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**Successful canine infection with cultures of *Leishmania infantum* (Ch. Nicolle).**By **F. G. NOVY.**

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By the collective term *Leishmaniasis* we may designate three apparently distinct diseases (1) Kala-azar or tropical splenomegaly of India and the East; (2) Oriental sore, otherwise known as Delhi, Biskra, Aleppo, etc., boil; and (3) infantile splenic anemia. These are characterized by the presence of peculiar intracellular parasites commonly known as the Leishman-Donovan bodies. The work of Rogers and others has shown that the parasite of Kala-azar develops in a citrate solution, into flagellate or trypanosome-like organisms, but attempts at cultivation on blood agar have given negative results. The recent investigations of Ch. Nicolle on the parasites of Oriental sore and of infantile splenic anemia establish the important fact that the Leishman bodies found in these two diseases can be cultivated on blood agar with the same ease as in the case of many trypanosomes. Nicolle has further shown that the infantile splenic anemia can be transmitted to dogs and monkeys by injection of suspensions of the diseased tissues, but attempts to produce an infection by inoculation of the cultures of the flagellate failed.

Having received through the courtesy of M. Mesnil, of the Pasteur Institute, transplants of the eighth generation of Nicolle's flagellate, it was decided, first of all, to test in a severe way the question as to the possibility of inducing an experimental infection in animals by means of such cultures. Accordingly a dog was given, in the interval from April 13 to Sept. 21, fifteen intraperitoneal injections of fresh vigorous cultures. The organism was grown on blood-agar at 20°, and for each inoculation the growth from a large number of tubes (8-40) was taken up in citrate solution and injected. A total of 270 cultures were thus utilized in the course of five months. The dog apparently showed no effect, other than occasional leucocytosis, and microscopic examination of the peripheral blood gave negative results.

The dog was bled and when autopsied on October 9 presented evidence of a prolonged chronic infection. The spleen was small and tough and weighed but 33 grams, the dog weighing 11.7 kilos. The liver and kidney likewise were found to be unusually hard. Microscopical examination of the spleen, liver, kidneys, lungs, and bone-marrow showed enormous numbers of typical Leishman-Donovan bodies, free and intracellular, with no sign of the flagellate form. Cultures made from the spleen and liver gave at the end of five days exceedingly rich growths of the flagellated organism.

Tubes inoculated with the peripheral blood likewise gave good cultures though somewhat later, that is, on the tenth day. The latter fact indicates the value of the cultural method as a diagnostic means.

It will be seen therefore that, starting out with the flagellate form, it has been possible to produce a typical infection in the dog and to recover from the infected animal, by cultural means, the parasite in the flagellated stage. Undoubtedly this result can also be obtained by employing less massive doses than was deemed necessary in this preliminary experiment.

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### **New apparatus designed especially to facilitate the preservation of food for use in metabolism experiments.<sup>1</sup>**

A demonstration.

By **WILLIAM J. GIES.**

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The writer exhibited a new form of apparatus that has been very serviceable in the preservation of fresh food by refrigeration. The apparatus consists in the main of a galvanized "angle iron" frame constructed to support glass trays specially designed as food containers. Fresh food, *e. g.*, hashed meat, may be very satisfactorily preserved, without change of general composition, by

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<sup>1</sup>This method further improves the process described by the author some years ago in the *American Journal of Physiology* (1901, v, p. 235). See also Gies and collaborators: *Biochemical Researches*, 1903, i, p. 69 (Reprint No. 1).