CLIMATOLOGICAL DATA FOR SEPTEMBER, 1913.

DISTRICT NO. 4, THE LAKE REGION.

Prof. HENRY J. COX, District Editor.

GENERAL SUMMARY.

In practically all sections of the Lake Region the first week of September, 1913, was characterized by temperatures much above the normal and a continuation of the absence of precipitation, this latter condition being felt most severely in eastern and southern portions where the drought of some three months duration was still acute, it being the driest summer season in many years. Following this period of hot dry weather, the temperatures averaged generally below the normal during the remainder of the month, cool spells being quite frequent with days of moderate warmth between. The first general rains, however, did not occur until the middle of the month and together with those which followed during the third decade effectually broke the long continued drought. At Erie, Pa., September was the sixth consecutive month with precipitation below the normal, the accumulated deficiency since April 1, 1913, being 5.21 inches. In the States of New York and Vermont the rainfall for the past five and four months, respectively, was also below the normal, the deficiency in the former State averaging 4.54 inches and in the latter, 5.06 inches, for the respective periods. Although during the latter half of the month rains were frequent and well distributed, the total monthly fall was slightly below the average in all portions of the district, except Wisconsin and upper Michigan.

The month was unusually free from severe storms of any description, the only one of consequence being that of the 20th-21st. This storm caused heavy northwest gales with snow over Lake Superior and northern Lake Michigan, a maximum velocity of 48 miles an hour being reported from Duluth, Minn.

Taken as a whole, the month was one of pleasant weather, and conditions in most localities were favorable for outdoor work and the gathering of fall crops.

The following table summarizes the chief features of meteorological 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.	With 0.01 inch or more precipitation.	Number of days. Clear.	Partly cloudy.	Cloudy.	Prevailing wind direction.
Minnesota	54.6	−0.7	15.8	2.83	−1.65	1.22	T.	8	16	6	8	ne.
Wisconsin	59.6	−0.8	15.4	3.72	+0.38	2.60	0.1	9	15	6	9	se.
Illinois	65.4	+0.8	12.6	1.49	−1.53	0.93	0	9	12	10	8	se.
Indiana	63.5	−0.9	21.4	2.14	−0.51	1.22	0	9	14	6	10	ne.
Upper Michigan	55.9	0.0	16.3	3.83	+0.23	2.00	0.4	9	14	6	10	s.
Lower Michigan	61.2	−0.4	19.5	1.89	−0.98	1.65	0	7	15	7	8	sw.
Ohio	63.5	−1.5	16.6	2.22	−0.61	1.25	T.	9	14	7	9	sw.
Pennsylvania	62.6	−1.3	15.5	1.69	−1.80	1.35	0	6	8	12	10	s.
New York	58.9	−1.9	19.8	2.21	−0.72	2.77	T.	7	15	9	6	sw.
Vermont	58.4	−1.3	25.4	2.60	−0.43	2.42	0	7	14	7	9	s.

TEMPERATURE.

During the exceptionally hot weather mentioned above, from the 1st to the 7th, inclusive, maximum temperature records for September were broken in the western and southern portions of the district. At Appleton, Wis., 101° occurred on the 2d, this reading being the highest temperature ever recorded in September in that portion of Wisconsin which drains into the Lakes. At Chicago, Ill., new maximum temperature records were established for the individual days of September 1 and 2, with high readings of 95° and 97°, respectively. Unusually high maximums for the season were also reported from Indiana and Ohio during this period, and the following table gives the extremes in 1913 for Indiana as compared with those in past years:

	September, 1913.	Previous record.
Auburn	98° on the 2d	97° on Sept. 16, 1897.
Berne	99° on the 2d	94° on Sept. 10, 1912.
Hammond	102° on the 2d	100° on Sept. 5, 1899.
Whiting	100° on the 2d	95° on Sept. 6, 1912.

In Ohio maximum temperatures of 100° occurred at Findlay, Montpelier, Napoleon, and Norwalk on the 2d and at Hedges on the 3d, and previous high records were broken or equaled at eight additional stations. The highest temperature reported in New York State was 100° at Keene Valley on the 3d, this reading being 4° higher than the previous highest maximum in the portion of the State lying within this district.

Following this heated term cooler weather overspread the greater portion of the Lake Region, and on the morning of the 10th heavy frosts occurred over Vermont and eastern New York. This cool period was quickly followed by another cool high area which developed marked intensity during the night of the 13th, and heavy and killing frosts—the most severe of the season thus far—occurred on the mornings of the 14th and 15th over all portions except the extreme west and south. These frosts were remarkably early and caused much injury to fruit and garden truck, particularly in the interior of New York State. In the vicinity of Rochester, N. Y., these frosts are said to have been the heaviest experienced by gardeners in September in years, and melons, cucumbers, and tomatoes, and even the more hardy vegetables were seriously damaged; while in the tobacco region near Syracuse, N. Y., it was reported that several thousand dollars damage was done to that crop. In Michigan, also, considerable injury occurred as a result of the heavy frost of the 14th, and the corn, potato, and bean crops were reported practically destroyed in the northeastern portion of that State. Freezing temperatures were general during this period, and at Northfield, Vt., the minimum of 22° on the 15th was the lowest ever observed at that station in September.

Another cool period overspread the district from the 21st–23d, during which heavy and killing frosts occurred over Indiana and Ohio, much damage being done to late corn and vegetables. The night of the 22d–23d was one of the coldest on record in September in those States, the lowest readings being 28° at Auburn, Ind., and at Bucyrus and Medina, Ohio.

During the remainder of the month the temperature was close to the normal, with a return to more seasonal conditions, although September, as a whole, averaged slightly below the normal, with the greatest departures over eastern sections.

PRECIPITATION.

The lack of sufficient precipitation which was felt over most of the district at the close of August continued throughout the first half of September, and this need of moisture was further increased during the first week of the month by reason of the unusual period of heat, mentioned in the discussion on temperature. Except in the extreme western portions, the showers which fell during the first 15 days of the month were light and local in character. On the 16th and 17th, under the influence of a slow-moving disturbance from the southwest, general rains set in over practically all sections, and during the third decade, especially from the 20th to the 25th, inclusive, showers were again general. These rains which were excessive at many points materially relieved the drought conditions of the past summer and in portions of Vermont and New York terminated one of the driest seasons on record, as stated before. At Oswego, N. Y., on the 21st–22d, 2.12 inches of rain fell, constituting about two-thirds of the total fall for the month. Heavy rains also occurred on the same dates at Ithaca, King Ferry, and Palermo, N. Y. On the 30th heavy thunderstorms, resulting in liberal rains, were reported along the southern border of the Lake Region, and at Fort Wayne, Ind., 0.70 inch of rain fell within 10 minutes, the total rainfall of 1.22 inches covering a period of about two hours.

Snow.—Snow was reported from four stations in Minnesota, quite generally over upper Michigan and the north and central portions of Wisconsin, and from two stations in the elevated sections of New York, the amounts in all States being confined mostly to traces and occurring on the 21st, 22d, or 23d. The heaviest fall, 3 inches, was reported from Iron River, Wis., on the 21st, and at several points in northern Wisconsin the amounts ranged from 2 to 2.5 inches. At Duluth, Minn., the snow of the 21st was the earliest on record, none having been observed in past Septembers prior to the 24th.

MISCELLANEOUS.

Unusually fine auroral displays were observed at Duluth, Minn., on the 7th and 8th.

Dense fog occurred on the Detroit River at Detroit, Mich., on the 7th, 11th, and 29th, navigation being seriously hindered on all days, especially on the 11th and 29th, when several steamers grounded in the Livingston Channel.

This was the first September in 30 years in which no thunderstorms were recorded at Buffalo, N. Y.

SEPTEMBER 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.
	Feet.	*Feet.*	*Feet.*	*Feet.*
Above tide water at New York	602.83	580.93	572.76	246.74
Above or below:				
Stage of August, 1913	+0.09	−0.31	−0.48	−0.57
Stage of September, 1912	+0.30	+0.24	+0.26	+0.36
Mean stage of September last 10 years	+0.05	+0.05	+0.33	+0.46
Highest recorded stage	−1.25	−2.50	−1.18	−0.87
Lowest recorded stage	+1.34	+1.27	+1.48	+2.74
Probable change during October	0.00	−0.20	−0.30	−0.30

