UNITED STATES DEPARTMENT OF AGRICULTURE — Radio Service — OFFICE OF INFORMATION

CHATS WITH THE WEATHER MAN — RELEASE Friday, May 27, 1932

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ANNOUNCEMENT: Now for our chat with the weather man. Today we have a cool, refreshing talk from one of the specialists of the United States Weather Bureau. Around this time of the year it is no surprise to some of us to hear that even Greenland's icy mountains have begun to melt. -----

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Yes, sir, Dr. W. J. Humphreys, in charge of the division of meteorological physics of the United States Weather Bureau, declares that Greenland's ice is now melting.

That is, the heat this old earth of ours is getting from the sun is enough to melt during the summer time more ice than accumulates in the form of snow during the winter.

What of it? -- What difference will it make, if it does all melt?

Well, as Dr. Humphreys points out, recent measurements of the thickness of Greenland's ice by the echo method used to determine the depths of the seas show that the ice there is a mile and a half thick in places. When you realize that most of Greenland is covered with ice and Greenland is eighteen times as big as the state of Pennsylvania, you begin to grasp the fact that there is a lot of ice up there.

But that isn't all. As Greenland's ice goes, so will, not only other Arctic ice, but also Antarctic ice. Antarctica is as big as the whole of the United States and probably has a lot of that mile and a half thick ice, too.

Figuring on the basis of the recent measurements, Dr. Humphreys roughly calculates that all in all there is enough ice at the two ends of our earth to make four million cubic miles of water. Of course, that water would go into the oceans. The area of all the oceans is about 140,000,000 square miles. If you add four million cubic miles of water to our oceans, Dr. Humphreys figures you raise the level of the water 151 feet.

Just imagine the water 150 feet higher. That would drown out the world's seaports and far into the back country in many cases. Some of our coast cities would only have the tops of high buildings left to mark where they once were.

However, Dr. Humphreys says we need not get excited about it. It is not going to happen in any of our life time. Even granting that we have our

figures right, the level of the oceans is not coming up suddenly in one big overwhelming flood. According to his figures, the level of the ocean is rising about an eighth of an inch a year.

That is, granting that the ice is now melting at much the same rate it did before, back 30,000 years ago, when the geologists tell us glacial ice was down into what is now New York and southern Ohio, and Illinois. There were vast thick sheets of ice covering much of Europe even 20,000 years ago. In fact, it was only some 9,000 years ago, Dr. Humphreys says, that the melting ice sheet left the city of Stockholm. That has been rather accurately determined by the annual layers of sediment deposited in lakes and elsewhere, recently examined and counted.

According to the best figures now available, then, the ocean level may be rising about an eighth of an inch a year from the effect of melting ice in the Arctic and Antarctic.

But what are the real facts of the matter. Dr. Humphrey has no doubt that more ice is being melted than is being formed. He holds that the water level in our oceans is actually on the increase, but, at present we have no measurements by which to tell just how much it is coming up.

Yet, he says, we could now measure those changes accurately, and find out the true changes in the levels of our oceans. There are some ocean gauges here and there, but no measurements of the ocean levels have been carried out with the degree of accuracy which would be necessary to get these cold water facts.

He suggests, however, that by the establishment of sea level gauges located in widely separated places, especially on islands such as the island of St. Helena, we could now get the facts as to how fast the water in the ocean is rising.

He would be careful not to locate any of those sea-level gauges on volcanic islands, which have a way sometimes of rising or sinking in a most disconcerting manner. And there is always that problem of our more stable land moving up and down in reference to the water. Dr. Humphreys would get around the effects of any such land-movement by locating the sea-level gauges in a number of widely separated places. All the coasts would not be rising or falling at the same time.

By taking these sea-level measurements continuously year after year, a record would be obtained from which it would be possible to tell just how fast this slow flood of water is rising, and just how fast those mountains of ice are melting.

As you know, the U. S. Weather Bureau measures the height of water in our rivers. Those measurements in feet and fractions of a foot give data used in practical forecasts of floods along our rivers.

However, this proposal of Dr. Humphrey's for a gauging of a flood in the ocean is something new. Such measurements, would be made in small fractions of an inch, and would be chiefly valuable in giving scientists a more exact idea of just what is going on at the ends of the earth.

Of course, at the rate Dr. Humphreys figures the melting is now taking place it would take nearly one hundred years for this ocean flood to raise the level of the water one foot. Yet even that much of a change might have considerable practical significance in some of our ports.

However, one of the most striking things about this proposal is the fact that our scientists can now measure such changes with the degree of accuracy which would be needed. Another thing is that international cooperation in weather science has reached the point where the location of the many gauging stations in wide-separated parts of the world appears to be entirely feasible.

Dr. Humphreys admits that there is a possibility that the flood may never rise the full 150 feet he has calculated, even in the hundreds and thousands of years which it might take to melt what ice we now have. There may not be as much ice left as he has figured. However, whether our present knowledge of the amount of ice on hand is accurate or not, if on the average more ice melts than accumulates in the form of snow in the winter, then the difference must be pouring into our oceans in the form of ice water.

"Greenland's icy mountains" may be helping submerge "India's coral strand."

Presumably, as that melting goes forward, the ice will melt faster and faster. But Dr. Humphreys didn't go into that phase of the matter. And no matter how much hotter this ending of the late Ice Age may make things for our remote descendants, all that melting ice and ice water is a cooling subject for a chat with the weather man on a summer's day.

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ANNOUNCEMENT: We will have another chat with the weather man two-weeks from today. These talks on weather topics come to you through the cooperation of Station _____ and the United States Department of Agriculture.

National Oceanic and Atmospheric Administration

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