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Isolation of Typhus Rickettsia from Rat Mites During Epidemic in an Orphanage.

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Macxy[1] predicted that rat and mouse may be the reservoirs and tick, mite, or flea may be the transmitters of typhus fever in the southern parts of the United States. This prediction had been satisfactorily fulfilled except for the possibility of mites as vectors.[1-5] While Shelmire and Dove[6, 7] and Kodama and Kano[8] have experimentally transmitted typhus Rickettsia in laboratory animals by rat mite, no special attention was attached to this vector as an important carrier of typhus Rickettsia. In this communication, we wish to present a first instance of isolation of typhus Rickettsia from mites naturally infected and to discuss briefly its possible epidemiological significance.

A rat trapped in July, 1940, at the end of a typhus epidemic which has occurred in an orphanage was found to harbor 3 mites identified as *Liponyssus bacoti*. From them, a strain of typhus Rickettsia was established in guinea pig and white rat according to the following criteria: Fever in guinea pig and albino rat, positive Weil-Felix reaction in most of the inoculated rats, in some cases as high a titer as 1:320, recovery of Rickettsiæ on direct examination and cultivation of the *tunica vaginalis* of infected guinea pig, and finally, positive cross-immunity with a known strain of murine typhus. A second group of rat mites from the same orphanage 4 months after the epidemic showed suggestive findings on inoculation into albino rats but was not further studied. Material from the rat which harbored the first group of mites produced a suggestive typhus infection on inoculation into albino rats.

Comment. The prediction of Macxy that the mite may be a

1 Macxy, K. F., *Public Health Rep.*, 1926, **41**, 2967.

2 Dyer, R. E., Ceder, E. R., Lillie, R. D., and Badger, L. F., *Public Health Rep.*, 1931, **46**, 2481.

3 Mooser, H., Castaneda, M. R., and Zinsser, H., *J. A. M. A.*, 1931, **97**, 231.

4 Lèpine, P., *C. R. Acad. Soc., Paris*, 1932, **194**, 401.

5 Sparrow, H., *Arch. Inst. Pasteur, Tunis*, 1935, **24**, 435.

6 Shelmire, B., and Dove, W. E., *J. A. M. A.*, 1931, **96**, 579.

7 Dove, W. E., and Shelmire, B., *J. Parasitology*, 1932, **18**, 159.

8 Kodama, M., and Kano, M., *Kitasato Arch. Exp. Med.*, 1933, **10**, 99.

vector of typhus fever has been further supported by the isolation of a strain of typhus Rickettsia from naturally infected mites during an epidemic. However, the importance of this vector in the transmission of murine typhus cannot be easily determined. In the present epidemic, the mite-infestation among trapped rats is decidedly low, only 4 out of 24 rats caught harbored a few mites each, and no free mite was seen around the living quarters. At the same time, the rats harbored many fleas which were proved to be infected. It is, therefore, quite possible that these mites were merely secondarily infected from feeding on already infected wild rats. The available data do not permit a decision.

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Miotic Action of Lecithin and Cephalin on Denervated Iris of Cat, Monkey, Dog and Rabbit.*

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Laked erythrocytes injected intravenously, or erythrocytes hemolyzed in the blood stream produce parasympathomimetic manifestations in the cat (Bender[1]). Of these symptoms the constriction of the completely denervated iris is the most conspicuous and consistent reaction. The nature of the parasympathetic-like substance, present in the red blood corpuscles of man, monkey, rabbit, guinea pig, rat as well as in the cat is not clear. Incomplete studies made in these laboratories have suggested that the factors essential for the miosis may be associated with the phospholipids of the blood. For this reason the following comparative studies were made on the effects of certain vegetable and animal lecithins and cephalin upon the denervated iris.

Material and Methods. The animals used were cat, monkey, dog and rabbit. The iris was completely denervated by sectioning all the nerves behind the globe. Commercial preparations of lecithin and cephalin were used. Lecithin samples of vegetable, corn, soy bean, and cod fish testicle and cephalin of soy bean were supplied by the American Lecithin Company. These preparations were purified

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[1] Bender, M. B., PROC. SOC. EXP. BIOL. AND MED., 1940, **43**, 539.