very little frost in the ground under the deep snow, a condition that has seriously interfered with logging in the northern woods and field work in the southern and western portions of the State.

In Wisconsin the precipitation was quite unevenly distributed over the section, but was fairly well distributed throughout the month. In the central and southern counties the total was very nearly the normal amount, but in most of the northern counties it was only a little above one-half the normal. After the 5th practically all of the precipitation was in the form of snow. The severest storm of the month occurred on the 24–25th, when the snow drifted badly and traffic was interrupted to a considerable extent. The ground was partially covered with snow from the 5th to the 11th, and completely covered after the latter date, the depth on the ground gradually increasing until the end of the month.

The average precipitation for Iowa within the district was 2.35 inches, or 1.09 inch above the normal, and has been exceeded in December only twice during the past 20 years. Rains were general from the 1st to 3d, changing to snow in the northern counties on the latter date. The rain changed to sleet over the southern and eastern counties on the 4th, changing to snow on the 5th. After the 5th snow fell at frequent intervals, but the daily amounts were not large, except on the 24–25th, when the amounts ranged from 2 to 12 inches, the largest amounts being reported from the central and east-central counties. At least a trace of precipitation fell at some station in the section on every day of the month, except the 31st; and the number of days with .01 inch or more of precipitation exceeded all former records for December at several stations. The average snowfall for the month was 14.3 inches. The ground was covered from the 3d in the northern and the 5th in southern and eastern counties to the close of the month, and there was a longer period of good sleighing than for many years so early in the winter.

In Missouri the total precipitation ranged from 2 to 6 inches, exceeding the normal by 1 inch to 4 inches. The periods of general precipitation were from the 1st to the 5th, 11–12th, and 24–25th. After the 5th all precipitation was in the form of snow or sleet. The snowfall was more or less general and heavy on the 6–7th, 24–25th, and 29th. The total fall ranged from 7 to over 13 inches, and covered the ground continuously from the 6th to the close of the month.

The precipitation was well distributed in Indiana during the month, and much the greater part fell in the form of snow. On account of the continuous cold weather, a considerable quantity of snow remained on the ground during the latter part of the month; the amount remaining on the ground on the 31st ranged from 7.5 to 14 inches. A fall of about 5 inches of snow occurred on the 7th, and 8 to 12 inches fell on the 24–25th, which caused some delay to railroad traffic, although not to a serious extent.

In Illinois the average precipitation was 2.99 inches, or 0.89 inch above the normal. Rain or snow, in measurable quantities, fell somewhere in the State on 21 days. The greatest monthly amount, 5.27 inches, occurred at Sycamore, and the least, 1.21 inches at Greggsville. The greatest amount in 24 consecutive hours was 2.32 inches at Riley on the 5th, which was the heaviest rainfall in winter at that place since 1880. The average snowfall was 16.4 inches, which was quite heavy as compared with previous records for December.

The average precipitation for the district, as shown by the records of 297 stations, was 2.20 inches, which is 0.96 inch above the normal. The greatest amount, 6.17 inches, occurred at Sublett Mo., and the least, 0.30 inch, at Dunseith, N. Dak. The greatest amount in 24 hours, 2.75 inches, occurred at Sublett, Mo., on the 4th. The average depth of snowfall was 14.4 inches; the greatest depth was at Sycamore, Ill., 32.5 inches, and the least, 1.0 inch at Cairo, Ill. Measurable precipitation occurred on the average of 10 days.

Sunshine and cloudiness.—The average number of clear days was 8; party cloudy, 7; and cloudy, 16. The duration of sunshine was below normal.

Wind.—Northwest winds prevailed. The highest velocity reported was 42 miles per hour from the west at Hannibal, Mo.

MISCELLANEOUS.

The heavy snow and the severe cold weather put a stop to the corn harvest. Much of the corn crop is still in the fields in Iowa and Minnesota, and a great deai of it is on the ground and covered by ice and snow. The heavy snow, however, afforded good protection and was favorable to the winter grains in the southern section of the district. Railroad and street car traffic was delayed considerably by the heavy snows, but over the larger part of the district the delays were temporary. Floating ice was reported in the Mississippi River on the 12th. An ice gorge wrecked the false work of the McKinley bridge, causing a considerable loss. At the close of the month the river was solidly gorged at St. Louis, Mo. Navigation between St. Louis and Cairo was suspended on the 18th. The transfer of passengers, etc., between Birdspoint, Mo., and Cairo, Ill., was at times suspended, and the passage was closed on the 30th.

The Des Moines River, at Des Moines, Ia., did not freeze over until the 20th, notwithstanding the fact that there had been a great deal of severely cold weather prior to that date. The stage of the river was unusually high for the season of the year during the fore part of the month, and as the heavy covering of snow prevented the ground from freezing, except on the surface, the temperature of the water flowing into the river was considerably above the freezing point, thereby requiring more than the usual amount of cold weather to reduce the temperature of the water in the river. The ice, however, was 9 to 10 inches thick at the close of the month, but the ice harvest has not yet begun, except on ponds.

DRAINAGE NOTES.

The heavy snow and the severe cold weather put a stop to the construction of all drainage work, but the boards of supervisors in several counties in Iowa have been active in making plans for the resumption and extension of the work during the coming season. The boards of supervisors of Hardin, Franklin, Wright, and Hamilton counties, sitting in joint session, awarded the contract for the construction of a drainage ditch through the 4 counties above named for $59,000. The estimated yardage of the ditch is 1,000,000 cubic yards, and the length is 27 miles. Work is to be begun April 1, 1910, and completed by January 1, 1911.

SANITARY DISTRICT OF CHICAGO.

Mr. E. H. Heilborn, Division Engineer, is making a topographic survey of the Illinois Valley for the sanitary district of Chicago, and he has in mind the construction of charts and diagrams to show the relation of precipitation to river stages at 40 regular stations along the Des Plaines and Illinois rivers.

THE EFFECT OF DRAINAGE WORK IN NORTHERN IOWA ON THE FLOOD STAGES OF THE RIVERS.

By A. MARSTON, C. E., Dean of Engineering and Professor of Civil Engineering, Iowa State College, Ames, Iowa.

The question is frequently asked, What effect will the extensive drainage work which has been in progress in northern Iowa for the past few years have on the flood stages of the rivers whose sources are in the territory drained?

The people living along the lower courses of these streams seem, very generally, to have the impression that, since the water is to be drained away from the upper portion of the drainage areas, the flood flow of the streams will be increased thereby, and hence greater damage done by flooding the bottom lands bordering the lower courses of these streams.

