Climatological Data for January, 1910.

DISTRICT No. 4, LAKE REGION.

Prof. HENRY J. COX District Editor

GENERAL CLIMATOLOGICAL CONDITIONS.

The "old fashioned winter" referred to in the December REVIEW continued in the Lake region during January. This was not because the temperature was lower than usual. The mean temperature for the month was, in fact, above normal over the greater portion of the district, but there was no thawing weather of consequence in the western portion during the first decade and in the eastern portion until near the end of the second decade, the low temperatures of last month having continued with but little interruption until after January 10. As a consequence the ground remained covered with snow, gradually increasing in depth over the entire district during the first half of the month, the depth increasing still farther in the eastern portion during the second half of the month. Sleighing was continuous almost generally from December 5. The frequent storms caused great delays to transportation and seriously interfered with business over telegraph and telephone wires. This was especially the case when sleet and rain as well as snow occurred. The harvesting of ice continued throughout the month and the companies engaged in the work report an excellent quality of ice and a supply far beyond the requirements of the coming season. In the southern Lake region the deficiency in sunshine for the month was considerable and at several stations not a single clear day was reported. While a few severe local windstorms occurred, the average wind movement for the month was not, as a rule, above the average.

TEMPERATURE.

The mean temperature in the district averaged slightly above the normal. The excess was greatest in the St. Lawrence Valley and near Lake Champlain. There was reported at Canton, N. Y., an excess of 7.7°; at Moira, N. Y., 6.3°; and at Burlington, Vt., 4.2°. There were also several places in the Lake Superior region where the temperature averaged considerably above the normal, the greatest excess being 4.1° at Mount Iron, Minn., and Marquette, Mich. In the middle and southern Lake region the temperatures were more nearly normal.

The month opened with moderate temperature over practically the whole district, the only exceptions being Vermont and the western Lake Superior region. The latter section was then under the influence of a cold wave which advanced from the northwest and gradually overspread the entire district. By the 4th the temperature had fallen to a low point in nearly all sections and the weather continued cold, with but slight occasional moderation until the 10th, in the western and central Lake region, and until the 17th and 18th in the eastern Lake region and St. Lawrence Valley. During this cold period the lowest temperatures in the various sections were as follows: Floodwood, Minn., −27°; Grand River Forks. Wis., −31°; Iron River, Mich., −24°; Hammond and South Bend, Ind., −10°; Bucyrus, Ohio, −6°; Nehasane, N. Y., −32°; Northfield, Vt., −26°. Following the passing of the cold weather moderate temperatures prevailed, as a rule, during the remainder of the month, the temperature at no station falling again to zero, except in the Lake Superior region and the St. Lawrence Valley. No long period of excessively warm weather occurred in any portion of the district, and there were very few instances during the month when the daily minimum temperature did not fall to freezing or below. The highest temperature observed was 61° on the 20th at Lima, Ohio. There were but few readings of maximum thermometers above 50°, and in the Lake Superior region and the northern portion of the Lower Peninsula of Michigan the highest temperatures observed were in the 30's.

The maximum daily temperatures during the last two weeks of the month were sufficiently high, however, to cause in the southern and eastern portions of the district the so-called "January thaw". This thaw resulted in threatened floods in portions of Illinois, Indiana, and Ohio, where the precipitation during previous months had been excessive, but in Vermont and portions of northern New York, where the reservoirs and streams were low since the drought of 1909, the thaw was most welcome, as a considerable supply of water was afforded by the melting snow.

PRECIPITATION.

There was an excess of precipitation over the greater portion of the district, the area in which it was deficient being confined mainly to the Lake Superior region, thence extending southward over the Fox River Valley in Wisconsin and over the entire State of Michigan, except the extreme southern portion. There was an excess of 1 inch or more in the lower Lake region, gradually increasing in amount from southeastern Lower Michigan to Buffalo, N. Y., where the departure amounted to +3.11 inches. The total precipitation at that station from rain and melted snow measured 6.41 inches. The stormy days were, as a rule, well distributed throughout the month, and there were several stations in the lower Lake region and the St. Lawrence Valley where the number exceeded 20. The largest number reported was 27 at Adams Center, N. Y.

The precipitation was mostly in the form of snow, but the three most important storms of the month, which crossed the district on January 12–14, 17–18, and 20–22, respectively, were accompanied by considerable amounts of sleet and rain as well as snow, together with high winds. As a result, serious interruption was caused to traffic and to communication by telegraph and telephone throughout the southern and eastern portions of the Lake region. Snow had remained continuously on the ground over the entire district since early in December, and where the sleet and rain fell, followed by freezing weather, the snow covering was largely turned into solid ice, and its removal was difficult. Freight trains were in many instances "stalled" on the sidings on account of clogging of the switches with ice. The storms interfered with the usual shipments of coal, and as there had been a great drain on the coal supply in the various cities during the severe cold of the first half of the winter, a serious coal famine was threatened, but relief was afforded by the moderate weather of the second half of the month. Because of the icy streets hauling was difficult, teams being unable at times to pull more than half a load, and as a consequence deliveries were much delayed. Moreover, as a result of the severe sleet and snow storm of January 12–13 in northern Illinois, not a single milk train succeeded in reaching Chicago from the country in two days.

MISCELLANEOUS.

The following extracts from reports of Weather Bureau officials furnish special information not incorporated above:

Wisconsin.—A maximum wind velocity of 55 miles an hour from the southeast was recorded at Milwaukee on the 4th, which is the highest velocity ever recorded at that station during January.—*H. B. Hersey, Section Director, Milwaukee.*

Illinois.—Snow, sleet, and rain storm at Chicago January 13–14. The snowfall of last night was considerable, and drifted wherever exposed to the sweep of the wind. The rain which fell yesterday froze hard over the snow, so that at least half the snow covering seems to be solid ice. The depth is greater outside the business portion, and the snow is piled up in great heaps in the various sections of the city. Transportation was very much impeded, streets very slippery, and but few sidewalks fully cleaned. Teaming was difficult and the freight traffic on the various roads paralyzed. No milk

trains arrived in the city today on account of the impossibility of getting the freight trains off the sidings in the country. On account of the snow and ice being packed so hard, it was difficult to remove.—*Chicago Daily Local Record, January 14.*

Indiana.—The rivers were comparatively high for short intervals near the middle of the month in many parts of the State, due to the formation of gorges. One of these formed at Fort Wayne on the 18th, but broke within a short time without causing damage. There were but few clear days, and the cloudiness was excessive.—*V. H. Church, Section Director, Indianapolis.*

Michigan.—Heavy snow, accompanied by high winds, occurred in the southwestern part of the Lower Peninsula on the 13th and 14th; all railroad traffic was greatly impeded from the afternoon of the former date to the night of the latter.—*C. F. Schneider, Section Director, Grand Rapids.*

Ohio.—Although the precipitation was somewhat lighter in the western counties than elsewhere, it was quite evenly distributed. There was precipitation in some portion of the district on every day of the month, but the most pronounced storms occurred on the 5th, 6th, 12th, 13th, 14th, 17th, 18th, 21st, and 22d. Nearly all of the precipitation came in the form of snow. The snowfall was unusually heavy. At some stations it was heavier than for any other January record. Exceptionally heavy snowfalls occurred on the 6th, 13th, and 22d. The ground was well covered during the greater portion of the month. Sleet was reported at a number of stations on the 2d, 3d, 5th, 13th, 14th 21st, 26th, and 28th. Thunderstorms were reported at nearly all the stations in the eastern portion of the district on the 26th.—*M. W. Hayes, Section Director, Columbus.*

The storm of yesterday and last night was the severest on traffic in Toledo in 20 years. Street car schedules were so badly demoralized that hundreds of people were forced to walk, take to carriages, or spend the night in downtown hostelries. Clogging of switches and interlocking plates with snow brought passenger train service almost to a standstill for hours. Freight trains are entirely abandoned on all lines to the north and practically suspended in every other direction. Telegraph wires in all directions are affected by the storm and service is slow. Local telephone service is about the only means of communication not seriously affected by the storm. Interurban electric cars were stalled in bunches on many lines and passengers forced to remain in the cars for hours or take to farm houses.—*Toledo Times, January 14.*

New York.—During the passage of a severe cyclonic area on the morning of January 22, the barometer reading at Buffalo broke all former records, the reduced reading (sea-level) at 7:45 a. m. on that date being 28.87 inches, and the barograph trace sheet showed that it fell .05 inch between 7:45 a. m. and 9 a. m., so that the reduced reading, 28.82 inches, was without question the lowest barometer reading recorded here since 1870, when the station was opened. Despite this fact, the highest velocity of the wind reached was but 56 miles an hour, estimated. This low velocity was probably due to the location of the high barometer areas, one near the Banks of Newfoundland and the other central over the Gulf States, which caused the winds here to move in a southerly direction, land winds, whereas the usual high winds and gales come from the southwest and west directions following the passage of a storm into the St. Lawrence Valley, but this storm moved almost directly north and dissipated.—*D. J. Cuthbertson, District Forecaster, Buffalo.*

Vermont.—Springs and streams had not recovered from the drought of 1908, and by the 20th of the month the water supply of many cities and villages was very low. A thaw set in on the 21st and 22d which filled the springs and streams. Rivers rose to a point of breaking up the ice, but not enough to move or gorge it sufficiently to cause any damage. No flood warnings were issued.—*W. A. Shaw, Local Forecaster, Northfield.*

FROST WORK AT ESCANABA, MICH., JANUARY 25, 1910.

Mr. H. S. Cole, Observer at Escanaba, Mich., has made the following report regarding frost work at that place on January 25, 1910:

The low temperature and fog caused a very heavy formation of frost crystals on wires, twigs, prominences, and even on flat surfaces. In some cases the formation was from one-half an inch to three-fourths inch thick, the heaviest the observer has ever seen. The crystals formed mostly on the north or lower side of objects, and had nearly the appearance of snow. The formation was much heavier in the "down-town" districts than out on the brow of the hill.

THE TOPOGRAPHY AND RIVERS OF LOWER MICHIGAN.

By C. F. SCHNEIDER, Section Director.

The topography of Lower Michigan (see fig. 1) affords a moderately steep slope to nearly all of its principal rivers, most of which have a fall of more than 500 feet from source to mouth. Topographically there are two high areas of land, one covering most of Otsego, Crawford, and Roscommon counties, which includes the headwaters of the Cheboygan, Au Sable, Manistee, and Muskegon rivers, while in the southern part of the peninsula there is another considerable area of elevated land, the highest points being found in Jackson, Washtena, and Hillside counties. The apex of this elevation includes the sources of the Grand, Kalamazoo, St. Joseph, and Raisin rivers. Three other rivers of considerable size, the Huron, Rogue, and Clinton, rise in Oakland County. A comparatively low belt of land, extending from Saginaw Bay to the lower valley of the Grand River, separates these two general elevations and along this topographically low strip it is proposed to cut a canal. Surveys have determined that the highest point of this valley is less than 100 feet above lake level.

The highest point known in the Lower Peninsula is in southeastern Wexford County, 7 miles south and 3 miles east of Cadillac, a hill there being 1,434 feet above mean tide level.

Another peculiar feature is a ridge of sand dunes extending along the Lake Michigan shore from the southern limit of the State to the apex of the Lelanau Peninsula, caused by the prevailing westerly winds. These sand dunes average 150 to 200 feet in height, rising abruptly from the Lake shore, but extending inland less than a mile.

The river systems of the southern peninsula may be properly divided into 11 drainage areas. They are as follows:

	Drainage area square miles.
1. Saginaw River	6,246
2. Grand River	5,572
3. St. Joseph River	4,586
4. Muskegon River	2,663
5. Kalamazoo River	2,064
6. Manistee River	2,018
7. Au Sable River	1,932
8. Cheboygan River	1,594
9. Thunder Bay River	1,267
10. Raisin River	1,129
11. Huron River	1,043

The slope of these streams is gradual so far as known, the notable exception being the Saginaw River and its 3 southerly tributaries. The Saginaw River receives its water from 4 large streams at a point where it is practically an arm of the Saginaw Bay. Three of the tributary rivers have their sources in topographically low regions south of Saginaw Bay and southwestward toward the lower Grand River Valley. The fourth and largest tributary, the Tittibawassee River, rises in the high lands of Gladwin, Clare, and Isabella counties. Most of the Lower Peninsula rivers, however, have their sources at elevations ranging from 1,000 to 1,200 feet above sea-level, or 400 to 600 feet above their mouth, the average lake level being somewhat less than 600 feet above mean tide (581 feet for lakes Michigan and Huron and 573 feet for Lake Erie).

The river valleys are mostly broad and flat and the beds usually of earth, rock outcroppings being the exception. Two notable rock outcroppings are found in the Valley of the Grand, one at Grand Ledge and the other at Grand Rapids. At the latter place the Grand River overflows a limestone ledge which originally caused a beautiful rapids from which the city of Grand Rapids took its name. The rapids originally had a fall of over 17 feet in about a mile over a river bed filled with boulders. Some conception of the appearance of these rapids when first discovered may be obtained by remembering that the rapids at Sault Ste. Marie have a fall of less than 21 feet in a mile and three-quarters.

