NOTES
THE SUSCEPTIBILITY OF HAMSTERS TO ERYSIPELOTHRIX RHUSIOPATHIAE

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In preliminary studies it was found that the golden, or Syrian, hamster, Cricetus auratus, is susceptible to experimental infection with Erysipelothrix rhusiopathiae, the causative agent of swine erysipelas. As far as the authors know, this is the first report of its kind. Routinely, in studies involving E. rhusiopathiae, the white mouse and pigeon are used in the laboratory. These are more susceptible to experimental infection with this organism than are swine. For this reason, other laboratory test animals were considered for evaluating the immunizing properties of different strains of E. rhusiopathiae.

In tests with these animals, six cultures of E. rhusiopathiae were used, three of which (228, 912, 1460) had been recently isolated from serial lots of hog cholera virus that had been rejected for commercial release. Another (M3LP3) was a lyophilized culture that had been passed through pigeons. The fifth (M3L) was a lyophilized culture 18 months old, and originated from the sixth culture used (M3) that had been carried along in fluid media.

One ml of a 24-hour broth culture of each of the six cultures was injected subcutaneously into 12 hamsters, two with each culture. One hamster injected with strain M3LP3 died on the eleventh day but E. rhusiopathiae was not recovered. One hamster, injected with strain 228, was killed when sick on the seventh day; the other died on the ninth day, and E. rhusiopathiae was recovered from the heart blood of both animals. Both hamsters that received culture 912 died, one on the eighth and the other on the eleventh day. E. rhusiopathiae was recovered from the spleen of one hamster and from the heart blood, liver, and spleen of the other. The hamsters receiving cultures 1460, M3L, and M3 were not visibly affected.

Serial passages of the organisms isolated from the hamsters mentioned above were then tried. In hamsters injected subcutaneously with 2 ml of a 24-hour broth culture of 228, one isolation failed to kill after the first passage and the other after the second passage. However, after going back to the original isolation made from the killed hamster and injecting the culture intraperitoneally instead of subcutaneously, 11 serial passages were made. Two hamsters were used for each passage.

Hamsters for the first passage of strain 912 became sick, and were killed on the ninth day since it appeared they might not die. E. rhusiopathiae was recovered from the heart blood, liver, and spleen of three of the four animals. The isolations were pooled, injected intraperitoneally instead of subcutaneously,
and subsequently carried through 14 serial passages. Two hamsters were used for each passage. The final passage cultures of strains 228 and 912 were each lyophilized.

A comparison was made between the original isolation of strain 912 from the hog cholera virus (which had been lyophilized) and the lyophilized culture after hamster passage. This was done by injecting hamsters intraperitoneally with varying parallel amounts and densities established by the McFarland nephelometer method. Though an insufficient number of hamsters were used for a critical comparison, the results definitely indicated that the serial passage of culture 912 had increased in virulence for hamsters. No comparison was made with strain 228 as we did not lyophilize the original isolation.

THE FLAGELLATION OF SPIROCHETES

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With the perfection of the electron microscope has come the demonstration of flagella on such spirochetes as Treponema and Borrelia. With the exception of

Figure 1 (left). Giemsa stain of Borrelia novyi in mouse blood. Photomicrograph × 2,400.

Figure 2 (right). Flagella stain (Leifson’s) of same organism as shown in figure 1 and also from mouse blood. Photomicrograph × 2,400.

the report by Swellengrebel (Ann. inst. Pasteur, 21, 562, 1907), the author is unaware of any published work on the staining of spirochetal flagella; hence this short note.