

CLIMATOLOGICAL DATA FOR NOVEMBER, 1913.

DISTRICT NO. 4, THE LAKE REGION.

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GENERAL SUMMARY.

The main features of interest in the weather of November, 1913, were the high mean temperatures of the month and the great storm which swept the district during the 7th-10th. The latter half of the period was very much warmer than usual, mild south to southwest winds prevailing during a large portion of the time, with humid atmosphere, much cloudiness, and extensive fogs. The latter were in many instances of the densest character, and seriously interrupted navigation at several points on the Great Lakes, and occasioned a few accidents to vessels. Sunshine over the western portions of the district was quite deficient; but in the eastern sections, while there was as a rule even less sunshine in actual amount, the mean for the month exceeded the average for those regions by from 5 to 15 per cent.

The following table summarizes most of the chief features of interest in the various portions of the district:

Portions of States.	Mean temperature.	Departure from normal.	Mean daily range.	Mean precipitation.	Departure from normal.	Greatest precipitation in 24 hours.	Mean snowfall.	Number of days—				Prevailing wind direction.
								With 0.01 inch or more precipitation.	Clear.	Partly cloudy.	Cloudy.	
Minnesota.....	38.1	+6.8	15.7	0.7	-1.01	0.56	T.	5	9	10	11	sw.
Wisconsin.....	39.5	+5.9	13.6	1.57	-0.26	1.53	1.5	7	11	6	13	sw.
Illinois.....	47.2	+7.9	11.9	1.47	-1.03	0.56	T.	10	9	5	16	sw.
Indiana.....	45.3	+6.2	13.7	2.14	-0.76	1.03	2.4	11	9	6	15	sw.
U. Michigan.....	37.2	+5.7	13.2	2.00	-0.38	2.00	2.4	8	8	6	15	sw.
L. Michigan.....	41.6	+4.6	14.0	2.03	-0.40	1.85	3.9	8	8	7	15	sw.
Ohio.....	44.1	+4.0	13.5	3.03	+0.37	2.24	12.3	12	9	6	15	sw.
Pennsylvania.....	45.7	+4.6	11.4	4.18	+0.57	1.27	19.3	15	3	9	18	s.
New York.....	40.4	+5.2	13.8	2.87	-0.16	2.58	3.1	11	8	8	14	sw.
Vermont.....	39.0	+4.9	17.1	1.32	-1.93	0.75	4.0	8	9	8	13	s.

TEMPERATURE.

In the Lake Region there have been but few Novembers warmer than that of 1913. Mean temperatures everywhere exceeded the normal, some stations experiencing excesses of from 6° to 10°, and at no station was the average departure less than +1.4°. The averages in the various sections of the district ranged from 4° to 7° above the seasonal normal. The absolute range in temperature was 81°, from 80°, at Keene Valley, N. Y., on the 6th, to -1°, at Humboldt, Mich., on the 15th.

The first half of the month was a period of variable temperatures, alternating first below and then above the seasonal average. The severest weather of the month occurred in the wake of the storm of the 7th-10th, but even the lowest readings of the thermometer were comparatively high for this time of year; and the district minimum, -1°, was only 4° lower than that of the preceding month. The last 15 days were marked by exceptionally high temperature, especially during the 19th-

22d, when daily readings of from 20° to 30° above the normal were common in all portions of the district. Considering the lateness of the season, this warm spell is quite remarkable, and to it is due in a large measure the high mean temperatures for the month as a whole.

PRECIPITATION.

Precipitation averaged below normal in amount, except in the sections to the southward of the Lower Lakes, where there was a slight excess. In the Champlain Valley there was a deficiency of nearly 2 inches, and to the westward of Lake Michigan the shortage for the month was somewhat more than 1 inch. The distribution in most portions of the district was fairly even in point of time, but to the south of Lake Erie the greater proportion of the monthly totals occurred on the 9th-10th.

Snow.—Heavy and driving snows occurred over northeastern Ohio and western New York on the 9th-10th, during the storm referred to above. The fall was unprecedented for the season, and drifted badly owing to the high winds which prevailed, delaying traffic considerably, and causing great damage to all kinds of communication and transportation services. During this time heavy snow also occurred over portions of northern Indiana, and in lower Michigan, with similar delays and damage, but of generally lesser degree. In the extreme western portions of the district there was but little snow at any time during the month. In no case did the fall remain on the ground for any length of time except in the higher lands of the eastern portions.

ICE CONDITIONS.

Owing to the unusually high temperatures, ice in rivers and harbors occurred only in inconsequent amounts in the extreme northern portions of the Lake Region, and there was practically none at any place at the close of the period.

STORM OF NOVEMBER 7-10.

The storm of the 7th to 10th was one of the severest that has ever crossed the Lake Region. While higher winds have been recorded in connection with other disturbances, the velocities experienced in this storm were at most stations far above the verifying limits for windstorms, and they continued so long as to cause extraordinarily high seas which swept the Lakes with tremendous force. Many disasters and casualties occurred as a result of the storm. Breakwaters were broken up, and banks on the windward shores were badly washed out. The disturbance was accompanied over the central and eastern portions of the lakes by driving snow, which increased the precarious situation of vessels, tied up land traffic, and caused much damage to a considerable distance from the shore.

Owing to the exceptional severity of this storm, reports of various Weather Bureau officials relative to it are given in considerable detail:

Duluth, Minn.—There was no loss of life or vessel property on the extreme western end of Lake Superior as a result of the great storm which passed over the Lake Region on the 7th to 10th, but some local damage occurred to property ashore in sections near the Duluth-Superior harbor during the northwest gale which prevailed on the afternoon and evening of the 7th. During this storm the maximum velocities ranged anywhere from 34 to 62 miles between 1 p. m. and 7 p. m., its intensity being greatest about 7 p. m. and ceasing abruptly a few minutes after the latter hour. This was the only blow of any consequence during the month.—H. W. Richardson, Duluth, Minn.

