

## MEAN LAKE LEVELS DURING JANUARY, 1924.

By UNITED STATES LAKE SURVEY.

[Detroit, Mich., Feb. 5, 1924.]

The following data are reported in the "Notice to Mariners" of the above date:

Data.	Lakes. <sup>1</sup>			
	Superior.	Michigan and Huron.	Erie.	Ontario.
	Feet.	Feet.	Feet.	Feet.
Mean level during January, 1924.....	601.56	578.58	571.29	244.77
Above mean sea level at New York.....				
Above or below—				
Mean stage of December, 1923.....	-0.17	-0.22	+0.04	+0.30
Mean stage of January, 1923.....	-0.22	-0.44	+0.13	+0.27
Average stage for January, last 10 years.....	-0.55	-1.32	-0.35	-0.51
Highest recorded January stage.....	-1.22	-4.09	-2.26	-2.83
Lowest recorded January stage.....	+0.68	-0.44	+0.33	+0.97
Average relation of the January level to—				
December level.....		(?)	-0.1	(?)
February level.....		(?)	+0.2	(?)

<sup>1</sup> Lake St. Clair's level: In January, 1924, 574.08 feet. <sup>2</sup> Practically no difference.

## EFFECT OF WEATHER ON CROPS AND OUTDOOR OPERATIONS, JANUARY, 1924.

By J. B. KINCER.

January was generally cold, stormy, and disagreeable in nearly all sections of the country, and mostly unfavorable for outdoor operations. Very little field work was accomplished in the Southern States because of frequent rains and cold weather, although considerable preparation of soil was accomplished in much of Texas and in Florida. The conditions were favorable for lumbering in the Central-Northern and Northeastern States, and good weather for ice harvest prevailed generally in the North.

Winter wheat fields were fairly well protected by snow during much of the month in the northern portions of Ohio, Indiana, and Illinois, but the weather was hard on wheat and other grains in the immediate Ohio Valley, especially Kentucky and in Tennessee, while winter oats were severely damaged by freezing in the Southeast. There was considerable complaint of wheat lifting as a result of alternate freezing and thawing in immediate Ohio Valley localities, and late-sown fields were badly damaged, though the early-sown, well-rooted grain fared better.

Wheat was mainly frozen to the ground in Kansas, but came through the cold weather with apparently little

damage, largely because of the splendid root system established through favorable growing conditions in the fall and early winter months. Wheat apparently was not damaged appreciably in other western portions of the belt, though there was complaint of alternate thawing and freezing during a part of the month in the extreme lower Great Plains.

Severely cold weather overspread the Southeastern States early in the month, bringing temperatures slightly below zero in the northern parts of the east Gulf States, with 14° above zero extending to the east Gulf coast. This freeze destroyed tender truck crops in the lower Mississippi Valley and damaged hardy varieties. Cabbage was almost completely destroyed in southern Alabama, while other truck crops were nearly all killed in southern Georgia and extreme northern Florida. There was much damage also in the South Atlantic States, especially in South Carolina. Truck fared better in the west Gulf districts where no widespread, serious damage occurred.

Most of the month was cold, stormy, and unfavorable for stock in the Great Plains and Rocky Mountain districts. The snow-covered range in the Mountain States necessitated much feeding. The latter part of the month was warmer, however, and more favorable for stock interests in the great western grazing sections. Pastures were generally poor in the Southeastern States because of unfavorable fall and winter weather, and considerable feeding of livestock was necessary, with feed scarce in some sections. Pastures and ranges were very poor in California because of deficient moisture, and feeding was general, with heavy losses of range cattle and sheep.

During the first part of the month there was considerable damage by frost to citrus fruit in the San Joaquin Valley of California, and some harm was reported from southern California, while at the same time satsumas were defoliated in east Gulf districts, the younger trees especially being injured. There was no damage in the main citrus belt of Florida, however, where the month on the whole was favorable. The premature development of fruit buds in the South Atlantic Coast States was checked by the cold weather, and the cold apparently did little harm to fruits in southern Texas, while citrus in Arizona escaped injury. Peach buds were reported in good condition in Georgia, but there was considerable complaint of damage in the Lake districts of Ohio and in Indiana and Illinois during the first half of the month.

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## CLIMATOLOGICAL TABLES.

## DESCRIPTION OF TABLES AND CHARTS.

Table I gives the data ordinarily needed for climatological studies for about 176 Weather Bureau stations making simultaneous observations at 8 a. m. and 8 p. m. daily, 75th meridian time, and for about 37 others making only one observation. The altitudes of the instruments above ground are also given.

Table II gives, for about 35 stations of the Canadian Meteorological Service, the means of pressure and temperature, total precipitation, and depth of snowfall, and the respective departures from normal values except in the case of snowfall. The sea-level pressures have been computed according to the method described by Prof. F. H. Bigelow in the REVIEW of January, 1902, pages 13-16.

Chart I.—Tracks of centers of ANTICYCLONES; and

Chart II.—Tracks of centers of CYCLONES. The Roman numerals show the chronological order of the centers. The figures within the circles show the days of the month; the letters *a* and *p* indicate, respectively, the observations at 8 a. m. and 8 p. m., 75th meridian time. Within

each circle is also given (Chart I) the last three figures of the highest barometric reading, or (Chart II) the lowest reading reported at or near the center at that time, and in both cases as reduced to sea level and standard gravity. The inset map in Chart I shows the departure of monthly mean pressure from normal and the inset in Chart II shows the change in mean pressure from the preceding month.

Chart III.—Temperature departures. This chart presents the departures of the monthly mean surface temperatures from the monthly normals. The shaded portions of the chart indicate areas of positive departures and unshaded portions indicate areas of negative departures. Generalized lines connect places having approximately equal departures of like sign. This chart of monthly surface temperature departures in the United States was first published in the MONTHLY WEATHER REVIEW for July, 1909.

Chart IV.—Total precipitation. The scales of shading with appropriate lines show the distribution of the