthesia an attempt was made to reduce the luxation by manipulation, while the limb was flexed on the body with the knee straight. The patella could be pressed back into its place but as soon as released the condition recurred. It was seen that a permanent reduction could only be accomplished by open operation. This was suggested and refused. It seemed

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FIG. 3.

External aspect of knee with luxated patella.

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FIG. 4.

Skiagram showing luxated patella.

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probable that the suturing or plication of the torn capsule with transference of the tibial tubercle with its patellar tendon to a new site, to the inner side of the tibia, might have given a permanent cure.

DR. W. G. ELMER inquired what mechanism of muscular action produced rotary dislocation of the patella and the inner or the outer edge more likely to be anterior? He had seen a patient lying helpless on the ground, whose patella had been turned directly on edge by muscular action, the result of slipping.

DR. G. G. DAVIS recalled having seen a patient who had several years previously luxated his patella. It was lying on the outer side instead of on the front of the condyles. The advisability of operation was suggested but refused, as the knee had such good function. This bears out Dr. Miller's experience as regards the restoration of function after these injuries. Another case was a young woman who had had hip disease in childhood with absorption of part of the head and neck of the femur. The distance between the knee and pelvis being lessened resulted in a loosening or relaxation of the quadriceps tendon. When such a person stands up with the knee fully extended the patella sags somewhat, and if there is a quick, sudden contraction of the quadriceps it will pull the patella over the side of the condyle. Then by placing the foot firmly on the ground and hyperextending the knee and giving the quadriceps a jerk the patella jumps back again into normal position. That is not a traumatic condition, but may occur in cases of hip-joint disease. Extreme knock-knee is another affection in which it occurs.

DR. MILLER, in closing, said that there was an anatomical reason why the external luxation occurred more frequently than the internal, based on the fact that the internal condyle is larger and more rounded, the midline of the extensor muscle is a little to the outside, and there is no place for the patella to lodge. With the complete reversals there is no reason why these should occur one way more than the other, from the inside or *vice versa*. The speaker was glad that Dr. Davis had called attention to the congenital type; there was also a recurrent type occurring after traumatic luxation. In these cases if there is much disability operation is indicated. Bunts, of Cleveland, recently reported a case in which there was a double habitual luxation of the patella. He

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opened the knees and sutured the longitudinal tear and overlapped after the method of Mayo in umbilical hernia. He had a rather unsatisfactory result. He thought he might have obtained a better result had he transplanted the insertion of the patella tendon at the tibial tubercle to a point on the inner surface of the head of the tibia.

INTERPARIETAL HERNIA.

DR. MILLER prefaced the report of his third case with the following résumé of the subject:

To that form of inguinal hernia in which the sac is in the abdominal wall is applied the term interstitial or interparietal hernia, and several varieties have been carefully studied by Göbell, Macready, Küster, Breiter and others.

Interparietal hernia, broadly speaking, comprises three varieties, but these have further subdivisions. The three forms are, first, where the sac is in the loose connective tissue between the peritoneum and the transversalis fascia, the properitoneal type; second, where the sac is found between the muscle layers of the abdominal wall, the intermuscular type; and, third, where the sac is in the loose connective tissue between the external oblique and the skin, the " inguino-superficialis " type of Küster.

We are mainly indebted to Krönlein for our knowledge of the properitoneal hernias. Something over 70 cases have been reported of which Hölder and Breiter have collected 40. As a rule, they have only been recognized at operation, usually for strangulation or during radical cure operations. And the reason for this is obvious, since the presence of properitoneal hernia may give rise to no phenomena save in the event of strangulation. Dr. Francis S. Stewart reported before the Academy of Surgery on January 4, 1909, a case of intestinal obstruction due to a strangulated properitoneal hernia upon whom he successfully operated.

Briefly summarized it may be stated that this variety of interparietal hernia occurs in the large majority of cases in males and nearly a third of these have maldescended testicles; in nearly all the sac is bilocular, one portion being concealed behind the transversalis fascia, as the properitoneal pocket, while the other portion is external and appears as an ordinary hernia. Several theories have been advanced to explain their formation. In some

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it would seem that the narrowing of the neck of the sac of an external hernia due to various causes, of which the pressure of a badly fitting truss is easiest to imagine, a diverticulum is created and constitutes the properitoneal sac. In others reduction in mass may account for it. But in the vast majority of cases properitoneal hernia is a congenital condition, associated with other congenital defects such as maldescent and the occurrence of ordinary hernia. Properitoneal hernia in the femoral region has been reported in 10 cases, all in women.

In the intermuscular variety the usual site of the sac is between the internal oblique and the aponeurosis of the external oblique. However, according to Göbell, in addition to this location the sac may be found between the internal oblique and the transversalis, or between the transversalis and its fascia. In the instances where a hernia of this type attains considerable size there is often muscle atrophy amounting to the practical disappearance of one or more layers. This variety appears as an oval swelling, which does not project much from the surface, lying above and parallel to Poupart's ligament. Some of the sac may pass, to a small extent at least, into the scrotum or labia.

Of Göbell's 115 cases, 111 were in males, two-thirds were on the right side, and with more than half of these there was maldescent of the testicle. Again the congenital element as a causative factor stands out prominently, but it is certain, however, that some were due to awkward attempts at taxis and other similar external causes.

The third variety is more readily diagnosed than either of the other two, as the sac lies on the external oblique aponeurosis and is merely covered by skin and superficial fascia. A round or oval or sausage shaped tumor, which projects as a rule considerably above the surrounding surface, is found above but not necessarily exactly parallel to Poupart's ligament. The sac may extend either inward or outward from the neck, which is usually at or near the internal ring. In a case reported by Schmidt the location of the internal ring was displaced upward and outward toward the anterior superior spine. This type of hernia is always congenital and does not become scrotal or labial. Undescended testicle is also found, but the disproportion between male and female examples is not so marked as in the other forms.

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CASE REPORT.—A woman of forty-two years was admitted to the Philadelphia General Hospital on December 17, 1912. In the right groin there was an irreducible hernia of an unusual type. She stated that it had made its appearance as a small lump immediately following the birth of a child about twenty years ago. At first it was small and apparently partially reducible but it gradually grew larger and during recent years had shown no tendency toward reduction. It had not caused pain or inconvenience except now and then from the pressure of her clothing.

