

On the morning of the 24th a disturbance had reached Manitoba with central pressure of 29.32 inches. In the early afternoon southwest warnings were issued for all upper Lakes station, except northwest at Duluth Minn., and at 4 p. m., for Lake Erie. At 10 p. m. the warnings were extended to Lake Ontario. In general these warnings were verified, but in most cases the wind did not become strong until the center of the depression had passed to the eastward, the winds being from the northwest.

On the morning of the 28th northeast warnings were issued for Lake Superior from Duluth to Munising. The warning was verified at Duluth. A similar warning was ordered for Duluth only on the night of the 29th, but this warning was lowered on the following morning when it had become apparent that the depression over the plains states was decreasing in strength.

Small-craft warnings were advised on the 4th for central and eastern Lake Superior and northern Lake Huron, and were issued by the Houghton official on the 11th and 21st and by the Ludington official on the 24th.

A special week-end forecast for Milwaukee and vicinity, prepared on Thursday mornings, was begun in October. This service is in response to the increasing demand that the regular forecasts be extended, especially to cover the week end, when the forecasts are a matter of much interest to those who take pleasure trips.

A second long-range forecast is also now being prepared for publication in the Wisconsin State Journal at Madison, Wis. This is made on Tuesdays and attempts to cover the conditions expected during the remainder of the week.

Special flying forecasts for zone 4 were sent to Selfridge Field in connection with the aviation meet held on October 13-15 and two special long-range forecasts, covering general weather conditions, were furnished the Detroit office.

The usual temperature forecasts for a week in advance and covering conditions in Montana and North Dakota were begun to the Wenatchee Valley Traffic Association on Monday, October 23. These forecasts were a feature of the work of this office during the last two winters, and are used by the association in connection with their fruit shipments to the East.—*Charles A. Donnel.*

NEW ORLEANS FORECAST DISTRICT.

Northeast storm warnings were displayed, 9 a. m., October 3, from Morgan City to Salmen, La., in connection with a disturbance in the middle Gulf. Small craft warnings were issued for the Texas coast, 9:30 a. m., October 17. Storm warnings were ordered for the Texas coast, Port Arthur to Velasco, and small-craft warnings for the remainder of the Texas coast, 9 a. m., October 23, 1922. Small-craft warnings were ordered, 9:20 a. m., October 25, for the Texas coast. Storm warnings were ordered 12:30 p. m., October 26, for stations at the mouth of the Mississippi River and small-craft warnings for the remainder of the Louisiana coast and the Texas coast, Port Arthur to Galveston. These warnings were generally justified by the subsequent conditions, notwithstanding storm winds did not occur at the stations named. No storm occurred without warnings.

Frost warnings were issued October 7 for the northern portion of Oklahoma and the Texas Panhandle; on the 8th, for northern Oklahoma; on the 10th, for northern Arkansas; on the 11th, for northern Oklahoma and northwestern Arkansas; on the 12th, for northern Arkansas;

on the 17th, for Arkansas, Oklahoma, the northern portion of west Texas, and the northwestern portion of east Texas; on the 18th, for Arkansas and Oklahoma; on the 23d, for Arkansas, Oklahoma, the northern portion of Texas, and northwestern Louisiana; on the 31st, for Oklahoma, west Texas, and the northwest portion of east Texas. These frost warnings were generally verified, and no frost of extent occurred without warnings.

"Norther" warnings were issued for Tampico, Mexico, October 17 and 23.

Fire-weather warnings were issued for Oklahoma, October 16.—*I. M. Cline.*

DENVER FORECAST DISTRICT.

Unusually dry weather, amounting to a drought in large areas, continued in the Denver forecast district during October, and the temperature for the month, as a whole, was considerably above the normal. Low temperatures, with frosts, occurred, however, on several dates. Timely warnings were issued, except for Modena, in extreme southwestern Utah.

The first freezing temperature warnings of the season for places in the fruit valleys in western Colorado were issued on the morning of the 6th. Temperatures as low as 27° were reported on the morning of the 7th in the Gunnison Valley. Warnings of heavy-to-killing frost were issued for Colorado and northern New Mexico on the 7th, with freezing temperature in localities in Colorado and possibly light frost in southeastern New Mexico. Heavy-to-killing frost was reported in northeastern Colorado and freezing temperature occurred in the greater part of the State.

On the 13th a trough of low barometer extended northeastward across Colorado to the Red River Valley of the North, and the barometer was rising in northwestern districts. A freezing-temperature warning for the fruit valleys of western Colorado was issued on the 13th and 14th, and was fully justified. An anticyclonic area from Alberta was moving rapidly southeastward over eastern Montana on the 16th, and the first warning of freezing temperature for eastern Colorado and northern New Mexico was issued on this date. Freezing temperature occurred as forecast, and killing frost, with freezing temperature, was reported on the eastern slope and as far south as Santa Fe. Freezing-temperature warnings were repeated for Colorado and northern New Mexico on the 17th to southeastern New Mexico, and frost was forecast for Utah. Freezing temperature or frost was reported, except in southeastern New Mexico, where a temperature of 36° occurred, with frost. Another trough of low barometer extended from New Mexico northeastward to Minnesota on the 21st, with a well-defined anticyclonic area in the north Pacific States. Freezing temperature or frost warnings were issued for Colorado and northern New Mexico on the 21st and 22d. The warnings were fully justified.

Warnings of freezing temperatures were issued for western Colorado, northwestern New Mexico, and Utah on the 28th. Freezing temperature occurred in localities in the region mentioned, with a temperature of 24° at Santa Fe and Albuquerque, and a killing frost was reported at the latter station. High pressure continued to spread slowly southeastward and the warnings were extended to northeastern Colorado and northern Arizona on the 29th and to southeastern New Mexico on the 30th, with possibly frost in south central Arizona. Temperatures of 20° to 24° occurred in the Gunnison Valley on