ARCHAEOLOGY

Egypt's Garden of Eden Invaded by Archaeologists

EGYPT believed that the first living creatures of the earth appeared on a bit of high dry land in the midst of a primordial ocean.

It was also said that when the sun god rose for the first time, he rested on a high place.

Like human beings of all times, the Egyptians liked to point to historic spots and see for themselves where important events happened. They associated their "book of genesis" with Hermopolis, which was certainly a very old place, as all Egyptians knew.

With pomp and ceremony the dramatic events of creation were remembered on great days in Hermopolis.

Now this Hermopolis, unique even among Egypt's remarkable cities, is being excavated. A German expedition is working from season to season under Dr. Gunther Roeder, director of the Pelizaeus Museum of Hildesheim.

Lecturing before the Archaeological Society of Washington, Dr. Roeder told how the scenes of Egypt's genesis are being restored to the light of day.

"When we trenched into the ruins of the buried town," he explained, "we found a district 1500 by 1800 feet. It was surrounded by a great wall, and within it there were no human dwellings. We knew that this was the religious center of Hermopolis, where we should have to look for the scenes of the appearance of light and life."

The expedition identified the temple built by Pharaoh Seti II as the temple of the eight primordial gods. Four of these gods were snakes and four were frogs. In the perplexing Egyptian theology, these eight gods were fused as a total in the great god Thoth who spoke the words which brought heaven and earth into being.

"Everywhere we begin to dig, we make interesting finds," declared Dr. Roeder. "The ground is filled with monuments."

The latest discovery is a temple dating back to 2000 B. C. and having a great gateway of the pylon type. This is believed to be one of the very early appearances of the pylon which became so important a feature of Egyptian architecture. This temple may even point to the time of its invention.

A temple still being sought is one that Queen Hatshepsut is known to have built at Hermopolis. There is hope of finding this temple in coming seasons of exploration, Dr. Roeder declared.

Other great names of Egypt are appearing from the ruins in the city of the creation ceremonies. Even the Pharaoh Ikhnaton, who is known today as Tutenkhamon's father-in-law, but who was more famous in his own career as a heretic king who overthrew old gods and worshipped a supreme deity, is represented by carvings at old Hermopolis.

Science News Letter, January 27, 1934

CHEMISTRY

Heated Gypsum Becomes Useful, Thirsty Chemical

CALCIUM sulfate, specially prepared by a simple process, joins the ranks of thirsty substances known to chemists as "drying agents." The new preparation is called "soluble anhydrite." It is thus contrasted with common or insoluble anhydrite, a mineral of apparently the same chemical composition, but different behavior.

Prof. W. A. Hammond of Antioch College, Yellow Springs, Ohio, and Prof. J. R. Withrow of Ohio State University, report that calcium, or lime, sulfate, cheaply available and known for hundreds of years, has surprising powers of taking water away from other material. Common distillery alcohol, normally containing several per cent. of water, at once becomes absolute, or practically 100 per cent., by merely being shaken with the new soluble anhydrite. Numerous other liquids which must be thoroughly dried, or freed from water, before use in chemical processes, may now be desiccated.

Most drying agents are either expensive, corrosive or not thorough in action. Soluble anhydrite escapes these three evils, but does have one drawback—it will absorb only six per cent. of its own weight in water. It does not do much, but does that little well. Other agents, such as calcium chloride, absorb greater quantities under favorable circumstances, but will not strip a liquid of water so thoroughly.

Apparently the virtues of anhydrite were overlooked for generations, after plaster-of-Paris chemists had reported that neither the mineral anhydrite nor its artificial imitation made in a furnace would absorb water. Profs. Hammond and Withrow now find that the cautious heating of ordinary gypsum, a compound of calcium sulfate with water, for three hours in an oven at 460 degrees Fahrenheit yields a reactive form of the sulfate which drinks in water with great avidity.

Science News Letter, January 27, 1934

PHYSIOLOGY

Frog Tadpole Tails Successfully Transplanted

MAKING frog tadpole tails grow on the bodies of young salamanders (distant zoological cousins of the frog) was the feat reported to the American Society of Zoologists by Eli D. Goldsmith of Harvard University. The tail-buds were cut off the frog embryos while they were very young, and planted almost anywhere on the salamander larvae. The tails grew.

