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? WHY THE WEATHER ?

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THE MAKING OF A SEVERE COLD WAVE

Though a cold wave is defined as a sudden and considerable drop in temperature to low levels, such a descent can hardly be accomplished without a strong wind and usually some snow. A severe cold wave, one which comes overnight, arrives with a gale and at times to the accompaniment of drifting powdery snow that fills the air. The cold wave of Nov. 17, 1924, in eastern Canada, New York, and New England, was of the severe type. One of its remarkable features was the occurrence of temperatures practically as low in central New England as in Canada. The temperature in Montreal fell to five degrees Fahrenheit, that in Worcester to nine degrees, and there were reports of temperatures below zero in the higher parts of New England and New York. The current of cold air, evidently, was not a shallow one.

Rarely can such a cold wind travel a few hundred miles southward over practically bare ground without gaining appreciably in temperature. Ordinarily, the cold air gains heat from several sources: condensing atmospheric moisture in the warmer air invaded, freezing a rain-soaked ground, and taking heat from the ground recently warmed by a south wind or by the sun. None of these sources was available to any extent on the night of Nov. 16-17, 1924. The air over the region was already moderately cool and dry, the ground was practically at the freezing point and it contained very little water. The light deposit of snow precipitated near the front of the cold wind served to keep the lower air cold by evaporation. Whatever heat was gained was distributed through a very great volume of air, and so could count for little in any part. The suddenness with which the gale developed appears to have brought previously undisturbed cold air almost directly from the interior of the Labrador Peninsula, and overnight it came so fast that it was able to reach southern New York and New England before the rising sun could temper it.

(Tomorrow: December)

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