Sault Ste. Marie, Mich.—The storm of the 7th to 10th was the most severe experienced on the lakes for many years. A large fleet anchored in the upper river and the lower part of White Fish Bay. The wind and sea sweeping down the bay, into the river, caused the steamers *J. C. Hutchinson* and *Fred G. Hartwell* to drag their anchors and strike rock shoals, sinking both vessels and causing very heavy damage. The steamer *William Nottingham* struck a shoal near White Fish Point and was very badly damaged. Three of the crew were drowned while trying to reach shore in a small boat. The steamer *Cornell* was in the gale above White Fish Point from Friday morning until Monday night. She sustained very heavy damage and was kept off the beach only with the greatest difficulty. Other disasters occurred farther up the lake. While the wind at this station reached a maximum velocity of only 37 NW. at 6.55 p. m. on the 9th, vesselmasters report that on the open lake it was 60 to 80 miles per hour. A very peculiar feature was reported by Capt. Noble, steamer *Cornell*. About midnight of Thursday, the 6th, while on the course from White Fish Point to Keweenaw, and about 50 miles west of the point, with the wind light from the southeast, he suddenly encountered an unusually high northwest sea, and shortly afterward the wind backed to northerly, blowing a gale, which lasted until Monday night. The Canadian steamer *Leafield*, loaded with steel rails, for Port Arthur, has not been heard from since leaving Sault Ste. Marie, Ontario. The fine steel steamer *Henry B. Smith* left Marquette Sunday evening, the 9th, and has never been heard of. The steel steamer *L. C. Waldo* was driven on Manitou Island and will probably prove a total loss. The Canadian steamer *Turret Chief* was driven on Keweenaw Point and will probably prove a total loss. The crews of the *Waldo* and *Turret Chief* suffered great hardships before being rescued. Gales reaching a velocity of 46 to 48 miles on the 23d and 24th caused vessels to remain in shelter.—Alexander G. Burns, Sault Ste. Marie, Mich.

The storm on Lake Huron on November 9, 1913.—The storm of November 9 will be entered in the history of navigation as one of the most violent and one that exacted a greater toll of life and property on Lake Huron than any other storm within memory of local navigators. After its fury had subsided, it was found that 8 boats were missing, some of which ranked with the best on the lakes, and with them went down 200 lives. Ten boats were stranded, of which 2 were abandoned as total loss, while the others were released in more or less damaged condition. The greatest casualties occurred on the southern part of the lake, presumably within a hundred miles of Port Huron. Here 9 out of the 10 boats were stranded, and all the 8 missing boats are supposed to have foundered. Most of the stranded boats were found near the entrance to Saginaw Bay, between Port Austin and Harbor Beach, Mich.

The survivors' accounts of the storm and of their struggle to keep their vessels afloat are almost heart-rending. The water, they claim, was simply a seething mass, such as they have never seen before. So helplessly were they tossed about by the waves and carried by the currents that most of them did not know where they were. Some of those that were stranded near Saginaw Bay felt absolutely sure before striking ground that they were at least 10 to 15 miles from the shore, others again were under the impression that they were near the middle of the lake, somewhere opposite Sturgeon Point.

The story of the struggle of the 8 vessels that were lost in Lake Huron will never be known, neither are the places known where 7 of them foundered. The bodies of some of the crews, as well as considerable wreckage, were washed ashore on the Canadian side of the lake, all along between Kincardine and Kettle Point, so the natural supposition is that the boats were lost in the lower half of the lake.

One of the foundered boats, the *Charles S. Price*, was discovered 11 miles north of Port Huron and 7 miles offshore completely turned over. Her hull protruded about 20 feet above the water when she was first discovered, evidently buoyed up by the imprisoned air that was bubbling up all around her. She settled gradually and disappeared under the water on the 17th of November. Some of the bodies were washed ashore near Goderich, Ontario, about 55 miles northeast from where she sank.

TABLE I.—Casualties on Lake Huron during storm of November 9, 1913.

STEAMERS FOUNDERED.

Name.	Lives lost.	Value of steamer.	Value of cargo.
Charles S. Price.....	28	\$325,583	\$21,768
John A. McGean.....	23	225,000	18,000
Isaac M. Scott.....	28	325,158	21,961
Argus.....	24	155,000	30,000
Hydrus.....	23	155,000	20,000
Regina.....	22	100,000	.....
Wexford.....	22	180,000	.....
James Carruthers.....	30	175,000	.....
Total.....	200	1,740,741	111,729

¹Approximate value.

STEAMERS STRANDED.

Name.	Location.	Value of steamer.	Value of cargo lost.	Remarks.
Mathew Andrews.....	Port Edward.....	.....	None.....	Released.
H. B. Hawgood.....	do.....	.....	None.....	Do.
D. O. Mills.....	Harbor Beach.....	.....	.....	Do.
Rhoda Emily.....	do.....	.....	.....	Do.
Edward Bucky.....	do.....	.....	.....	Do.
Northern Queen.....	Kettle Point.....	.....	.....	Do.
J. M. Jenks.....	Midland.....	.....	.....	Do.
Arcadian.....	Alpena.....	.....	.....	Do.
Matos.....	Point aux Barques.....	\$123,600	\$7,000	Abandoned.
Howard M. Hanna, jr.....	Port Austin.....	325,000	20,000	Do.

The storm began on this part of the lake about 6 a. m. of the 9th, when the wind became brisk northwest. The first verifying velocity (36 miles) occurred at 9.50 a. m., and from that time to 1.30 p. m. the wind increased very little but fluctuated between 20 and 42 miles per hour. About 1.30 p. m. it shifted to the north, and increased steadily until it attained an extreme velocity of 62 miles per hour, at 9.02 p. m. A comparison with the wind record from Harbor Beach, Mich., near the entrance to Saginaw Bay, shows that the wind was nearly the same in that part of the lake also. The highest and steadiest winds occurred between 6 and 10 p. m., and that was the time when most of the accidents occurred. Even the watches that were found on the dead bodies were stopped between 8 and 11.30, and probably indicated the time when the boats went to pieces and the sailors entered their watery graves.

TABLE II.—Hourly maximum wind velocities at Port Huron, Mich.

Hours.	Velocity.	Hours.	Velocity.
	Miles.		Miles.
November 9, p. m.:		November 9, p. m.—Continued.	
1-2.....	40	9-10.....	56
2-3.....	40	10-11.....	50
3-4.....	46	11-12.....	46
4-5.....	47	November 10, a. m.:	
5-6.....	52	12-1.....	45
6-7.....	56	1-2.....	42
7-8.....	58	2-3.....	40
8-9.....	56	3-4.....	38

The station barometer began to fall about 2 a. m. of the 9th, when it stood near 29.70 inches sea level, and reached the lowest point, 28.95 sea level, at 8 p. m. During the fall the wind was strong from the northwest and north, indicating that the storm was increasing in energy, as its center was already east of the station.

The damage on land and along the shore, although considerable and will probably total over \$100,000 in Port Huron alone, appears insignificant when compared with the losses on the open lake. Telegraph and telephone communication was crippled for several days. Trains and electric cars were stalled by the blinding snowstorm, which piled up the snow in drifts 4 to 5 feet high. A few store windows were smashed in, and several houses were unroofed. The water rose 4 to 5 feet above normal height at the foot of the lake and in St. Clair River, and caused considerable damage to shops and dock property along the water front. The Fort Gratiot lighthouse at the foot of the lake was badly undermined by the action of the waves, and the lightship, about 2 miles farther up in the lake, was torn loose from her anchorage and dragged with its occupants to the Canadian shore.—A. Wiesner, Port Huron, Mich.