When the gills of the salamanders began to disappear, indicating approaching maturity, the tadpole tails decreased in size and vanished, as though they were on maturing frogs.

Science News Letter, January 27, 1934

RADIO

Tests of Radio During Eclipse of Sun Urged

RADIO experts are urging observations of the "radio roof" of the world during the coming St. Valentine's Day total solar eclipse that will darken a narrow strip of the Pacific stretching

from Borneo to off the Alaskan coast.

By sending radio waves and allowing them to be reflected by the ionized layers of the earth's upper atmosphere, it is possible to determine the effect that the moon's shadow and the solar eclipse have on the ionized layers at heights of 70 to 130 miles. This is of importance practically to radio broadcasting and communication.

K. A. Norton of the U. S. Bureau of Standards, who was one of the group of physicists who observed the radio effects of the 1932 eclipse of the sun, has urged the importance of similar observations at the coming eclipse.

So far as known, no preparations for special radio observations have been made by Americans. It is believed that the Japanese are planning radio observations.

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Front Cover Picture

BEAUTY is, indeed, the most important if not the only reason for the choice of this week's front cover picture. A glass insulator, of the kind that electrically isolates high tension so that they may carry their power uninterruptedly, is shown flashing over after withstanding a potential of 125,000 volts. A routine laboratory operation at the University of Wisconsin has been glorified by the photographer.

The photograph does not show the insulator in the position in which it is used on power lines. To make the picture fit the frame of the cover it has been turned clockwise through a right angle. Ordinarily the tube conductor shown on the right of the picture would be across the top.

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OCEANOGRAPHY

Expedition Will Study Sargasso Weed and Flying Fish

FANTASTIC tales about the secrets of the Sargasso Sea had better be published in the very near future or forever be relegated to the trunk in the attic, for the secrets of this region are going to be subjected to the matter-of-fact scrutiny of an expedition of scientists, whose boat, it is expected, will not be enmeshed in the sea-weed and "never return to tell the tale."

Last Saturday the research ship *Atlantis,* sailed from Woods Hole, Mass., bearing an expedition sponsored by Yale University and Woods Hole Oceanographic Institution which will go to the Central American Seas and there make investigations not only of Sargasso sea weed and animals, but also of the flying fishes of those waters. Under the leadership of Prof. Albert E. Parr, Curator of the Bingham Oceanographic Collection of Yale University and Research Associate of Woods Hole Oceanographic Institution, the expedition will also complete the investigations of two previous cruises by hydrographic observations in the sectors between Jamaica and Central America, and between the Caiman Islands and the southern coast of Cuba.

Yale scientists explained that there are few biological phenomena in the sea of a similar magnitude which have been subject to such entirely countradictory views among scientists as have the floating Sargasso weeds. Some hold that the floating weeds lead a life of their own, essentially independent of any contribution of weeds torn away from the bottom, growing and multiplying by breaking apart as they grow; while others maintain that the floating weeds are only to be regarded as short-lived fragments recently torn loose from the bottom.

One of the chief difficulties, and also one of the most interesting points in the biology of the weeds, it was pointed out, is that the floating weeds never form fruit-leaves and multiply by reproduction, but increase only by growth and subdivision. Since the characters of the fruit-leaves, however, are the main characters for the identification of the weeds, it has been impossible to prove or to disprove the identity of the floating weeds with any weed found growing on the bottom and the problem of the origin of the floating weeds naturally hinges upon this question. During the cruise preliminary attempts will be made to apply to the floating Sargasso-weeds a method recently developed by marine botanists for inducing the formation of fruit-leaves and causing reproduction of marine algae under experimental conditions. If the treatment proves effective, it will offer a possibility of settling the question as to their origin.

By continuous towing of a surface collector, the expedition will also attempt to obtain approximate figures for the actual amount of floating weed present in the areas visited. Heretofore the records of distribution of the floating weed have been based chiefly upon such observations as the frequency with which large rafts have been noticed from passing ships, which does not give information as to the actual quantities present in terms of weights or measurements.

C. M. Breder, of the New York Aquarium, will also participate in the cruise, as a Research Associate of the Bingham Oceanographic Laboratory. He will study the habits, development and relationships of the flying fishes about which surprisingly little is known despite the wide attention they always attract among travelers.

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