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

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Number of rainy days, 0.01 inch or more.	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 clear days.	Number of partly cloudy days.	Number of cloudy days.		
Minnesota.																				
Cloquet	Carlton	800	2	53.4	.....	91	1	21	23	40	3.62	.....	1.13	0	8	15	5	10	e.	State Forest Exp. Station.
Duluth	St. Louis	1,113	42	53.9	− 2.8	80	2	28	22	26	3.32	− 0.23	1.22	T.	9	12	5	13	ne.	U. S. Weather Bureau.
Floodwood	....do	1,257	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. H. Schussler.
Grand Marais	Cook	.....	.....	54.4	.....	85	2	30	22	32	3.20	.....	0.62	T.	8	16	7	7	w.	E. L. Derry.
Stephens Mine	St. Louis	1,500	6	54.3	.....	89	1	26	23	53	2.70	.....	1.00	T.	6	20	2	8	s.	Oliver Iron Mining Co.
Two Harbors	Lake	614	19	55.9	− 0.3	84	8	25	22	36	0.96	− 3.53	0.40	0	7	11	13	6	ne.	G. W. Watts.
Virginia	St. Louis	1,434	19	55.6	+ 1.1	90	1	29	22†	41	3.19	− 1.18	1.12	T.	11	21	3	6	se.	Oliver Iron Mining Co.
Wisconsin.																				
Appleton	Outagamie	795	12	62.1	+ 0.2	101	2	32	23	32	3.40	+ 0.13	1.30	T.	9	20	3	7	se.	Wm. O. Thiede.
Ashland	Ashland	615	22	55.0	− 5.4	96	1	23	23	50	4.68	+ 0.93	1.58	T.	11	15	3	12	sw.	Agricultural Exp. Station.
Bayfield	Bayfield	635	4	57.8	− 1.8	92	1	30	23	37	5.73	+ 3.15	1.49	T.	14	15	3	12	ne.	Rev. Sabinus Mollitor.
Cecil	Shawano	804	15	61.0	− 1.7	95	2	34	21	39	5.70	+ 2.46	2.13	T.	13	16	10	4	se.	Louis W. Schmidt.
Cornucopia	Bayfield	640	1	56.3	.....	85	1	29	23	33	3.15	.....	0.85	T.	13	13	8	9	ne.	Reed Fruit Co.
Crandon	Forest	1,060	18	56.5	− 1.2	87	6	25	23	38	3.84	+ 0.40	1.66	T.	7	19	4	7	se.	Frank Shoemaker
Florence	Florence	1,293	22	55.4	− 1.0	89	1	28	23	36	4.87	+ 1.75	2.45	T.	5	17	3	10	nw.	Fred S. Evans.
Fond du Lac	Fond du Lac	800	27	60.2[b]	− 1.0	98[b]	2	25[b]	23	39[b]	3.57	+ 0.66	0.96	T.	9	18[c]	0[c]	9[c]	e.	Edward A. Seeley.
Grand River Locks	Marquette	770	17	61.0	.....	98	2	24	23	41	3.53	− 0.51	1.35	T.	10	18	4	8	e.	Jerry Parkinson.
Green Bay	Brown	617	27	59.8	+ 0.7	94	2	36	20	28	3.56	+ 0.44	1.85	0	9	7	11	12	se.	U. S. Weather Bureau.
High Falls	Marinette	1,125	1	59.1	.....	97	2	33	23	41	3.71	.....	1.60	0	9	19	3	8	se.	No. Hydro-Elec. Pow. Co
Iron River	Bayfield	1,096	4	59.2[c]	.....	95	1	.....	.....	46[c]	4.20	.....	1.40	3.0	12	18	4	8	s.	Winfield E. Tripp.
Kewaunee	Kewaunee	590	4	59.9	.....	94	7	33	23	35	2.58	.....	0.85	0	10	13	3	14	s.	Anton M. Jessen.
Manitowoc	Manitowoc	616	62	59.8	0.0	93	7	34	23	27	2.94	− 0.18	1.10	0	7	12	7	11	s.	Miss Johanna Lups.
Menasha	Winnebago	764	16	.....	.....	.....	.....	.....	.....	.....	3.17	− 0.57	1.55	T.	5	19	3	8	se.	Geo. T. Allanson.
Menomonee Falls	Waukesha	842	4	60.3[a]	.....	93[a]	2	27[a]	23	33[a]	3.38	.....	1.24	T.	10	17[a]	5[a]	7[a]	se.	Arthur H. Christman.
Milwaukee	Milwaukee	681	43	62.8	+ 1.3	96	2	37	22	25	2.05	− 0.87	0.77	0	8	11	10	9	se.	U. S. Weather Bureau.
New London	Outagamie	762	17	59.5	− 1.0	94	2	29	23	42	4.43	+ 0.89	2.60	T.	7	11	7	12	se.	August H. Pape.
Oconto	Oconto	590	22	60.0	− 0.6	93	2	36	23	35	4.95	+ 1.64	1.80	0	4	20	2	5	s.	Harry M. Lord.
Oshkosh	Winnebago	744	24	60.8	− 1.5	96	2	28	23	34	3.69	+ 0.63	1.74	0	7	20	6	4	se.	Evan Vincent.
Pine River	Waushara	900	18	60.8	− 0.2	98	2	28	23	36	3.84	+ 0.36	1.62	T.	8	9	16	5	se.	Geo. H. Carpenter.
Plum Island	Door	588	5	59.6	.....	90	7	34	21	25	4.77	.....	1.32	0	9	16	6	8	s.	Wm. Robinson.
Plymouth	Sheboygan	843	3	60.0	.....	96	2	29	23	28	2.78	.....	1.15	T.	11	15	6	9	se.	Paul O. Feldrappe.
Port Washington	Ozaukee	713	20	60.6	− 0.7	94	7	31	23	30	1.61	− 1.56	0.72	0	6	21	1	8	se.	Richard C. Kann.
Racine	Racine	633	16	64.6	+ 0.4	98	2	33	23	29	2.08	− 1.52	0.74	0	9	15	8	7	se.	Daniel Davis.
Ripon	Fond du Lac	1,031	3	61.6	.....	97	2	29	23	32	4.38	.....	1.35	0	10	18	4	8	se.	Ripon College.
Sheboygan	Sheboygan	831	14	62.0	0.0	98	2	34	23	28	3.43	− 0.22	1.36	0	8	15	7	8	se.	Louis C. Meyer.
Sturgeon Bay	Door	600	14	58.0	− 1.5	93	7	37	22†	32	4.67	.....	1.21	0	13	13	13	4	se.	Adam N. Dier.
Superior	Douglas	701	4	54.4	.....	78	7	28	23	31	3.48	.....	1.62	0	8	12	10	8	ne.	Edward B. Banks.
Waupaca	Waupaca	857	18	60.0	− 0.6	99	2	26	23	39	4.54	+ 0.85	1.67	0	9	13	9	8	sw.	James H. Flagg.
Illinois.																				
Chicago	Cook	823	43	65.4	+ 0.8	97	2	38	22	24	1.49	− 1.53	0.93	0	9	12	10	8	se.	U. S. Weather Bureau.
Indiana.																				
Auburn	Dekalb	874	17	61.4	− 1.3	98	2	28	23	48	2.32	− 0.33	0.55	0	9	16	2	12	sw.	Mrs. Josie B. Kuhlman.
Berne	Adams	849	4	64.1	.....	99	2	30	23	46	2.14	.....	0.64	0	11	13	6	11	ne.	Henry M. Reusser.
Fort Wayne	Allen	856	17	63.1	− 1.4	96	2	34	23	34	3.01	− 0.20	1.22	0	10	11	9	10	ne.	U. S. Weather Bureau.
Hammond	Lake	598	22	65.6	0.0	102	2	36	27	47	1.85	− 0.99	0.95	0	7	11	9	10	.....	Carson W. Whitney.
Howe	Lagrange	886	8	62.9	.....	93	2	31	23	50	2.33	.....	0.81	0	6	17	0	13	e.	A. A. Wade.
Notre Dame	St. Joseph	712	2	62.9	.....	97	2	34	23	33	2.17	.....	0.74	0	13	13	12	5	e.	U. S. Weather Bureau.
Whiting	Lake	606	4	64.6	.....	100	2	34	23	37	1.14	.....	0.38	0	9	16	6	8	ne.	D. H. Boyd.
Michigan—Upper Peninsula.																				
Baraga	Baraga	623	11	.....	.....	.....	.....	.....	.....	.....	3.00	+ 0.90	0.80	0	8	13	0	17	.....	Duluth, S. S. & A. Ry.
Bergland	Ontonagon	1,300	3	54.6	.....	91	7	27	23	41	5.43	.....	1.75	.....	7	18[a]	0[a]	11[a]	nw.	Frank McMonigal.
Calumet	Houghton	1,246	25	54.0	− 1.6	87	1	30	22	33	3.08	− 0.55	0.86	0.5	9	16	6	8	e.	E. S. Grierson.
Chatham	Alger	875	12	52.8	− 2.1	87	5	24	12	45	3.70	− 0.21	1.00	T.	8	13	6	11	w.	Upper Peninsula Exp. Sta.
Deer Park	Luce	610	12	55.9	− 0.7	90	2	32	14	32	2.08	− 0.77	0.50	0	8	17	1	12	se.	Mrs. Sarah E. McGaw.
Eagle Harbor	Keweenaw	622	14	55.6	− 0.8	87	1	34	22	28	3.60	+ 0.24	1.80	0	8	21	0	9	se.	T. J. Bennets.
Escanaba	Delta	612	40	56.0	− 0.9	85	7	30	23	25	3.54	− 0.04	1.72	0	8	10	12	8	s.	U. S. Weather Bureau.
Ewen	Ontonagon	1,147	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. B. Hatfield.
Grand Marais	Alger	610	12	56.2	− 1.3	85	2	35	14	32	3.53	+ 1.09	0.90	0	12	17	4	9	s.	Mrs. Lena Truedell.
Houghton	Houghton	668	12	55.6	− 0.9	94	1	33	22	36	4.01	+ 0.47	1.37	2.5	12	9	10	11	e.	U. S. Weather Bureau.
Humboldt	Marquette	1,536	16	55.1[a]	+ 1.8	90	1	24[b]	14	45[b]	4.08	+ 0.69	2.00	2.0	5	21	0	9	w.	Duluth, S. S. & A. Ry.
Iron Mountain	Dickinson	1,111	12	57.0[a]	+ 0.7	90[a]	1	28[a]	23	38[a]	4.46	+ 1.63	1.52	T.	9	14	8	8	sw.	Chapin Mining Co.
Iron River	Iron	1,504	16	54.7	+ 0.2	92	1	30	13†	44	6.09	+ 2.30	1.35	T.	10	20	4	6	nw.	Victor D. Laing.
Ironwood	Gogebic	1,520	10	56.3	+ 2.4	92	1	27	23	34	5.91	+ 2.36	1.93	2.0	10	16	6	8	n.	J. V. Brennan.
Ishpeming	Marquette	1,536	13	54.8	− 0.5	89	1	29	23	36	4.53	+ 0.95	1.62	2.0	12	11	11	8	s.	Cleveland Cliffs Iron Co.
Isle Royale	Keweenaw	610	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Malone.
Mackinac Island	Mackinac	831	12	57.6	− 0.6	85	2	37	14	26	1.62	− 3.57	0.57	0	7	3	12	15	e.	Mackinac I. State Park Com.
Maple Ridge	Delta	.....	7	54.7	.....	87	1†	28	23	39	3.35	.....	1.30	0	7	19	4	7	n.	Herman Johnson.
Marquette	Marquette	734	42	56.2	− 0.6	92	1	34	23	32	3.76	+ 0.26	1.38	0.1	13	9	9	12	nw.	U. S. Weather Bureau.
Menominee	Menominee	581	14	59.6	0.0	92	7	36	22†	27	4.84	+ 1.33	1.53	0	6	20	3	7	sw.	Chief of Fire Dept.
Munising	Alger	631	16	55.8	+ 0.4	88	2	29	14	35	3.77	+ 0.17	1.07	0	12	14	6	10	s.	Albert Oas.
Newberry	Luce	773	11	55.6	+ 2.8	87	2†	29	14	30	2.03	− 0.41	0.45	0	11	14	6	10	s.	John Brown.
Ontonagon	Ontonagon	1,147	12	58.4[b]	.....	92[b]	7	32[b]	24	32[b]	5.20	.....	1.30	0	9	8	8	14	ne.	T. A. Green.
Powers	Menominee	868	13	58.4	+ 1.2	93	6	31	22†	44	.....	.....	.....	.....	.....	6	19	5	n.	Chicago & N. Ry.
St. Ignace	Mackinac	593	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Duluth, S. S. & A. Ry.
Sault Ste. Marie	Chippewa	614	25	55.2	+ 0.9	82	2	32	14	26	2.36	− 1.10	1.23	0	11	12	5	13	se.	U. S. Weather Bureau.
Seney	Schoolcraft	730	1	57.2	.....	95	2	27	13	44	1.67	.....	0.37	0	10	16	4	10	sw.	Western Land Securities Co.
Thomaston	Gogebic	1,347	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Duluth, S. S. & A. Ry.
Victoria	Ontonagon	1,263	3	56.1	.....	93	1	30	21†	39	5.92	.....	1.95	T.	9	16[c]	4[c]	7[c]	nw.	R. S. Schultz, jr.
Watersmeet	Gogebic	.....	4	55.0	.....	92	1	26	18†	44	4.71	.....	1.74	0	11	12	7	11	s.	B. N. Grant.
Whitefish Point	Chippewa	610	13	55.2	− 0.7	79	2	34	27	31	1.46	− 2.12	0.30	0	11	15	3	12	se.	Robert Carlson.
Michigan—Lower Peninsula.																				
Adrian	Lenawee	770	35	64.0	− 1.1	104	2	30	23	47	1.94	− 1.44	0.85	0	5	11	12	7	e.	H. E. Hubbard.
Allegan	Allegan	698	22	64.4	+ 1.8	99	2	35	27	45	2.59	− 0.53	0.71	0	8	7	12	11	w.	Pere Marquette R. R.
Alma	Gratiot	750	26	60.0	− 0.8	94	2	32	14	39	2.30	− 1.06	1.00	0	8	17	5	8	nw.	P. M. Smith.
Alpena	Alpena	609	40	56.8	− 0.5	92	2	36	14	28	1.77	− 1.71	0.62	0	6	11	14	5	se.	U. S. Weather Bureau.
Ann Arbor	Washtenaw	930	33	62.7	− 0.1	99	2	34	23	39	1.38	− 1.30	0.62	0	5	15	7	8	e.	University of Michigan.

