is no reason why it should not be of value in the various toxemias not related to pregnancy.

[1] Horvath, A. A., *J. Biol. Chem.*, (in press).

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Trichomoniasis in Kittens.

JOHN F. KESSEL.

*From the Parasitology Laboratory, Department of Pathology, Peking Union Medical College.**

Da Cunha and Muniz[1] in South America have reported the finding in a cat of a flagellate to which they have given the name, *Trichomonas felis.* Brumpt[2] later records Trichomonas in two kittens in Paris. One of these kittens had been previously infected experimentally with human feces containing *Endamoeba dysenteriae,* and it therefore is possible that this Trichomonas had been derived from the human source. Brumpt did not state definitely whether opportunity of laboratory transmission was afforded the second kitten. He transferred these flagellates to other kittens, and accepted the name *Trichomonas felis* for them, instead of considering the possibility that the infections might have been derived from other animals, supporting his claim primarily on the basis of the negative transmission results of Hogue[3], who had been unsuccessful in establishing *Trichomonas hominis* from man in kittens.

During the spring and summer of 1926, while engaged in a study of experimental amoebiasis in kittens, the writer found 9 kittens, purchased from the streets of Peking, which showed natural infections of Trichomonas. This Trichomonas, as studied in saline and iodine-eosin smears, did not differ morphologically from the Trichomonas described by Brumpt, from kittens, nor from the common *Trichomonas hominis,* from man. The flagellar count of the majority of the specimens was four. The infected kittens showed a diarrhea consisting of a yellowish-brown stool, and in two instances

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a dysentery. These conditions were uncomplicated, for the most part, by other protozoan or pathogenic bacterial infections, and the kittens gradually wasted, and died within a week of the time when the infection was detected.

Upon culturing in Boeck's L. E. S. medium, the trichomonads were recovered and transferred experimentally to other tested negative kittens, two of which received the infection by mouth and four by anus. The infection was established in 5 of these kittens, 4 of which showed the same symptoms as the naturally infected ones, and died within 12 days.

In this experiment, and in the series recorded below, negative kittens were chosen in the following way: An enema was given, using a Luer syringe to which a small rubber catheter was attached. Fecal material, taken in this manner on three different days, was subjected to both microscopic examination, and to culture, before a kitten was assumed to be negative. Of 69 kittens thus tested and used in experimental amoebiasis work, only 3 developed a Trichomonas infection later. Of these three infections two were definitely traceable to a human source, while one was doubtful. Negative control cats remained healthy during the experiment.

Twenty-six tested negative kittens were experimentally infected with trichomonads from man, the monkey and the rat, with positive results in 10 out of 14 cases in which *Trichomonas hominis* was employed, in 2 out of 6 in which a four-flagellate Trichomonas from the monkey was utilized, and in 5 out of 6 in which *Trichomonas parva* from the white rat was present. The infection was transmitted both by mouth and by rectum, and diarrheic symptoms like the ones encountered in the naturally infected kittens were observed.

The pathological findings in the sections from the large intestine consisted in a catarrhal inflammation, with hypersecretion of the mucus membrane, together with a necrosis of the superficial layer, which in some instances had progressed to a superficial ulceration, Trichomonads were found in the necrotic layer, as well as between the cells of the mucosa, and within the lumen of enlarged glands.

From the observations here recorded the writer concludes that trichomonads from man, the monkey and the rat may be transferred to kittens, and that these infections, together with natural trichomonad infections in kittens, are associated with acute diarrhea in this host. The fact that trichomonads from these mammals, including man, have been established experimentally in kittens leads one to question whether *T. felis* is in reality a species peculiar to

cats, or whether the trichomonads found in naturally infected kittens may not be the result of trichomonad infections derived naturally from other animals.

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[1] Da Cunha, A. M., et Muniz, J., *Brazil medico*, 1922, xxxvi, 285.

[2] Brumpt, E., *Ann. de Parasitol.*, 1922, iii, 239-251.

[3] Hogue, M. J., *Johns Hopkins Hosp. Bull.*, 1922, xxxiii, 427-440.