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Latent Psittacosis Infections in Mice.

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Krumweide and his coworkers,[1] Rivers and Berry,[2] and Bedson[3] have shown that mice are readily infected by intraperitoneal inoculations of the virus of psittacosis derived from birds or from man. Not only is the disease in mice less dangerous to the laboratory workers but the animal is inexpensive and reacts fairly uniformly to the virus. On account of the existence of latent infections parrakeets cannot be used for diagnostic work. The Japanese ricebird is quite expensive although excellent for the study of the elementary bodies and other related problems. In the course of an epidemiologic investigation of psittacosis in aviaries and in connection with diagnostic studies on human infections over 3,500 mice have been injected intraperitoneally with organ suspensions, blood or sputum specimens. The presence of a potent virus is indicated by illness and by typical anatomical lesions and death of the animals in from 4 to 30 days. However, a number of mice may show no signs of disease and yet harbor the virus in the spleen and liver many months after the inoculation of the suspected tissue emulsion or sputum. The following observations selected at random may illustrate this statement.

On January 12th 2 ricebirds and 4 mice were inoculated with emulsions of the spleen and liver of a dead parrakeet which exhibited the anatomical lesions of psittacosis. The ricebirds died on the 7th day with typical findings. The 4 mice remained well and when sacrificed on the 132nd day presented enlarged spleens. Subinoculations into mice caused fatal infections on the 9th and 10th day. The virus was easily propagated in series.

Mice injected with the enlarged spleens or nasal mucosa of several parrakeets failed to sicken. At autopsy 88, 57, 53 and 44 days respectively after the inoculation the spleens were found to be enlarged and by passage the virus of psittacosis was demonstrated. Three of 4 mice injected with the washed sputum of a contact case

[1] Krumweide, *Science*, 1930, **71**, 262.

[2] Rivers and Berry, *J. Exp. Med.*, 1931, **54**, 105.

[3] Bedson, *Rep. on Pub. Health and Med. Subjects*, London, 1930, **61**, 85.

(nurse to case T) succumbed to a streptococcic septicemia. The remaining animal of the series was sacrificed on the 41st day and again subinoculations yielded the psittacosis virus. In the meantime a second specimen of sputum from the same patient had produced typical infections in 4 mice.

These and many similar observations confirm the fact that the psittacosis virus has a remarkable tendency to remain latent in the spleen and liver of birds and mammals. The subclinical disease is largely influenced by the amount and the potency of the virus. Latent infections occur more frequently in heterogeneous transmissions, for example, from birds to mammals, than when passages between mammals of the same species are attempted. From a practical diagnostic point of view it is important to reinoculate the spleens which are enlarged. This procedure renders the search for the psittacosis virus slightly more complicated but improves the accuracy of the mouse test.

Mice with latent infections resist reinoculations with a very potent virus. This resistance is sometimes followed by a sterile immunity. But since the time of autosterilization is uncertain the immunization with formalinized spleen emulsions is generally preferred.

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Latent Psittacosis Infections in Shell Parrakeets.

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The existence of the psittacosis virus in the budgerigar or shell parrakeet (*Melopsittacus undulatus*) bred and raised in California was demonstrated by laboratory tests. Forty-five human cases of psittacosis infection recorded in California have followed exposure of patients to this species of bird. Secondary man to man infections, contact with infected canaries or foreign birds, or indirect contact with clothing worn in an infected aviary have resulted in 9 additional cases. Ten of the 54 infections ended fatally. Before and after the recognition of these facts psittacosis cases attributed to shell parrakeets from California have been observed in Kansas City, Portland, Oregon, New York City, Chicago, Boise, Idaho, Madi-