GEOPHYSICS

More Ice Covers Earth

Results of International Geophysical Year research indicate that the earth is covered with 40 percent more ice than previously estimated, also that Antarctica may be divided.

➤ THE EARTH is covered with 40% more ice than was previously estimated, Dr. Hugh Odishaw, executive director of the U.S. National Committee for IGY, has reported.

In the second of a two-part summary on the findings of the International Geophysical Year, which ended Dec. 31, 1958, Dr. Odishaw says present measurements indicate the world contains some 4,500,000 cubic miles of ice. This revised value is based on various determinations of ice thickness made in Antarctica, where 90% of the world's ice is estimated to be.

Other findings from the IGY program reported in *Science* (Jan. 2), include:

The annual mean temperature at Little America has warmed approximately five degrees in 50 years, while the warming at Spitzbergen in the Arctic is twice as great.

Observations from an Arctic ice floe show the greenhouse effect caused by overcast skies brings much more rapid melting of ice than clear sunlit skies.

Seismic soundings in the Andes suggest the lighter rock characterizing the mountains extends downward in a relatively fine network of supporting roots that penetrate the earth's crust deep into the mantle below.

Seismic measurements at sea reveal the thinnest and thickest earth crusts beneath the seas yet detected: four kilometers and 15 kilometers, or about two and a half and nine miles, respectively.

Correlation of heat flow measurements at the ocean bottom with the location of submarine ridges suggests that the latter are formed by great convection currents in the earth's interior.

These force up sections in the ocean floor, at the same time depressing the neighboring crust.

Several discoveries increase the possibility that Antarctica may be divided in two. These include discovery of a sub-sea-level trough trending inland from Ellsworth Station, another trough on the opposite side of the continent trending inland from the Ross Sea and a deep basin in Marie Byrd Land.

Seismic stations set up in the Antarctic, especially one located at Wilkes Station across the continent from the tip of South America, will permit scientists recording the passage of earthquake shocks to determine if the Antarctic structure is essentially continental or oceanic.

Science News Letter, January 17, 1959

ENGINEERING

Find Ancient Computer

An ancient machine, once bronze or brass, corroded yet still recognizable, is believed to have been used to compute planetary orbits as early as 65 B.C.

➤ AN EXTREMELY complex 2,000-year-old computing machine, found in a dusty storage room in a Greek museum, may place that ancient civilization only one technological step behind our own.

The machine, made of bronze or brass and in a highly corroded state now, is believed to have been used to compute planetary orbits as early as 65 B.C.

It contains complicated groupings of gears, a series of calibrations and Greek inscriptions explaining the theory of the machine and cycles of the sun and moon.

The find was made by Dr. Derek J. Price of the Institute for Advanced Study at Princeton University. He is a science historian specializing in ancient intsruments.

Dr. Price, a Briton, told SCIENCE SERVICE at the American Association for the Advancement of Science meeting in Washington that ten years ago he ran across a vague reference to the machine. For the first time in 1958 he was able to visit the National Museum in Athens to see its "remains" in the storage room.

The device was originally discovered in 1900 by a group of Greek sponge divers off the island of Antikythera who had happened upon a sunken ship laden with marble and bronze statuary. Although the find was published, little significance was attached to the machine.

He said the find was "like opening a pyramid and finding the atom bomb."

He claimed it is the kind of technological achievement that probably no one in our civilization could have done until men of the Edison ilk came along.

"The Greeks were at the peak of their civilization at the time this machine was made," he said. "And they were not far behind where we are now."

Although the Greeks believed the earth was round and knew of the existence of Mercury, Venus, Mars, Jupiter and Saturn as well as the sun and moon, they had the notion that all these bodies orbited the earth. They were right about the moon, but that was probably good luck.

Dr. Price's deciphering of the inscriptions is in its preliminary stages and he does not yet know whether the Greeks were computing orbits of the outer planets. He said the machine is so corroded and delicate that it must be "handled like a snowflake." The corrosion has reduced the metal to piles of metallic salts on which the inscriptions can be seen in reverse.

"Fortunately," he said, "it was partially preserved by the sea water. It would not have survived on dry land."

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