

The Experimental Transmission of Goitre from Man to Animals.

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(Communicated by Major Ronald Ross, C.B., F.R.S. Received May 3,—Read June 1, 1911.)

[PLATE 1*.]

Experiments had repeatedly been carried out on dogs to test the assumption that goitre could be conveyed from man to animals by faecal infection of the water supply, but with negative results. In the present experiments female goats were employed. The drinking water supplied to these goats was fouled by passing through a specially constructed box, which contained sterilised soil mixed with the faeces of goitrous individuals. In the case of one batch of six goats, only this water was consumed. In the case of another batch of seven goats the box above referred to contained, in addition to the sterilised soil and faeces, 500 earthworms. These were added on the assumption that they might act as intermediate hosts to the infecting agent of the disease. The goats consumed this highly polluted water for 64 days, from October 13 to December 15, 1910. The results observed were (1) a loss of weight, due doubtless to confinement in a small hut for the 64 days of the experiment; (2) that many of them suffered from diarrhoea; and (3) that 50 per cent. of the animals showed enlargements of the thyroid gland, most marked on the right side. The thyroids of three control goats showed no alteration in size.

The enlargement of the thyroid was observed to fluctuate in size considerably, a fact which had previously been noted in the case of experimentally produced goitre in man. The average weight of the normal thyroid of the goat in Gilgit is 1/10,000 part of the body weight. The enlarged glands of the goats in the experiment were found to weigh from 1/4,272 to 1/7,000 part of the body weight. In both batches drinking fouled water the results observed were the same.

Microscopical examination of the enlarged organs showed varying degrees of dilatation of the vesicles, scarcity or almost complete disappearance of the masses of cells lying between the vesicles, while no alterations were observed to have taken place in the connective tissue stroma of the enlarged glands. The hypertrophy was due wholly to distension of the vesicle with colloid, and the formation of new vesicles from the intravesicular masses of cells. It is concluded that—

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(1) An hypertrophy of the thyroid gland of goats can be induced by infecting the water supply with the fæces of sufferers from goitre. It is at present impossible to state whether this hypertrophy is due to the action of the infecting agent of goitre, or only to the organic impurity of the water thus contaminated.

(2) Earthworms do not appear to be concerned in the spread of goitre.

(3) The microscopical appearances described are the earliest stages in the formation of parenchymatous goitre.

The microphotographs (Plate 1*) illustrate the appearances seen under a magnification of 100 diameters. Fig. 1 shows the normal appearance of the thyroid gland of a goat. Fig. 2 shows the artificially produced parenchymatous goitre.

The Pathogenic Agent in a Case of Human Trypanosomiasis in Nyasaland.

By HUGH S. STANNUS and WARRINGTON YORKE.

(Communicated by Major R. Ross, F.R.S. Received May 3,—Read June 1, 1911.)

[PLATE 2.]

Up to the time of writing, nearly 40 cases of trypanosomiasis have been discovered in Nyasaland, whereas *Glossina palpalis*, notwithstanding much careful searching, has not, as yet, been found in the Protectorate. In view of this fact and also of the observation that the trypanosome derived from a case of Sleeping Sickness contracted in North-East Rhodesia has been shown to present certain peculiarities both morphological* and also regarding its pathogenicity† in experimental animals, it appeared to us desirable to examine in some detail the parasite derived from a case of human trypanosomiasis infected in Nyasaland. The trypanosome to which this paper refers was obtained from the blood of Mr. R., Case 12 in the Nyasaland Sleeping Sickness Diary.

The following is a short summary of the history of this case:—Patient

* Stephens and Fantham, "On the Peculiar Morphology of a Trypanosome from a Case of Sleeping Sickness and the Possibility of its being a New Species (*T. rhodesiense*)," 'Roy. Soc. Proc.,' 1910, B, vol. 83, p. 28.

† Yorke, W., "On the Pathogenicity of a Trypanosome from a Case of Sleeping Sickness Contracted in Rhodesia," 'Annals of Tropical Medicine,' 1910, vol. 4.

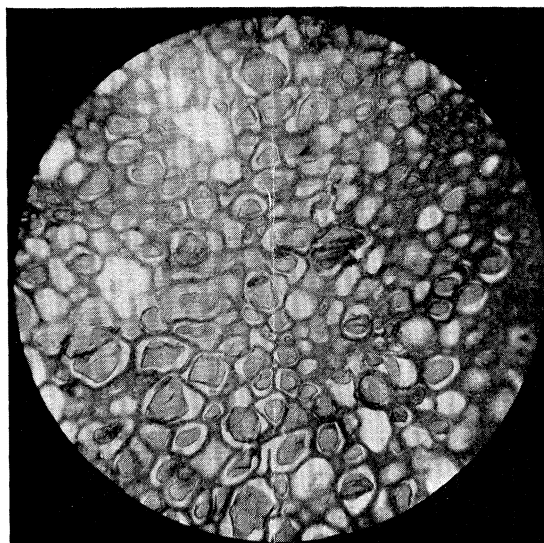


FIG. 1.

