vomiting, and sometimes prostration. There is irregular fever, and death may occur in three or four weeks. In more chronic cases there is very slight fever or only occasional paroxysms. The disease may persist for weeks, months, or even for a year.

The symptoms are indefinite and the condition could scarcely be made out during life. Tenderness exists in the epigastrium, or may at times extend to the left and be quite sharply localized over the position of the pancreas, but a circumscribed tumor is rare. Fat-necrosis is not often found post mortem in these cases.

(*c*) **Gangrenous Pancreatitis.**—Fitz has collected fifteen cases. The pancreas may be converted into a dark, slate-colored, stinking mass, or it may lie nearly free in the omental cavity, attached only by a few shreds of fibrous tissue. Complete sequestration of the organ is not uncommon. It may be discharged as a slough from the bowels, and in two cases in which this happened recovery took place. As a rule, acute peritonitis follows. Hæmorrhagic pancreatitis may precede or be associated with it. Death occurs with symptoms of collapse, commonly in from ten to twenty days. Disseminated fat-necrosis is usually present.

III. CHRONIC PANCREATITIS.

The organ is firmer than normal, the interstitial connective tissue is increased, and there is more or less change in the secreting structures. A special interest has been aroused lately in this affection, as it has been frequently found in diabetes. There may be marked pigmentary changes; a similar condition has been found in the liver. Degeneration of the glandular elements is present in these cases. The sclerosis may be associated with calculi in the ducts.

IV. PANCREATIC CYSTS.

These commonly result from the impaction of calculi; either biliary, lodging at the orifice of the common duct, or pancreatic, within the duct of Wirsung. The pancreatic concretions consist usually of carbonate of lime. George Johnston has collected 35 cases from the literature. Obliteration of the duct may also result from cicatricial contraction and occasionally from displacement. Eighteen cases of cysts of the pancreas have been collected by Senn. The chief symptoms are tumor in the epigastric region, usually median, or sometimes to one side. When large it has occupied the whole abdominal cavity, and in such instances the diagnosis of ovarian tumor has usually been made. The tumor may develop rapidly, or may be chronic and last for many years. In some instances the tumor attained a large size within a few weeks. Pain is not necessarily present. Fatty diarrhœa did not exist in any of the cases. The stools may be clay-colored, copious, and putrescent.

The diagnosis of the condition must be extremely difficult, yet it seems to have been made in 7 of the 18 cases. Aspiration should be made to determine the nature of the fluid. This has varied considerably, but most frequently has been brownish or chocolate-colored. In only 6 of the 17 cases in which the nature is mentioned was the fluid of a clear serous character.

V. CANCER.

This is usually scirrhus, and may be primary or secondary. It is not common, as may be judged by the analysis by Segre, who found in 11,492 autopsies only 132 tumors of the pancreas, 127 of which were carcinomata, 2 sarcomata, 2 cysts, and 1 syphiloma. In only 12 of the cases of carcinoma was the disease limited to the gland. The head is commonly affected, and the disease may be limited to this part or extend to it from the stomach or intestines.

The symptoms are variable, and a diagnosis is not often possible. There may be stearrhœa, though it is to be remembered that fatty diarrhœa is not invariably associated with disease of the pancreas. Clay-colored, greasy, and loose stools may be present, with undigested food, as noted by T. J. Walker as a symptom of obstruction of the pancreatic duct. Diabetes may coexist. Although the head of the pancreas can be felt in very thin persons, the tumor masses can rarely be palpated. In the analysis of 137 cases by Da Costa, in only 13 was the tumor recognized by palpation. The general symptoms are those of internal carcinoma. Progressive emaciation, loss of strength, and dyspepsia are present. There is pain in the epigastrium, sometimes paroxysmal. When the head of the pancreas is involved jaundice is almost invariably present.

The disease can scarcely ever be distinguished from cancer in the pyloric zone with involvement of the glands in the hilus of the liver. The movable character of the pyloric tumor and the absence of the hydrochloric acid in the vomit are valuable points. Tumor of the transverse colon is more superficial and movable, is often associated with temporary obstruction, and there may be hæmorrhage from the bowels. In a case with progressive emaciation, epigastric pain, and deep-seated, immobile tumor, with the presence of fatty and greasy stools and the gradual development of jaundice, the diagnosis of cancer of the pancreas is probable.

As the wasting proceeds the aortic pulsation is transmitted with great force through the pancreas and transverse colon, and when a tumor is present the diagnosis of aneurism may be made; but in the latter the sac has not an up-and-down jerking pulsation, but is distensile. In doubtful tumors in this region the examination should also be made in the knee-elbow position.

Of other new growths in the pancreas, tubercle may be mentioned as a rare occurrence; a few cases of syphiloma have been described.

The treatment of new growths in the pancreas is entirely symptomatic.

