The abdominal pain was less severe. On the 5th he had passed a restless night and had vomited. The face was sallow and the eyes were sunken in appearance. There were now marked swelling and rigidity of the abdominal wall, particularly in the upper part. The patient did not consider himself seriously ill and had been able to read the newspaper with interest. I saw him at about 11 A.M.; his appearance was as above. The abdomen was distended moderately and did not move well with respiration but there were very little tenderness and no specially tender spot. The intestinal coils were not visible. The percussion note was tympanitic and the liver dulness was absent. Rectal examination revealed an ill-defined resistance in front of the bowel and pressure on this place caused a good deal of pain. The temperature was 101° and the pulse was 96 and regular. A diagnosis was made of peritonitis, the result of perforation of a hollow viscus (probably the stomach).

Operation was performed at 5 P.M., 52 hours after perforation, Mr. F. W. Rawson, who had seen the case in consultation, kindly assisting. Chloroform and ether mixture was administered by Mr. McGee. The peritoneal cavity was opened above the umbilicus and free gas at once escaped. The distended and inflamed intestines made manipulation rather difficult and it was a little time before the perforation was found near the pylorus. It was a small aperture of the size of a No. 7 catheter but was surrounded by a considerable extent of indurated tissue. The part of the stomach involved was bound down by adhesions and was at a considerable depth from the surface. It was very difficult to put stitches in position with a view of closing the perforation and they at once cut out when tightened so no prolonged attempt at suture was made. The region of the ulcer was packed with cyanide gauze which was brought up to the surface through a rubber tube. There was a large amount of purulent fluid all over the peritoneal cavity and it formed a considerable collection in the pelvis. A small incision was made above the pubes and another in the right loin. Tubes were passed through these openings and the peritoneal cavity was washed out with a large quantity of hot saline solution. The wound was closed with mass sutures of silkworm gut. The patient made a good recovery though the temperature did not reach the normal level till the fourteenth day, which led us to fear that there might be some pocket of pus still remaining. I saw him at the end of October looking well and quite free from indigestion.

The case is of interest from the length of time that elapsed between the perforation and operation. The peritonitis was quite general but the virulence of the infection must have been rather low. It also shows that if efficient drainage be provided it is by no means necessary to make a watertight closure in a case of perforated ulcer.

Bradford, Yorks.

NOTES ON A FEW CASES OF TRYPANOSOMIASIS IN MAN.

BY G. C. CHATTERJEE,

ASSISTANT BACTERIOLOGIST, MEDICAL COLLEGE, CALCUTTA.

OF the cases which are the subject of this paper one was observed so far back as 1894 by Major F. J. Drury, I.M.S., while professor of pathology in the Calcutta Medical College. The sections of the liver of this case showed peculiar bodies which attracted his attention but the nature of which was not determined till the appearance of a paper on tropical sore by Wright¹ in December, 1903, in which sections were shown containing numerous parasitic bodies inside the cells indistinguishable from those seen in the section of the liver, and of the paper on the Leishman-Donovan body by Manson and Low² in January, 1904. Since then several cases came under observation in which the Leishman-Donovan bodies were found by spleen puncture during life and in two of which post-mortem examination of the organs showed the parasites. In 12 of the cases the parasites contained in the blood obtained by spleen puncture were cultivated after the

method of Captain L. Rogers, I.M.S.,³ results of which will be communicated later. The following are the short notes of the cases.

CASE 1.—The patient, a Hindoo male, aged 20 years, was admitted into the Calcutta Medical College Hospital on August 10th, 1894, for remittent fever and enteritis. The fever was of continued type and the temperature varied from 100° to 103° F. He had diarrhoea and passed six or seven watery stools during the 24 hours. The liver was enlarged and was half an inch below the costal arch. The spleen reached below the umbilicus. The condition of the patient was very bad. He died on the third day of admission. Post-mortem examination showed that the liver was dark in colour, the lobules being distinctly darker in the centre than the periphery. The spleen was firm in consistence and weighed one pound six ounces. The small intestine was congested throughout. The mucous membrane of the large intestine was swollen and injected and ulcerated. Section of the liver showed clumps of peculiar bodies inside the liver cells which took the hæmatoxylin stain readily. Their number, uniform size, and staining characters attracted the attention of Major Drury but their true nature was not then determined. They were afterwards made out to be Leishman-Donovan bodies as stated before. Their appearance was like those seen inside the cells of the bone marrow of the next case shown in the accompanying diagram.

