

PEACEFUL A-BOMBS

Five in a row

As part of the Plowshare program to develop peaceful nuclear explosion technology, the Atomic Energy Commission set off a row of five small bombs simultaneously last week at the Nevada Test Site.

The row charge, called Buggy One, dug a ditch about 80 feet deep, 300 feet wide, and 900 feet long, an improvement over the 70-by-200-by-820-foot crater AEC engineers had predicted. Each of the explosives had a force of one kiloton, or an equivalent of 1,000 tons of TNT.

The test was the second in a series of six the AEC feels will be necessary to demonstrate the feasibility and safety of atomic excavation for such projects as a new Panama Canal. The first, Cabriole, dug a crater 125 feet deep and 400 feet across with a minimum of radioactive debris in January.

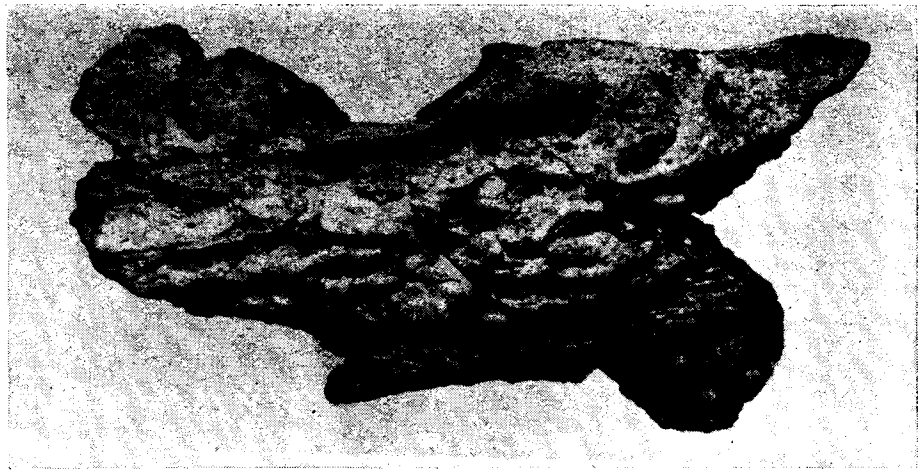


AEC

Cabriole: Bigger bangs to come.

Next in line is a much bigger explosion, Schooner, planned for a hard-rock area. Compared to the 2.5-kiloton Cabriole test, which was about a tenth the size of the Hiroshima bomb, Schooner would be somewhere near 100 kilotons.

Out of Schooner the AEC hopes to demonstrate the progress made in the last six years in cutting down release of radioactive fission products. In 1962 the 100-kiloton Sedan explosion dug a 1,200-foot-wide crater in loose Nevada soil but fallout was considerable. The type of explosive to be used in Schooner, combined with new methods for containing fission products, is expected to produce less than a hundredth of the fallout of the Sedan blast.



American Museum of Natural History

Piece of jawbone of prehistoric amphibian found on Antarctic mountain.

PALEONTOLOGY

Jawbone links southern continents

One day, 200 million years ago, while giant ferns swayed in tropical Antarctic breezes, an animal died. It looked rather like a five-foot salamander.

Two hundred million years later, on Dec. 28, 1967, a bone of this animal was found embedded in a ridge of rock 3,000 feet above the local level of the ice that characterizes Antarctica's present climate. The long-dead creature landed right in the middle of geological controversy over continental drift—and may provide evidence to settle it.

An expedition of four geologists from Ohio State University's Institute of Polar Studies, Peter J. Barrett, Dr. David H. Elliot, Ralph J. Baillie, and David P. Johnston, found the bone in the Central Transantarctic Mountains about 325 miles from the South Pole.

It was in an exposed ridge about four kilometers from a mountain called Graphite Peak. The find was incidental to the expedition's purpose, which was study of the geological history of Antarctica, its coal deposits and its ancient stream beds.

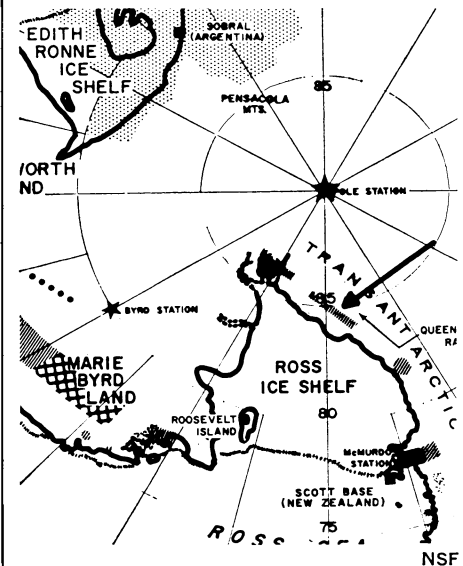
They sent the fossil to the American Museum of Natural History in New York where Dr. Edwin H. Colbert, curator of vertebrate paleontology, took it under study.

The bone itself is 2.5 by 1.5 by 1 inch. Dr. Colbert identifies it as being from the jaw of a member of the amphibian subclass Labyrinthodontia. The whole animal, says Dr. Colbert, would have been about five feet long, with a long jaw and a bare skin. Nothing living now resembles it very closely, but it might be imagined as something like an overgrown salamander.

Labyrinthodontia fossils have also been found in Australia and South Africa. They can thus be taken as evidence that the Southern Hemisphere continents (including South America) were once part of a single land mass

called Gondwanaland. According to the theory, Gondwanaland broke up and its parts drifted slowly to their present positions because of rock flow below the crust of the earth.

Previous evidence cited in favor of Gondwanaland's existence includes the similarity of rock formations and fossil ferns found in the southern continents, but critics have wanted a fossil of a land or fresh-water animal—now provided.



Location of Antarctic fossil find.

Labyrinthodontia were fresh-water amphibians, and, Dr. Colbert says, could not have survived an intercontinental sea trip. The implication is that they lived when Gondwanaland was one and spread over it by land. Any suggestion that creatures so similar to each other could have evolved on distant continents by independent genetic development is "out of all reason" says Dr. Colbert.

Dr. Colbert adds that the mystery of the Labyrinthodontia goes somewhat