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? WHY THE WEATHER ?

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ICE STORMS

Don't forget that the atmosphere has three dimensions and that the weather up above is not necessarily the same as at the ground. Generally we expect the upper air to be colder than air near the ground. Thus we have high clouds of snow even in summer; and frequently during the colder seasons snow falls when our thermometers show an air temperature above 32 degrees. Snow falling and melting, then, means colder above, warmer below. But sometimes just the reverse happens - rain falls and freezes on cold surfaces and we have an ice storm. This means warmer above and colder below, or an inversion of the usual temperature conditions.

The ice storm combination may arise in any of three ways. A warm, moist wind comes up from the south and overrides a cushion of cold stagnant air near the ground. Or perhaps there are two counter currents, a cold northerly wind below and a southerly wind above. Again, sometimes when a rain cloud is already present, cold air from the north or west arrives and pushes under it. In any case, the cold air furnishes an obstacle in the path of the warm wind, causing it to rise and cool by expansion, often precipitating much of its vapor as rain. The raindrops quickly freeze, making a coating of glaze when they strike cold objects below.

(Tomorrow: Weather in a Bottle)

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