

GEOLOGY

Warm Earth Man's Doing

► THE WORLD-WIDE warming of the earth's climate during the last 11,000 years was primarily caused by man.

The widespread use of fires coupled with an "exploding" human population resulted in large amounts of carbon dioxide being released into the atmosphere. The atmosphere, saturated with carbon dioxide, acted like a greenhouse by trapping the warmth of the sun's rays and started the warming trend evident today.

"The use of fire and cultivation of the soil by primitive man developed simultaneously," Dr. William Lee Stokes, University of Utah scientist at Salt Lake City, told the Geological Society of America meeting in Cincinnati. "Evidence indicates that primitive man set fires deliberately and made no efforts to put them out or keep them from spreading."

Disturbance of the organic-rich soil also accelerated the release of carbon dioxide into the air.

This "agricultural revolution" when man changed from hunter and scavenger to the tiller of the soil may have caused the warm trend, Dr. Stokes said. He noted that the population jumped from about five million to more than 86 million between 10,000 and 6,000 years ago.

Huge land areas in Europe, Africa and North America frequently burned out of

control, releasing more carbon dioxide into the air.

Although many scientists have blamed the industrial revolution for the most recent warming of the earth's climate, the same arguments can also be applied to the older and larger climatic change, Dr. Stokes concluded.

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Beginning of Life

► PHOTOSYNTHESIS, one of life's basic processes, began more than 2.7 billion years ago in the primeval oceans.

The same process used by green plants to absorb carbon dioxide and give off oxygen was functioning in tiny algae-like substances known as stromatolites. These tiny algae, whose fossil records were left in the ancient rocks, were the forerunners of the complex plants abundant on the earth today.

Organic evolution, especially on land, was severely limited during the earth's early history by damaging ultraviolet radiation from the sun. The free oxygen necessary to sustain life built up gradually, aided by the photosynthetic action of millions of tiny organisms.

Growing evidence supports the idea that life on earth arose from the chemical evolution of non-living organic molecules with

an assist from solar radiation, Dr. P. E. Cloud Jr., U.S. Geological Survey scientist, told the Geological Society of America meeting in Cincinnati.

Ancient seas once covered large portions of the cooling earth as much as 3.5 billion years ago. Rocks laid down by the seas in what is now Africa show that the earth had evolved sufficiently to condense enough water to form large bodies such as the present seas, Drs. William L. Donn of Brooklyn College and Lamont Geological Observatory, W. G. Valentine also of Brooklyn College, and Bertram Donn of the National Aeronautics and Space Administration's Goddard Space Flight Center in Greenbelt, Md., reported.

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INVENTION

Better Explosive Method For Offshore Exploration

► AN IMPROVED method of exploring for oil in offshore areas without killing large numbers of fish won patent No. 3,006,279 for Robert W. Lawrence of Wilmington, Del.

The shock wave from dynamite exploded in water during seismic explorations can kill large numbers of fish, which is forbidden by fish and game authorities in some areas. Although firing black powder instead of dynamite reduces the fish kill, the seismic record obtained is not very satisfactory, Mr. Lawrence said.

He devised a detonating core and a sheath of relatively inert material to be used in offshore seismic explorations. Patent rights were assigned to the Hercules Powder Company, also of Wilmington.

Mr. Lawrence patented a core composition preferably consisting of from 50% to 95% ammonium nitrate and five percent to nine percent nitroglycerin. The sheath is also of ammonium nitrate but mixed with such carbon compounds as paraffin, coal or inorganic compounds such as sulfur or chalk.

A method and product for "improving the economic value of domestic animals" was awarded patent No. 3,006,810. Byron M. Shinn of Western Springs, Ill., and Emil Kaiser of Chicago assigned rights to Armour & Company, also of Chicago.

Estrogens have been used for many years to fatten livestock for market, either by implanting or by adding the chemicals to the animal feed. The drawback of using estrogens such as diethylstilbestrol is that all traces must be eliminated from the animal before human consumption.

To solve this problem, Mr. Shinn and Mr. Kaiser patented the use of estrogen derivatives, such as 4,4'-oxygenated stilbene compounds, to promote faster growth and increase weight in animals for food.

An aquarium filter for home use won patent No. 3,006,476 for Abby Halpert of Brooklyn, N. Y., who assigned rights to Halvin Products Co., also of Brooklyn. The filter attaches to the side of the aquarium, making it easier to remove for replacing the filter.

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READING GLYPHS—Aubrey S. Trik, project architect for the Tikal, Guatemala, excavations of the University of Pennsylvania Museum, Philadelphia, measures a glyph in the "Tomb of the Painted Glyphs". Reading from top to bottom the Mayan date of the tomb 9,1,1,10,10,4, corresponds to the Christian date March 18, 457 A.D. Skeleton of a priest-ruler and the remains of two boys were also found in the tomb.