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**STUDIES ON THE DWELLING OF *YERSINIA ENTEROCOLITICA*  
IN THE INTESTINAL TRACTS OF MICE AND RATS**

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To study the role of house rats and mice as a reservoir of *Yersinia enterocolitica*, two virulent strains, O3 biovar 4 and O9 biovar 2, and an avirulent strain, O6 biovar 1 were followed by performing viable bacterial counts in feces at intervals after intragastric administration to laboratory mice and rats.

In the animals inoculated with a high concentration of the two virulent strains, the organisms resided in their intestinal tracts, excreting in feces a large amounts of these during a period from 2 to 10 weeks for mice with O3 strain and from 2 to 4 weeks for rats with O3 or O9 strain. The O3 strain was able to reside in the all of the 14 mice inoculated with  $10^7$  or more, and in 1 of the 4 mice inoculated with  $10^6$ , but not for any mice inoculated with  $10^5$ . In the mice and rats inoculated with  $10^9$  of O6 strain, however, no dwelling of the organism was seen.

No lesions involving primarily the intestinal tract, mesenteric lymph nodes, spleen and liver were observed by the gross examination during the dwelling of the organism after the administration with the O3 strain. The agglutinin was only detected in half of the animals in which O3 or O9 strain became resident, and the titers were as low as 1:40 and 1:80 at most.

A second oral administration using O3 strain at 77 or 100 days after the first administration did not show the presence of the organism in the intestinal tracts of all 7 mice which had terminated the excretion in the feces after the first administration. No elevation of the agglutinin titers was seen in due course of the second inoculation in all the mice tested.

From these results, the possible role of house rats and mice as the reservoir of *Y. enterocolitica* was clarified. The way in which the same organism could not reside in mice after the termination of the first dwelling of the organism was also discussed in connection with gut immunity.