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A Science Service Feature

? WHY THE WEATHER ?

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FIVE KINDS OF ICE

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Prof. P.W. Bridgman of Harvard University, by subjecting water to enormous pressure, produced some years ago four kinds of ice differing in some of their properties from one another and from the ordinary ice that occurs in nature. Ordinary ice is less dense than water, as shown by the fact that it floats, but all of the other kinds are denser than water.

One interesting application of all this is that the powerful expansive force exerted by water when it freezes, resulting in the bursting of water pipes and even of far stronger metal containers, reaches a limit at the point where a container of sufficient strength compresses the expanding ice so strongly that the latter changes from ordinary ice to one of the other kinds.

When this compressive force amounts to 30,000 pounds per square inch, the ordinary ice changes to the variety known as "ice III," which is about 3 per cent. denser than water. It thus tends to shrink instead of expand and the rise of pressure is arrested.

To put it another way -- freezing water cannot exert a greater pressure than 30,000 pounds per square inch on the walls of a containing vessel.

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