The tumor mass was 9 cm. long, 4 cm. across at its base, and rose 5 cm. from the surrounding surface. (Fig. 5.) It lay nearly parallel to Poupart's ligament, but the lower margin did not quite reach it. It was somewhat pedunculated. The skin covering it was somewhat thin in places but in others it was quite thick. The contents were entirely irreducible and had the characteristic feeling of adherent omentum. There was no tenderness to manipulation. While the tumor possessed a long base it was easily determined that the attachment to the external oblique was in appearance only and that the inner portion, for at least two-thirds, had no deep connection and that the neck of the sac was situated near the upper and outer edge, at a point which seemed well outside the location of the internal ring.

On December 21, 1912, the speaker operated under ether anæsthesia. An elliptical incision beyond the limits of the hernia exposed the sac, and that portion which had extended toward the median line was lifted outward until the neck appeared. The sac was then opened and was found to have numerous trabeculæ along the walls. The contents consisted entirely of omentum which was widely adherent. This was tied off and the margins of the hernial opening, which was nearly circular and about 2 cm. in diameter, were freed of the adhesions. An intra-abdominal exploration showed that the location of the opening was distinctly external to the internal ring as estimated by its distance from the deep epigastric artery, certainly 6 or 7 cm. Apparently this would place it in the category of Schmidt's case previously mentioned. Inasmuch as the aponeurosis was not opened the condition of the internal oblique cannot be stated further than to note that there seemed a deficiency about the opening and there were no muscle fibres to be seen in any part of the sac.

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FIG. 5.

Interparietal hernia.

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After the sac was cut away the opening was closed by two mattress sutures of chromic catgut overlapping the margins freely. The woman made an easy recovery.

It is, of course, apparent that this case was one of the superficial type of interparietal hernias in which the sac extended inward from the hernia opening and was situated between the aponeurosis of the external oblique on one side and the two layers of the superficial fascia and the skin on the other. It was the opinion of the speaker that it was probably due to a congenital defect, but that the appearance of a tumor of sufficient size to attract the attention of the woman did not occur until after child birth.

DR. CHARLES F. NASSAU reported that he had had experience with only one of these cases, although he did not recognize it on examination. The tumor extended from the outer side of the lining of the canal between that and the crest of the ilium, being about the size of a large fist. It was tympanitic, and he believed it was some kind of separation in the abdominal wall. After incising the skin and clearing the aponeurosis of the external oblique he found the hernia had come out of the external ring, was indirect, and had turned upwards under the external oblique for a considerable distance, containing a good deal of bowel. Of course the condition is not always so easily recognized; not long after this a second case presented itself which seemed to be of the same nature but which turned out to be an abscess containing gas. With regard to the commoner forms of epigastric hernias he had operated upon three and had assisted in another. The statement made by Dr. Miller that they do not cause trouble unless strangulated is open to question. All of his own cases complained considerably and not one was strangulated.

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ACUTE PERFORATED DUODENAL AND GASTRIC ULCERS.

REPORT OF 25 CASES OCCURRING AT THE GERMAN HOSPITAL IN THE LAST SIX YEARS.

BY JOHN B. DEAVER, M.D.,

OF PHILADELPHIA.

Surgeon-in-chief to the German Hospital, Philadelphia.

TWENTY-FIVE cases of acute perforation of chronic duodenal and gastric ulcers have come under our observation during the past six years. We include in this report only those cases in which the peritoneal cavity was suddenly brought into free communication with the interior of either viscus through a perforative opening in the base of a chronic ulcer. The condition of acute perforation therefore presupposes the absence of antecedent peritonitis tending to limit the area of peritoneal involvement. In the event of acute perforation of a chronic calloused ulcer, whether duodenal in situation or one involving the anterior wall of the pyloric antrum, the symptom-complex is exactly the same. Perforated duodenal ulcer, however, more often gives the typical picture because the ulcer bearing area of this viscus is more difficult of isolation from the general peritoneal cavity, than are the walls of the stomach. Reactive perigastritis involving the parietal peritoneum and the serosa of adjacent viscera usually prevents acute perforation of ulcers situated on the posterior walls of the stomach. That this rule is not invariable is demonstrated by a remarkable case in the author's experience, which was the subject of two acute perforations of the duodenum and an acute perforation of the posterior wall of the stomach. This patient was operated after each perforation, with ultimate recovery. Rupture of either viscus resulting from chronic ulceration may be the cause of sudden death, as Moynihan has shown. We have never met with this condition, but it has been our

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experience that patients with ruptured ulcers show varying degrees of shock, or if sufficient time has elapsed since the occurrence of actual perforation, present the picture of toxæmia from peritoneal sepsis. Shock is a symptom of the very early stages of this disease and has been noted in 50 per cent. of our operative cases. Its presence is not essential to the diagnosis, but we cannot agree with Mitchell as to its "mythical" nature.

Symptoms of Acute Perforation.—A patient, writhing in the agony of peritoneal trauma from intestinal contents propelled through a perforative opening of a chronic duodenal or gastric ulcer, once seen is rarely forgotten.

The differential diagnosis between perforative ulcer of the proximal duodenum and the pyloric end of the stomach is usually impossible, except that the former is much more common than the latter, but that a perforative lesion involving an upper abdominal viscus is present is usually evident to one familiar with its characteristic signs. The attending physician has discharged his obligations in the case when he recognizes the necessity of, and advises immediate operation. These patients are often brought to the hospital by relatives or friends, frightened by the obvious seriousness of the patient's condition. From them we learn of the patient's years of suffering, or intermittent indigestion perhaps, with a recent recurrence, lasting several weeks and terminating in the present attack. The sufferings of the patient and irresponsibility of his associates, preclude accurate history taking. The time for the anamnesis is past. To obtain further details of the case, have the various physicians who have had the patient in charge consult the records on their files of cases of gastric neuroses. Under the caption, Gastralgia or Hyperchlorhydria, the duodenal history of the patient will usually be found. Perhaps the patient has been in good health for some time when, after an unusual physical effort, a heavy meal, or in the entire absence of such predisposing causes, he has been suddenly taken with a most agonizing pain in the pit of the stomach. The initial pain in cases of duodenal perforation

