METEOROLOGY

Meteor Dust "Makes" Rain

Study of rainfall patterns show that, 29 or 30 days after the earth enters a large meteor stream, the amount of rainfall, if any, is at a peak. Meteoritic dust is believed the cause.

➤ METEORITIC DUST sifting down from the heavens may do more to "make" rain than all the particles human rain makers throw into clouds as "seed."

This is shown by research of Dr. E. G. Bowen, director of the radiophysics laboratory of the Commonwealth Scientific and Industrial Research Organization, Sydney, Australia, discussed in a SCIENCE SERVICE interview.

Dr. Bowen's studies show that, 29 or 30 days after the earth enters a major meteor stream, if rain falls at all, the chances are extremely good that the rainfall will be a heavy one. He pointed out that the chances of rain occurring on a certain day are not due to meteoritic dust, but are determined by local and world-wide weather patterns.

However, if, about a month after a big meteoritic shower, these weather patterns are such that rain does fall, then the amount of rain will be considerably increased because of the atmosphere's meteoritic dust.

His new findings are expected to influence artificial rain-making now a most controversial weather subject. Western ranchers and farmers spend hundreds of thousands of dollars a year on efforts to make it rain, yet the Weather Bureau, backed by nearly a 100 years of records, often can tell them it would have rained without the rain maker's efforts.

President Eisenhower recently appointed a Committee on Weather Control and Evaluation, headed by retired Navy Capt. Howard T. Orville of the Bendix Aviation Corp., Baltimore, to check on the success or failure of cloud seeding experiments and to recommend weather control laws. (See SCIENCE NEWS LETTER, Dec. 24, p. 406.)

Dr. Bowen hit upon the meteoritic dust effect when he discovered that heavy rainfalls occurred on certain days rather than others, and that this pattern was repeated "year after year." Later, he found, the heavy rainfall peaks occurred on nearly the same days in both the northern and southern hemispheres.

The reasons for this world-wide, repeating pattern, Dr. Bowen concluded, would most likely be from outside the earth. That meteor showers were the answer was clinched when he discovered that the times of rainfall peaks varied by one day prior to 1900. Because of the way our calendar is set up, days of peak rainfall observed prior to 1900, by actual date, would come one day earlier than those found during this century.

Dr. Bowen's conclusion is that "meteoritic dust exists in adequate quantities to affect the rainfall of the lower atmosphere, and its time of fall is of the right order to account for the observed interval between meteor showers and peaks of rainfall."

Other scientists have found that the total mass of material falling on the earth in sizes large enough to give visible meteors is about a ton a day. This visible material is accompanied by dust, and the amount of these dust particles swept up by the earth in its path through space is thought to be about 10,000 tons a day, on the average.

It is this dust accompanying meteor showers that, when it falls into cloud systems in the lower atmosphere, provides the rain-forming nuclei, Dr. Bowen believes. When the particles are in interplanetary space, they are believed to have speeds of six to eight miles an hour in relation to the earth.

However, on entering the earth's atmosphere, those particles less than two ten-thousandths of an inch in diameter are stopped sharply at a height of about 60 miles. It would take particles of this size from 30 to 50 days, Dr. Bowen has calculated, to drift from 60 miles to 40,000 or 50,000 feet, the height where towering clouds are found.

Among other effects that sudden stopping of the meteoritic dust might produce on our atmosphere, Dr. Bowen states, are the noctilucent, or night-shining, clouds high in our atmosphere. Nearly 20 years ago, Dr. E. H. Vestine of the Carnegie Institution of Washington, charted the dates of the appearance of these noctilucent clouds, and some of them coincided then with the then known meteor streams. New daytime meteor showers, discovered by use of radar 15 or more years later, also correspond to the dates on which Dr. Vestine found night-shining clouds appeared.

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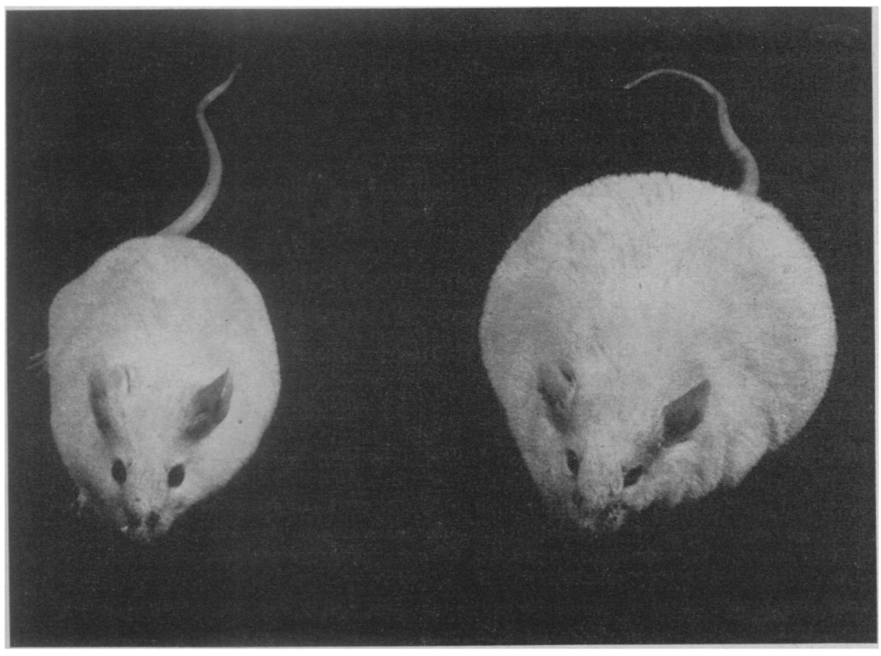

GOLD-FATTENED MICE—Gold injections, part of a cancer research program, caused the laboratory mouse at right to grow three times fatter than the normal-weight mouse at left.

MEDICINE

Gold Fattens Mice, Makes Them Cancerous

➤ DISCOVERY THAT mice fattened by injections of gold are at least twice as likely to get cancer as normal mice is announced by Dr. Samuel H. Waxler and Pelagia Tabar of Stanford University, Calif.

Apparently it is the fat and not the gold chemical that caused the increase in rate of cancer development, since a few mice did not get fat in spite of the treatment and, among these, the frequency of cancer also dropped.

The injections of gold thioglucose, Dr. Waxler had found previously, gives the mice a ravenous appetite and causes them to develop thick layers of fat. They gain two to three times their normal weight.

Among gold-fattened mice, 64% of the males between the ages of one year and 16 months developed cancer of the liver, compared to 28% of control mice. These were all from a cancer susceptible strain in which about 25% unfailingly develop cancer.

Among female gold-fattened mice, 50% developed breast cancer by the age of 295 days, compared to 19% of the controls.

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