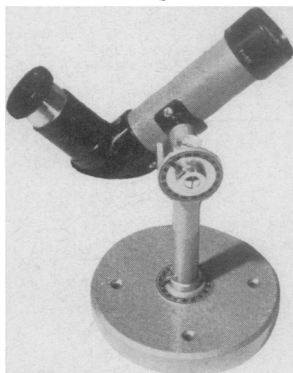


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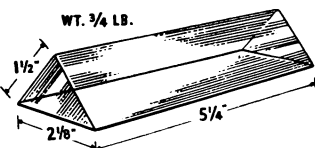
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GEOPHYSICS

Strange Radiation Over Earth May Be Electrons

► THE MYSTERIOUS BAND of radiation enveloping the earth, discovered by instruments carried in the satellites Explorers I and III, probably consists of electrons.

The puzzling radiation could also include protons, the nuclei of hydrogen atoms, and other atomic fragments with some of their electrons stripped off. These are the results of a preliminary examination of information radioed to earthbound listening posts from instruments in the latest U. S. satellite, Explorer IV.

They were reported by Carl E. McIlwain of the State University of Iowa, the physicist who developed the instruments especially for Explorer IV and who is temporarily in charge of interpreting space radiation data.

His findings result from examining metered data from about 50 of the 200 recorded completed orbits delivered to the Iowa decoding center.

The four radiation-detecting instruments in the new satellite are designed not to blank out under the intense radiation as previous equipment did. Their information has eliminated the theory that the mystery rays are X-rays created within the satellite when sun-spurred electrons bombard its metal skin.

The preliminary data show the orbiting instruments are speeding through an invisible rain of charged particles, probably electrons hitting the instruments directly, and possibly including protons, or other atomic fragments minus their usual number of electrons.

At least 60% of these charged particles readily penetrate the one-sixteenth of an inch lead shielding each Geiger tube. How this intensity level might affect future space travelers is still to be determined.

However, at about 1,200 miles above South America, the radiation intensity is believed to represent an exposure level of about ten roentgens an hour. The roentgen is a unit of radiation dosage. The highest permissible exposure under current practice is three-tenths of a roentgen per week, so the space traveler might receive such a dose in about two minutes.

Starting about 250 miles above the earth's surface, the intensity of space radiation appears to double approximately every 60 miles, Mr. McIlwain said.

Science News Letter, August 16, 1958

Do You Know?

The first gas successfully liquefied, in 1798, was *ammonia*.

Enzymes, which speed up body chemical processes, are a special class of proteins.

Multiple sclerosis is a disease of the brain and spinal cord.

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