"LEISHMANIA DONOVANI" IN THE SOUDAN.

BY SHEFFIELD NEAVE, M.R.C.P.,
Khartoum.

THE following instance of *Leishmania donovani* found by me at the Omdurman Civil Hospital is, I believe, the first case found in Africa except that occurring in Tunis on November 3rd last, and reported by M. Laveran. The case was under the control of Dr. J. B. Christopherson, and it is by his kind permission that I publish this account.

On March 19th I examined H. B., a boy aged about 8 or 9 years, who had just been moved from the hospital at Khartoum as a matter of convenience. He had come from Mesharareck in the Bahr-el-Gazal, some 800 miles up the river, to be treated for chronic diarrhoea, and had recovered from this, but had a daily rise of temperature, usually remitting to normal, and commonly rising to 101° at night. This has continued till the time of writing. He was very emaciated, and his spleen was enlarged down to the level of the navel, but well to the left of it. The glands in both axillae and groins were also enlarged. Subject to the above, there were no abnormal signs or symptoms; he complained of no pain, and expressed himself contented with his lot.

Examination of the blood showed no malarial parasite either in the splenic or peripheral blood, but the former was full of *Leishmania donovani*. At the time I had unfortunately broken my haemocytometer, and had to put off a corpuscle count until April 9th, when the following was the result:

Erythrocytes ...	4,2COCOO.
Leucocytes ...	3000.
Large mononuclears	67 per cent.
Small mononuclears	11 per cent.
Polynuclears	20 per cent.
Eosinophile	1 per cent.
Myelocyies	1 per cent.
	100 per cent.

The enormous percentage of large mononuclears points to malaria, but no parasite of any kind was found, possibly owing to the quinine he had been taking.

On April 14th I communicated the discovery to Dr. A. Balfour, when visiting his Gordon College laboratories. He deemed it of much more importance than Dr. Christopherson and myself. He agreed with the identification, and at once telegraphed to Major Ross (who, it appears, had already instigated a search for this organism here), and it was through his kindness that I was enabled to inject some of the spleen blood into the vein of a rabbit, under the the skin of another, and into the spleen of a monkey, as well as to inoculate a number of media, with however, so far, negative results.

The history given by the mother is that the spleen began to enlarge while the boy was being suckled, but never gave any trouble. This may have some connexion with the fact that the case described by M. Laveran was a baby aged 7 months, and I would suggest that children may prove a happy hunting ground for this organism. If this proves to be the case it would appear to dispose of some present theories of origin.

The cerebro-spinal fluid was examined for trypanosomata, but found sterile. The urine was centrifugalized, but nothing abnormal found, nor did it contain albumen.

When separate the individual units appear to have a somewhat oval form, something like a grain of wheat, and to contain a nucleus and a small rod-like body. They may, apparently, be of very varied size, the largest about one-half the size of an average red corpuscle. They occur singly, or may simply be contiguous in two's or three's, or, again, aggregated in large number without arrangement while imbedded in some adhesive reticular material. Further, they may appear to be collected in a spherical envelope often about the size of a large white corpuscle, but some also larger and some smaller; in this variety there are often spaces as if individuals had dropped out. Phagocytosis may be observed on the part of the leucocytes, which may be seen to have enclosed many of the bodies.

These bodies stain purple or violet with the Leishman stain I have been using, apparently affecting both the tints. If even a small quantity of water is mixed with the blood, or if it is received into the citrate solution to prevent coagulation, the bodies appear to disintegrate, all their parts being rendered indistinct and somewhat disconnected, which would tend to show that the next step in their life-history was not at any rate extracorporeal, and that they do not escape by the urine. With the view of possibly discovering another phase in the life-history of the organism, about 60 c.cm. of blood were dropped without mixing into sterile broth, and the clot allowed to stand for twenty-four hours, but in this case none of the bodies nor anything else abnormal were seen on examination.

A gland was excised from the groin, and some smears made, but nothing abnormal was found; sections have not yet been made.

NOTE ON THE LYMPHATIC GLANDS IN SLEEPING SICKNESS.

BY
CAPTAIN E. D. W. GREIG, I.M.S., and LIEUT. A. C. H. GRAY, R.A.M.C.

[*Communicated to the Royal Society by* Colonel BRUCE, F.R.S., *at the desire of the Sleeping Sickness Commission. Received and read May 5th, 1904.*]

CAPTAIN GREIG, in a letter dated March 17th, 1904, writes that, following a suggestion of Dr. Mott, they have examined the contents of lymphatic glands during life from fifteen sleeping sickness patients. In all of them actively motile trypanosomes were very readily found in cover-glass preparations taken from the cervical glands. They were also present in other glands such as the femoral, but were not nearly so numerous.

They found the trypanosomes to be far more numerous in the glands than in the blood or cerebro-spinal fluid, and believe that the examination of fluid removed from lymphatic glands will prove to be a much more rapid and satisfactory method of diagnosing early cases of sleeping sickness than the examination of the blood.

At first the glands were excised, but this was soon found to be unnecessary, as it is easy to puncture a superficial gland with a hypodermic syringe and suck up some of the juice into the needle and blow this out on a slide. The actively moving trypanosomes were readily found after a short search in these slides, when a prolonged search in similar preparations of the blood from the finger failed to discover them. In stained specimens, in addition to well-formed trypanosomes, there exist many broken-down remains which suggests that a destruction of the trypanosomes takes place in the glands.

The authors also examined the cervical lymphatic glands of the five natives suffering from trypanosomiasis who have been under observation for the past year, and found actively motile trypanosomes in the liquid withdrawn from the glands in all of them. Tabula, one of these patients, is employed in the hospital, and the dispenser reports he is getting very stupid.

The lymphatic glands were also examined for streptococci by staining and culture, but in every case were found to be sterile. Some of the cases, the glands from which were examined for streptococci, were very far advanced. The streptococcus invasion must, in the opinion of the authors, be a very late one, and only occur shortly before death.

Observations made upon the blood showed a constant increase in the percentage of lymphocytes, but the total leucocytes are not increased. The authors consider that these observations throw a new light upon the glandular enlargements which have been so constantly noticed in sleeping sickness, and that the disease is essentially a polyadenitis brought about by the arrest of the trypanosomes in the glands where many of them are destroyed, but whence some escape from time to time into the blood stream, and thus occasion the increase which has been observed in the peripheral circulation.

They regard their observations upon the presence of trypanosomes in number in the lymphatic glands of both early cases of trypanosomiasis and advanced cases of sleeping sickness, as affording important evidence of the unity of these diseases, and further proof that the trypanosomes are the essential cause of sleeping sickness.

THE Marquis of Salisbury will take the chair at the forty-fourth annual dinner of King's College, London, which will be held at the Hôtel Cecil on Monday, June 20th.

THE Post-Graduate College and Past and Present West London Hospital dinner will take place at the Empire Rooms, Trocadero Restaurant, Piccadilly Circus, W., on Saturday, June 25th, when the chair will be taken by Dr. J. Barry Ball at 7.30 p.m.