

MEDICINE

Artificial Heart Helps Man

Machine made at a cost of only \$60 gave fireman new circulation of blood for 75 minutes during which he regained normal color.

► **SUCCESSFUL USE** of an artificial heart-lung machine on a human patient was announced by Dr. James Helmsworth of the University of Cincinnati College of Medicine and Dr. Leland C. Clark, Jr., of Fels Research Institute, Antioch College, Yellow Springs, Ohio, at the meeting of the American Association for Thoracic Surgery in Dallas, Tex.

The patient was an ex-fireman suffering from an unknown disease which caused extensive scarring of both lungs. As a result, he had chronic oxygen hunger and moderate heart failure. He was "blue" and uncomfortably short of breath.

In a special study of the machine and his condition, he was given a new circulation of blood through the artificial heart-lung. His blood was removed from a leg vein, sent through the heart-lung to enrich it with oxygen and rid it of carbon dioxide, and returned to veins in his arm.

The apparatus was first primed with three pints of donor blood.

The patient was on the artificial heart-lung for 75 minutes. During this time his color changed from blue to a nearly normal pink, he no longer was short of breath and, although the study was carried out without an anesthetic, he became comfortable enough to get his first sound sleep in several weeks.

The apparatus, which costs \$60, is a temporary substitute for human heart and lungs, but it can be used long enough to give temporary relief to a failing heart or to allow surgeons time to perform operations on either heart or lungs.

The all-glass dispersion oxygenator introduces the oxygen as fine bubbles freed from extra gas by a siliconed surface. The pump is electronically controlled.

Associated with Drs. Helmsworth and Clark in developing, perfecting and testing

the artificial heart-lung were Dr. Sam Kaplan of Children's Hospital, Cincinnati, Drs. Roger Sherman and Thomas Largen of Cincinnati General Hospital, and Miss Molly MacKenzie of Cincinnati.

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ASTRONOMY

Meteor Trains Show High Winds in Upper Atmosphere

► **THE FIRST** successful photographs of the wind-driven tail of a meteor train have shown the turbulence in the upper atmosphere, Dr. Fred L. Whipple, Harvard University astronomer, reported to the National Academy of Sciences meeting in Washington.

Taken with the Baker Super-Schmidt camera on the night of Dec. 22, 1951, the photographs give scientists a new technique for tracking the shifting winds 40 to 70 miles above the earth.

Using meteor-train photography, the speed of these winds can be told within five miles an hour, Dr. Whipple said. The photographs were made near Las Cruces, N. M., as part of a program sponsored by the U. S. Naval Bureau of Ordnance.

The measurements can be made because a meteor flashing through space leaves a luminous trail of debris which is blown about by hurricane-like winds. This trail is photographed every two seconds to get the wind speed.

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AERONAUTICS

Common Navigation System For Aircraft Progressing

► **SOME 350** of the 500 proposed new, very high frequency omnirange stations to blanket the United States and to provide electronic guidance to pilots on cross-country flights are now in operation, the National Conference on Airborne Electronics meeting in Dayton, Ohio, was told by Charles F. Horne, U. S. Administrator of Civil Aeronautics. A total of 438 will be in operation, it is expected, by early summer.

The installation of these omnirange stations is one of the most important steps in the recently adopted, so-called common system of air navigation and traffic control for the Federal Airways.

American aviation is now passing through what is called a transition program as a part-way step between its status at the close of World War II and the common system which will be used in common by all users of the airspace in the near future. The latter provides for the navigational, air traffic control and communications requirements of civil aircraft, both commercial and private, and military craft in non-tactical air operations.

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MAZE FOR MECHANICAL MOUSE—Dr. Claude E. Shannon, Bell Telephone Laboratories mathematician, sets his electrical mouse down in a maze through which it will find its way to the electrical terminal in the corner. The mouse's "brain" consists of some of the same kind of switching relays found in dial telephone systems. After one exploratory trial, the mouse "remembers" exactly how to proceed directly to the goal.