At Cleveland, Ohio.—The unusual character and severity, in some respects, of the storm, together with the attendant appalling losses, were such as to warrant the prediction that it will go down in local history and be referred to for years to come as the "Great storm of November, 1913." For this reason a detailed though inadequate account of this storm, as experienced in Cleveland and vicinity, may be of interest. Coming so early in the season and combining as it did the chief features of the windstorm, the snowstorm, the ice storm, and the cold wave, it swept down upon the almost wholly unprepared city with well-nigh paralyzing effect. Discomfort, not to say actual suffering, was very general, although fortunately brief.

The storm proper may be said to have commenced in Cleveland about 4.30 a. m., Sunday, November 9, and to have ended about 2 p. m. Tuesday, November 11, as those dates mark the beginning and the ending of precipitation. The precipitation was at first mostly rain and very light but mixed with a small amount of very moist snow. By 10 a. m., however, the rain had entirely ceased and the snowfall had become heavy, being still quite moist. The snow continued heavy until the afternoon or evening of the 10th when it became light and so continued until about 2 p. m. of the 11th. The total amount of snowfall, unmelted, during the entire storm was 22.2 inches, which melted gave 3.18 inches of water. The greatest amount of snowfall in any 24 hours during the storm was 17.4 inches between 7 p. m. of the 9th and 7 p. m. of the 10th. The greatest previous 24-hour fall since the opening of the station in 1870 was 13 inches on February 9, 1896.

At the beginning of the storm the temperature was about 36°, gradually falling during the day to slightly below 30°, remaining about stationary during the 10th and 11th, and falling to about 20° on the morning of the 12th. The storm set in with a moderate northwest wind that steadily increased, reaching the verifying velocity (40 miles per hour) about 1.50 p. m. of the 9th. From 2 p. m. of the 9th until 6 a. m. of the 10th the wind blew with a remarkably uniform velocity, the total movement during those 16 hours being 779 miles, or an average velocity of about 49 miles per hour. The highest or maximum velocity attained was only 62 miles at 4.40 p. m. of the 9th, and the extreme was 79 miles at about the same time. The wind continued quite constantly from the northwest up to 2 p. m. of the 9th when it showed a tendency to shift to the west but continued to vacillate between northwest and west until about 7.30 p. m. when it shifted definitely and permanently to the west, from which direction it came until about 8.20 a. m. of the 10th when it went to the southwest and so continued to the end of the storm.

At the beginning of the storm, the barometer showed a pressure of about 29.60 inches, decreasing rather rapidly. The lowest reading of the barometer as shown by the barograph trace was about 29.07 inches and occurred between 9 and 10 a. m. of the 9th, after which time the pressure rose, quite rapidly at first, until the end of the storm.

As stated already, the temperatures at the beginning of the storm were so near the freezing point as to make conditions decidedly favorable for the formation of ice and the heavy deposit of snow on wires, tree trunks, limbs, etc., so that by Sunday night all telegraph and telephone wires, electric-light wires, trolley wires, trees, etc., were incased in ice and so heavily burdened with snow that under the pressure of a 50-mile gale, poles and wires began to break and fall in every direction, trees either broke or were weighted to the ground, so that the telephone, telegraph, trolley, and electric-light services were completely paralyzed or seriously crippled and all traffic greatly demoralized. The extent of the losses can not be ascertained even approximately at this time but will be very large here in Cleveland. The loss of life in this city was small.—William H. Alexander, Cleveland, Ohio.

Buffalo, N. Y.—The dominating feature of the weather for the month of November, 1913, was the destructive storm that caused widespread disaster over the Great Lakes from the 7th to the 10th, inclusive. The storm center passed this station between 6 and 7 p. m. of the 9th and caused an unusually low reading of the barometer here, the lowest reading being 28.69 inches reduced to sea level.

Moderately heavy rain and only moderate to brisk northerly and easterly winds prevailed here on the 9th. At 3.30 a. m. of the 10th the wind became high from the south and from that hour until 5 p. m. a gale, accompanied by heavy snow, raged over this city, the highest velocity, 80 miles from the southwest, occurring at 1.17 p. m. Notwithstanding the gale averaged over 60 miles an hour from 7 a. m. to 4 p. m., there were no casualties at this end of Lake Erie, except that of lightship No. 32, which was lost with a crew of six men. The lightship was stationed off Point Abino, about 13 miles from Buffalo. Several small pleasure yachts were driven on the beach at the Buffalo Yacht Club. The small loss to the shipping interests in this section was unquestionably due to timely warnings issued by the bureau, for a large fleet of steamers remained in port until the storm subsided. More than 30 large steamers were back of the outer breakwater waiting for an opportunity to go out, and their estimated value is close to \$1,000,000. The heavy moist snow that fell on the 10th impeded traffic here somewhat. In fact, I am of the opinion that if the gale that raged over the Lakes from the 8th to 10th, inclusive, had not been accompanied by heavy snow the loss of life would have been small and few, if any, boats would probably have been wrecked, as the storm was no record breaker for wind in this section.

Compared with other storms, particularly those that have occurred in November, we find that the gale on November 21, 1900, was of longer duration and much more destructive in this locality. Damage to the amount of \$300,000 was done to the breakwaters by this storm and the shipping interests suffered a loss of \$100,000. The maximum velocity for this storm was 80 miles from the southwest against 80 miles from the southwest in the recent storm, but the 80 miles in November, 1900, was at an elevation of 206 feet, while the 80 miles during the recent storm was at an elevation of 279 feet, which would make the former about 15 per cent higher. The verifying velocity was raised from 46 miles on the Prudential Building to 54 miles on the Telephone Building, the present location of the local offices.—D. Cuthbertson, Buffalo, N. Y.

NOVEMBER LAKE LEVELS.

The following data are from the report of the United States Lake Survey:

	Lake Superior.	Lakes Michigan and Huron.	Lake Erie.	Lake Ontario.
Above tidewater at New York.....	<i>Fect.</i> 602.91	<i>Fect.</i> 580.44	<i>Fect.</i> 572.28	<i>Fect.</i> 246.06
Above or below:				
Stage of October, 1913.....	-0.12	-0.26	-0.14	-0.23
Stage of November, 1912.....	+0.47	+0.02	+0.36	-0.02
Mean stage of November last 10 years....	+0.54	+0.06	+0.46	+0.39
Highest recorded stage.....	-0.60	-2.48	-1.39	-1.76
Lowest recorded stage.....	+1.41	+1.26	+1.58	+2.65
Probable change during December.....	-0.20	-0.20	-0.10	-0.20

TABLE 1.—Climatological data for November, 1913. District No. 4, Lake Region.

