

Dr. Nichols visited a certain area frequently during a summer and fall, marking all toads he could catch with identifying tags and carrying them various distances from the point of capture. Of 141 toads removed one mile or less from "home," 63 were subsequently recovered. Thirty of them had found their way back to the home territory in from 2 1/2 hours to 24 days.

#### Miniature Cannibalism

Cannibalism is not a monopoly among saw-toothed South Sea Islanders and wild black men of Central Africa. It exists far down in the sub-human world, among the one-celled animals, the protozoa.

Dr. A. C. Giese of Stanford University reported cases of protozoan cannibalism which he has studied. The successful eaters of their brother-microbes frequently become giants of their kind.

#### Old Fort a Science Outpost

Deep in the heart of Africa stands an old fort, built by the Germans as a World War stronghold. It is now an outpost of science, whence attacks are made on much smaller enemies than soldiers, but in their way deadlier—the dreaded tsetse flies, carriers of African sleeping sickness.

Here labor scientists who are trying to rid Central Africa of this depopulating scourge, stated Dr. P. J. Parrott, vice-director of the New York State Agricultural Experiment Station at Geneva, N. Y. Dr. Parrott saw the fort-laboratory during a recent scientific trip that began at Cape Town and ended at Cairo.

Another scourge of Africa, also depopulating in its effects though less directly so than the tsetse fly, is an importation from the New World; the prickly-pear cactus. Tradition says it was originally brought in in 1750 and used for fencing and for its fruits. Now it is ruining thousands of acres of farm and pasture lands, as it did in Australia.

The same means that broke the grip of the Australian prickly-pear plague are being tried against it in Africa, Dr. Parrott reported. The *Cactoblastis* caterpillar and other cactus-eating insects have been imported from Australia. Their success in Africa is proving much less spectacular, however.

#### Grasshopper Heartbeats

An apparatus that makes a permanent record of the secrets of the heart of a grasshopper was demonstrated by Drs. Frederick Crescitelli and Theodore L. Jahn, of the State University of Iowa. It writes down all oc- (Turn to Page 30)

GEOLOGY

# Lost Continent Sought With Artificial Earthquake at Sea

## Geologists Hear of Coal Age Dustbowl, Migrating Beaches, Origin of Mountains and Earth Itself

**H**UNTING for evidence of the lost continent of Appalachia with TNT and a ship-load of instruments has occupied Dr. Maurice Ewing, Lehigh University physicist, for several years. Long believed to be the source of much of the sedimentary rock on the Atlantic seaboard, Appalachia was only a theoretical and unreachable region until recently. Dr. Ewing described to the meeting of the Geological Society of America the equipment which he, cooperating with explosives engineers and geophysicists, has developed to aid in the search.

Adapting for undersea use the "artificial earthquake" methods used by petroleum geologists in the search for concealed oil-bearing structures, Dr. Ewing has designed a complete series of instruments, consisting of two bombs, four seismic listening instruments and a timing and recording device, for use on the sea bottom.

Strung out on a cable, like the knots in a kite tail, the instruments are lowered over the side of a moving ship, and laid out on the ocean floor. Then, after enough time to permit placing, automatic machinery sets off one explosive charge, and the instruments record the vibrations set up by it. Later the second charge is set off, and recorded by the automatic machines. Then the machinery is drawn to the surface, and the records studied.

Sending a sound wave down through the rocks and recording the time between the explosion and the arrival of the reflected waves tells geologists where changes occur in buried structures. By using his newly-developed equipment, Dr. Ewing hopes to find out what rock structures lie below the sea bottom even when three miles of water cover it.

Cooperating in this work were the Geological Society of America, which



#### SCIENTISTS RELAX

*Humorously pondering the fate of the universe, the high priest of Mineralasia, guarded by two stalwart savages, awaits his cue. This scene is part of the annual Pick and Hammer show, at which Washington geologists satirize their profession and tell apocryphal stories of field experiences. The director of the show is in the foreground.*