PUBLIC HEALTH

Test 'Flu Vaccine

➤ A NEW VACCINE designed to protect against the recently discovered influenza virus that is sweeping the world has already been passed as safe and is undergoing its first tests in human volunteers at the U. S. Public Health Service's virus laboratory at Montgomery, Ala. (See SNL, June 22, p. 387.)

The main purpose of the test on the 90 volunteers is to find the smallest amount of vaccine that will produce the necessary amount of antibodies in the volunteers.

The volunteers in this first trial have had no previous injections of 'flu vaccine and a blood sample will be taken from them each week during a six-week period.

A second trial will be done on 90 servicemen, who are volunteers from the Army's Gunther Field in Montgomery, the U. S. Public Health Service told SCIENCE SERVICE. These volunteers have already received presently used vaccine and the trial will determine whether their antibody production is the same as that of the first group.

Health officials will soon know what the optimum dose of the new vaccine should be.

The antibody determinations are done by what is termed a hemagglutination inhibition test. For this, a blood sample is taken and mixed with live virus. If there are no antibodies in the blood serum, a clumping occurs because of the virus's destructive action on the serum.

But if the serum contains sufficient antibodies, the virus will be neutralized and no clumping results.

The test can also be done quantitatively to see how dilute a serum, and therefore how little of the vaccine, will effectively neutralize the virus and give immunity to the individual vaccinated.

If the trials are successful and the vaccine dosage determined, the new vaccine will probably be included with the one now used and thus make the combination effective against the new type of 'flu as well as older known types.

Science News Letter, June 29, 1957

AERONAUTICS

Upper Atmosphere Flight

➤ MANNED FLIGHT through the upper atmosphere will soon be possible, the American Rocket Society meeting in San Francisco was told.

None of the problems seem "insurmountable," said Dr. C. Frederick Hansen of Ames Aeronautical Laboratory, Moffett Field, Calif. The National Advisory Committee for Aeronautics scientist reported only "moderate extensions" of present knowledge are needed to make the attempt practical.

The effects on passengers of the high acceleration required to lift the vehicle into its upper atmosphere orbit can probably be licked by wearing pressure suits. The problems of weightlessness can be solved by adaptation, at least for relatively short periods.

Cosmic rays will be less of a hazard than other factors during high-altitude flight, and erosion rates from the continuous sandblasting effects of tiny micrometeorites are not expected to be too serious.

Since animals have already been sent to the upper atmosphere in rockets without developing symptoms of disturbance or ill health, Dr. Hansen believes man will soon follow to explore this challenging frontier.

The man-made satellites expected to be circling the earth within a year can be built so they will not burn up in the atmosphere but can be recovered, A. J. Eggers Jr., also of NACA's Ames Aeronautical Laboratory, reported at the Rocket Society's session on hypervelocity flight. Mr. Eggers and H. Julian Allen, Ames Laboratory scientist and chairman of the session, developed the blunt-nose idea that made intercontinental ballistic missiles possible. (See SNL, June 1, p. 341.)

The blunt shape helps to beat the problem of excessive heat generated when a hypersonic missile re-enters the atmosphere.

Mr. Eggers envisions an even more blunt form for a recoverable satellite. It would be half a sphere, ten feet in diameter and weighing 1,250 pounds. This is about 58 times the weight, 21.5 pounds, and six times the diameter, 20 inches, planned for the first earth satellites expected to be launched by the United States during the International Geophysical Year.

Mr. Eggers' recoverable satellite would have three fins for stabilization into a nose-first attitude. At an altitude of about 50,000 feet, it would further decelerate to landing speed by parachute.

Science News Letter, June 29, 1957

TECHNOLOGY

Super Steel for Planes Developed by Scientists

➤ AN ULTRA-HIGH-STRENGTH alloy steel that can withstand stresses up to 285,000 pounds per square inch without becoming brittle has been developed at the National Bureau of Standards.

Containing titanium, silicon and boron, the steel is said to be made by normal melting and working processes and "should not be difficult to manufacture."

It is expected to find wide use in highly stressed airplane parts, particularly in the making of landing gears, which currently make up about 10% of the weight of an empty airplane. The steel, found by Samuel J. Rosenberg and Carolyn R. Irish of the Bureau's thermal metallurgy laboratory, promises to cut the weight of parts made from it and increase their strength.

Over 40 experimental steels were tried before the new one was formulated in an attempt to produce an ultra-high-strength steel having a tensile strength of 300,000 pounds per square inch for the Navy Bureau of Aeronautics.

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