VIRAEMIA OF POLECATS (*PUTORIUS PUTORIUS*) AFTER INFECTION WITH TICK-BORNE ENCEPHALITIS (TE) VIRUS BY TICKS

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We showed previously that foxes and weasels can be infected with TE virus by ticks (*1*). These Carnivora subsequently developed a viraemia exceeding the threshold which is necessary to pass on the virus to sucking ticks (*2*).

In this paper we are describing a similar experiment done with four 10-weeks old polecats obtained from a breeding station. One polecat (No. 1) was infected with TE virus by mean of four virus-infected nymphs of *Ixodes ricinus*. The nymphs had become infected in the larval stage by gorging on viraemic yellow-necked field mice (*Apodemus flavicolis*). The nymphs were used for infection about 8 months after molting. Three other polecats (Nos 2—4) were infected by virophoric females of *I. ricinus*, which had been experimentally infected with the strain "Hypr" of TE virus by the insertion of a thin glass-capillary into the anal open ng. Feeding capsules for ticks were attached with collodion to the neck of polecats and the ticks were placed inside.

Blood was taken from the polecats by heart puncture daily for one week. Blood and its tenfold dilutions (10^{-1} to 10^{-5}) were injected intracerebrally in doses of 0.02 ml into baby mice, which were 3 to 5 days old. The mice were observed for signs of disease for 12 days. Sera obtained on the 1st, 23rd or 30th day after infection were tested for antibodies against TE virus in the haemagglutination inhibition (HI) and complement fixation (CF) tests.

Virus was successfully transmitted to polecats by virophoric nymphs and females of *I. ricinus*. Viraemia started on the 2nd day after infection and lasted 2 (polecats Nos 2, 3, 4) or 3 (polecat No. 1) days. Titre of virus in the blood was from $10^{4.5}$ to $10^{5.0}$ LD_{50} in 0.02 ml. Viraemia of the same level and duration was previously observed in young foxes and in one weasel also infected by virophoric ticks (*2*). The animals were observed for 6 weeks after infection, but no signs of disease were noticed.

No antibodies were demonstrated in the sera taken on the 1st day after infection, but sera taken on the 23rd and 30th day after infection showed HI antibodies up to a dilution of 1 : 160 and CF antibodies up to a dilution of 1 : 64. From the virological and serological results of our investigations we conclude that the polecat is very sensitive to infection with TE virus.

Besides the two free living weasel species (*Mustela nivalis*, *M. erminea*), the polecat is one of the most abundant Mustelidae in Central Europe. Polecats live in different areas from steppe to mountain habitats up to 2000 m sea level. They prefer the neighbourhood of water. In the winter they often come in contact with human settlements (*3*). Due to this physiological and ecological behaviour the polecat seems to represent a possible host of TE virus.

References

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