

## ASTRONOMY

# Tons of Meteor Dust Daily

Micro-meteors, so tiny they do not burn, rain constantly upon the earth. Pitting of rockets shot high into upper atmosphere show their presence.

► MILLIONS OF meteors so small they are never heated enough to blaze across the sky as even faint "shooting stars" each day enter our atmosphere.

These meteors are so tiny that although our atmosphere slows them down as it does larger "falling stars," it never heats them above their melting point, Dr. Fred L. Whipple of Harvard College Observatory, Cambridge, Mass., reports. Being so small, they can radiate away the frictional heat fast enough to avoid boiling away.

Fully 1,000 tons of this dust from outside our atmosphere rain down upon the earth each day, Dr. Whipple estimates. Every day or two one of these particles usually falls on each square inch of earth.

Some of these micro-meteors were undoubtedly torn loose from larger meteors as they flashed through the air. But most of them are believed to be cosmic bits scooped up by the earth's atmosphere as it speeds through space.

These micro-meteors are so tiny they would easily escape notice. You would have to lay about 40 of them end to end to get the thickness of a blond hair or piece of newspaper.

They are slowed down in their flight through our atmosphere 65 to 80 miles above the earth, but they radiate away the heat of friction too fast to shine in the sky. Thus they drift down to earth undamaged, tons of them each day.

The presence of these numerous little, unshining meteors is betrayed by rockets shot high into our upper air. The rocket's polished surface is always pitted when it returns to earth, states T. R. Burnight of the U. S. Naval Research Laboratory. Rockets that have been in the upper air only a few minutes show small craters on their polished surfaces.

Micro-meteors striking the nose of a V-2 rocket hit it with enough force for the noise to be recorded with high-frequency radio equipment. Drs. J. Lloyd Bohn and F. H. Nadig of Temple University, working under contract with the U. S. Air Material Command, calculate from recordings of the noise that these baby meteors bump into the nose of a rocket every 2.2 seconds on an average.

From the ocean comes additional evidence that these cosmic bits are straying into our atmosphere daily. The nickel content of deposits on the bottom of the deep sea is much greater than would be expected from the general composition of the earth, Drs.

Hans Pettersson and Henri Rotschi of Sweden's Oceanografiska Institutet have discovered.

"Several thousand tons per day" of meteor material must enter the earth's atmosphere each day for so much nickel-containing sediment to fall into the deep waters of the Atlantic and Pacific Oceans, they reason.

These estimates based on ocean sediment agree remarkably well with the calculations of Dr. H. C. van de Hulst of Leiden Observatory, the Netherlands, and Dr. C. W. Allen of Australia. They were the first to demonstrate theoretically the nature of the numerous small particles that swarm around the sun near the plane of the path that the earth follows in its yearly route about the sun.

The nearness of these tiny dust particles to the plane of the earth's orbit was signaled by the scattered sunlight observed during an eclipse and the soft, faint triangle of light, called zodiacal light, sometimes seen in the sky on spring evenings and autumn mornings.

Pilots flying high in our atmosphere have noticed that the daylight sky is bluer than would normally be expected when one rises

above the dust of the lower air. Dr. D. M. Parker and C. Lock of the Naval Research Laboratory in particular have noted the excessive scattering of the daylight sky. Micro-meteorites may well cause it.

Science News Letter, March 29, 1952

## MEDICINE

## Gold in Body to Remain After Cancer Is Destroyed

► CANCER PATIENTS in the future may be walking around carrying gold pieces in their bodies instead of cancers.

The gold pieces will be small, about the size of seeds. They will be the remains of "hot" gold that destroyed the cancers through its radioactivity.

This future prospect, and so far it is still in the future, is foreseen from research by Dr. William G. Myers of Ohio State University, Columbus, and two Naval officers, Lieut. Benjamin H. Colmery, Jr., and Comdr. W. L. McLellon who worked at the university under a radiological defense program.

These scientists found that radioactive gold-198 could be made into "seeds" which, in mice, will actually destroy cancer cells. The "hot" gold is in the form of a fine wire. It is inserted into thin gold tubing. Then bits of any desired size can be pinched off. These little pieces of gold can be left in the body permanently, because radioactive gold-198 has a half-life of only 2.7 days. Until now, radon seeds have been the only radioactive sources which could be used for permanent insertion in cancer.

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**FIRST TURBINE HELICOPTER**—The world's first turbo-rotor helicopter is shown on its initial flight. It is a Kaman Aircraft K-225 helicopter powered with a Boeing gas turbine. Marked increases in the plane's performance, because of weight savings, are predicted.