sign that there is complete biliary obstruction. This is a most important point to determine with certainty, for while complete obstruction is the exception in gall-stone cases, it is the rule when the obstruction is due to malignant disease of the head of the pancreas. Chemical examination of the faeces in the cases I have investigated has shown that in over 60 per cent. with cancer of the pancreas no stercobilin could be found, and in 34 per cent. only traces could be discovered, whereas traces at least of stercobilin were found in every instance where the obstruction was due to gall stones, and in 82 per cent. a well-marked reaction was obtained, in spite of the fact that in many of them the faeces were quite white to the naked eye. Traces of stercobilin are usually found in malignant disease of the common bile duct and cancer of the gall bladder invading the common duct, for in these the growth is usually of a soft character and allows a certain amount of bile to percolate through, unlike the scirrhus growth of the head of the pancreas which compresses the duct tightly from without. The white appearance of the faeces is usually most striking when the obstruction of the bile flow is associated with well-marked pancreatic disease. The peculiar glistening, silvery character of the motions in these cases appears to be due partly to the presence of fatty acid crystals, which act upon light like snow and other finely crystalline bodies, and partly to the action of anaerobic bacteria, which reduce any bile pigment that may be present to a colourless form.

In catarrhal jaundice the unabsorbed fat is intimately mixed with the other constituents of the faeces and the exudates from the intestinal walls, so that the motions are of a light-grey colour and have a peculiar salve-like consistency. They give a well-marked reaction for stercobilin on chemical analysis.

The Pancreatic Insufficiency Tests.

The pancreatic insufficiency tests of Gross and Heiberd give useful indications as to the functional activity of the pancreas, but they only show very gross changes in the digestive powers of the gland, and so are of limited use when taken alone. A negative pancreatic insufficiency test—that is to say, one in which there is normal casein digestion—shows that there is no serious interference with the digestive functions of the pancreas, and in jaundice cases is against a diagnosis of malignant disease of the pancreas. A well-marked positive result points to malignant disease, advanced cirrhosis of the gland, or blocking of the duct of Wirsung by a gall stone impacted in the ampulla of Vater. In cirrhosis of the pancreas and blocking of the duct by gall stones one almost always finds, however, that there is some casein digestion, so that the more incomplete the digestion the more likely is it that the jaundice is due to obstruction of the common bile duct by malignant disease of the head of the pancreas.

Occult Blood.

The constant presence of occult blood in the faeces is suggestive of malignant disease somewhere in the course of the gastro-intestinal tract. Its intermittent presence points to simple ulceration. In cases of cancer of the pancreas, common bile duct, or gall bladder, occult blood occurs in the faeces with great constancy, so that a positive reaction in a case of deep jaundice, especially if it is found on four or five consecutive days, points to the jaundice being due to a growth in one or other of these situations. A positive result may also be due to malignant disease of the stomach or intestine with glands in the portal fissure, or more rarely to advanced simple chronic pancreatitis, but a consideration of the results obtained by other methods of examination will usually decide to which of these it is to be attributed.

Inorganic Ash.

Normally the inorganic ash of the faeces constitutes from 10 to 15 per cent. of the dry weight, but when from any cause there is a catarrh of the intestinal walls this percentage is considerably increased. One, therefore, usually finds that there is an excess of inorganic ash in catarrhal jaundice and in cases where the jaundice is secondary to growths of the intestinal canal, particularly the colon.

By a timely and correct diagnosis, such as is possible from a careful consideration of the clinical history and symptoms, and the information to be obtained by a thorough analysis of the urine and faeces, the complications and sequelae likely to arise in cases of chronic jaundice, such as serious disease of the pancreas, cholangitis, cirrhosis of the liver, etc., may be avoided. Delay is always dangerous, and it is useless to await developments until the case is only of interest to a pathological anatomist. The cause of the jaundice must be determined at the earliest possible moment and the treatment be based upon the conclusion arrived at. A diagnosis of gall stones obstructing the bile duct, made on the clinical data and confirmed by an examination of the excreta, calls for immediate operation, as the only likely spontaneous cure is Nature's crude and dangerous remedy of making a fistula by which the stone may escape into the duodenum, or elsewhere. Catarrhal jaundice very frequently clears up spontaneously, but if after six weeks' rest in bed, with dieting and medical treatment, the jaundice persists and the urinary "pancreatic" reaction is positive, it is advisable to invoke the aid of the surgeon to perform a short-circuiting operation to avoid further damage to the pancreas. In the last stages of malignant disease operation is only likely to shorten the brief span of life still left to the patient, but in the earlier stages much may be done to make existence more bearable by a cholecystotomy or cholecystenterostomy to relieve the intolerable itching of which complaint is chiefly made. At the same time it is well to bear in mind that many cases diagnosed clinically as inoperable carcinoma of the pancreas have been shown on chemical examination of the urine and faeces, and by their after-history, to be suffering from chronic inflammation of the gland capable of retrogression.