Stations.	Counties.	Elevation, feet.	Length of record, years.	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, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.	
Minnesota.																					
Cloquet	Carlton	800	2	34.5	.....	60	21	2	10	36	0.78	.....	0.37	T.	5	10	7	13	.....	State Forest Exp. Station.
Duluth	St. Louis	1,133	42	35.6	+ 6.3	62	21	6	10	28	0.74	- 0.84	0.38	T.	6	9	7	14	sw.	U. S. Weather Bureau.	
Grand Marais	Cook	606	6	.....	.....	58	21	.....	.....	.....	.....	.....	.....	0	6	6	10	14	nw.	O. W. Nelson.
Stephens Mine	St. Louis	1,500	19	.....	.....	63	21	6	10	38	0.33	- 1.18	0.18	0	2	9	18	3	sw.	Oliver Iron Mining Co.
Two Harbors	Lake	614	19	38.2	+ 7.4	63	21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	G. W. Watts.
Virginia	St. Louis	1,434	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Oliver Iron Mining Co.
Wisconsin.																					
Appleton	Outagamie	795	12	39.3	+ 4.5	66	21	12	10	24	1.59	- 0.23	0.80	3.2	7	13	3	14	sw.	Wm. O. Thiede.	
Ashland	Ashland	618	22	38.8 ^a	+ 7.1	65 ^a	17	13 ^a	15	32 ^a	2.33	+ 0.92	1.26	0.5	6	14	3	13	sw.	Agricultural Exp. Station.	
Bayfield	Bayfield	685	4	40.2	+ 10.2	62	17 [†]	15 ^b	10	29	1.70	- 0.19	0.55	2.0	6	12	10	8	sw.	Rev. Sabinus Mollitor.	
Cecil	Shawano	804	15	38.0	+ 6.2	64	21	15	10	26	0.87	- 0.78	0.35	2.0	6	8	9	13	sw.	Louis W. Schmidt.	
Cornucopia	Bayfield	640	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Reed Fruit Co.
Crandon	Forest	1,050	18	34.5	+ 5.7	56	21	10	9	26	0.83	- 1.20	0.40	0.1	4	9	10	11	nw.	Ralph Van Zile.	
Florence	Florence	1,293	22	35.2 ^b	+ 5.4	58 ^b	19 [†]	11 ^b	10	34 ^b	1.04	- 0.97	0.42	T.	4	12 ^c	0 ^c	15 ^c	nw.	Fred S. Evans.	
Fond du Lac	Fond du Lac	800	27	40.4	+ 6.9	68	21	12	11	32	1.52	- 0.29	1.02	3.0	5	12	3	15	s.	Edward A. Seeley.	
Grand River Locks	Marquette	770	17	41.0	.....	69	21	15	11	32	1.72	- 0.17	1.00	1.0	8	15	4	11	sw.	Jerry Parkinson.
Green Bay	Brown	617	27	39.8	+ 7.3	66	21	18	11	23	1.91	- 0.05	1.06	1.8	11	6	6	18	s.	U. S. Weather Bureau.	
High Falls	Marinette	1,125	1	36.6	.....	65	21	10	7	40	1.23	.....	0.50	T.	7	18	5	7	sw.	No. Hydro-Elec. Pow. Co.
Iron River	Bayfield	1,096	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Winfield E. Tripp.
Kewaunee	Kewaunee	590	4	40.4	.....	68	21	18	11	31	1.11	.....	0.58	0.5	7	7	2	21	sw.	Anton M. Jessen.
Manitowoc	Manitowoc	616	62	41.0	+ 5.4	68	21	18	11	26	1.43	- 0.68	0.61	3.0	7	7	7	16	w.	Miss Johanna Lups.	
Manasha	Winnebago	764	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Geo. T. Allanson.
Menominee Falls	Waukesha	842	4	40.6	.....	68	7	15	11	28	2.01	+ 0.19	1.53	0.2	10	12	6	12	sw.	Arthur H. Christman.
Milwaukee	Milwaukee	681	43	43.4	+ 7.3	70	21	19	11	27	2.17	+ 0.19	1.52	T.	8	9	5	16	sw.	U. S. Weather Bureau.	
New London	Outagamie	762	17	38.5	+ 4.9	65	21	15	10	31	1.43	- 0.41	0.80	3.0	8	11	6	13	sw.	August H. Pape.	
Oconto	Oconto	590	22	39.2	+ 5.2	66	21	14	11	29	1.58	- 0.47	0.52	4.0	7	8	4	18	s.	Harry M. Lord.	
Oshkosh	Winnebago	744	24	38.4	+ 4.3	67	21	10	11	32	1.06	- 0.69	0.55	2.0	5	16	5	9	sw.	Evan Vincent.	
Pine River	Waushara	900	18	39.4	+ 5.7	67	21	13	11	29	1.30	- 0.40	0.62	1.8	6	4	13	13	sw.	Geo. H. Carpenter.	
Plum Island	Door	588	5	40.3	.....	63	22	24	10	23	2.04	.....	0.50	3.0	6	10	6	14	sw.	Wm. Robinson.
Plymouth	Sheboygan	843	3	40.4	.....	68	21	16	11	25	2.29	.....	1.20	3.0	9	11	6	13	sw.	Paul O. Feldraupe.
Port Washington	Osaukee	713	20	41.8	+ 6.0	69	21	17	10	30	2.92	+ 0.90	1.48	1.0	8	9	3	18	se.	Richard C. Kann.	
Racine	Racine	633	16	44.2	+ 5.2	71	21	18	11	31	1.67	- 0.35	0.70	T.	8	13	1	16	sw.	Daniel Davis.	
