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? WHY THE WEATHER ?

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WHY DOES IT RAIN?

There are four general types of rains, or snows: "warm front" and "cold front" rains, rains due to atmospheric instability, and rains produced by mountains. Continuous light or moderate rains with southerly or easterly winds are usually of the warm front type. The warm air flowing northward cannot displace colder air near the ground, but rises up over it. This elevation of the moist warm air may be sufficient to cause the formation of clouds and finally rain. A cold wind invading a warmer region may also produce rain on its cold front. In this case, however, the heavy invading air enters as a wedge, or falls down in squalls, running under and lifting the warmer layer already present.

Just as a warm wind must rise to flow over a mountain of cold air, so any low wind must rise to pass over a real mountain, if it cannot go round it. If the wind is sufficiently moist the resulting expansion and cooling of the air will cause rain or snow to fall on the windward slope of the mountain. Such slopes, therefore, receive more rainfall than the surrounding plains.

Rains due to atmospheric instability include the convectional types. The atmosphere becomes unstable, and convectional circulation starts when a lower layer of air is heated or an upper layer cooled markedly. Warmer or colder winds at different levels produce the same result. Thunderstorm rains are an example of convectional rainfall.

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(Tomorrow: Christmas Weather and Customs)

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