It is not by any means easy to determine whether these fears will be justified, even in part, for so many factors enter into the question as to make it a very complicated one to answer in any given case.

For the purpose of this discussion, the flow of any Iowa stream may be divided into five classes, as follows: 1. Total flow; 2. Low water flow; 3. Ordinary flow; 4. Ordinary flood flow; 5. Maximum flood flow.

1. *Total flow.*—By this I mean the total amount of water flowing in any stream regardless of the rate at which it flows. The only way in which this could be affected by drainage operations would be by a change in the use of water by crops and evaporation in the watershed which is being drained. The rate of evaporation from drained soil is very high immediately after rains, and greatly decreases between storms. The evaporation from wet, marshy ground is at a less rate than that from cultivated ground immediately after a rain, and at a higher rate than that from cultivated ground between storms. Knowledge on this subject is not exact enough to give the total value in each case in Iowa. I believe it to be probable that the total use of water by crops and evaporation would not be very much different in the two cases under consideration and that there would not be any great effect of the drainage operations upon the total flow of Iowa streams.

2. *Low water flow.*—The low water flow is maintained by underground water coming into the stream, usually from springs, and from general seepage into stream channels. My observations of tile drainage systems and drainage ditches indicate that, in extreme dry seasons when extreme low water flow occurs, tile drains and ordinary drainage ditches do not discharge at all. It is therefore probable that extreme low water flow will not be affected materially by Iowa drainage operations. The ordinary low water flow will probably be increased on account of the additional seepage of water in the soil due to tile drainage, which forms an enormous reservoir of porous soil between the tile drains and the surface of the ground.

3. *Ordinary flow.*—By ordinary flow, I mean those rates of flow lying between low water flow and flood flow. When the construction of tile drainage has been completed, in addition to that of drainage ditches, it is probable that the ordinary flow of streams will be somewhat increased, owing to the storage effect of the porous soil as described above. The construction of drainage ditches alone might have the effect to decrease the ordinary flow, as it is maintained by the gradual emptying of the ponds and marshes between storms. These ponds and marshes constitute natural reservoirs which are being destroyed by the construction of drainage ditches.

4. *Ordinary flood flow.*—By flood flow, I mean rates of flow in excess of the capacity of the regular channels of the streams and which, therefore, cause them to overflow their banks. By ordinary flood flow, I mean those floods which occur more than once in every ordinary year. Tile drainage will eventually decrease the ordinary flow by creating a storage reservoir in the porous soil already described. Tile drainage will eventually be extended to a large percentage of the total areas of the regions in which extensive drainage operations are to be carried on The extension of tile drainage will be continued to scores, perhaps hundreds of years, and a much larger percentage of the total area of Iowa will eventually be tile drained than most people at the present time consider at all probable.

While this will be the ultimate effect of Iowa drainage operations, yet the construction of drainage ditches alone will probably temporarily increase the ordinary flood flow of the streams, for the drainage ditches are destroyeing the natural reservoirs formed by the ponds and marshes, which in the past have served to hold back part of the flood water. It is impossible to foretell how long a time will elapse before this temporary increase of flood flow is overcome by the storage effect due to the tile drainage.

5. *Maximum flood flow.*—By this, I mean floods which occur only at intervals measured by years. Such floods have occurred in the past whenever a heavy, long-continued storm occurs at a time when the natural reservoirs formed by the ponds and marshes have already been filled by previous rains. At such times the ponds and marshes have comparatively little additional storage capacity, only such as is afforded by the rise in level necessary to discharge their waters at a sufficient rate through their outlet channels. The construction of drainage ditches alone will operate to increase the maximum flood flow, but will not have such a marked effect upon it as in the case of ordinary floods. Tile drainage will eventually decrease the rate of maximum flood flow by an amount depending upon the thoroughness of the drainage. I believe that eventually tile drainage will be made so thorough and extensive that no storm will find the porous soil above the tile drains completely filled with water to the surface of the ground. Whenever this is brought about, the effect of tile drainage will be to decrease materially the rate of maximum flood flow.

To sum up: First, the probable effect of the construction of drainage ditches alone without tile drainage is to decrease the ordinary flow of streams and increase the flood flow; second, the probable effect of tile drainage is to increase the ordinary and low water rate of flow of streams and decrease the flood flow; third, the combined effect of drainage ditches and tile drainage will probably be to cause a temporary increase in the rate of flood flow, and, eventually, a permanent decrease in the rate of flood flow.