Ripon	Fond du Lac	1,081	3	39.8 ^a	.....	61 ^b	19	11	10	31 ^b	1.04	.....	1.02	3.0	8	8	6	12	sw.	Ripon College.
Sheboygan	Sheboygan	831	14	42.2	+ 4.7	68	21	18	11	31	1.85	- 0.18	0.92	2.0	8	9	11	10	w.	Louis C. Meyer.	
Sturgeon Bay	Door	600	14	39.0	+ 4.3	66	21	17	10	29	1.24	.....	0.36	0.8	8	9	11	10	w.	Adam N. Dier.
Superior	Douglas	701	4	35.8	.....	63	21	8	10	33	0.66	- 0.28	0.34	0.0	7	11	12	7	sw.	Edward B. Banks.
Waupaca	Waupaca	857	18	38.2	+ 5.1	65	21	14	11	38	1.46	.....	0.78	0.5	7	11	6	13	sw.	James H. Flagg.
Illinois.																					
Chicago	Cook	824	41	47.2	+ 7.9	72	21	20	11	30	1.47	- 1.03	0.88	T.	10	9	5	16	sw.	U. S. Weather Bureau.	
Highland Park	Lake	691	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	T.	6	.....	.....	.....	.....	Jesse L. Smith.
Indiana.																					
Auburn	DeKalb	874	17	44.0 [†]	+ 5.3	70 [†]	19	43 [†]	1.41	- 0.96	0.49	5	Mrs. Josie B. Kuhlman.
Berne	Adams	849	4	45.1	.....	71	22	22	1 [†]	36	2.79	.....	0.73	1.6	15	8	9	13	sw.	Henry M. Rousser.
Fort Wayne	Allen	856	17	45.2	+ 4.6	70	22	23	1	31	2.44	- 0.50	0.70	0.7	15	9	3	18	sw.	U. S. Weather Bureau.	
Hammond	Lake	598	22	47.0	+ 7.8	73	21	12	11	33	1.28	- 1.03	0.48	T.	7	7	7	16	.....	Carson W. Whitney.
Howe	Lagrange	886	8	42.5	.....	70	21 [†]	21	5	37	2.89	.....	1.03	3.0	11	13	0	17	s.	A. A. Wade.
Notre Dame	St. Joseph	712	2	45.4	.....	69	21	21	11	29	2.25	.....	0.80	9.0	11	7	9	14	sw.	U. S. Weather Bureau.
Whiting	Lake	606	4	46.6	.....	71	21	18	11	35	1.20	.....	0.45	T.	9	10	8	12	sw.	D. H. Boyd.
Michigan—Upper Peninsula.																					
Baraga	Baraga	623	11	D. S. S. & A. Ry.
Bergland	Ontonagon	1,300	3	37.3	.....	60	17	7	15	32	1.39	.....	0.51	.....	5	9	2	19	sw.	Frank McMonigal.
Calumet	Houghton	1,246	25	35.3	+ 4.8	60	21	6	10	26	2.12	- 0.61	0.72	4.0	7	8	7	15	w.	E. S. Grierson.	
Chatham	Alger	875	12	38.4	+ 6.5	59	12 [†]	7	13	38	2.40	- 0.60	0.50	9.0	6	12	9	9	.....	Upper Peninsula Exp. Sta.
Dear Park	Luce	610	12	37.2	+ 3.1	56	21	19	16	23	1.30	- 0.93	0.60	10.0	4	7	1	22	s.	Mrs. Sarah E. McCaw.	
Eagle Harbor	Keweenaw	622	14	39.8	+ 4.1	63	21	21	11	25	1.30	- 1.36	0.30	.....	5	11	0	19	sw.	T. J. Bennets.
Escanaba	Delta	612	40	38.2	+ 6.5	62	21	19	9	30	1.54	- 0.70	0.45	2.5	10	8	4	18	sw.	U. S. Weather Bureau.	
Ewen	Ontonagon	1,147	12	35.8	+ 5.9	66	17	5	11	33	3.33	+ 0.94	1.15	12.0	8	9	5	16	sw.	W. B. Hatfield.	
Grand Marais	Alger	610	12	39.0	+ 3.9	59	21	19	9	26	1.10	- 1.35	0.30	5.0	6	2	6	22	nw.	Mrs. Lena Truedell.	
Houghton	Houghton	668	12	37.4	+ 5.8	63	21	16	10	29	2.90	+ 0.10	1.38	11.3	10	6	7	17	w.	U. S. Weather Bureau.	
Humboldt	Marquette	1,536	16	35.9	+ 8.7	60	21 [†]	- 1	15	39	3.05	+ 1.19	2.00	9.0	5	7	4	19	w.	D. S. S. & A. Ry.	
Iron Mountain	Dickinson	1,111	12	39.0	+ 6.6	63	17	15	10 [†]	35	0.89	- 0.80	0.38	0.2	6	10	10	10	sw.	Chapin Mining Co.	
Iron River	Iron	1,504	16	35.6	+ 7.0	59	21	11	15	33	3.60	+ 1.29	0.60	8.0	9	12	9	9	sw.	Victor D. Laing.	
Ironwood	Gogebic	1,520	10	37.5	+ 6.5	59	16 [†]	13	10	30	1.90	- 0.50	0.71	6.0	5	14	7	9	sw.	J. V. Brennan.	
Ishpeming	Marquette	1,536	13	35.4	+ 5.1	57	5 [†]	9	15	27	2.05	- 0.48	0.60	12.3	12	4	11	15	sw.	Cleveland Cliffs Iron Co.	
Ile Royale	Keweenaw	610	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Malone.
Mackinac Island	Mackinac	831	12	38.4	+ 3.6	63	22	19	10	23	1.54	- 1.18	1.00	2.5	7	4	19	7	n.	Mackinac Island State Park Commission.	
Maple Ridge	Delta	.....	7	35.5	.....	60	6 [†]	10	15	38	2.15	.....	0.45	8.0	8	15	1	14	n.	Herman Johnson.
Marquette	Marquette	784	42	38.7	+ 6.8	64	5 [†]	18	9	25	1.										

