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? WHY THE WEATHER ?

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ICE AGES

There is ample geological evidence that, in the course of many millions of years, the earth has passed through several ice ages, or glacial periods, the characteristic feature of which was the gradual spreading of ice sheets from the polar regions toward the equator, followed by the equally gradual recession of these sheets. Though each of these frigid periods may have lasted a million years or so, they were probably exceptional events in the earth's history; the normal state of affairs having been the absence of any extensive ice sheets. At the present time about half of the total area of ice formed during the last ice age still exists (chiefly in Antarctica and Greenland), so that, according to current ideas, the earth has not yet returned to its normal non-glacial condition. In other words, we are now living in the declining stage of a glacial period.

Fully a score of different hypotheses have been put forth to explain these occurrences. According to the one recently developed by Fritz von Kerner and C. E. P. Brooks, a comparatively small change in the heat supply of the earth's atmosphere would suffice to bring on an ice age or bring one to an end. The essential points of their hypothesis may be thus stated:

Suppose the earth to be free from ice sheets. In some way the temperature at the pole becomes low enough for a small ice sheet to form. As soon as it has formed it will cause the temperature to fall still more, because of the high reflecting power of the ice (about four-fifths of the sun's radiant energy being reflected back into space). This would cause more ice to form, thus increasing the area of the ice cap, which would still further lower the temperature, and so on.

From such data as are available it appears that, starting with a non-glacial condition--i. e., with the earth having no permanent ice fields--it is possible for an initial lowering of the mean annual temperature by only 0.3 degree centigrade (about half a degree Fahrenheit) to produce eventually an ice cap extending to 65 degrees latitude. On the other hand, according to the same authorities, an increase of only one or two degrees in the earth's mean annual temperature would cause the present ice caps to disappear.

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