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? WHY THE WEATHER ?

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EQUABILITY OF LEEWARD SHORES

The air is warmed and cooled not so much by the sun's rays directly as by radiation from that part of the earth's surface over which it lies. The air over land follows the land temperature, that over water rather closely follows the water temperature. Now land heats more rapidly and reaches higher temperatures than water for several reasons. In the first place, not all the sunlight falling on the water is available for heating its surface; while land absorbs the light, converting it into heat, the water reflects a large per cent. In the water some energy is also spent in evaporating the water rather than in heating it. Moreover, water transmits heat from the surface to deeper portions better than does land; therefore, the surface of the water does not become so hot. The constant motion of the water also aids in carrying heat downward, but land stands still and gets hot mostly on top. Finally, the specific heat of water is greater than that of land, which means that, irrespective of other differences, more heat is required to raise the temperature of a given quantity of water one degree than to raise equally the temperature of the same weight of soil or rock.

Since the continents are warmer than the oceans in summer, the air temperatures over them are higher. On a hot summer day, a breeze from the sea is always refreshing when it blows over the land. The east wind of Boston, or the lake breeze of Chicago, for example, bring immediate relief to the sweltering cities. In winter, on the other hand, the air over the continents is much colder than that over the oceans. Thus it is that places situated in the interior of continents have such large annual ranges of temperature, as the Dakotas and Montana, Saskatchewan and Alberta, where 40 below zero in winter and 100 above in summer are not uncommon thermometer readings; while along the western coast of California, where the wind blows prevailingly from the Pacific, the temperatures during the year are much more uniform.

(Tomorrow: Living Weather Indicators)
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