TABLE 1.—Climatological data for November, 1913. District No. 4—Continued.

Table with columns: Stations, Counties, Elevation, Length of record, Temperature (Mean, Departure from normal, Highest, Date, Lowest, Date, Greatest daily range), Precipitation (Total, Departure from normal, Greatest in 24 hours, Total snowfall, Number of rainy days, Number of clear days, Number of partly cloudy days, Number of cloudy days), Sky, Prevailing wind direction, Observers. Rows include Michigan-Lower Peninsula and Ohio.

TABLE 1.—Climatological data for November, 1913. District No. 4—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	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, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Ohio—Continued.																				
Findlay	Hancock	776	24	45.7	+ 5.6	69	21†	16	12	35	1.99	- 0.78	0.54	.....	14	11	6	13	sw.	Dr. E. A. Moser.
Fremont	Sandusky	623	11	44.8	+ 3.8	75	23†	19	12	35	3.05	+ 0.90	1.80	18.0	8	13	5	12	sw.	E. Stanley Thomas.
Hedges	Paulding	725	19	45.2	+ 5.7	73	22	22	1†	37	2.24	+ 0.27	0.56	3.0	10	10	5	15	w.	Charles Stutzman.
Hillhouse	Lake	997	20	43.0	+ 3.6	72	22	18	12	35	4.90	+ 1.44	2.00	17.0	11	5	12	13	sw.	J. W. Doncaster.
Hiram	Portage	1,280	33	42.4	+ 3.6	69	22	17	12	32	4.26	+ 1.15	2.02	25.5	12	9	11	10	sw.	Prof. G. H. Colton.
Hudson	Summit	1,123	52	42.8	+ 3.2	71	22	17	12	34	2.88	+ 0.51	1.40	22.0	11	8	10	12	nw.	Dr. W. I. Chamberlain.
Lima	Allen	875	14	44.8	+ 3.4	70	22	22	11	34	3.34	+ 1.29	1.20	13.0	11	13	5	12	sw.	Miss Ollie De Long.
Medina	Medina	944	25	42.4	+ 1.6	71	22	16	12	38	3.59	+ 0.78	2.24	23.0	6	9	6	15	s.	F. W. Clark.
Montpelier	Williams	880	21	44.0	+ 3.2	70	22	22	5	35	3.21	+ 0.28	0.93	4.0	10	13	0	17	w.	G. L. Lasker.
Napoleon	Henry	680	26	44.1	+ 6.8	72	22	23	4†	37	2.49	- 0.17	0.75	.....	11	10	0	20	w.	A. C. Senter.
New Bremen	Auglaize	1,038	20	45.2	+ 3.9	73	20	21	1	34	1.91	- 1.02	0.37	2.5	11	10	9	11	sw.	Miss Lillian Grothaus.
North Royalton	Cuyahoga	1,000	20	42.2	+ 2.4	70	22	20	10†	32	3.19	+ 0.51	1.20	18.0	9	10	9	11	sw.	W. S. Edgerton.
Norwalk	Huron	719	27	44.4	+ 3.9	73	22	15	12	39	3.30	+ 0.78	1.00	18.0	15	11	3	16	w.	Giles R. Gregory.
Oberlin	Lorain	855	38	43.6	+ 3.5	74	22	20	12	36	4.31	+ 1.73	1.88	21.5	13	13	1	16	sw.	Prof. F. F. Jewett.
Ottawa	Putnam	720	20	44.2	+ 3.2	71	22	22	12	38	2.19	- 0.48	0.80	T.	10	7	10	13	sw.	Prof. J. T. Mallow.
Sandusky	Erie	629	36	45.0	+ 4.2	73	22	21	12	30	2.25	- 0.49	0.82	8.3	16	7	3	20	sw.	U. S. Weather Bureau.
Tiffin	Seneca	775	31	46.0	+ 5.4	74	23	21	13	32	3.34	+ 0.60	1.40	17.0	13	8	11	11	s.	Prof. T. H. Sonnedecker.
Toledo	Lucas	769	42	45.3	+ 5.6	72	22	22	10	27	2.54	- 0.11	0.66	6.5	16	10	4	16	sw.	U. S. Weather Bureau.
Upper Sandusky	Wyandot	854	30	46.0†	+ 4.8	70b	20	21	13	29b	3.25	+ 0.62	0.92	6.0	9	11	6	13	w.	Robert E. Tracht.
Vickery	Sandusky	588	20	44.2	+ 4.0	74	22	15	13	40	3.83	+ 1.45	1.20	19.0	14	9	7	14	sw.	John W. Barr.
Wapakoneta	Auglaize	898	1	44.1	.....	70	20†	22	1†	3†	2.79	.....	0.78	13.0	14	8	8	14	s.	Dr. William Kayser.
Wauseon	Fulton	730	41	43.8	+ 6.5	71	22	23	2†	38	2.61	- 0.49	0.62	2.4	18	6	8	16	s.	Thomas Mikessell.
Wickliffe	Lake	740	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.00	12.0	9	6	9	15	s.	C. M. Richardson.
Pennsylvania.																				
Erie	Erie	658	38	45.7	+ 4.6	73	21	25	10	28	4.18	+ 0.57	1.27	19.3	15	3	9	18	sw.	U. S. Weather Bureau.
New York.																				
Adams Center	Jefferson	540	22	42.4	+ 7.7	70	21	21	12	35	1.24	+ 1.24	0.96	6.5	11	13	9	8	s.	A. E. Cooley.
Angelica	Allegany	1,840	30	41.0	+ 5.0	68	21	20	15	27	2.01	- 0.45	1.32	0.5	14	1	7	22	w.	C. P. Arnold.
Appleton	Niagara	270	22	44.0	+ 5.5	70	7	23	11	27	3.00	- 0.38	1.50	2.0	11	7	6	17	sw.	H. A. Van Wagoner.
Auburn	Cayuga	715	44	44.2	+ 5.4	66	23	25	27	24	2.45	- 0.58	0.78	T.	13	5	7	18	w.	J. W. Ackerman.
