

A Science Service Feature

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? WHY THE WEATHER ?

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By Dr. Charles F. Brooks
of Clark University.

THE TENNESSEE FLOODS

When a region has been drought stricken for some time and has had deficient precipitation for two or three years, the ground water becomes so depleted that the occurrence of a flood seems a remote possibility. This has till recently been the condition in Tennessee, but past deficiencies have been rapidly made up. The particular flood reaching its crest at various places during the last ten days was due primarily to very heavy rains on the western slopes of the southern Appalachians.

The rainfall at lowland cities, where most of the regular Weather Bureau stations are located, gives an inadequate appreciation of the amount of water that can fall on the higher, mountain slopes. While the weather map shows only the lowland rainfall, the special reporting stations for the flood forecasts of the Weather Bureau indicate these larger falls. A few days before Christmas, an intense low with a great draft of warm damp air on its front moved from southern Texas across the central Appalachians. Heavy rains attended it, amounting to from 1 to 7 inches before the mountains were reached. Nashville got $5\frac{1}{2}$ inches, and Knoxville over 2. The southern Appalachians being near to but just south of the track of the center got much more, since the floods started in the headwaters of mountain streams. On the mountains the forced ascent of the wind as it struck the mountain barrier was added to that of the cyclone itself, thereby greatly increasing the precipitation. If the storm center had gone farther north there would have been less precipitation from the cyclonic action in the south and more farther north. If it had passed farther south, the warm damp wind from which the vapor was precipitated could not have reached this portion of the Appalachians. The situation was just right to throw the rivers of Tennessee and Kentucky into flood, and, of course, to raise the lower Ohio to flood stages.

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