carbolic acid in solution than water alone can do. The solution of carbolic acid in glycerine is passed to the bottom of the test-tube. It also gives a cloud but only after a long period, owing to the slowness of diffusion, and it also does not give such pronounced results as the alcoholic solution.

To determine the delicacy of the test I made up a solution of white of egg and proceeded to determine the amount of albumin per cubic centimetre (c.c.) by placing three cubic centimetres of the solution in a weighing bottle, evaporating to dryness at 180°F., placing the stopper in the bottle, cooling, momentarily removing the stopper, replacing it, and then weighing. Out of two estimations the first gave 0.0119 gramme of albumin per cubic centimetre of solution and the second gave 0.0121 gramme. Considering that the fluid was measured by a pipette the results are remarkably close and we may take the average, 0.0120 gramme, as representing the weight of albumin in each cubic centimetre of the solution which may be called solution A. One cubic centimetre of solution A was now added to 200 cubic centimetres of water and the mixture taken for testing with the various tests. I should mention here that the nitric acid test is commonly too carelessly done. I use a slender one cubic centimetre pipette to take up the nitric acid. The outside of the pipette is then wiped and the nitric acid is passed to the bottom of the test-tube containing the albuminous fluid. After delivery the upper end of the pipette is again closed by the finger to prevent admixture of the fluids during withdrawal and the pipette is withdrawn. The results of the first series of tests were as follows:—Heat test: Could not affirm presence of albumin by this test. Picric acid test: Clear by transmitted light; slight impairment of clearness by reflected light with the tube held against a dark background. Nitric acid test: Ring developed after an interval. Carbolic acid test: Milkiness in upper part of the tube; slight deposit of albumin finally.

The next series of tests were done with a mixture containing one cubic centimetre of solution A to 400 cubic centimetres of water with the result that the picric acid fell out of the competition. Continuing the tests I have found that, after allowing the tubes to lie for a considerable interval, both nitric acid and carbolic acid showed the presence of albumin in a mixture containing one cubic centimetre of solution A to 1000 cubic centimetres of water. Since one cubic centimetre of solution A contained 0.0120 gramme of albumin, dried at 180°F., each cubic centimetre of the last mixture contained only 0.000012 gramme of albumin. This result brings out in a striking manner the great delicacy both of the nitric acid test and of the test by solution of carbolic acid in absolute alcohol. The result works out at 0.0053 grain per ounce. Hence when a mere trace of albumin is found in the urine the amount of albumin (dried at 180°F.) lost per diem on a 50-ounce excretion of urine is only 0.265 grain, or rather less than one-third of a grain. The figures emphasise the fact that the anæmia accompanying cases of chronic interstitial nephritis is not at all dependent on loss of albumin, but rather on the ill-health following circulatory, alimentary, and nervous disorders. One cubic centimetre of solution A to 40 cubic centimetres of water gives a mixture which shows a pronounced milkiness on the application of the heat test, followed by considerable deposit of albumin. Yet even in such a case the patient would lose only 6½ grains of albumin (dried at 180°F.) per diem on an excretion of 50 ounces of urine.

As regards the fallacies of the test I have as yet found none which were not attributable to careless manipulation. Mucin may be precipitated by alcohol but I have had no trouble owing to its precipitation yet. I clear the urine, preferably by filtering, and it may be remarked in this connexion that the best Swedish filtering paper, such as is used for quantitative work, clears urine which a cheaper paper would allow to pass through cloudy. Another point worthy of mention is that cooling for a few moments, as, for example, by playing an ether spray on the upper part of the outside of the containing vessel, will often bring down a cloud of urates before filtering and is besides instructive as regards the degree of saturation of the fluid. In both the nitric acid and the carbolic acid tests the urine should be diluted to about specific gravity 1010. The proved delicacy of these tests allows plenty of margin for dilution and if after dilution no albumin be found its presence is in my opinion negligible. Indeed, I have found albumin present in small quantities in the urine of such a

large proportion of my patients that I am coming to regard its presence merely as a warning to me to make a careful examination and a guarded diagnosis. If the urine were always diluted before applying the nitric acid test the fallacies of that test would probably disappear. In the case of the carbolic acid test it is important that the fluid tested should not have too high a specific gravity since in that case the interchange between the alcoholic layer and the fluid tested is too slow. The dilution may be continued to a specific gravity below 1010 without affecting the result much if such a course be wished. In conclusion, I may state that since my investigations I can speak with certainty as to the presence or absence of albumin, whereas before I had undertaken them I would not like to have certified in certain cases.

Glasgow.

A Mirror

OF

HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ST. MARY'S HOSPITAL.

A CASE OF STRANGULATION OF THE VERMIFORM APPENDIX
IN THE SAC OF A FEMORAL HERNIA;
OPERATION; RECOVERY.

(Under the care of Mr. EDMUND OWEN.)

