

ARCHAEOLOGY

Ancient Life Was Hard

Man became civilized, adopted urban life and learned to write in an area where only about 10% of the land was suitable for dry land farming.

► ADAM AND EVE'S garden may never have been the fruitful, well-watered paradise as believed, but rather an area of dry salty steppes, blowing sand dunes and reed-bordered swamps.

Southern Mesopotamia, where the Tigris, Euphrates and Karun Rivers flow together and empty into the Persian Gulf, is where urban life, civilization and writing began about 3000 B.C. So stated Kent V. Flannery, associate curator of archaeology in the United States National Museum, Smithsonian Institution.

Throughout an area now known as Iraq and Iran, human beings first began to change from nomadic food-gatherers and hunters to farmers practicing the rudiments of agriculture and tending their animals, he reported in *Science*, 147:1247, 1965.

Four main zones make up this area. Herds of gazelle and wild asses once roamed on the high central plateau of Iran, site of copper and one of the world's major turquoise sources. Since at least 8500 B.C., sheep or goats have grazed on the oak-pistachio woodland belt of the Zagros Mountains, often too rugged for large-scale agriculture.

The third area, the Assyrian steppe, is hot and dry in summer but in winter wet enough for herds of gazelle, wild asses and wild cattle to graze over meadows of Bermuda grass, canary grass and wild nar-

chissus. The fourth area is Southern Mesopotamia, once designated erroneously as a lush Garden of Eden, which later dried up.

From careful analysis of the terrain and prehistoric pollen grains, animal remains and other material found in the area, scientists must come to the "inescapable conclusion that agriculture began in an area where, then as now, only about 10% of the land surface is suitable for dry farming," Dr. Flannery said.

In the days before agriculture and animal husbandry, men appear to have gathered and eaten snails, turtles, clams and crabs and seeds of wild plants, while more mobile members pursued wild sheep, goat, ox, pig, wild ass, gazelle and deer along the rocky steppes and mountains.

From 40,000 to 10,000 B.C. man worked out a pattern for exploiting the natural resources of this part of the world, Dr. Flannery pointed out.

Evidences taken from prehistoric caves and camps show that by 8500 B.C. goats were being domesticated; by 6000 B.C. the pig was domesticated in some parts of the Near East, and by 4000 B.C. man was living in regional temple-and-market towns, which regulated the produce of agriculturists, herders and perhaps even traders who dealt in obsidian, copper, salt, asphalt, fish and fruits.

• *Science News Letter*, 87:199 March 27, 1965

ARCHAEOLOGY

Three-Billion-Year-Old Fossils Found in Africa

► TINY FOSSILS, some round and some with double walls, have been found in the ground with gold in the Orange Free State, South Africa.

Two kinds of these life forms that lived about three billion years ago in the Precambrian era were analyzed by M. Schidlowski of the Mineralogisch-Petrographisches Institut der Universität, Heidelberg, Germany.

One form has a central core body enveloped in an outer ring, and the other is a spherical or elliptical organism surrounded by double-layered walls, Dr. Schidlowski reported in *Nature*, 205:895, 1965.

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ZOOLOGY

Bits of Pesticide Found In Penguins and Seals

► PENGUINS and crab-eating seals of the South Pole have tiny bits of the pesticide DDT in their bodies, scientists have found.

These creatures spend their entire lives in the Antarctic, feeding mainly on shrimp and sometimes on fish, far away from any civilization that uses pesticides, observed Dr. William Sladen of Johns Hopkins University who collected the specimens last year under a National Science Foundation grant.

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ICHTHYOLOGY

Coelacanth Displayed For First Time in U.S.

► A COELACANTH, a rare, deep-sea fish recently thought to have been extinct for 65 million years, is now on display for the first time in the United States at the University of California at Los Angeles.

The coelacanth is the nearest living relative to the ancestors of all higher vertebrates. Until the first coelacanth was caught in 1938 off the east coast of South Africa, there had been no evidence that this type of fish had survived since 65 million years ago, the date of the most recent fossil.

The 78-pound specimen, four and a half feet long was caught by a native fisherman from a small outrigger canoe off Comores Islands in the Indian Ocean.

Dr. Malcolm Gordon of the zoology department made arrangements to obtain the specimen last summer as part of the International Indian Ocean Expedition.

Coelacanths are known to have existed for 375 million years. They have changed very little through the eons and are closely related to a group of fossil fishes called Rhipidistian crossopterygians. The Rhipidistians were the ancestral group for all higher vertebrates from amphibians to man.

Biochemical, parasitological, anatomical and tissue studies of the specimen are being carried out at UCLA and at the University of California at San Diego and Berkeley, and Southern Illinois University.

• *Science News Letter*, 87:199 March 27, 1965



Laboratory of Nuclear Medicine and Radiation Biology

VERTEBRATE ANCESTOR—Drs. Malcolm Gordon, James Mead and Vladimir Walters (left to right) of the University of California at Los Angeles examine the coelacanth caught in the Indian Ocean.