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 because 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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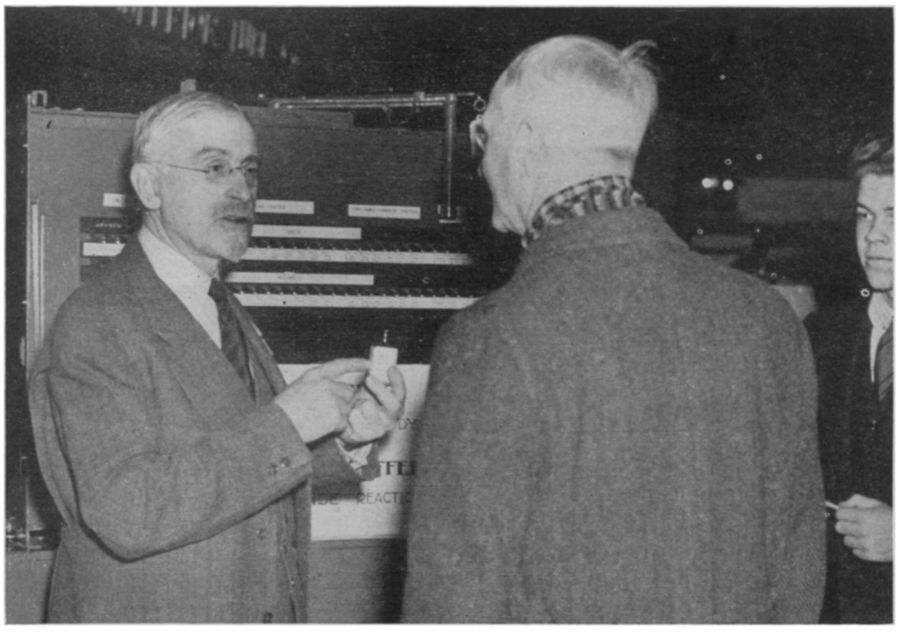
PSYCHOLOGY

Poll of 3121 Persons Shows Wide Variation in Tastes

MANNOSE, 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.

sour, salty. Of the 3121 persons who volunteered to taste, 895 found the mannose tablets tasteless, 1120 said they were sweet, 352 declared them bitter, 93 called them sour, and 38 tasted them as salty.

Combinations of tastes are possible to a good many persons. Two or more tastes may come either successively or simultaneously.

Of successive tastes, 90 were reported as bitter then sweet, 12 as bitter then sour, 14 as bitter then salty, 286 as sweet then bitter, 40 as sweet then sour, 41 as sweet then salty, 9 as sour then bitter, 18 as sour then sweet, 2 as sour then salty, 6 as salty then bitter, 6 as salty then sweet, 2 as salty then sour.

Persons who got two tastes at the same time registered: 46 bitter-sweet, 5 bitter-sour, 3 bitter-salty, 13 sweet-sour, 7 sweet-salty.

Triple tastes were represented by: 13 bitter-sweet-sour, 8 bitter-sweet-salty and 2 sweet-sour-salty. Two other possible combinations, sour-salty and sweet-sour-salty, found no representative tasters among the group tested.

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MEDICINE

Distinction Drawn Between 'Flu and Similar Maladies

British Scientists Who First Isolated 'Flu Virus Prepare List of Differentiating Symptoms for Doctors

ALL IS NOT influenza that goes by that name, as even the layman may have begun to suspect. There has been a tendency in recent years, however, to label as influenza almost any attack of cough and cold with fever, especially if such attacks are prevalent in the community.

Since the virus of influenza has been isolated, the diagnosis in any particular case could be clinched by laboratory examination of material washed from the nose and throat of the patient. If the virus is found in this material, there is no doubt the patient really has influenza. Such procedures are not available to the majority of patients and their physicians, who must consequently still depend on clinical symptoms for making diagnoses.

The difficulty of distinguishing true influenza from other ailments with similar symptoms has been a problem not only for physicians treating patients but for the medical scientists seeking the cause and means of conquering influenza. To simplify the matter, the British scientists who first isolated the influenza virus, Drs. W. Smith, C. H. Andrewes and P. P. Laidlaw, called in the aid of some practising physicians, Drs. C. H. Stuart-Harris, D. K. M. Chalmers, E. G. H. Cowan and D. L. Hughes. Between them they have drawn up a table of signs that differentiate true influenza from what they call "febrile catarrh," which might be translated as cold and cough with fever.

In influenza, the onset is sudden, constitutional symptoms predominate, the cough is short and dry and the voice husky, while in the febrile catarrhs the onset is insidious, local nose and throat symptoms predominate, cough is paroxysmal and productive and the voice is hoarse. The white blood cell count is said not to be diagnostic. Physicians will find other distinguishing features given in the special report of the British Medical Research Council and summarized in the *Canadian Medical Association Journal.*

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ANTHROPOLOGY

Primitives Reckon Time; No Group Without It

PRIMITIVE people have their own sufficient ways of reckoning time. So it appears from a study of the Tena Indians in the Alaskan Yukon region, reported by Rev. Robert J. Sullivan, S. J., of Weston College in Massachusetts.

He finds that these Indians in their native state did not divide the day into hours. It never occurred to them to mark off a day by mealtimes, because they ate after rising and before going to bed, and took snacks at other times, provided they could find something to eat. Incidentally—though it has nothing to do with time—they called the morning meal "we eat" and the evening meal "we eat again."

Recurring day and night they were aware of. And sometimes a journey would be referred to as so many "sleeps" away. But in their aboriginal scheme of things the Tena Indians had no idea of a week or any other grouping of days into a larger unit.

They measured time from such broad landmarks as midwinter, when there would be great festivities, and midsummer, and the time when fish swam back.

The arrival of white men brought Tena Indians new time ideas to go with new customs. When missionaries taught the Indians to set aside Sunday as a day of rest, they had, for the first time, a reason for counting off a measured week.

To keep track of Sundays, Christianized Indians learned English day names. But they have also coined Indian names for four days. They call Sunday "the day." Monday is "the day after the day." Saturday is "the day before the day." Friday is named "when we do not eat meat."

Whether human beings have a sense of time remains to be fought out by philosophers, says Father Sullivan, but every human society has points of reference to which past and present and future happenings are related. Every group uses time in its order of living.

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CONSERVATION

New Museum Exhibits Teach Conservation

THE PICNIC: a Tragedy in Three Scenes, might appropriately be the title for one of the exhibits in the new Spaulding Hall of Conservation, recently opened at the Buffalo Museum of Science.

The central group shows a springtime scene before the coming of the picnickers. Trilliums, violets, spring beauties and other wildflowers carpet the ground, under the spreading boughs of a flowering dogwood in full bloom. A chipmunk dances on a log; songbirds are in the trees.

To one side is a smaller-scale panel showing the same spot just after a careless picnic party has left. The wildflowers have been ripped up or trampled down. The boughs are torn away from the dogwood. The place is littered with tin cans, a discarded newspaper, miscellaneous garbage. Worst of all, the campfire has been left burning.

At the other side, a similar panel shows the tragic third scene. The spring breeze has fanned the neglected fire. It has