REFERENCE.

- ¹ *Surgery, Gynaecology, and Obstetrics*, January, 1908, p. 22.

OBSERVATIONS ON THE URINES OF MARATHON RUNNERS.

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SINCE von Leube in 1877 reported his observations on the urines of soldiers a number of reports bearing on the relation of albuminuria to physical exertion have appeared, but still the literature is not as plentiful as one might desire. It occurred to me, therefore, that some observations made on urines of Marathon runners might prove instructive and of value to those interested in the subject.

The subjects of the investigation were eight athletes who competed in a Marathon race at Toronto on May 24th, 1910. The race began at 8.30 p.m., and three hours before the contestants ate fairly heavy meals of beef, bread, butter, etc. The urines were obtained immediately before and again immediately after the race, and analysed, tests being made for "nucleo-albumen" (Mörner body), albumen, globulin, sugar, and indican, and the sediment examined microscopically.

The results showed several interesting features. The urine of one contestant, who, on account of abdominal pain and vomiting, was forced to quit in the seventh mile, contained a great excess of indican both before and after the race. I may mention that this runner's previous records had been the best of all the contestants, and in this race he was looked upon as a likely winner.

This observation shows the importance of keeping the digestion of an athlete in a healthy condition, a point which I think is recognized by trainers.

Another interesting feature was the presence of hyalin and faintly granular casts in a urine voided after the race, although "nucleo-albumen," albumen and globulin were absent.

One might also make special mention of the presence of calcium oxalate crystals in the sediments of five of the eight specimens collected before the race. After the contest the urines of the same runners contained the same crystals in their sediments, but they were much less plentiful in each specimen. Indeed, in three of the five they were found only after examining several slides.

The following is a tabulated summary of the important points of the analyses:

Before the Race.

1. "Nucleo-albumen," albumen, globulin and sugar absent in every specimen.
2. Indican present in much excess in one urine. In the other specimens it was present in normal quantities.
3. The sediments, which appeared normal to the naked eye, showed nothing abnormal microscopically except oxalate crystals which were present in five of the eight specimens.

After the Race.

1. Seven specimens contained "nucleo-albumen," albumen, and globulin, and in the sediments hyalin and faintly-granular casts, and epithelial cells. In three of these there were in the sediments red blood corpuscles; in five calcium oxalate crystals sparsely distributed.
2. One specimen was free from "nucleo-albumen," albumen, and globulin, but contained hyalin and faintly-granular casts in the sediment.
3. Sugar absent in all.
4. The tests for indican gave practically the same results as those before the contest.

INTUSSUSCEPTION OF THE APPENDIX.

BY

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CASES of intussusception of the appendix caeci have been grouped into three varieties by Kelly. In the first of these the presence of the appendix is a mere incident, being compelled to travel with the intussuscepted colon. In the second the base of the appendix forms the apex of the intussusception, and in the third the appendix is completely or partially inverted, like the finger of a glove, "with or without inversion of caecum, colon, or ileum."

The first case I desire to record does not quite correspond to any of these, but may, perhaps, be included in the first group:

A. S., aged 6, admitted to hospital December 13th, 1909. Slipped on ice, injuring, apparently slightly, the abdomen. Soon after he began to complain of pain in the abdomen, but continued to attend school for a week. The pain was not constant, but occurred in paroxysms, which increased in force and frequency, and was referred to the umbilicus. At home he was treated vigorously with aperients.

I saw him about a week after the onset, and found him suffering severe pain, screaming in agony. A coil of intestine in active peristalsis could be seen to the right of the umbilicus, transverse in direction. He was sent to Wakefield Hospital with a view to early operation. Next morning, however, the pain had greatly diminished, and within a day or two disappeared entirely. At this stage nothing could be felt on palpation; there was no rigidity, no tympany, no pain or tenderness. There was no vomiting at any time, no blood and mucus in stools. Rectal examination revealed nothing. Temperature was always normal. Bowels acted regularly, and urine was normal.

Gradually he returned to ordinary diet and began to get up, and at Christmas he had the extras that the season brings, but no recurrence of pain took place. He was sent home, and the pain returned almost at once.

On readmission the pain quickly subsided, still it was evident that the boy was not thriving, and seemed to be losing weight. On January 25th, 1910, with a tentative diagnosis of appendicular colic, the abdomen was opened by the incision of Battle. The caecum, which was on the level of the umbilicus, could be felt to contain an apparently solid body. The meso-caecum was long, and the caecum was brought into the wound. The base of the appendix was located in its usual position; from this point it passed outwards almost transversely, closely adherent to the caecum in its course for almost 1½ in.; it then took an almost rectangular turn and disappeared into an invagination of the caecum.