The run-off of the rivers of the Lower Peninsula has been modified as the country has become settled. Large artificial drainage systems, such as township and county ditches and the dredging of the small tributaries, have not only tended to promote the run-off of the water at all seasons, but have promoted the congestion of the water when the precipitation has been great, especially in early spring. These ditches and dredged creeks connect with a large amount of tile drainage and it is owing to this artificial drainage that the writer attributes much, if not most, of the severity of the floods that have occurred in recent years. Closely related to the artificial drainage is the

TABLE 1.—*Climatological data for January, 1910. District No. 4, Lake Region.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Minnesota.																				
Cloquet	Carlton	892																		C. I. McNair.
Duluth	St. Louis	1,133	39	13.4	+ 3.0	33	19	−17	3	30	0.80	− 0.18	0.62	7.8	6	6	12	13	sw.	U. S. Weather Bureau.
Floodwood	....do	1,257	6	11.8[b]		41[a]	19	−27[b]	4	41[b]	0.20[a]		0.09[a]	3.2[a]	3[a]	14[a]	14[a]	2[a]	s.	M. H. Schussler.
Mount Iron	....do	1,510	16	10.2	+ 4.1	36	19	−26	4	37	0.45	− 0.56	0.25	4.5	2	3	17	11	nw.	Oliver Iron Mining Co.
Stephens Mine	....do	1,500	3	9.4		38	19	−26	4	41	0.33		0.17	2.7	6	10	7	14	sw.	Do.
Two Harbors	Lake	614	16	16.2	+ 3.3	36	20	−16	3	34	0.40	− 0.33	0.20	9.0	4	14	11	6	nw.	George W. Watts.
Wisconsin.																				
Appleton	Outagamie	795	11	17.2	+ 2.4	38	1	−20	7	32	1.23	− 0.15	0.60	13.1	8	7	9	15	sw.	Wm. O. Thiede.
Ashland	Ashland	647	16	16.2	+ 2.0	38	19	− 9	8	35	0.96	− 0.17	0.60	11.0	6	12	4	15	sw.	Sam Wheeler.
Cecil	Shawano	804	3	15.4		38	19	−22	7	45	1.05		0.35	15.0	9	6	17	8	sw.	Louis W. Schmidt.
Chilton	Calumet	860	16	16.2	− 0.6	40	20	−18	7	27	2.29	+ 0.64	0.80	19.7	15	2	22	7	ne.	Daniel V. Jones.
Crandon	Forest	1,060	15	13.9	+ 3.3	36	1†	−22	7	35	0.61	− 0.95	0.20	6.1	7	21	6	4	w.	Calvin T. H. Riggs.
Florence	Florence	1,293	19	14.2[a]	+ 1.2	39[a]	19	−15[a]	7	39[a]	0.87	− 0.29	0.52	9.0	2	14	3	14	nw.	Fred S. Evans.
Fond du Lac	Fond du Lac	800	24	15.2	− 1.4	38	20	−26	7	40	1.57	+ 0.25	0.70	19.0	11	8	9	14	sw.	Geo. W. Marshall.
Grand River Locks	Marquette	616	14	14.2		40	1†	−31	7	47	1.22	+ 0.02	0.54	16.0	6	13	7	11	nw.	Jerry Parkinson.
Green Bay	Brown	617	24	16.1	+ 1.5	40	20	−18	7	32	1.02	− 0.67	0.37	11.7	12	4	11	16	sw.	U. S. Weather Bureau.
Herbster	Bayfield	700	2																	Wm. Angell.
Iron River	....do	1,096	1	14.0		35	19	−18	6	26	0.65		0.45	7.0	3	12	6	13	s.	Harry C. Hall.
Kewaunee	Kewaunee	590	1	19.0		38	20	−14	7	30	1.54		0.55	15.4	6	18	8	5	w.	Eugene V. Kimball.
Manitowoc	Manitowoc	616	59	19.6	+ 2.1	40	20	−13	7	28	1.41	− 0.26	0.60	10.8	9	6	16	15	w.	Johanna Lups.
Menasha	Winnebago	764	13								1.92	+ 0.98	1.02	18.8	8	10	7	14	sw.	George T. Allanson.
Menominee Falls	Waukesha	842	1	19.7		40	20†	−16	7	33	2.26		0.80	19.6	9	9	12	10	w.	Arthur H. Christman.
Milwaukee	Milwaukee	681	40	21.1	+ 0.5	40	20	−10	7	29	2.71	+ 0.61	1.26	24.4	11	9	8	14	w.	U. S. Weather Bureau.
New London	Outagamie	762	14	16.2	+ 0.1	39	20	−20	7	35	1.16	− 0.08	0.30	27.0	6	5	7	19	sw.	August H. Pape.
Oconto	Oconto	590	19	17.5	+ 0.1	41	20	−21	7	34	0.65	− 1.02	0.25	6.5	4	8	13	10	w.	William K. Smith.
Oshkosh	Winnebago	744	21	16.6	− 1.5	39	20	−21	7	31	1.25	− 0.24	1.00	13.0	4	15	12	4	sw.	Evan Vincent.
Pine River	Waushara	905	15	16.4	+ 0.1	39	20	−20	7	33	1.17	+ 0.15	0.30	12.6	11	6	11	14	nw.	George H. Carpenter.
Plum Island	Door	588	2	20.4		40	20	− 2	7	30	0.60		0.20		6	11	9	11	nw.	John P. Whelan.
Port Washington	Ozaukee	713	17	19.7	− 0.2	40	20	−12	7	26	2.75	+ 0.91	1.20	28.0	7	11	5	15	nw.	Richard C. Kann.
Racine	Racine	633	13	21.6	− 1.8	41	26	−17	7	29	1.61	− 0.11	0.50		8	14	1	16	nw.	Daniel Davis.
Sheboygan	Sheboygan	831	12	20.8	+ 0.1	40	20	−10	7	26	2.40	+ 0.50	1.05	34.0	9	6	11	14	nw.	Louis C. Meyer.
Sturgeon Bay	Door	600	12	18.0	− 3.0	39	20	−14	7	34	1.50		0.91	14.5	6	11	10	10	nw.	Adam N. Dier.
Superior	Douglas	671	1	14.3[a]		34[a]	16†	−14[a]	3†	34[a]	0.31[b]		0.30[b]	3.1[b]	2	11	7	13	sw.	Edward B. Banks.
Waupaca	Waupaca	857	14	14.4	− 1.3	38	20	−25	7	43	0.94	− 0.11	0.37	16.0	5	11	8	12	w.	James H. Flagg.
Illinois.																				
Chicago	Cook	824	40	25.6	+ 1.9	46	26	− 5	7	27	3.07	+ 1.07	0.70	14.8	13	5	6	20	w.	U. S. Weather Bureau.
Indiana.																				
Auburn	DeKalb	874	14	23.7	− 1.6	49	26	− 4	10†	42	2.53	+ 0.25	0.70		9	8	1	22	w.	Mrs. Josie B. Kuhlman.
Berne	Adams	849									3.18		1.16	4.3	13	5	3	23	nw.	H. M. Reusser.
Elkhart§	Elkhart	801	8	26.1		48	25	− 5	7	28	1.57		0.45	13.0	11	4	8	19	w.	Dr. Miles Medical Co.
Fort Wayne	Allen	775	14	27.2	+ 0.3	53	26	0	7	26	2.43	+ 0.06	0.97	7.1	10	6	4	21	nw.	Orion E. Mohler.
Hammond	Lake	598	19	26.2	+ 2.5	44	27	−10	7	33	2.03	− 0.21	0.71	8.0	7	10	6	15		Carson W. Whitney.
Howe	Lagrange	886	5	23.2		46	25	− 2	7†	33	2.30		0.80	15.0	6	4	1	26	w.	James E. Zook.
South Bend	St. Joseph	726	17	23.5	− 1.7	48	26	−10	7†	39	2.91	+ 0.18	0.65	19.0	11	5	5	21	s.	Henry H. Swaim.
Whiting	Lake	606		27.0		46	26	− 7	7	29	2.09		0.63	9.3	6	12	9	10	s.	D. H. Boyd.
Michigan—Upper Peninsula.																				
Baraga	Baraga	623	8	19.5[b]		40[b]	19	− 9[b]	31	34[b]	1.30		0.80	13.0	3	9	0	22	sw.	D., S. S. & A. Ry.
Bergland	Ontonagon	1,300		14.0		40	19	−17	8	48	1.12		0.25	18.6	7	10	4	17	nw.	Frank McMonigal.
Blaney	Schoolcraft		3													8	17	6	nw.	Dr. S. .S Hackwell.
Calumet	Houghton	1,246	22	17.4	+ 2.0	32	1	− 8	3	23	4.08	+ 1.50	0.88	51.0	19	2	5	24	w.	E. S. Grierson.
Chatham	Alger	875	9	15.5		40	20	−22	7	41	2.59		0.58	25.9	18	8	6	17	nw.	U. P. Experiment Station.
Deer Park	Luce	610	9	19.6		40	20	− 9	15	38	2.25		0.90	22.5	4	5	5	21	s.	Mrs. Sara E. McGaw.
Detour	Chippewa	585	9																	Dr. F. E. Cameron.
Eagle Harbor	Keweenaw	622	11	20.6	+ 0.7	35	17†	− 3	3	23	1.06	− 1.09	0.17	10.6	13	1	8	22	nw.	John Nolen.
Escanaba	Delta	612	37	17.4	+ 2.9	37	1	− 9	7	28	1.52	− 0.03	0.68	15.2	13	7	8	16	nw.	U. S. Weather Bureau.
Ewen	Ontonagon	1,147	9	12.6		43	19	−21	8	45	2.10		0.80	21.0	8	7	5	19	w.	W. B. Hatfield.
Grand Marais	Alger	610	9	19.0		41	14	− 2	8	32	3.25		0.60	35.5	12	4	7	20	s.	Mrs. Lena Truedell.
Houghton	Houghton	668	9	17.4	+ 2.9	36	15	− 7	9	41	1.82	− 0.22	0.42	28.1	18	1	8	22	nw.	U. S. Weather Bureau.
Humboldt	Marquette	1,536	13																	D., S. S. & A. Ry.
Iron Mountain	Dickinson	1,111	9	15.0[b]		41	1	−13[c]	4	37[c]	0.50		0.35	9.5	3	10	11	10	nw.	Chapin Mining Co.
Iron River	Iron	1,504	13	12.8	+ 2.0	42	19	−24	7	51	1.60	+ 0.41	0.40	13.0	5	17	12	2	nw.	Victor D. Laing.
Ironwood	Gogebic	1,520	7	14.6		39	19	−14	9	34	1.60		0.40	16.0	7	13	8	10	sw.	Prof. J. V. Brennan.
Ishpeming	Marquette	1,536	10	15.5[c]	+ 2.7	35[c]	1	− 7[c]	25†	35	1.42	− 0.50	0.60	14.2	9	4	14	13	w.	Cliv'd. Cliffs Iron Co.
Isle Royale	Keweenaw	610	3																	John H. Malone.
Mackinac Island	Mackinac	831	10	15.4	− 3.3	31	23	− 8	4	21						11	10	10	w.	M. I. S. P. Com.
Maple Ridge	Delta		4	15.6		38	20	−15	7	37	1.10		0.40	11.0	4	15	5	11	n.	Herman Johnson.
Marquette	Marquette	734	39	20.0	+ 4.1	42	1	− 3	3	27	2.03	− 0.01	0.64	24.3	13	3	10	18	w.	U. S. Weather Bureau.
Menominee	Menominee	581	11	16.3	− 1.8	39	2	−18	7	30	0.88	− 0.23	0.50	8.8	4	13	10	8	sw.	C. & N. W. Ry.
Newberry	Luce	773	8	16.7[c]		35[c]	25	−17	7	37[c]	0.50		0.20	5.0	4	11	14	6		D., S. S. & A. Ry.
Powers	Menominee	868	11																	C. & N. W. Ry.
St. Ignace	Mackinac	593	20	20.0	+ 2.0	40	20†	− 1	4	24	2.49	+ 0.50	0.76	17.8	8	0	7	24	w.	D., S. S. & A. Ry.
Sault Ste. Marie	Chippewa	614	22	15.8	+ 2.5	35	20	−15	10	34	1.15	− 1.02	0.45	10.1	15	1	9	21	e.	U. S. Weather Bureau.
Thomaston	Gogebic	1,347	13	13.6	+ 1.4	37	18	−18	8	44	0.90	− 1.00		9.0	6	9	3	19	nw.	D., S. S. & A. Ry.
Victoria	Ontonagon	1,263		13.3		38	19	−14	9	39	0.89		0.21	13.5	9	7	11	13	sw.	R. S. Schultz, jr.
Watersmeet	Gogebic		1	12.6		35	19	−20	8†	38	0.80		0.18	8.0	12	6	6	19	s.	B. N. Grant.
Wetmore	Alger	878	13	17.2	+ 2.3	40	20	−21	7	58	3.20	+ 1.08		32.0	8	12	0	19	s.	D., S. S. & A. Ry.
Whitefish Point	Chippewa	610	20	20.4	+ 2.4	36	1	− 1	4	31	1.02	− 1.06	0.35	11.0	13	9	1	21	nw.	Robert Carlson.
Michigan—Lower Peninsula.																				
Adrian	Lenawee	770	32	24.6	+ 2.0	44	26	0	4	32	3.21	+ 1.13	1.20	10.5	10	1	10	20	w.	B. F. Gibbs.
Agricultural College	Ingham	820	46	23.4	+ 1.4	42	20†	3	10	24	2.52	+ 0.70	0.70	23.4	14	9	18	4	w.	Prof. A. J. Patten.
Allegan	Allegan	698	19	24.6	+ 1.2	44	20	− 3	31	28	3.15	+ 1.15	0.40	27.0	15	2	6	23	w.	Pere Marquette R. .R.
Alma	Gratiot	750	23	21.7	+ 0.4	40	20	− 7	4†	31	1.85	+ 0.66	0.67	15.0	8	1	10	20	sw.	P. M. Smith.
Alpena	Alpena	609	37	21.6	+ 2.9	39	1	− 5	10	26	1.56	− 0.64	0.55	18.0	11	3	9	19	sw.	U. S. Weather Bureau.
Ann Arbor	Washtenaw	930	30	23.4	+ 1.1	42	26	− 2	4	27	2.48	+ 0.47	0.90	14.3	12	3	10	18	w.	University of Michigan.
Arbela	Tuscola	728	14	21.6	− 1.2	40	20	− 9	4	27	1.48	− 0.69	0.44	7.5	7	0	5	26	nw.	Wm. Atkin.
Battle Creek	Calhoun	822	26	23.2	− 0.3	45	26	− 1	4†	24	3.12	+ 0.74	0.77	17.5	11	6	3	22	sw.	Elmer E. Sager.
Bay City	Bay	593	14	22.5	− 0.1	47	18	− 7	4	29	1.35	− 0.69	0.30	7.5	7	0	2	29	s.	Pere Marquette R. R.
Benzonia	Benzie	832	14	22.2	+ 0.7	40	20	− 1	15	28	2.59	− 0.70	0.78	20.2	11	1	13	17	nw.	Martin S. Joiner.
Berlin	St. Clair		21	21.6	− 0.7	39	18†	− 4	4	28	2.51	+ 0.41	0.52		11	1	4	26	nw.	R. O. Gould.
Big Rapids	Mecosta	906	14	20.4	+ 0.4	41	20	− 8	9	32	1.30	− 1.73	0.60	13.0	4	5	6	20	nw.	Charles Gay.
Bloomingdale	Van Buren		6	23.0		40	20	− 5	4	25	1.38		0.60	6.5	6	8	3	20	nw.	John M. Haven.
Cadillac	Wexford	1,293	1	19.3[a]		40[a]	20	− 4[a]	4	26[a]	1.78[a]		0.55[a]	18.5[a]	8[a]	8[a]	9[a]	13[a]	nw.	A. J. Teed.
Cassopolis	Cass	903	9	23.2		45	26	− 9	7	30	1.72		0.60	16.0	7	5	1	25	sw.	Michigan Central R. R.
Charlevoix	Charlevoix	610	23	21.0	+ 0.3	41	20	−11	31	31	2.20	− 0.40	0.60	22.0	6	9	6	16	sw.	Pere Marquette R. R.
Charlotte	Eaton		6	22.2		47	26	− 9	4	36	1.33		0.45	9.0	7	2	5	24	sw.	City of Charlotte.

