esting demonstrations in the cadaver showing that the cecal tube may be utilized for flushing the intestinal tract above the ileocecal valve. Properly predigested food introduced directly into the colon is absorbed much more readily, much more certainly and in much larger quantities than when given by the rectum, and the same fact is true of water, even by the drop method.

I wish in conclusion to urge that cecostomy rather than appendicostomy should always be adopted as the operation of choice. As compared with the presenting part of the cecum, the ceco-appendiceal juncture is an inch or more further away from the abdominal wall. The mesocecum is, furthermore, ordinarily so short and is always so inelastic that the appendix can not be drawn and held forward without a degree of tension that is fatal to its integrity. The distensive pressure of any tube inserted and retained in the narrow lumen of the appendix is another influence that causes it always to perish during the first few days after the operation. Thus an appendicostomy always, sooner or later, resolves itself into a cecostomy. It is better, however, to do a cecostomy as an elective operation

The Groton.

THE RELATION OF FOREIGN BODIES IN THE GALL BLADDER TO GALLSTONE DISEASE

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Foreign bodies of various kinds have been found occasionally in the gall bladder in association with gallstones. It is probable that the presence of a foreign body in the gall bladder may, under certain conditions, be concerned in the etiology of the stones. The question of whether any foreign body can produce gallstones quite unaided by micro-organisms has been rather conclusively answered in the negative. It is certain that smooth foreign objects may occupy the gall bladder for a long period without retention of precipitated bile salts.

Jaques Meyer introduced small ivory balls into the gall bladders of test animals and found no stones after a year.

Mignot[1] also found that certain foreign bodies, if aseptic, may be retained in the gall bladder for a long time without causing inflammation or precipitation of solids from the bile. Mignot, in his investigations found, also, that foreign bodies impregnated with virulent micro-organisms, singularly enough, did not lead to the formation of gallstones. Such virulently infected foreign bodies produced more or less violent cholecystitis and precipitation of solids but so long as the bacteria retained their virulence they could not, even with the help of the foreign body, form calculi. There resulted a sediment mixed with pus, but the sediment had no tendency to adhere to the foreign bodies. To form stones, he says, the bacteria must be attenuated. Such attenuated bacteria used in his experiments caused precipitation of the bile solids on cotton wool quite promptly, that is, within five or six months.

The above observations concerning the necessity of attenuation proved true of the *Bacillus typhosus, Bacillus coli*, staphylococcus, streptococcus and even the nonpathogenic *Bacillus subtilis*. Reports[2] of similar experiments show that if attenuated bacteria and foreign bodies be introduced together into the gall bladder, stones will be formed.

In the absence of direct proof it seems reasonable to presume that much must depend on the character of the foreign body. The smooth ivory balls of Meyer doubtless produced little irritation; whereas a jagged body, if large, must produce decided irritation and if such irritation be alone unable to produce obstructive inflammation of the gall bladder or ducts it is nevertheless easily seen that the essential bacteria may readily be attracted to such a focus for, as Gilbert has demonstrated, bacteria are frequently sent out from the liver with the bile.

The Mayos[3] called attention to the circumstance that the *Bacillus prodigiosus* placed in the anus appeared after two hours in the mouth and that reverse mucous currents in the intestines and ducts will similarly carry up particles of indigo carmine.

It seems not unfair to assume that bacteria may readily pass up the gall ducts from the intestines.

It is well known that entozoa are frequently found associated with gallstones. Such entozoa in their entrance into the gall bladder doubtless furnish at once the foreign bodies and the atria for infection. This is, perhaps true also of the globules of metallic mercury which have been found in gallstones.

That intestinal parasites may find their way into the gall bladder and carry with them the necessary infection is abundantly shown by many reported cases: Lobstein[4] found round worms associated with gallstones; Gautrelet[5] found bilharzia or intestinal flukes in connection with biliary calculi; Carless[6] found pieces of hydatid membrane in the gall bladder and Buisson[7] found the *Distoma hepaticum* in the gall bladder in a case of cholelithiasis. Homans found gallstone incrustations on sutures introduced through the gall bladder wall at a previous operation, here the suture presumably established an atrium. Nauche reported a case in which he found a steel needle forming the nucleus of a gallstone (Mayo Robson).

