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Infection in Mice Following Nasal Instillation of Louping-Ill Virus.

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Regular transmission to mice of a fatal infection following intranasal instillation of louping-ill virus, apparently not accomplished until now,[1, 2, 3, 4, 5] has been effected by the employment of brother-sister inbred strains of mice.[6]

White-face and black-and-tan mice, brother to sister inbred, for at least 10 generations and maintained on a standard diet and uniform routine in a special breeding room, have reacted in a consistent and characteristic manner to the virus obtained from T. M. Rivers. This virus, the Moredun Strain from Mackie, has proved infective for mice and monkeys when injected intracerebrally and gives rise to the characteristic signs and histopathology of louping-ill.[2, 3, 4, 5]

Intranasal transmission has been carried out as follows: Brains from 2 to 4 mice dead of the experimental infection induced by intranasal or intracerebral injection are removed aseptically, cultured, weighed, ground in a sterile mortar, diluted in normal saline, and again cultured for contaminants. Duplicate batches of 20 mice each are given 0.02 cc. of the diluted virus into the nares through a 0.25 cc. tuberculin syringe and blunt needle. Care is taken not to touch or injure the nasal tissues. The mice are then placed in individual jars and observed over a 4 week period. Animals found dead are autopsied and cultured for bacterial growth. Passage in series from the brains of mice dying from intranasal instillation to the nasal passages of normal mice has been continued in parallel series successfully and uniformly 8 times.

When white-face mice are used dilutions of virus from 1 to 2 to 1 to 20 result in an incubation period of 6 to 7 days, followed by rapid and progressive development of hyperesthesia, tremors, inco-

[1] Pool, W. A., Brownlee, A., and Wilson, D. R., *J. Comp. Path. and Therap.*, 1930, **43**, 253.

[2] Greig, J. R., Brownlee, A., Wilson, D. R., and Gordon, W. S., *Vet. Rec.*, 1931, **11**, 325.

[3] Alston, J. M., and Gibson, H. J., *Brit. J. Exp. Path.*, 1931, **12**, 82.

[4] Hurst, E. W., *J. Comp. Path. and Therap.*, 1931, **44**, 231.

[5] Brownlee, A., and Wilson, D. R., *J. Comp. Path. and Therap.*, 1932, **45**, 67.

[6] Webster, Leslie T., *J. Exp. Med.*, 1933, in press.

ordination, partial paralysis, especially of the hind limbs, prostration, and finally death between the eighth and tenth days in practically every case. When higher dilutions of the virus are given, or when black-and-tan mice are tested, the incubation period and duration of signs of disease and of life lengthen and the percentage mortality falls below 100%.

The most conspicuous and consistent anatomical changes associated with the intranasal infection appear to be necrosis of pyramidal cells in the lobus piriformis and cornu ammonis of the cerebrum and acidophilic intranuclear bodies in certain glial cells throughout the brain and cord and in cells of the choroid plexus in preparations fixed with Zenker-acetic and colored with Giemsa stain. The necrotic cerebral lesion has been mentioned but not stressed by Hurst[4]; the intranuclear bodies observed jointly by Rivers and Webster in this material have not been referred to previously. Besides these characteristic changes, necrosis of Purkinje cells, motor neurons in pons, medulla, and cord and infiltration of mononuclear cells around blood vessels and dying neurons are found in a percentage of cases. These lesions have been reported by others.[4, 5]

The virus does not affect rabbits when inoculated intracerebrally. The necroses and intranuclear bodies do not appear in preparations of normal mice. The virus does not seem, therefore, to be contaminated with herpes or unknown mouse virus.

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Weight of Pituitary and Thyroid of the Rat at Various Stages of the Oestrus Cycle.

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In the recent literature on the relation of the pituitary gland to reproduction there have been several notes concerning changes in the histological picture or in the physiological activity of the pituitary associated with changes in the oestrus cycle. Charipper and Haterius[1] observed an increase in the size and number of the basophiles during oestrus, although the cells were not counted or meas-

[1]Charipper, H. A., and Haterius, H. O., *Anat. Rec.*, 1932, **54**, 15.