TABLE 1.—*Climatological data for December, 1909. District No. 5, Upper Mississippi Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Precipitation, in inches. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Sky. Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.
North Dakota.																				
Amenia	Cass	954	11	7.2	− 5.3	44	1	−24	10†	58	1.50	+ 1.15	0.75	7.5	5	9	5	17	nw.	C. E. Wood.
Bottineau	Bottineau	1,638	13	4.0	− 4.0	30	1	−25	9	37	1.75	+ 1.45	0.46	.....	12	7	8	16	nw.	J. A. Kamp.
Cando	Towner	1,458	7	1.8[b]	− 4.6	38[b]	1	−42[b]	9	43[b]	0.63	+ 0.19	0.25	.....	4	.....	.....	.....	.....	E. T. Judd.
Crosby	Williams	.....	2	5.0	.....	34	1†	−22[a]	9	55[a]	0.93	.....	0.38	4.5	6	9	7	15	nw.	B. Lancaster.
Devils Lake	Ramsey	1,482	3	3.6	− 4.4	35	1	−31	9	38	1.05	+ 0.66	0.50	12.4	12	7	7	17	nw.	U. S. Weather Bureau.
Donnybrook	Ward	1,760	9	5.5[c]	− 9.6	39[c]	31	−25[c]	9	38[c]	0.75	+ 0.09	0.30	7.5	5	.....	.....	.....	nw.	F. S. Gieselman.
Dunseith	Rolette	.....	11	4.4	− 5.4	35	1	−29	9	31	0.30	− 0.05	0.20	3.0	2	15	9	7	w.	L. H. Trowbridge.
Edmore	Ramsey	1,524	3	3.0	.....	40	1	−35	9	35	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. R. Aslakson.
Forman	Sargent	1,249	14	9.8	− 4.4	52	1	−30	29	45	1.53	+ 1.16	0.52	10.1	8	3	8	20	nw.	A. Maltby.
Grafton	Walsh	827	11	2.7	− 4.5	27	2	−27	9	49	2.10	+ 1.62	1.10	21.0	10	3	18	10	n.	H. Lamoure.
Granville	McHenry	1,504	2	.....	.....	38[k]	31	−26[k]	9	35[k]	0.70	.....	0.18	.....	7	.....	.....	.....	.....	W. A. Christiansen.
Hamilton	Pembina	824	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	D. Wallace.
Hannah	Cavalier	1,568	3	5.6	.....	38	1	−36	9	33	1.60	.....	0.40	16.0	8	10	7	14	nw.	J. Moffatt.
Hansboro	Towner	.....	1	3.8	.....	38	1	−30	9	31	0.84	.....	0.18	7.6	7	6	4	21	nw.	Geo. Dale.
Hillsboro	Traill	901	3	6.0	.....	36	1	−24	9	30	2.28	.....	0.85	10.1	9	12	5	14	n.	M. H. Norman.
Lakota	Nelson	1,519	2	1.8[c]	.....	36[b]	1	−32[b]	9	34[b]	4.84	.....	1.25	28.0	12	.....	.....	.....	nw.	C. R. Pettes.
Langdon	Cavalier	1,615	13	3.8	.....	40	1	−35	9	47	3.50	.....	0.70	35.0	9	12	4	15	.....	J. Woolner.
Larimore	Grand Forks	1,134	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. Naylor.
Lisbon	Ransom	1,091	4	5.9	.....	36	1	−30	29	61	2.25	.....	1.05	10.0	6	12	2	17	nw.	H. K. Adams.
McKinney	Ward	1,640	14	4.5	− 6.1	40	31	−29	19	54	0.80	+ 0.34	0.50	8.0	3	4	17	10	nw.	M. P. Swenson.
Manfred	Wells	1,605	7	2.9	.....	34	31	−26	9†	41	1.70	.....	0.40	17.0	12	6	17	8	nw.	P. B. Anderson.
Mayville	Traill	975	13	6.8	− 7.1	41	1	−25	9	30	1.40	+ 1.02	0.60	13.8	6	27	0	4	n.	M. N. Pope.
Milnor	Sargent	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	O. B. Jorgenson.
Minot	Ward	1,557	10	5.3	− 6.8	40	31	−27	19	55	0.88	+ 0.55	0.20	8.8	10	15	1	15	nw.	J. J. Bates.
Minto	Walsh	820	15	5.4	− 5.3	39	1	−25	9†	29	1.38	+ 1.00	0.45	.....	6	10	9	12	n.	S. S. Marsh.
Oriska	Barnes	1,270	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. E. Williams.
Park River	Walsh	998	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. Heyward.
Pembina	Pembina	789	10	−1.6	− 9.4	28	1	−36	8	30	2.90	+ 2.26	1.20	29.0	7	10	8	13	se.	F. C. Warner.
Portal	Ward	1,954	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. S. Davis.
Power	Richland	1,020	16	5.4	− 6.7	36	1	−29	29	39	1.85	+ 1.41	0.60	17.0	7	8	11	12	nw.	J. A. Power.
Pratt	McHenry	.....	4	2.6	.....	43	1	−27	9	38	0.70	.....	0.40	7.0	2	7	1	23	nw.	C. H. Butts.
Towner	....do	1,475	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	B. Bagley.
