

## CRYSTALS OF WATER

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Few substances receive greater attention and more careful treatment than water, but, as a mineral, none gets less consideration. In one of its common forms it is massive and crystalline, and often, when in the form of snow, it shows highly complex groupings. Judging from the paucity of the literature about water, simple crystals have scarcely ever been observed, and yet they may be produced as easily as crystals of alum.

Some years ago the writer had a hydrant which was supplied with water thru a three-quarter inch lead pipe. The pipe was buried under three feet of earth. Near the hydrant was a valve by which the water could be shut off below the frost line. Access to this valve was thru a pit eight inches square, with walls of brick laid in cement. The brickwork extended about five inches above the surface of the ground, so that the valve was about three and one half feet below the top of the brickwork. The pit was covered with an iron casting, in which was a hole for the valve wrench. These details are given to assist in reproducing the physical conditions, if anyone cares to make the experiment.

One day, when the temperature was below zero (F.), the writer noticed that the inner surface of the bricks, at the top of the pit, was covered with a white coating of frost, which had the general appearance of some specimens of natrolite. An examination, with a low power hand glass, revealed a multitude of crystals of ice. The crystals were not measured, but quoting from memory, they were about 0.5 mm. thick and 3 mm. long. Each crystal was distinct and independent, and while they were densely clustered there was no indication of a hexagonal or stellate grouping.

The crystals were hexagonal prisms, with well formed angles, and dull, opaque sides or planes. The terminations were complete, with three planes, which, instead of being elevated, as in rhombohedrons, were just the reverse—they were all depressed—as tho they had sunken into the body of the prism. No reason can be offered for this peculiarity. It has been suggested that it could have been the result of trilling. A somewhat similar condition has been observed in certain crystals of calcite. The terminal planes were also dull and opaque. The roughness of the surfaces of the crystals may have been due to the accession of fine particles of ice, which were attracted by the growing crystal.

These crystals were undoubtedly produced by the freezing of the moisture which rose from the damp earth in the bottom of the pit.