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is often more intense to the right of the midline but finally becomes generalized and more severe in the lower right abdominal quadrant. Morphine has been administered with little or no relief. The parietal and diaphragmatic contractions with retching and vomiting cause painful paroxysms of indescribable intensity, with periods of comparative ease, when the patient begs for operative or other relief. The vomitus is slight in quantity and rarely contains blood. If the perforation has occurred recently, within six hours, examination shows the patient in varying degrees of shock. Although loathe to move, he is expending his slight reserve force in attempting to obtain postural relief. The pupils are dilated, skin cold, clammy and cyanotic, temperature normal or subnormal, the pulse little increased in rapidity but of small volume. The respiratory movements are rapid, shallow and entirely thoracic in type. The body is doubled up and the patient gently applies his hand to the upper abdomen where he complains of exquisite tenderness. The abdomen is scaphoid and so tense are the parietal muscles that the lineæ transversæ and semilunares are seen as depressions between the tense muscle bundles. We have noted a transverse constriction of the abdomen above the umbilicus as if nature were attempting to isolate the inflamed area. Palpation confirms the apparent tenseness of the abdominal muscles. Indeed, in no condition is such rigidity found and one could fairly jump on the recti muscles without creating an impression. The condition is general, but careful examination will usually reveal an area of more obdurate rigidity of the upper right rectus muscle in duodenal cases, of the left rectus in gastric perforation. Under anæsthesia, the rigidity overlying the affected area is last to disappear. The tenderness is general and severe, but here again careful search will reveal an area of exquisite intensity overlying the ulcer. Liver dulness may be obliterated in the presence of scaphoid belly with comparatively small volumes of gas escaping through the perforative opening. This is entirely different from the obliteration that comes with the distention of paralytic ileus in the late stages

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of the condition, the distention of general peritonitis. The most characteristic sign of perforated duodenal or gastric ulcer is the peculiar density of the abdominal walls. To repeat, there is invariably an area, usually overlying the site of perforation, that shows board-like rigidity. This is found typically in the early stages, but continues even after tympanites has set in, nor does it abate until impending death removes the conscious perception of the peritoneal injury. Peristaltic sounds are almost invariably absent.

Lennander has shown that the maximum sensitiveness of the peritoneum is found in the perihepatic and diaphragmatic regions, and especially in the area adjacent to the foramen of Winslow. Herein we find an anatomic explanation for the peculiarly severe pain experienced in ruptured ulcer. The sensory nerve supply of both the thoracic and abdominal surfaces of the central portion of the diaphragm is derived from the phrenic nerve. Diaphragmatic spasm is the expression of irritation of the sensory fibres of the phrenic nerve on the abdominal side of this muscle. It is reasonable to suppose that this explains in large measure the respiratory symptoms and shock present. Intra-peritoneal rupture of any hollow abdominal viscus is followed by shock, but as a rule of less severity than that associated with perforative lesions of the upper abdominal organs. In the case of the duodenum and stomach, the irritative character of the acid contents of these viscera in part explains the degree of shock, with the great richness in sensory nerve supply of the upper abdominal peritoneum as the underlying cause. It is evident that the state of digestive activity at the moment of perforation determines the chemic reaction of duodenal and gastric contents. This also determines, in conjunction with the peristaltic activity, and size of the perforative opening, the volume of fluid propelled against the sensitive serosa. As we have said, it is often impossible to differentially diagnose a perforated duodenal ulcer and one situated on the anterior wall of the pyloric antrum, and especially is this true in the absence of a typical preperforative history. In the presence of the typical history,

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however, the ease of diagnosis of a perforative lesion of one or the other of these viscera is proportionate with the difficulty of differential diagnosis. The following case demonstrates the ease of diagnosis in the presence of a complete history and typical physical signs:

A. W., male, aged thirty-two years, a machinist, was brought to the German Hospital at 2.30 on the morning of May 25, 1910, by a fellow workman. He had suffered with chronic indigestion for a period of five years, and had been treated intermittently. The time of occurrence of this pain, its relief by eating and other symptoms were characteristic of duodenal ulcer of the chronic type. The patient had been unusually well for some time. At 12.30 on the morning of admission he had eaten his luncheon, consisting of fruit, sandwiches and coffee, and returned to his work feeling perfectly well. In half an hour he was seized with the most excruciating upper abdominal pain, paroxysmal in type, beginning in the pit of the stomach and referred all over the abdomen and into the back and chest. This pain was associated with nausea, retching and belching of gas. The house surgeon found the patient lying on his right side, his body doubled up and loathe to move lest his suffering should be increased. Frequent belching increased the pain and the patient made ineffectual efforts to suppress it. The face was pinched and wore an anxious expression. The extremities were cyanotic, and like the body surface cold and clammy. The respiratory movements were rapid, shallow and entirely thoracic in type. Temperature 97°, pulse 110, respiration 30, leucocytes 50, polymorphonuclears 76 per cent. Examination of the abdomen showed a "scaphoid belly" with generalized rigidity. This was especially marked in the upper right quadrant. The upper right rectus muscle was board-like in rigidity. Over this area there was exquisite tenderness, with marked tenderness of the remaining portions of the abdomen. Peristalsis was faintly heard in the lower abdomen, and absent in the upper abdomen. The liver dulness was normal.

At operation, an hour after admission, on opening the peritoneum, gas escaped with the characteristic sound, together with small amounts of yellow fluid. A chronic calloused ulcer was found involving the upper anterior wall of the first portion of

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the duodenum. In the centre of this was a perforative opening the size of a goose quill. The surrounding peritoneum showed the signs of beginning inflammation. Closure of the perforation, duodenal plication, and posterior gastro-enterostomy were performed, glass tube drainage placed in the pelvis and the patient placed on the Murphy-Ochsner treatment. His recovery was speedy and complete.

It must not be supposed that every case presents the same clear cut clinical picture. At times it is extremely difficult or even impossible to differentiate the various acute abdominal lesions. Without discussing the subject of differential diagnosis at length, we would draw attention to the fact that acute perforation of the base of the appendix will in a percentage of cases be attended by rigidity of the overlying abdominal walls equally as marked as in perforated ulcer. Later, however, in the course of the disease, this rigidity is less marked in the upper abdomen. Again, after a lapse of twelve hours when the extravasated fluid from the perforated ulcer will have gravitated to the right iliac fossa, following the peritoneal gutters (paracolic grooves) to either side of the ascending colon, the diagnosis is obscure. I have been unable to make the distinction on a few occasions until the abdomen was opened. We then have the added picture of right iliac peritonitis, and in the absence of suggestive history, typical upper abdominal findings or both, the diagnosis is impossible. Contrast the foregoing typical signs with the following atypical case:

