MEDICINE

Infantile Paralysis Outbreak Will Test Value Of Vaccine

Health Officials Rush to Combat Disease in North Carolina as Two Laboratories Send Preventive

AN OUTBREAK of poliomyelitis, or infantile paralysis, in eastern North Carolina and adjoining counties of Virginia, has sent Dr. A. G. Gilliam hurrying from the Public Health Service to assist state and local health officials. Dr. W. P. Dearing and Dr. J. P. Leake also went to the stricken area.

The outbreak, which has affected the eastern-central portion of North Carolina, particularly the northern counties in this belt, has shown practically no extension into the western half of the state, Surgeon General Hugh S. Cumming announced. The fatality rate has been low.

Night and day Dr. John A. Kolmer and his colleagues of Temple University Medical School have worked to prepare vaccine to protect yet-unstricken children of North Carolina from the epidemic of infantile paralysis now spreading through the southern state.

In ten days enough vaccine to guard 2,000 children was rushed to Raleigh, N. C., "field headquarters" in medicine's latest battle with the disease. Since the first of April more than 3,000 doses have been distributed.

Tired and worn, Dr. Kolmer and his chief assistant, Anna M. Rule, direct fourteen workers in preparing the vaccine.

"The present epidemic," Dr. Kolmer said, "is the acid test to see whether our vaccine, or that produced by Dr. William H. Park and Dr. Maurice Brodie of the New York City Department of Health works best. By fall, when the follow-up results of the mass injections are checked and correlated, medicine should be able to determine who will win."

100 Doses a Day

One hundred doses of infantile paralysis vaccine are being prepared daily by the New York City Department of Health, Dr. William H. Park, veteran director of the department's laboratories, said. As soon as prepared, they are being rushed to North Carolina for use in the epidemic.

Plans are now being forward to double the output of the vaccine "factory" at the East River and the foot of East 16th Street, so great is the demand.

Except for scattered medical opposition to infantile paralysis vaccine, the general verdict is that mankind will win anyway, regardless of whether the Kolmer or the Park-Brodie vaccine receives "first" prize.

Children inoculated with the vaccine have everything to gain and nothing to lose from the treatment, according to the evidence so far obtained by the experimenters. Still to be decided is the question of how much a child is helped by receiving the injections, but it is known that he will not be hurt by the treatment.

Dr. Kolmer's clinic has personally supervised the injection of over 500 children without finding any ill effects in a single case. Drs. Park and Brodie claim comparable success in their New York experiments.

Dr. Kolmer prepares his vaccine from the spinal cords of the Rhesus monkey obtained from Bengal province, India. The $2.00 cost for the three-dose treatment is largely necessary because of the cost of importing the monkeys at from $6 to $10 each from Asia.

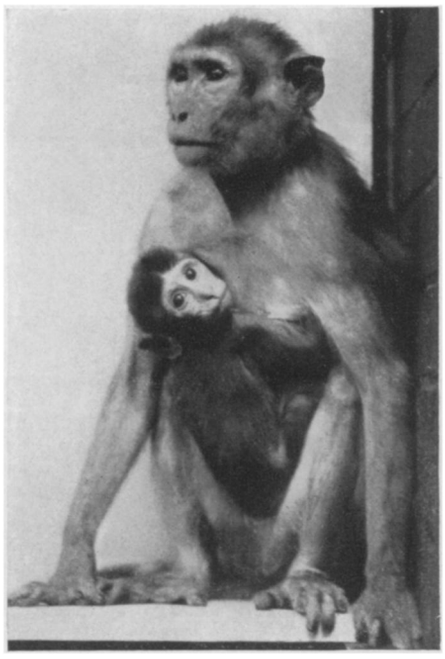
Must Reduce Cost

One of the greatest needs of the research and treatment right now, Dr. Kolmer said, is to find some means of lowering this cost so that it will not inflict a financial burden on poor families or on the state health departments who must administer it.

A laboratory should be established in India, Dr. Kolmer declared, where the spinal cords of the monkeys could be prepared and from which they could be shipped all over the world when packed in a solution of 50 per cent. glycerine.

Such a procedure would remove the necessary cost of feeding and caring for the monkeys en route and there would be no loss of animals in transit. As soon as the winner of the "vaccine" race is determined, the ground work, financial and otherwise, should be started to establish such a laboratory in India, Dr. Kolmer emphasized.

Ten thousand dollars, the Temple University scientist gave as his belief, would solve America's infantile paralysis problem. Dr. Kolmer has been financing his research in part from his own salary. With a recent grant of $250 he was able to cut the cost of each treatment in his clinic from $2.00 to seventy-five cents.



FRIEND OF CHILDREN

This playful animal, the Rhesus monkey, yields the vaccine which may save the lives and limbs of thousands of American children in future outbreaks of infantile paralysis.

With the India laboratory scheme plus mass production methods, the cost of treatment should be further reduced, Dr. Kolmer indicated.

The Rhesus monkeys, used in preparing the vaccine are the same type as those that hold tin cups for organ-grinders, or convulse a crowd outside the "monkey cage" at the zoo. Coming mostly from Bengal, they are found throughout the center and north of India, where they are semi-sacred animals to the natives.

Popularly, Rhesus monkeys are often called "blushing monkeys" because, when angry, their normally reddish faces take on an even deeper hue, that provides good color contrast with the yellowish brown hair covering their small bodies. The average length of an adult is about fifteen inches, while their tails run another six inches.

