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A Science Service Feature

? WHY THE WEATHER ?

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SUDDEN MODERATION

A remarkable feature of the late December cold spell was the sudden moderation occurring in the Northeast after zero temperatures had prevailed 24 hours. With still lower temperatures in the Middle West whence the wind continued to blow briskly, the frigidity was expected to continue. But temperatures overnight rose 10 or 20 degrees. How could this happen?

With several inches of fluffy snow already on the ground a blast from the north came through without appreciable warming from the ground. No temperatures tumbled to wintry levels. A clear night then allowed such radiation from the snow surface that temperatures fell as much again. But this apparently affected only a thin layer of air. Bright sunshine warmed the air a few degrees the next day. Then after sunset a cloud sheet so prevented cooling that the general mixing of air between surface and higher levels moderated the severe cold. Cold spells commonly moderate, but though these same factors may be involved they are obscured by the much more important effect of a southerly wind. Seldom do we have so marked and widespread a rise without a distribution of surface temperatures to show it first.

Farther west where the layer of cold air had become much thicker the cold spell did not break so soon, nor was it prevented from penetrating the South.

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