J. A., male, aged thirty-three years, was admitted to the hospital June 5, 1911, complaining of severe general abdominal pain and vomiting. For the past eight years, the patient has had intermittent attacks of abdominal pain, appearing several hours after meals and relieved by eating. During the past three months this pain has shifted its position to the right lower abdominal quadrant and has been of daily occurrence. He has never vomited blood nor noticed blood in the stools. The present attack began 24 hours before admission with sudden severe pain in the lower right abdominal quadrant. This has been unremittent and

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associated with vomiting. The abdomen became very tense and tender soon after the pain began. Examination showed general distention, rigidity and tenderness, more marked over the gall-bladder and appendix regions. Temperature 100°, pulse 112, respirations 36, leucocytes 13,150, polymorphonuclears 93.5 per cent. The serosa of the appendix was inflamed but the cause of the peritonitis found in the stomach. A perforated ulcer was found on the anterior wall of the pyloric antrum, 1 cm. distant from the pyloric vein. Owing to a very slight degree of induration surrounding the ulcer, the involved area was not excised. This patient has remained well after the usual plication of the duodenum and posterior gastro-enterostomy.

To mistake the origin of a peritonitis in suspecting the appendix as the primary source of infection is not a serious matter, as the operative findings will usually lead to investigation of the upper abdominal quadrant. This is perhaps not true of cases far advanced in peritonitis, but in these late cases treatment as a rule is futile.

Treatment.—During the past six years, 25 cases of acute rupture of ulcers involving the upper intestinal tract have been admitted to our hospital service. In 21 of these cases the ulcer involved the proximal duodenum, in 3 cases the anterior wall of the pyloric antrum and in 1 case the proximal jejunum. Of these cases, 6 were admitted after the lapse of 24 hours or more from the time of actual perforation, practically moribund, and all died without operation.

One of the late cases occurred in a man eighty-two years of age and is of interest on account of the post-mortem finding of a typical benign chronic ulcer of the duodenum at this extreme old age. Of the 19 operated cases, all were subjected to the complete operation with two exceptions and all recovered except one, a very late case, with diffuse purulent peritonitis, in which death followed simple closure of the perforation. It has been our experience that recently ruptured ulcers of the duodenum and stomach bear surgery very well. With the onset of peritonitis, the prognosis of course becomes that of this complication, made worse by the almost absolute neces-

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sity of operative closure of the perforative opening and without the probability of localization of the disease. After the lapse of 24 hours, the prognosis of ruptured ulcer is usually hopeless, but unless moribund, this type of patient should have the benefit of immediate operation with rapid closure of the perforation and institution of pelvic drainage. We advocate and practice complete operation in all recent cases. There are a few border line cases in which this rule must be put aside for simpler incomplete though life saving measures, reserving the curative technic for a future operation. The presence of shock should not deter the surgeon from resort to immediate operation.

In ulcers of the duodenum, the perforation is closed with a purse-string suture of linen, the ulcer bearing area infolded and the duodenum plicated, if possible, proximal to the ulcer. The operation is completed with a posterior gastro-enterostomy. Mere closure of a perforation in the centre of a chronic calloused ulcer is life saving but does not cure the ulcer. It is true that after simple closure, these patients are usually clinically well in the immediate post-operative period, but this subsidence of symptoms is by no means invariable and its occurrence characteristic of ulcer, and gives no assurance that the diseased process is arrested. Obstruction, a second perforation, erosion of large arteries or crippling adhesions may take the life of the patient or necessitate a future operation.

Infolding of a duodenal ulcer if complete is usually impossible without serious obstruction to the viscus, therefore gastro-enterostomy is essential.

Complete isolation of the ulcer bearing area by plication with posterior gastrojejunostomy is the rational surgery of chronic ulceration of the duodenum. The surgeon incapable of the rapid application of the latter procedure should not attempt the operative treatment of perforated ulcers of the upper intestinal tract. Indurated gastroduodenal ulcers necessitate resection of the involved portion. If the diseased area is in an accessible position, it is excised, and plication of the duodenum and posterior gastro-enterostomy performed. Of

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all the cases of duodenal ulcer reported here there was not a single instance in which excision could have been carried out with any degree of safety on account of the close proximity of the duodenal involvement to the head of the pancreas. Basing our opinion on the statement of Wilson and MacCarty that 71 per cent. of gastric cancers result from cancerous change in the bases of chronic ulcers, we have estimated from American statistics that 13,940 persons die annually in this country of cancer of the stomach secondary to ulcer. The time to treat carcinoma of the stomach is in the pre-cancerous, ulcer stage. The surgical treatment is excision of the ulcer bearing area, pylorectomy, in cases involving the pyloric end or gastroduodenal segment, simple excision if the anterior wall is involved higher up. In either event the duodenum is plicated and gastrojejunal drainage established. In several cases of very slightly indurated gastric ulcers we have omitted the excision, but these cases were operated before the clear demonstration of the rôle played by ulceration in the development of cancer. The establishment of dependent drainage compensates for the altered motility in cases of partial resection and in the rarer simple cases insures a measure of rest. Nature probably conserves the gastric function to the ingesta by the gradual institution of sphincter action at the gastrojejunostomy opening. Until this has occurred, the ulcer or incisional area has been placed under the best possible condition for rapid healing. Seventeen of our 19 operated cases have been subjected to the complete operation and without a death. One case died after simple closure of the perforation. Another recovered after a two-stage operation. The history is as follows:

A. W., male, aged thirty-four years, was admitted to the hospital on June 8, 1911, in a state of collapse. His condition was precarious. An almost imperceptible pulse grew stronger, the deep cyanosis disappeared with active stimulation and saline transfusion. An hour later he was given sub-arachnoid stovaine anæsthesia. The patient immediately developed alarming signs of

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cardiac and respiratory failure, and was taken out of the operating room practically moribund. He was placed in the Trendelenburg position, given artificial respiration, active stimulation and a second saline transfusion. He was operated on a half hour later without further anæsthesia, and a large duodenal perforation closed. The abdomen was filled with black mucoid material and pus, a large quantity of which drained from the pelvis. The improvement was gradual for several days when signs of right-sided pleural effusion appeared. Purulent material was first aspirated from the right pleural cavity, and later a portion of the eighth rib on the right side removed from the mid-axillary region under nitrous oxide gas anæsthesia. One month later he was discharged in good condition. At our request, the patient returned in September of the present year and reported perfect health since the last operation. We plicated the duodenum and performed a posterior gastrojejunostomy and have discharged this remarkable case cured—not merely relieved.