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

Stations.	Counties.	Elevation, feet.	Length of record, years.	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, 0.01 inch or more.	Sky. Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.
***Michigan—Lower Peninsula*—Contd.**																				
Arbela	Tuscola	728	17	58.8	− 3.9	97	2	29	14	37	2.96	+ 0.18	0.72	0	8	11	12	7	sw.	Wm. Atkin.
Armada	Macomb		24	59.3	− 2.5	92	2	31	14	36	1.22	+ 1.55	0.54	0	6	9	15	6	ne.	R. O. Gould.
Battle Creek	Calhoun	822	29	62.2	− 1.6	99	2	35	23	39	1.36	− 1.46	0.53	0	7	14	8	8	se.	Elmer E. Sager.
Bay City	Bay	593	17	62.5	+ 0.6	96	2	37	15	42	1.11	− 2.36	0.48	0	4	17	7	6	ne.	Pere Marquette R. R
Benzonia	Benzie	832	16	59.7	+ 1.5	93	2	36	14	35	3.30	+ 0.01	0.81	0	10	13	11	6	sw.	Wallace Nutting.
Big Rapids	Mecosta	906	17	60.2	+ 0.6	97	2	32	14	40	1.67	− 1.58	0.73	0	7	2	27	1	se.	Supt. Waterworks.
Bloomingdale	Vanburen		9	64.1		99	2	36	23	37	1.86		0.63	0	6	18	6	6	sw.	John M. Haven.
Cadillac	Wexford	1,293	4	59.2		92	2	36	14	30	1.65		0.72	0	6	19	5	6	se.	Cadillac W. & L. Co.
Cassopolis	Cass	903	12	64.8[f]	− 0.2	98[f]	3	31[f]	23	46[f]				0		16[f]	1[f]	7[f]		Michigan Central R. R.
Charlevoix	Charlevoix	610	35			88	2													Pere Marquette R. R.
Charlotte	Eaton		9	62.2		97	2	33	14	42	0.68		0.51	0	3	18	2	10	sw.	City of Charlotte.
Cheboygan	Cheboygan	611	23	59.1[f]	− 0.8	90[f]	1†	29[f]	14	41[f]				0		16[f]	3[f]	5[f]	w.	E. A. Bouchard.
Clinton	Lenawee	830	23	64.0	+ 0.3	102	2	31	23	42	0.90	− 1.70	0.32	0	4	14	9	7	sw.	David Woodward.
Coldwater	Branch	984	16	64.4	+ 0.1	99	2	34	23	35	0.77	− 2.18	0.25	0	7	16	6	8	s.	L. S. & M. S. R. R.
Croton	Newaygo	685	5	61.5		93	1†	34	14	37	2.38		1.01	0	9	10	15	5	sw.	Gr. Rap. Musk. Power Co.
Detroit	Wayne	730	42	62.3	− 0.8	95	2	37	23	27	1.18	− 1.30	0.65	0	8	10	10	10	e.	U. S. Weather Bureau.
Durand	Shiawassee	799	5	65.2		99	2	35	14†	46	1.58		0.58	0	6	12	8	10	n.	Chief Train Dispatcher.
East Tawas	Iosco	590	16	58.5	− 1.9	80	2†	30	14	33	1.52	− 0.62	0.55	0	6	20[a]	7[a]	2[a]	e.	Detroit & Mackinaw Ry.
Eloise	Wayne	640	16	62.2	− 2.0	99	2	34	14†	41	0.71	− 1.99	0.50	0	7	11	8	11	se.	John Gilmore.
Five Channels	Iosco		0																	Au Sable Electric Co.
Flint	Genesee	730	24	59.8	− 1.7	95	2	33	14	40	1.43	− 1.14	0.79	0	8	13	6	11	s.	William L. Fisher.
Frankfort	Benzie	589	9	59.4		78	2†	37	14	27	1.81		0.73	0	6	18	0	12	s.	Geo. Morency.
Ganges	Allegan	665	4	63.6		97	1	39	22	36	2.80		1.08	0	8	19	4	7	se.	H. H. Hutchins.
Gaylord	Otsego	1,367	13	58.6	+ 2.0	94	2	32	14	36	2.64	− 0.56	1.35	0	6	19	1	10	se.	Michigan Central R. R.
Gladwin	Gladwin	794	17																	Geo. R. Smith.
Grand Haven	Ottawa	628	42	60.8	− 0.3	90	1	40	22	32	3.03	− 0.14	1.31	0	11	14	9	7	e.	U. S. Weather Bureau.
Grand Rapids	Kent	707	23	63.3	+ 1.5	98	2	40	27	32	2.25	− 0.87	1.04	0	9	11	10	9	se.	Do.
Grape	Monroe	625	23	63.2[d]	− 1.1	99[d]	2	32[d]	23	41[d]	1.07	− 2.16	0.45	0	8	12[d]	12[d]	2[d]		Joseph W. Morris.
Grass Lake	Jackson	989	7	62.5		100	2	34	23	38	0.78		0.40	0	3	21	3	6	sw.	Menzo Conklin.
Grayling	Crawford	1,147	23								2.82	− 0.17	0.65	0	6	21	0	9	w.	S. N. Insley.
Greenville	Montcalm	802	1	61.4		96	2	36	27	39	2.11		0.75	0	5	11[b]	6[b]	11[b]	se.	Michigan Pickle Co.
Harbor Beach	Huron	635	25	62.4	+ 1.2	98	2	37	14	36	1.20	− 1.03	0.65	0	4	13	11	6	s.	Pere Marquette R. R.
Harrison	Clare	1,159	20	59.6	0	94	2	34	14†	41	1.87	− 0.88	1.00	0	4	19	3	8	se.	Do.
Harrisville	Alcona	616	29	57.0[c]	− 2.4			34[c]	25	43[c]	1.22	− 1.66	1.01	0	5	16[c]	5[c]	6[c]	sw.	Mrs. D. W. Mitchell.
Hart	Oceana	698	21	62.8	+ 2.7	92	1	38	13	48	2.79	− 0.51	0.82	0	5	13	8	9	sw.	Pere Marquette R. R.
Hayes	Huron	620	23	62.3[b]	+ 0.7	96[b]	2†	33[b]	14	40[b]	1.41	− 1.23		0	7	9[b]	14[b]	5[b]	sw.	C. F. Leipprandt.
Highland	Oakland	1,006	21								1.57	− 0.93	0.77	0	5					A. D. De Garmo.
Hillsdale	Hillsdale	1,150	16	62.6	− 0.5	98	2	32	23	39	1.53	− 1.13	0.87	0	5	12	7	11	sw.	C. L. Herron.
Holland	Ottawa	610	7	63.0		96	3	36	13†	46	2.25		0.81	0	8	15	9	6	nw.	City of Holland.
Houghton Lake	Roscommon		0	58.0		93	2	32	13†	33	2.59		0.92	0	6	19	2	9	e.	James H. Ostander.
Howell	Livingston	924	21	63.0	+ 0.2	96	2	32	23	46	1.12	− 0.92	0.30	0	7	18	3	9	sw.	Frank Sharp.
Ivan	Kalkaska		24	59.5	+ 0.2	97	2	33	14	37	3.89	+ 0.70	1.56	0	10	12	15	3	se.	O. L. Giddings.
Jackson	Jackson	927	16	63.6	− 1.1	101	2	33	23	44	1.22	− 1.55	0.50	0	7	17	4	9	se.	City of Jackson.
Jeddo	St. Clair	667	24	60.8	− 1.3	93	2	34	14	38	1.09	− 1.68	0.52	0	7	15	9	6	sw.	William Bice.
Johannesburg	Otsego		0	57.6		94	2	29	14	37	3.15		0.96	0	8	12	10	8	sw.	Axel Becker.
Kalamazoo	Kalamazoo	955	37	63.0	− 0.1	96	2	36	23	35	1.30	− 1.78	0.55	0	3	15	8	7	w.	Kalamazoo Asylum.
Lansing (Agricultural College)	Ingham	863	49	61.0	− 0.6	97	2	35	23	35	1.53	− 1.09	0.54	0	9	11	9	10	se.	U. S. Weather Bureau.
Lansing (Capitol)	do	881	26	62.2	+ 0.3	98	2	37	23	36	1.25	− 1.67	0.34	0	9	11	7	12	sw.	State Board of Health.
Lapeer	Lapeer	827	14																	Michigan Home.
Ludington	Mason	637	15	59.2	− 2.4	86	1	37	14	32	2.28	+ 0.06	1.29	0	11	14	6	10	se.	U. S. Weather Bureau.
Luther	Lake	1,028	3	59.4		96	2	28	13	43	2.42		1.08	0	10	18	5	7	s.	John W. Nichoson.
Mackinaw	Cheboygan	592	22	52.2	− 5.9	73	2	30	27	27	1.23	− 2.27	0.55	0	4	18	11	1	e.	Grd. Rap. & Ind. Ry.
Mancelona	Antrim	1,121	17	57.8[b]	− 0.3	94[b]	2	28[b]	27	40[b]	3.55	+ 0.34	1.21	0	8	18[b]	0[b]	10[b]	w.	Do.
Manistee	Manistee	600	16	61.0[d]	+ 0.9	95[d]	1	39[d]	15	33[d]	3.86	+ 1.45	1.60	0	10	16[d]	0[d]	10[d]	s.	Postmaster.
Marshall	Calhoun	896	1	67.4[d]		96[d]	2	45[d]	23	38[d]						17[d]	0[d]	9[d]		E. B. Stuart.
Midland	Midland	604	14	62.0	+ 0.6	95	2	35	15	44	2.50	+ 0.33	0.90	0	5	16	9	5	s.	Pere Marquette R. R.
Morenci	Lenawee	811	6	63.4		102	2	30	23	43	3.70		1.25	0	6	14	6	10	nw.	George J. Tripp.
Mount Clemens	Macomb	615	13	61.9	− 0.6	95	2	34	14†	38				0		17	0	13	w.	Waterworks.
Mount Pleasant	Isabella	826	14											0		19	6	5	w.	Pere Marquette R. R.
Muskegon	Muskegon	587	17	60.8	− 1.2	94	2	35	27	37				0		22	1	7		Grd. Rap. & Ind. Ry.
Old Mission	Grand Traverse	858	19	60.2[c]	− 0.8	95[c]	2	37[c]	15		5.51	+ 2.31	1.65	0	11	14	9	7	n.	E. O. Ladd.
Olivet	Eaton	934	23	63.0	+ 1.5	100	2	35	23	40	1.50	− 1.94	0.49	0	9	19	3	8	s.	G. A. Knapp.
Omer	Arenac	616	14	61.6[a]	+ 1.8	94[a]	3	27[a]	21	51[a]				0		19[a]	3[a]	7[a]		Detroit & Mackinaw Ry.
Onaway	Presque Isle	826	10	60.1	+ 1.9	94	2	34	10	51						22	0	8	ne.	Do.
Owosso	Shiawassee	731	16	63.6	+ 0.4	98	2	32	14	43	2.31	− 0.25	0.80	0	8	5	23	2	n.	Owosso Sugar Co.
Petoskey	Emmet	660	23	54.6	− 5.1	74	1	36	15†	24	1.05	− 1.74	0.50	0	3	25	3	2	e.	Grd. Rap. & Ind. Ry.
Plymouth	Wayne	725	16	65.2	+ 3.2	102	2	33	15	44	0.95	− 1.50	0.50	0	2	16	8	6	s.	Pere Marquette R .R.
Pontiac	Oakland	935	13	62.1	− 0.7	96	2	36	23	32	1.20	− 1.22	0.71	0	3	8	15	7	sw.	Fred W. Shaw.
Port Austin	Huron	618	16	60.8	− 0.2	97	2	31	14	43	0.72	− 1.44	0.35	0	6	19	3	8	s.	Pere Marquette R. R.
Port Huron	St. Clair	639	38	60.4	− 0.5	91	2	36	23	34	0.69	− 1.99	0.48	0	6	12	9	9	sw.	U. S. Weather Bureau.
Reed City	Osceola	1,033	16	59.2	− 0.7	94	2	31	14	37	2.87	− 0.10	1.40	0	7	17	1	12	se.	Osceola Lt. & Pow. Co.
Roscommon	Roscommon	1,141	12	57.8[a]	+ 0.4	93[a]	2†	29[a]	15	48[a]	2.89	+ 0.28	1.53	0	6	14[a]	10[a]	5[a]	sw.	Marcus Schaaf.
Saginaw, East Side	Saginaw	601	11																	Postmaster.
Saginaw, West Side	do	641	18	60.5	− 0.8	95	2	38	14	33	1.73	− 1.37	0.49	0	8	12	8	10	s.	U. S. Weather Bureau.
St. James	Charlevoix	681	7	58.2		86	2	40	22†	24	2.13		0.52	0	10	17	4	9	sw	James Malone.
St Joseph	Berrien	593	26	63.8	0	96	1	42	22†	34	2.52	− 0.55	0.75	0	6	12	6	12	sw.	City of St. Joseph.
Sandusky	Sanilac	790	4	59.6		94	2	29	13	40	1.14		0.64	0	6	14	10	6	s.	Pere Marquette R. R.
Saranac	Ionia	639	18	62.1	+ 0.4	101	6	32	27	51	1.58	− 1.43	0.65	0	5	14	2	14	sw.	John Wallington.
South Haven	Van Buren	585	17								2.32	− 0.81	0.83	0	7	22	1	7	n.	Capt. James S. Donahue.
Thornville	Lapeer	975	36	61.9	− 1.0	91	2	31	23	36	0.89	− 2.10	0.22	0	7	10	16	4	nw.	J. S. Caulkins.
Traverse City	Grand Traverse	588	16	61.2	+ 0.1	95	2	34	14	33	2.14	− 0.51	0.70	0	5	16	3	11	n.	Grd. Rap. & Ind. Ry.
Vassar	Tuscola	641	12	61.2	− 1.3	96	2	32	14	42	2.20	− 0.19	0.68	0	5	9	17	4	sw.	Pere Marquette R. R.
Wasepi	St. Joseph	842	16	62.8	− 0.2	97	2	35	23	34	2.35	− 0.36	0.80	0	11	18	0	12	sw.	Charles A. Palmer.
Weber Dam	Ionia		0	63.1		94	2	37	14	41	1.56		0.78	0	7	15	8	7	ne.	Au Sable Electric Co.
West Branch	Ogemaw	973	8																	Michigan Central R. R.
Ypsilanti	Washtenaw	736	28	62.2	+ 0.3	99	2	32	23	42	1.59	− 1.40	0.50	0	6	5	24	1	sw.	Orin J. Bemiss.
Ohio.																				
Akron	Summit	1,081	26	63.7[a]	− 0.7	93[a]	2†	35	23	35	3.10	− 0.05	0.88	0	8	16	3	11	s.	Prof. C. R. Olin.
Antwerp	Paulding	733	1	65.0		99	2	30	23	45	2.46		0.86	0	5	18	0	12	sw.	North G. Osborn.
Benton Ridge	Hancock	800	20	64.2	− 1.6	94	2†	31	23	42	3.05	+ 0.62	1.03	0	9	14	9	7	sw.	J. W. Powell.
Bowling Green	Wood	670	32	63.5	− 1.5	98	2	30	23	30	1.48	− 1.43	0.37	0	5	14	8	8	sw.	G. C. Houskeeper.
Bucyrus	Crawford	1,000	19	62.4	− 3.0	97	2	28	23	43	2.27	− 0.59	0.55	0	11	15	4	11	s.	James R. Hopley.
Cleveland (1)	Cuyahoga	762	42	62.6	− 1.7	92	2	39	23	28	2.10	− 1.12	1.19	0	9	10	11	9	se.	U. S. Weather Bureau.
Cleveland (2)	do	754	16	62.9	− 1.8	93	2	37	23	32	2.59	− 0.59	1.07	0	10	15	3	12	se.	Rev. F. L. Odenbach, S. J.
Conneaut	Ashtabula	675	3	63.1		96	3	35	14	41	0.94		0.34	0	7	12	3	15	nw.	E. L. Ransom.

