

# SCIENTIFIC PROCEEDINGS.

ABSTRACTS OF THE COMMUNICATIONS.

## Fiftieth meeting.

*Cornell University Medical College. October 16, 1912. Dr. Lee  
in the chair.*

I (697)

### **A note on the mode of infection in epidemic poliomyelitis.**

By **SIMON FLEXNER** and **PAUL F. CLARK.**

*[From the Laboratories of The Rockefeller Institute for Medical  
Research.]*

Both in experimental and human epidemic poliomyelitis the virus has been repeatedly demonstrated in the tonsils, in the nasal mucous membrane, and in nasal washings, both from fatal and acute cases. As the experimental disease can also be produced by intranasal swabbing with the active virus it seems probable that the nasal mucosa is one at least of the sources of the virus in the outside world and also the means of its entrance to the body. The marked viability of the virus under adverse conditions such as drying, low temperature, etc., must also be considered as making for a fairly well founded theory of the nasal route as one path of the virus to and from the body.

The precise manner in which microorganisms enter the body through mucous membranes is difficult to establish. Because we can produce experimental poliomyelitis by the application of the active virus to the nasal mucous membrane, we have in this disease a means of determining whether the virus so applied first enters the blood stream and through this the central nervous system or whether it ascends directly along the lymphatics that unite the nasal mucosa with the central meninges. In experimental poliomyelitis produced by any method of injection it is well known that the virus is present throughout the central nervous system. But after an intranasal injection, can the virus be demonstrated equally early in all regions of the cord?

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.

2 (698)

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

By **WILFRED H. MANWARING.**

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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.