Avon	Livingston	585	18	44.4	+ 6.0	69	27†	25	27	31	1.87	- 0.18	1.11	.....	7	0	6	24	.....	W. G. Markham.
Brookport	Monroe	537	17	42.6	+ 4.1	72	21	23	11	37	1.96	- 1.79	1.02	0.5	8	7	4	19	sw.	C. O. Beaman.
Buffalo	Erie	767	62	43.4	+ 4.1	71	21	26	10	23	3.43	+ 0.08	1.08	6.2	16	3	11	16	sw.	U. S. Weather Bureau.
Canisius College	do.	0	0	44.3	.....	70	21	25	10†	31	4.01	.....	1.00	.....	16	4	3	23	sw.	Michael J. Ahern, S. J.
Canton	St. Lawrence	448	19	40.0	+ 6.1	66	8	18	28	33	3.72	- 0.69	1.08	4.0	14	7	8	15	sw.	Do.
Cape Vincent	Jefferson	246	8	42.0	.....	61	8	22	28	25	3.10	.....	1.25	.....	8	6	7	17	sw.	J. H. Grapotte.
Chazy	Clinton	151	13	39.7	+ 5.8	64	7	15	26	39	0.22	- 1.30	0.10	1.0	3	12	8	10	s.	W. R. North.
Chestnut Lawn	Wyoming	1,090	1	42.8	.....	71	21	24	15†	38	2.41	.....	1.40	1.5	14	12	8	10	sw.	Charles Peterson.
Dannemora	Clinton	1,490	8	37.8	.....	71	24	14	27†	37	2.36	.....	1.02	7.9	9	24	5	1	w.	Dr. D. L. Van Derzee.
Elba	Genesee	500	14	41.6	+ 3.6	69	21	19	10†	34	2.59	+ 0.52	1.08	3.0	10	15	5	10	sw.	Joseph S. Willford.
Fayetteville	Onondaga	530	12	43.6	+ 5.7	73	22	20	27	42	2.35	- 0.26	1.21	T.	11	9	11	10	se.	Dana H. Wells.
Gabriels	Franklin	1,729	11	35.8	.....	65	7†	11	28	37	2.56	.....	0.78	4.0	10	11	2	17	w.	Gabriels Sanitarium.
Geneva	Ontario	550	0	44.5	.....	73	22	22	27	33	2.41	.....	1.37	T.	10	.....	.....	.....	.....	Agricultural Exp. Station.
Harkness	Clinton	622	11	40.3	+ 5.5	71	6	15	28	40	1.30	- 0.20	0.45	1.0	8	25	1	4	w.	J. V. Harkness.
Hemlock Lake	Livingston	900	15	43.8	+ 4.8	66	21	25	27	24	2.43	+ 1.74	1.34	1.0	11	10	4	16	s.	W. P. McGrady.
Hunt	do.	1,321	14	43.6	+ 4.0	74	22	22	27	44	2.55	- 0.67	1.50	.....	5	6	9	15	sw.	B. S. Barager.
Ithaca	Tompkins	928	35	43.6	+ 6.0	71	22	23	27	37	2.21	+ 0.37	1.51	1.4	10	7	7	16	nw.	U. S. Weather Bureau.
Keena Valley	Essex	1,000	15	39.3	+ 5.4	80	6	12	28	56	2.64	+ 0.02	0.65	3.0	12	15	6	9	nw.	E. R. Wells.
King Ferry	Cayuga	.....	13	.....	.....	.....	.....	.....	.....	.....	2.39	+ 0.20	1.38	0.8	8	7	9	14	s.	L. A. Goodyear.
Lake George	Warren	350	16	41.6	+ 4.6	70	20	17	27	33	1.69	- 1.38	0.81	3.2	7	10	10	10	s.	Chas. Forsell.
Lake Placid Club	Essex	1,864	5	31.7	.....	60	7	10	27†	34	4.08	.....	1.34	13.2	17	4	18	8	nw.	H. Van Hovenberg.
Lauterbrunnen	Wyoming	1,260	1	43.0	.....	70	21	24	27	39	2.33	.....	1.33	1.5	12	8	5	17	sw.	J. O. Howard.
Lockport	Niagara	520	26	43.6	+ 1.8	71	21	24	1†	31	2.58	+ 0.21	1.12	3.0	8	12	7	11	sw.	R. N. Clark.
Lowville	Lewis	900	46	41.6	+ 7.1	66	22†	18	27	31	3.94	+ 0.50	1.02	4.5	13	7	16	7	w.	Prof. W. F. H. Breeze.
Mora	Franklin	200	13	39.8	+ 5.2	66	7†	15	28	32	2.62	+ 0.14	0.60	3.0	9	2	16	12	sw.	C. E. McBride.
Nehasane	Hamilton	1,750	5	35.0	.....	61	7	12	15†	41	4.94	.....	1.28	10.3	15	9	10	11	nw.	L. W. Brown.
North Lake	Herkimer	1,822	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. F. Redmond.
Ogdensburg	St. Lawrence	175	29	40.1	+ 4.4	64	8	19	28	30	3.17	+ 0.63	0.90	3.5	9	7	13	10	s.	State Hospital.
Old Forge	Herkimer	1,733	5	36.6	.....	63	7	13	27	42	5.17	.....	1.65	5.2	13	14	5	11	w.	Mrs. S. W. Nelson.
Oswego	Oswego	335	43	44.1	+ 5.0	69	22	27	29	2.49	- 0.92	.....	1.09	0.5	14	2	11	17	s.	U. S. Weather Bureau.
Otto	Cattaraugus	1,410	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. J. Winks.
Palarmo	Oswego	460	54	.....	.....	.....	.....	.....	.....	.....	2.85	- 0.76	0.56	2.5	12	10	7	13	se.	Wm. A. Bartlett.
Perry City	Schuyler	1,038	33	39.2	+ 3.1	69	22	10	27	39	2.61	+ 0.01	1.68	0.4	11	4	5	21	s.	W. H. Jeffers.
Philadelphia	Jefferson	485	7	41.4	.....	66	23	18	12	31	3.33	.....	0.65	6.0	13	3	18	9	se.	E. D. Babcock.
Potsdam	St. Lawrence	300	37	39.4	+ 5.7	68	10	18	28	31	2.77	+ 0.55	0.85	2.0	9	9	.....	.....	.....	A. E. Sutherland.
Ranger School	do.	1,760	0	36.4	.....	65	8	15	27	35	3.76									

