

# Questions

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## MEDICINE

### Polio Season Brings "Orphan" Viruses

➤ APPEARANCE OF "orphan" viruses during the polio season was reported by Dr. Joseph L. Melnick of Yale University, New Haven, Conn., at a New York Academy of Sciences Conference in New York on polio.

The orphan viruses are not polio viruses and they are not members of the Coxsackie group. But they frequent the intestinal tract during the polio season and produce similar changes in cultures of tissue growing outside the body. They do not, however, react with polio virus anti-serums.

The orphan viruses make up a large assembly. At least six different types exist. Those that have been measured have the same sizes as polio viruses.

Science News Letter, February 5, 1955

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## METEOROLOGY

# A-Blasts and Weather

➤ A-BOMB EXPLOSIONS do not affect the weather by any test Weather Bureau scientists have been able to make.

Dr. Lester Machta and D. Lee Harris of the U. S. Weather Bureau in Washington investigated possible ways that A-bomb tests might affect weather.

"There appears to be no reason for believing that any past explosion at the Nevada Proving Ground has had any significant effect on the weather more than a few miles from the test site," they concluded.

Every year since the atomic weapons testing program was enlarged in 1951, both the Weather Bureau and the Atomic Energy Commission have been besieged by letters blaming unpleasant weather on the tests. Their analysis in *Science* (Jan. 21) does not support this charge.

Although the two scientists limited their discussion to the atomic explosions because they had not yet examined sufficient data from the most recent Pacific tests, they said their preliminary examination did not indicate "any obvious changes in the weather have been produced by these explosions outside of the test area."

The possible relationships of A-bomb test and weather investigated included effects of atomic debris as cloud-seeding nuclei, on atmospheric electricity, solar radiation, climate and energy level of the atmosphere.

They found no reason "for believing that any of the mechanisms examined" was responsible for weather changes.

Dr. Machta and Mr. Harris concluded that "the year 1953 was an unusual tornado year," but they attributed this to improvements in tornado-reporting methods.

"A study of the temperature and precipitation records for the U. S., does not seem to indicate any departures from normal that are related to the atomic explosions."

Most theories suggested that A-bomb tests would increase rainfall. The U. S. now seems to be going through a dry spell, which began in 1952, the driest year since 1930. The years 1910 and 1921, as well as 1930, were drier than 1952, the meteorologists pointed out, and atomic explosions could not have caused them.

Temperatures in the U. S. have tended to be warmer than normal since 1951, the scientists said, but noted that if atomic debris cut down solar radiation, it should mean lower, not higher temperatures. The trend toward warmer temperatures was even more pronounced during the period 1932 to 1934, long before the atomic bomb.

The cloud-seeding effects of atomic debris were investigated to see if radioactive particles might serve as ice nuclei and by testing the soil thrown into the air to see if it was effective in forming precipitation.

Results in both cases were negative.

Concerning possible electrical effects, Dr. Machta and Mr. Harris concluded that "no observational evidence or theoretical reasons

have been found for believing that changes in the electric conductivity of the air will lead to any directly observable changes in the weather other than the possibility of decreasing the amount of lightning."

Although large amounts of dust in the atmosphere are known to reduce solar radiation received on the ground, as occurred after the eruption of Krakatoa volcano in 1883, the amount of dust thrown out by atomic explosions is considerably less than that required to produce a noticeable effect, the Weather Bureau scientists said.

The energy of the explosion itself also has no effect on the weather, the meteorologists concluded, noting that the energy of a "nominal A-bomb" is equivalent to 20,000 tons of TNT, while the energy released by water condensation in a typical thunderstorm is 13 times this amount.

"Further comparisons with natural phenomena reveal similar statistics suggesting that the energy of an A-bomb, while tremendous compared with the energy of other man-made explosions, is relatively small compared with that of many natural phenomena," they said.

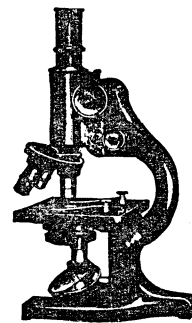
To make sure that no reasonable explanation concerning the effects of atomic explosions on weather would be overlooked, the Weather Bureau scientists asked for suggestions from most organizations in the U. S. that employ meteorologists.

Of the 80 or so replies received, about half could see no possible connection. The others made suggestions along the lines investigated by Dr. Machta and Mr. Harris.

Although the probability of any change is "small," the two scientists noted that "there does not seem to be any reason why such modification would necessarily produce worse weather than might occur naturally."

Science News Letter, February 5, 1955

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