I have recently observed a similar case in which the incrustations on the needle were slight and easily removed with gauze and the gall bladder was filled with small stones.

In my case adhesions were present between the gall bladder fundus and the pylorus. It seems most likely that the needle passed directly from the pylorus into the gall bladder carrying bacteria with it. This seems also the most rational explanation of the presence of a fruit-seed in the gall bladder in the case reported by Frerichs. If, however, the ova intestinal worms may travel up the ducts with the aid of reversed mucous currents, the seed may have had a similar experience. Doubtless there are other cases in which pointed foreign bodies, owing to the presence of adhesions between the gall bladder and pylorus may be assumed to have passed directly from the latter to the former. Clarus, quoted by Poullet, in his work on foreign bodies, reports a case observed in St. George's Hospital, Leipsic, in which a needle was found very near to the gall bladder in the groove between the left and right lobes of the liver To say that this needle passed out at the pylorus is perhaps not justifiable in view of the amazing journeys which needles have been known to make in the body.

1. Robson, Mayo: Diseases of the Liver and Gall Bladder.
2. Riforma med., 1901: quoted by Moynihan: Gallstones and Their Surgical Treatment, p. 45.
3. Keen's Surgery.
4. Rolleston: Disease of the Liver and Gall Bladder.
5. Union méd., xi, 176.
6. King's College Hospital Rep., viii
7. Ueber die Galle, German transl.

The following is a brief report of a case occuring in my practice:

Patient.—Mrs. H. of Walton, Ind., a patient of Dr. Carpenter, was operated on for gallstone disease on March 19. The symptoms which had led the family physician to the diagnosis of gallstones were those which are observed usually in such cases. There had been present gallstone colic, left-sided pains (suggestive of adhesions between the pylorus and the gall bladder) and shoulder pains, followed by nausea and vomiting. There were jaundice and digestive disturbances, muscular rigidity and bile pigment present in the urine as shown by Baudouin's test, also by Loeffler's blue.

Operation.—When the abdomen was opened the gall bladder was found enlarged and adherent and drawn toward the median line of the body lying in immediate relationship with the pylorus. The gall bladder was opened in the usual way. Gallstones were found, and during the removal of these the scoop caught on a mass of what seemed at first to be a very stiff string of organized fibrin occupying the lumen of the organ. On removing this with artery forceps it was seen that the tough fibrin containing bile solids surrounded a stiff, pointed object which later was found to be an ordinary short sewing-needle.

How the needle came into the gall bladder is not known. It is presumed that the woman swallowed it, but this, of course, is only a hypothesis. The woman was accustomed to use needles like that found in her work and had occasionally put such objects into her mouth, as most women do, but does not remember having swallowed a needle. If the needle was swallowed it might easily have found its way into the gall blader in the manner suggested above.

The body of the gall bladder is, as is well known, in relation by its under surface with the first portion of the duodenum, occasionally with the pyloric end of the stomach and the hepatic flexure of the colon. The needle might have traversed the wall of the intestinal canal proper in any one of these three portions and found the wall of the gall bladder in immediate apposition with the canal, which it had just left. It does not seem at all likely that the needle backed up stream, so to speak through the ampulla of Vater, the common and the cystic ducts. To any one familiar with the causation of gallstones, the probable relationship of the presence of the needle to the stones will be clear. It is quite fair to assume that such a foreign body as the needle, having carried in infection, could provoke sufficient inflammation of the gall bladder and ducts with consequent obstruction as to lead to precipitation of the bile salts and gallstone disease. There were no stones in the ducts and the symptoms, as might be expected, have quite disappeared.

