

THE WILD RAT AS A CARRIER OF ORGANISMS OF THE PARATYPHOID-ENTERITIDIS GROUP

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SPONTANEOUS infections among laboratory rats due to organisms of the paratyphoid-enteritidis group are not uncommon.¹ It is important to determine the frequency of occurrence and local distribution of this group in wild rats because of the association of the organisms with food poisoning outbreaks. Savage and Read² report the isolation of true Gaertner bacilli (*B. enteritidis*) from 5 out of 41 rats all of which were probably infected about a year previous with rat virus. Later Savage and White³ isolated 6 virulent strains of *B. enteritidis* from 96 rats obtained from two slaughter houses where bacterial bait had not been used for over a year. They also found that the blood of about 30 per cent of the rats gave positive agglutination reactions with *B. enteritidis* but not with *B. aertrycke* or *B. suispestifer*. It is desirable to know the distribution of the organisms in other localities. No investigations in this country have been reported.

Since October, 1923, I have examined 114 wild rats caught in various parts of Chicago; 100 of these rats were obtained from three Chicago packing houses and 14 from a dog kennel. No rat viruses had ever been used around the packing houses; as far as I could determine none had been used in the neighborhood of the dog kennel. All rats were examined within 24 hours after death; most of them were killed in steel traps the night previous to the examination of their bodies.

Immediately after cutting through the

abdominal wall the viscera were examined for disease lesions but no characteristic gross pathology marked the organs of the rats from which organisms were isolated. A small piece of the liver; one-third to one-half of the spleen, and sections, 1 cm. in length, of both the large and small intestine with their contents were removed and placed in 1 per cent dextrose broth. Brilliant green was added to the broth into which the intestinal tissue and contents were placed. After 12 to 18 hours incubation four plates of each culture were made with Endo medium. Suspected colonies were picked from the plates after 24 hours incubation into Russell's medium.

Ten organisms belonging to the paratyphoid-enteritidis group were isolated from six of the rats obtained from the packing houses. In four rats the liver and spleen were found infected with *B. enteritidis*,⁴ but only the spleen of a fifth. *B. aertrycke*⁴ was isolated only once; it was found in the spleen in pure culture but in no other organ examined. In no instance were the organisms isolated from the intestinal tract of the infected rats.

REFERENCES

1. Savage, W. G. *J. Hyg.*, 17:20, 1918.
Jordan, E. O. *J. Infect. Dis.*, 36:309, 1925.
Medical Research Council Report, No. 91, 1925.
2. Savage, W. G., and Read, W. J. *J. Hyg.*, 13: 343, 1913-1914.
3. Savage, W. G., and White, P. B. *J. Hyg.*, 21: 358, 1922-1923.
4. Jordan, E. O. *J. Infect. Dis.*, 20:457, 1917.
Jordan, E. O., and Victorson, R. *J. Infect. Dis.*, 21:571, 1917.
Jordan, E. O. *J. Infect. Dis.*, 22:537, 1918.
Ibid., 33:567, 1923.