

In the wake of the ark

"... and in the seventh month, on the seventeenth day of the month, the Ark came to rest upon the mountains of Ararat."

Genesis, Chapter 8.

In 1955, Fernand Navarra, a French industrialist and amateur explorer, found on Mt. Ararat in eastern Turkey an estimated 50 tons of wood buried in the finger of a glacial ice pack. The site of the find is 14,000 feet high, several thousand feet above the tree line and over 300 miles from the nearest trees of any size.

Samples of the wood have been verified as hand-tooled white oak, treated with a pitch-like substance.

Navarra has claimed that the artifact is a piece of the Biblical Ark of Noah. But whether it is or not—recent carbon-dating of a sample of the wood indicates it is much younger than the 4,000 years of the Noah legend—how the wood got to such a remote spot is still an archaeological mystery. A relationship to the legend of the ark at least is considered likely, and an archaeological expedition is scheduled to leave next week for Turkey to investigate.

There is a rich history of tales of discovery of Noah's Ark. Marco Polo mentioned existence of the ark near the summit of Ararat in 1300. A Russian physician, Dr. Frederic Parot, claimed to have found wood when he climbed the mountain in 1829. In the aftermath of an earthquake in 1840 Turkish officials sent workers to Ararat to prepare barricades against avalanches. One group of the workers reportedly discovered the prow of a vessel, jutting from an ice pack, exposing three rooms. Airplane pilots flying over Ararat have persistently reported a ship-like shadow in the ice when it is clear of surface snow.

The age of the find is critical, but dates are in dispute.

The Madrid Institute of Forestry in Spain estimated the age of a sample at approximately 5,000 years. The Centre Technique de Bois, in Paris, gave 4,484 years. Their findings, some 15 years ago, were based in part on the degree of lignite formation, gain in density of the wood, cell modification and the degree of fossilization.

More recently Dr. Rainer Berger of the University of California at Los Angeles isotope laboratory found that radiocarbon measurement on a wood sample yields later dates. The results are similar to those obtained by the Geochron Laboratories in Cambridge, Mass., and those that resulted from carbon-14 tests conducted at the Uni-



Hand-tooled timber from 14,000 feet.

versity of Pennsylvania. According to these tests, the wood is between 1,300 and 1,700 years old.

Hugo Neuberger, a physicist with the Arctic Institute of North America, suggests that the age discrepancy of the tests may be due to the fact that the wood was soaked in glacial meltwater for many centuries. Thus it may have been contaminated by carbon-14 more recently formed in the upper atmosphere and brought down as carbonic acid in rain and snow. As Mt. Ararat is a volcano emitting sulfuric gases, sulfurous acids and sulfates are formed in the glacial meltwater. In the presence of these acids, the wood fibers are softened and the exchange of carbon molecules between the wood lignins and the carbonic acid is enhanced.

But even if the more recent date is accurate, Dr. Berger suggests that the wood may be related to the ark story, perhaps as a monument to it.

"There is no reason for a building that high in the mountains other than as a hermitage or monument," he says. "Since the ark was a common belief in the heritage of people living in the vicinity of Mt. Ararat, it is quite possible that a hermitage was built to pay homage to the belief."

The new expedition hopes to solve some of the controversy over the age of the wood as well as carry out a program of geophysical-glaciological research and archaeological excavation. The expedition is headed by Ralph A. Lenton, a polar ice expert from the Arctic Institute, and Harry Crawford, a veteran of several Mt. Ararat expeditions.

The exploratory effort in 1970 will entail patterned core drilling and excavational pit digging. Infrared photography will be used to develop an outline of the massive artifact. Glacial meltwater samples will be collected for isotope analysis and carbonic acid determination.

In 1971 the investigators will try to



SEARCH

Edge of the ice pack on Mt. Ararat.

remove a sizable portion of the glacial ice. Standard archaeological procedures will be employed in photographing each exposed timber and charting its position on a grid system. □

RELATIVITY

Getting within 10 percent

General relativity is the name given to modern theories of gravitational forces. These theories differ from the classical Newtonian theory in that they connect gravity not only to the matter in the universe but to the geometry of space as well. In the relativists' universe, space is curved rather than flat, and this affects gravity.

Albert Einstein put forth the first such theory in 1916. Attempts to vary Einstein's theory so that electromagnetic forces could be covered by it eventually brought about development in the 1960's of a rival theory put forward by Drs. Carl H. Brans of Loyola University and Robert H. Dicke of Princeton (SN: 6/1/68, p. 532).

Both the Einstein and Brans-Dicke theories predict effects that Newton's did not. Many of the effects are qualitatively the same, but quantitatively different. Observers are faced with the task not only of determining the existence of these effects but of measuring them accurately enough to tell the difference between the two theories.

Relativists gathered in New York City this week for the Third Cambridge Conference on Relativity. As they talked, it was clear that observation repeatedly demonstrates the reality of general relativistic effects and the need to replace Newton with a modern theory, but the measurements are not sufficiently accurate to tell which modern theory.

Both theories predict that when a light ray passes near a massive body like the sun, it will be bent and slowed. But the Brans-Dicke theory predicts