TABLE 1.—*Climatological data for January, 1910. District No. 4*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Precipitation, in inches. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Sky. Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.
Michigan—Lower Peninsula—Cont'd.																				
Cheboygan	Cheboygan	611	20	18.5	+ 0.4	40	16†	− 9	9	39	1.42	− 0.29	0.80	19.0	4	7	11	13	s.	E. A. Bouchard.
Clinton	Lenawee	830	20	25.1[b]	+ 1.4	46[b]	29	− 3[b]	4	30[b]	2.24	+ 0.35	0.63	9.5	....	6[c]	5[c]	17[c]	sw.	David Woodward.
Coldwater	Branch	984	13	25.1	− 0.1	50	26	− 6	10	34	2.02	− 0.23	0.50	11.5	8	5	5	21	nw.	Lake Shore & Mich. So. Ry.
Concord	Jackson	.....	5	23.8	.....	45	27	− 5	4	34	.....	.....	.....	.....	.....	.....	.....	.....	sw.	Dr. W. N. Armstrong.
Croton	Newago	685	2	23.2	.....	42	20	− 3	4	28	1.02	.....	0.30	7.6	6	0	19	12	w.	G. R.-Mus. Power Co.
Detroit	Wayne	730	39	25.0	+ 0.7	43	26	2	4	22	3.14	+ 1.16	1.03	22.2	15	1	8	22	nw.	U. S. Weather Bureau.
Durand	Shiawassee	799	3	23.8[b]	.....	40[b]	20†	− 3[b]	4	25[b]	1.16[b]	.....	0.56[b]	3.0[b]	9[b]	3[b]	11[b]	15[b]	sw.[b]	Grand Trun, Ry.
East Tawas	Iosco	590	13	22.1	+ 0.7	40	20	− 6	4	30	1.75	+ 0.05	1.20	17.5	5	21	7	3	w.	Detroit & Mackinac Ry.
Eloise	Wayne	640	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	John Gilmore.
Flint	Genesee	730	21	22.8	+ 0.9	42	20†	− 2	4	30	1.43	− 0.31	0.50	4.5	9	2	8	21	w.	Wm. L. Fisher.
Frankfort	Benzie	589	6	23.6	.....	42	20	5	4	20	2.65	.....	0.50	26.5	12	11	0	20	n.	Capt. Geo. Morency.
Ganges	Allegan	665	1	23.8	.....	42	26	2	4†	27	1.68	.....	0.52	11.2	10	3	8	20	se.	H. H. Hutchins.
Gaylord	Otsego	1,367	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Michigan Central R. R.
Gladwin	Gladwin	794	14	19.8[b]	− 0.4	48[b]	1	−14[b]	4	48[b]	0.90[b]	− 1.08	0.60[b]	9.0[b]	3[b]	17[b]	5[b]	7[b]	w.[b]	Geo. R. Smith.
Grand Haven	Ottawa	628	29	24.2	− 0.3	40	26	1	4	25	2.41	− 0.39	0.50	26.6	21	1	8	22	se.	U. S. Weather Bureau.
Grand Rapids	Kent	707	21	24.4	+ 0.6	45	20	2	4	21	2.04	− 0.74	0.68	10.3	14	2	3	26	s.	U. S. Weather Bureau.
Grape	Monroe	625	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Joseph W. Morris.
Grass Lake	Jackson	989	4	23.1	.....	42	26	2	10	23	1.40	.....	0.60	11.0	6	6	7	18	sw.	Menzo Conklin.
Grayling	Crawford	1,147	21	18.6	+ 1.5	40	20	−20	4	34	3.45	+ 1.31	1.20	34.5	15	6	20	5	sw.	Dr. Oscar Palmer.
Harbor Beach	Huron	635	22	23.4	+ 1.2	40	20	0	4	35	2.60	+ 0.97	0.50	24.0	11	14	2	15	nw.	Pere Marquette R. .R
Harrison	Clare	1,159	17	20.6	+ 2.0	45	22	−15	4	37	1.40	− 0.42	0.80	14.0	4	2	7	22	sw.	Do.
Harrisville	Alcona	616	26	20.8	+ 1.2	39	2	− 5	3†	28	1.95	− 0.98	0.40	19.5	14	1	8	22	sw.	Dr. D. W. Mitchell.
Hart	Oceana	698	18	21.3	− 1.0	38	20	− 8	10	32	1.60	− 1.57	0.60	16.0	8	1	9	21	sw.	Pere Marquette R. R.
Hayes	Huron	620	20	21.6	− 0.5	38	18	− 8	10	31	.....	.....	.....	.....	.....	1	9	21	nw.	C. F. Leipprandt.
Highland	Oakland	830	18	.....	.....	.....	.....	.....	.....	.....	2.91	+ 0.73	0.50	17.8	10	.....	.....	.....	.....	A. D. De Garmo.
Hillsdale	Hillsdale	1,150	13	23.6	− 0.5	44	26	− 4	4	26	1.83	− 0.69	0.51	10.2	14	4	6	21	nw.	Prof. C. L. Herron.
Holland	Ottawa	610	4	22.6	.....	43	26	− 9	31	32	2.48	.....	0.33	19.5	16	0	8	23	nw.	City of Holland.
Howell	Livingston	924	18	22.6[b]	+ 0.5	42[b]	18†	− 6[b]	4	27[b]	1.81[b]	− 0.05	0.75[b]	11.0[b]	8[b]	7[b]	6[a]	16[b]	sw.[b]	Frank Sharp.
Ivan	Kalkaska	.....	21	17.3	− 1.5	41	20	−16	4	32	1.06	− 1.29	0.26	21.0	8	4	9	18	nw.	O. L. Giddings.
Jackson	Jackson	927	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Michigan Central R. R.
Jeddo	St. Clair	667	21	22.3	+ 0.2	39	20	− 3	4	31	2.57	+ 0.70	0.60	19.7	14	3	11	17	sw.	William Bice.
Kalamazoo	Kalamazoo	955	34	22.6	− 1.0	44	26	− 1	10	28	1.77	− 0.61	0.60	17.7	10	6	5	20	sw.	Kalamazoo Asylum.
Lansing	Ingham	881	23	23.1	+ 0.3	41	20†	− 3	4	22	2.52	+ 0.32	0.50	16.2	12	2	1	28	nw.	State Board of Health.
Lapeer	Lapeer	827	11	23.6	+ 0.9	47	20	− 5	4	34	1.23	− 0.47	0.30	9.5	7	0	8	23	sw.	Michigan Home.
Ludington	Mason	586	12	24.6[e]	+ 0.3	42[e]	20	− 2[e]	4	37[e]	0.85[e]	− 1.49	0.21[e]	11.0[e]	6[e]	2[e]	11[e]	13[e]	sw.[e]	Pere Marquette R. R.
Luther	Lake	1,028	....	20.6	.....	43	20	−11	4	36	1.55	.....	0.54	12.1	11	4	12	15	w.	John W. Nichoson.
Mackinaw	Cheboygan	592	14	23.4	+ 4.5	47	20	1	3†	33	1.95	+ 0.41	0.70	19.5	9	8	0	23	s.	Grand Rapids & Ind. Ry.
Mancelona	Antrim	1,121	14	18.2	− 0.8	41	20	−16	4	38	1.70	− 1.11	0.40	17.0	7	4	6	21	w.	Do.
Manistee	Manistee	600	13	23.6	− 0.1	41	20†	− 3	15	31	1.70	− 1.10	0.40	17.0	6	2	11	18	nw.	Pere Marquette R. R.
Midland	Midland	604	11	21.8	− 1.4	39	20†	−16	4	40	.....	.....	.....	.....	.....	2	11	18	sw.	Do.
Montague	Muskegon	660	7	22.7	.....	38	20	− 3	4†	29	.....	.....	.....	.....	.....	6	18	7	nw.	Gerard A. Whitbeck.
Morenci	Lenawee	811	3	25.4	.....	47	26	− 2	4	24	2.36	.....	0.76	13.8	9	5	3	23	nw.	George J. Tripp.
Mount Clemens	Macomb	615	10	24.9	+ 0.6	47	27	− 1	31	43	2.08	+ 0.49	0.40	14.1	13	3	8	20	sw.	Herman Orbits.
Mount Pleasant	Isabella	826	11	21.4	+ 0.2	42	29	− 6	4	41	.....	.....	.....	.....	.....	12	5	14	sw.	Pere Marquette R. R.
Muskegon	Muskegon	587	14	.....	.....	.....	.....	.....	.....	.....	3.00	+ 0.45	0.80	5.0	8	4	0	27	n.	Grand Rapids & Ind. Ry.
Old Mission	Grand Traverse	848	16	22.8	+ 0.6	43	20	− 1	4	21	1.60	− 0.68	0.30	15.5	10	3	8	20	sw.	E. O. Ladd.
Olivet	Eaton	934	20	22.5	− 0.5	44	26	− 4	4	37	2.35	+ 0.25	0.55	14.4	12	8	1	22	nw.	Prof. G. A. Knapp.
Omer	Arenac	616	11	.....	.....	45	26	.....	.....	.....	0.90	− 0.60	0.40	9.0	4	0	15	16	w.	Detroit & Mackinac Ry.
Onaway	Presque Isle	826	7	17.2	.....	50	20	−12	10	35	1.80	.....	0.60	18.0	5	5	0	26	sw.	Do.
Ovid	Clinton	760	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Geo. B. Faxon.
Owosso	Shiawassee	731	13	22.9	+ 1.3	41	20†	− 7	22	35	1.96	+ 0.03	0.64	13.8	12	1	19	11	sw.	Owosso Sugar Co.
Petoskey	Emmet	660	20	21.2	+ 2.0	38	1	− 5	4	28	2.40	− 0.08	0.40	24.0	14	1	5	25	w.	Grand Rapids & Ind. Ry.
Plymouth	Wayne	725	13	26.2	+ 2.4	45	1†	2	4†	28	1.24	− 0.62	0.64	11.0	5	1	10	20	w.	Pere Marquette R. R.
Pontiac	Oakland	935	10	23.4[b]	− 2.3	40[c]	18†	− 2	4	24[c]	2.69	+ 0.80	0.81	21.5	11	11	5	15	nw.	Fred W. Shaw.
Port Austin	Huron	618	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Pere Marquette R. R.
Port Huron	St. Clair	639	35	23.6	+ 1.8	41	20	0	4	25	1.99	+ 0.10	0.58	14.8	16	3	5	23	nw.	U. S. Weather Bureau.
Reed City	Osceola	1,033	14	20.4	+ 1.3	40	20	−15	9	35	1.65	+ 1.45	0.40	12.5	6	7	11	13	w.	Pere Marquette R. R.
Roscommon	Roscommon	1,141	6	17.0[b]	.....	40[b]	20	−21[b]	4	32[b]	2.05[b]	.....	0.75[b]	19.0[b]	7[b]	1[b]	12[b]	16[b]	sw.[b]	William Marsh.
Saginaw	Saginaw	601	8	24.2	.....	40	2†	− 2	4	26	2.20	.....	0.30	10.7	15	2	15	14	sw.	Postmaster.
Saginaw, W. S.	do	601	15	23.2	− 3.4	42	20	− 4	4	26	1.31	− 1.39	0.42	6.5	12	2	14	15	nw.	Robert B. Hudson.
St. James	Charlevoix	681	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Rev. N. Wilhelm.
St. Johns	Clinton	779	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	City of St. Johns.
St. Joseph	Berrien	593	23	25.6	− 1.0	47	26	1	10	24	1.84	− 0.65	0.90	15.0	7	1	11	19	sw.	City of St. Joseph.
Sandusky	Sanilac	790	1	22.4[d]	.....	40[d]	20	− 4[d]	4	30[d]	1.01[d]	.....	0.40[d]	8.0[d]	4[d]	.....	.....	.....	nw.[d]	Pere Marquette R. R.
Saranac	Ionia	639	15	22.6	− 0.1	41	20	−11	31	37	1.79	− 0.72	0.62	11.5	8	4	1	26	sw.	John Wallington.
South Haven	Van Buren	585	14	.....	.....	44	31	.....	.....	.....	.....	.....	.....	.....	.....	6	6	19	se.	Mrs. M. E. De Diemar.
Stanton	Montcalm	880	17	20.6[c]	− 1.8	38[c]	20	− 8[c]	4	18[c]	1.41[c]	− 0.87	0.60[c]	14.1[c]	4[c]	2[c]	7[c]	19[c]	sw.[c]	City of Stanton.
Thornville	Lapeer	975	33	25.6	+ 2.7	48	20	− 8	4	33	2.94	+ 0.67	0.50	27.0	12	1	3	27	w.	Dr. J. S. Caulkins.
Traverse City	Grand Traverse	588	13	21.3	− 1.1	40	1	− 5	15	30	1.70	− 1.00	0.40	17.0	7	7	2	22	w.	Grand Rapids & Ind. Ry.
Vassar	Tuscola	641	9	25.2[a]	.....	42[a]	21	8[a]	25	27[a]	.....	.....	.....	.....	.....	.....	.....	.....	sw.	Pere Marquette R. R.
Wasepi	St. Joseph	842	13	23.4	− 0.2	46	26	− 2	7†	28	3.94	+ 1.33	1.35	22.0	11	10	1	20	sw.	Chas. A. Palmer.
Webberville	Ingham	884	8	23.8	.....	43	26	− 4	4	26	1.73	.....	0.60	16.0	10	2	9	20	sw.	I. R. Wadsworth.
West Branch	Ogemaw	973	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Michigan Central R. R.
Woodlawn	Montmorency	.....	8	16.8	.....	42	20	−16	4†	37	2.55	.....	0.80	25.5	8	1	8	22	sw.	T. C. Mathews.
Ypsilanti	Washtenaw	736	25	23.8	− 1.0	43	26	− 2	4	27	2.68	+ 0.68	0.51	16.3	12	1	24	6	nw.	Orin J. Bemiss.
Ohio.																				
Akron	Summit	1,081	23	26.2	− 1.1	45	26	2	8	27	2.97	+ 0.37	0.53	21.0	15	3	2	26	sw.	Prof. C. R. Olin.
Benton Ridge	Hancock	800	17	28.0	+ 0.7	49	26	0	10	26	3.49	+ 0.68	0.80	21.5	12	2	5	24	sw.	J. W. Powell.
Bowling Green	Wood	670	30	26.6	+ 0.5	48	26	1	10	22	3.55	+ 0.92	0.65	27.0	11	5	7	19	s.	G. C. Houskeeper.
Bucyrus	Crawford	1,000	15	25.1	− 2.0	44	18†	− 6	10†	36	3.35	+ 0.80	1.00	12.0	....	5	1	25	sw.	James R. Hopley.
Cleveland (1)	Cuyahoga	762	39	26.6	+ 0.4	46	26	4	8	21	4.29	+ 1.84	0.99	28.0	23	1	5	25	s.	U. S. Weather Bureau.
Cleveland (2)§	do	754	13	26.9	+ 0.2	46	20	3	8	24	5.62	+ 3.42	1.50	37.4	17	5	2	24	w.	Rev. F. L. Odenbach, S. J.
Defiance	Defiance	712	16	26.4	+ 0.2	50	26	− 1	10	26	1.78	− 0.26	0.41	8.9	11	4	1	26	sw.	John F. Heilshorn.
Findlay	Hancock	776	21	25.8	− 1.1	50	26	− 2	10	35	3.96	+ 1.43	1.55	.....	7	7	15	9	sw.	Dr. E. A. Moser.
Fremont§	Sandusky	628	9	26.9	.....	44	20	4	4†	23	3.64	.....	.....	23.2	7	6	5	20	sw.	E. Stanley Thomas.
Hedges	Paulding	725	16	27.3	+ 0.8	50	26	2	4	22	3.78	+ 1.30	1.43	14.0	12	9	4	18	w.	Charles Stutzman.
Hillhouse	Lake	997	18	25.4	0.0	44	18†	0	10	28	4.28	+ 1.52	1.50	34.0	9	3	11	17	w.	J. W. Doncaster.
Hiram	Portage	1,260	26	25.6	+ 0.6	43	18†	1	8	23	3.73	+ 0.86	0.78	25.5	15	5	3	23	nw.	Prof. G. H. Colton.
Hudson	Summit	1,153	49	25.8	− 0.2	44	20	− 4	8	29	4.28	+ 1.71	0.50	27.0	16	5	5	21	nw.	Dr. W. I. Chamberlain.
Lima	Allen	875	11	27.5	+ 0.2	61	20	− 1	10	27	5.57	+ 2.70	1.10	12.0	12	16	4	11	w.	Miss Ollie De Long.
Medina	Medina	944	22	25.6	− 0.7	44	18†	− 5	10	33	4.14	+ 1.50	10.6	22.0	13	6	1	24	w.	F. W. Clark.
Montpelier	Williams	880	18	25.6	+ 2.3	50	26	− 3	10	29	2.70	+ 0.55	0.70	19.0	8	5	3	23	w.	G. L. Laser.
Napoleon	Henry	680	24	27.5	+ 1.1	50	26	3	4	25	3.43	+ 1.32	0.70	22.0	11	8	5	18	nw.	A. C. Senter.
New Bremen	Auglaize	1,038	17	27.4	− 0.3	51	26	− 5	7	27	3.59	+ 1.22	1.14	8.2	9	6	9	16	w.	Miss Lillian Grothaus.
North Royalton	Cuyahoga	1,000	18	25.0	− 1.0	43	26	1	10	22	4.49	+ 1.63	0.80	30.0	14	4	9	18	nw.	W. S. Edgerton.
Norwalk	Huron	719	24	27.4	+ 0.5	48	20	− 5	10	31	4.12	+ 1.57	1.10	33.0	16	9	3	19	s.	Dr. Albert Sheldon.

