

In order to answer this question, the nasal mucous membrane of a *Macacus rhesus* monkey was swabbed lightly with a portion of ground cord from a recently paralyzed monkey. The monkey was killed at the end of 48 hours and the following portions of the central nervous system were removed separately and aseptically: (1) the olfactory lobes with small portions of the adjacent brain substance, (2) the medulla, and (3) pieces of the cord at different levels including the cervical and lumbar enlargements. These different portions were injected separately as suspensions into the brain and peritoneal cavity of three other *Macacus rhesus* monkeys.

The monkey injected with the suspension of the olfactory lobes came down in a manner typical of poliomyelitis in monkeys with definite prodromal symptoms on the ninth day, paralysis on the tenth and death on the twelfth day. At autopsy, lesions characteristic of the disease were observed throughout the cord.

The two other monkeys remained entirely well and have never shown any symptoms of paralysis.

The result of this experiment is definite. The virus of poliomyelitis passes from the nasal mucous membrane to the olfactory lobes and adjacent parts of the brain before it reaches the medulla or cord. This distribution is what we would expect were the ascent by the direct lymphatic path and not by the blood stream. Were the dissemination by the latter route we should expect early localization in those parts of the cord and medulla that possess an especial affinity for the virus.

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### **Effects on meningeal tuberculosis of the local injection of foreign leucocytes.**

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In a previous report,<sup>1</sup> it was shown that the use of foreign leucocytes as a local therapeutic agent in experimental meningeal infections in dogs is limited by the toxicity of foreign leucocytes

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<sup>1</sup> Vol. IX, p. 117.

for these animals. Rabbit leucocytes injected into the meningeal cavities of dogs invariably cause death. A single injection of horse leucocytes, however, can be safely made in normal dogs, although on repeating the injection, or on injecting horse leucocytes for the first time into meninges already the seat of an inflammatory lesion, death results.

The injection of horse leucocytes into the cerebral meninges of dogs, simultaneously with the inoculation of the meninges with tubercle bacilli, causes a slight delay in the development of the paralytic symptoms in about half of the treated animals. This delay, however, is very slight when compared with the great prolongation of the latent period previously observed,<sup>1</sup> after treatment with homologous leucocytes.

In the same report, it was shown that foreign leucocytes are much less toxic for monkeys. Both rabbit leucocytes and horse leucocytes can be safely injected into the meningeal cavities of these animals.

The study of the therapeutic control of meningeal tuberculosis in monkeys is made difficult by extra-dural leakage, when the inoculations and treatments are made by the method of lumbar puncture. The inoculations and treatments, in the later experiments herein reported, were therefore made through a permanent wax-trephine<sup>2</sup> opening in the skull.

The injection of foreign leucocytes into the meningeal cavities of monkeys, either simultaneously with the inoculation with tubercle bacilli, or subsequent to the inoculation has thus far given no definitely positive prophylactic or curative effects. In a small group of monkeys, however, inoculated and treated by the method of lumbar puncture, the repeated injection of rabbit leucocytes was associated with a considerable prolongation of the latent period in one of the treated monkeys, and by a complete prevention of the subsequent tuberculosis in a second monkey. The work with monkeys is being continued.

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<sup>1</sup> *Jour. Exp. Med.*, 1912, XV, pp. 1-13.

<sup>2</sup> *Jour. Exp. Med.*, 1912, XV, p. 3.