

# 1965 Science Review

Detailed highlights of achievements of the year reported and compiled by Science Service as a record of an eventful period in science, research and technology.

By SCIENCE SERVICE STAFF

*This summary is limited to highlights, and credit to investigators and institutions is necessarily omitted. If you want more information about any item in the summary, send 25¢ to help cover answering costs for each item upon which more information is requested. Address Science Service, Inc., 1719 N St., N.W., Washington, D.C. 20036.*

## ANTHROPOLOGY AND ARCHAEOLOGY

New fossil evidences of most ancient life on earth were found in South African rocks dated at about three billion years, while chemical molecules constituting life 2.7 billion years of age were discovered in rocks from Minnesota.

A skull of a different type of human being living about 600,000 years ago was unearthed in the "cradle of civilization," the Olduvai Gorge in Tanzania, East Africa, leading some anthropologists to believe that three different types of prehistoric man existed near each other in this ancient area.

Fossil remains of the world's most ancient human being, found in Olduvai Gorge, Tanzania, may be more than two million years old, it was reported.

The theory of the evolution of Cro-magnon man from Neanderthal was advanced based on the reported discovery of structures of the Neanderthal Age in Russia.

Fossil remains of small clam-like animals were discovered in ancient rocks in the Shaler Mountains on Victoria Island, indicating that small creatures similar to worms and clams may have lived 720 million years ago, 120 million years earlier than heretofore believed.

A more accurate method for determining age, known as fission-track dating, in which the number of tracks caused by spontaneous fission of uranium 238 during the lifetime of a sample is counted, proved successful in dating materials from 20 years to 1.3 billion years old.

An authenticated parchment map drawn in 1440 showing portions of North America, including two large river inlets thought to be the Hudson Straits and the Gulf of St. Lawrence in Canada, added to the evidence that the Norsemen reached North America before Columbus did.

For the first time in North America, bones of a 14-million-year-old paleoparadoxia, a one-ton, nine-foot-long aquatic mammal, were discovered.

During the great ice ages, the Bering Strait area between Russia and North America was sometimes a land bridge for animals and sometimes a seaway for marine creatures, Russian and American scientists agreed.

Ancient man in southeast Europe was found to have switched from hunting and food-gathering to more sophisticated farming about 8,000 years ago, earlier than scientists had previously thought.

The bones of a "new" species of plant-eating dinosaur, 140 million years old, were assembled and named by Chinese paleontologists.

American Indians around Mexico City developed writing and accounting as early as 500 B.C., archaeologists concluded.

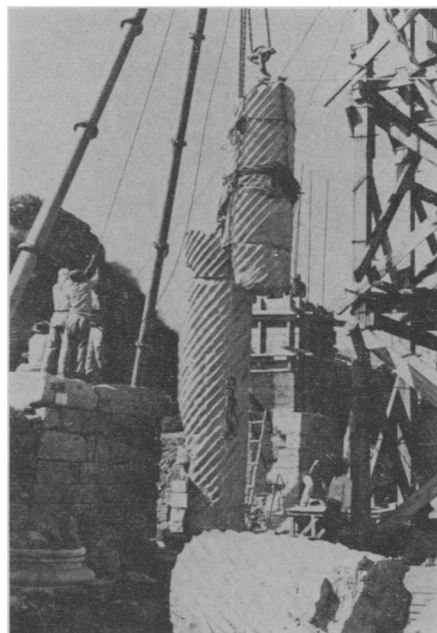
Stone Age man controlled his population by means of traditional customs and taboos to remain in balance with his natural world, it was reported.

Two 13,000-year-old skulls, oldest known human remains ever discovered in Egypt, were unearthed in the Kom Ombo area of southern Egypt.

Fine rock paintings of animals and a witch doctor, 20,000 years old, were discovered in a cave near Estoril, Portugal.

Bronze and pottery vessels were unearthed from a 2,700-year-old tomb in Anhwei Province, East China.

Ancient buffalo bones were unearthed for the first time in southern California during construction work for a freeway.



Harvard University

**MARBLE GATE**—Part of a marble column is shown being lifted into place in the gate of the entrance court to the Roman gymnasium at Sardis, Turkey, which is being restored by the Harvard-Cornell Expedition to Sardis. The court is one of the finest examples of Roman architecture in the Near East.

Scientists began a fossil search in Ohio to dig out 50,000 valuable fish fossils from the Devonian period, more than 350 million years ago.

Fossils of four species of sharks, found at Arad in the heart of Israel's rugged Negev desert, indicated that this area was once covered by a warm sea.

Ancient tools were used to build copies of Iron Age, Viking, medieval and other ancient houses in a new kind of experiment in Denmark.

A new electronic sounding device was used by archaeologists in their hunt for the ancient Greek city of Sybaris in southern Italy.

A fossil skull of a female about 30 years old who lived about 500,000 to 600,000 years ago was reported the most ancient human of the apeman type so far discovered.

Seven isolated teeth led to the identification of two new species of primates, belonging to the new genus *Purgatorius*, that lived 70 million years ago.

A bone plaque, with the design of a griffin twisted in a circle and typical of the "animal style" of the Scythians of South Russia about 2,600 years ago, was discovered in Sardis, Turkey.

More than 180,000 ceramic fragments found in Mexico and Latin America were dated from approximately 1500 B.C., close to the age obtained in an early radiocarbon study of objects found in Florida, adding proof to the theory that Florida was linked long ago to the ancient civilizations of the New World.

## ASTRONOMY

The explosively brilliant but maddeningly puzzling objects called quasars, of which some 40 are now known, continued to receive major attention from astronomers around the world; two quasars were reported to have a variable radio output, quasi-stellar blue galaxies were discovered and one quasar was caught in the act of exploding, among other advances.

The quasar known as 3C-9 was found to be the most distant and thus the most ancient object known in the universe today, receding from earth at 149,000 miles a second, 80% of light's speed; however, another explanation of quasars as mass-motion chunks of gas ejected from the Milky Way galaxy and, therefore, much nearer and smaller, was suggested.

A galactic explosion that occurred about 10 million years ago was reported to be the cause of a giant electron ring encircling one end of galaxy M-82, the first evidence of material being ejected from one galaxy to another.

Eight new X-ray sources were discovered, bringing the total to 10, of which three may be neutron stars.

Photographs taken by Mariner 4 revealed that the one percent of the Martian surface photographed is literally sprinkled with craters; radio signals from the planetary probe showed that the atmosphere of Mars is both thinner and cooler than previously thought.

The planet Mercury's rotation rate was