University	Grand Forks	830	17	4.0	− 7.4	40	1	−27	10	32	0.75	+ 0.22	0.20	7.5	5	2	8	21	n.	G. W. Stewart.
Wahpeton	Richland	962	17	5.8	− 9.4	40	1	−27	29	37	1.32	+ 0.95	0.67	15.0	4	5	5	21	nw.	E. G. Burch.
Walhalla	Pembina	966	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Chas. H. Lee.
Westhope	Bottineau	.....	2	4.8	.....	36	1	−26	9	34	0.38	.....	0.12	.....	9	8	8	15	nw.	J. D. Currie.
Willow City	....do	1,471	15	3.0	− 7.0	38	1	−30	9	50	1.10	+ 0.69	0.60	11.0	6	2	15	14	nw.	M. A. Ostby.
Minnesota.																				
Albert Lea	Freeborn	1,229	19	12.6[b]	− 6.1	45	1	−18[b]	29	32[b]	2.00	+ 1.06	0.40	15.0	10	7	8	16	nw.	Edward Carey.
Alexandria§§	Douglas	1,391	15	8.0	− 4.2	41	2†	−24	29	48	1.03	+ 0.47	0.20	15.0	13	5	4	22	nw.	P. O. Unumb.
Angus	Polk	870	7	3.8	.....	39	1	−29	9†	26	0.56	.....	0.34	2.2	4	7	4	18	n.	F. A. Wilson.
Bagley	Clearwater	.....	3	6.4	.....	48	1	−31	29	40	1.49	.....	0.70	13.0	7	8	16	7	nw.	Edward T. Teitsworth.
Baudette	Beltrami	.....	.....	6.7	.....	43	1	−32	29	32	1.23	.....	0.68	15.0	7	8	3	20	nw.	Franz W. Schmidt.
Beardsley	Bigstone	1,090	16	8.7[a]	− 8.2	41[a]	1	−22[a]	29	36[a]	1.04[a]	+ 0.81	0.45[a]	13.0[a]	7[a]	.....	.....	.....	nw.	Roy A. Smith.
Beaulieu	Mahnomen	1,200	7	6.6	.....	48	1	−30	29	40	0.84	.....	0.23	12.0	7	11	5	15	nw.	Dr. L. A. Parkinson.
Bird Island	Renville	1,039	19	11.2	− 5.9	44	1	−21	29	35	0.97	+ 0.38	0.55	8.2	7	3	7	21	nw.	Dr. F. L. Puffer.
Caledonia§§	Houston	1,179	16	14.5	− 6.9	48	1†	−12	30	29	1.63	+ 0.27	0.31	13.2	12	5	11	15	nw.	W. D. Belden.
Campbell§§	Wilkin	984	.....	7.9	.....	40	1	−25	29	52	2.69	.....	0.70	12.5	10	10	0	21	nw.	J. T. Nelsess.
Cass Lake§§	Cass	1,300	3	.....	.....	.....	.....	.....	.....	.....	1.15	.....	0.45	12.5	5	.....	.....	.....	.....	C. W. Burns.
Collegeville	Stearns	1,282	16	11.5	− 7.1	44	1	−21	29	30	1.40	+ 0.95	0.60	19.0	6	12	5	14	nw.	Fridolin Tennbreull.
Crookston§§	Polk	863	19	5.8	− 6.2	35	1	−28	29	35	1.50	+ 1.03	0.30	14.0	10	12	1	18	n.	A. G. Anderson.
Detroit§§	Becker	1,364	13	5.4	− 5.0	39	2	−36	30	60	1.00	+ 0.51	0.48	8.0	5	10	9	12	sw.	G. W. Peoples.
Fairmont, (near)	Martin	753	22	13.0	− 7.5	44	2	−17	29	33	1.09	+ 0.01	0.30	9.5	8	8	19	14	nw.	W. F. Wherland.
Faribault	Rice	1,003	12	11.4	− 7.5	47	1	−19	29	31	1.10	+ 0.52	0.41	13.5	9	6	4	21	nw.	A. R. T. Wylie.
Farmington	Dakota	902	21	11.6	− 7.5	46	1	−20	29	34	1.14	− 0.10	0.30	12.0	7	7	5	19	nw.	D. F. Akin.
Fergus Falls	Ottertail	1,210	17	9.7	− 5.1	43	1	−20	29	28	1.76	+ 0.92	0.27	13.2	18	4	13	14	nw.	Chas. E. Kissenger.
Fort Ripley	Morrison	1,135	3	.....	.....	.....	.....	.....	.....	.....	1.02	.....	0.32	12.9	7	13	3	15	n.	J. J. Tucker.
Fosston	Polk	1,288	.....	4.8	.....	43	1	−28	9	44	.....	.....	.....	.....	.....	4	15	12	nw.	O. N. Hem.
Glencoe	McLeod	1,006	13	13.0	− 4.8	47	1	−19	29	34	2.63	+ 2.23	0.70	17.8	11	8	13	10	nw.	C. G. Selvig.
Grand Meadow	Mower	1,338	22	12.1	− 6.7	49	2	−17	30	35	1.76	+ 0.47	0.24	22.0	16	7	3	21	nw.	C. F. Greening.
Hallock	Kitson	815	10	2.0	− 6.8	35	1	−35	9	38	1.12	+ 0.60	0.20	11.2	9	19	1	11	n.	D. A. Robertson.
Halstad§§	Norman	870	3	5.4	.....	34	1	−24	9†	49	1.15	.....	0.45	6.4	5	15	6	10	nw.	A. G. Holstrom.
Hinckley	Pine	1,050	4	12.2	.....	48	1	−21	29	29	2.26	.....	0.71	11.5	7	4	7	20	n.	W. R. Newman.
International Falls	Koochiching	.....	1	.....	.....	.....	.....	.....	.....	.....	1.90[a]	.....	0.60[a]	14.0[a]	7[a]	.....	.....	.....	nw.	Rees Roe.
Kelliher	Beltrami	.....	3	7.1	.....	45	1	−31	29	37	1.41	.....	0.75	16.6	7	5	11	15	nw.	A. Gilmour.
