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A Science Service Feature

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? WHY THE WEATHER ?

Dr. Charles F. Fooks,
Secretary, American Meteorological Society
Says:

LAKE WATERS ARE GETTING COLD

During the summer the surface temperatures of most lakes of the northern United States and southern Canada rose into the 60s and 70s, while in the depths beyond the penetration of summer heat the temperature remained at 39 degrees Fahrenheit, the temperature of fresh water at its maximum density. For nearly two months now the decreasing heat of the retreating sun and the coolness of the lengthening nights have favored the cooling process, which presently will culminate in the formation of ice.

As water at the surface cools it becomes heavier and sinks to a level where the water is equally cold, and this is repeated over and over again, night after night, until eventually the temperature of the lake becomes 39 degrees throughout. Thereafter, as the surface water cools it expands and is lighter than the water below and remains at the top. Finally, it cools to 32 degrees and ice forms, to become gradually thicker as the winter advances. During the winter the water at the surface next to the ice remains at 32 degrees, while that at the bottom is 39 degrees. When spring comes the process is reversed.

If a river is deep and slow-flowing its temperature behavior is the same as that of a lake, but if the stream is shallow and swift-flowing the water will be so mixed as to be of uniform temperature throughout.

(Tomorrow: Late Autumns on Lake Shores.)
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