CASE 2.—The patient, a Hindoo male, aged 30 years, was admitted into the Calcutta Medical College Hospital on Jan. 26th, 1904. The fever was of the continued type, the temperature varying from 100° to 102° F. A few rhonchi were heard in front of the chest. He was also suffering from dysentery. The liver was not enlarged. The spleen reached down to the umbilicus. He died on Feb. 1st. The post-mortem examination showed that the liver was normal in size but distinctly fatty. The spleen was large, dark grey in colour, and flabby; numerous adhesions were found on section. The spleen substance was soft and of a dark colour. The brain was markedly pigmented over the membranes covering the medulla and pons. There was no pigmentation in the substance of the brain. The marrow of the tibia was dark red in colour, firm in consistence, and did not feel greasy. Sections of certain organs were examined under the microscope. In the liver there was marked

Magnification 1200. It shows the section of bone marrow of Case 2. *b, b, b* are the Leishman-Donovan bodies situated inside white corpuscles; *a* shows Leishman-Donovan bodies inside a non-nucleated faintly stained elongated body; *c* shows free parasites. The section was stained with thionin blue and eosin.

fatty degeneration of the liver cells; they also contained a good deal of pigment particles; besides these there were present inside the cells clumps of Leishman-Donovan bodies. No free parasites were found. In the spleen there was a good deal of pigmentation, the pigment being in large clumps and black in colour. Outside the

¹ Wright: Protozoa in a Case of Tropical Ulcer (Delhi Sore), Journal of Medical Research, vol. x., No. 3 (new series vol. v., No. 3), December, 1903.

² Manson and Low: The Leishman-Donovan Body and Tropical Splenomegaly, Brit. Med. Jour., Jan. 23rd, 1904.

³ THE LANCET, August 27th, 1904, p. 614.

cells numerous Leishman-Donovan bodies were found in large branching vacuolated cells (the macrophages). No free parasites could be distinctly made out. The bone marrow (of the tibia) showed the greatest number of the parasites (see the accompanying diagram); in fact, it was studded with them. On account of the comparative absence of the cellular elements the arrangement and position of parasites could be clearly made out. They were situated mostly in the intervening spaces between two fat cells. They were found in clumps which were of elongated shape. These clumps were made out on closer inspection to be situated inside a faintly stained area and were elongated in shape and apparently possessed no nucleus. The nature of these faintly stained bodies in which the parasites were found was difficult to make out; they were evidently not leucocytes or red corpuscles. Similar bodies (but containing a nucleus) have been found by Christophers¹ in sections of liver of a Leishman-Donovan case. These suggested to him the appearance of an amœba. The parasites were also found in mononuclear leucocytes. Besides several unmistakable free ones were found in the section of the bone marrow. Sections of the brain, intestine, and kidney failed to show any Leishman-Donovan body, though carefully looked for.

CASE 3.—The patient, a Hindoo male, aged 26 years, was admitted into the Calcutta Medical College Hospital for malaria cachexia and broncho-pneumonia on July 31st, 1904. He suffered from intermittent fever for one month nine months previously. The fever used to come on with ague. For the last three months he had suffered from slight fever in the afternoon, accompanied with cough. At the time of admission he had general anasarca and was markedly anæmic. The spleen was two fingers' breadth below the costal arch. Both bases of the lungs were slightly dull on percussion. The skin was slightly pigmented. The patient died from general anasarca on August 8th. Smear preparations from the spleen showed numerous Leishman-Donovan bodies, so also did smear preparations from the bone marrow and the liver. None were found in the smears from the intestine, the mesenteric glands, the lungs, and the brain. Sections of the organs (spleen, liver, and bone marrow) did not show so many parasites as in Case 2 (probably on account of the decomposing state of organs when removed) but they were found in all the three organs.

It is to be noted that the sections were stained for the presence of Leishman-Donovan bodies by the following method. The tissue was imbedded quickly in paraffin and the sections were mounted on slides by floating on hot water. The paraffin was dissolved by xylol, then alcohol was added, then stained with carbol-thionin for one hour, and then washed in water. After being dehydrated by means of blotting paper xylol was poured over the sections till cleared and then mounted. I tried the method of Christophers published in a recent number of "Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India" and of Leishman (by adding fresh blood serum) but the methods are not so uniformly successful as in the above method.

