

DENTISTRY

Cavities and Polio

Exposed tooth pulp may be one route by which infantile paralysis virus enters the body. Teeth should not be pulled too near the polio season.

► CAVITIES in the teeth which expose the tooth pulp may be one route by which the infantile paralysis virus enters the body, Dr. Myron S. Aisenberg and Dr. Thomas C. Grubb, of the University of Maryland School of Dentistry, report. (*Journal, American Dental Association, May.*)

They warn, at the same time, against having teeth pulled "too near" the infantile paralysis season, since this might open an invasion route for the polio virus. They report six cases in which the disease started 5 to 10 days after having teeth pulled.

The pulp of a tooth, the scientists point out, is richly supplied with nerves arising from the fifth cranial nerve. It is reasonable to believe that the polio virus could travel this route to the brain and spinal cord.

To test this theory, they exposed the pulps of the front teeth of five rhesus monkeys, using an anesthetic to deaden the pain of the grinding. Infantile paralysis virus was carefully dropped into the cavity after bleeding had stopped. One of these monkeys developed paralysis while the others developed the non-paralytic form of the disease.

Finding that infantile paralysis could invade by this route, the scientists next examined the teeth of several hundred children in North Carolina and Baltimore during last summer's polio epidemic. In North Carolina, 69.85% of the children who had polio also had exposed tooth pulps, whereas in the group who did not get the disease, only 26.92% had exposed pulps.

In Baltimore, the figures were 65.04% of children with polio having exposed pulps and 24.07% of those without polio. Some young adults were included in the examinations but as far as practical the scientists tried to compare children in the same age groups.

Dr. Aisenberg and Dr. Grubb do not think exposed tooth pulp and sockets of recently pulled teeth are the only routes by which the polio virus enters the body. They do suggest, however, that a large scale field study will show whether this is one route.

For such a study, they advise careful examination and treatment of the teeth of all susceptible children in a given area several months before the polio season. As a control, the teeth of children in another area should be examined and records made of all pulpal exposure but no treatment given.

"If such a study were conducted over several years," they state, "the importance of pulpal exposure as a portal of entry could be evaluated."

Science News Letter, May 19, 1945

PUBLIC HEALTH

Fly-Fouled Food Seen as One Way Polio May Spread

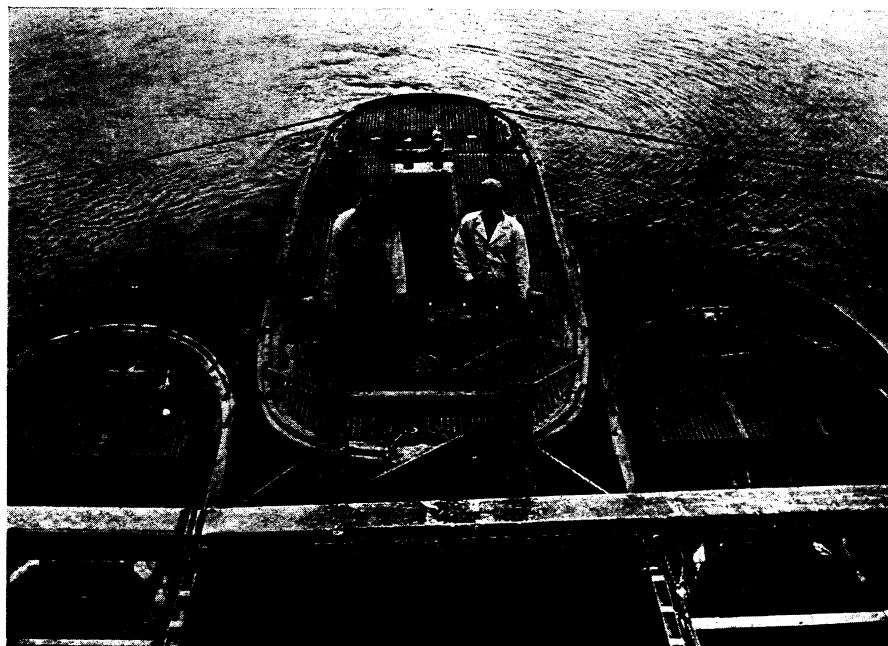
► EATING FOOD contaminated by flies may be one way of getting infantile paralysis, it appears from studies reported by Dr. Robert Ward, Dr. Joseph L. Melnick and Dr. Dorothy M. Horst-

mann, of Yale University School of Medicine. (*Science, May 11.*)

During last summer's epidemic in North Carolina, these scientists put plates of food and fly bait on back porches and yards of the homes of 16 polio patients. This was done within a week of the time the patients got sick. The food and fly bait were left exposed to any flies in the vicinity for 24 to 48 hours.

The fly-contaminated food was then fed to two chimpanzees. Tests showed these animals were not previously infected with infantile paralysis virus. After they had eaten the fly-contaminated food, the virus was found in the chimpanzees' excreta. Although the chimpanzees did not get sick, the virus from their bodies caused typical infantile paralysis injury to the brains and spinal cords of monkeys into which it was injected.