THE vermiform appendix not rarely is found in the sac of an inguinal hernia and is generally accompanied by other portions of the bowel. It is decidedly exceptional to meet with it in a femoral sac and it is extremely rare to meet with it as the sole occupant of such a sac. The two cases recorded below, one of which occurred in the practice of St. Mary's Hospital and the other in that of St. Thomas's Hospital, are well-marked examples of this condition and very few other cases are to be met with in surgical literature. J. Langton¹ had a case in which perforation of the included appendix had occurred into the sac; Keetley² describes a case in which there were symptoms of strangulation and the only organ found in the sac was the appendix. W. H. A. Jacobson³ met with one case but no symptoms of strangulation were present. W. McAdam Eccles⁴ showed a specimen illustrating this variety of hernia; the patient had died after perforation of a carcinomatous ulcer of the stomach. G. P. Newbolt has recorded a case⁵ in which some obscure abdominal symptoms were present and he quotes a similar case recorded by Annandale. L. A. Bidwell has met with two cases of this rare condition⁶; in both of these the herniated viscus was returned after Gimbernat's ligament had been notched, and the patients did well; in neither case had there been any symptoms of strangulation. In all these cases, as well as in the two recorded below, the appendix vermiformis was the sole occupant of the sac of a femoral hernia. In a few cases there have been some symptoms suggesting intestinal obstruction, but they have been indefinite, and in most of the cases no severe symptoms were present but there was an irreducible femoral hernia. It has been suggested by W. McAdam Eccles⁷ that in cases where the appendix is said to be strangulated the symptoms are really due to inflammation precisely analogous to that which occurs when the appendix is in its normal position. This may be so in some cases, but in many of the instances quoted the process was so firmly fixed at the crural ring that it was necessary to nick Gimbernat's ligament before it could be returned. For the notes of the case at St. Mary's Hospital we are indebted to Mr. P. G. A. Bott.

¹ St. Bartholomew's Hospital Reports, vol. xxvii., p. 179.

² Medical Press, 1890, p. 85.

³ Operations of Surgery, third edition, p. 637.

⁴ Transactions of the Pathological Society of London, 1897, vol. xlviii., p. 87.

⁵ Brit. Med. Jour., vol. i., 1897, p. 731.

⁶ Transactions of the Clinical Society of London, vol. xxx., p. 186.

⁷ Loc. cit.

A widow, 65 years of age, was admitted into St. Mary's Hospital on Feb. 20th, 1899, complaining of a painful swelling in the right groin. It had appeared about a fortnight previously and had slowly increased in size; at first it had not caused her much pain except on pressure or on coughing, but for the few days immediately preceding admission it had caused her considerable distress. The bowels had acted regularly and she had not suffered from any vomiting. In the right groin there was a large, irregular, flat swelling, measuring about five inches by four inches; it extended from the upper part of the saphenous opening to about three inches above Poupart's ligament, and from the middle line outwards for about four inches along that ligament; downwards and inwards it extended to the right labium majus. The mass was hard, but in its deeper parts some fluctuation was apparently discernible. The patient looked very ill and she was taken at once to the theatre. Mr. Owen said that he did not know what the nature of the swelling might be, but that it was obviously necessary to explore it; he was inclined to think that it was a case of supuration of the inguinal glands. A deep incision was made into the swelling and an abscess was opened and the contents were cleared out. At the bottom of the abscess cavity a dusky swollen body was seen of about the size of the end of a finger. This proved to be the vermiform process which was strangulated at the femoral ring. Adhesions had formed between the herniated appendix and the neck of the sac, so Mr. Owen gently drew down the process and having tied it close above the constricted portion he removed the swollen and sloughy end. He then cleansed the abscess cavity and stuffed it with perchloride of mercury gauze. The patient made a good recovery.

Remarks by Mr. OWEN.—I have on several occasions met with a herniated vermiform process in an inguinal sac, especially in operations upon children; but so far as I remember I have never before encountered one in a femoral hernia. Certainly I have never operated in a case in which a strangulated process was the sole occupant of the sac of a femoral hernia. I think such instances must be very rare.

ST. THOMAS'S HOSPITAL.

A CASE OF IRREDUCIBLE FEMORAL HERNIA CONTAINING THE VERMIFORM APPENDIX; OPERATION; RECOVERY.

(Under the care of Mr. W. H. BATTLE.)

THE second case illustrating this rare condition occurred in the practice of St. Thomas's Hospital.