Lake Crystal	Blue Earth	.....	2	13.2	.....	46	1	−18	29	35	1.34	.....	0.47	9.0	7	9	4	18	nw.	W. P. Cobb.
Leech Lake Dam	Cass	1,300	21	7.8	− 4.8	44	1	−26	29	37	1.57	+ 0.71	0.80	16.8	12	6	10	15	w.	U. S. Engineer Corps.
Litchfield	Meeker	1,129	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	N. Y. Taylor.
Little Falls	Morrison	1,117	3	10.4	.....	46	1	−21	29	26	2.67	.....	1.20	23.5	7	9	9	13	.....	Maurice Coleman.
Long Prairie	Todd	1,299	17	10.1	− 3.8	42	1†	−21	29	29	.....	.....	.....	.....	.....	14	1	16	nw.	A. W. Sheets.
Lynd (2)	Lyon	.....	17	.....	.....	43	1	−22	29	.....	0.99	+ 0.37	0.40	9.0	4	.....	.....	.....	.....	Jacob Rouse.
Mankato§§	Blue Earth	747	10	.....	.....	.....	.....	.....	.....	.....	1.20	− 0.02	0.37	12.5	9	5	7	19	nw.	Sadie H. Blake.
Milaca	Millelacs	1,072	12	9.4	− 6.1	43	2†	−21	29	36	1.92	+ 1.57	.....	13.0	.....	10	5	16	nw.	C. H. Foss.
Milan	Chippewa	995	15	8.8	− 7.5	43	1	−23	29	45	3.25	+ 2.52	1.25	14.9	8	2	17	12	nw.	O. K. Opjorden.
Minneapolis (1)	Hennepin	918	18	12.5	− 7.5	48	1	−17	29	24	2.38	+ 1.43	0.81	10.2	14	7	5	19	w.	U. S. Weather Bureau.
Minneapolis (2)**§	Hennepin	850	16	12.2	− 6.2	48	1	−19	29	.....	1.65	+ 0.92	0.58	14.5	12	7	6	18	nw.	J. H. Ashenbeck.
Montevideo§§	Chippewa	900	19	10.6	− 8.0	54	1	−20	29	42	1.57	+ 0.85	0.42	16.1	12	5	9	17	nw.	Lloyd G. Moyer.
Moorhead	Clay	935	28	6.6	− 4.1	38	1	−23	29	34	1.74	+ 1.00	0.56	14.4	14	5	12	14	nw.	U. S. Weather Bureau.
Mora	Kanabec	.....	4	10.7	.....	46	1	−19	29	32	1.44	.....	0.60	12.5	9	12	3	16	w.	Hans Peterson.
Morris	Stevens	1,170	24	9.8	− 6.3	43	2	−23	29	26	0.90	+ 0.30	0.20	9.0	9	12	5	14	nw.	D. T. Wheaton.
New London	Kandiyohi	1,215	15	8.3	− 6.5	41	2	−22	29	45	1.69	+ 1.23	0.69	15.0	6	6	13	12	nw.	Harold Swenson.
New Richland	Waseca	1,180	15	12.2	− 7.0	46	1†	−20	29	33	1.71	.....	0.35	9.5	12	10	5	16	nw.	N. O. Tyrholm.
New Ulm§§	Brown	791	29	10.8	− 7.6	41	1	−17	29	39	2.15	− 1.49	0.65	21.5	10	2	2	27	nw.	A. J. Eckstein.
Osakis	Douglas	1,343	2	9.5	.....	44	1	−21	29	30	1.62	.....	0.40	17.6	12	6	3	22	nw.	John B. Johnson.
Park Rapids§§	Hubbard	1,426	19	7.0	− 4.7	38	1	−24	9†	44	1.31	+ 0.64	0.35	10.5	12	10	2	19	nw.	Dr. P. A. Walling.
Pine River Dam	Crow Wing	1,251	22	9.1	− 4.4	46	2	−22	29	37	1.03	+ 0.37	0.53	10.0	4	8	16	7	nw.	Neil McKay.
Pokegama Falls	Itasca	1,290	22	8.6	− 1.9	42	1	−32	29	39	1.22	+ 0.38	0.70	12.0	8	7	9	15	nw.	U. S. Engineer Corps
Red Lake	Beltrami	.....	1	7.2	.....	40	1	−32	29	39	1.93	.....	0.90	18.0	8	9	10	12	w.	A. C. Goddard.
Red Wing	Goodhue	708	20	13.6	− 6.5	50	2	−16	29	31	1.64	+ 0.29	0.80	11.8	4	11	11	9	nw.	F. A. Whittier.
Red Wing (river)§§	....do	680	10	.....	.....	.....	.....	.....	.....	.....	1.44	+ 0.09	0.46	11.3	11	6	3	22	nw.	Louis Bach.
Redwood Falls	Redwood	1,033	2	12.6	.....	45	1	−20	29	37	2.17	.....	0.80	17.0	7	8	4	19	nw.	N. B. Andersen.
Reeds Landing§§	Wabasha	681	11	.....	.....	.....	.....	.....	.....	.....	0.93	+ 0.26	0.40	7.3	9	3	5	23	nw.	John Deschneau.
Rochester§§	Olmstead	991	5	13.0	.....	49	2	−18	29	40	0.60	.....	0.18	5.6	6	9	0	22	nw.	S. R. Case.
Roseau	Roseau	1,040	2	5.2	.....	41	1	−37	9	33	1.44	.....	0.74	.....	3	15	11	5	nw.	A. Waag.
St. Charles§§	Winona	850	18	11.5	− 9.1	49	2	−17	30	31	1.54	+ 0.22	0.47	13.2	12	6	7	18	se.	S. W. Gleason.
St. Cloud	Sherburne	1,020	31	11.3	− 7.1	49	2	−20	29	24	1.63	+ 1.17	0.59	9.0	6	13	1	17	nw.	Jos. H. Capser.
St. Paul	Ramsey	837	38	12.2	− 7.1	48	1	−18	29	27	1.52	+ 0.46	0.53	14.5	12	6	8	17	nw.	U. S. Weather Bureau.

