

METEOROLOGY

"Poison" Cloud's Nuclei To Prevent Hail Storms

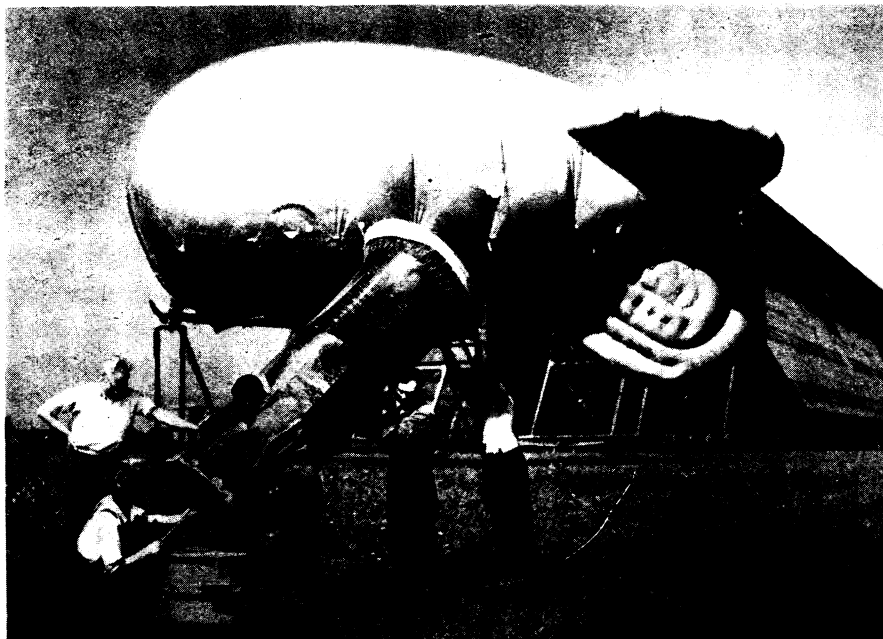
► "POISONING" the particles in clouds around which hail forms was suggested as a more promising method of hail prevention than cloud seeding at the American Meteorological Society meeting in Chicago.

The "poisoning" would not be arsenic or some other such lethal compound, but some chemical that would hinder nature's process of producing hail.

Cloud seeding may actually increase, rather than decrease as it is supposed to do, the amount of hail formed in storm clouds, Dr. Helmut Weickmann of the Signal Corps Engineering Laboratory, Belmar, N. J., charged. He said this is because more water is stored in the hailstorm clouds than is released during the storm, so adding more particles around which hail can form could enhance hail formation.

Dr. Weickmann believes it should be possible to prevent hail by "poisoning" the freezing nuclei already present, thus robbing them of their ability to be the hailstone's center. A chemical that would change the particle's crystal structure, for instance, might do the job. Ammonia is one chemical known to have an effect on freezing nuclei.

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BAGGING INSECTS—Agricultural experts in Hertfordshire, England, are shown here engaged in pest control experiments. They are preparing an insect trap for another flight suspended from the balloon which will be sent into the upper atmosphere. Scientists hope to learn how weather conditions affect the distribution and numbers of insects.

BIOLOGY

Heredity and Cancer

► ALL CANCERS are caused by the same biological mechanism — the breakdown in the body's ability to maintain an even balance or equilibrium.

The breakdown most probably occurs during the aging process in which the body is gradually weakened, the equilibrium upset and an organ of the body suddenly goes wild in growth.

These are some of the findings of Dr. Leonell C. Strong, director of the biological station of the Roswell Park Memorial Institute, Springville, N. Y., based on his 40-year genetic study of mice.

"I have found evidence that indicates there is a strong organic relationship between different kinds of cancers," Dr. Strong reports. "This is being neglected today and researchers are calling one cancer different from another cancer."

Dr. Strong makes it quite clear his studies with mice can only apply to cancer problems in humans in that there are fundamental principles governing the cause of cancer in all mammals.

Studies in which chemically-induced cancers are transplanted in mice have shown, Dr. Strong explains in *Science* (March 29), that a mechanism actually exists that keeps both the species and individuals of the species in equilibrium. If this were not the case, he reported, it would be relatively easy for a species to drift into a state of chaos.

In mice bred with transplanted cancers, for example, reproduction is slowed down or speeded up to adjust to the normal cycle.

In this case, litters are later than normal or earlier than normal; smaller or larger in numbers; or produced by the mother mouse at an earlier or later age.

This equilibrium, Dr. Strong believes, is maintained until the aging process causes a breakdown that results in an organ of the animal becoming cancerous.

Different families of humans, Dr. Strong reports, age differently. Some suffer a metabolic breakdown earlier than another kind of breakdown. Others suffer a neurological breakdown first, and so on. When the breakdown occurs, it gives a part of the body a chance to go wild.

Where children develop cancer, Dr. Strong states, it is an example of precocious aging.

On the other hand, some families maintain an equilibrium throughout the aging process and members live to 100 years or more.

Another finding of the study revealed a case of reversed susceptibility. Dr. Strong notes he "should have quit when he was half done."

He had bred mice that were resistant to induced cancers. He then re-bred them and finally, after seven generations, produced a strain of mice that was immune to transplanted cancers. But, the eighth and following generations "reversed" the trend

and became more susceptible to the cancers than the original parents of the strain.

Dr. Strong is now trying to find out why this happened and what relationship it has to inbreeding.

"The primary aim of the entire study," Dr. Strong concludes, "is to find a prevention for cancer based on the rational mechanism responsible for it."

"I firmly believe a prevention will be found before a cure for cancer will be found."

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TECHNOLOGY

Eight Cameras Score Guided Missile Hits

► A MISSILE-SCORING SYSTEM using eight cameras, four in each wing-tip pod, to give full sky coverage for determining how and why a guided missile hits or misses its target has been developed for the U. S. Navy.

Since guided missiles and their drone targets fly close to the speed of sound, a reliable method for evaluating each test can best be obtained photographically from the target. The scoring system gives this information on 16mm motion picture film. The cameras, designed and manufactured by Bell & Howell, Chicago, have a 200-foot film capacity, sufficient to cover as many as four missile tests without reloading.

A pair of pods, one for each wing tip, cost \$23,800, Charles H. Percy, Bell & Howell president, said, but this price will drop as production continues.

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