

FIG. 1.—Sea-level distribution of barometric pressure over Michigan, July 7, 1923, 8 a. m., 75th meridian time.

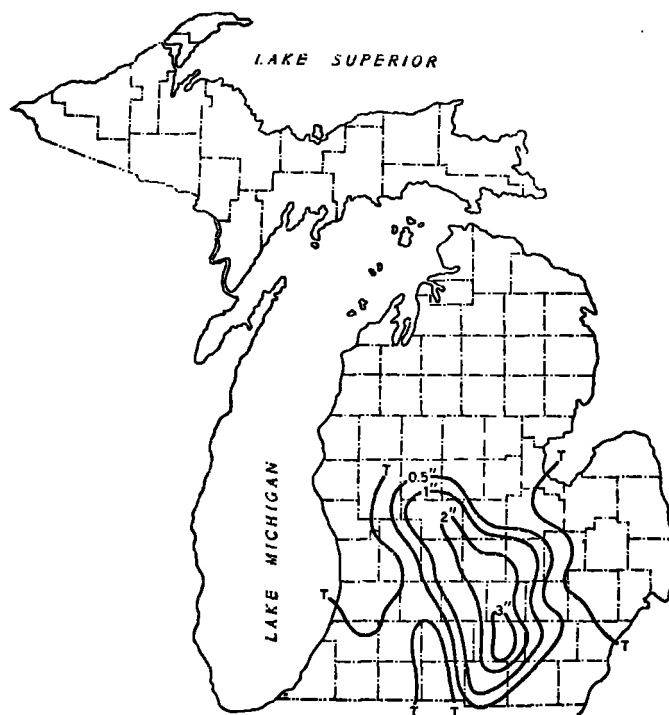


FIG. 2.—Distribution of heavy rainfall in southern Michigan, July 7, 1923.

TORNADO AT COUNCIL BLUFFS, IOWA, SEPTEMBER 28, 1923.

By M. V. ROBINS, Meteorologist.

[Weather Bureau Office, Omaha, Nebr., Oct. 5, 1923.]

On Friday night, September 28, 1923, a small tornado occurred in the southeastern part of Council Bluffs, Iowa, across the Missouri River from Omaha, Nebr. The storm struck about 7:50 p. m., and owing to darkness and a torrential rain but few people saw the cloud. One man whose house stands at the top of a steep hill overlooking the area of worst damage said: "It was a long funnel-shaped cloud with a black column extending from the ground high into the air. I heard it roaring as it swept this way and I and my family rushed into the basement. When we emerged several minutes later we found a large tree down in our back yard almost blocking the door. Trees were uprooted and sheds blown down all around the neighborhood." Another man reported what he saw resembled a ball of fire. Opinions differ as to the sound accompanying the tornado, some saying there was a roar and others that it was like steam escaping from an engine, and it is probable that the metallic roar frequently heard was dulled to a considerable extent by the almost constant thunder and the drumming of the rain.

The cloud moved from the south, especially over that part of the path where most of the destruction occurred; this was confined largely to one street to the east of which is a bluff about 200 feet high and running about due north and south. The path was narrow, a few hundred feet, and probably not to exceed 3 miles in length, but part of which was settled, so the damaged area is but a few blocks long. After the storm passed through this territory it continued over the hills for a short distance, uprooting or breaking some trees and finally dissipated.

The damage done by the tornado was less than anticipated at first, and probably does not exceed \$15,000;

one house was demolished and a considerable number damaged to a varying extent, but the buildings were mostly small and some were in a poor condition already.

Débris was thrown in all directions, but the trees observed were mostly torn out by the roots and were lying in a northerly direction or toward the northeast. A few roofs were torn off or partly so, one showing the part away from the direction of approach completely gone while that on the south remained almost intact, showing the explosive action of the vortex.

The greatest damage suffered by the city of Council Bluffs was from the excessive rainfall (a fall of 3.04 inches was recorded in two hours, and 6.80 inches in 24 hours at Omaha). Hundreds of people were driven from their homes in the lower sections, and even many business houses and stores were flooded and the floors covered with mud and water. Mud from the hills covered lower Broadway and some other streets for blocks, in places to a depth of more than a foot. Hundreds of homes had their basements filled with water and scores had their first floors covered with water and mud. It is the worst flood since the memorable one of the spring of 1881, which was due to high water in the Missouri River and came in from the low lands up to the higher sections, while this came from the hills and higher ground.

At the Weather Bureau office in Omaha, about 7 miles in an air line from the devastated area, during the passing of the tornado nothing unusual occurred other than a severe thunderstorm. Rain fell at an excessive rate. The barogram shows no more marked fluctuations than frequently occur in ordinary thunderstorms. The wind reached a maximum velocity of 36 miles an hour from the north at 8:04 p. m.