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? WHY THE WEATHER ?

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EQUABILITY OF LEEWARD SHORES

The temperature of the lower air is very dependent upon that of the earth's surface which underlies it. True, when air moves rapidly from a cooler to a warmer region or vice versa, it may import a large temperature change temporarily, but this can only be maintained by a continuance of the wind. Per unit volume, air, under ordinary sea-level conditions, contains only 1/3300 as much energy in the form of heat as water does, or 1/1800 as much as ground in general. It is not surprising, then, that the earth's surface temperature controls that of the lower air.

Water bodies are equable especially in early winter - for they must cool all the way to the bottom, or at least to a depth of 50 to 100 feet as the surface becomes cooler. In lakes this cooling circulation to depths continues till the temperature is 39 degrees Fahrenheit, that of maximum density of fresh water. Leeward shores, then, also have equable temperatures, as winds passing across large water bodies are affected by their temperature. In the cold wave of Nov. 17, 1924, for example, the temperature at Oswego was 6 degrees Fahrenheit warmer than Kingston up the wind across Lake Ontario. Similarly warm winds may be chilled, the north shore of Lake Ontario being commonly 4 to 6 degrees Fahrenheit cooler than the south shore during southerly winds in November, 1924. The greater size of oceans makes ocean leeward shores even more equable in temperature than those of lakes. Our Pacific coast is notably free from extremes and even on the Atlantic shore temperatures are moderated when the wind comes from the ocean.

(Tomorrow: Man's Effect on the Weather)

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