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

Stations.	Counties.	Elevation, feet.	Length of record, years.	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, 0.01 inch or more.	Sky. Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.
***Ohio*—Continued.**																				
Findlay	Hancock	776	24	63.7	− 2.2	100	2	29	23	47	1.90	− 0.94	0.72	0	12	17	4	9	sw.	Dr. E. A. Moser.
Fremont	Sandusky	628	11	64.4	− 1.5	99	2	32	23	41	1.61	− 1.29	0.45	0	7	16	7	7	.....	E. Stanley Thomas.
Hedges	Paulding	725	19	65.0	− 0.5	100	3	29	23	45	2.72	+ 0.09	0.70	0	9	16	6	8	n.	Charles Stutzman.
Hillhouse	Lake	997	20	62.2	− 1.2	94	2	35	23	38	2.62	− 1.26	0.84	0	9	13	10	7	nw.	J. W. Doncaster.
Hiram	Portage	1,260	33	63.0	− 0.3	92	2	35	23	33	1.76	− 1.53	0.55	0	9	12	11	7	sw.	Prof. G. H. Colton.
Hudson	Summit	1,123	52	64.2	+ 0.2	98	2	34	23	36	3.08	− 0.27	0.81	0	11	16	7	7	sw.	Dr. W. I. Chamberlain.
Lima	Allen	875	14	62.8	− 2.4	95	2†	31	23	39	1.42	− 1.31	0.38	0	8	15	3	12	e.	Miss Ollie De Long.
Medina	Medina	944	25	63.8	− 1.4	99	2	28	23	45	1.20	− 1.51	0.59	0	7	16	4	10	n.	F. W. Clark.
Montpelier	Williams	880	21	64.6	+ 0.8	100	2	33	23	43	2.92	− 0.06	0.95	0	5	13	6	11	w.	G. L. Laser.
Napoleon	Henry	680	26	62.4	− 2.8	100	2	32	22†	40	3.87	+ 1.21	1.25	0	10	17	0	13	e.	A. C. Senter.
New Bremen	Auglaize	1,038	20	64.7	− 2.0	97	2	31	23	38	1.48	− 1.18	0.34	0	8	10	8	12	ne.	Miss Lillian Grothaus.
North Royalton	Cuyahoga	1,000	20	63.5	− 1.6	95	2	32	23	35	1.96	− 1.32	0.63	0	7	15	8	7	ne.	W. S. Edgerton.
Norwalk	Huron	719	27	63.7	− 1.4	100	2†	31	23	47	1.62	− 1.12	0.44	0	11	9	8	13	sw.	Giles R. Gregory.
Oberlin	Lorain	855	38	63.6	− 0.7	98	2†	30	23	43	3.16	+ 0.48	0.88	0	10	14	5	11	s.	Prof. F. F. Jewett.
Ottawa	Putnam	720	20	63.7	− 2.2	95	3	30	23	37	2.47	− 0.27	0.60	0	9	8	13	9	sw.	Prof. J. T. Maldlow.
Sandusky	Erie	629	36	63.5	− 1.8	94	2	36	23	29	2.18	− 0.50	0.66	0	10	9	6	15	s.	U. S. Weather Bureau.
Tiffin	Seneca	775	31	63.6	− 1.3	97	3	33	23	33	1.45	− 1.23	0.56	0	7	18	8	4	s.	Prof. T. H. Sonnedecker.
Toledo	Lucas	769	42	63.1	− 1.0	97	2	36	23	28	2.51	+ 0.15	0.67	0	8	12	10	8	sw.	U. S. Weather Bureau.
Upper Sandusky	Wyandot	854	30	63.2	− 2.6	97	2†	30	23	38	1.88	− 0.63	0.50	0	8	11	11	8	w.	Robert E. Tracht.
Vickery	Sandusky	588	20	62.1	− 3.4	98	2†	31	23	46	2.28	− 0.34	0.70	0	8	12	10	8	s.	John W. Barr.
Wapakoneta	Auglaize	898	1	64.0	.....	94	2†	30	23	34	1.61	.....	0.68	T.	11	14	8	8	nw.	Dr. William Kayser.
Wauseon	Fulton	780	41	62.9	− 0.7	99	2	30	23	47	2.23	− 0.35	0.61	0	11	13	6	11	e.	Thomas Mikesell.
Wickliffe	Lake	740	1	.....	.....	....	....	.....	....	....	2.95	.....	1.05	0	7	....	....	....	.....	C. M. Richardson.
Pennsylvania.																				
Erie	Erie	658	40	62.6	− 1.3	91	3	39	14	31	1.69	− 1.80	1.35	0	6	8	12	10	s.	U. S. Weather Bureau.
New York.																				
Adams Center	Jefferson	540	22	60.8	− 0.3	90	2	28	15	38	2.24	− 1.23	1.28	0	6	18	9	3	sw.	A. E. Cooley.
Angelica	Allegany	1,340	30	56.6	− 2.1	88	3	23	14†	45	1.16	− 1.81	0.46	0	6	1	17	12	w.	C. P. Arnold.
Appleton	Niagara	270	22	59.3	− 2.6	87	2	34	14	37	0.89	− 2.18	0.36	0	5	17	9	4	ne.	H. A. Van Wagoner.
Auburn	Cayuga	715	44	61.4	+ 0.4	88	3	36	15	26	2.49	− 0.56	1.63	0	6	10	14	6	se.	J. W. Ackerman.
Avon	Livingston	585	18	59.8	− 2.1	90	2	26	15	40	1.25	− 1.41	0.71	0	4	19	2	9	.....	W. G. Markham.
Brockport	Monroe	537	17	59.6	− 3.6	92	2	32	14†	43	1.27	− 1.33	0.60	0	6	15	8	7	sw.	C. O. Beaman.
Buffalo	Erie	767	62	60.8	− 2.1	87	2	39	15	32	1.35	− 1.83	0.59	0	7	10	10	10	sw.	U. S. Weather Bureau.
Canisius College	do	.....	0	60.4	.....	89	2	34	14	35	1.37	.....	0.52	0	6	11	11	8	sw.	Do.
Canton	St. Lawrence	448	19	56.4	− 2.9	88	2	28	15	40	2.26	− 0.55	0.84	0	10	9	11	10	sw.	Do.
Cape Vincent	Jefferson	246	8	59.1	.....	86	2†	36	15	39	2.29	.....	1.42	0	5	17	5	8	n.	J. H. Grapotte.
Chazy	Clinton	151	13	.....	.....	93	2	.....	....	....	2.31	− 0.66	1.70	0	4	....	....	....	n.	W. R. North.
Chestnut Lawn	Wyoming	1,090	1	60.1	.....	94	2	27	15	45	1.05	.....	0.51	0	8	13	13	4	w.	Charles Peterson.
Dannemora	Clinton	1,490	8	58.6	.....	93	2	32	14†	36	2.83	.....	2.05	0	7	23	6	1	w.	D. L. Van Derzee.
Elba	Genesee	500	14	57.6	− 5.1	87	2	29	15	36	0.91	− 1.65	0.42	0	3	17	4	9	sw.	Joseph S. Wilford.
Fayetteville	Onondaga	530	12	61.4	− 2.1	97	2	30	15	40	2.50	+ 0.05	0.92	0	10	17	7	6	se.	Dana H. Wells.
Gabriels	Franklin	1,729	11	53.2	.....	88	2	22	15	49	2.18	.....	0.90	0	8	17	3	10	sw.	Gabriels Sanitarium.
Geneva	Ontario	550	0	61.4	.....	95	3	28	15	41	2.64	.....	1.33	0	7	....	....	....	.....	Agricultural Exp. Sta.
Harkness	Clinton	622	11	58.0	− 1.3	92	2	32	10†	36	2.92	+ 0.19	2.24	0	6	27	3	0	s.	J. W. Harkness.
Hemlock Lake	Livingston	900	15	60.5	− 2.3	88	3	30	15	35	1.19	− 1.02	0.83	0	5	14	6	10	s.	B. P. McGrady.
Hunt	do	1,321	14	60.3	− 2.3	96	2	27	15	46	1.17	− 1.29	0.70	0	3	18	5	7	sw.	W. S. Barager.
Ithaca	Tompkins	928	35	61.1	+ 0.5	93	3	29	15	39	3.28	+ 0.45	2.77	0	9	13	8	9	se.	U. S. Weather Bureau.
Keene Valley	Essex	1,000	15	58.4	− 0.3	100	3	23	15	59	2.76	− 0.70	1.92	0	9	19	8	3	nw.	E. R. Wells.
King Ferry	Cayuga	.....	13	.....	.....	....	....	.....	....	....	3.37	+ 0.93	2.75	0	4	13	10	7	nw.	L. A. Goodyear.
Lake George	Warren	350	16	60.3	− 0.3	94	3	30	15	38	2.31	− 1.32	1.80	0	4	12	9	9	n.	Charles Forsell.
Lake Placid Club	Essex	1,864	5	49.0	.....	82	2	20	15	44	2.69	.....	1.24	0	11	16	9	5	nw.	H. Van Hoevenberg.
Lauterbrunnen	Wyoming	1,260	1	60.4	.....	97	3	27	15	46	1.10	.....	0.50	0	7	12	12	6	sw.	J. O. Howard.
Lockport	Niagara	520	26	59.7	− 2.7	88	2	37	14	33	1.61	− 1.20	0.87	0	5	16	11	3	sw.	R. N. Clark.
Lowville	Lewis	900	46	58.2	+ 0.4	87	2	27	15†	43	2.56	− 0.51	1.82	0	8	13	10	7	w.	Prof. W. F. H. Breeze.
Moira	Franklin	200	13	56.0	− 5.0	90	2	28	10†	52	2.52	− 0.86	1.01	0	7	15	12	3	w.	C. E. McBride.
Nehasane	Hamilton	1,750	5	54.4	.....	88	2	23	15	47	2.84	.....	1.52	T.	10	15	12	3	nw.	L. W. Brown.
North Lake	Herkimer	1,822	12	55.8	.....	89	2	27	15	41	2.42	.....	0.70	0	8	22	3	5	w.	J. F. Redmond.
Ogdensburg	St. Lawrence	175	29	59.5	− 2.1	85	2†	35	16	37	2.41	− 0.34	0.95	0	8	15	12	3	w.	State Hospital.
Old Forge	Herkimer	1,733	5	54.8	.....	87	2	24	28	44	2.47	.....	1.13	0	9	17	7	6	w.	Mrs. S. W. Nelson.
Oswego	Oswego	335	43	59.6	− 3.1	87	3	35	15	30	3.19	+ 0.38	2.13	0	9	12	8	10	ne.	U. S. Weather Bureau.
Otto	Cattaraugus	1,410	9	.....	.....	....	....	.....	....	....	.....	.....	.....	....	....	....	....	....	.....	W. J. Winke.
Palermo	Oswego	460	54	.....	.....	....	....	.....	....	....	3.28	+ 0.21	2.63	T.	7	20	2	8	se.	Wm. A. Bartlett.
Perry City	Schuyler	1,038	33	56.6	− 3.1	91	3	20	15	45	3.60	+ 0.96	2.43	0	5	10	11	9	n.	W. H. Jeffers.
Philadelphia	Jefferson	485	7	59.2	.....	89	3	28	15	39	2.72	.....	1.00	0	11	12	12	6	n.	E. D. Babcock.
Potsdam	St. Lawrence	300	37	57.6	− 0.2	86	3	30	15	34	2.54	− 0.54	0.97	0	8	....	....	....	.....	A. E. Sutherland.
Ranger School	do	1,750	0	.....	.....	87	2	25	15	....	2.82	.....	1.52	0	10	15	9	6	nw.	Prof. R. P. Pritchard.
Raquette Lake	Hamilton	1,776	5	55.1	.....	87	2	28	15	40	2.49	.....	1.38	0	7	16	2	12	w.	R. J. Dunning.
Rochester	Monroe	523	84	60.4	− 1.5	92	2	37	14	31	1.60	− 0.72	0.87	0	8	12	9	9	sw.	U. S. Weather Bureau.
Romulus	Seneca	719	21	.....	.....	93	13	32	15	....	2.92	+ 0.36	2.43	0	3	....	....	....	s.	John H. Coryell.
Shortsville	Ontario	740	14	60.6	− 2.8	91	3	34	15	30	1.79	− 0.37	1.03	0	3	15	8	7	nw.	C. H. Latting.
Skaneateles	Onondaga	.....	18	.....	.....	....	....	.....	....	....	2.93	− 0.15	2.27	0	6	....	....	....	.....	John Durkan.
Syracuse	do	597	11	60.8	− 0.8	90	3	33	15	29	1.87	− 0.95	1.42	0	9	12	8	10	s.	U. S. Weather Bureau.
Tupper Lake	Franklin	1,522	13	.....	.....	....	....	.....	....	....	.....	.....	.....	....	....	....	....	....	.....	Rev. A. M. Maddox.
Volusia	Chautauqua	1,167	14	59.4	− 2.5	87	2†	34	14	34	1.20	− 2.71	0.36	0	6	12	12	6	s.	Benjamin Breads.
Wanakena	St. Lawrence	1,600	3	56.0	.....	90	2	24	28	45	2.90	.....	1.37	0	10	14	10	6	nw.	Prof. R. P. Prichard.
Watertown	Jefferson	540	21	60.0	− 1.5	88	2	31	15	34	2.28	− 1.58	1.48	0	9	17	8	5	nw.	H. P. Dunlap.
Wedgwood	Schuyler	1,430	24	60.6	− 1.3	94	3	30	15	40	3.01	+ 0.26	2.15	0	5	19	5	6	nw.	O. F. Corwin.
Westfield	Chautauqua	837	17	61.5	− 1.7	92	3	33	14	37	1.75	− 1.45	0.61	0	7	4	19	7	.....	John R. Rogers.
York	Livingston	760	1	61.4	.....	94	2	28	15	47	1.35	.....	0.77	0	5	11	9	10	s.	M. N. Stewart.
Vermont.																				
Burlington	Chittenden	404	5	56.7	− 2.2	90	2	30	15	40	2.66	− 0.69	2.03	0	6	10	12	8	s.	U. S. Weather Bureau.
Cornwall	Addison	517	19	60.6	− 0.3	94	2	32	15	41	2.25	− 0.67	2.05	0	4	15	5	10	s.	C. H. Lane.
Enosburg Falls	Franklin	601	21	56.1	− 1.9	88	2	25	15	50	4.11	+ 1.12	2.42	0	10	18	8	4	n.	L. H. Pomeroy.
Hyde Park	Lamoille	576	1	55.5[a]	.....	92[a]	2	23[a]	15	52[a]	2.15	.....	1.28	0	7	16[a]	4[a]	9[a]	w.	A. V. Wiswell.
Northfield	Washington	876	26	54.3	− 0.3	92	3	22	15	48	1.84	− 0.92	1.13	0	9	13	7	10	s.	U. S. Weather Bureau.
Wells	Rutland	750	20	57.2	− 1.6	84	3	29	15	32	2.62	− 1.00	1.55	0	8	14	6	10	s.	E. R. Pember.

