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? WHY THE WEATHER ?

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ICE DOESN'T SINK

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At this season of the year, in the northern United States and in Canada, it is not uncommon for a stream or lake to be covered with an unbroken sheet of ice one day and entirely free from ice the next. The explanation usually offered in such cases is that the ice has become waterlogged and has sunk. The fallacy of this idea has lately been pointed out by Dr. W.J. Humphreys, of the U.S. Weather Bureau.

Ice is lighter than water, in which, therefore, it cannot sink. The sudden disappearance of the ice sheet can be explained in another way. When the ice forms in the fall, various substances dissolved in the water are expelled by the freezing process, and a certain amount of this material is entrapped between the crystal faces of the ice or in crevices of any kind. The water containing this entrapped material has a slightly lower freezing point than pure water -- just as sea water, which contains salt in solution, has a lower freezing point than fresh water. With further cooling, however, this water also freezes, and the ice thus becomes a solid sheet.

When spring comes and warm weather sets in, the parts of the ice sheet containing the impurities melt before the rest. Thus the whole structure becomes honeycombed and weak. A stormy wind tends to break it up. After this happens the water is churned by waves, and warmer water is thus brought up from lower levels, to which it has previously settled because the density of water is greatest at a temperature a few degrees above the freezing point. This relatively warm water soon melts the fragments of ice floating at the surface.

It is rapid melting, under the circumstances above described, and not sinking that explains the disappearance of the ice sheet.

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