

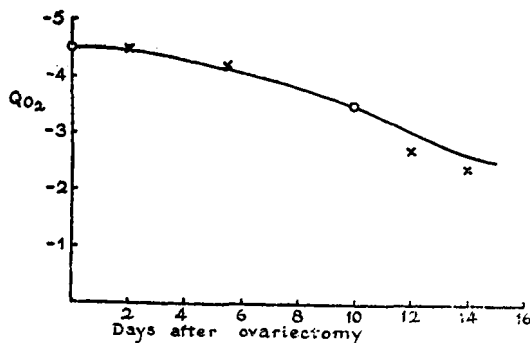


FIG. 2.

Effect of ovariectomy upon O_2 consumption of the uteri of rabbits $3\frac{1}{2}$ to 4 months of age. Five animals were used at 0 days, prior to castration, and 12 at 10 days after castration. The crosses denote only one animal in each case except at 2 days, in which 2 rabbits were used.

The effect of ovariectomy on the O_2 consumption of uteri of immature rabbits such as were used in these experiments is shown in Fig. 2. It was found that the rate of O_2 consumption was higher (28%) than was that of uteri taken from rabbits castrated for about 10 days. The removal of the ovaries at this age (and in those cases in which there are no grossly discernible graffian follicles) deprives the uterus, immature and undeveloped though it is, of a potent substance which activates the O_2 consumption of the uterine tissue. This agent is presumably oestrin.

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Susceptibility of Hedgehog and Agouti to Poliomyelitis.*

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In the present communication we wish to report the results of our continued efforts to find an animal susceptible to poliomyelitis, other than *Macacus rhesus*.¹ The hedgehog was selected because of its apparent susceptibility to a number of other viruses such as in-

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¹ Grossman, L. H., and Kramer, S. D., PROC. SOC. EXP. BIOL. AND MED., 1936, **35**, 345.

fluenza,² pseudorabies,³ yellow fever,⁴ foot-and-mouth disease,⁵ and fowl pest.⁶ The agouti, a member of the rodent family was a chance selection; it has not previously been reported on in this connection, and is readily obtainable.

On November 2, 1936, each of 3 healthy hedgehogs was inoculated into the left and right frontal lobes with 1.2 cc. of 10% centrifugalized suspension of active poliomyelitic monkey cord. Daily temperatures were taken and the animals were closely observed for changes in behavior. Two of the 3 animals died of pneumonia 7 days after inoculation. On November 7, 5 days after inoculation, the third animal was observed to drag its right hind extremity; there was no elevation in temperature. On examination of the extremity, a linear incised wound was noted. It did not appear, however, that this wound would account for the degree of disability, and the apparent flaccidness of the extremity. The animal was sacrificed. The brain and cord, which showed no gross changes, were removed *in toto* and fragments preserved in formalin for histologic study. A portion of the cord was immediately ground and 1.2 cc. of 10% centrifugalized suspension was inoculated into each of 2 healthy hedgehogs and a monkey. The monkey received an additional 2.2 cc. of the suspension intraperitoneally. One of the hedgehogs died 2 days after inoculation and the remaining hedgehog and the monkey remained unaffected.

Two additional hedgehogs were inoculated, following the technique suggested by Sawyer and Lloyd.⁷ On November 6, 1936, both animals and a Rhesus monkey were inoculated intracerebrally with 0.5 cc. of a 2% solution of boiled starch in normal saline. Approximately 7 minutes later, at the site of the previous inoculation, they received 1.2 cc. of a 10% centrifugalized suspension of virus. An additional 2.3 cc. of the suspension was inoculated intraperitoneally into each animal. One hedgehog died of pneumonia, 3 days after the inoculation; the second remained unaffected throughout the 30-day period of observation. The monkey succumbed to the experimental disease in 7 days.

On January 5, 1937, the only surviving hedgehog was reinocu-

² Stuart-Harris, C. H., *Brit. J. Exp. Path.*, 1936, **17**, 324.

³ Remlinger, P., and Bailly, J., *C. R. Soc. Biol. Paris*, 1933, **113**, 557.

⁴ Findlay, G. M., and Clarke, L. M., *Trans. R. Soc. Trop. Med. Hyg.*, 1934, **28**, 335.

⁵ Minett, F. C., 2nd Progress Report Foot and Mouth Disease Committee, London, 1927, 18.

⁶ Findlay, G. M., and Mackenzie, R. D., *Brit. J. Exp. Path.*, 1937, **18**, 258.