[a], [b], [c], etc., indicate respectively 1, 2, 3, etc., days missing from the record.
** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
† Also on other dates.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for September, 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		
Minnesota																																	
Cloquet	Lake Superior		.27	1.13			.13				1.04	.03								.35				T.	.36	.31	T.						3.62
Duluth	do		.08	.23	.99			.06			1.04									.13	T.	T.		.03	.41	.35							3.32
Floodwood	do																																
Grand Marais	do	.44			.44		.14				.37									.62		.52			.40	.27							3.20
Stephens Mine	do				1.00			.20			.60									.20	T.			T.	.20	.50							2.70
Two Harbors	do		.05		.40			.05			.20										.05			T.	.10	.11							0.96
Virginia	do		.04		1.12		.20		.12		.60	.05				T.				.14	.13	T.		.05	.30	.44	T.						3.19
Wisconsin																																	
Appleton	Fox			.03								.01					1.30	.22			.90	.09			.01	.50					.34		3.40
Ashland	Lake Superior		.19	.09	.47		.06				.47	.65								*	1.58	.59	T.	.05	.44	.09	T.						4.68
Bayfield	do		.02		1.49		.10	.16			.47	.34								.11	.98	1.40	.03	.08	.34	.13	.08						5.73
Cecil	Fox	.06			2.13		.03	T.				.12					.42	.56			.84	.34	.16	.06	.12	.78	.08				T.		5.70
Cornucopia	Lake Superior		.04		.85		.27	.07			.24	.10								.26	.08	.52		.04	.42	.21	.05						3.15
Crandon	Fox	T.		1.66								.10					.12				.72	.70	T.		.48	.06							3.84
Florence	Menomonee			1.35			T.					.28					.31					2.45	T.		.48								4.87
Fond du Lac	Fox						.30	.10				.26					.80	.56			.96	.37				.02				T.	.20		3.57
Grand River Locks	do	.05		T.				T.	.06		.30						.53	.07			1.35	.10			T.	.46				.06	.55		3.53
Green Bay	Lake Michigan	.02		.34								.04					.94	.01			1.83	.02	T.		.31	T.					.05		3.56
High Falls	do			.51		T.		.01				.01					.41	.15			1.60	.28	T.		.03	.71							3.71
Iron River	Lake Superior			1.40		.05	.15				.40	.35								.30	.10	.70		.15	.40	.15	.05						4.20
Kewaunee	Lake Michigan	.02		.18								.16					.73	.17			.85	.30	.08			.02					.07		2.58
Manitowoc	do	.08		T.				.34				.18					1.00				1.10	.06									.18		2.94
Menasha	Fox		T.					T.				.09					1.55				1.30	T.				.05					.18		3.17
Menomonee Falls	Lake Michigan	.23							T.			.22					.58	.27			1.24	.27	T.		.12	.07				.09	.29		3.38
Milwaukee	do	.04						T.				.18				.13	.48	T.			.77	.05	T.	T.	T.	T.				.01	.39		2.05
New London	Fox			.37								.06					.75	.05			T.	2.60				.25					.35		4.43
Oconto	Lake Michigan			1.80													.90				1.65					.60							4.95
Oshkosh	Fox			T.					.06			.13					1.00	.50			1.74				T.	.20					.06		3.69
Pine River	do	T.		.04	T.			T.				.24					.81	.04			1.62	.46		T.	T.	.46					.17		3.84
Plum Island	Lake Michigan	.03		1.32								.05					.55	.74			.71	.74	.18			.45							4.77
Plymouth	do	.05						.15				.14					.67	.25			1.15	.22	.04		.01	.01					.09		2.78
Port Washington	do										.10						.72	.16			.55	.05									.03		1.61
Racine	do	.03							.02			.10					.37	.66			.74	T.	.04							.02	.10		2.08
Ripon	Fox			.05				.08				.23					1.16	.68	T.		1.35	.38			T.	.21				.02	.22		4.38
Sheboygan	Lake Michigan	.15							.09			.14					.48	.49			1.36	.24	T.		T.	T.					.48		3.43
Sturgeon Bay	do	.04		1.21			.11	.19				.02					.66	.23			1.20	.64	.16	.10	.04	.07							4.67
Superior ‖	Lake Superior		.06		1.62			.07				.80									.11				.13	.68	.01						3.48
Waupaca	Fox			.42			T.	.08				.11					.63	.18			1.67	.63				.39					.43		4.54
Illinois.																																	
Chicago	Lake Michigan								.02			.01				.24	.73	T.	T.		.15	T.				.04			.01	.11	.18		1.49
Highland Park	do						T.		.17			.15				T.	.46	T.			.16	T.	T.			T.			T.	T.	.41		1.35
Indiana																																	
Auburn ‖	Maumee				.15				.07	.31			.10				.50	.55	.14			.23					T.			.27	T.		2.32
Berne	do	T.		T.			.10		.15				.39				.64	.19			.25	.04	.05				.06			.10	.17		2.14
Fort Wayne	do								.14			.09	.23			T.	.80	.01			.24	T.		T.			.03		.13	.12	1.22		3.01
Hammond	Lake Michigan					T.		.95				T.					.05	.18			.10		.09					T.	T.	.10	.38		1.85
Howe ‖	St. Joseph								.81	.56							.35	.16					T.				.30			.15			2.33
Notre Dame	do					T.		.03	.14			.05				.11	.27	T.			.20	.18	.26			.02	.13		.02	.02	.74		2.17
Whiting	Lake Michigan					.02			.14			.02					.38	.13	T.		.18	T.	T.				.03		T.	.06	.18		1.14
Michigan—Upper Peninsula.																																	
Baraga	Lake Superior		.20		.50						.20						.10				.60	.40			.80	.20							3.00
Bergland	Ontonagon			.45	.62							.23								1.62	1.75	.21		T.	.55								5.43
Calumet	Lake Superior		.12		.26			T.				.20									.86	.82	.22	.08	.50	.02							3.08
Chatham	do			.65													.50				1.00	1.00	.30	.10	.10	.05							3.70
Deer Park	do		T.	.15								.20					.30	.40			.15	.50	.20	T.		.18							2.08
Eagle Harbor	do		.20		.20							.20									.40	1.80		.10	.60	.10							3.60
Escanaba	Lake Michigan	T.	.81	.12	T.			T.				.03	T.				.53				1.64	.08		T.	.30	.03							3.54
Ewen	Ontonagon																																
Grand Marais	Lake Superior		.05	.10	.08	T.	T.	.90									.40	.20			.50	.50	.30	.20	.10	.20							3.53
Houghton	do		.13		.36		.08	.01				.16									1.27	.86	.20	.15	.40	.10	.29						4.01
Humboldt	Escanaba			.50	T.												.58				2.00	T.	.20		1.80								4.08
Iron Mountain	Menominee			1.40			.40					.02					.20	.12			1.52	.45	T.		.28	.07							4.46
Iron River	do		.45	.95	.35							.35					.35	.24			1.35	.95	.15	T.	.95	T.	T.						6.09
Ironwood	Lake Superior		.37	.32	.54		.13					.96									.63	1.93	T.	.12	.73	.18							5.91
Ishpeming	Escanaba		.02	.35	.06							.33	T.				.40	.09			1.65	.61	.35	.04	.60	.06							4.53
Isle Royale	Lake Superior																																
Mackinac Island	Lake Huron	.02		.57	T.			T.				.05					.27	.13			.31	T.	T.			.27	T.						1.62
Maple Ridge	Lake Michigan			1.23												.35	.10				1.30	.15			.10	.12							3.35
Marquette	Lake Superior		.30	.01	.02	.01	T.					.32	T.				.52	.03			1.18	.68	.13	.13	.37	.06							3.76
Menominee	Menominee	.08	1.34					T.				T.					1.03				1.53	.36			.50	T.							4.84
Munising	Lake Superior			.47	.01				.24								.46	.22			1.07	.45	.62	.03	.08	.11	.01						3.77
Newberry	Tequamenom	T.		.45				.02				.12					.26	.26			.30	.11	.18	.01	.11	.21	T.						2.03
Ontonagon	Lake Superior	.60			.55							.25									1.30	1.10	.30	.30	.40	.40							5.20
Powers	Lake Michigan																																
St. Ignace	Lake Huron																																
Sault Ste. Marie	St. Marys	.07	.01	.10				T.				.08					1.07	.16			.45	T.	.31	.02	.05	.04	T.						2.36
Seney	Manistique						.05	.02				.02					.37	.12			.24	.28	.17		.10	.29							1.67
Thomaston	Lake Superior																																
Victoria	Ontonagon			.37	.70						.19										1.95	T.	1.88	.06	.65	.10	.02						5.92
Watersmeet	do	T.	.46	.24	.32							.10						.01			1.74	.60	.14	.03	1.05	.02							4.71
Whitefish Point	Lake Superior			.05				.16				.30					.26	.08				.14	.20	.01	.07	.09	.10						1.46
Michigan—Lower Peninsula.																																	
Adrian	Raisin				.16			.29	T.								.28	.85			.36						T.						1.94
Allegan	Kalamazoo											T.					.71	.44			.37	.61	.19				.10		.11	.06			2.59
Alma	Saginaw	.08		T.				T.	.26			T.					1.00	.10			.50	.20	.08				.08						2.30
Alpena	Lake Huron	.17		.58	T.		T.	T.				T.		T.			.28	.34			.37	T.	T.				.03						1.77
Ann Arbor	Huron				T.			T.	T.								.11	.57			.62		.02				.06						1.38
Arbela	Saginaw	.10						.56	.72								.28	.36			.41						.12				.41		2.99
Armada	Clinton	T.						.11	.04								.06	.33			.54	T.	T.				.14						1.22
