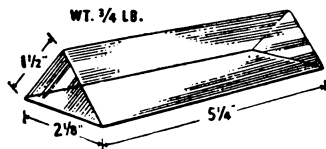


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### ASTRONOMY

## Lava Tubes for Shelter

WHEN MAN lands on the moon, he may find ready-made lava tube houses which will protect him from the alternately sub-freezing and scorching temperatures there.

These lava tubes, or tunnels, are formed under the lava crust that overflows as a volcano erupts. As this crust hardens and cools, there will still be small streams of hot, fluid lava underneath, which later run out and leave empty tubes.

On earth such lava tubes are known to exist in igneous rock formations—a famous one is near the volcano Kilauea in Hawaii. We may expect to find them on the moon also, if the moon's surface features were formed by volcanic activity, Dr. Jack Green, geologist of the Missile Division of North American Aviation Corporation, Downey, Calif., told the National Capital Astronomers in Washington, D. C.

The two most popular theories of the origin of the moon's surface features are the impact theory and the volcanic theory. Neither is yet proved. The impact theory holds that the deep rifts and the craters of the moon were formed by the impact of meteors and other objects hitting the surface. The volcanic theory maintains that the lunar features resulted from the internal processes in the cooling and shrinking of the moon.

On earth, craters from volcanic activity appear much like the ones seen on the moon, except they are much smaller. These craters, called calderas, are formed when the central part of a volcano collapses.

Crater Lake in Oregon is an example of such a caldera.

The process by which the calderas on earth were formed has generally been known, but it has never been applied in trying to explain the origin of the craters of the moon, Dr. Green said. He proposed three mechanisms that favor a lunar volcanism which is much more explosive than that on earth and would account for the much larger craters, some of which are up to about 150 miles across.

1. Because the moon has less gravity than the earth, the bubbles formed in a volcanic column of lava would tend to gather together six times deeper than in a volcano on earth.

2. The bubbles, rising in this longer lava column, when expanding, would absorb heat from the molten rock and make the lava more sluggish in the upper part of the volcano.

3. The absence of oxygen on the moon's surface would eliminate surface heating effects due to oxidation and increase the sluggishness (viscosity) of the lava on the surface.

These three mechanisms increase the possibilities for explosion at the top of the lava column because the sluggish lava forms a cap at the top instead of rising further. There would also be a much greater degree of collapse after the degassing of the molten lava column and therefore bigger craters.

Science News Letter, November 28, 1959

### MEDICINE

## Cancer Control Hinted

A TIME TABLE for a normal cell's turning into a cancerous cell, presented to the National Academy of Sciences meeting at Bloomington, Ind., may hold promise of a new approach to cancer control.

In less than a week after infecting chicken eggs with a virus-caused cancer, Rous sarcoma virus, normal cells will have changed into cancer cells, Dr. James Ashmore of the Indiana University Medical School, Indianapolis, said. The changes from normal to cancerous can be timed by the cell's appetite for glucose.

Infected cells have a voracious appetite for glucose, he explained. In his studies, carried out with Drs. Richard Uhl and Alvin S. Levine also of the Indiana Medical School, Dr. Ashmore has been able to relate changes in a cell's affinity for and utilization of glucose with its state of infection.

As infection continues, there are certain changes in lactic acid production—a result of the cell's "eating" glucose—and glucose utilization is as high as seven times that of uninfected cells, Dr. Ashmore reported.

At this point, the scientist explained, the findings are mainly of interest because of the basic information gained on how cancer

cells function and get their energy supply and how this differs from normal cells. However, there is the possibility that some chemical compound can be found that will substitute for glucose and trick the cancer cell into utilizing it for food. With the cancer cell's greater appetite for glucose, this might mean controlling its growth or even causing death of the cell.

Science News Letter, November 28, 1959

## Do You Know

Unless properly controlled, *weeds* may completely crowd out crop plants.

*Lightning* strikes the earth an average of more than 8,000,000 times daily.

Both atmospheric ozone and radioactive fallout are influenced by the same *meteorological mechanism*.

The orbit of a *space satellite* is the most sensitive known tool for studies of the earth and its atmosphere.