The condition was therefore an invagination of the caecum containing the terminal inch of the appendix. An effort was made to reduce the intussusception, but ordinary methods—namely, expression, expression with slight traction—failed.

The caecum was then incised anteriorly and pressure made from within on the congested hard conical, apparently solid intussusception. Gentle effort was of no avail; less gentle effort merely succeeded in rupturing the caecal wall round the ostium.

The intussusception was then incised, and in it was seen the terminal portion of the appendix closely adherent to the inner side of the invaginated caecum almost to the tip. The tip was loosely attached to the caecal wall. The neighbouring mesenteric glands were enlarged. The caecum was resected. Whey milk and water was given from the first. Bowels acted

at the end of the second day, and the child got up on the tenth day. The appendix, though not pursuing a straight course, still seemed tightly stretched from base to apex, and it seemed as if the size of the intussusception was regulated by the length of the appendix.

Was the accident the cause of the condition? A case is recorded in "Kelly and Hurdon" in which a similar injury was supposed to be the cause of a somewhat similar condition. Was the presence of the appendix a mere incident in the case? The curved course of the appendix would seem to indicate that the thickening of the caecal wall was the primary condition. "Any inflammatory process in the head of the caecum causing a localized thickening of its walls would offer a convenient grip for the circular muscle of the bowel to catch and exercise propulsive force in the direction of the current" (Kelly and Hurdon). Or was there paralysis of part of the caecal wall from haemorrhage, and hence intussusception (Sutherland)? The long intervals of freedom from pain or tenderness when taking ordinary diet were remarkable, but still the child was thinner.

Perhaps, at any rate in a somewhat earlier case, a better, and certainly less severe, method of treating such a case would be to detach the appendix at its base and from the caecal wall outside the invagination. Then incise the caecum in a circular manner round the ostium and remove the invaginated part entire with the contained appendix.

The second case was primarily one of Henoch's purpura in a boy aged 4. He was admitted, April 14th, 1908, with swelling and pain in the knee-joints, and a rash resembling that of chicken-pox and haematuria.

About a fortnight after the onset of the illness severe pain in the abdomen set in, with stools of blood and mucus. I saw him two days after this, and now vomiting had begun, and increased till he could retain nothing. There was slight distension of the abdomen; no definite tumour could be felt, but there was rigidity of the right side. At the operation was found an invagination of the caecum, containing the whole of the appendix, the base of the latter forming the apex of the intussusception. It was reduced with ease, and the expressed appendix stood up rigid and vertical, inviting the extirpation which was its fate. Recovery was uneventful. Albuminuria persisted for six months, but the patient is now in excellent health.

Lorenz maintains that intussusceptions in this region begin, not at the ileo-caecal valve, but originate by a rolling in of the caecum itself. In this case the caecum must have rolled in sufficiently to obstruct the ileo-caecal orifice, and is an example of the invagination caeco-colica of Lorenz—a potential intussusception of the ordinary variety.

A FRENCH Anthropological Institute has recently been founded in connexion with the Natural History Museum of Paris where there is an anthropological laboratory. The Institute evidently accepts in the fullest sense Pope's dictum that the proper study of mankind is man, and intends to study him in all his aspects. In addition to what may be called anthropologists pure and simple, it is intended that the Institute shall include in its membership palaeontologists, zoologists, biologists, physiologists, psychologists, linguists, archaeologists, sociologists, geologists, ethnologists, travellers—the list is as long and as varied as that of Don Giovanni's conquests. The President is M. Salomon Reinach; the Secretary-General, M. Lapique.

THE third International Laryngo-Rhinological Congress will be held at Berlin this year (August 30th to September 2nd) under the presidency of Professor Bernhard Fraenkel. The following is the programme of discussions: (1) The relations of experimental phonetics with laryngology; to be opened with reports from Drs. Gutzmann of Berlin and Struyken of Breda. (2) Bronchoscopy and oesophagoscopy—indications and contraindications; to be introduced by Drs. Killian of Freiburg, Kehler of Vienna, and Chevalier Jackson of Pittsburg, U.S.A. (3) The lymphatic apparatus of the nose and the naso-pharynx in relation to other bodies; to be opened by Drs. Broeckaert of Ghent, Poli of Genoa, and Logan Turner of Edinburgh. (4) The so-called naso-pharyngeal fibromata: the site and manner of their attachment and their treatment; to be opened by Drs. Jacques of Nancy and Hellat of St. Petersburg. All communications relative to the congress should be addressed to the secretary, Professor Rosenberg, 26 Schiffbauerdamm, Berlin, N.W.