Battle Creek	Kalamazoo	T.							.03								.53	.20				.31	.08				.15			.06			1.36
Bay City	Saginaw																.30	.15			.48	T.				.18							1.11

TABLE 2.—*Daily precipitation for September, 1913. District No. 4*—Continued.

Stations.	Watershed.	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	Total.
Michigan—Lower Peninsula—Contd.																																
Benzonia	Betsey	T.		.19				T.				.09					.81	.41			.05	.39	.50	.06	T.	.17	.63					3.30
Big Rapids	Muskegon	.16				.03											.55	.73			.13	.03	.04								T.	1.67
Bloomingdale	Lake Michigan											T.					.63	.10			.10	.37	.56				T.			.10	T.	1.86
Cadillac	Manistee	.02		.05					.25								.52				.72		.09									1.65
Cassopolis	St. Joseph																															
Charlevoix	Lake Michigan				.39													1.00														
Charlotte	Kalamazoo																.51	.05			.12	T.	T.									0.68
Cheboygan	Cheboygan	T.															.75															
Clinton	Raisin																.23	.17			.32		T.							.18		0.90
Coldwater	St. Joseph							T.	.05								.25	.08			.25		.02				.10			.02		0.77
Croton	Muskegon	.02										.13					.68	.35			.08	.04	.05				.02				1.01	2.38
Detroit	Detroit	.03			T.	T.		.06				T.					.11	.15			.65		T.				.07			.01	.10	1.18
Durand	Saginaw							.10	.58								.30	.10			.20										.30	1.58
East Tawas	Lake Huron	.45		.18				.04									.20	.10			.55											1.52
Eloise	Rouge	.05						T.									.02	.02			.50		.01	T.			.05			.06		0.71
Five Channels	Au Sable																															
Flint	Saginaw	.04							.12								.25				.79	.05					.12			.02	.04	1.43
Frankfort	Betsey			.21													.11	.73				.20	.45			.11						1.81
Ganges	Lake Michigan	T.															.98	.11			.27	.18	1.08	.01						.11	.06	2.80
Gaylord	Cheboygan								.42			T.					.39	1.35			.33	.02	.13	T.								2.64
Gladwin	Saginaw																															
Grand Haven	Grand	.03						T.	T.			.02				.01	1.26	.06			.17	.35	.53	T.	T.	.02	.02			T.	.53	3.03
Grand Rapids	do	.02						T.				T.				T.	.89	.09			.08	.07	.03			.02	T.		T.	.01	1.04	2.25
Grape	Raisin	.01						.24	.01									.17			.20		.01				.03			.15		1.07
Grass Lake	Grand																.40	.10			.28		T.				T.			T.		0.78
Grayling	Au Sable	.48		.39			.48										.43	.65			.39											2.82
Greenville	Grand							T.				T.					.75	.60			.50	.12	.14			T.						2.11
Harbor Beach	Lake Huron	.05																.35			.65						.15					1.20
Harrison	Saginaw					.13			.30								.44	1.00														1.87
Harrisville	Lake Huron			.07				.05								.03	1.01				.06											1.22
Hart	Pentwater						.04										.65	.03				.82	.65									2.79
Hayes	Pigeon	T.		.03					.49								.25	.10			.33	.10	.11									1.41
Highland	Huron							.25	.26								.24				.77	.05									T.	1.57
Hillsdale	St. Joseph			T.				T.	T.								.32	.21			.87		T.				.01			.12	T.	1.53
Holland	Lake Michigan								.04								.78	.05			.20	.27	.81	.05			.05					2.25
Houghton Lake	Au Sable			.30				.43									.26	.92			.62	.03										2.59
Howell	Saginaw							T.					T.				.30	.15			.20	.25	.15							.02	.05	1.12
Ivan	Manistee	.05		.22		.02		.80				T.					.50	1.58			.35	.02	.36				.01					3.89
Jackson	Grand	T.						.07									.40	.07			.50		.05				.06			.07		1.22
Jeddo	St. Clair							.14	.05								.03	.13			.52		.03				.19					1.09
Johannesburg	Cheboygan	T.		.67				.48				.01					.35	.96			.45	.02	.21	T.			T.					3.15
Kalamazoo	Kalamazoo								.30								.45	T.			T.		.55				T.			T.	T.	1.30
Lansing (Agr. Col.)	Grand							.05	.04								.43	.11			.47	.03	.01				.08				.31	1.53
Lansing (Capitol)	do		.02						.17				T.				.28	.24	T.		.02	.34	.06				.10				.02	1.25
Lapeer	Saginaw																															
Ludington	Pere Marquette	.01		T.	T.			.08				.01				T.	1.11	.21			.25	.33	.06	.03	T.	.04					.13	2.28
Luther	Manistee	.05		.02					.01			T.					.70	1.08			.18	.18	.15	.02			.03				T.	2.42
Mackinaw	Lake Huron	.10		.55							.15												.43									1.23
Mancelona	Lake Michigan	.26		1.21				.25				T.					.36	.70			.29	.24	.15									3.55
Manistee	Manistee	.05		.10				T.									.68	.38			.08		.58	.18		.10	.05				1.60	3.86
Marshall	Kalamazoo																															
Midland	Saginaw							.10	.70			T.					.90				.60	.20	T.									2.50
Morenci	Maumee			T.				1.25	.03								.45	1.08			.30								.55			3.70
Mount Clemens	Clinton							T.	T.				T.				T.	T.			.50		T.				T.			T.		
Mount Pleasant	Saginaw															.23	.29	.13														
Muskegon	Muskegon																1.40						.60									
Old Mission	Lake Michigan	.12		1.65				.81				.05					.50	1.52			.34	.05	.30			.12	.03					5.51
Olivet	Kalamazoo	T.							.22			T.					.49	.12			.18	.08	.07	.01			.09			T.	.24	1.50
Omer	Lake Huron			.03				.03										.05			.05											
Onaway	Cheboygan																															
Owosso	Saginaw	.11						.52									.35	.05			.80		.03	.01							.44	2.31
Petoskey	Lake Michigan	.15		.40																							.50					1.05
Plymouth	Rouge																T.	.45		.50		T.	T.				T.			T.	T.	0.95
Pontiac	Clinton							.71	.17								T.	T.			.32											1.20
Port Austin	Lake Huron		.11	.05					.03								T.	.13			.35		.05									0.72
Port Huron	St. Clair	T.		T.		T.		.04	.01			T.					.05	.02			.48						.09					0.69
Reed City	Muskegon	.13		T.					.24			T.	T.				.70	1.40			.35	.03	.02				T.					2.87
Roscommon	Au Sable								.47								.30	1.53			.41	.10	.08									2.89
Saginaw, East Side	Saginaw																															
Saginaw, West Side	do	T.				.02		.49				T.					.34	.13			.44	.03	T.			T.	.09			T.	.19	1.73
St. James	Lake Michigan	T.		.25	T.			.03				.16					.40	.52			.15	.05	.43			.07	.06					2.13
St. Joseph	St. Joseph	T.							.55		T.					T.	.75	.20				.22								.30	.50	2.52
Sandusky	Lake Huron							.12									.08	.14			.64						.12				.04	1.14
Saranac	Grand								.37								.65	.03			.40	.13										1.58
South Haven	Lake Michigan															.83	.15				.40	.78					.05			.02	.09	2.32
Thornville	Saginaw						.10	.16	.10									.20								.22				.08	.03	0.89
Traverse City	Lake Michigan			.70		T.											.52	.60			.23	.09	T.				T.					2.14
Vassar	Lake Huron							.68									.40	.29			.55						T.		T.		.28	2.20
Wasepi	St. Joseph							.02	.42				.01			.02	.60	.12			.11	.05	.10							.10	.80	2.35
Weber Dam	Grand	.02							.34								.78	.02			.20	.04									.16	1.56
West Branch	Lake Huron																															
Ypsilanti	Huron							.25									.22	.41			.50		.04							.17		1.59
Ohio.																																
Akron ‖	Lake Erie	T.							.84				.11					.20	.41			.88		T.				.04		.36	.26	3.10
Antwerp	Maumee								.24								.86				.19									.22	.95	2.46
Benton Ridge	do				1.03			.07	.18				.06				.24	.96			.19	.04	T.				T.			.28		3.05
Bowling Green	Lake Erie				.26			T.					T.				.37	.21			.30						T.			.34		1.48
Bucyrus ‖	Sandusky								.25				.10	T.			.10	.45	.30	.05	.25	.55	.05							.12	.05	2.27
Cleveland (1)	Lake Erie				.07				.08			T.	.01				.22	.22	T.		.26	T.	T.				.04			.29	.91	2.10
Cleveland (2)	do				.25				.19				.04				.20	.45	.01		.34		T.				.04			.33	.74	2.59
Conneaut	do																.05	.18	.34		.16	.09					.09				.03	0.94
Findlay ‖	Maumee				.02	.12			.04				.04				.03	.24	.72		.03	.19	.02							.40	.05	1.90
Fremont	Sandusky				.04								.04				.19	.45	T.		.41						.04			.44		1.61
Hedges	Maumee							.70	.07			.15			.62	.11					.63	.04					.06			.34		2.72
Hillhouse	Lake Erie					T.			.21								.07	.73	.10	T.	.40	.10	T.				.07			.10	.84	2.62
Hiram	do		T.					.55	.20				T.				T.	.28	.11		.34	.04	T.				.09			.12	.03	1.76
Hudson	do							.81	.56				.08				.17	.20	.03		.53		.05				.04			.35	.26	3.06

