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A Science Service Feature

? WHY THE WEATHER ? Mailed May 1, 1935

WHAT IS A DROUGHT?

By Charles Fitzhugh Talman,
Authority on Meteorology.

A drought is commonly conceived to be a protracted period of deficient rainfall, but this conception is quite misleading, because the harmful effects that we think of in connection with a drought, and that make it an event of practical importance, are really due to a scarcity of water in the soil, and the relation between rainfall and soil moisture is far from constant. The soil is moistened by rain and snow, and it is dried by drainage and evaporation. The latter process includes evaporation directly from the soil to the air and evaporation through plants; the latter process being distinguished as "transpiration."

With a light rainfall the soil may remain moist if atmospheric conditions do not favor rapid evaporation. Hot weather, dryness of the air and high winds all promote evaporation. The important effect of temperature is indicated by some figures quoted by T. A. Kiesselbach, of the University of Nebraska. It was found that corn plants required a rainfall of only 2 inches a month when the daily temperature averaged 70 degrees ^{Fahrenheit} /, but 14 inches a month when the daily temperature averaged 100 degrees.

The severity of last summer's drought in the United States was due in part to the scarcity of rain, but also in part to the fact that, for the country as a whole, the summer was one of the hottest on record. It was this combination of adverse conditions -- i.e., a deficient supply of water to the soil combined with excessive loss from the soil -- that caused the withering and stunting of vegetation, the shrinking of streams and the failure of wells.

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2101 Constitution Ave.
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