X. DISEASES OF THE PERITONÆUM.

I. ACUTE GENERAL PERITONITIS.

Definition.—Acute inflammation of the peritonæum.

Etiology.—The condition may be primary or secondary.

(*a*) **Primary, Idiopathic Peritonitis.**—Considering how frequently the pleura and pericardium are primarily inflamed the rarity of idiopathic inflammation of the peritonæum is somewhat remarkable. It may follow cold or exposure and is then known as rheumatic peritonitis. No instance of the kind has come under my notice. Occasionally in Bright's disease acute peritonitis develops as a terminal event.

(*b*) **Secondary Peritonitis** is due to extension of inflammation from, or perforation of one of the organs covered by the peritonæum. Peritonitis from extension may follow inflammation of the stomach or intestines, extensive ulceration in these parts, cancer, acute suppurative inflammations of the spleen, liver, pancreas, retroperitoneal tissues, and the pelvic viscera.

Perforative peritonitis is the most common, following external wounds, perforation of ulcer of the stomach or bowels, perforation of the gall-bladder, abscess of the liver, spleen, or kidneys. Two important causes are appendicitis and suppurating inflammation about the Fallopian tubes and ovaries. There are instances in which peritonitis has followed rupture of an apparently normal Graafian follicle.

The peritonitis of septicæmia and pyæmia is almost invariably the result of a local process. An exceedingly acute form of peritonitis may be caused by the development of tubercles on the membrane.

Morbid Anatomy.—In recent cases, on opening the abdomen the intestinal coils are distended and glued together by lymph, and the peritonæum presents a patchy, sometimes a uniform injection. The exudation may be: (*a*) Fibrinous, with little or no fluid, except a few pockets of clear serum between the coils. (*b*) Sero-fibrinous. The coils are covered with lymph, and there is in addition a large amount of a yellowish, sero-fibrinous fluid. In instances in which the stomach or intestine is perforated this may be mixed with food or fæces. (*c*) Purulent, in which the exudate is either thin and greenish yellow in color, or opaque white and creamy. (*d*) Putrid. Occasionally in puerperal and perforative peritonitis, particularly when the latter has been caused by cancer, the exudate is thin, grayish green in color, and has a gangrenous odor. (*e*) Hæmorrhagic. This is sometimes found as an admixture in cases of acute peritonitis following wounds, and occurs in the cancerous and tuberculous forms.

The amount of the effusion varies from half a litre to twenty or thirty litres. There are probably essential differences between the various kinds of peritonitis, and bacteriology is beginning to give us valuable information on this point. Of the species of micro-organisms which have been found in peritoneal exudates, the pyogenic micrococci and the *bacterium coli commune* are the most common, sometimes one species, often several species being found in the same case. The *streptococcus pyogenes* is by far the most frequent cause of puerperal peritonitis. This species, and still oftener the *staphylococcus pyogenes aureus*, or *albus*, are found in peritonitis consecutive to laparotomy. The *bacterium coli commune*, usually combined with other bacteria, is met with especially in peritonitis secondary to intestinal perforation. The *diplococcus pneumoniæ* has been found several times in peritoneal exudates. The *amœba coli* occurred in numbers in the thin fibrinous effusion in one of our cases of amœbic dysentery.

Symptoms.—In the perforative and septic cases the onset is marked by chilly feelings or an actual rigor with intense pain in the abdomen. In typhoid fever, when the sensorium is benumbed, the onset may not be noticed. The pain is general and is usually intense and aggravated by movements and pressure. A position is taken which relieves the tension of the abdominal muscles, so that the patient lies on the back with the thighs drawn up and the shoulders elevated. The greatest pain is usually below the umbilicus, but in peritonitis from perforation of the stomach pain may be referred to the back, the chest, or the shoulder. The respiration is superficial—costal in type—as it is painful to use the diaphragm. For the same reason the action of coughing is restrained, and even the movements necessary for talking are limited. In this early stage the sensitiveness may be great and the abdominal muscles are often rigidly contracted. If the patient is at perfect rest the pain may be very slight, and there are instances in which it is not at all marked, and may, indeed, be absent.

The abdomen gradually becomes distended and tense and is tympanitic on percussion. The pulse is rapid, small, and hard, and often has a peculiar wiry quality. It ranges from 110 to 150. The temperature may rise rapidly after the chill and reach 104° or 105°, but the subsequent elevation is moderate. The tongue at first is white and moist, but subsequently becomes dry and often red and fissured. Vomiting is an early and prominent feature and causes great pain. The contents of the stomach are first ejected, then yellowish and bile-stained fluid, and finally a greenish and, in rare instances, a brownish-black liquid with slight fæcal odor. The bowels may be loose at the onset and then constipation follows. Frequent micturition may be present, less often retention. The urine is usually scanty and high-colored, and contains a large quantity of indican.