TABLE 2.—Daily precipitation for November, 1913. District No. 4, Lake Region.

Stations.	Watershed.	Day of month.																													Total.			
		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		
<i>Minnesota.</i>																																		
Cloquet.....	Lake Superior.	.08							.03																									
Duluth.....	do.	T.	.07				.02		.03											.02	T.	.37	.09					T.	T.	.21				
Grand Marais.....	do.			.15			.04															.40	.07											
Stephens Mine.....	do.																														.62	.04		
Two Harbors.....	do.																					.18	T.								.15			
Virginia.....	do.																																	
<i>Wisconsin.</i>																																		
Appleton.....	Fox.	.08					T.	.01	.28												.80		.05	T.				.01		.36				
Ashland.....	Lake Superior.		.08					1.28	.05												T.	.39	.12							.43				
Bayfield.....	do.		.02					.55	.50												T.	.15	.02							.37	.09			
Cecil.....	Fox.	.13	T.				T.	.04	.35	T.	T.										.15		.10						T.	.10				
Cornucopia.....	Lake Superior.																																	
Crandon.....	Fox.							.20															.40	.02							.21			
Florence.....	Menomonee							.39	.06		T.										T.	.42									.17			
Fond du Lac.....	Fox.	.04	T.				T.	.30													T.	1.02						T.	.08	.08				
Grand River Locks.....	do.	.06	T.				T.	.08													T.	1.00	T.	.06				T.	.08	.10	.30	.04		
Green Bay.....	Lake Michigan.	.01	T.				T.	.02	.06	.28											.02	1.04	.01	.06	T.			.01	T.	.35	.07			
High Falls.....	do.	T.	T.				T.	.05	T.	T.												.50	.02	.21	.02		T.		T.	.34	.09			
Iron River.....	Lake Superior.							.06	.11	.05												.58								.21	.08			
Keweenaw.....	Lake Michigan.	.02						.04														.61	.05							.32				
Manitowoc.....	do.	.10	T.					.03	.09													.76		.04	T.			.01	.05	.05				
Manasha.....	Fox.							.10	.08													.92	1.53		.06			.05	.02	.07	.25	.43		
Menomonee Falls.....	Lake Michigan.							.21	T.	T.												.37	T.		.01		T.	.03	.02	T.	.09	.49		
Milwaukee.....	do.	T.	T.					.23														.80		T.					.40	T.	1.43			
New London.....	Fox.	T.						.06	.40													.52		.13						.26	.08			
Oconto.....	Lake Michigan.	.09						.20														.49	.15							.50	.02			
Oshkosh.....	Fox.	.12						.18														.08	.55						.10	T.	1.00			
Pine River.....	do.	.07	T.					.20		T.												.62	T.	.01				.08	T.	.34	T.			
Plum Island.....	Lake Michigan.		.50					.38														.49	.15						.10	T.	1.00			
Plymouth.....	do.	.07						.02	.40													.01	1.20					T.	.10	.02	.38	.09		
Port Washington.....	do.							.20	.10													.30	1.45		.30				.12	.22	2.92			
Racine.....	do.							.15														.70			.12	.05		T.	.02	.03	.17	.40		
Ripon.....	Fox.							.30														1.02		.02				.01	.09	.01	.17	.04		
Sheboygan.....	Lake Michigan.	.30						.30	T.	T.												.93	T.	.10				T.	.10	.33	T.	1.85		
Sturgeon Bay.....	do.	.08	T.					.27	.09	.02	T.											.36	T.	.02				T.	.03	.31	.09	1.24		
Superior ||.....	Lake Superior.		.04					.06														.02		.34	T.	T.			.01	.12	.07	0.66		
Waupaca.....	Fox.	.05						.03	T.													.78		.11					.07	.38		1.46		
<i>Illinois.</i>																																		
Chicago.....	Lake Michigan.							.07	T.	T.			T.	.02								.01	.02	T.	T.	.10		.11	.03	.21	.37	.53		
Highland Park.....	do.							.41	T.	T.			T.	.02								.02		T.				.04	T.	1.20	.29	.25		
<i>Indiana.</i>																																		
Auburn ||.....	Maumee.....							.27	T.					.26	T.															.49	.14	1.41		
Berne.....	do.							.06	.78	.08	.01			.23	.17	.07	.09												.10	.02	.04	.47	.67	
Fort Wayne.....	do.		T.					.41	.02	.08	.01		.10	.17	.02	.09						T.	.22	T.		T.		.03	.03	.19	.02	.02	.38	.70
Hammond.....	Lake Michigan.							.10	T.	T.				.10								.05			.48				.14	.05	.36		1.28	
Howe ||.....	St. Joseph.....							.35		.30				1.03	.05	T.						.03	.30	T.	.48			T.	.10	.04	.54	.21	2.89	
Notre Dame.....	do.							.25	.50	.22	T.			.37	.05	.01						T.	.02	.02		.29		T.	.04	T.	.33	.20	2.25	
Whiting.....	Lake Michigan.							.03								.01						.01	T.					.15	.01	.01	.28	.45	1.20	
<i>Michigan—Upper Peninsula.</i>																																		
Baraga.....	Lake Superior.							.20	.40	.10	.10													.10										
Bergland.....	Ontonagon.		.10					.51	.38		T.												.22							.18	T.	1.39		
Calumet.....	Lake Superior.		.28					.32	.52	T.	T.											.50	.50	.22	.03	.03				.72		2.12		
Chatham.....	do.							.30	.30	.30	.30												.10											
Deer Park.....	do.							T.	T.	T.	.60	.40																		.20		1.30		
Eagle Harbor.....	do.		.20					.30	T.	T.	.30											T.	.20							.30		1.30		
Escanaba.....	Lake Michigan.	.02	T.				.01	.26	.24	T.	.09											.14	.01	.31	T.			.01	.45	T.	1.54			
Ewan.....	Ontonagon.	T.	.10	T.				.62	.81	.19	.20												1.15	T.	T.				.24	.02	3.33			
Grand Marais.....	Lake Superior.	T.	.14					.30	.30	.20	.20												.05	.05				T.	T.	.20	1.10			
Houghton.....	do.	T.	.14					.37	.71	.09	.16																	T.	.57	.02	2.90			
Humboldt.....	Escanaba.							.30	.10	.50													2.00	.15								3.05		
Iron Mountain.....	Menominee.							.10	.15													.11		.38	.06					.09		0.89		
Iron River.....	do.							.25	.60	.40	.40											.30		.35	.60	T.		T.	.30	.40	3.60			
Ironwood.....	Lake Superior.		T.					.42	.71														.45	T.					.27	.05	1.90			
Ishpeming.....	Escanaba.		.01	.01				.08	.60	.10	.50	.02											.04		.32	.22			T.	.10	.05	2.05		
Ile Royale.....	Lake Superior.							.10	.05	T.	.10											1.00		.07	.19	T.				.03		1.54		
Mackinac Island.....	Lake Huron.							.25	.30	.20	.40												.10		.45	.05				.40		2.15		
Maple Ridge.....	Lake Michigan.							.08	.41	.09	.30												.04	T.	.15	.18				.05		1.33		
Marquette.....	Lake Superior.		.03					.14	.30														.45		.11					.32		1.32		
Menominee.....	Menominee.							.20	.87	.07	.53												.04	.17	.02	.26	.06	T.		.15		2.49		
Munising.....	Lake Superior.		.13					.18	.53	.10	.90	T.											.25		.33					T.	.24	2.78		
Newberry.....	Tequamenon.	.02	.16	T.				.18	.57	.10	.90	T.																						
Ontonagon.....	Lake Superior.							.20																						.10				
Powers.....	Lake Michigan.																																	

TABLE 3.—Maximum and minimum temperatures at selected stations for November, 1913. District No. 4, Lake Region.

Table with columns for Date, Duluth, Minn., Wisconsin (Florence, Green Bay, Milwaukee), Chicago, Ill., Fort Wayne, Ind., Michigan—Upper (Escanaba, Ewen, Houghton, Marquette, Salt Sta. Maria), and Michigan—Lower (Alpena, Battle Creek, Cadillac). Rows show daily temperature data from 1 to 30, plus monthly means.

Table with columns for Date, Michigan (Detroit, Muskegon, Saginaw, west side, Cleveland, Lima, Sandusky, Toledo), Erie, Pa., New York (Buffalo, Canton, Rochester, Syracuse), and Vermont (Burlington, Northfield). Rows show daily temperature data from 1 to 30, plus monthly means.

a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.