TABLE 1.—*Climatological data for January, 1910. District No. 4*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Precipitation, in inches. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Sky. Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.
Ohio—Cont'd.																				
Oberlin	Lorain	855	35	26.7	+ 0.9	48	26	− 2	8	30	3.84	+ 1.62	0.82	25.0	13	2	0	29	s.	Prof. F. F. Jewett.
Ottawa	Putnam	720	18	26.4	− 0.8	46	18	− 2	10	28	2.73	+ 0.15	1.00	10.0	10	2	11	18	w.	Prof. J. T. Maidlow.
Rome	Ashtabula	894	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	G. H. Crosby.
Sandusky	Erie	629	33	26.4	+ 0.1	47	20	6	4	23	3.84	+ 1.74	1.27	28.5	16	3	7	21	sw.	U. S. Weather Bureau.
Tiffin	Seneca	775	28	27.4	+ 0.1	47	26	3	10	21	4.01	+ 1.40	0.90	25.2	17	3	12	16	s.	Prof. T. H. Sonnedecker.
Toledo (1)	Lucas	769	39	26.7	+ 1.1	48	26	3	4	20	3.76	+ 1.84	1.10	21.0	16	6	5	20	sw.	U. S. Weather Bureau.
Toledo (2)§	...do	606	6	27.0	.....	50	2	2	4	23	3.78	.....	1.00	15.5	14	6	3	22	sw.	J. A. Krance, S. J.
Upper Sandusky	Wyandot	854	27	27.2	+ 0.4	48	26	− 1	10	25	4.43	+ 1.83	0.95	19.5	15	6	7	18	w.	Prof. R. J. Kiefer.
Vickery	Sandusky	588	17	26.5	− 0.4	47	26	0	10†	39	3.88	+ 1.61	0.84	22.7	18	5	6	20	s.	John W. Barr.
Wauseon	Fulton	780	38	24.9	+ 1.3	48	26	0	4	25	3.16	+ 0.78	0.97	22.1	16	3	6	22	s.	Thomas Mikesell.
Wellington	Lorain	856	16	27.2	− 0.4	47	26	− 1	8	28	3.40	+ 0.92	0.54	22.0	15	5	3	23	nw.	W. D. Warren.
Willoughby	Lake	649	16	.....	.....	.....	.....	.....	.....	.....	4.93	+ 2.48	1.40	23.5	9	2	2	27	sw.	C. J. Richardson.
Pennsylvania.																				
Erie	Erie	713	37	27.0	+ 0.5	48	20	7	8	25	4.00	+ 0.97	1.33	32.0	18	1	4	26	s.	U. S. Weather Bureau.
New York.																				
Adams Center	Jefferson	540	19	24.0	+ 2.4	50	22	−22	5	52	7.78	+ 3.68	0.75	65.5	27	4	14	13	se.	A. E. Cooley
Angelica	Allegany	1,340	27	22.6	+ 0.3	44	18†	−18	16	47	4.14	+ 1.46	1.03	25.0	17	1	7	23	sw.	Chales P. Arnold.
Appleton	Niagara	270	19	27.1	+ 1.6	45	18†	2	4	37	2.59	+ 0.24	0.75	5.0	9	0	8	23	sw.	H. A. Van Wagoner.
Auburn	Cayuga	715	41	23.0	− 0.9	44	21	−10	4†	45	3.67	+ 1.16	1.00	30.0	13	16	11	4	s.	A. H. Underwood.
Avon	Livingston	585	15	24.3	+ 1.3	42	2†	−14	16	36	2.60	+ 0.76	0.68	18.5	11	1	6	24	.....	W. G. Markham.
Benson Mines	St. Lawrence	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. C. Folger.
Blue Mountain Lake	Hamilton	1,750	10	.....	.....	.....	.....	.....	.....	.....	4.90	+ 1.66	1.87	25.0	11	14	2	15	w.	B. F. Merwin.
Brockport	Monroe	537	14	25.6	+ 3.0	44	18	− 2	4	35	3.40	+ 0.49	0.95	18.5	14	0	9	22	w.	W. H. Lennon.
Buffalo	Erie	767	59	26.1	+ 1.7	48	20	1	3	36	6.41	+ 3.11	1.07	42.6	21	0	5	26	sw.	U. S. Weather Bureau.
Canton	St. Lawrence	448	16	20.5	+ 4.2	52	22	−14	4	53	1.83	− 1.33	0.70	14.4	16	5	8	18	sw.	Do.
Cape Vincent	Jefferson	246	5	22.7	.....	48	21	−11	3†	40	1.52	.....	0.38	.....	11	11	10	10	sw.	Verne M. Rice.
Carvers Falls	Washington	243	12	19.4	+ 1.8	51	22	−20	16	48	4.44	+ 2.20	1.19	25.0	12	13	5	13	n.	Washburn Fancher.
Chazy	Clinton	151	10	21.0	+ 5.2	45	23	−16	5	41	0.90	− 0.82	0.40	9.0	3	14	1	16	s.	W. R. North.
Dannemora	Clinton	1,490	5	20.0	.....	44	22	−20	4	40	2.08	.....	0.30	16.2	13	9	16	6	w.	W. N. Thaver.
Elba	Genesee	500	11	24.2	+ 0.5	45	18	− 4	4†	41	3.95	+ 0.68	1.00	19.0	10	.....	.....	.....	sw.	Jos. S. Wilford.
Faust	Franklin	1552	10	19.3	.....	48	22	−28	5	57	2.08	− 0.34	0.40	17.0	14	9	4	18	w.	Aaron W. Maddox.
Fayetteville	Onondaga	530	9	25.2	.....	50	22	−14	5	48	2.39	.....	0.37	20.0	14	6	9	16	nw.	Dana H. Wells.
Gabriels	Franklin	1,729	8	18.7	.....	45	22	−28	5	48	2.65	.....	1.00	16.4	22	8	9	14	nw.	Sanatorium.
Harkness	Clinton	622	8	21.1	.....	48	22	−17	5	37	1.50	.....	0.61	8.8	9	19	8	4	sw.	J. W. Harkness.
Hemlock Lake	Livingston	900	12	24.0	0.0	44	18	−14	16	38	.....	.....	.....	.....	.....	3	5	23	s.	D. H. Westbury.
Hunt	...do	1,321	11	27.0	+ 2.8	48	20	− 2	17	37	3.64	+ 0.99	1.01	17.0	10	2	13	16	sw.	W. S. Barrager.
Ithaca	Tompkins	928	32	25.3	+ 1.2	48	22	− 5	4	40	3.07	+ 0.91	0.88	22.8	16	1	9	21	se.	U. S. Weather Bureau.
Keene Valley	Essex	1,000	12	21.2	+ 2.9	49	21	−24	5	51	5.82	+ 2.75	1.93	17.5	13	11	5	15	w.	E. R. Wells.
King Ferry	Cayuga	.....	10	.....	.....	.....	.....	.....	.....	.....	3.17	+ 0.82	0.61	30.8	14	1	10	20	se.	Lucius A. Goodyear.
Lake George	Warren	350	13	23.5	+ 5.0	49	22	−15	5	38	5.11	+ 2.03	1.02	24.5	16	9	9	13	sw.	Charles Forsell.
Lake Placid Club	Essex	1,864	2	18.2	.....	44	22	−22	4	45	4.42	.....	0.62	36.2	15	10	13	8	w.	Henry van Hoevenberg.
Le Roy	Genesee	920	20	24.6	+ 4.1	42	1†	− 2	16	37	3.57	+ 0.09	0.92	20.8	17	1	7	23	sw.	F. W. Ball.
Lockport	Niagara	650	23	25.8	+ 1.5	42	18†	1	4†	36	3.11	+ 0.61	0.78	16.8	16	0	0	31	sw.	J. E. Wakeman.
Lowville	Lewis	900	43	19.6	+ 1.1	46	18	−23	5	57	1.90	− 0.89	0.62	.....	7	10	9	12	w.	Charles J. Rice.
Lyndonville	Orleans	.....	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Milton St. John.
Moira	Franklin	200	10	21.6	+ 6.3	53	22	−15	5	38	2.40	− 0.48	0.85	21.0	12	4	12	15	w.	C. E. McBride.
Nehasane	Hamilton	1,750	2	18.6	.....	45	22	−32	5	56	4.85	.....	1.02	39.0	19	16	5	10	w.	A. C. Heyburn.
North Lake	Herkimer	1,822	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. A. Paull.
Ogdensburg	St. Lawrence	175	26	23.4	+ 7.7	48	22	−13	4	40	1.80	− 0.35	0.38	6.7	10	4	15	12	sw.	State Hospital.
Old Forge	Herkimer	1,733	2	19.6	.....	45	22	−27	5	53	5.32	.....	0.85	38.6	22	9	4	18	w.	Stuart W. Nelson.
Oswego	Oswego	335	40	24.8	+ 0.9	47	22	−12	4	47	4.07	+ 0.91	0.69	27.1	21	0	4	27	s.	U. S. Weather Bureau.
Otto	Cattaraugus	1,410	6	24.0	.....	44	18	− 2	4	34	2.45	.....	0.64	.....	16	11	3	17	.....	William Winke.
Palermo	Oswego	460	51	.....	.....	.....	.....	.....	.....	.....	6.39	+ 3.13	3.00	57.4	16	7	7	17	sw.	E. B. Bartlett.
Perry City	Schuyler	1,038	30	24.9	+ 3.1	45	22	−11	8	41	2.74	− 0.05	0.55	19.2	13	1	5	25	sw.	W. H. Jeffers.
Philadelphia	Jefferson	485	4	22.1	.....	51	22	−16	5	35	2.43	.....	0.38	17.0	21	3	18	10	w.	E. D. Babcock.
Plattsburg	Clinton	170	60	19.8	+ 2.3	48	23	−13	5	40	1.72	− 0.25	0.40	5.6	13	4	16	11	nw.	T. P. Davison.
Potsdam	St. Lawrence	300	34	20.7[b]	+ 3.1	51[b]	22	−14[b]	5	45[b]	3.37	+ 1.43	0.67	21.0	8	7	2	22	sw.	Lloyd W. Weed.
Raquette Lake	Hamilton	.....	2	21.5	.....	43	21†	−25	5	45	3.99	.....	1.18	30.2	15	9	4	18	sw.	R. J. Dunning.
Rochester	Monroe	523	81	25.8	+ 1.8	45	22	− 1	5	38	3.01	− 0.12	0.73	21.9	16	0	9	22	w.	U. S. Weather Bureau.
Romulus	Seneca	719	18	25.6	+ 1.7	44	22	− 5	5	35	3.50	+ 1.28	0.75	32.5	9	3	4	24	nw.	John H. Coryell.
Shortsville	Ontario	740	11	24.2	− 0.5	43	2†,	− 7	16	37	1.48	− 0.53	0.44	8.0	5	5	11	15	w.	C. H. Latting.
Skaneatsles	Onondaga	.....	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Edward Conron.
Syracuse	...do	597	8	25.1	+ 2.1	51	21	−11	4	48	2.47	+ 0.33	0.60	23.8	16	2	7	22	s.	U. S. Weather Bureau.
Ticonderoga	Essex	344	12	23.8	+ 4.9	50	22	−18	5	38	2.08	− 0.67	1.01	10.0	7	12	6	13	s.	Eva M. De Lano.
Trudeau	...do	1,620	17	22.9	+ 8.6	50	22	−22	5	53	2.81	+ 0.39	0.63	18.5	15	4	10	17	w.	Daniel Smith.
Volusia	Chatauqua	1,167	11	23.2	− 0.9	43	20	0	4†	35	3.90	+ 0.89	0.62	28.0	15	0	8	23	s.	Benjamin Breads.
Watertown	Jefferson	737	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	L. L. Allen.
Wedgewood	Schuyler	1,430	21	22.8	+ 0.7	45	22	− 5	5	35	4.39	+ 1.89	1.28	31.0	17	6	8	17	sw.	Orlando F. Corwin.
Westfield	Chatauqua	837	14	24.7	− 0.6	46	20	− 2	16	33	4.48	+ 1.93	0.72	29.0	18	.....	.....	.....	.....	John R. Rogers.
Youngstown	Niagara	.....	8	.....	.....	.....	.....	.....	.....	.....	2.84	.....	1.27	9.0	8	0	22	9	sw.	B. V. Brookins.
Vermont.																				
Burlington	Chittendon	404	3	20.5	+ 4.2	50	22	−17	5	47	2.70	+ 0.87	1.04	16.9	19	4	10	17	s.	U. S. Weather Bureau.
Cornwall	Addison	507	17	21.8	+ 2.5	47	21†	−15	5	32	2.90	+ 0.22	0.65	20.0	14	10	9	12	s.	C. H. Lane.
Enosburg Falls	Franklin	601	19	20.2	+ 4.1	53	22	−22	5	45	2.08	− 0.59	0.61	17.3	12	10	4	17	nw.	L. Howe Pomeroy.
Northfield	Washington	876	24	17.9	+ 2.8	49	22	−26	5	47	2.80	+ 0.31	0.77	17.3	14	4	10	17	s.	U. S. Weather Bureau.
Rutland	Rutland	.....	.....	27.7	.....	56	21	−11	5	42	1.67	.....	0.50	16.9	11	12	0	19	.....	H. L. Hindley.
Wells	...do	750	19	20.2	+ 2.0	48	22	−18	5	33	4.19	+ 1.50	1.19	22.0	11	8	9	14	s.	E. R. Pember.

