

luminescence in baked clay and several other methods.

Potassium-Argon Method

The potassium-argon method, used so successfully on ancient man, works best upon older rocks although it has been possible to obtain ages of high precision on some rocks younger than 100,000 years.

The basis of the method is the decay of potassium atomic weight 40 into argon gas at the known rate of a half-life of 1250 million years. The argon of the air must be removed from the outer layer of the rocks being dated in order to obtain accuracy. For events of the last two million years, dates are obtained on volcanic rocks that are interbedded with either fossils, tools or glacial deposits. Fossils, tools or the glacial deposits are not dated directly, but there are dated potassium-bearing minerals or rocks that have cooled from the molten state at the time of the event being investigated.

If the volcanic rock buries the fossil, a date on the rock will date the fossil. The determination of the age of such a rock requires the precise measurement of its argon and potassium content. The potassium determination is done by flame-photometric analysis. The argon measurement is achieved by fusion of the sample in a high vacuum apparatus, the argon sample so released being compared with another argon sample of known size.

It is merely a matter of arithmetic to compute an "age," given the above two figures.

The minute quantities of argon gas accumulate in volcanic rock and since the rate of the argon formation is known, the age of the lava and the material included in it can be thus determined.

• Science News Letter, 83:154 March 9, 1963

ARCHAEOLOGY

Fate of Egyptian Temples Still Being Decided

► THE FATE of the ancient Egyptian temples threatened by the floodwaters to be created by the new Aswan Dam hangs in the balance.

The bold engineering plan to jack up the two temples at the edge of the Nile, putting them out of reach of the waters that will soon cover the valley, is still nearly \$30 million away from even beginning.

Serious work to save the ancient temples at Abu Simel cannot begin until the funds are guaranteed. The signing of the contract between the United Arab Republic and an engineering firm, scheduled for January 1963, has been postponed to late March.

The rescue operation to be performed on these two temples of the Pharaoh Rameses II should take about five years. Since the Aswan Dam is to be completed in 1968, the decision on the fate of the temples cannot be put off much longer.

The United Nations Educational, Scientific and Cultural Organization, sponsor of the project, has said that the funds for the operation have to be raised on a voluntary basis. Member nations have contributed \$27 million so far. The United Arab Republic has allocated \$11.5 million. If the rest of

the funds cannot be raised, another plan may have to be devised.

The current plan, a result of international collaboration, calls for cutting the temples out of the cliffs into which they were carved and raising them to safety with hydraulic jacks. The top of the cliff will be cut off to lighten the load—a total of 400,000 tons, the equivalent of eight Washington monuments.

Preliminary tunneling and exploratory work is now under way, but there is no guarantee that the age-old temples will outlast this decade.

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ARCHAEOLOGY

Ancient Dynasty Capital Excavated in China

► REMAINS of a Chinese capital that flourished during one of the most powerful and prosperous periods in Chinese history is now being excavated.

The excavation is being carried out by the Chinese Academy of Sciences' Institute of Archaeology.

The capital of the Tang Dynasty, 618-902 A.D., a period also known as the golden age of literature and art, now lies underneath the present city of Sian and its suburbs. Its boundaries stretch more than 36,000 feet.

The main streets of the capital, the extent of the chief buildings of the Imperial Palace, and the position of the well-known west market and 12 city gates have been traced. The layout agrees approximately with historical records and literary descriptions available. The streets leading to the city gates are wide. The largest going north to south is more than 450 feet wide and that going from east to west is more than 360 feet wide. The area outside the Imperial city and the palace proper was divided into 108 rectangular blocks.

The excavation of the Tang capital site has been going on since 1957 and is still continuing.

The vicinity of Sian was the site of two capitals of the Western Chou dynasty, 1200 to 800 B.C., and extensive excavations on some settlements of the dynasty have been carried out in the past few years.

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ARCHAEOLOGY

Wild Life in Troy—Bones Tell Story

► WILD LIFE in ancient Troy is being studied—really wild life.

Hundreds of baskets of animal bones, weighing two tons, have been excavated by the University of Cincinnati archaeologists. They will shed light on the kinds of animals and the ways to kill or domesticate them used in ancient Troy.

Archaeologists Dr. John L. Caskey, University of Cincinnati, and Dr. Nils-Gustaf Gejvall, University of Stockholm, expect to figure out the date when horses were first used in Greece.

The animal bone research will be conducted at the University of Stockholm, Sweden, under a grant from the National Science Foundation.

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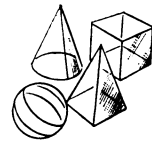


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