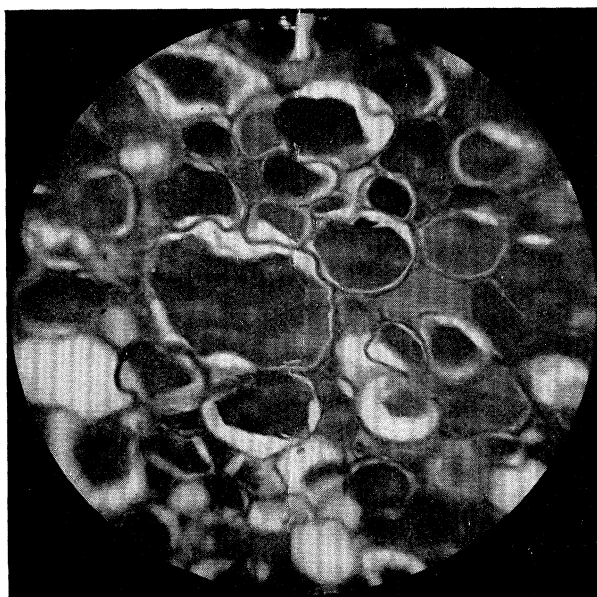


FIG. 2.

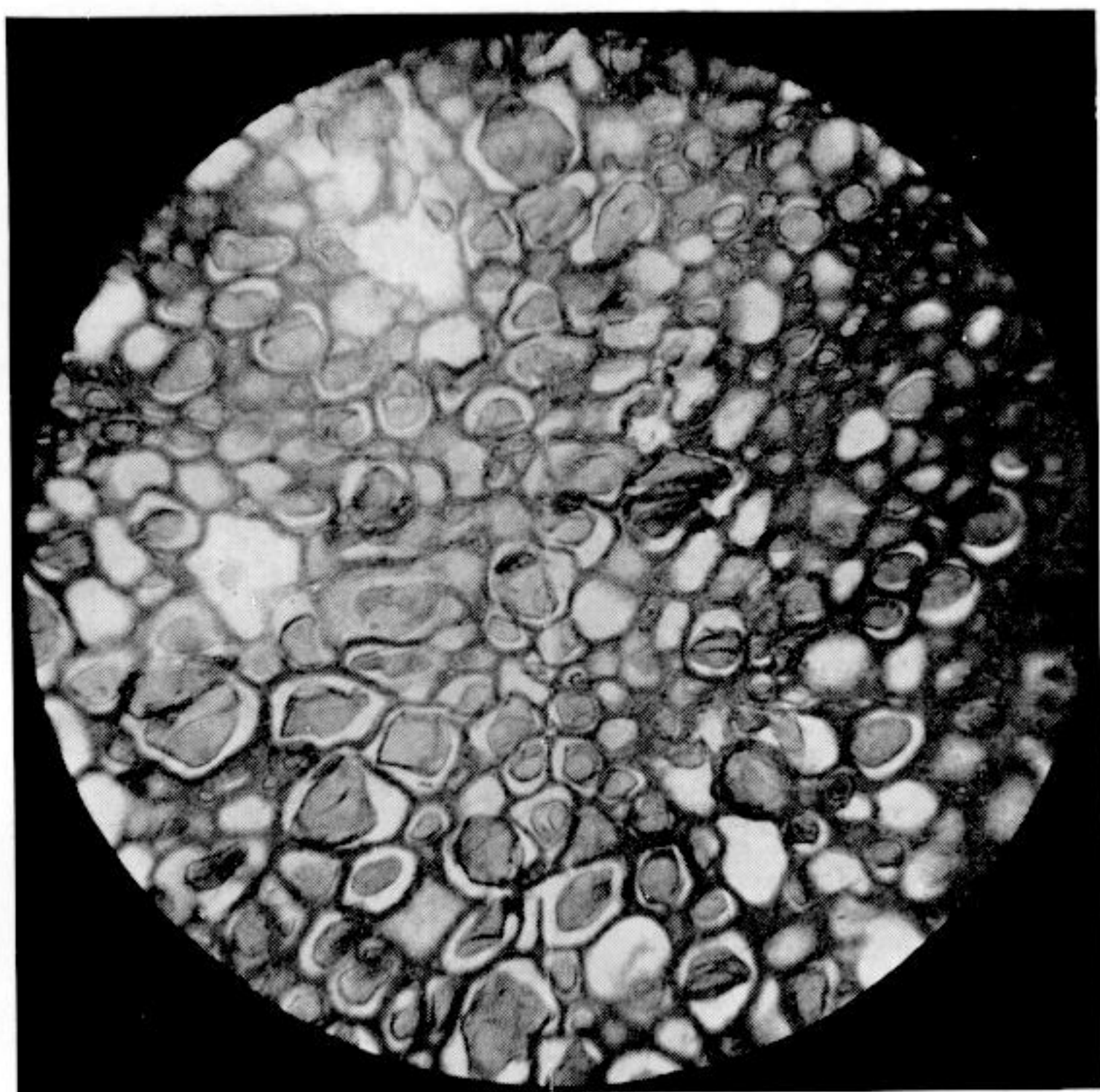