a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.
* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
‡ Separate dates of falls not recorded.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for January, 1910. District No. 4, Lake Region.*

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Minnesota.																																	
Cloquet	Lake																																
Duluth	do		T.		.60	.02		.01	T.		T.			T.			T.	T.	T.		.10			T.			.05		T.	.02			0.80
Floodwood	do																																
Mount Iron	do	T.				.20		T.			T.						T.				.25						T.		T.	T.	T.		0.45
Stephens Mine	do					.17	T.	T.	.01		.01						T.	.05			.08			T.			T.	T.	T.	.01			0.33
Two Harbors	do				.06	.20					T.										.09						.05		T.				0.40
Wisconsin.																																	
Appleton	Fox			.10	.60	T.			.04										.02			T.				T.	.35	.03	.02	T.	.07		1.23
Ashland	Lake			T.		.60												.04	.07		.05			T.			.16	T.	.04	T.			0.96
Cecil	Fox			.07	.18	.35			.03									.03	.04			.03					.24	.05	T.	T.			1.05
Chilton	do		T.	.20	.30	.80			.05	T.				.10				.10	.20		.04	.10				.02	.18	.05	.05	.05	.05		2.29
Crandon	do		T.		T.	.20												.05	.10		.05	.10	.01				.10						0.61
Florence	Menominee					.35													.52														0.87
Fond du Lac	Fox		.02	.05	.35	.35			.04					.25	.15		.05	T.	.20								T.	.06	.05	T.	T.		1.57
Grand River Locks	do		.13	T.	.32	.03								.54	T.			T.	.04			T.					.10	T.					1.22
Green Bay	Lake	T.	.06	.02	.27	.10		.01	.02					T.				.11	.06		.01					.01	.33		T.	T.	.02		1.02
Herbster	do																																
Iron River	do					.45															.10						.10						0.65
Kewaunee	do		.15		.55				.10									T.	.40			.04				T.	.30						1.54
Manitowoc	do				.60				.02					.01				.10	.35		.02				.01		.27				.03		1.41
Menasha	Fox		.14		*	1.02			.04					T.				.03			.03					.09	.25	*	.16		.06		1.92
Menominee Falls	Lake		T.		.12	.35			.05					.80	.20		T.	.05	.65			T.				T.	T.	.02	.02	T.	T.		2.26
Milwaukee	do		.04		.75	T.			.06					1.26	.02		T.	.42	.09		T.					T.	.01	.03	.01	T.	.02		2.71
New London	Fox		T.		*	.25		.05										.20								T.	.30	.20			.16		1.16
Oconto	Lake			.16	.10													.25	T.		T.						.20						0.65
Oshkosh	Fox		T.	*	1.00									T.				T.			T.	.10				T.	.15	T.	T.		T.		1.25
Pine River	do		.06	.03	.25	.26			.03					*	.04	T.	T.	T.	.13		T.	.04				.02	.30	.01	T.	T.	T.		1.17
Plum Island	Lake			.07	.09													.09	.11			.15				.09							0.60
Port Washington	do				1.00									1.20				.05	.35								.03	.06	.08				2.75
Racine	do	T.	T.		.06	.15			.02				.07	.37	.50			T.	.42			T.				T.		.02	T.		T.		1.61
Sheboygan	do		T.	.10	*	1.05			T.					.20	.60			T.	.30			.05				T.	T.	.05	.05	T.	T.		2.40
Sturgeon Bay	do		T.	.02		.91			T.						T.			.06	T.		.01	.24				T.	.26			T.			1.50
Superior‖	do																																
Waupaca	Fox		.09		.37									T.				.03	.14							T.	.31						0.94
Illinois.																																	
Chicago	Lake Michigan		.01		.70	T			.06				.55	.59	.16		T.	.70	.03		.05	.07				T.	.06	.01	T.		.08	T.	3.07
Indiana.																																	
Auburn‖	Maumee			T.	T.					.70			.45	.35	.20			T.	.20			T.	.14					.10		T.	.25	.14	2.53
Berne	do	T.				.32	T.						.63	1.16	.09		T.	.37	.38		.04	.01	.04				.04	.01		T.	.06	.03	3.18
Elkhart‖	St. Joseph			T.		.37	T.			.10			.30	.45	.03			T.	.03			.02			T.		T.	.02	T.	.02	.13	.10	1.57
Fort Wayne	Maumee		T.	T.		.23				T.			.58	.97	.03		T.	.15	.33		T.	T.	.01		T.		.05	.01	T.	T.	.05	T.	2.43
Hammond	Lake Michigan					.18						.10	.12	.10				.71				.20					.62						2.03
Howe‖	St. Joseph									.20				.40	.60				.80												.10	.20	2.30
South Bend‖	do		T.	T.		.65				.08	T.		.16	.60	.40			T.	.49			.05	.13					.12		T.	.08	.15	2.91
Whiting	Lake Michigan				.55				T.				.53	.33	.04		T.	T.	.63		T.	T.									T.	.01	2.09
Michigan—Upper Peninsula.																																	
Baraga	Lake			.20															.30			.80											1.30
Bergland	Ontonagon			.25		.20													.15		.20	.18		T.			.08		T.	.06	T.		1.12
Blaney	Manistique																																
Calumet	Lake		.08	.08	.02	.36	.52	.88	.36	.32	.04			T.				.02	.12		.12	.20		.02		.02	T.	.06	T.	.12	.36	.38	4.08
Chatham	do			.08	.02	.46				.24	.04							.02	.18	.02	.02	.26		.08	.01	.06	.17	.24	.05	.06	.58		2.59
Deer Park	do		T.	.35		T.	.90	.80											T.			T.				T.			.20	T.			2.25
Detour	St. Marys																																
Eagle Harbor	Lake	T.	T.	.02	.04	.17	.17	.08	.03	.05	.03								.10			.15	.07	T.		T.	T.	T.	T.	.08	.04	T.	1.06
Escanaba	do		.05	.01	.28	.40		T.	T.							T.	T.	.09	.10		.02	.07	.03	T.	T.	.04	.41	.01	T.	.01	T.		1.52
Ewen	Ontonagon			.10	.20	T.	T.	T.										T.	.40		.80			.10			.20	T.	T.	.20	.10		2.10
Grand Marais	Lake		.20	.60		.30	.20		.10				.05				T.	.20	.60		T.	.40		.30					.20		.10	T.	3.25
Houghton	do		.08	.11	.09	.19	.14	T.	.18	.06	.04		T.	T.				.05	.08		.35	.09		.01	T.	T.	T.	.01	.01	.07	.25	.01	1.82
Humboldt	Escanaba																																
Iron Mountain	Menominee		T.	T.	T.	.35			T.									T.	.12		T.			T.		T.	.03	T.					0.50
Iron River	do	T.			T.	.40												.40	.30		T.			T.	.20						.30		1.60
Ironwood	Lake					.40												T.	.30		.20	.40		.10			T.	T.	.10		.10		1.60
Ishpeming	Escanaba			.01		.40												.02	.30			.60		.01		.02	.03	.03	T.				1.42
Isle Royale	Lake																																
Mackinac Island	do																																
Maple Ridge	do					.40																.40				.20			.10				1.10
Marquette	do			.02	.02	.36				T.	T.			T.				.13	.35		.25	.39		T.	T.	.01	.03	.09	.02	.04	.32		2.03
Menominee	Menominee			.08		.50			T.					T.				.20				T.				T.	.10						0.88
Newberry	Tequamenon			.20				T.	T.	T.	.10							T.	.10			.10	T.										0.50
Powers	Lake																																
St. Ignace	do				.05	.30	.10	.10	.50										.60								.68	.76					2.49
Sault Saint Marie	St. Marys		.02	.10	.11	.34	.05	.02	.02	.02	.02							.03	.36	T.		.01		.01	T.	T.	.01		.03				1.15
Thomaston	Lake			.10		.20														.20		.20					.10			.10			0.90
Victoria	Ontonagon			.08	T.	.13					.01							T.	.16		.21	.12		T.		T.	.15	T.		.02	.01		0.89
Watersmeet	do			.02	T.	.18					.03							.03	.17		.07	.12	T.	.02		.02	.08	.02		T.	.04	T.	0.80
Wetmore	Lake			.40	.20					.70									.20			.70		.10						.70	.20		3.20
Whitefish Point	do		.02	.15	.01	.03	.10		.01		.07								.35	.04		.10		.04		.08			.02	T.			1.02
Michigan—Lower Peninsula.																																	
Adrian	Raisin	.01				.24							.35		.70			1.20					.10				.36	.05			.10	.10	3.21
Agricultural College	Grand	.20	.40	.20					.10					.20	.70				.05		.06		.05		T.		.06	.07	.03	T.	.15	.25	2.52
Allegan	Kalamazoo	T.		.10	.10	.20	T.	.20	.10	.40			.10	.40	.30			T.	.36			T.			T.		.19	.10	.10	.20	.30		3.15
Alma	Saginaw			T.		.67			.03	.04					.36				.40							T.	.09	T.	T.		.18	.08	1.85
Alpena	Lake		.03	.04	.31	.24			T.	.02	T.			T.				.22	.28			T.	.18	.02	T.	T.	.20	T.		T.	.02	T.	1.56
Ann Arbor	Huron		.08			.37							.01	.80	.10			.03	.55				.10				.09	.05			.15	.15	2.48
Arbela	Saginaw			.20		.13		T.	.13					T.	.26				.44				T.	T.	T.		.18	T.			.14		1.48
Battle Creek	Kalamazoo	.03	T.	T.	T.	.66	T.		T.	.06			.16	.77	.61			.14	.44			T.			T.		.08	.10	T.	T.	.07		3.12
Bay City	Saginaw			.15	.30										.15			.20	T.				.30				.10					.15	1.35
Benzonia	Betsie	T.		.27	T.	.18	.22	.13	.04	T.			T.	T.			.12	T.	.78			.13		T.	T.	T.	.32	.26	.14	T.	T.		2.59
Berlin	Clinton	T.		.18		.52			T.	T.				.09	.36			T.	.44		.07	T.	.47	T.	T.		.24	.08	T.		.04	.02	2.51
Big Rapids	Muskegon	T.	T.	T.		.60	T.	T.	.40					T.					.20			T.			T.	T.	.10				T.		1.30
Bloomingdale	Lake	T.	T.	T.	T.	T.	T.	T.	T.	T.			.30	.60		T.		.05	.03			T.					T.	T.	T.	T.	.20	.20	1.38
Cadillac	Manistee																																
Cassopolis	St. Joseph				T.	.06				T.			.40	.60				.05				T.					.01				.20	.40	1.72
Charlevoix	Lake			.40		.30	.40		.30										.60								.20						2.20
Charlotte	Kalamazoo	.04	T.		T.				T.					.34	.28			T.	.45								.02				.10	.10	1.33
Cheboygan	Cheboygan			.05		.30	T.	T.	T.										.27								T.	.80	T.	T.	T.		1.42
Clinton	Raisin			T.		.46							.15	*	.60				.63				.22				.03				.15	T.	2.24
Coldwater	St. Joseph			T.		.50				.10			.40	.30	.10				.42			T.			T.		T.	.10		T.	.10		2.02
Concord	Kalamazoo																																
Croton	Muskegon	T.			T.	.10			.30	T.				.10	.20			T.	.25								.07	T.		T.	T.		1.02
Detroit	Detroit		.06	.02	.01	.29	T.	T.		T.				.74	.40		T.	.40	.14		.01	.28	.33	T.	T.		.12	.02	T.	T.	.18	.14	3.14
Durand	Saginaw																																

TABLE 2.—*Daily precipitation for January, 1910. District No. 4*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Michigan—Lower Peninsula—Cont'd.																																	
