Earth and Environment Notes

GEOLOGY

Tongue of the ocean

The Tongue of the Ocean, a 160-kilometer-long, 3,600-meter-deep undersea canyon in the Bahamas, has been a deep-water feature for at least 13 million years, probably longer.

The limestone that forms the rugged outcrops in the canyon walls was not made from the sediments that presently are accumulating in the area, according to a report by two U.S. Geological Survey scientists.

Comparison of data from test wells on nearby Andros Island with the depths of the rock formations in the Tongue of the Ocean suggests that the strata have either slid downslope into the canyon or been down-warped in that area, they report.

Conditions similar to the present have prevailed since the late Miocene epoch when the rock was apparently formed under 300 meters or more of seawater, according to Survey scientists Thomas G. Gibson and John Schlee.

"We do not know how the outcrops formed, but suggest slumping on the side of the canyon as a possible explanation."

The team studied the giant submarine canyon from the research submarine Alvin in August 1966. They made two dives approximately five kilometers southwest of New Providence Island ranging in depth to 1,676 meters.

ECOLOGY

Kangaroo rats like it cool

Kangaroo rats, desert dwellers all, can't stand high temperatures for more than a few hours at a time, according to the American Museum of Natural History.

In laboratory tests, several Death Valley rodents died after exposure to a temperature of 100 degrees F. for less than three hours. At 105 degrees, most of the test animals lasted no longer than 90 minutes.

The rats survive in the desert by burrowing into the sand, where the temperature rarely gets over 80 degrees, according to a report in the Oct. 30 issue of the Museum's magazine, NATURE AND SCIENCE.

OCEANOGRAPHY

Buoys in the Gulf of Mexico

A self-contained, subsurface oceanographic buoy system is being tested in the Gulf of Mexico about 65 miles south of Grand Isle, La., by Esso Production Research Company.

The system, moored to four anchors, is designed to stay down for 30 days while recording its findings. Then a float with a radio beacon pops to the surface to signal recovery vessels.

Data from the first trial run are being analyzed now. Esso is primarily interested in wave height and underwater current measurements in relation to its off-shore drilling rigs.

MINERAL TECHNOLOGY

Manganese nodules worthless

Five years of research on manganese nodules from the sea floor has failed to turn up an economically feasible method of using them, according to the U.S. Bureau of Mines.

The nodules contain varying amounts of manganese, iron, nickel, cobalt and traces of a dozen or so other metals, the Bureau says. Their discovery was once hailed as the opening of an era of unprecedented mineral wealth from the sea.

Typical, says the Bureau's director Dr. Walter Hibbard Jr., are the results of experiments on a one-ton sample of potato-sized nodules dredged from the Blake Plateau off Georgia in the Atlantic.

Neither conventional nor novel smelting methods show any commercially significant promise.

Nodules from relatively shallow areas—about 3,000 feet of water—contain the right minerals but in the wrong proportions for economic recovery by known methods, he says.

Nodules from greater depths—up to 12,500 feet—are more favorably arranged, but are so much harder to get at in the first place that their recovery is still not commercially worthwhile.

ENTOMOLOGY

Time capsules kill insects

Capsules of biological insecticides have proved capable of controlling the European corn borer as effectively as DDT in Department of Agriculture tests.

The capsules, containing spores of the bacteria Bacillus thuringiensis, controlled up to 90 percent of the borers infesting the test plot near Ankeny, Iowa, according to entomologists Earl Raun and Robert Jackson.

Three advantages make the capsules seem especially promising: they can be applied to the exact parts of the plants most often attacked by the borers; they do not have the generally toxic effects of DDT; and they release their biological weapons over a period up to six weeks long.

GEOPHYSICS

How old is earth?

Earth is 4,530 million years old, plus or minus 40 million years, according to a University of British Columbia geophysicist. The figure pares millions of years off earlier estimates.

The calculation depends solely on the relative amounts of lead and uranium isotopes in rock samples. It is independent of the ages of the particular rocks studied, Dr. T. J. Ulrych reports in the Oct. 13 SCIENCE.

He studied six samples of rocks—oceanic basalts—taken from the Atlantic and Pacific basins. The rocks that were themselves formed furthest back in time—1,230 million years, plus or minus 350 million years—were taken from the mid-Atlantic Ridge.