TABLE 1.—*Climatological data for December, 1909. District No. 5*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Precipitation, in inches. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days .01 inch or more.	Sky. Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.
Minnesota—Cont'd.																				
St. Peter	Nicollet	840	16	15.3	− 4.2	58	2	−20	29	42	1.71	+ 1.09	0.70	8.7	4	19	4	8	nw.	Charles C. Cavanaugh.
Sandy Lake Dam	Aitkin	1,234	16	11.0	− 1.8	45	2	−22	29	29	1.96	+ 1.17	0.85	15.0	11	4	4	23	w.	U. S. Engineer Corps.
Shakopee	Scott	750	14																	
State Sanitorium	Cass		1	8.6		45	1	−23	9	29	1.39		0.69	16.1	10	10	6	15	nw.	Dr. W. J. Marcley.
Stillwater§§	Washington	694	4								1.55		0.38	14.8	8	11	5	15	nw.	W. B. Nease.
Taylors Falls	Chisago		2	12.8		51	1	−24	29	36	1.30		0.30	15.0	8	8	6	17	n.	Mpls. Gen. Elec. Co.
Wabasha[m]	Wabasha	662	17																	Herman Yost.
Warroad	Roseau			4.6		42	1	−39	9	35						6	5	20	nw.	John Sawyer.
West Concord	Dodge	1,232	1	11.5		46	1†	−18	29	34	1.20		0.60	12.0	3	2	16	13	nw.	O. H. Orcutt.
Willow River	Pine	1,046	11																	J. A. Brandt.
Windom	Cottonwood	1,336	3	12.0		45	1	−20	29	38	1.43		0.64	7.0	4	8	9	14	nw.	Taber C. Richmond.
Winnebago§§	Faribault	1,100	10	11.5	− 8.3	48	1	−18	29	38	1.39	+ 0.53	0.39	10.0	8	6	9	16	nw.	H. H. Haight.
Winnibigoshish	Itasca	1,300	21	8.6	− 4.4	44	1	−25	29	36	1.18	+ 0.44	0.67	13.7	9	9	5	17	nw.	U. S. Engineer Corps.
Winona	Winona	680	14	14.8	− 6.7	50	1†	−12	18	30	1.52	+ 0.34	0.58	10.4	11	9	9	13	w.	P. C. Meyers.
Worthington§§	Nobles	979	14																	W. I. Carpenter.
Zumbrota	Goodhue	979	14	12.1	− 7.3	47	1†	−16	29	29	1.17		0.40		6	9	11	11	nw.	W. C. Rowell.
South Dakota.																				
Millbank	Grant	1,148	20	8.8	−10.0	44	31	−19	29	55	2.80	+ 2.14	1.40	19.1	7	8	1	22	nw.	T. T. Patridge.
Wisconsin.																				
Antigo	Langlade	1,489	14	15.2	− 3.7	41	5	− 9	18	28	0.79		0.20	4.4	9	3	2	26	w.	E. C. Larzeler.
Barron	Barron	1,115	16	11.7	− 5.2	46	1	−18	29	25	1.24	0.00	0.70	11.4	9	9	9	13	nw.	W. A. Kent.
Beloit	Rock	750	19	17.6	− 5.9	53	2†	−10	30	37	4.47	+ 2.61	1.10	31.4	12	15	1	15	w.	Smith Observatory.
Brodhead	Green	812	11	15.2		53	1	−20	19†	41	3.71		1.03	27.0	9	16	4	11	nw.	H. D. Kirkpatrick.
Burnett	Dodge	880	5	14.2		50	1†	−13	20	31	3.09		1.10	25.2	9	6	7	18	nw.	Geo. W. Smith.
Delavan	Walworth	920	16	16.2	− 8.1	52	1	−17	30	37	3.45	+ 1.85	1.23	20.2	11	9	4	18	w.	E. S. Austin.
Dodgeville	Iowa	1,116	10								3.76		0.80	26.8	10	13	2	16	s.	Geo. H. Butler.
Downing	Dunn	983	6	10.4		49	1	−22	18†	38	1.15		0.40	11.5	5	0	3	28	w.	E. F. Stoddard.
Eau Claire	Eau Claire	800	18	13.9	− 6.7	49	1	−12	18	37	1.46	− 0.05	0.63	8.3	13	6	10	15	nw.	R. D. Whitford.
Ellsworth	Pierce	1,068	1																	H. G. Woods.
Glidden	Ashwood	1,519									0.62		0.15		8	11	0	20	se.	George Sell.
Grand Rapids	Wood	1,021	10	13.7		50	1	−15	18†	40	1.36		0.39	13.8	11	10	5	16	w.	W. B. Raymond.
Grantsburg	Burnett	1,095	18	11.0	− 5.1	50	1	−26	29	30			0.40	14.0		9	4	18	sw.	Theodore Olsen.
Hancock	Waushara	1,091	17	14.4	− 5.9	49	1†	−13	18	32	1.50		0.55			6	7	18	nw.	F. B. Hamilton.
Hatfield	Jackson	973	1	14.8		62	1	−22	18	43			0.40		3†	7	6	18	w.	W. S. Woods.
Hayward	Sawyer	1,197	18	11.8	− 4.3	50	1	−15	18	38	0.68	− 0.45	0.25	4.8	6	3	7	21	w.	W. E. Swain.
Hillsboro	Vernon	1,000	18	12.2	− 8.3	50	1†	−24	19	48	2.10	+ 0.53	0.80	17.0	7	8	13	10	e.	E. V. Wernick.
Koepenick	Langlade	1,683	18	14.2	− 4.2	50	1	−15	18	38	1.46	+ 0.24	0.72	7.0	5	0	7	24	nw.	E. S. Koepenick.
La Crosse	La Crosse	714	37	15.2	− 7.6	52	1	−11	18	43	1.79	+ 0.46	0.46	16.4	14	3	9	19	sw.	U. S. Weather Bureau
Lake Mills	Jefferson	897	18	16.3	− 6.7	52	1	−12	20†	37	3.87	+ 2.26	1.14	22.0	17	5	12	14	sw.	S. N. D. Smith.
Lancaster	Grant	1,070	19	14.2	− 6.8	51	5	−14	29†	41	1.65	+ 0.10	0.60	19.0	9	4	9	18	w.	Edward Pollock.
Long Lake	Oneida	1,592	1	16.0		54	1	−13	28†	36	0.90		0.33	5.0	14	2	10	19	w.	Louie Frank.
Madison	Dane	974	31	15.4	− 7.3	51	5	− 8	29	41	3.15	+ 1.38	1.06	23.1	14	7	8	16	w.	U. S. Weather Bureau.
Mather	Juneau	962		13.1		50	5	−17	30	39	1.83		0.37	11.5	11	5	8	18	w.	Frank Evans.
Mauston	do	882	13	14.8	− 4.7	51	1	−17	30	35	2.26	+ 0.88	0.55	20.0	5	8	9	14	nw.	E. L. Hitchcock.
Meadow Valley	do	974	18	13.8	− 5.3	51	1	−15	18†	35	1.50	+ 0.28	0.78	16.0	8	3	14	14	nw.	C. H. Johnson.
Medford[a]	Taylor	1,420	18	13.8	− 4.2	50	1	−12	18	32	1.15	− 0.13	0.75	3.0	5	2	11	18	w.	William Zeit.
Merrill	Lincoln	1,267	3	18.1		62	1	− 9	28	39	0.84		0.25	5.8	7	9	11	11	w.	F. M. McElroy.
Minocqua[a]	Oneida	1,604	5	14.2		49	1†	− 8	8†	28						7	6	18	w.	Charles W. Hooper.
Mondovi	Buffalo	738	1	12.4		48	1†	−27	18	33	1.39		0.46	12.0	14	12	7	12	w.	Dr. Charles Hebard.
