

## GEOPHYSICS

# Radiation Belt No Hazard

► THE VAN ALLEN radiation belt girdling the earth is no barrier to manned space flight, the U.S. Air Force reported in Washington, D. C.

Data just obtained indicate the belt covers only one-half the previously estimated area of major radiation concentration but is six times as "hot."

The information was received from an Agena satellite. It has provided the first continuous data on the actual size and intensity of the inner portion of the belt. The information was relayed back to six far-flung Air Force tracking stations from a small 23-pound black box carried in the satellite.

The instrument package, known as HEP-DEX (High Energy Proton Detection Experiment), revealed that the zone of significant radiation covers approximately 20 degrees on either side of the magnetic equator.

Radiation measured was as high as 200,000 protons per cubic centimeter per second. This, according to the Air Force, equals 600,000 protons passing through a four-cent postage stamp each second, and indicates that the inner portion of the Van Allen belt is much "hotter" at its center than originally thought.

However, it would take nearly a week of continuous exposure at this rate to cause death, an Air Force spokesman noted. A space pilot would pass through the zone in

minutes. The Air Force Agena carried several radiation counters, the most sophisticated package to measure radiation ever sent aloft. The counters can distinguish between protons of varying energy and can separate protons from electrons. This is similar to distinguishing between black and white balls, moving in a totally darkened room, and the varying speeds at which all of the black balls are moving, according to officials.

Data show that many more low-velocity protons are present than high-velocity particles, indicating the earth's magnetic field is progressively weaker and less stable at higher altitudes.

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## CONSERVATION

## Salt Water Conversion Plant Dedicated

► THE SALT-TO-FRESH-WATER conversion plant near San Diego is progressing on schedule, with its 30-day shake-down run producing more than 31,000,000 gallons.

The official dedication took place Saturday, March 10, with the Secretary and the Undersecretary of the Interior, the Governor of California, several Congressmen and many other dignitaries attending the ceremonies.

The Point Loma plant, near San Diego, is the third saline water conversion demonstration plant to be completed under the Department of Interior's desalinization pro-

gram. Its importance was marked by the presence of top officials.

The State of California provided 50% of the cost of the \$1,608,000 plant. The fresh water produced will be sold to the City of San Diego.

The 30-day testing period proved to officials that the plant can produce an average of one million gallons of fresh water daily, the same amount being produced at the first conversion plant at Freeport, Tex. The second plant, at Webster, S. Dak., converts brackish water to fresh at the rate of 250,000 gallons each day.

The Point Loma plant uses the multi-stage flash distillation method to convert salt water to fresh. This uses heat to evaporate the water, leaving a salt residue.

Heating elements in the unit have been subject to damage in the plant at Freeport, and their cost is relatively high. This and other problems have led technologists to devise and experiment with other units, according to one official source.

After the dedication ceremonies, the plant was turned over to Burns and Roe, Inc., of Santa Monica, for management and operation experiments at the designed capacity.

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## BIOLOGY

## Pedigreed Mice Offered For High School Research

► HIGH SCHOOL STUDENTS engaged in serious biological projects as part of their school work, or for science club and fair participation, can obtain the same high quality of inbred pedigreed mice that are used in research throughout the world.

The Roscoe B. Jackson Memorial Laboratory, famous for its experiments in nutrition, genetics, physiology and behavior, has agreed to make available some of its stock for educational use.

Assortments of mice may be ordered at bargain prices by teachers or school purchasing agents by writing to the laboratory at Bar Harbor, Me.

Humane treatment of research animals should be observed, following the code prepared by the Committee on Animal Care.

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## TECHNOLOGY

## Tape Control Introduced Into Polaris Production

► TAPE-CONTROLLED equipment is being introduced into the Navy's Polaris missile manufacturing process for higher reliability and efficiency at the Lockheed Missiles and Space Company, Sunnyvale, Calif.

The tools, a turret-type drill, an automatic multiple tool changer and a profiler-type milling machine, on first order can change specific pieces of equipment through computer and tape control.

The new process will minimize tooling, reduce human error, increase reliability and save time and money on Polaris production lines.

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**COMPUTER-CONTROLLED MACHINE**—The photograph shows Lockheed Missiles & Space Company machinist E. A. Leb inserting a punched tape into the programmer that directs automatic milling of parts for the Navy's Polaris missile.