The criterion of value of any method of treatment is the result obtained by its application. The combined statistics of many leaders in upper abdominal surgery show not only a smaller primary mortality with the complete operation in acute perforation of gastric and duodenal ulcers, but a smaller post-operative morbidity. We have lost only one patient, a late case with simple closure of the perforation. Seventeen cases with primary, and one case with secondary gastrojejunostomy recovered and were discharged from the hospital in good health. This result is sufficient argument and justification for our faith in primary gastrojejunostomy. By its application we conduct our patients to a speedy, safe and complete cure with the least jeopardy to their future health.

Since reading this paper I have had six cases of acute perforated duodenal ulcer to record, in which I closed the perforation and did a posterior gastro-enterostomy. Each patient made an uneventful recovery. Making 25 operative cases with one death.

Dr. John H. Gibbon referred to his experience which was reported in 1909 with Dr. Stewart at the meeting of the American Medical Association in Atlantic City, when 22 cases with 10

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deaths were considered; every case operated on under 24 hours recovered and those operated on later died. Ten cases were his own and since then he had had four others, two recovering and two dying; the two which recovered were operated under 24 hours, and the two that died were operated, one 24 and one 18 hours; therefore, he had had one death in a case operated under 24 hours. One patient died suddenly on the twelfth day. Autopsy showed peritoneal cavity perfectly clean and wound was entirely healed. The other death occurred on the tenth day, and was sudden; no autopsy. The main factor in saving these cases is the time which elapses between perforation and operation. Another point influencing the mortality rate is the time spent in operating. A great many of these cases are saved now which formerly would have died because of the prolonged toilet of the peritoneum which was formerly practised. Relative to the diagnosis of ulcer, he believed that the absence of liver dulness was of the greatest diagnostic value, provided it was accompanied by a scaphoid and rigid abdomen. The presence of liver dulness was no indication that there was no perforation present. In the differential diagnosis he thought there was often difficulty in excluding gall-stone colic. He had seen two such cases, one sent in as gall-stone colic on whom he operated thinking he had a perforation. The rigidity of gall-stone colic is relieved by morphia, but in gastric or duodenal ulcer the rigidity remains absolute.

With regard to gastro-enterostomy he said that he had not practised this. Four of the cases had this operation performed upon them, but of his 14 personal cases, extending over ten years, but one was subjected to immediate gastro-enterostomy. He had operated on but one since the primary operation, doing a gastro-enterostomy, and had followed the history of these cases very carefully. All have remained well with the one exception mentioned, who turned up 18 months after the primary operation with gastric symptoms. To draw conclusions as to the advisability of a procedure like this we must have more cases. He believed that there was another element to be considered, the experienced operator can do a gastro-enterostomy in the presence of an acute perforation operated upon within 24 hours and save the patient, but if this were generally practised the mortality would be very high. It had always seemed to him bad practice to open the lesser peritoneal cavity when the greater peritoneal

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cavity is filled with pus, and this also prolongs the operation about twenty minutes. He had talked with Mayo about this, who is convinced that if the ulceration is turned in and constricted the case will recover. Whether or not a gastro-enterostomy should be done is a question not yet settled. He believed the constriction of the ulcer, cutting off the blood supply and then starving the patient for two weeks, feeding by rectum (one of his cases did not get a thing for 18 days and one not for 21 days) will cure practically all cases.

Dr. Richard H. Harte said that the pain, intense rigidity, typical facial expression and the tendency to shock were so characteristic that the diagnosis of these perforations could, as a rule, be made without difficulty. Any attempt to deal with the conditions of shock was only a waste of time and the sooner operation was done the better would be the results.

He agreed with Dr. Gibbon that in many of these cases the doing of a gastro-enterostomy was a waste of valuable time and should only be considered where the ulcer was too large to be closed in the usual way, and that in the majority of cases the results would be better if this method was pursued in the after-treatment, viz., restraining all food for a long period and, if necessary, nourishing the patient for the desired length of time by the rectum.

Dr. William L. Rodman remarked that his experience had been very like Dr. Deaver's in one respect; in at least two patients with perforation, one of the duodenum and one of the pylorus at the juncture with the duodenum where the perforation was large and the escape of contents free, indicating that ulceration had been going on for some time, in that there had not been a single symptom in either referable to the stomach. The last case operated on was a young boy working in an iron foundry, who was seized with cramps after partaking of a hearty lunch. He was operated on within two hours. The perforation was so large and escape of contents so free that pylorectomy seemed advisable. If the perforation is in the stomach then one may or may not do a posterior gastro-enterostomy. If in the duodenum and much infolding is necessary to accomplish the result, a posterior gastro-jejunostomy would seem indicated. He said he had lost but one case which was operated upon more than 48 hours after perforation. He had always believed when practicable in the radical

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treatment of ulcer. Dr. Deaver's experience tempts me to be more radical in the future.

DR. D. L. DESPARD reported as relevant to the discussion a case in which he had operated upon a child for acute appendicitis, eighteen months previously, the wound having been closed without drainage, and which recovered without complications.

Yesterday afternoon the same child was admitted to the Jefferson Hospital in the service of Dr. John H. Gibbon with the history of having been suddenly seized with a severe abdominal pain the previous afternoon, and of having vomited once after taking some medicine, there was board like rigidity of the abdominal muscles, dulness in both flanks, the abdomen scaphoid in appearance and obliteration of the liver dulness.

From the condition he felt that a perforation of the intestinal tract must exist, but with the exception of a history of indigestion for the past five years he had nothing to guide him. This, with a more marked rigidity on the left side about two inches below the umbilicus, made him feel that the stomach was the probable site. He consequently explored the upper abdomen first and found it full of pus but no lesion of any kind. He made a second incision over the point of greatest rigidity below the umbilicus on the left side. Nothing was found in the pelvis or in the appendix region to account for the condition, but a loop of the ileum was found distended and thickened. This was found to be caused by a fibrous band almost occluding the lumen of the gut, proximal to which was a perforated ulcer.

Dr. Deaver spoke of the intense rigidity over the immediate site of the perforation. If he had been guided by this observation he would have opened at once over the perforation and valuable time would have been saved.