Mount Horeb	Dane	1,226	5	13.9		50	1†	−14	18†	45	2.67		0.88	14.0	11	8	5	18	nw.	W. M. Lewis.
Muscoda	Grant	666		17.6		52	5	−21	18	28	2.39		0.36	17.4	11	6	8	17	sw.	Henry Eckstein.
Neillsville	Clark	996	20	13.4	− 5.8	50	1	−14	17†	31	1.92	+ 0.34	1.30	8.0	3	2	3	26	nw.	William Heaslett.
New Richmond	St. Croix	990	4	15.4		48	3	−21	29	35	1.64		0.91	7.5	4	12	10	9	nw.	F. R. Van Meter.
Osceola§§	Polk	806	18	11.8	− 4.4	48	1	−25	18	36	1.92	+ 0.70	0.90	16.0	7	6	9	16	w.	C. W. Staples.
Portage	Columbia	809	13	15.4	− 6.5	53	1	−10	30	31	1.56	− 0.05	0.60	18.0	6	12	7	12	nw.	James Clear.
Prairie du Chien§§	Crawford	690	22	17.0	− 6.8	62	2	−16	30	46	2.05	+ 0.40	0.55	19.0	11	8	3	20	nw.	John Ducharme.
Prentice	Price	1,551	11	12.4		55	1	−18	30	45	0.94		0.28	4.8	6	3	2	26	w.	J. G. Lash.
Rhinelander	Oneida	1,550	4	17.2		52	1	− 6	8†	34	1.27		0.27	11.2	18	5	5	21	nw.	John Lind.
Sauk City	Sauk	758	1	16.0[a]		52[a]	1†	−22[a]	30	34[a]				22.0[a]					w.	K. Derleth.
Shullsburg	Lafayette	1,019	3	15.2		51	5	−13	29	39	3.87		1.07	25.5	13	10	4	17	w.	H. B. Chamberlin.
Solon Springs	Douglas	1,083	2	12.3		51	1	−18	29	37	2.15		1.50	2.5	4	11	6	14	nw.	J. M. Sayles.
Spooner	Washburn	1,104	14	12.2	− 4.1	51	1	−21	29	29	1.47	+ 0.74	1.09	3.0	4	15	9	7	w.	H. A. Bresee.
Stanley	Chippewa	1,082	5	13.4		51	1	−16	18	35	1.11		0.54	5.2	8	5	8	18	nw.	L. E. Scott.
Stevens Point	Portage	1,113	16	14.4	− 4.8	50	1	−13	18	31	2.63	+ 1.49	1.00	13.1	11	6	3	22	w.	G. E. Culver.
Valley Junction	Monroe	930	17	14.1	− 5.2	52	1	−15	30	38	2.98	+ 1.73	0.65	16.0	12	5	8	18	nw.	F. Muermann.
Viroqua	Vernon	1,412	18	14.3	− 6.9	50	1	−14	18	35	1.58	− 0.01	0.58	16.5	13	8	8	15	sw.	H. E. Rogers.
Vudesare[a]	Vilas	1,600	1	14.8		52	1	− 6	20†	32	0.89		0.44	7.2	11	3	8	20	nw.	L. L. Thomas.
Watertown§§	Jefferson	824	17	17.0	− 4.4	51	5	−13	30	37	3.79	+ 2.06	0.82	21.8	14	6	10	15	sw.	Charles J. Salick.
Waukesha (1)	Waukesha	970	13								2.96	+ 1.64	1.17	14.5	11					A. V. B. Dey.
Waukesha (2)	do	864	1	16.6		51	5	− 9	30	31	3.95		1.43	19.6	11	4	14	13	nw.	Carroll College.
Wausau	Marathon	1,212	17	16.6	− 1.3	51	1	− 8	18	29	0.90	− 0.51	0.26	7.7	7	5	10	16	w.	H. A. Beilke.
Weyerhaeuser	Rusk	1,297	2	12.4		52	1	−16	18	41	1.87		1.00	8.9	10	3	12	16	nw.	Miss Etta Stiles.
Whitehall	Trempealeau	675	17	13.0	− 6.3	52	2	−26	18	35	1.35	− 0.04	0.40	11.0	6	6	5	20	w.	H. A. Towner.
Iowa.																				
Albia§, §§	Monroe	959	10	16.4	− 8.6	49	1	−13	29	31	1.80	+ 0.66	0.80	9.2	6	8	7	16	nw.	J. I. Chenoweth.
Algona§	Kossuth	1,213	34	13.8	− 6.3	45	2	−15	29	36	1.29	+ 0.26	0.30	17.0	12	14	4	13	nw.	Dr. F. T. Seeley.
Alta§§	Buena Vista	1,513	17	11.2	−10.2	44	1	−19	29	44	1.33	+ 0.40	0.33	11.0	11	9	6	16	nw.	David E. Hadden.
Alta (near)	Buena Vista										1.39	+ 0.55	0.30	12.0	10					W. J. Minard.
Amana	Iowa	721	31	17.0	− 5.6	51	5	−13	30	37	2.37	+ 0.92	0.52	12.0	12	8	8	15	nw.	C. Schadt.
Ames	Story	926	27	15.0	− 7.6	47	1†	−14	29	40	5.29	+ 4.27	2.00	7.0	10	11	3	17	n.	Iowa State College.
Baxter§	Jasper	998	8	15.3[b]		47[c]	2	−15[a]	29	38[a]	2.04		0.44	14.0	15	13	4	14	nw.	W. R. Vandike.
Belle Plaine	Benton	828	18	15.9	− 7.8	53	1	−15	30	37	2.72	+ 1.19	0.60	16.5	14	9	2	20	nw.	S. P. Van Dike.
Bloomfield§	Davis			15.8[a]		50	2†	−13	30	42[a]	3.47		1.16	17.8	11	8	5	18	w.	C. R. Davis.
Bonaparte§	Van Buren		17	17.7	−10.2	51	2	−15	30	41	2.41	+ 0.38	0.62	7.0	9					B. R. Vale.
Boone§§	Boone	1,134	3	14.1		46	1	−15	30	45	2.45		0.64	13.0	9	9	3	19	nw.	Carl Fritz Henning.
Britt§	Hancock	1,236	11																	George P. Hardwick.
Buckingham	Tama		8								1.50		0.63		7	9	9	13		W. A. Daniel.
Burlington§, §§	Des Moines	544	12	18.6	− 8.5	55	3†	−13	30	36	4.39	+ 2.84	1.50	24.0	11	10	1	20	w.	Max E. Poppe, jr.
Carroll§§	Carroll	1,265	18	13.2	−10.2	45	1	−19	28	43	1.45	+ 0.46	0.40	11.0	9	13	3	15	w.	Mrs. Joseph J. Wolfe.
Cedar Rapids§§	Linn	733	26	16.5	− 8.5	53	2	−13	30	32	1.50	0.00	0.50	12.2	10	12	2	17	w.	W. J. Greene.
Charles City	Floyd	1,015	20	13.2	− 5.8	48	2	−16	29	29	1.79	+ 0.51	0.44	16.3	16	3	6	22	nw.	U. S. Weather Bureau.
Clear Lake§	Cerro Gordo	1,241	9	14.6	− 5.8	45	1†	−15	29	36	1.80		1.00		7	10	0	21	nw.	Oscar Stevens.
Clinton	Clinton	593	40	17.4	− 7.9	54	2	−13	30	35	6.10	+ 4.25	2.32	25.5	9	2	16	13	w.	Luke Roberts.
Columbus Junction§	Louisa	595	7	19.2	− 7.4	55	2	−11	30	37	2.72	+ 1.26	0.80	15.0	11	12	5	14	w.	J. B. Johnston.
Davenport	Scott	580	36	17.8	− 9.4	55	2	−10	29	40	3.12	+ 1.43	1.36	16.3	13	6	9	16	w.	U. S. Weather Bureau.
Decorah	Winneshiek	975	15	14.8	− 6.2	50	2	−15	29	32	2.24	+ 0.88	0.42	17.0	15					F. H. Baker.
Delaware	Delaware	1,083	17	13.2	− 8.2	51	2	−17	30	32	1.64	+ 0.26	0.47	12.3	10	8	14	9	nw.	William Ball.

