

## MEDICINE

# Blood-Brain Barrier Studied In Infantile Paralysis Fight

**Needs Include Diagnostic Test in Doubtful Cases,  
Method For Reaching Nerve Cells With Protector**

**A** NATION-WIDE drive against terrifying infantile paralysis is focused, right now, on a campaign for funds to finance the fight. But the fight itself must be directed by medical scientists and based on their investigations.

Imperative needs on the scientific side of the fight are: (1) a diagnostic test for the disease in cases that show few and vague symptoms; and (2) a way of getting a protective or curative substance to the nerve cells themselves "where the deadly virus exerts its inexorable wrecking activities."

Both needs, it appears, may be met by study of the blood-brain barrier, such as that being made by Dr. Edwin H. Lennette of the Washington University School of Medicine at St. Louis, Mo. This is one of the universities that has been given a grant by the National Foundation for Infantile Paralysis, Inc., to pursue research on the crippling malady.

Dr. Lennette explains the blood-brain barrier and its importance in the following terms:

"It has long been known that in the normal individual there exists a mechanism which keeps foreign substances in the blood from reaching the easily harmed tissues of the brain and spinal cord. However, when certain structures, such as the delicate membranes enclosing the brain and spinal cord, are irritated or inflamed, the all-important function of this barrier is disrupted. The degree of upset is parallel, roughly, to the amount of irritation, and substances which previously could not pass through the barrier now do so with ease, and can be demonstrated in the spinal canal.

"In the various diseases which are frequently confused with infantile paralysis may there not be a difference in the rate and amount with which these foreign substances pass the filtering barrier? If so, this might be of value in diagnosis; all that need be done is to feed or inject the foreign material, later tap the spinal canal and determine how much of the substance had passed into the spinal canal in a given time."

First results in the search for a chemical that would test the permeability of

the blood-brain barrier were disheartening, Dr. Lennette reports. Then he discovered that sodium bromide could be used if the ratio of sodium bromide in the spinal fluid to that in the blood was determined. This did show a difference between sick and well monkeys and worked so well that the chemist could make a diagnosis from his analysis. The next step will be to determine what permeability quotients other diseases will give so as to have a basis for comparison with infantile paralysis.

So much for diagnosis, says Dr. Lennette. On the problem of treatment or prevention of infantile paralysis, he points out that if the barrier between the blood and the brain could be altered at will, it would probably be possible to mobilize defensive aids at the points where they are most needed.

Vaccines, he says, have thus far "yielded little promise in the fight to subdue infantile paralysis." They have failed be-

cause they do not immunize the tissues they were designed to protect, that is, the vulnerable nervous system.

"If we can devise a means of immunizing the susceptible nerve cells," Dr. Lennette states, "we shall have gone a long way in specific prophylaxis (prevention). What role the blood-brain barrier may play in such a measure is under study at present."

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## PSYCHOLOGY

## Poll of 3121 Persons Shows Wide Variation in Tastes

**M**ANNOSE, an unusual sugar that does not occur in nature and is produced only in the chemical laboratory, provoked 25 different kinds of taste responses when tried on scientists and visitors at the recent meeting of the American Association for the Advancement of Science.

Dr. A. F. Blakeslee, of the Carnegie Institution of Washington laboratories, Cold Spring Harbor, New York, conducted a poll of all comers who were willing to taste samples of the compound. He used a regular voting machine, and has just reported the results to Science Service.

There are five possible simple responses to mannose by the tongues of various persons: tasteless, sweet, bitter,



### A PLEBISCITE OF TASTES

*Dr. A. F. Blakeslee of the Carnegie Institution of Washington tested the taste reactions of hundreds of persons at the Richmond, Va., meeting of the AAAS, registering them on a standard voting machine.*