The studies, the scientists state, give additional evidence to support a working theory of the spread of infantile paralysis. According to this theory, the disease may be spread by a number of different routes. Although it may occur at any time of the year, the tremendous concentration of cases during the warm season is the result of increased distribution of the virus. This may depend on



UTILITY POWER BOAT—This new boat, capable of propelling bridge-rafts or ferries with loads up to 80 tons in swift currents, is now being shipped overseas. Each of its two propellers is driven by a gasoline engine capable of developing 80 horse-power at 3,000 revolutions per minute. The maximum pulling power is 4,000 pounds and the top speed is 15 miles per hour. Official U. S. Army photograph.

various factors, including something which makes it easy for insects such as flies to contaminate food. Flies have previously been shown to carry the virus and, in this experiment, to contaminate food with it.

A further step in testing this theory, the scientists state, will be to conduct a controlled experimental study on the effect of reducing the number of flies during infantile paralysis epidemics.

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PUBLIC HEALTH

Epidemics Facing Europe

Poor food supply, such as now exists in parts of Europe, causes infectious diseases to be more dangerous and deadly than when food is plentiful.

► WARNING that epidemics have always been bred by wars, Dr. Russell M. Wilder of Mayor Clinic, speaking at the University of North Carolina research conference, declared that poor food supply such as now exists in some parts of war-torn Europe causes infectious diseases to be much more dangerous and deadly than when the population has plenty of food.

"Malaria became so virulent in Greece when the people there were subjected to the starvation occasioned by the German invasion that mortality was terrifying," he recalled. "Malaria spread farther north into Eastern Europe than it ever had before in recent years, as if the soil were fertilized by the misery of the populations of Bulgaria, Rumania and the Russian lands beyond."

More scientific research is needed, he told the conference, on the part that nutrition plays in the resistance of the human body to invasion by the germs of infectious diseases.

The process of getting old and the nature of degenerative diseases now taking heavy human toll may be explained by research on the nature of alterations in the enzymatic systems of the body on which the life of cells and tissues is dependent, he declared. A number of chronic diseases, hitherto of unknown cause, have been reproduced experimentally with diets restricted as to certain vitamins and amino acids.

"Although scientific progress in the science of nutrition was rapid in the period between the two world wars," Dr. Wilder said, "the specialists in the field were far from ready with the answers to the questions that arose with the outbreak of this war. War calls for instant action and demands the best you have to give, no matter how inadequate that may be. The information put to work, although leaving much to be desired,

proved to be of great importance. England's general health, measured by the proportion of infants dying in their first year, became steadily worse in the first World War; in this war it has become steadily better. We also are aware of the difference in the capacity of Germany to resist invasion. The collapse of Germany at the end of World War I was due primarily to lack of the right kind of food whereas, by putting into practice what was known about nutrition, the German people in this war have not suffered from nutritional deficiencies. Indeed, in this war they have used the science of nutrition as a weapon of offense. By purposely depriving prisoners and subject populations of the foods they needed they reduced their power of resistance."

"Planning for the future must include programs of research to improve the nutritive quality of foods," Dr. Wilder said.

"Nothing seems more certain," he continued, "than that eating refined staples in the amounts in which they contribute to most diets—white flour, white rice, white hominy, white sugar—all of them starchy or sugary foods deprived by refinement of varying large proportions of their vitamins and salts, dilutes the dietary to a dangerous extent. We need more knowledge of how best to make these staple foods more wholesome. The answers reached so far are by no means satisfactory. In England undermilled wheat, retaining vitamins and minerals, was made mandatory for the war, but large numbers of people do not like such flour and it is very doubtful whether flour which is undermilled can ever compete in baking qualities with fine white flour.

"Effective efforts have been made in our country to improve white bread and flour by restoring to them the riboflavin,

thiamin, niacin and iron removed in milling. The products thus obtained encounter no objection on the part of the consumer but fail to satisfy the critics who demand that nothing be removed from wheat by milling. Here is room for more research by biochemists, nutritionists and food industrialists. Effort must continue until flour and other staples are obtained which are acceptable to the consumer but which also possess all of the nutritionally important constituents of the grains from which they are derived."

Science News Letter, May 19, 1945

SCIENCE NEWS LETTER

Vol. 47 MAY 19, 1945 No. 20

The weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N. St., N. W., Washington 6, D. C. North 2255. Edited by WATSON DAVIS.

Subscriptions—\$5.00 a year; two years, \$8.00; 15 cents a copy. Back numbers more than six months old, if still available, 25 cents. Monthly Overseas Edition: By first class mail to members of the U. S. armed forces, \$1.25 a year. To others outside continental U. S. and Canada by first class mail where letter postage is 3 cents, \$1.25; where letter postage is 5 cents, \$1.50; by airmail, \$1.00 plus 12 times the half-ounce airmail rates from U. S. to destination.

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Entered as second class matter at the post-office at Washington, D. C., under the Act of March 3, 1879. Established in mimeographed form, March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and the Engineering Index.

The New York Museum of Science and Industry has elected SCIENCE NEWS LETTER as its official publication to be received by its members.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., Pennsylvania 6-5566 and 360 N. Michigan Ave., Chicago, STate 4439.

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