East Tawas	Lake				1.20													.10	.20					.05			.20						1.75
Eloise	Rouge																																
Flint	Saginaw		.02	.09		.50									.05			.01	.50				.10				.08					.08	1.43
Frankfort	Betsie			.20		.50	.20		.40	.20									.30			.20		.10		.05	.30	.10	.10				2.65
Ganges	Lake		T.	.09	.10	.14	T.	.21	T.	T.			T.	.08	.04			.11	.52			T.					T.	T.		.09	.30		1.68
Gaylord	Cheboygan																																
Gladwin	Saginaw																																
Grand Haven	Grand	T.	.04	.03	.40	.11	.05	.06	.18	.06				.41	.15		.01	.34	.10		.01	.04		T.	.01	T.	.15	.07	.03	.02	.14		2.41
Grand Rapids	do	T.	.01	.02	.30	.35	T.	.01	.11					.39	.31		.01	.37	.04		T.	T.		T.	T.	T.	.05	T.	.01	T.	.06		2.04
Grape	Raisin																																
Grass Lake	Grand		T.	.06	T.	.44									.15				.60			.05			T.		T.	.10	T.		T.	T.	1.40
Grayling	Au Sable	T.	T.	.20	.10	.10	T.	.20	T.	T.	.10		T.	T.	.50	T.	.05	T.	1.20	.10	T.	T.	.05	T.	.10	.40	.15	T.	T.	.10	.10	T.	3.45
Harbor Beach	Lake			.30	.20				.20	.30	.20				.20				.20				.50				.20	.20			.10		2.60
Harrison	Saginaw								.30										.80						.10		.20						1.40
Harrisville	Lake			.10	.20	.30			.10	.05									.20				.40	.10	.10	.10	.10	.10		.05	T.	.05	1.95
Hart	Pentwater		.20	.10	T.	.20		.10	.60	T.				T.					.20			.10							.10				1.60
Hayes	Pigeon																																
Highland	Huron					.50								.30	.40			.27	.31				.40		.05		.28			.10		.30	2.91
Hillsdale	Saint Joseph	.10		.02	T.	.35	T.	.02	T.	.06			.25	.51	T.			.18	.02		.07	T.	.02		T.		.10	.06	T.	T.	.07		1.83
Holland	Lake		T.	T.	.33	.10	.15	.10	.22	.05	T.			.33	.32			.20	.21			.05	T.	T.	T.		.07	.06	.05	.05	.19	T.	2.48
Howell	Saginaw																																
Ivan	Manistee		T.	.06		.12	T.	T.	.06	.20								T.	.26			.06			T.	T.	.15	.15	T.	T.	T.		1.06
Jackson	Grand																																
Jeddo	St. Clair	T.		.30	.02	.20		T.	T.	.05				.10	.60		T.	.24	.22		T.	T.	.40	.15	T.		.14	.05	T.		.05	.05	2.57
Kalamazoo	Kalamazoo			.05					.05	.02			.20	.60	.15												.30		.10		.20	.10	1.77
Lansing	Grand	T.	.15	.15	T.	.50			T.	T.				.30	.40			.13	.47		T.	T.	.05		T.		.10	.07	T.	T.	.10	.10	2.52
Lapeer	Saginaw			.20										.05	.30				.25		.03		.20	.20			T.							1.23
Ludington	Pere Marquette																																
Luther	Manistee	.14		.09		.31	T.	T.	.12									T.	.54			.03		.04	T.	T.	.14	.05	.08	T.	.01		1.55
Mackinaw	Lake					.10	.05	.30	.70									.05	.40								.20			.05	.10		1.95
Mancelona	do		T.	.30	.10	.30	.20	T.	T.	T.								T.	.40			T.			T.	T.	.20	.20	T.	T.			1.70
Manistee	Manistee	.10	T.	.40	T.		.10	T.	.40										.30			.40					T.	T.			T.	T.	1.70
Midland	Saginaw																																
Montague	White																																
Morenci	Maumee					.27				T.			.40	.55	.20				.76			.04	T.				.05	T.			.06	.03	2.36
Mount Clemens	Clinton		T.	.05		.06				.20				.18	.40			.03	.50		.02	T.	.25	.03	T.		.10	T.			.06	.20	2.08
Mount Pleasant	Saginaw																																
Muskegon	Muskegon	T.		T.	T.	T.		.20	.20	.20				.80	.40			T.	.40			T.	T.				T.	T.	.40	T.	.40		3.00
Old Mission	Lake			.12			.30	.03	.08	.15								.04	.30			.03					.30				.25		1.60
Olivet	Kalamazoo				.10	.55			T.	.03			.02	.26	.37			.20	.48		.02				T.		.04		.05		.23	T.	2.35
Omer	Lake		T.		T.	.40													.20					.10			.20						0.90
Onaway	Cheboygan			.30		.40													.60								.30				.20		1.80
Ovid	Grand																																
Owosso	Saginaw	T.		.10		.30			.05	.05				.10	.40				.64		T.	T.		T.	T.		.04	.05	.03	T.	.10	.10	1.96
Petoskey	Lake			.10		.20	.10	.30	.30									.10	.30	.10		.10			T.	.10	.10	.40		.10	.10		2.40
Plymouth	Rouge	T.		T.	T.	.20								.20	.10				.64													.10	1.24
Pontiac	Clinton	T.	.05	.06		.45								.27	.81			.03	.48				.25		T.		.07	.05			T.	.17	2.69
Port Austin	Lake																																
Port Huron	St. Clair	.01	.11	T.	T.	.27			.01					.28	.30			.27	.11		.01	.04	.28	.04	T.		.13	.06	T.		.05	.02	1.99
Reed City	Muskegon	T.		.05	T.	.10	T.		.40										.40			.05					.05						1.05
Roscommon	Au Sable																																
Saginaw	Saginaw	.30	.15	T.	T.	.20	T.	T.	.05	.20	.05	.05		T.	.20	.10	T.	.15	.15	.10	T.	T.	.20	T.	T.		.10				.20	T.	2.20
Saginaw, W. S.	do	T.	T.	.07	T.	.42	T.	T.	.03	.02				T.	.05			.02	.42		T.	T.	.07	.01	T.	T.	.11	.02	T.	T.	.07	T.	1.31
St. James	Lake																																
St. Johns	Grand																																
St. Joseph	St. Joseph				T.	T.	T.	.10	T.				.30	.90				.01	.13		T.	.20									.20		1.84
Sandusky	Lake																																
Saranac	Grand	T.		T.		.58			T.	T.				.05	.31				.62								.01	.10			.06	.06	1.79
South Haven	Lake																																
Stanton	Grand																																
Thornville	Saginaw					.30					.12			.10	.40						.12		.50	.50			.20	.20	.10		.15	.25	2.94
Traverse City	Lake		.20		.40		.10									.20		.20									.40	.20					1.70
Vassar	Saginaw																																
Wasepi	St. Joseph		T.		T.	1.35				.20			.50	1.00	.20			.25	.20			T.					.07			.02	.05	.10	3.94
Webberville	Grand			.10		.20								.20	.60			.04	.19				.05		T.		T.	.05			.10	.20	1.73
West Branch	Lake																																
Woodlawn	Au Sable			.20		.60		T.	T.							T.		T.	.80			.05		.10			.40	.20		.20	T.		2.55
Ypsilanti	Lake		.01			.27							.10	.50	.40			.22	.51		T.		.30				.05		.02		.20	.10	2.68
Ohio.																																	
Akron‖	Lake	T.		T.		.23	.48	.20		.01	T.		*	.53	.37	T.		.01	.28	.05		.32	.26	.06		T.	*	.09	T.		.06	.02	2.97
Benton Ridge	Maumee						.15			.05			.40	.30	.20			.50	.80		.04	.10	.80		T.		T.	.05		T.	.10		3.49
Bowling Green	Lake					.20	.15			.05			.40	.60	.50			T.	.65		T.	T.	.60		T.		T.	.10			.20	.10	3.55
Bucyrus	Sandusky													.75				.40	.40		T.	.50	1.00		.30								3.35
Cleveland (1)	Lake	T.	.01	.03	.01	.12	.38	.05		.08			.22	.47	.19	T.		.66	.35		.05	.44	.69	.01	.02	T.	.10	.18	.02	.02	.13	.06	4.29
Cleveland (2)	do		.03	.03	.02	.08	.60	.15	T.	.06			.35	.55				.70	.27		T.	.50	1.50	.30			.20	.10				.18	5.62
Defiance	Maumee	T.	T.	T.		.27				T.			.36	.41	.07			.22	.25		T.	T.	.07		T.		.03	.04	T.	T.	.04	.02	1.78
Findlay‖	do					.87	.10				T.		T.	1.55					.69			.05	.60								T.	.10	3.96
Fremont	Sandusky					T.	.17			T.			*	*	1.30			*	.70		.19	*	.99				*	.20			.09	T.	3.64
Hedges	Maumee	.03					.36						.58	1.43		.07		.10	.50		.04	.10	.30		T.		.07				.20		3.78
Hillhouse	Lake			T.	T.	.20	.22	.11	T.	T.			T.	.28	.30				.90			.41	1.50	T.	T.		T.	.36	T.	T.	T.	T.	4.28
Hiram	do			T.		.23	.43	.10		.03			.17	.50	.30			.05	.78			.45	.28	.02	T.		T.	.25		T.	.09	.05	3.73
Hudson	do		.30			.50	.30	.10		.10		.30	.40	.30	.20			.15	.33			.20	.50					.20	.30		.10		4.28
Lima	Maumee	.58	.05	.04			.30			T.	T.		.92	1.02	.20			.37	1.10		T.	.14	.70					.15		T.	T.	T.	5.57
Medina	Lake					.22	.33	.12		.06			.32	.63	.24			.10	.96			.43	.42		T.			.09			.22	T.	4.14
Montpelier	Maumee			T.	T.	T.	T.			.20			.50	.60	.30			.70	T.			T.	T.			T.	.10	.10	T.	T.	.20		2.70
Napoleon	do	.40				.46				T.			.40	.70	.10			.65	T.		T.	T.	.40	.16			.03	.03			.10		3.43
New Bremen	do	T.				.30	.35						.46	1.14	.25		T.	.19	.46		T.	.15	.19		T.		T.				.10		3.59
North Royalton	Lake					.18	.30	.20	.10				.20	.60	.40			.25	.68			.20	.80				.38	.10			.10		4.49
Norwalk	do					.14	.40	.10		.10			.25	.43	.40			.05	.70		.02	.25	1.10				.02	.10			.05	.01	4.12
Oberlin	do			T.	T.		.36	.09		.04			.29	.56	.34			.11	.51		T.	.40	.82	T.	T.	T.	.07	.16	T.	T.	.09	T.	3.84
Ottawa	Maumee	T.	.04				.04	.02	T.	.20		.02	.38	1.00	T.	T.		.40	.48		T.	T.	.15		T.		T.		T.				2.73
Rome	Lake																																
Sandusky	do		T.	.01	T.	.18	.13	T.		.03			.30	.52	.23			.63	.09		.10	.42	.88	T.	T.		.02	.20	T.	T.	.09	.01	3.84
Tiffin	Sandusky	T.	T.	.02	T.	.23	.40	.05		.05			.20	.79	.10	T.		.05	T.		.11	.43	.90	T.	.02		.13	.33	T.	T.	.10	.10	4.01
Toledo (1)	Maumee	T.	T.	.01	.03	.35	T.	T.		T.			.46	1.10	.14	T.		.55	.33		.01	.16	.31	T.	T.		.09	.12	T.	T.	.09	.01	3.76
Toledo (2)	do	T.	T.	.01		.01	.31	T.	T.	T.			.51	1.00	.35			.30	.55		.01	T.	.45	T.	T.		.03	.15	T.	T.	.07	.03	3.78
Upper Sandusky	Sandusky	T.		T.		.10	.30	.15		.10	.05		.10	.95	.75			.05	.53		T.	.25	.80				.05	.05		T.	.10	.10	4.43
Vickery	Lake					.17	.10	.02		.01		.12	.40	.84	.21	T.		.28	.42		.08	.26	.70	T.	T.		.04	.04	.01		.08	.10	3.88
Wauseon	Maumee		.01	.06	T.	.32	T.			.02			.50	.97	.17			.25	.37		.01	.03	.25	T.			.03	.11	T.	T.	.04	.02	3.16
Wellington	Lake			T.		.11	.38			*	*	*	.17	.54			T.	.26	.45		.04	.35	.30				.03	.37			.10	T.	3.40
Willoughby‖	do				.74		.30	.10								1.00			1.40			.22	.75					.22				.20	4.93
Pennsylvania.																																	
Erie	Lake	T.	.03	.07	.91	.07	.34	.10		.06				.24	.21	T.		.19	.54			.93	.90	.02	.02	T.	.13	.07	T.	T.	.07		4.00

