

OCEANOGRAPHY

New Ice Age Theory

Temperate climate may return to polar regions, surprising discovery of great antiquity of very deep ocean waters, measured by radioactivity, shows.

➤ A GREAT many years from now—perhaps 40,000 to 4,000,000—temperate climate may return to the polar regions. Our globe will emerge from the Ice Ages which are not now quite over.

The surprising discovery of 1,600 and 1,750 year ages for Atlantic sea water at depths of one to two miles gives rise to this speculation.

By measuring the radioactivity of the carbon isotope 14 in the carbon dioxide in deep sea water ingeniously sampled from just above the ocean bottom, Dr. J. Laurence Kulp, Columbia University geochemist, determined its unexpected antiquity. It won for him the 1951 Newcomb Cleveland \$1,000 prize awarded by the American Association for the Advancement of Science at its meeting in Philadelphia.

The extreme sluggishness of the ocean circulation is proved by the new age figures. The water dredged from the ocean depths in north latitudes 53 and 58 started its submarine migration about 200 A.D. when it was at the surface of the arctic sea. Its carbon 14 exploding atoms were then manufactured by cosmic rays bombarding atmospheric nitrogen and washed by rain to earth and sea. Dr. Kulp demonstrated this by delicate measurement with a "radio-carbon calendar," a Geiger counter device that he has refined until it measures ages up to 30,000 years whereas 20,000 years was the previous limit.

The ancient water took centuries to travel toward the equator and will take even longer in its further journey southward. Dr. Kirtley F. Mather, Harvard geologist, who is president of the A.A.A.S., explained that this slow circulation is a refrigerating system for the earth, carrying polar cold to tropic regions.

But he speculated that in the stretch of geologic time this circulation could be reversed. The sun's tropic heat would evaporate the equatorial water, increase its salt content, cause it to sink even if it were hotter than the deep water. Finally the oceanic circulation would be reversed, tropic heat would be carried to the poles and warm climate would come to the arctic and the antarctic. Geologists have found fossil ferns in Greenland and evidence of ancient forests in Antarctica. Eons from now such conditions may return.

To aid such earth theories, Dr. Kulp and his fellow scientists at Columbia's Lamont Geological Observatory, directed by Dr. Maurice Ewing, are enlisting the further

cooperation from the Woods Hole research ship, Atlantis, and the U. S. Hydrographic Office's vessel San Pablo. Each of these in two summers got a deep sea water sample.

Large cylindrical tanks, holding 300 gallons, were sent down to 10,000 feet, sealed shut there and then hauled up. The carbon in this water was tested for age, by chemical and atomic processing. The radio-carbon dating was by the method worked out by Prof. W. F. Libby of the University of Chicago, but Dr. Kulp was able to shield the counters used with a ring of mercury that eliminated more background radioactive "noise" and this increased the measurable age span.

Possibly the new knowledge of the depths of the sea will help submarine signalling and detection of military significance, but the scientists are actually much more inter-

ested in new facts about the mysterious past of Mother Earth.

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MEDICINE

Combine Sulfa Drugs For Safety to Patient

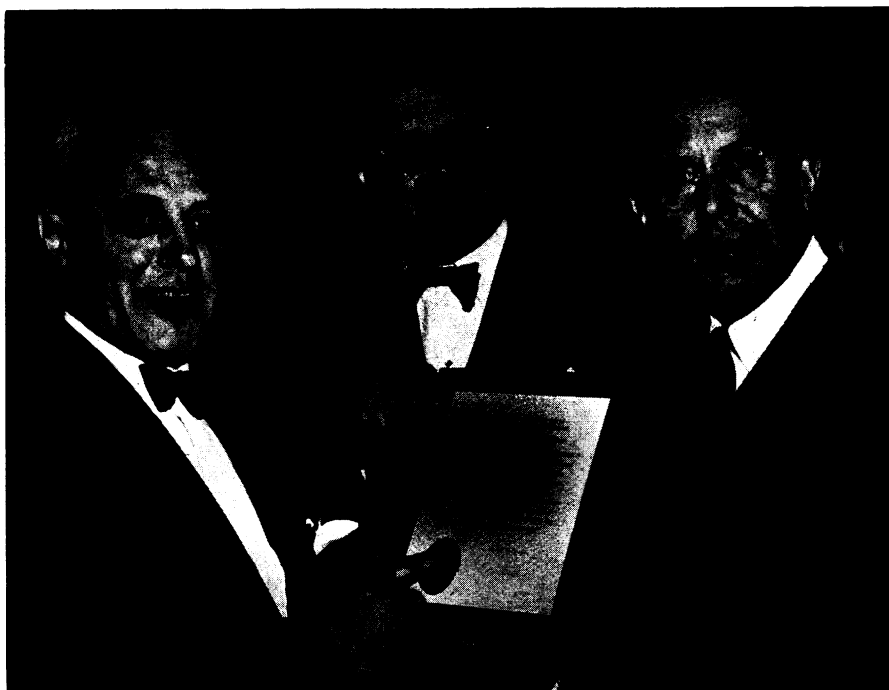
➤ A WAY to lower the risk of unwanted and sometimes dangerous side effects of the miracle sulfa drugs was described to the meeting of the American Association for the Advancement of Science in Philadelphia.

Greater safety results, Drs. Alfred R. Biamente and George H. Schneller of the American Cyanamid Company reported, when two kinds of sulfa drugs are combined in the same dose.

In this method only half of each kind of sulfa is administered to the patient. As the dangerous side effects, notably irritation or blockage of the kidney, are caused when too much of one kind of drug is given for it to be totally soluble, the danger is lessened by giving only a half dose of each.

The two scientists described safer combinations of several kinds of sulfas, including a combination of sulfadiazine, sulfamerazine and sulfamethiazine.

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ACHIEVEMENT PRIZE—Ernest O. Lawrence (right), professor of physics at the University of California, receives from Dr. Karl T. Compton (left), chairman of the Scientific Research Society of America, the 1951 William Procter prize for scientific achievement. Dr. E. W. Engstrom (center), who delivered the society's annual lecture, adds his congratulations. Dr. Lawrence is best known as designer of the cyclotron, and for his research into atomic physics.