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A Science Service Feature

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? WHY THE WEATHER ?

Dr. Charles F. Brooks,
of Clark University,
discusses:

ICE PILLARS AND GROUND HEAVING

During an open winter, or in the fall and spring, one will often notice ice pillars rising up out of the bare ground of gardens, paths, or roadways. These small columns of ice commonly stand together in groups, frequently several inches high and capped with particles of soil or small stones. Even larger stones may be loosened or slightly raised from the surface by the freezing of the ground beneath. The heaving of the surface soil by this process is responsible for much of the winter killing of wheat.

When the water in the soil starts to freeze, it must expand. If the whole surface is freezing, it cannot well expand sideways, and downward expansion is obviously less easy than upward. Hence these pillars of frost are forced up out of the ground, sometimes carrying bits of the surface with them. In the same way, in very cold weather, milk in milk bottles freezes and expands and you find the cap removed from the neck of the bottle and perched on the top of a column of frozen cream. Just as the cream column rises as a cylinder from the circular neck of the bottle, so the frost column retains the shape of the small aperture through which it emerges.

This growth of ice up out of the ground tends to bring moisture from lower layers to the top where it can evaporate more readily. The soil below is somewhat dried by the process, but the surface, after a slight thaw, is likely to be particularly slippery and muddy.

(Tomorrow; Dust in the Air)

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