

GEOPHYSICS

Probe Billions of Years

Scientists at the meeting of the American Association for the Advancement of Science were looking back at five billion years of the earth's history, Watson Davis reports.

► SCIENTISTS WERE looking backward at the last five billion years of the earth's history at the annual meeting of the American Association for the Advancement of Science in Denver, Colo.

Almost every industrial research executive when he makes a speech these days looks forward through the next decade, prognosticating new, exciting and costly products that will be manufactured by the grace of science in 1970. Some brave scientific seers predict the state of science in the convenient end of the century, the year 2000. There have been articles and books going still farther, such as the next thousand years, and even the next million years. Some astronomers have dared to talk about billions of years hence, but their ideas have concerned the future of the universe, rather than the earth or even the solar system.

Because the future flows out of the past, there has been intensive study of the origin of earth itself, the first life on our planet and the long evolutionary development that has culminated in man, a creature who is a mere couple of million years old at most.

Experiments aimed at the creation of life itself from non-living inorganic chemicals have intrigued scientists. In several laboratories in the past few years, fundamental building blocks of life, the amino acids of protein compounds, have actually been manufactured out of ammonia, methane, water vapor and hydrogen, simple chemicals, certainly non-living, by electrical discharges like lightning which is believed to have existed in the primeval earth's atmosphere. Of course, the amino acids were not alive and creation of life is in the future.

Studies of the atmospheres of planets have been made to determine what happened in the opening eons of possible life in the universe. The question as to whether life exists in space has arisen because bacteria-like cells have been grown from material contained inside meteorites that have fallen on earth.

Even if mankind gives itself a set-back in its evolution by a major, all-out atomic war, scientists are confident that the sun on which earthly life is dependent will keep on shining for at least six billion years more, about as long as it and, presumably, the planetary system have existed.

Another major problem is the origin of the chemical elements themselves. There are now 103 chemical elements identified, the heaviest ones man-made and transitory. The geology and chemistry of the formation of the crust of the earth is another important field of study in the past that will continue to be important into the future.

• Science News Letter, 81:3 January 6, 1962

Antarctic Glaciers

► THE FIRST positive evidence that ice glaciers covered Antarctica some 300,000,000 years ago has been found about 300 miles from the South Pole.

William E. Long, research associate at Ohio State University, Columbus, Ohio, studied 4,000 feet of sedimentary rocks of glacial origin in the Buckeye mountain range in Antarctica.

One of the units, 800 to 900 feet thick, consists of a bluish-gray matrix of silt and

clay, mixed with pebbles and rocks. This deposit, called the Buckeye Tillite, shows the direction of the ice movement of the Paleozoic glaciers from west to east, he reported to the American Association for the Advancement of Science in Denver, Colo. The Paleozoic era lasted from 425,000,000 to 230,000,000 years ago.

During the past million years, huge ice sheets covered part of North America at four different times. The most recent ice age probably ended about 10,000 years ago.

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Invisible Red Aurora

► A RED AURORA occurring closer to the equator than the usually observed northern lights has been discovered. It is invisible to the eye but can be detected by instruments sensitive to colors for which the eye is "blind."

Dr. Franklin E. Roach, chief, Fritz Peak Geophysical Observatory, National Bureau of Standards, Boulder, Colo., reported the discovery to the American Association for the Advancement of Science in Denver, Colo.

The red radiation of 6,300 Angstrom units would have to be ten times as intense as the usual green aurora of 5,577 Angstroms to be seen.

The red aurora occurs in mid-latitudes of an extensive auroral arc at a height of about 400 kilometers (250 miles). The arc is very stable in contrast with the dynamic arcs observed in the visual auroral zone. It moves very slowly if at all. A surprising feature is its size and extent. It extends some 700 kilometers (435 miles) in latitude, 300 kilometers (185 miles) in height and many thousands of kilometers (miles) in longitude, possibly all the way around the world.

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ZOOLOGY

Small White Desert Fox Has Range Finder Ears

See Front Cover

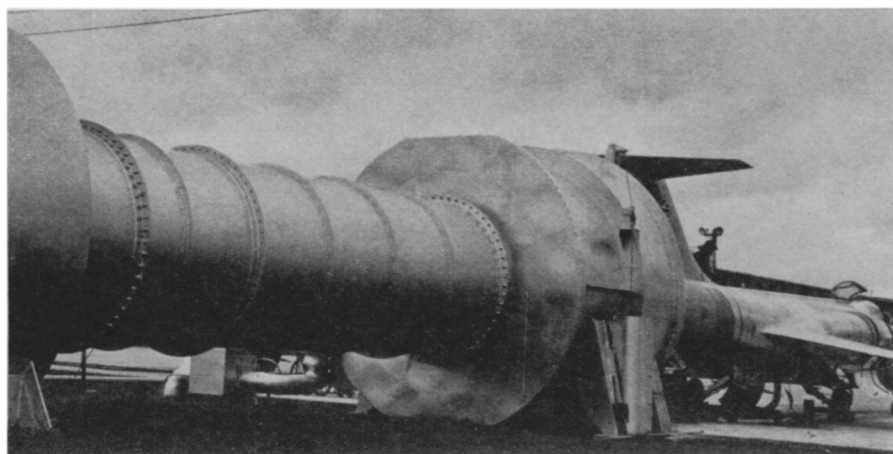
► THE FENNEC, a small white desert fox which lives in the Sahara, has big ears that work like range finders used on anti-aircraft guns. This fox is able to cock each ear in a different direction at the same time to find the spot where its prey is located from its sound.

The fennec is omnivorous, living on grasshoppers, rodents, birds, birds' eggs and fruit. It is provided by nature with a soft pad of fur under its feet to prevent it from sinking into the desert sand as it hunts for food. Its long tail is as bushy and large in proportion to the rest of the fox as is the squirrel's tail to that animal.

The two foxy-looking fellows seen on this week's cover are housed at the National Zoological Park in Washington, D. C. The average lifetime of this fox is 10 to 14 years.

A small fox similar to the fennec, the kit fox, is found in deserts of the western United States.

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NOISE BREAKER—Dura-Stack jet engine silencer is made by Industrial Acoustics Company, Inc., New York, to enclose the tail of the aircraft for noise control. The water-cooled silencer, which can withstand a thrust of 30,000 pounds, is made of steel to eliminate blowouts.