⁷ Sawyer, W. A., and Lloyd, Wray, *J. Exp. Med.*, 1931, **54**, 533.

lated with a 5% centrifugalized suspension of cord (1.2 cc. intracerebrally, 3.2 cc. intraperitoneally). The hedgehog remained unaffected, whereas the control monkey inoculated intracerebrally with a small infective dose of virus, succumbed to the experimental disease in 7 days.

It was our opinion, that in spite of the care given these animals, the approaching hibernating period contributed to the many fatalities. For this reason the work was discontinued until June, 1937, by which time the hedgehog is out of hibernation.

On June 8, each of 2 healthy hedgehogs and a monkey were inoculated with a 10% centrifugalized suspension of active cord in the following manner: 1 cc. intracerebrally, 2.1 cc. intraperitoneally, and on 3 successive days each animal received 1 cc. of a 10% suspension of cord into each nostril. Both hedgehogs remained completely unaffected by these treatments. The monkey succumbed to the experimental disease in 6 days.

On July 2, each of 2 healthy hedgehogs received 1 cc. intracerebrally and 2 cc. intraperitoneally of a specially prepared purified concentrate of active virus. The virus was purified by the method suggested by Schaeffer and Brebner⁸ and concentrated in the frozen state by the method devised in our laboratory and reported elsewhere.⁹ The equivalent of 100 cc. of a 10% suspension of virus was reduced to a volume of 13 cc. Both of the hedgehogs remained well over a 60-day period of observation. A control Rhesus monkey inoculated with 1 cc. of this purified concentrate, succumbed to the experimental disease in 5 days.

On June 8, 1937, each of 4 healthy agoutis and a monkey were inoculated with a 10% suspension of active poliomyelitic cord, 1 cc. intracerebrally, 2.6 cc. intraperitoneally; all 4 animals received intranasal instillations of the virus suspension, 1 cc. into each nostril, on 3 successive days. Daily temperatures were taken, and the animals were closely observed. The 4 agoutis remained unaffected by the inoculations, while the monkey succumbed to the experimental disease in 5 days. On July 3, 1937, 2 of the 4 animals and a monkey were reinoculated with the purified concentrated virus, described above; 1 cc. each intracerebrally and 2 cc. each intraperitoneally. Both agoutis remained well, while the monkey succumbed in 5 days.

Summary and Conclusions. Employing heavy suspensions of

⁸ Schaeffer, M., and Brebner, W. B., *Arch. Path.*, 1933, **15**, 221.

⁹ Kramer, S. D., Sobel, A. E., Grossman, L. H., and Hoskwith, B., *J. Exp. Med.*, 1936, **64**, 173.

active poliomyelitic cord as well as purified concentrates of these suspensions, we have been unsuccessful in transmitting poliomyelitis to the hedgehog or the agouti.

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Observations upon the Complement-Fixation Test in Monkeys Infected with *Endamoeba histolytica*.

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Meleney and Frye¹ reported that "*Macacus rhesus* monkeys having natural intestinal infections with *E. histolytica* or experimentally infected with a human strain did not give complement fixation reactions, with one exception, and showed no macroscopic or microscopic lesions at autopsy."

During routine work in our Laboratory of Parasitology it was noted that a monkey infected with a human strain of *E. histolytica* and with *Schistosoma mansoni* consistently gave a 4-plus complement-fixation reaction for amebiasis. Because of this, and the negative results obtained by Meleney and Frye, it was thought that further observations upon this subject were indicated.

In a shipment from New York of 4 *M. rhesus* monkeys, one of the animals was found to have a natural infection with *E. histolytica*, and this strain was employed for the inoculation of the 3 other monkeys. This strain, from the naturally infected monkey, was identical in morphology with strains obtained from man; when cysts of this strain were fed to a dog an infection followed and, at necropsy, typical amebic lesions were present in the cecum and colon, containing trophozoites of *E. histolytica*, thus demonstrating that the monkey-strain was pathogenic for the dog. All of the experimental monkeys were fed concentrations of cysts from the naturally infected monkey, and all became infected and gave a positive complement-fixation reaction for amebiasis, employing an antigen prepared from cultures of a human strain of *E. histolytica*. The results of the complement-fixation tests are given in Table I.

The results shown in this table demonstrate that all of the monkeys gave a positive reaction with the complement-fixation test for

¹ Meleney, H. E., and Frye, W. W., *Am. J. Pub. Health*, 1937, **27**, 505.