

GENERAL SCIENCE

Freedom Medal Awards

► THE PRESIDENTIAL Medal of Freedom, America's highest peacetime civilian award, was conferred on Dec. 6 by President Lyndon B. Johnson on 31 U.S. citizens and foreign nationals, and posthumously during the award ceremony, on Pope John XXIII and President Kennedy.

The persons receiving the award had been selected last summer by the late President John F. Kennedy on recommendation of the Distinguished Civilian Service Awards Board for their contributions to public affairs, education, science, health, letters and the arts.

Among the recipients were five who distinguished themselves in fields of science:

Dr. James B. Conant, 70, now residing in West Berlin: "Scientist and educator, he has led the American people in the fight to save our most precious resource—our children."

Dr. John F. Enders, Nobelist, 66, Brookline, Mass.: "Physician and researcher, he has opened new pathways to medical discovery and has been an example and companion to two generations of doctors in the demanding quest for scientific truth."

Dr. Edwin H. Land, 54, founder of the Polaroid Corp., Cambridge, Mass.: "Scientist and inventor, he has brought his creative gifts to bear in industry, government and education, enriching the lives of millions by giving new dimensions to photography."

Dr. Alan T. Waterman, 71, Washing-

ton, D. C.: "Physicist and public servant, he has been the foresighted advocate of Federal support of the sciences, using the resources of Government to improve the quality and increase the thrust of basic research."

Annie Dodge Wauneka, 53, Window Rock, Ariz.: "First woman elected to the Navajo Tribal Council, by her long crusade for improved health programs she has helped dramatically to lessen the menace of disease among her people and to improve their way of life."

In fields related to science, the following were honored: Genevieve Caulfield, 73, teacher of the blind in Southeast Asia; Karl Holton, 65, expert in juvenile delinquency; J. Clifford MacDonald (deceased), for his work with the physically and mentally handicapped; Ludwig Mies Van Der Rohe, 77, teacher, designer and architect; Edward Steichen, 84, photographer who "transformed a science into an art."

The medal for the late President was received by his brother, Attorney General Robert F. Kennedy, from President Johnson after the citation which hailed Kennedy as a "soldier, scholar, statesman, defender of freedom, pioneer of peace and author of hope." And borrowing from his inaugural address, the citation also said the President's memory will "hereafter light our country and all who serve it, and the glow from that fire can truly light the world."

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ASTRONOMY

Gigantic Neutrino Shower

► THE MOST GIGANTIC explosion in the universe, a galaxy of millions of stars blowing up, seems to be showering the earth with a known subatomic particle having unpredicted properties.

The particle is the neutrino, hard to detect because it has no electrical charge and no observable mass. Neutrinos are shot out of an atomic nucleus at the speed of light when atoms break up because of their radioactivity. The sun and other stars make billions of them in their nuclear furnaces.

For every neutrino of the newly discovered type that reacts with earthly matter, in special equipment placed deep in a cave, ten million pass right through. Nevertheless, these neutrinos have been detected by Dr. Clyde L. Cowan Jr. of Catholic University, Washington, D. C.

Dr. Cowan sees the new neutrinos serving as a tool for X-raying the earth, using equipment much improved over what he now has. Neutrinos could then, he said, serve as a tool "to plot the density of the earth."

Some of the neutrinos seem to be made by the exploding galaxy known as M-82, ten million light years from the earth, and are spewed into space by the tremendous blast.

Confirmation of the discovery of the neutrino's unexpected properties by others

would force scientists to revise their theories of nuclear structure.

The neutrino Dr. Cowan found has a chance of reacting with matter ten billion times higher than most nuclear physicists had previously thought.

The work was done by Paul Szydluk, Dr. Donald Ryan and Dr. Cowan, all of Catholic University. Besides support from the university, the research was funded by the Office of Naval Research, the Atomic Energy Commission, the Research Corporation of the Cottrell Foundation, the Resources Research Foundation and Guggenheim Memorial Foundation.

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ASTRONOMY

Ruby Color Seen On Moon Again

► A RUBY-LIKE RED color has again been seen on the rim of the moon crater called Aristarchus.

Four scientists confirmed the presence of the color, which faded in about 45 minutes. A ruby sparkle from Aristarchus was first spotted early in the evening of Oct. 29, then again early in the evening of Nov. 27, using the 24-inch telescope at Lowell Observatory, Flagstaff, Ariz.

Reappearance of the color a month later suggests the possibility of a pattern, Dr. John Hall, director of the Observatory, told SCIENCE SERVICE.

The observations were made by Drs. James A. Greenacre and Edward Barr both times, and the November sightings were confirmed by Dr. Hall and Fred Dungan. Except for Dr. Hall, the three scientists are working on a lunar mapping program for the U.S. Air Force.

Aristarchus appears in the upper left quarter of the moon when seen with the naked eye. It is near the lunar limb, and thus is visible from earth only sporadically. Whenever the crater can be seen, however, the 24-inch telescope will be turned on it, Dr. Greenacre said.

A large telescope is needed to see the color, which covered an area about 12 miles long and no wider than a mile and a half. It was not visible at the time through the 12-inch telescope, also at Lowell.

Cause of the color is not known.

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ASTRONOMY

Supernova Spotted In Southern Sky

► A SUPERNOVA, a star that suddenly blazed forth with the brilliance of 20 million or more suns, has been discovered in the southern skies.

Despite its high brightness, it is too faint to be seen without a large telescope because of its great distance of millions upon millions of light years. The supernova is in the constellation of Pisces, now visible low in the south.

The exploding star is magnitude 15 on the astronomer's scale. It was found by Enrique Chavira of Mexico's National Astronomical Observatory, Mexico City, on Dec. 6, and its discovery confirmed the following night by Dr. Guillermo Haro, director of the Observatory.

News of the supernova's discovery was telegraphed to astronomers by Harvard College Observatory, Cambridge, Mass., clearing house for astronomical information in the Western Hemisphere.

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TECHNOLOGY

Telescope Detects Heat Of 'Silent' Satellites

► AN EXTREMELY SENSITIVE infrared telescope that can detect "silent" satellites by their radiated heat energy after the radio is dead has been developed by International Telephone and Telegraph Corporation at the ITT Federal Laboratories in San Fernando, Calif.

The telescope has been used to map distant stars with very low temperatures. The stars were found to be extremely bright at infrared wavelengths, proving that previous estimates of their temperatures were high.

Freeman Hall, ITT Federal Laboratories scientist who developed the telescope, said his device was so sensitive that measurements were interrupted by the heat from insects flying near it.

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