DR. ASTLEY P. C. ASHHURST said that he had observed one clinical factor of interest in these cases of gastric or duodenal ulcer, namely, that in some patients the duodenal perforation developed some months or years after an attack of appendicitis. In the first case in which he operated for duodenal perforation, Dr. Frazier had removed the appendix just a year before in an acute attack. Owing to this history he diagnosed intestinal obstruction. Opening the abdomen in the hypogastric region he found intestinal contents free in the peritoneal cavity; then recognizing the nature of the case, opened over the pyloric region and

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sutured the perforation. This year a patient from whom he had removed the appendix three years previously was admitted for gastric symptoms. Dr. Frazier operated on him, finding a subacute perforation of the duodenum, into adhesions. These are two cases in which the duodenal lesion seemed dependent on the previous appendicular infection.

Although the second case of duodenal perforation was diagnosed as appendicitis by the Resident, he did not repeat the error of his first case, but made a correct diagnosis before operation, basing it largely on the intense pain and the board-like rigidity of the abdominal muscles. The third case in which he operated was a patient of Dr. Neilson. He did not need to make a diagnosis from the physical examination, but simply looked at the patient's teeth, and said, "Any man with teeth as bad as that must have a duodenal ulcer." The man had all the classical symptoms, and a perforation of the duodenum was found. This patient was the only one of the three who died; and he suspected that his death was due to the fact that the drain was removed at the end of 48 hours. Up to this time the patient had done very well, though sixty-four years of age; but he died 6 hours after this occurrence with symptoms of grave sepsis.

All three of these cases were operated on within 5 or 6 hours after perforation, and in none of them was gastro-enterostomy done. The first patient had no gastric symptoms for the three years following operation, and the second had none for the six months after operation. They have not been seen since.

Dr. Gibbon has spoken of the question of pus in the abdomen as a contra-indication to gastro-enterostomy. As a matter of fact, in a great many of these cases the pus is sterile. In the two patients of his own who recovered, the pus was found to have been sterile; in the case of the patient who died the culture from the upper abdomen was sterile, but that from the pelvis showed a mixed infection, chiefly colon bacillus.

Dr. Deaver strenuously advocates gastro-enterostomy in these cases on the ground that it prevents subsequent trouble. It may be pertinent to ask whether his patient who was operated on three times for perforation had had a gastro-enterostomy done at the first or the second operation.

In reply to Dr. Jopson's suggestion that the relation of appendicitis and duodenal ulcer which has been referred to is to be

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explained through an error in the first diagnosis (appendicitis), it may be said that the patient who was operated on for appendicitis three years before Dr. Frazier operated for duodenal ulcer, had a gangrenous appendix, and that his wound had to be drained.

DR. JOHN H. JOPSON noticed that no attention had been paid to the size of the perforation and the relationship to symptoms, stating that of the four cases he had sutured, the first case was operated on under a positive diagnosis of appendicitis after more than 24 hours; the second, under a probable diagnosis of appendicitis after 24 hours; the third, with a diagnosis of perforated ulcer, after 8 hours, and the fourth, with the same diagnosis, nearly 24 hours after perforation. All the cases recovered except the last. With a small perforation the gradual leakage of fluid even under careful observation may very often lead to a diagnosis of appendicitis, especially if the previous history is lacking, and in the first two cases the perforations were of this type. He did not perform a primary gastro-enterostomy in any of these cases. In one he did a posterior gastro-enterostomy two years later. As to the occurrence of perforation of gastric and duodenal ulcers, after removal of the appendix, it leads one to suspect not always a direct causal relationship between appendicitis and gastric ulcer, but that the diagnosis in the first instance was erroneous.

DR. JOHN B. ROBERTS called attention to a class of perforating duodenal and gastric ulcers subsequent to operations on the intestines. He had lost two cases of bladder wound from such perforations; of the stomach in one case, from perforation of the duodenum in the other. There were quite a good many cases on record where duodenal and gastric ulcers have occurred secondary to intestinal operations.

DR. G. G. ROSS reported one case in which the performance of gastro-enterostomy might have saved the patient's life. The man gave a history of dyspepsia and the diagnosis was peptic ulcer. He perforated at 11 A.M. and was operated on before 2 P.M. He had a large perforation of a duodenal ulcer and great discharge of stomach contents. He had diminution of urine for two or three days after operation with symptoms of uræmia. Exactly 7 days after the primary perforation he had a second with typical symptoms, pain, tenderness and marked rigidity, and he died. Postmortem showed a second perforation of this

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duodenal ulcer. It was a horseshoe ulcer an inch and a half in length, the primary perforation was close to the pylorus and the second at the other end. Had he had a gastro-enterostomy he probably would not have perforated the second time, but it was not done, for the man was reported by the anæsthetist as dead on the table during the operation.

Dr. John B. Deaver, in closing, stated that in the majority of cases perforated ulcers were diagnosed by the house surgeon, who sees the patient first. Dr. Ross and others have said that certain cases of acute perforation are not diagnosable; this is doubtless true in a very small percentage, but not in the majority of cases by any means. He had seen two perforated gall-bladders neither of which were diagnosed and in both of which he questioned if there was not a perforated duodenal ulcer.

The majority of cases reported in his paper were very easily diagnosed by the definite character of the rigidity of the abdominal wall. Liver dulness is to be considered, but the special point is pronounced rigidity. There is difference of opinion as to the propriety of the performance of posterior gastro-enterostomy; he did gastro-enterostomy in practically all cases and sees no reason why it should not be done. He did not think there was anything to be lost in opening up the lesser peritoneal cavity; the latter could only be so when the patient had advanced peritonitis, and then nothing would do him any good. In the case of the patient upon whom both Dr. Wharton and he operated the indurated area of the duodenum was the size of a silver dollar. The question of pylorectomy should be considered, but unfortunately in many of these cases the indurated area is in such close proximity to the head of the pancreas as to forbid it.

Regarding feeding of the patient after operation, he concurred with Dr. Gibbon; he had frequently kept patients for ten days without any nourishment except that received through the bowel by means of enteroclysis containing whiskey and predigested beef juice. After the patient had recovered from the surgical treatment he should be treated medically.

EXCISION OF THE COLON.

Dr. Charles F. Nassau read a paper with the above title, prefacing the report of two cases by remarking that since the communications from Mr. W. Arbuthnot Lane regarding ex-

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cision of the colon have become more generally known, much controversy over the rationale and efficiency of this operation has been occasioned. It would seem after carefully studying 50 cases reported by Chapple, which had been submitted to this operation, that it was only undertaken after all the more simple remedies had failed and after there had intervened phenomena which were more serious than simple constipation.

