

GENETICS

Immunity to Virus Ills

Inherited, genetic constitution may determine resistance to virus, basic, biologic studies with inbred mice and yellow fever virus strain show.

► **WHETHER YOU** will develop immunity to a virus when it invades your body or get sick and maybe die depends on your inherited, genetic constitution.

Resistance to a virus is inherited as a dominant in accordance with the Mendelian laws of inheritance, Dr. Albert B. Sabin of the University of Cincinnati Children's Hospital Research Foundation has discovered.

His findings, reported to the National Academy of Sciences meeting in Washington, were made with an inbred line of mice and the 17 D strain of yellow fever virus. But the phenomenon is a basic biologic one, true for humans as well as for mice and other animals. It does not show up as readily in humans because of the mixed genetic background of most human populations.

In some human populations, however, it does show up. In Africa, for example, certain tribes have immunity to the prevalent strains of yellow fever viruses. They do not get yellow fever, but white men going there, unless protected by vaccines, do get yellow fever and many have died of it. The African tribes evidently have the dominant gene for yellow fever immunity.

The discovery of a dominant gene for one yellow fever virus strain, 17 D, in an inbred line of mice was made accidentally in 1944. At that time Dr. Sabin was carrying on experiments on dengue fever, a menace to our troops in the Southwest Pacific. The problem was to see whether yellow fever vaccine would modify infection with dengue virus.

First step was to inoculate yellow fever virus into a strain of mice, to make sure it was active. The particular strain of mice he was using, called PRI, turned out to be 100% immune to the yellow fever virus strain under study. Not one of the mice got yellow fever.

This finding was surprising, and after the war, Dr. Sabin decided to look into it further. These inbred mice, he reported, have a dominant gene that makes them immune, after the first few days of life, to 17 D yellow fever, and also to the viruses of dengue, West Nile fever, Japanese B, St. Louis and Russian tick-borne encephalitis. But it is without effect on the viruses of western equine, eastern equine and Venezuelan encephalitis, poliomyelitis, rabies and a number of others tested.

The PRI mice also have an inherited, dominant susceptibility to another yellow fever virus strain, called the French neurotropic.

These genes for immunity and susceptibility apparently act through two different mechanisms: 1. control of the multiplication of the virus and 2. effect on the vulnerability of the body cells to the virus.

Further studies of the mechanisms of this genetic factor will, Dr. Sabin believes, show the mechanism by which chemical prevention of susceptibility to viruses can be achieved.

Science News Letter, May 10, 1952

ELECTRONICS

Portable Walkie-Lookie

► **A PORTABLE** television camera which may help to rush spot news to thousands of video screens while it is going on has been built and successfully tested by four research workers in the Radio Corporation of America's laboratories division, Princeton, N. J.

Describing the Walkie-Lookie in the technical journal *RCA Review* (March), L. E. Flory, W. S. Pike, J. E. Dille and J. M. Morgan reported that the unit was completely free of encumbering cables and wires to the control center because of its built-in power supply. The power unit is made up of batteries contained in a 50-pound pack carried on the operator's back. Engineers predict the self-contained power supply feature will cut time now required for television stations to set up equipment to cover spot news.

Housed in the pack are the tubes and circuits needed to transmit picture and voice. In operation, the Walkie-Lookie will transmit up to one-half a mile and for one and one-half hours. When covering events more than a half mile away from the broadcasting station, the unit will relay the picture and sound to a nearby mobile unit which

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"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Gerald Wendt, in charge of education in science, UNESCO, Paris, discusses "Science for the World."

INVENTION

Flat Tire Indicator Signals Motorist

► **JOSEPH FRANKS** of Lawrence, Mass., now deceased, has been granted patent number 2,590,394 for his invention of a flat tire indicator which signals a motorist of a flat tire by turning on a dashboard light.

The invention consists of two slightly curved tubes mounted near an automobile's axles. One tube is situated near the front of the car, the other near the back. Inside the tube are two smaller tubes and an electricity-conducting liquid which can move freely in the larger tube.

When a flat tire develops, one of the tubes becomes tilted and the liquid moves to one end. The liquid seeps through small holes in the inside tubes until it finally reaches a switch, closes it and causes a dashboard light to flash on. The invention can be so arranged that the flat tire indicator will report which tire is flat by turning on the proper one of four dashboard lights.

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