GEOPHYSICS

Foresee Glacial Advance

Earth is now in an interglacial era, but new glacial advance can be expected within a few centuries, according to new theory proposed to account for ice ages.

➤ THE WORLD is now between two Ice Ages. Another glacial advance can be expected within a few centuries, two scientists have proposed.

Some hundreds of years from now, temperature decreases will mark the start of a new glacial period. At that time, the Arctic Ocean, which seems to have been warming up recently, will be entirely ice free, they predict.

Dr. Maurice Ewing, director of Columbia University's Lamont Geological Observatory, and Dr. William L. Donn, Columbia research associate and Brooklyn College professor of geology and meteorology, announce their new theory to account for Ice Ages in *Science* (June 15).

The scientists also propose an explanation for another kind of change, that from long-term warm to cold climates. After a relatively abrupt change, the succeeding climate lasts millions of years, compared to the thousands of years for Ice Ages.

"No external influences or catastrophic events are required" to start or stop Ice Ages or to switch from very long periods of warm to cold climates, according to their theory.

Some mechanical process such as a slipping of the earth's crust relative to the interior, they suggest, has caused the poles to move, resulting in conditions very favorable for abrupt development of a long-term, cold climate after a warm one.

The successive warm and cold periods that follow, as they did in the Pleistocene Ice Ages, are believed by Drs. Ewing and Donn to have resulted primarily from alternations of an ice-covered or ice-free Arctic Ocean surface.

As long as the poles maintain their present locations, the world will continue to have a Pleistocene-like, or glacial, climate, and the weather of about the past 11,000 years can be considered another interglacial stage.

For the last few thousand years, they point out, temperatures have remained about as high as the highest value reached during any previous interglacial stages.

These temperatures are regulated by the surface layers of the Atlantic and Arctic Oceans, not external conditions. An ice-free Arctic Ocean would result in a "marked increase" in exchange of water between the Arctic and Atlantic, warming the former and cooling the latter.

An open Arctic would provide moisture for glacier growth, but would eventually reduce sea level, resulting in a sharp decrease of the inflow of warm Atlantic water into the Arctic Ocean. The cooling effect of the built-up glaciers would eventually allow a new Arctic ice sheet to form.

Facts about early man in the Americas support their new Ice Age theory, Drs. Ewing and Donn point out. Early man is thought to have reached Alaska from Siberia in large numbers somewhat more than 11,000 years ago, crossing the land bridge, then joining the two continents.

Warm periods followed by cold ones during the Pleistocene, although measured in thousands of years, happened much too fast to be related to movements of the pole in and out of the Arctic region. Such polar migrations could, however, account for the "change from a warm equable climate to the glacial climates of the Pleistocene."

Drs. Ewing and Donn state that the poles wander only by a differential movement between the earth's outer shell and interior, resulting in different points on the surface being in the position of the poles.

Information gained from studying samples of deep-sea ocean sediments is used to support their arguments for the new theory. They have also considered the effect on weather patterns of an ice-free Arctic.

Science News Letter, June 30, 1956

GEOPHYSICS

Antarctic Weather Often Deceptive

See Front Cover

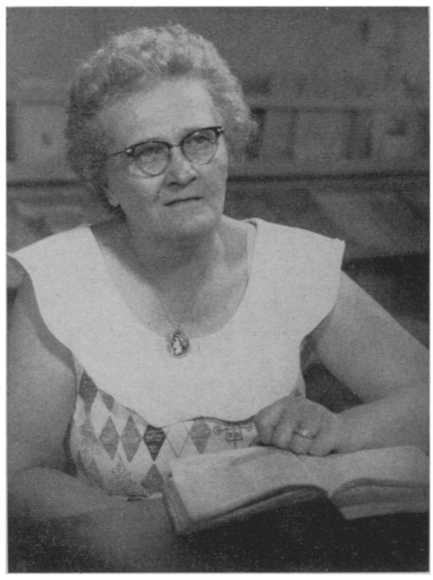
➤ MOVING CLOUDS of chiffon reflected in snow-covered, 13,200-feet high Mt. Erebus, and ice shattered like glass, skirted by a dark area of open water, give the appearance of a mild day at McMurdo Sound, Antarctica.

It was, except that Task Force 43 men had learned from experience that a sky such as shown in the photograph on the cover of this week's SCIENCE NEWS LETTER meant a great deal of turbulence was brewing. Extreme high winds aloft caused the clouds to fall into these beautiful formations. Usually 24 hours later furious blizzard follows.

A photographer on the Coast Guard icebreaker, East Wind, snapped the picture as the ship, busy breaking ice in the Sound, passed this point 20 miles from the mountain. Not far from Mt. Erebus, construction work was in progress on the Air Operation Facility and the Auxiliary Camp at Hut Point, Ross Island.

The Task Force was in Antarctica making preparations for the International Geophysical Year.

Science News Letter, June 30, 1956



HARVARD ASTRONOMY PROFESSOR—Dr. Cecelia Payne-Gaposchkin has been appointed professor of astronomy at Harvard University, the first woman to attain full professorship there through regular faculty promotion.

ASTRONOMY

First Woman Professor Appointed at Harvard

➤ THE FIRST WOMAN to be made a full professor at Harvard University through regular faculty promotion is Dr. Cecelia Payne-Gaposchkin, an authority on variable stars, who has been appointed professor of astronomy, Dean McGeorge Bundy announced in Cambridge, Mass.

Since 1938, Dr. Payne-Gaposchkin has been Phillips Astronomer in the Harvard College Observatory and lecturer on astronomy. She and her husband, Dr. Sergei I. Gaposchkin, made one of the most extensive surveys ever undertaken of variable stars over the entire sky.

One other woman, the anthropologist Cora Du Bois, holds the rank of full professor at Harvard, but hers is a professorship created especially to be occupied by a woman scholar of distinction. She holds the Samuel Zemurray Jr. and Doris Zemurray Stone-Radcliffe Professorship.

Dr. Payne-Gaposchkin has written many books, several in collaboration with her husband. Their most recent jointly written book is "Pioneers in Astronomy," to be published soon.

Among her recent books are "Stars in the Making," "Introduction to Astronomy," and "Variable Stars and Galactic Structure." Her latest book, "The Galactic Novae," is now in press.

A native of Wendover, England, Dr. Payne-Gaposchkin became an American citizen in 1931.

Science News Letter, June 30, 1956