In the first case reported below the operation was not primarily undertaken to excise the colon, but this was found necessary owing to the serious interference with the blood supply of the bowel, which was occasioned by the separation of intra-abdominal adhesions. Anastomosis in this case was made between the ileum and the colon at the splenic flexure. A Finney's pyloroplasty was done at the same time. One of the most interesting results of this operation was the fact that a very intractable asthma, which had existed before it, seemed to be completely relieved and she seems now to be in perfect health.

The second case was operated on with the definite intention of excision of the colon. This patient suffered from abdominal pain, nausea and vomiting. Had a furred tongue, cold extremities, and extreme nervousness and marked emaciation. Palpation revealed a large mass extending from the right iliac fossa to the liver. Bismuth remained in the ascending colon for ten days after its ingestion. There had been no bowel movement for twelve days previous to entrance to the hospital. Even active purgative measures instituted before operation were ineffectual in emptying the bowel, as is evident on examination of the specimen. In this case the ileum was anastomosed to the sigmoid flexure after the intervening colon had been removed. Although this operation has been recent, the patient is already gaining daily in health and strength with marked improvement of appetite and is having two or three bowel movements every 24 hours owing to the short piece of large intestine remaining. The particular point to be avoided in the operation seemed to the writer to be keeping away from the duodenum on the transverse limb of the hepatic flexure. In neither case were breast changes noticed nor interference with the function of the joints, pigmentation of the skin, nor blood in the vomitus.

Dr. Nassau recalled many cases of appendectomies which continued to suffer abdominal pain after operation, and cases in which

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enormously distended cæca had been left undisturbed, the bearers of which had been a constant source of annoyance to him because of their very vague pains remaining in the right iliac fossa, and other cases of ventral fixations, nephrorrhaphies and gastro-enterostomies in whom ptosed and dilated colons were observed at operation, in whom there had been but little abatement of symptoms or no improvement in general health. Three other cases were cited in which the speaker felt that an excision or exclusion of the colon would have markedly benefited.

One, operated on four years ago for appendicitis with much dilatation of the cæcum with but temporary improvement, who now complains of constant pains in the right iliac fossa, pale pasty complexion, cold clammy hands, anæmia and chronic infection of the ethmoid cells, in whom, although the bismuth was delayed in passage, there occurred daily movements.

The second case was operated on six years ago for appendectomy, right salpingo-oophorectomy and ventral fixation, who three days post-operative developed obstruction of the bowel and in whom on reoperation adhesions were found at the splenic flexure where the colon was almost occluded by adhesions not noted at the previous operation. Subsequent history developed the fact that evacuations had been effected only after four quarts of water had been administered by enema. The patient died.

A third in whom 18 months ago a Finney's pyloroplasty was done for the symptoms of eructations of gas, constant gastric distress, occasional vomiting and obstinate constipation. There was a large redundant colon noted, and, while there was an improvement in the gastric symptoms, constipation remains and her general condition is still poor.

The speaker further stated that such questions as abnormal fixations of the pylorus by adhesion bands (either evolutionary, as claimed by Lane, or inflammatory, as held by others), which also elevate the hepatic and splenic flexures and bind down the lower part of the sigmoid and the upper part of the rectum and cause various irregular fixations of the intestines, do not always involve facts capable of practical demonstration. The effects of intestinal absorption upon the various organs and upon metabolism in general are not so well comprehended as to enable us to attribute arterial sclerosis, breast changes, joint involvement, tuberculosis of the hip to colonic stasis, although some symptoms

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are very suggestive. Certainly all the variations from normal are not necessarily pathologic. Certainly chronic constipation is a simple diagnosis and the signs of auto-intoxication unmistakable. Colonic redundancy or ptosis is definitely revealed by the skiagraph. It would seem that one might best plan operative interference by drawing their conclusions from the X-ray where there can be demonstrated an unmistakable mechanical obstruction. Certainly excision of the colon for this condition will become a permanent operation.

CASE I.—G. C., thirty-eight years, has had all usual diseases of childhood. Operated on September 23, 1909, 29 stones removed from gall-bladder, appendectomy, transverse colon elevated and fixed. March, 1910, gall-bladder was removed for gangrene of gall-bladder.

Present Illness.—Since last operation patient has had asthmatic attacks preceded by sneezing and a tickling sensation in the nose. The attacks usually occur at night. And are now occurring about every six days. A lump appears in the region of the gall-bladder, the attacks come on, the patient vomits a large quantity of bile and is then relieved. Sometimes the attacks are aborted by hot coffee. Formerly the bowel movements were light in color, but now they are of normal color. Bowels are constipated. During the attacks the patient voids frequently and large quantities. No pain. Appetite is fairly good.

Operation (December, 1910).—Patient etherized. An incision five inches long was made in the region of the gall-bladder through the old incision. The bowels were found to be adherent to each other in several places. Pylorus and duodenum were adherent to the under surface of the liver and to each other. The stomach was pulled to the right and was considerably ptosed The colon and cæcum were distended. The cæcum was about three times the normal size. Transverse colon was ptosed. All adhesions were broken up. A Finney's pyloroplasty was then done.

Owing to destruction of blood supply it was decided to remove portion of colon. The transverse colon was clamped at about its centre; the mesocolon was dissected free from the rest of the transverse colon, ascending colon and cæcum, being clamped as it was dissected. The ileum was clamped about 4 inches from the cæcum and cut across. The mesocolon was ligated with heavy

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silk and catgut. About two feet of colon and ileum was removed. The ends of the severed intestines were sutured with continuous suture of catgut, after being tied with No. 3 chromic catgut ligature. A loop of the side of the ileum was caught between clamps and another caught in the transverse colon near splenic flexure and a lateral anastomosis made. The peritoneal surfaces were sutured together with heavy silk sutures.

CASE II.—E. H., thirty-one. For past two years has had intestinal indigestion. Since early summer has had attacks of obstinate constipation lasting 6 to 8 days and attended with considerable abdominal pain and cramping when bowels moved. During last month has vomited after pain which is severe over lower abdomen. Has lost about 25 pounds.