Crops in India are often seriously damaged by them with impunity because a religious taboo forbids their slaughter. They depend for their food upon grain, fruit, eggs, although sometimes eating insects and small lizards.

Seemingly, the supply of Rhesus monkeys is unlimited, and they are trap-

ped in large numbers, due to their habit of traveling in troops headed by an old male. Although good climbers, they are not exclusively arboreal, but spend much of their time on the ground.

Shipped to America and Europe in thousand lots, they are sold by animal dealers to medical laboratories, circuses, zoological parks, and individuals who desire unusual pets.

Until full grown, they are playful and easily handled as well as being long-lived and hearty in captivity, their length of life being roughly ten years. Doctors prefer them as subjects for experimentation because aside from their hardiness and easiness to handle, they exhibit more nearly the reactions of human beings to disease.

Science News Letter, July 20, 1935

MEDICINE

New Disease Found, Immunity Studies Now Being Rushed

DISCOVERY of a new disease and progress already made toward its prevention are announced simultaneously by two physicians in the U. S. Government service.

The malady, which has appeared in isolated instances in a number of states, has features resembling meningitis, infantile paralysis, and epidemic encephalitis, or sleeping sickness.

Pronouncing it a new diesase, Dr. Charles Armstrong, of the U. S. Public Health Service, and Lieut. Com. Paul F. Dickens, of the Navy Medical Corps, suggest the scientific name "acute lymphocytic choriomeningitis" for it. The agent causing the disease is found by the two physicians to be a filterable virus.

Cases of this disease have been reported in California, Maryland, District of Columbia, Illinois, Ohio, and Virginia. The disease runs its course in ten days to two weeks, and recovery is complete without paralysis or other after-effects.

Monkeys, mice, and guinea pigs are susceptible to the virus causing the malady, and the two physicians suggest that "a reservoir of the disease may exist in animals."

Tests show that a blood serum of patients who have recovered serves to protect experimental animals from the virus. The serum has not yet been used in human patients to test its power to forestall development of the disease.

Science News Letter, July 20, 1935

BOTANY

Science Five Steps Nearer Secret Of Green Leaf Factory

IT'S JUST a simple leaf inhaling carbon dioxide, but if it ever stops breathing in what man breathes out all life, as it exists today would cease in a short time.

Announcement was made by Dr. Dean Burk, U. S. Department of Agriculture scientist, that he and Hans Lineweaver, working in the U. S. Bureau of Chemistry and Soils, have come five steps nearer understanding the baffling chemical processes by which the leaf manufactures carbohydrates.

It is now only a matter of time, Dr. Burk said, until several more leaf reactions will be discovered. Then, chemists believe, man will be able to adopt and even improve on the method used in the green leaf chemical factory.

The process is known as basic photosynthesis. Chemists have long known that the wood in trees is created by the leaf. Its green coloring matter, chlorophyll, acts as a catalyst helping the air's carbon dioxide to unite with water to form a primitive carbohydrate which, in turn, becomes cellulose.

Dr. Burk compared the reaction of photosynthesis to an endless chain bucket pump in which the sun furnishes the power, the chlorophyll and another catalyst acting as buckets in pumping the carbon products to a higher energy level. The chemical equations, he discovered, are not of the simple type familiar to students of elementary chemistry, but depend upon changes of energy content.

The Department of Agriculture scientists experimented with a green alga, Chlorella, in the life of which little happens except the change of carbon dioxide to protoplasmic carbohydrates.

Importance of the work lies in the fact that when chemists can exactly duplicate the leaf's creative process, they will be able to improve and find short cuts. They may be able to do what Germany did in the War when her nitrogen supply ran low due to blockades, when she reached into the air and "fixed" nitrogen, taking the plentiful gas and converting it into explosives. In the same way chemists may eventually be able to create their own carbohydrates by taking carbon dioxide from the air or elsewhere.

The scientists also reported that those plants which are able to "fix" nitrogen do so by burning up the carbohydrates which their leaves created. It takes about as much energy to "fix" a pound of nitrogen as it does to "fix" a pound of carbon dioxide gas, Dr. Burk said.

Science News Letter, July 20, 1935

GEOLOGY

Earth's Upper Rock Layers Not Found Under Pacific

PACIFIC Ocean bottom rock is different from rocks found anywhere else, whether on land or under other oceans. It appears to be the earth's real foundation rock, overlaid elsewhere with other deposits which are missing throughout the area of the world's greatest ocean.

These are conclusions reached by Dr. B. Gutenberg of the California Institute of Technology, as a result of a long study of the rate at which earthquake and explosion waves travel through the earth's crust in various regions. The denser the rock the more rapidly the waves travel.

Everywhere except in the Pacific region the slower rate of rock wave movement indicates the presence of a "continental layer," says Dr. Gutenberg. This continental layer consists of two parts: an upper set of strata composed of sandstones, limestones and other sedimentary rocks; and a lower, thicker section made up of denser crystalline rocks like granite and basalt. Beneath this continental layer lies the real "rock bottom" of the earth's crust, called the "sial" by students of earth structure, made up of rocks of the class known as peridotites.

The continental layer is thickest in the earth's land areas, thinner under the oceans, but still present beneath all except the Pacific Ocean. There it is entirely missing and the sial foundation is the direct material of the ocean bed.

Science News Letter, July 20, 1935