TABLE 2.—*Daily precipitation for September, 1913. District No. 4*—Continued.

Stations.	Watershed.	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	Total.
Ohio—Continued.																																
Lima ‖	Maumee							T.	.35				.38				.02	.22	.08		T.	.20	.05							.12		1.42
Medina ‖	Lake Erie							T.	.05				.05				.12	.11			.28						T.			.52	.07	1.20
Montpelier	Maumee							.14									.57	.95			.55									.71		2.92
Napoleon	do			.90				.25				.05				.07	.25	.14		.01	.51								.44		1.25	3.87
New Bremen	do						T.	T.	.07				.18			T.	.25	.34	.28		.20		.05							.11	T.	1.48
North Royalton	Lake Erie								.63				.10				.10	.32	.10		.21									.50		1.96
Norwalk ‖	do								.04	.07			.04					.44	.04		.12	.33	.03					.03		.38	.10	1.62
Oberlin	do				.08			T.	.36				T.				.15	.49	.03		.45	.12	T.				.05			.55	.88	3.16
Ottawa	Maumee				.08			.35					.44				.25	.43			.60	.02					T.			.28	.02	2.47
Sandusky	Lake Erie	.01			T.				.30			.03	.01				.17	.23			.25						.03			.53	.62	2.18
Tiffin	Sandusky				T.			.04					.02				.20	.34			.23	T.					.06			.56	T.	1.45
Toledo	Maumee	T.		T.	T.	T.		.55				.02					.08	.03			.67	T.					.02			.67	.47	2.51
Upper Sandusky	Sandusky				T.			.15	.15				T.				.40	.50			.43						.10			.10	.05	1.88
Vickery	Lake Erie				.36				T.				.07				.22	.48			.23						.04			.53	.35	2.28
Wapakoneta	Maumee							T.	.06				.21				.46	.22	.03		.24	.07	.09				.04			.18	.01	1.61
Wauseon ‖	do	.02			.05				.58				T.				.20	.29	.09			.34	.01				.02			.58	.05	2.23
Wickliffe ‖	Lake Erie				.86				1.05				T.				.15	.47	T.		.20						.06			.16	T.	2.95
Pennsylvania.																																
Erie	Lake Erie			T.					T.								.03	.22	T.		1.30	.05	T.	T.			.08				.01	1.69
New York.																																
Adams Center	Lake Ontario													.17				.10				.54	1.28	.10			.05					2.24
Angelica	Genesee					T.												.34	.07			.46	.13				T.	.03		T.	.13	1.16
Appleton	Lake Ontario			T.	.10				T.					T.			T.	.22				.36	.07				.14					0.89
Auburn	Oswego													.13				.17	.08			.42	1.63					.06				2.49
Avon	Genesee			T.	.10				T.					T.				.29	.15			.71										1.25
Brockport	Lake Ontario			.01	.17				.18					T.				.16	T.			.60	.15				T.					1.27
Buffalo	Lake Erie			T.									T.				.07	.09	T.		.09	.53	.45	.08			.04				T.	1.35
Canisius College	do			T.	T.												.05	.11	T.			.52	.40	.22			.07					1.37
Canton	Grass			.09	.02				.16					.48	T.			.35	.22			.66	.19				.06	.03				2.26
Cape Vincent	St. Lawrence														.10			.58				1.42	.14				.05					2.29
Chazy	Lake Champl'n			.23					.23														1.70	.15								2.31
Chestnut Lawn	Genesee								.01								T.	.20	.02	.01		.51	.12				.03				.15	1.05
Dannemora	Lake Champl'n			.25	.05									.10				.15	.10				2.05	.13								2.83
Elba	Lake Ontario				T.													.18	T.			.42	.31				T.					0.91
Fayetteville	Oswego				.22	.03			.02			T.		.18				.22	.03			.92	.80	.03				.05				2.50
Gabriels	St. Regis			.12				.04									.16	.30	.20			.90	.38				.08					2.18
Geneva	Oswego				.08				.03					.02				.45	.06			1.33	.67									2.64
Harkness	Lake Champl'n			T.	.04				T.					.56				.05	.03			T.	1.89	.35			T.					2.92
Hemlock	Genesee			T.		T.			T.					T.				.22	.04		T.	.83	T.				.05				.05	1.19
Hunt	do																	.25				.70									.22	1.17
Ithaca	Oswego					.06			T.								.01	.37	.02		.01	2.76	.02				.01				.02	3.28
Keene Valley	Au Sable			.04	.09									.28			.06		.04			.18	1.92		.04	.11						2.76
King Ferry	Oswego			T.					T.									.53	.09			2.20	.55									3.37
Lake George	Lake Champl'n																	.11	.05			.35	1.80					T.				2.31
Lake Placid Club	Au Sable				.55				.03					.19	.02			.10	.33	T.		.10	1.24	.05			.03	.05				2.69
Lauterbrunnen	Genesee								T.									.19	.04			.50	.13	.01			.02				.21	1.10
Lockport	Lake Ontario				.87												.07					.40	.08				.19					1.61
Lowville	Black				.02				T.					.19	.09			.23	.20			.28	1.54					.01				2.56
Moira	St. Lawrence			.23										.50				.24	.33				1.01	.20			.01					2.52
Nehasane	Black				.07				.04					.14	.11			.14	.71			.03	1.52	.02			T.	.06				2.84
North Lake	do				.40				.09					.20				.12	.41			.70	.40					.10				2.42
Ogdensburg	St. Lawrence			T.	.20				T.					.52				.14	.32			.20	.95				.05	.03				2.41
Old Forge	Black				.12				.05					.30	.05			.15	.55			.07	1.13					.05				2.47
Oswego	Lake Ontario			.20	.11				.42					.01			.05	.15	T.		T.	2.12	.12				.01					3.19
Otto	Lake Erie																															
Palermo	Lake Ontario				.18				.05					T.	T.			.24	.15			.37	2.26	T.				.03				3.28
Perry City	Oswego					.02								T.				.48	.11			2.43	.56									3.60
Philadelphia	St. Lawrence				.12				.15					.15	.20			.20	.18			.34	1.00	.29			.04	.05				2.72
Potsdam	Raquette				.13									.08	.50			.17	.49				.97	.01				.19				2.54
Ranger School	Oswegatchie				.26									.24	.08			.26	.31			.02	1.52	.01			.06	.06				2.82
Raquette Lake	Raquette				.14				T.					.21	.10			.16	.42			T.	1.38					.08				2.49
Rochester	Genesee			.03	.04				T.					.10			.07	.13	.01		T.	.87	.35				T.					1.60
Romulus	Oswego				T.													.31	.18			2.43										2.92
Scottsville	do																															
Shortsville	do													T.				.26				1.03	.50				T.					1.79
Skaneateles	do													.26			.05	.25	.01			2.27					.09					2.93
Syracuse	do			.07	.09	T			.01			T.		.10			.04	.11	T.			1.40	.02				.03				T.	1.87
Tupper Lake	Raquette																															
Volusia	Lake Erie																T.	.14	.36			.32		.02			.12				.24	1.20
Wanakena	Oswegatchie				.30									.30	.09			.26	.33			.03	1.37	.02			.10	.10				2.90
Watertown	Black				.07				.03					.03				.10	.17			.75	.73	.30			.10					2.28
Wedgwood	Oswego																T.	.39	.07	.02		2.15	.38				T.				T.	3.01
Westfield	Lake Erie					.31											.06	.21	.36			.61	T.	.06			.14					1.75
York	Genesee				.02				T.					T.			T.	.23	.16	T.		.77	.17				T.				T.	1.35
Vermont																																
Burlington	Lake Champlain			.19					T.					.27				.08	.06			.05	2.01					T.				2.66
Cornwall	do			T.					T.						T.			.03	.12			.05	2.05					T.				2.25
Enosburg Falls	do			.86	.07				.13			T.		.30	.01			.03	.23			.02	2.42	T.			.04					4.11
Hyde Park	do			.21	.01									.46				.01	.17	T.			1.28					.01				2.15
Northfield	do			.42	.03				T.					.06				.04	.05	.01		.07	1.12				.04	T.				1.84
Wells	do				.06				.51					.08				.04	.18			.06	1.55					.14				2.62

