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A Science Service Feature

? WHY THE WEATHER ?

Dr. Charles F. Brooks,
of Clark University,
tells of:

LOCAL FORECASTING IN SOUTHERN CALIFORNIA

To one who has spent most of his life in the Middle West or the East the progress of the daily winter weather in southern California is not "according to Hoyle". The warmest days come with east winds and clear skies, and the coolest with west winds and cloudy skies. The warmest nights, however, often go with the coolest days and the coldest nights with the warmest days. This apparent paradox is the result simply of the fact that the weather of southern California is more strongly controlled by daytime heating from sunshine, and nighttime cooling from radiation than by any other factors.

When the sky is clear, the air dry, and the wind light, daytime temperatures in winter rise to 75 or 80 and nighttime temperatures fall to freezing or below. A cloudy sky reduces the range by ten or fifteen degrees both at the top and bottom, the greatest reduction in range coming when the cloudiness, as is usually the case, is accompanied by moist air and wind. Thus, when a storm is approaching the forecast is, "Cloudy, warmer tonight, cooler tomorrow." And when the storm has passed: "Clear, cooler tonight and warmer tomorrow; freezing temperatures if the wind stops tonight."

Damaging freezes occur not as the result of imported cold air but because of the nighttime cooling favored by imported dry air. On December 8-10, 1923, when a blizzard raged on the interior plateaus, the heavy gale descending into southern California after passing over the sunny desert was above 60 degrees Fahrenheit by day. Its extreme dryness, however, with relative humidity down to 24 per cent and dewpoint down to 14 degrees Fahrenheit indicated the coldness of its source. If, on one of those evenings, the wind had stopped, the rapid cooling allowed by the clear dry air would have resulted in a bad freeze. When with a cool wind the day is cloudy and the night clear and quiet the temperature starting down from a maximum of about 50 may reach 20.

(Tomorrow: The Memorable "Blizzard" of March, 1888.)