A Science Service Feature

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? WHY THE WEATHER ?

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FROST FOG

Our attention was recently called to an uncommon type of fog when two sections of the "20th Century Limited" collided in a frost fog in western New York. The eight below zero temperature reported was probably about right, for the Weather Bureau reported zero at its station on top of a building in Syracuse, a few miles away. The fog was evidently the result of a considerable chilling of the lower air over the foot-deep layer of snow the surface of which had been cooled greatly by radiation during the clear, quiet night. These conditions are typical of the center of a cold high pressure area, such as was then centered over New York.

Ordinarily, however, a fog of this type would not have been dense enough so to obscure vision as to permit a collision, for the air at low temperatures has a very low content of water vapor from which condensation can take place. The cold surface of the snow, furthermore, dries the air in contact with it by causing condensation of frost. On this occasion, however, the temperatures had fallen from maxima 20 or 25 degrees higher on the preceding bright and sunny day when, through evaporation of the snow surface, the air must have become appreciably humidified.

Frost fog is found most often where bright sunny days are succeeded by clear cold nights, therefore it is characteristic of the polar regions, especially on the great flat ice domes of Greenland and Antarctica. It is well known in parts of the western plateau region between the Rocky Mountains and the Cascade Range, where locally it is called "pogonip". Of its thinnest phase on a sunny morning we say the air is filled with "diamond dust".

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