

of the 28th-29th were the severest of the month on the middle Atlantic and New England coasts. No storms of importance occurred on the coast south of Cape Hatteras.

Storm warnings on the East Gulf of Mexico Coast.—Small-craft warnings were displayed in the Pensacola and Mobile districts on the 26th and northwest storm warnings were displayed on the coast at and between Bay St. Louis, Miss., and Cedar Keys, Fla., on the 28th. No severe storm occurred over the East Gulf during the month.

Cold-wave warnings.—Cold-wave warnings were ordered on the 3d for the extreme east portion of upper Michigan; on the 12th for the region of the Great Lakes, the Ohio Valley, and Tennessee; on the 21st for the region of the Great Lakes and the Ohio Valley; on the 26th for the Upper Lake region and the lower Ohio Valley; on the 27th for the region of the Great Lakes, the Ohio Valley, and Tennessee; and on the 28th for the Eastern and Southern States, except Florida. The cold wave of the 27th-29th was the only general cold wave of the month in the Washington forecast district, and coming after a period of abnormally warm weather it was very destructive of fruit bloom and advanced vegetation over a large part of the country east of the Mississippi River.

Frost warnings were issued on a number of days for the States in this forecast district, where vegetation was advanced sufficiently to be subject to damage.

CHICAGO FORECAST DISTRICT.

Although March was one of the warmest months of that name on record in most sections of the Chicago forecast district, warnings of cold waves or freezing temperature were issued quite frequently during the month, the latter being necessary unusually early because of the advanced stage of vegetation in the southern portions of the district, due to the unusual and almost unprecedented warmth.

Cold-wave warnings for limited sections of the district were issued on the 8th, 10th, 11th, 12th, and 15th, while on the 12th were also issued the first warnings for freezing temperature, the advices being sent to Cairo, Ill., and Springfield, Mo.; on the 20th freezing temperature was indicated for Kansas and on the 21st for Kansas, Missouri, and the southern portion of Illinois.

The first cold wave of the month to sweep the district appeared in the Canadian Northwest on the evening of March 25 and during the 26th and 27th spread eastward and southward, bringing with it unseasonable cold, especially from the Rocky Mountain region over the eastern limits of the district. However, warnings for a decided drop in temperature were issued well in advance for all sections. Moreover, on Saturday, the 26th, advices for a severe freeze by Monday morning were sent to Kansas, Missouri, and Illinois, and cold-wave warnings repeated for this area, as well as for Wisconsin and portions of Minnesota and Iowa, on the morning of the 27th. Temperatures considerably below freezing prevailed in the eastern and southern portions of the district on the morning of the 28th and early reports indicate that much damage was done to grain and fruit in Illinois, Missouri, and portions of Iowa and Kansas. Temperatures close to zero or slightly below were registered in the eastern portions of the Dakotas, Minnesota, and northern Wisconsin on the 28th.

Freezing temperature was again indicated for the southern portion of this district on the 30th and 31st, although the ensuing temperatures were not so low as

those experienced during the period from March 27 to 29, inclusive.

Cattle warnings were sent to the stock interests in the northern Rocky Mountain region and western Plains States on the 10th, 11th, and 26th.—*E. H. Haines.*

NEW ORLEANS FORECAST DISTRICT.

Small-craft warnings were displayed on the 20th from Galveston to Velasco, Tex., and were justified.

Southeast storm warnings were issued for the Texas coast on the morning of the 26th and northwest warnings at night on the 27th. Northwest storm warnings were ordered displayed along the Louisiana coast on the morning of the 28th. The storm of the 26th accompanied an inland trough of low pressure and the other warnings were for the area of high pressure that followed. These warnings were verified. No general storm occurred without warnings, but a thundersquall of brief duration occurred in southern Louisiana early in the morning of the 31st and was attended by gales which caused slight damage in the vicinity of Lake Pontchartrain.

The first two decades were unusually mild and vegetation advanced sufficiently by the close of the first decade to require frost warnings, if indicated, for all portions of the district except west Texas. However, no frost worthy of mention occurred during the first 20 days, except on the 10th, when there was frost in Arkansas, the northern portion of east Texas, and extreme northern Louisiana, for which warnings were issued the preceding morning.

A cold-wave warning for the northwestern portion of the district was issued on the 11th but failed of verification, as low pressure persisted west of the Rocky Mountains and the threatening area of high pressure over the northern Rocky Mountain region moved eastward.

A forecast of freezing temperature for northwestern Oklahoma and the Texas Panhandle, issued on the 20th, was fully verified; but the forecast of freezing issued on the 21st, for Oklahoma and northern Arkansas, was verified in part of Oklahoma only. "Possibly frost, if the weather clears," was forecast on the 22d for the northeastern portion of the district; but cloudy weather continued and prevented the formation of frost.

Cold-wave and live-stock warnings were issued on the 26th for northern and western Oklahoma and the Texas Panhandle and were verified. Warnings preceding the further progress of this cold spell, which was extensive, were issued on the 27th and 28th, freezing or lower being forecast on the 27th for the northern sections, except southern Arkansas, and frost and freezing on the 28th for the greater portion of the district. These warnings were verified, except that in east Texas the frost on the 29th did not reach the coast.

Warnings were issued on the 30th for freezing in northern and western Oklahoma and the Texas Panhandle and on the 31st for frost in Arkansas, interior Louisiana, and the northeastern portion of east Texas. These warnings were fully verified.

Fire-weather warnings were sent to the forest supervisors in Oklahoma on the 10th and in Oklahoma and Arkansas on the 26th, and conditions occurred generally as forecast.—*R. A. Dyke.*

DENVER FORECAST DISTRICT.

The month as a whole was considerably warmer and drier than the normal, with lows generally advancing from the north Pacific coast. A notable exception was

