

## MEDICINE

# Steps to Virus Conquest

Successful vaccine against poliomyelitis could result from relatively harmless strains of the virus that have now been grown in test tubes.

► HOPE FOR a successful vaccine against poliomyelitis appeared in a report that relatively harmless strains of polio vaccine grown in test tubes or flasks have been used successfully to vaccinate mice.

The report was given by Dr. John F. Enders of Harvard Medical School at the Second International Poliomyelitis Conference in Copenhagen, Denmark.

The weakened strains that protected mice were developed as a result of a three-year research project by Dr. Enders and his colleagues, Drs. Frederick C. Robbins and Thomas H. Weller.

These scientists have been able to grow the polio virus in test tubes on cultures of human embryonic tissues or on adult tissues obtained from surgical operations. Previously scientists believed the polio virus would only grow on nervous tissue inside the living body.

In the generations of virus grown on the cultures of tissue, new strains appeared. These new strains had practically no ability to cause the disease in mice and were used to vaccinate the animals against more virulent strains.

While a polio vaccine for humans is still far from ready, the fact that the virus can be grown outside the body gives scientists a great lift for further research in many directions.

## Chemical Against Virus

If viruses such as cause infantile paralysis, influenza and other serious diseases are conquered, it will be through chemicals, not vaccines.

Evidence in favor of this view was reported by Dr. Frank L. Horsfall of the Rockefeller Institute, New York, at the same International Poliomyelitis Conference.

The chemicals will act by interrupting the multiplication of the virus within the cell it has attacked. Some chemicals which can stop viruses in this way have already been found.

In infections with pneumonia virus of mice, the multiplication of the virus can be stopped by giving the mouse a complex sugar which occurs in the outer envelope or capsule of a bacterium responsible for a rather rare type of pneumonia in man. The organism is known as the *Klebsiella pneumoniae* and the sugar is known as a capsular polysaccharide.

This same capsular polysaccharide also has the ability to interrupt the multiplica-

tion of mumps virus in the cells of the living chick embryo, Dr. Horsfall reported.

Two chemical compounds have been found which are capable of interrupting the multiplication of the virus of Influenza A in tissue cultures, he said. They are dl-methoxinine and dl-ethionine.

Other chemicals were used successfully to inhibit the multiplication of two types of bacteriophages, viruses which attack and destroy bacteria.

Stopping virus diseases by vaccines depends on the theory that the body produces antibodies in reaction to specific viruses that invade it. This view is widely accepted but Dr. Horsfall believes the antibody idea is not adequate to explain many phases of recovery from virus diseases.

For instance, he said, no one has ever found antibodies in plants, yet they recover from virus infections. Also some virus diseases, like herpes simplex (cold sores) run their course despite abundant antibodies, while others, like psittacosis (parrot fever), display much active virus, but little antibodies.

Dr. Horsfall offered instead of antibodies the suggestion that the invading virus and some cell chemical system, limited in extent, strike some sort of balance.

## Iron Lungers Weaned

Iron lungers among recovering poliomyelitis patients are being weaned on rocking beds.

The rocking bed is like an ordinary hospital bed mounted on rockers and operated by an electric motor. It rocks, or seesaws, in a rhythm synchronized with the patient's breathing. As it rocks the patient's head up, the weight of the abdominal organs pulls the diaphragm down, expanding the chest cavity and sucking air into the lungs. Then, when the foot rocks up, the abdominal organs press against the diaphragm forcing air out of the lungs.

Polio patients who have been in an iron lung, or respirator, which keeps them breathing by alternating pressures until their breathing muscles can take over, are often scared to stay out of the lung. It is like a person who has broken a leg and is scared at first to walk without crutches even after his leg has healed. For the polio iron lungers, the rocking bed is a good weaning device.

The rocking bed was developed in 1946 at the Municipal Hospital in Pittsburgh and has been increasingly used since then. It was shown at the Conference.

Science News Letter, September 8, 1951



**BABY PORCUPINE RAT**—Its quills and rat-like features proclaiming its name, this baby porcupine rat was brought back from North Boreno. An Army Medical Center zoologist captured the animal while collecting specimens for the Center's study of scrub typhus. It can now be seen at the National Zoological Park in Washington for the first time. There is speculation about the way it will look when fully grown because American scientists have not been able to study the little creature.