A married woman, aged 59 years, was admitted into St. Thomas's Hospital on Dec. 16th, 1898. She had noticed a swelling in the right groin five years ago; it had appeared rather suddenly and had been very painful. After a fortnight in bed at home she was sent to a London hospital, where she was kept for three weeks. Ultimately the swelling went away and she had no further trouble until about 10 days before admission when she found that there was again a swelling with pain in the groin. She could not account for this as there had been no strain or injury. The swelling had been painful but she had not suffered from vomiting or from constipation. The swelling was situated in the femoral region; it was irreducible and tender on pressure. It was somewhat egg-shaped, was fixed to the deeper parts, and had an irregular nodular surface. No fluctuation could be obtained, neither was there any impulse on coughing. Deep pressure in the right iliac region caused a sensation of dragging in the swelling. It was not adherent to the skin. By the 21st, on which day the operation was performed, the swelling had diminished somewhat in size but otherwise was unaltered. The temperature had been normal. A longitudinal incision over the position of the femoral opening showed several enlarged and inflamed glands, but there was still a matted swelling over the femoral canal. This was separated on the inner side and an incision made into it. The peritoneum was soon exposed and further dissection showed the sac to be occupied by the appendix vermiformis and the meso-appendix. The end of the appendix was lost in the inflammatory tissues at the base of the sac. The meso-appendix was ligatured and the appendix was removed by the "coat-sleeve" method. The stump was returned into the abdomen. It was not possible to separate the sac from the surrounding parts, so it was cut off and the opening closed with silk sutures. The stump was then pushed into the ring and the fascia over the pectineus muscle was sutured to Poupart's

ligament. The wound was then closed without drainage. The crural ring was small. There was no concretion in the appendix, which presented evidences of chronic catarrh. On Dec. 25th the stitches were removed and on Jan. 9th, 1899, the wound had quite closed. On Jan. 15th she left the hospital.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

Congenital Tubercle in Calves.—*Phagocytosis of Red Corpuscles*—*Chromocytic Clumping in Acute Rheumatism.*—*Diphtheritic Paralysis.*—*Myeloid Tumour of the Neck.*—*Tuberculous Ulcers of the Stomach.*—*Exhibition of Specimens.*

A MEETING of this society was held on May 2nd, the President, Dr. PAYNE, being in the chair.

Professor J. MCFADYEAN showed specimens of Congenital Tubercle from Calves. He observed that the occurrence of tubercle in calves of tuberculous cows was by no means frequent, the highest estimate being 1 in 3000. Actual congenital tubercle was extremely rare. He had only seen three cases since 1896, although he had offered a reward to any meat inspector who should send him one. In the first there was extensive tuberculous disease of the uterus of the parent. In the other two the uterus was not sent to him. Specimens were shown: 1. From a calf a day old in which there were numerous tubercles in the liver and scattered tubercles in the spleen and lungs and also in the heart. Tubercle bacilli were found in several of the lesions which presented the characteristic microscopic appearance of tubercle in cattle. A few of the caseous masses were partly calcified at the centre. 2. From a calf a week old. The parent cow had a tuberculous lung. The liver was riddled with caseous masses and the hepatic glands were caseous. There were numerous tubercles in the spleen and a few in the kidneys. There was little tubercle in the lungs. The escape of the serous membranes and the affection of the spleen were quite contrary to that obtained in adult oxen, tubercle of the spleen in those animals being almost unknown. Professor McFadyean thought that the infection was a blood infection and that it probably occurred in association with tuberculous mastitis.

Dr. F. W. ANDREWES showed Pus from an Injured Knee-joint exhibiting Phagocytosis of Extravasated Red Blood Corpuscles by Leucocytes. Seven days after an injury to the knee-joint acute arthritis set in and the joint was aspirated several times, synovia mixed with blood and pus being withdrawn. The patient ultimately recovered without loss of mobility in the joint. The pus-cells from the fluid removed were large and showed numerous included red corpuscles, especially in the fluid removed at the second aspiration. No organisms could be demonstrated either microscopically or by culture. The blood had probably been effused into the joint at the time of the accident and, acting as an irritant, was removed by phagocytosis. The fluid was a poor soil for bacterial growth when tested in the laboratory, remaining undecomposed for several weeks. But it was not actually bactericidal, as the anthrax bacillus and other organisms grew in it when it was intentionally inoculated. Chemically the fluid contained a large amount of nucleo-proteid.—Mr. RAYMOND JOHNSON asked if there had been sufficient interval of time before the fluid was drawn off for the organisms to have died. He mentioned a case of osteo-myelitis which had been left without the abscess being opened during the acute stage. When it was opened some days later the pus was discovered to be sterile.—Dr. ANDREWES, in reply, said that he had also seen a case of acute periostitis in which the pus was sterile on culture but in which the organisms could be seen in stained films. In the present case, however, no organisms could be found on staining. The first aspiration was performed four days after the onset of the arthritis.

Mr. S. G. SHATTOCK had on a previous occasion drawn attention to the action of the blood serum in acute pneumonia upon normal blood, the admixture as studied by means of the hanging drop leading to a highly exaggerated rouleaux-formation and massing or clumping of the red discs or chromocytes. He had on applying the same method obtained similar chromocytic clumping in normal