FIG. 1.

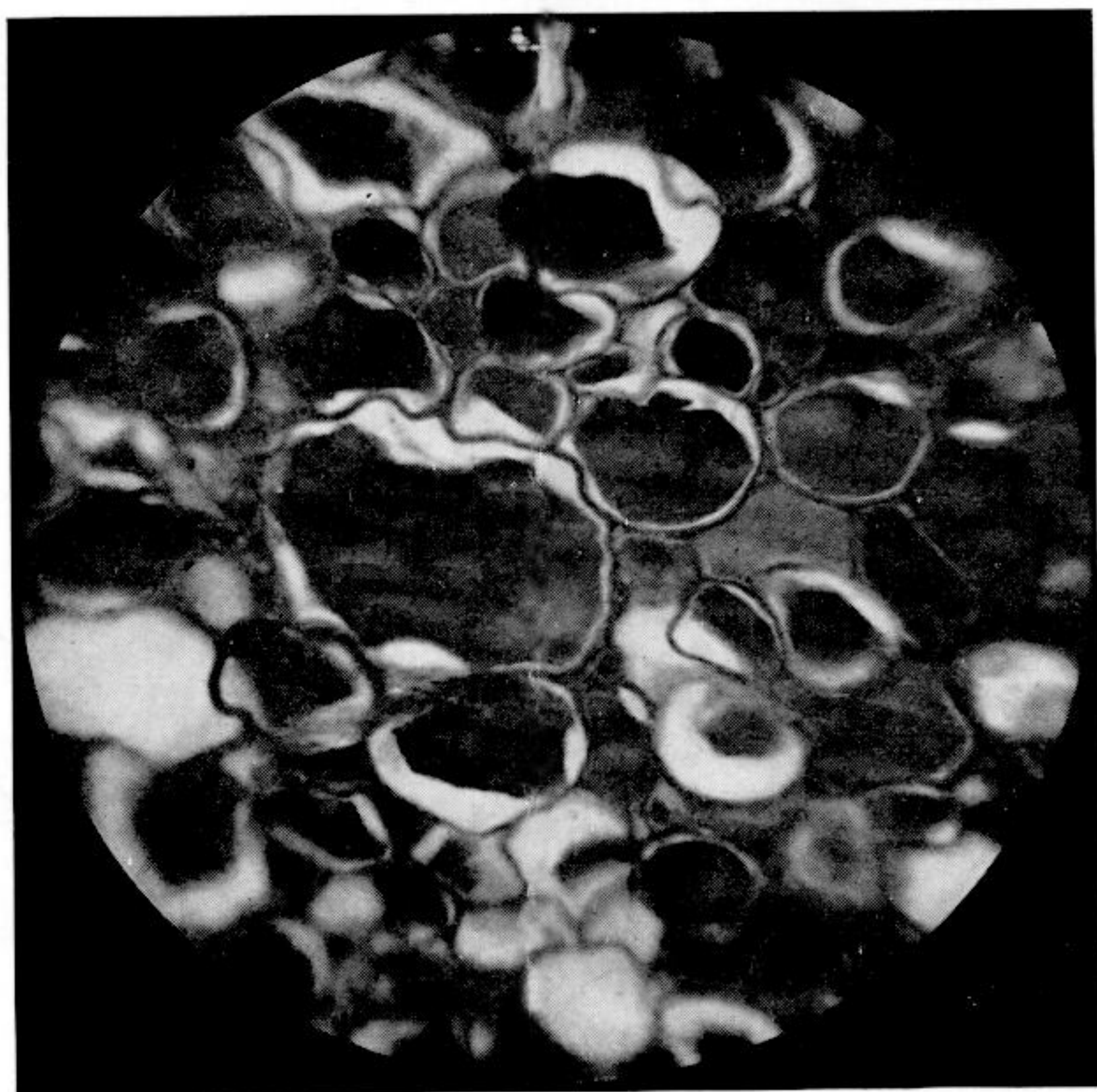


FIG. 2.