A Science Service Feature

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? WHY THE WEATHER ? Mailed December 21, 1927

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THE STRUCTURE OF ICE

A block of clear, hard ice does not reveal to casual inspection the slightest hint of its complex structure. There are, however, several ways of bringing to view the innumerable starry crystals of which it is composed. One method is to rub the surface with a soft pencil or to dust it lightly with soot by means of a soft brush. The substance thus applied fills the slight depressions between neighboring crystals and discloses their outlines. A coating of soot can be used in a similar way to bring out the details of the frost figures formed on window panes.

Another process, made familiar more than a generation ago through the experiments and lectures of Professor Tyndall, consists in passing a beam of light through a thin slab of ice and watching the resulting image projected on a screen. Little shining figures appear in the shape of six-petaled flowers. Each of these represents an open space in the ice where a crystal has been melted by the heat of the beam and retains the shape of the crystal. The space is nearly filled with water, but, as ice contracts in melting, a tiny bubble-like vacuum is left at the center of each flower. The spaces and their contents have sometimes been called "negative" or "inverse" crystals.

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