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The Lachrymal Glands at Various Ages.—A. Goz (Inaug. Diss., Tübingen, 1908), has made an exhaustive study of the human lachrymal glands in male and female of various ages. The tissues were fixed in concentrated sublimate or in formalin; paraffin sections stained in iron hematoxylin and Delafield's hematoxylin and benzopurpurin B. Age bears a direct relation to the size and structure of the glands. The largest were found in women of about middle age. The size of the glandular epithelium decreases after the first year, producing a widening of the glandular lumen. In advanced age there is an increase of connective tissue and an invasion of the glandular substance. It is not uncommon to find in the aged the glandular tissue thus split up into a number of islets but normally glandular degeneration from this source does not occur. The lachrymal glands of the female have a larger average size and weight than those of the male.

REMOVAL OF AN EMBOLUS FROM THE COMMON ILIAC ARTERY, WITH RE-ESTABLISHMENT OF CIRCULATION IN THE FEMORAL

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Patient.—Mrs. H. S., aged 41, was admitted to Mercy Hospital at 1:40 p. m., April 29, 1909.

Family History.—Father alive, well, aged 77; mother died at 42 of pulmonary tuberculosis.

Personal History.—The patient was born in Germany and came to Chicago twenty-five years ago; married at the age of 26; habits good; used no alcoholic liquors. Menstruation began at 14 and was until one year previous of the regular twenty-eight-day type; lasted four days; quantity moderate. In the last year the patient had had seventeen periods; flow scanty; last menstruation March 8, 1909; diminished in quantity. She had one child 9 years old; forceps delivery; was confined to bed five weeks; had cholecystic infection in the puerperium and was jaundiced for three months.

Previous Illness.—The patient always had good health up to about five years before the present illness, at which time she had acute rheumatism which lasted four weeks; she had a second attack two years later. The patient was not confined to bed in either of the illnesses and did not know that the endocardium or valves were involved. Following this attack she had shortness of breath and consulted a physician who said she had heart trouble.

Present Illness.—On April 25, 1909, the patient was seized with a sharp pain in the lower part of the left side of the chest and upper abdomen, which later extended down to the pelvis. It was considered pleuritis and the patient was given opiates. The pain continued in the lower part of the abdomen after that in the upper part had entirely disappeared, which would rather controvert the idea of a splenic infarct. On April 26, between 9 and 11 a. m., the patient became nauseated and vomited five or six times; did not have a chill and did not believe she had an elevation of temperature. One hour later both the left and right legs began to pain. A physician was called, and he gave a hypodermic injection in the left leg in the region of the pain. Both legs became cold and remained so until the following morning, when the pain in the right leg ceased and it regained its normal temperature. The left leg remained cold, was blue in the thigh and very pale and shriveled in the toes, foot and ankle. It was cold to midway between Poupart's ligament and the patella. There were large blue blebs scattered over the middle third of the thigh.

Examination.—At the time of admission to the hospital the pulse was 82, respiration 26, temperature not recorded. After the operation pulse was 76, temperature 98, respiration 26. At 4 p. m., April 30, pulse 84, temperature 98.6, respiration 28. May 1, at 4 p. m., pulse 82, temperature 99.2, respiration 26. A careful examination on admission showed that the patient had a mitral, direct and regurgitant murmur. Examination of blood showed 15,400 leucocytes; hemoglobin, 85 per cent. There was no pulsation in her left femoral artery. The upper margin of the area of demarcation that appeared then was about four inches below Poupart's ligament. The limb was undergoing dry gangrene, due to ischemia from arterial obstruction. The patient was immediately taken to the operating room and it was decided to remove the embolus that was occluding the iliac artery.

Operation.—(2:30 p. m., April 29.) The patient was placed on the table with the hip slightly elevated. Nitrous oxid was given for thirty seconds, while an incision four inches long was made downward from an inch above Poupart's ligament parallel to the femoral artery. It extended through the skin and connective tissue. The anesthesia was then stopped, the dissection continued and the femoral artery was exposed for a distance of 2½ inches. It was edematous, easily freed from neighboring structures and two provisional catgut ligatures were thrown around it with an aneurism needle but were not tied. These were used in