CASE 4.—The patient, a Hindoo male, aged 40 years, gave a history that three of his family had died from fever with enlargement of the spleen (diagnosed as kala-azar). He had been suffering from fever for six months. There was daily exacerbation of fever twice during the 24 hours. The spleen was below the costal arch. The patient was anæmic. A blood count gave the following results: red corpuscles, 2,500,000 per cubic millimetre; white corpuscles, 1500 per cubic millimetre; and hæmoglobin 55 per cent. Smear preparations of the blood obtained by spleen puncture showed no Leishman-Donovan bodies. The blood was incubated after the method of Captain Rogers; on the third day a few Leishman-Donovan bodies were found. (This case, as also the following one, was kindly allowed to be published by Dr. Sundari Mohon Dass, under whose care the patient was.)

CASE 5.—The patient was a boy, aged eight years, who had been suffering from continued fever for three months. The spleen was two inches below the umbilicus. The spleen punctures showed numerous Leishman-Donovan bodies. The parasites were cultivated, the result of which will be communicated later.

CASE 6.—The patient, a Mahomedan, aged 40 years, was

admitted into the Albert Victor Hospital, complaining of having suffered from fever for the last five months along with troublesome cough. The spleen was enlarged down to the umbilicus. There was some suspected right apical mischief (though no tubercle bacilli were found in the sputum). Spleen puncture showed numerous Leishman-Donovan bodies. A week later the spleen was punctured for the second time but very few parasites were found. A week later another puncture was made but no parasites were found.

CASE 7.—The patient, a Mahomedan, aged 30 years, had suffered from slight fever in the afternoon for over a year. The spleen reached to the left iliac fossa. A smear from the spleen blood (obtained by spleen puncture) showed numerous parasites.

CASE 8.—The patient, a girl, aged nine years, a Hindoo, had suffered from enlarged spleen and slight fever for over a year. Spleen puncture showed numerous parasites, while another girl, aged nine years, with a spleen larger than that of the patient in this case and suffering from slight fever for three months, showed numerous crescents and no Leishman-Donovan bodies.

CASE 9.—The patient, a boy, aged 16 years, had suffered from continued fever for eight months. At first he used to have ague every day. The spleen was enlarged below the umbilicus. The spleen blood showed numerous Leishman-Donovan bodies.

In bringing the paper to a conclusion I beg to offer my best thanks to Major Drury and to Captain Rogers of Calcutta Medical College.

Calcutta.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A NOTE ON A CASE OF SMALL-POX.

BY J. F. HODGSON, M.D. VICT., D.P.H.,
ASSISTANT MEDICAL OFFICER OF HEALTH OF HALIFAX.

THE following interesting case of small-pox in a child came under observation in the Halifax Small-pox Hospital.

The mother sickened on Oct. 27th, 1904, and the eruption of small-pox appeared on the 31st. She was admitted to the hospital on Nov. 1st and on the 4th after a normal labour she gave birth to a full-time child at 1 A.M. 12 hours afterwards the eruption, which up to this time had been of the moderately severe discrete type, became complicated by sub- and peri-vesicular hæmorrhages. Hæmaturia was first noticed on the 2nd. She died during the evening of the 4th. Although she was stated to have been successfully vaccinated in infancy there was no evidence of vaccination scars.

The child was vaccinated on the same day and on the 7th it was seen that all the four insertions had been successful. On the next day the entire skin was covered with a scarlatiniform rash and the small-pox eruption made its appearance during the evening. Fresh papules continued to come out during the next two days, so that by the 10th the whole body was abundantly and uniformly covered with them. No change was noticed in the papules until the 12th and then not more than half a dozen situated about the head had developed into vesicles, while by the 14th certainly not more than one-sixth of all the papules had become vesicular. The rest seemed to undergo no change. Up to this point the temperature had never been high; it reached 100·6° F. on the evening of the 11th and was normal afterwards. During the morning of the 14th the child had severe convulsions and later in the day blood was passed with the stools. The vesicles now became purple and the areolæ deep red in colour and death took place at 10.30 A.M. on the 15th. The scarlatiniform rash persisted to the end. The vaccination followed a normal course until the thirteenth day, when the vesicles coalesced, began to extend, and showed no tendency to evolution.

The eruption appeared on the child four days after birth—that is, eight days after the appearance of the eruption on the mother and 12 days after the mother began to sicken.

¹ Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India, No. 8, 1904, A Preliminary Report on a Parasite found in Persons Suffering from Enlargement of the Spleen in India, by Lieutenant S. R. Christophers.