Operation.—Patient etherized. A six inch incision was made through abdominal wall vertically, about 1 inch to right of umbilicus and extending from 2 inches below umbilicus to 4 inches above umbilicus. The colon was drawn out through this incision and was found to have a very long mesocolon. The ascending and transverse colon were greatly dilated and sacculated, and contained many hard fecal lumps. The descending colon was found to be greatly atrophied. Numerous small linear scars and adhesions were found along the course of the colon. The ileum was clamped with two clamps about two inches from the ileocæcal junction and cut between. The two ends were covered with hot wet packs and laid aside. The mesocolon was then clamped in sections and cut, freeing the colon from the ileocæcal junction to the sigmoid. It was here clamped with two clamps and cut between and the colon removed. All clamped portions of the mesocolon were then ligated with catgut and dropped back into the abdomen. The end of the ileum was then ligated, cut, cauterized with pure carbolic acid, and inverted with a silk purse-string suture. The end of the sigmoid was treated in like manner. A lateral anastomosis was made with Major's clamps about two inches from the ends. The back portion of the anastomosis was sutured with a silk inversion suture. The gut was then opened and an anastomostic suture of catgut closed the opening joining the two parts. The inversion suture was then completed. A few more interrupted silk sutures were then made to further invert the gut and strengthen the anastomosis.

DR. JOHN B. DEAVER believed that Mr. Lane was correct to

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a degree but not *in toto*. He did not believe all these cases of pain which Dr. Nassau's and his patients had after operation require further operative interference, nor did he believe by any means that all of them were due to chronic intestinal stasis. The case shown Dr. Nassau was undoubtedly such a one. He did not see how any medication or massage would aid that condition. He had had the pleasure of having Mr. Lane operate on a case for him at the University Hospital, in which he divided the lower ileum and anastomosed it to the side of the sigmoid flexure low down.

SACRO-ILIAC SUBLUXATION.

Dr. John B. Roberts reported the case of a man aged twenty-one years who was admitted to the Methodist Hospital October 31, 1912, with the history that the previous night he had been caught between a moving freight car and a cap log. He complained of pain in the back, the epigastric region and the right hip. There was tenderness over the right hip, but by passive and active motion of the right lower extremity no clinical evidence of fracture of the femur or dislocation of the hip-joint was found. When he first entered the hospital his condition was not thought to be serious, and his injuries were looked upon as mere contusions. He was, accordingly, referred to the dispensary by the resident physician, but was brought back to the hospital on account of pain, entering, as above stated, on the 31st of the month. His temperature was 100°; pulse 90; respirations 24. He was not seen by the speaker until the next day, which was November 1.

The X-ray report by Dr. Percival showed that the man was suffering from a subluxation of the right sacro-iliac articulation, which was shown by an irregular line running in a generally vertical direction between the sacrum and ilium. The man complained of a good deal of pain. Broad bands of adhesive plaster were applied around the pelvis so as to steady it. This strapping extended from the pubes to the umbilicus and was carried over the bony prominences of the ilium, which were protected by cotton pads. The urine was negative.

On the 8th of the month ether was administered and a more careful examination made before attempting reduction of the displacement. The legs, measured from the anterior superior spine

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of the ilium to the lower part of the internal malleolus, were apparently of the same length. Posteriorly a line, drawn transversely across the back between the posterior superior spines of the ilium, showed that the distance from the middle of the spinous processes of the vertebræ to the posterior iliac spine was slightly greater on the right side, which was the injured side, than on the left. The examination of the length of the limbs, etc., and the skiagraph showed no fracture of the iliac bones, and the pubic arch and the ischium were free from such injury. Under full relaxation of ether with two men making traction upon the axillæ and shoulders and a third making steady pull on the right limb by grasping him by the foot and ankle, the speaker was able, with his hand upon the posterior portion of the right iliac bone, to cause by manipulation a sudden slipping similar to that which is felt when dislocation is reduced in other regions. The slip was not like the grating of crepitus in broken bone, nor quite so marked as the snap which is felt in reducing a ball and socket joint, but it, however, partook more of that character than of the character of joint crepitus from arthritis or a fracture crepitus from broken fragments.

A large plaster-of-Paris and gauze splint was made by pouring the gypsum paste upon large sheets of gauze laid one upon another. This was fitted to the whole back and held in front so as to make a great trough in which the body lay. This splint was held in place by a many-tailed Scultetus binder.

An X-ray picture taken subsequently showed, according to Dr. M. F. Percival, the radiographer, a more nearly normal relation of the parts than before the reduction operation was attempted. The gypsum trough was removed at the end of about two weeks. The injured region was then supported by adhesive plaster strapping.

On November 29 the patient was allowed to be up in a chair as the pain and tenderness were not so marked.

On December 2 he was ordered to use crutches, which he refused to do, either from pain, or because of his sullen temperament.

On December 5 he was discharged, as he was unwilling to remain any longer. During a display of anger at this time he attempted to walk and did so, though with difficulty. This, according to the resident physician's record, seemed to be due more

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to the inactivity of lying in bed than from any great pain suffered. It is difficult to know how much pain the man really had and how much was assumed.

This case is reported because from a hasty glance at the textbooks on dislocation one realizes that subluxations of this joint must be unusual, as it is difficult to find records of them. In this instance it seemed that there was no fracture, but a true displacement to a limited extent of the joint surfaces. There is usually an articular cavity between the sacrum and ilium, although there is often an obliteration of the cavity more or less complete by fibrous union between the cartilages.

A good deal of attention has recently been given to this joint because of the opinions of some orthopædic surgeons that many painful injuries of the back are undiagnosticated partial displacements or sprains of this articulation. It hardly seems possible that subluxations are as frequent as some writers seem to insist. X-ray investigation and reports of injuries, such as that just described, should, therefore, be recorded. Thus the true pathology of the lumbar pains discussed by Goldthwait and others will become more thoroughly understood.

Dr Astley P. C. Ashhurst stated that he had recognized only two undoubted cases of sacro-iliac subluxation. The first patient was a young woman who sprained her back by carrying a heavy hand-organ around the streets in her occupation as "mission singer." She had been ailing for months and could get no relief. Then she came under the speaker's care in Dr. Davis's service at the Orthopædic Hospital about six months ago. She was put through the routine examination for sacro-iliac sprain, and though no luxation was recognized at the time, she reported at her next visit that ever since having the "manipulations" she had been free from all discomfort. She has remained well since.

About the same time a man hobbled into the dispensary at the Episcopal Hospital; he was bent over and could hardly walk. He had injured his back by a lifting strain, and had been confined to bed, in constant severe pain, for about a week. He was placed upon the bed for examination with difficulty, and made to lie prone. After the routine examination he got up from the bed quite spryly, walked around the room in comfort, and expressed his delight at the rapid cure.

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