

ASTRONOMY

Meteor Bits Increase

► WHY WAS THE EARTH peppered by 300 million excess bits of space debris during six months of last year? Scientists want to know.

An unexpectedly large number of meteors bombarded the earth for six months starting in April, 1963.

The reason for the great, worldwide increase in meteors smashing into the earth's atmosphere is not known. The surprising rise, detected by radar echoes, was reported in *Science*, 146:1457, 1964, by two Canadian and two New Zealand scientists. The meteor rate returned to normal about October, 1963.

Three possible causes for the increase are extraterrestrial, terrestrial or man-made.

However, Drs. Clifton D. Ellyett and Colin S. L. Keay of the University of Canterbury, Christchurch, conclude that it is "difficult to imagine any extraterrestrial factor" that could cause a marked increase in the amount of interplanetary matter encountered by the earth during half of one year.

They also find it "difficult to conceive of a terrestrial influence," such as varying ionospheric conditions, that would result in a proportionately greater effect at higher frequencies than was observed.

Concerning man-made effects, Drs. Ellyett and Keay say that published reports rule out the possibility that the increase could result from the reentry of some of the 400 million fine copper wires thrown into a halo around the earth in May, 1963, in a communications experiment called Project West Ford. The slim needles are expected to stay in their orbit some 2,300 miles above earth's surface for at least another year and a half.

Other possible man-made sources for the rise include "some kind of high altitude or space experiment."

Another possibility, not suggested by the scientists in their reports, is an unannounced Russian space experiment.

The increase in meteor rate in the Northern Hemisphere at Ottawa, Ontario, was 50%, Drs. Peter Millman and Bruce A. McIntosh of Canada's National Research Council, report.

They compared the average rates recorded by radar during the five-year period from 1958 through 1962 with those recorded for each month of 1963.

The rates were five times as high as the average fluctuations during July and August, 1963.

In the Southern Hemisphere, the increase was 100%. Drs. Ellyett and Keay note that the scanning area of their radar equipment at Christchurch amounts very closely to one-thousandth of the earth's total area at the 57-mile level. From this, they concluded that the excess number of meteors hitting earth during the six-month period of the increase was close to 300,000 within their scanning range.

This is equivalent to an influx of 300 million particles over the entire earth. The Christchurch equipment detects meteors arriving from any direction with magnitudes much fainter than can be seen by the human eye.

Studies made by the New Zealand group after the great increase was detected indicate that the meteor rate rise may be recurring, with decreasing strength, every six months.

• *Science News Letter*, 86:404 December 26, 1964

MEDICINE

Vaccine for Acute Colds

► A NEW adenovirus vaccine, promising to get rid of risks in the present vaccines now used only in military installations, has been injected into volunteers and is expected to be ready for field trials after further experimentation.

Scientists at the National Institute of Allergy and Infectious Diseases, Bethesda, Md., report that the adenoviruses can cause severe types of respiratory infections in children, including fatal pneumonia. So far no vaccine has been perfected for this.

In United States military populations adenovirus types 4, 7 and 3 can cause pneumonias and respiratory distress, for which there are vaccines. In Europe, however, type 14 adenovirus has been known to cause cancer in animals.

The risk of animal tumors has caused scientists to take a good look at the vaccine. There is continuing reappraisal of the use of live viruses in vaccines to rule out even the most remote possibility of danger.

The problem of potency variation in different lots of vaccine remains to be solved.

Present inactivated vaccines of whole adenovirus do not provide consistent protection.

Scientists have been working with a vaccine consisting of purified virus particles to eliminate infectious virus, the adenovirus itself, or outside agents that could be present in tissue cultures used to prepare the vaccine.

Drs. Julius A. Kasel, Frank Loda, Peter A. Banks and Vernon Knight, with Margaret Huber, all of the laboratory of clinical investigations, have prepared experimental vaccines to determine whether two of the soluble antigens of adenovirus type 1 could stimulate neutralizing antibody.

The volunteers have been found to be substantially immune to infectious adenovirus, and when the vaccines were injected into volunteers, the production of antibody capable of neutralizing infectious virus in the test tube was stimulated.

Details of the work were reported in the Proceedings of the Society for Experimental Biology and Medicine, 117:186, 1964.

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