TABLE 2.—*Daily precipitation for January, 1910. District No. 4*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
New York.																																	
Adams Center	Lake			.40	.40	.60	.20	.10	.40	.20	.10	.15	.10	T.	.40	.30	.20	.40	.75	.05	.40	.48		.40	.20	.10	.10	.20	.20	.60	.20	.15	7.78
Angelica	Genesee			.10	.03	.20	.41	.24	T.		.06				.57	.01			.67			1.03	.24	.09		.01	T.	.22	.01	.14	.11	T.	4.14
Appleton	Lake			.10	T.	.30		.15		T.	T.				.15		T.		.02	T.		.75	.20	T.			.22	T.			T.	.10	2.59
Auburn	Oswego			.09		.24	.32	.55		.07	.04				.73				1.00	.09		.12				.06	*	.11		.25	T.		3.67
Avon	Genesee	.02		.32		.14	T.	.25	T.	.06	.25				.40	T.			.37	T.		.68	T.				.08	T.	T.	T.		.03	2.60
Benson Mines	St. Lawrence																																
Blue Mountain Lake	Raquette			.40		.30	.20	.30					.10		.15				.68	.10		1.87		T.	T.		.20	T.	T.	.60			4.90
Brockport	Lake		.01	.25	.02	.18	.08	.32		T.	.05				.67				.51			.95	.05				.03	.21			T.	.07	3.40
Buffalo	Lake	T.	.14	.12	.01	.22	.37	.46	T.	.37	.02	T.	T.	.07	.78	T.	T.	.19	.88	T.		.83	.83	.02	T.	T.	.22	.45	.04	.01	.16	.22	6.41
Canton	St. Lawrence	T.		.06		.14	.05	.13	T.	.09	T.	T.	.03	T.	T.		T.		.27	.01		.10	.03	.01	.01	.05		.14	T.	.70	.01		1.83
Cape Vincent	do		.05	.11		.38		.21		.05					.05				.23			.27		.07				.04		.06			1.52
Carvers Falls	Lake		.03	.26			1.19	.54											.57	.32		.07	.48			.26	.19	.22			.31		4.44
Chazy	do							.40					T.									T.					.10			.40			3.90
Dannemora	do		T.	T.	.15	.20	.10	.30	T.		.30		T.	T.	T.				.05	.05		T.	.15			.08		.10	.05	.30	.25		2.08
Elba	Lake		.09	.30	T.	.15	T.	.30		T.	.20				.60				1.00			.90	T.	T.		T.	T.	.20			T.	.30	3.95
Faust	St. Lawrence		.09	.03	.03	.12	T.	T.			.10		.08		T.				.30	.06		.30	.20	.12		.18		.07	T.	.40			2.08
Fayetteville	Oswego			.12	.02	.37	.36	.37	T.	T.	.08				.21	T.		T.	.24	T.		.16	T.			.01		.08	T.	.24	.06	.07	2.39
Gabriels	Lake			.08	.06	.12	.08	.22	.05	.02	.05	.01	.05	.01	.02				.03	1.00		.01		.02		.21		.12	.03	.35	.08	.03	2.65
Harkness	do			.05	.03	.01		.23															.61			.10		.08	.36	.03			1.50
Hemlock Lake	Genesee																																
Hunt	do	.27					.30				.08				.76				.65			1.01	.13					.09		.16		.19	3.64
Ithaca	Oswego		T.	.05	.01	.10	.78	.27		.06	.06				.48	T.		T.	.28	T.		.39	T.		T.	.10	.03	.01	.02	.29	.14		3.07
Keene Valley	Au Sable			.09		.35		.28			.11		T.		.09			.74	T.		1.93	1.47	.03		.03		.15		.36	.10	T.	T.	5.82
King Ferry	Oswego			.14			.46	.38		.40					.61				.34	.14		.19	.01			.09		.11	.02	.15	.13		3.17
Lake George	Lake			.21		.35	1.02	.43			.07		.02		.04				1.02	.13		.87	.30		.03	.22		.04		.27	.09		5.11
Lake Placid Club	Au Sable, W. Br.			.60	.35	.03	T.	.40			.15	T.	.21	T.	T.				.35	.21		.32	.28			.31	.10		.41	.62		.08	4.42
Le Roy	Genesee		.02	.25	.05	.15	.16	.25	.02	.11	T.				.62	T.		T.	.40			.92	.10	T.		T.	.16	.19	.01	T.	.05	.11	3.57
Lockport	Lake		.06	.16	.01	.15	.06	.25		.06	.02				.25			T.	.67			.78	.22	.05	T.	T.		.25	.02		T.	.10	3.11
Lowville	do												.15		.10				.62			.38							.15	.35	.15		1.90
Lyndonville	do																																
Moira	St. Lawrence			.10		.25	.10	.40	.05	.05	.10	T.							.30	.05	T.	T.				.10		.05		.85	T.		2.40
Nehasane	Lake			.47	.03	.27	.16	.21	.15		.10		.10		.10				.51	.48		.21	.40	.11		.19		.14	.11	1.02		.09	4.85
North Lake	do																																
Ogdensburg	St. Lawrence		T.	T.	.14	.22	T.	.04	T.	T.	.04				T.				.31	T.		.38	.22	.10		T.		.15	T.	.20	T.		1.80
Old Forge	Lake		.01	.32	.64	.42	.43	.20	.04		.05	.04	.03		.10				.11	.25		.09	.85	.25		.23		.16	.24	.68	.10	.08	5.32
Oswego	do		.01	.31	.03	.34	.20	.25	T.	.29	.16				.38		T.	.05	.64	.07		.39	.02	.01	T.		.08	.07	.02	.10	.60	.05	4.07
Otto	do		.06	.03	.02	.04	.20	.03		.10	.03			T.	.04		T.		.45			.62	.64	.03			.01				.06	.09	2.45
Palermo	Lake	.05	T.	.21		.10	3.00	.63		.64	.20			T.					.14	.10		.06			T.		.05	.10	.06	.20	.40	.15	6.39
Perry City	do			.02	T.	.20	.55	.45			.25					.08			.38			.34		.10		.07	T.	.10	.04			.16	2.74
Philadelphia	St. Lawrence		T.	.07	.01	.29	.06	.18	.35	.03	.04		.02	.01	.03		.01		.38	.15		.15		.17		.07		.19	.08	.13	.01		2.43
Plattsburg	Lake				.05	.02	.20	.40	.25		.03			T.							.01		.37	.02		.12		.05	.10		.10		1.72
Potsdam	St. Lawrence					.67		.46		.31	.18		T.						.53	T.		.23				T.				.67	.32		3.37
Raquette Lake	Raquette			.35	.08	.20	.35	.31			.03		.04						.30	.27		.14	.29	.04		.08		.23	*	1.18			3.99
Rochester	Genesee		.02	.25	.03	.18	.22	.33		.06	.01				.44	T.		.01	.42	T.		.73	.01		T.	T.	.21	.07	T.	T.	.02	T.	3.01
Romulus	Oswego			.21			.60	.43		T.					.75	.30			.16	.20		T.						T.		.55	T.	.30	3.50
Shortsville	do		T.			.24		.41			.23				.16				.44	T.							T.	T.		T.	T.		1.48
Skaneateles	do																																
Syracuse	do		T.	.23	.01	.17	.50	.12		.05	.01				.32	T.		.03	.57	T.		.08	T.	T.	T.	.04	.04	.09	T.	.16	.05	T.	2.47
Ticonderoga	Lake			T.		.08	.30	.18					T.									.10	1.01				.03	T.	T.	.38			2.08
Trudeau	do		.17	.16	.07	.22	.37	T.	T.		.21	.09	.25	T.				T.	.04	.06		.17	.14	T.	.07	.16	T.		T.	.63		T.	2.81
Volusia	Lake		.11	.12	T.	.20	.30	.25		.10	T.			T.	.30				.50	T.		.55	.62	.12	T.		.01	.45	.07	T.	.11	T.	3.90
Watertown	do																																
Wedgewood	Oswego			.02	T.	.03	.87	.41		.02	.18			*	.70	.16			.28			.58	.12	.08		.07	T.	T.	.02	.60	.20	.05	4.30
Westfield	Lake			.07	.09	.39	.32	.39	.07	.27	.02			.16	.33				.72			.49	.60	T.		.09	.11	.17	.08	T.	.11	T.	4.48
Youngstown	do				.12										.65				.19			.21	1.27				.03	.28				.09	2.84
Vermont.																																	
Burlington	Lake		.02	.02	.01	.34	.83	.21		T.	.01	T.	T.	T.	T.				.09	T.		.05	.42	.02	.02	.12	.01	.15	.01	.31	.05	.01	2.70
Cornwall	do		.01	T.		*	.65	.40	.02		.05								.25			.05	.54		T.	.30		.10	.05	.40		.08	2.90
Enosburg Falls	do		T.	T.	T.	.25	.07	.31			.04								.07	.04		T.	.61			.15		.05	.11	.18	.20		2.08
Northfield	do			.10	T.	.04	.70	.22			.04		T.						.35	T.		.49	.35		.04	.10		.11	.01	.18	.07	T.	2.80
Rutland	do			.10	.20		.30	.50			.01							.01	.01						.10		.02				.40	.02	1.67
Wells	do		.03	.26			1.19	.54											.57	.32		.07	.48				.26		.16		.31		4.19