* Precipitation included in that of the next measurement.
‡ Separate dates of falls not recorded.
‖ 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 3.—*Maximum and minimum temperatures for September, 1913. District No. 4, Lake Region.*

Date.	Duluth, Minn.		Wisconsin.						Chicago, Ill.		Fort Wayne, Ind.		Upper Michigan.								Lower Michigan.					
			Florence.		Green Bay.		Milwaukee.						Escanaba.		Ewen.		Houghton.		Marquette.		Sault Ste. Marie.		Alpena.		Battle Creek.		Cadillac.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	80	55	89	57	91	67	82	70	95	72	93	67	77	65	.....	.....	94	58	92	60	81	57	78	62	95	62	86	65
2....	80	61	85	73	94	70	96	75	97	78	96	68	79	68	.....	.....	86	62	85	64	83	62	92	64	99	66	92	71
3....	61	51	74	56	70	61	80	65	83	69	94	70	72	55	.....	.....	66	53	65	54	74	55	71	56	93	67	78	62
4....	59	51	67	52	74	57	72	65	73	66	75	64	63	54	.....	.....	56	52	59	53	62	49	60	55	79	62	73	51
5....	60	52	77	48	79	60	74	66	76	69	80	62	66	56	.....	.....	71	52	77	54	73	48	67	54	85	59	78	52
6....	79	53	80	61	90	64	76	68	82	70	90	61	73	62	.....	.....	88	61	83	62	80	56	71	53	91	56	85	55
7....	78	57	84	69	90	68	91	70	93	75	88	68	85	60	.....	.....	80	61	84	60	82	58	80	62	93	63	88	67
8....	62	49	71	47	70	54	70	61	77	67	77	57	66	50	.....	.....	63	48	60	53	63	49	69	55	77	65	74	55
9....	58	48	68	33	69	44	69	60	70	63	73	52	62	48	.....	.....	66	44	66	48	62	42	58	50	72	47	66	50
10....	66	57	70	49	74	53	71	61	72	60	79	46	65	58	.....	.....	78	53	72	52	68	42	64	42	80	43	71	45
11....	70	47	68	56	69	55	70	58	77	64	84	50	68	52	.....	.....	67	56	67	56	58	49	69	50	84	48	74	47
12....	65	41	61	41	66	48	69	54	71	58	71	51	60	44	.....	.....	57	47	56	48	60	45	70	46	75	53	67	45
13....	58	42	60	33	65	46	66	49	66	55	69	46	59	39	.....	.....	54	38	53	39	48	34	54	39	70	42	58	37
14....	60	48	69	33	72	45	67	57	69	58	66	44	62	42	.....	.....	68	38	64	39	57	32	54	36	69	40	65	36
15....	73	50	68	48	70	52	68	60	70	58	70	45	64	56	.....	.....	74	53	70	53	65	43	60	43	75	43	68	40
16....	62	46	58	47	60	55	67	61	71	63	70	58	60	55	.....	.....	63	50	55	51	58	47	61	57	69	49	63	51
17....	65	49	65	50	64	54	67	58	68	61	70	59	62	48	.....	.....	65	49	58	49	61	48	64	52	68	57	65	54
18....	63	43	65	31	65	48	64	59	63	60	65	51	62	44	.....	.....	69	44	67	48	67	42	60	46	61	52	65	43
19....	58	45	63	34	68	48	65	56	68	55	73	48	62	54	.....	.....	68	45	65	48	65	41	63	41	70	42	61	45
20....	46	37	61	40	64	36	65	40	66	45	69	44	60	43	.....	.....	59	39	58	42	60	50	62	50	71	47	63	52
21....	44	34	41	33	43	37	46	38	49	42	51	42	45	37	.....	.....	40	34	42	36	54	46	56	43	49	42	55	41
22....	43	28	43	31	46	37	46	37	49	38	48	37	45	32	.....	.....	40	33	40	35	53	42	52	42	50	39	47	38
23....	44	32	47	28	54	37	62	40	67	43	64	34	51	30	.....	.....	43	35	44	34	48	41	53	40	61	35	55	39
24....	47	44	62	42	77	52	81	60	81	61	80	53	63	51	.....	.....	51	43	61	44	60	43	65	52	81	42	73	49
25....	49	42	64	49	63	46	70	51	77	53	78	54	60	43	.....	.....	50	45	55	47	71	48	79	53	79	50	72	57
26....	61	38	56	39	58	40	60	42	59	45	61	45	59	39	.....	.....	56	43	60	45	53	46	58	44	54	50	63	44
27....	70	48	66	36	68	42	64	47	60	50	66	40	61	39	.....	.....	66	39	68	44	64	38	59	40	66	38	67	40
28....	71	45	69	43	68	46	69	50	68	53	70	41	63	45	.....	.....	69	51	73	50	70	46	72	44	70	39	66	48
29....	55	44	71	40	67	47	64	58	66	62	70	60	65	45	.....	.....	60	43	58	46	65	42	67	45	67	45	71	45
30....	67	44	70	35	60	54	62	56	68	59	74	56	64	45	.....	.....	60	41	53	45	62	42	58	49	75	59	71	53
Mns..	61.8	46.0	66.4	44.5	68.9	50.8	69.1	56.4	71.7	59.1	73.8	52.4	63.4	48.6	.....	.....	64.2	47.0	63.7	48.7	64.2	46.1	64.9	48.8	74.3	50.1	69.3	49.2

Date.	Lower Michigan.						Ohio.								Erie, Pa.		New York.								Vermont.			
	Detroit.		Muskegon.		Saginaw, west side.		Cleveland.		Lima.		Sandusky.		Toledo.				Buffalo.		Canton.		Rochester.		Syracuse.		Burlington.		Northfield.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	86	67	90	60	82	65	87	66	92	60	92	68	90	67	84	65	83	64	82	50	84	58	82	57	80	52	83	43
2....	95	71	94	68	95	66	92	68	95	65	94	69	97	70	90	68	87	68	88	52	92	61	90	61	90	53	89	45
3....	87	65	86	68	78	63	90	70	95	65	91	70	96	68	91	73	85	69	83	62	86	66	90	70	86	60	92	52
4....	73	61	80	56	69	58	72	63	73	66	71	66	70	64	74	63	69	58	62	48	66	58	70	57	62	49	68	48
5....	75	55	85	60	78	55	68	63	83	63	71	66	73	61	68	62	71	56	70	47	68	59	75	56	70	47	74	43
6....	82	59	86	60	86	53	74	63	90	61	76	65	80	61	74	60	82	58	80	40	74	56	80	54	79	42	79	34
7....	83	66	83	63	92	62	82	66	83	64	89	67	92	67	87	65	79	63	85	56	84	61	87	68	78	58	81	44
8....	73	55	80	62	70	52	76	64	76	67	74	65	75	55	73	63	73	60	72	52	75	61	73	57	72	56	74	55
9....	66	53	74	48	65	49	64	54	74	49	67	58	65	52	63	50	61	47	60	37	61	47	60	45	58	43	56	31
10....	73	55	78	45	74	47	71	48	79	44	72	48	71	52	67	47	69	43	62	30	63	40	67	41	61	33	62	26
11....	79	58	75	50	80	49	71	50	84	45	75	53	78	55	74	50	70	47	68	45	73	43	66	49	63	36	60	30
12....	72	52	68	40	71	44	61	58	69	53	69	60	73	54	65	60	68	59	68	47	70	56	70	51	68	40	69	32
13....	63	45	72	42	61	40	64	49	68	43	63	50	67	45	62	49	59	45	55	44	57	46	60	48	60	47	65	42
14....	62	45	70	40	64	38	58	42	67	42	61	44	62	45	55	39	57	42	51	33	52	37	53	40	52	34	50	27
15....	67	53	68	44	71	43	73	45	74	43	69	46	67	49	67	45	66	39	61	28	62	39	62	33	60	30	60	22
16....	66	58	65	40	66	56	65	56	75	48	71	57	70	56	72	55	72	52	71	38	75	47	73	47	72	32	71	23
17....	73	59	67	42	68	56	74	59	74	55	74	60	74	57	70	57	66	58	69	52	69	56	68	55	68	53	69	39
18....	59	55	66	39	63	49	60	55	66	57	62	58	60	55	62	53	62	51	63	50	65	52	66	53	64	50	66	52
19....	64	51	68	45	68	43	64	54	73	48	65	53	64	54	64	50	64	48	67	48	65	52	64	52	60	52	59	51
20....	74	49	74	44	73	48	77	56	74	49	77	52	74	50	80	58	76	54	75	48	76	53	72	50	66	48	58	51
21....	52	44	70	40	53	43	56	46	53	43	55	46	56	43	64	49	64	49	76	56	67	52	74	52	72	57	65	54
22....	50	41	68	40	52	42	50	40	48	40	52	38	53	40	54	44	55	45	57	46	61	45	61	49	70	53	72	55
23....	58	37	62	38	59	38	57	39	65	31	65	36	62	36	57	42	54	46	58	43	58	42	58	45	61	49	62	39
24....	79	52	74	52	78	49	79	51	78	36	81	52	80	54	77	46	74	42	62	43	70	42	65	44	63	41	64	35
25....	79	58	72	50	79	54	81	56	77	49	82	56	79	57	81	58	74	62	77	47	84	57	81	58	73	44	75	36
26....	62	44	62	38	60	42	67	55	61	56	63	47	62	46	71	54	68	49	77	47	66	48	77	50	73	53	75	46
27....	68	41	64	35	67	38	60	48	64	34	62	42	65	44	61	53	62	46	55	33	62	44	61	48	58	44	58	35
28....	69	49	66	40	70	44	71	46	72	37	73	47	73	48	70	47	68	50	67	34	72	44	69	42	68	34	68	30
29....	66	57	70	43	71	54	67	60	72	59	70	58	68	58	68	61	65	56	70	47	73	53	72	53	71	45	70	49
30....	72	57	77	40	73	55	67	62	75	60	69	58	69	58	64	58	66	54	56	33	60	52	69	46	55	33	63	32
Mns..	70.9	53.7	73.8	47.7	71.2	49.8	70.1	55.1	74.5	51.1	71.8	55.2	72.2	54.0	70.3	54.8	69.0	52.7	68.2	44.5	70.0	50.9	70.5	51.0	67.8	45.6	68.6	40.0

[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.