TABLE 3.—*Maximum and minimum temperatures at selected stations, January, 1910. District No. 4, Lake Region.*

Date.	Duluth, Minn.		Wisconsin. Florence.		Green Bay.		Milwaukee.		Chicago, Ill.		Fort Wayne, Ind.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	29	−1	36	9	37	16	38	24	40	32	40	19
2...	9	−5	26	4	25	10	29	14	36	21	39	28
3...	7	−17	.....	.....	10	−10	14	−5	21	1	32	16
4...	14	−16	10	−15	18	−14	23	−6	22	1	17	4
5...	13	−4	15	5	21	−5	25	−2	31	4	35	17
6...	6	−12	9	−6	1	−13	5	−9	8	−4	21	10
7...	10	−6	13	−15	6	−18	12	−10	22	−5	18	0
8...	4	−10	13	−12	14	−3	17	6	31	14	32	12
9...	11	−6	17	−10	7	−11	14	0	16	2	26	15
10...	18	4	17	−8	22	−9	25	5	28	10	29	3
11...	21	15	26	10	31	16	35	25	38	26	34	16
12...	25	13	24	9	27	12	33	27	35	33	34	31
13...	27	22	25	11	29	21	31	27	34	29	34	30
14...	27	17	28	8	22	5	32	19	32	28	33	25
15...	25	12	29	−10	19	−1	26	11	29	24	27	23
16...	30	22	26	6	31	18	31	23	33	27	30	25
17...	31	12	32	24	33	29	34	30	40	32	37	29
18...	17	−1	29	12	32	10	33	16	37	18	46	28
19...	33	7	39	0	27	10	37	12	41	18	43	18
20...	30	12	32	15	40	23	40	27	43	30	43	36
21...	24	5	36	12	28	18	27	19	30	23	40	26
22...	24	13	25	9	28	12	23	14	28	18	32	21
23...	25	9	25	17	31	16	28	16	31	22	38	21
24...	20	0	25	18	29	14	28	22	33	29	33	24
25...	26	15	21	−8	31	9	35	19	35	27	34	14
26...	29	21	27	20	34	28	40	31	46	33	53	30
27...	26	18	28	20	30	23	32	29	37	30	36	32
28...	28	14	26	13	26	13	30	25	34	28	34	28
29...	23	11	23	12	26	13	27	22	31	23	33	25
30...	19	3	20	−2	20	11	24	15	29	21	34	25
31...	25	6	23	−12	20	−2	26	11	30	16	29	14
Mns	21.2	5.6	23.8[a]	4.5[a]	24.4	7.8	27.5	14.7	31.6	19.7	33.7	20.8

Date.	Michigan, Upper Peninsula. Escanaba.		Ewen.		Houghton.		Marquette.		Sault Ste. Marie		Michigan, Lower Peninsula. Alpena.		Battle Creek.		Cadillac.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	37	15	25	10	36	12	42	16	35	22	39	18	37	18	33	19
2...	18	10	21	5	17	10	16	10	24	13	30	17	37	22	.....	.....
3...	12	−3	10	4	14	−4	13	−3	16	−11	20	2	22	9	16	−1
4...	18	−5	11	−4	16	2	13	3	6	−15	19	4	13	−1	9	−4
5...	25	1	15	−1	19	13	20	9	24	6	31	14	31	10	24	6
6...	19	−3	12	−3	14	8	18	6	19	5	23	6	17	7	12	7
7...	14	−9	15	−2	16	3	18	3	14	−11	22	1	16	2	12	10
8...	20	−5	19	−21	16	4	22	5	18	−2	22	7	27	3	20	7
9...	25	2	18	−16	20	−7	25	12	12	−12	21	6	25	13	24	−2
10...	24	−2	13	−16	23	−6	22	10	19	−15	21	−5	23	−1	18	9
11...	25	14	23	−2	26	17	28	18	23	15	27	21	30	15	28	17
12...	29	15	23	−3	26	10	29	20	30	22	32	26	30	22	28	22
13...	26	16	31	10	28	23	29	23	25	10	30	24	30	25	26	17
14...	30	10	33	5	31	2	30	17	23	0	25	7	27	20	24	15
15...	25	−1	31	−10	36	−5	32	15	23	−6	25	1	28	20	20	0
16...	30	16	29	14	32	22	30	17	31	18	29	23	30	22	26	19
17...	32	30	34	28	35	27	32	29	31	28	32	27	35	25	30	25
18...	31	12	33	11	27	14	32	16	31	18	33	19	39	28	30	22
19...	24	7	43	−2	35	6	38	11	30	14	30	13	35	15	29	16
20...	37	22	32	3	34	19	36	20	35	29	39	19	39	31	40	26
21...	24	20	26	−4	20	15	23	19	33	10	35	18	38	22	35	15
22...	28	15	22	−10	25	13	24	19	20	8	23	16	28	16	25	11
23...	30	20	25	17	27	15	27	19	26	10	31	18	29	20	26	20
24...	28	9	30	14	25	9	27	13	27	20	30	22	31	25	30	18
25...	25	0	25	−17	29	0	28	8	28	19	30	21	30	8	25	18
26...	30	23	25	18	31	24	30	26	27	24	33	26	45	28	32	22
27...	28	18	28	20	25	18	28	20	26	10	33	19	33	29	32	22
28...	28	16	26	12	26	19	28	20	23	4	30	17	30	24	26	12
29...	27	10	24	5	20	14	24	15	20	12	30	19	29	21	24	10
30...	24	5	22	−11	18	13	19	12	19	2	27	19	28	20	23	15
31...	20	2	22	−20	24	−1	22	6	18	1	27	12	24	6	25	11
Mns	25.7	9.0	24.1	1.1	24.9	10.0	26.0	14.1	23.7	8.0	28.4	14.7	29.5	16.9	25.1[a]	13.5[a]

Date.	Michigan, Lower Peninsula. Detroit.		Muskegon.		Saginaw, W. S.		Ohio. Cleveland.		Lima.		Sandusky.		Toledo.		Erie, Pa.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	38	20	34	18	38	13	42	23	40	24	41	26	40	24	43	25
2...	35	25	34	18	37	22	42	29	41	31	39	29	39	28	42	28
3...	25	4	20	8	24	4	29	9	33	11	30	7	28	10	29	12
4...	18	2	11	−1	14	−4	22	9	19	5	22	6	21	3	15	8
5...	36	14	30	9	33	7	41	22	37	18	41	19	37	17	40	15
6...	20	14	15	11	18	9	23	15	28	11	19	14	19	14	31	19
7...	17	10	18	11	16	4	17	5	17	3	17	6	17	11	19	8
8...	25	10	20	11	26	6	25	4	16	1	27	6	27	11	26	7
9...	24	17	20	10	26	3	22	20	27	8	24	13	26	17	25	17
10...	25	13	25	4	23	3	23	8	23	−1	24	8	24	9	21	10
11...	30	16	32	17	30	18	29	12	33	13	33	15	33	15	30	16
12...	33	27	32	15	33	21	35	29	34	32	35	30	34	29	34	29
13...	31	25	30	25	31	24	35	30	35	32	32	30	30	26	32	26
14...	25	20	27	15	27	21	32	25	35	23	30	20	26	21	33	26
15...	27	22	24	10	29	21	28	22	27	22	26	21	27	22	27	16
16...	28	24	31	22	29	23	28	22	30	25	27	24	29	24	27	10
17...	37	27	33	26	35	26	41	26	40	29	41	27	41	27	39	24
18...	40	28	.....	.....	39	27	45	28	50	39	44	28	45	27	47	32
19...	33	21	.....	.....	31	20	38	23	42	22	40	21	39	19	36	26
20...	40	33	.....	.....	42	27	44	36	61	34	47	37	43	35	48	35
21...	35	22	.....	.....	39	20	38	25	43	24	37	23	36	22	41	32
22...	28	15	.....	.....	29	15	27	17	39	20	28	18	32	18	34	20
23...	33	23	.....	.....	30	22	35	21	38	19	36	22	37	24	35	20
24...	33	27	.....	.....	35	21	30	25	35	22	32	26	35	27	35	27
25...	30	20	.....	.....	30	10	29	23	34	13	32	18	31	20	30	23
26...	43	27	.....	.....	39	27	46	26	49	30	46	29	48	28	43	24
27...	33	29	.....	.....	36	27	33	30	37	31	33	32	38	33	34	28
28...	30	22	.....	.....	30	21	32	25	34	29	32	24	34	24	30	27
29...	30	21	.....	.....	32	18	27	23	32	22	29	19	34	21	27	24
30...	30	23	.....	.....	30	21	30	25	33	24	28	25	31	24	30	24
31...	27	13	.....	.....	27	6	25	22	28	18	25	19	27	18	27	24
Mns	30.3	19.8	.....	.....	30.3	16.2	32.0	21.3	34.5	20.5	32.2	20.7	32.5	20.9	32.6	21.4

Date.	New York. Buffalo.		Canton.		Rochester.		Syracuse.		Vermont. Burlington.		Northfield.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	41	23	39	12	43	18	41	18	31	4	33	−14
2...	40	24	38	17	43	26	42	26	40	21	44	22
3...	26	12	27	1	27	11	28	10	27	6	24	8
4...	12	1	1	−14	11	−1	10	−11	6	−16	8	−22
5...	38	2	39	−14	37	−1	39	−9	30	−17	17	−26
6...	33	19	39	22	35	21	39	21	36	22	34	17
7...	21	18	22	6	23	15	24	18	22	11	24	5
8...	27	9	23	15	28	8	23	10	19	8	20	−1
9...	24	16	25	12	26	20	29	21	26	18	26	10
10...	18	12	12	−1	21	10	21	10	20	3	18	−4
11...	29	15	25	2	26	9	27	11	16	0	12	−11
12...	34	27	27	7	33	26	32	23	21	13	22	−1
13...	28	21	22	6	29	23	26	16	22	8	23	9
14...	23	21	10	1	24	20	21	16	8	1	14	7
15...	23	16	15	−6	23	10	17	10	11	−5	20	−8
16...	26	15	25	6	25	6	29	9	22	−6	21	−16
17...	30	22	28	21	38	16	36	4	28	6	27	−8
18...	45	33	44	25	45	33	46	33	40	27	44	27
19...	33	27	35	24	33	25	34	23	40	26	40	16
20...	48	31	43	23	44	26	45	23	39	20	33	5
21...	44	33	51	37	41	35	51	37	47	34	44	20
22...	40	21	52	25	45	23	46	26	50	33	49	33
23...	35	22	34	26	35	24	35	26	35	27	36	26
24...	36	29	38	31	35	30	38	31	36	28	33	16
25...	30	20	31	17	31	26	31	24	32	25	33	26
26...	42	21	28	8	37	25	38	17	30	14	32	13
27...	36	27	34	24	36	28	35	29	31	24	30	19
28...	31	27	28	19	32	28	33	27	35	25	35	24
29...	28	23	31	17	30	24	29	20	25	19	26	21
30...	30	20	22	13	29	21	28	22	28	19	28	18
31...	29	24	18	−6	29	23	28	15	20	5	28	0
Mns	31.9	20.4	28.9	12.1	32.1	19.6	32.3	17.9	28.2	12.8	28.3	7.5