TABLE 1—*Climatological data for December, 1909. District No. 5*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Precipitation, in inches. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Sky. Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.
Iowa—Cont'd.																				
Des Moines	Polk	861	31	16.9	− 8.8	48	1	−12	29	34	2.32	+ 1.01	0.73	16.0	14	10	2	19	w.	U. S. Weather Bureau.
De Soto§	Dallas	866	8	16.0[a]		48	1	−15	29	42[a]	2.05		0.59	10.5	5	20	1	10	nw.	R. D. Minard
Dows§	Wright	1,142	8	16.4		45	2	−18	30	41						10	2	19	w.	G. R. Flett.
Dubuque	Dubuque	639	35	16.6	− 7.9	54	5	−11	29	43	2.08	+ 0.36	0.66	17.7	17	8	7	16	w.	U. S. Weather Bureau.
Earlham	Madison		6	16.2		47	1	−13	29	39	3.49		0.64	16.5	14	15	0	16	nw.	George Phillips.
Elkader	Clayton	727	27	13.4	− 8.2	55	3	−19	18	32	2.46	+ 0.63	0.62	16.5	8	5	20	6	n.	Charles Reinecke.
Elma	Howard					49	2	−17	29	32	1.13		0.20		10	6	16	9	nw.	H. A. Moore.
Estherville§§	Emmet	1,298	12	12.8	− 5.4	45	1	−17	29	41	1.55	+ 0.93	0.50	6.5	6	14	0	17	nw.	A. O. Peterson.
Fairfield	Jefferson		14	17.8	− 7.3	49	1†	−13	30	39	2.39	+ 0.61	1.24	10.4	11	16	12	3	nw.	R. M. McKenzie.
Fayette§	Fayette	1,003	18	13.7	−12.9	49	2	−21	30	36	2.84	+ 1.35	0.53	24.5	15	9	11	11	nw.	R. Z. Latimer.
Forest City§, §§	Winnebago	1,226	14	12.2	− 7.6	45	1†	−15	29	43	1.40	+ 0.55	0.50	12.0	6	7	3	21	w.	J. A. Peters.
Fort Dodge§§	Webster	1,126	8	13.0		47	1	−14	29†	44	1.39		0.40	10.0	8	13	1	17	nw.	J. F. Monk.
Fort Madison	Lee	516	59								2.20	+ 0.27	1.60	6.0	3	6	5	20	w.	Miss L. A. McCready.
Gilman	Marshall	1,052	9								2.87		1.20	17.0	8					J. L. Wylie.
Grand Meadow	Clayton	1,180	17	13.4	− 8.1	50	2	−17	20†	39	2.45	+ 0.99	0.50	15.2	11	5	9	17	nw.	F. L. Williams.
Greene	Butler		9	14.6	− 4.4	47	2	−14	29	35	1.95		0.36		14	4	6	21	w.	J. L. Cole.
Grinnell	Poweshiek	1,023	16	17.2	− 7.2	49	2	−13	29	35	1.99	+ 0.82	0.45	13.5	10	12	3	16	w.	D. W. Brainard.
Grundy Center§	Grundy	976	17	15.0	− 7.6	47	2	−14	29	32						12	5	14	nw.	J. B. Calderwood.
Guthrie Center§	Guthrie	1,077	13	15.4	− 8.4	47	1†	−16	29	37	2.65	+ 1.55	0.49	13.0	12	12	6	13	nw.	D. G. Beardsley.
Hampton	Franklin	1,155	18	13.7	− 7.8	46	2	−16	29	37	2.23	+ 0.98	0.65	17.2	12	7	8	16	nw.	E. C. Grenelle.
Humboldt	Humboldt	1,095	17	14.8[a]	− 8.5	46	2	−17	29	38[a]	1.36	+ 0.67	0.42	12.0	8	16	1	14	nw.	Henry S. Wells.
Independence§	Buchanan	921	43	15.3	− 6.3	48	1†	−16	30	34	2.62	+ 1.26	1.20	25.5	10	12	0	19	nw.	George Donohoe.
Indianola	Warren	969	17	16.6[a]	− 9.2	48	1†	−12	29	35[a]	2.32	+ 0.99	0.60	14.8	13	14	2	15	nw.	John L. Tilton.
Iowa City§§	Johnson	683	49	15.8	− 8.4	53	4	−17	30	38	2.52	+ 0.87	0.80	14.0	9	8	1	22	nw.	Arthur G. Smith.
Iowa Falls§§	Hardin	1,170	15	12.6	− 8.5	46	1†	−15	29	35	2.64	+ 1.53	0.74	17.5	13	12	0	19	nw.	J. B. Parmelee.
Jefferson§	Greene			16.2		47	2	−16	29	39	1.71	+ 0.96	0.50	12.2	9	14	4	13	n.	G. W. Jackson.
Keokuk	Lee	547	37	20.6	− 8.8	55	2	− 9	30	38	2.56	+ 0.69	1.38	8.3	9	8	9	14	w.	U. S. Weather Bureau.
Keosauqua§§	Van Buren	644	16	18.6	− 8.8	60	1	−14	30	41	2.78	+ 1.23	1.49	11.2	10	8	5	18		J. H. Landes.
Knoxville§	Marion	920	12	18.5	− 8.0	49	1	−11	29	38	2.66	+ 1.28	0.65	11.5	12	12	4	15	nw.	Casey & Belville.
Lacona	Warren		9								4.00		0.90	25.0	14	5	20	6		J. B. Alter.
Le Claire	Scott	576									3.74	+ 2.62	1.58	17.4	12					Miss Margaret T. Disney
Marshalltown§§	Marshall	947	16	14.6	− 8.9	48	2	−13	29†	38	2.98	+ 1.82	1.10	16.2	12	10	3	18	w.	Rolph B. Reasoner.
Mason City§	Cerro Gordo	1,132	11	13.8	− 7.9	46	1†	−14	29	34	1.59	+ 0.78	0.40	10.0	10	9	6	16	nw.	J. S. Mills.
Mount Pleasant§	Henry	729	26	18.2	− 8.6	54	2	−13	30	36	3.38	+ 2.01	1.11	12.2	10	14	4	13	nw.	J. W. Edwards.
Muscatine	Muscatine		49								2.90	+ 0.62	1.20	17.7	11					William Molls.
New Hampton§	Chickasaw	1,169	11	12.6	− 6.9	47	2	−17	29†	31	1.23	+ 0.30	0.40	10.5	7	6	6	19	w.	A. F. Kemman.
Newton§	Jasper	944	19	16.8	− 5.6	47	2	−12	29	34	1.85	+ 0.49	0.50	15.0	9	14	3	14	w.	J. P. Beatty.
Northwood§	Worth	1,222	12	13.3	− 6.7	47	2	−16	29	29	1.70	+ 0.60	0.30	13.0	14	13	4	14	nw.	Charles H. Dwelle.
Olin§	Jones	760	11																	C. M. Miles.
Osage	Mitchell	1,184	17	13.6	− 6.0	46	2	−20	30	34			0.60		6	9	5	17	nw.	A. D. Bundy.
Oskaloosa§	Mahaska	843	24	17.4	− 8.5	49	2	−13	29†	40	2.25	+ 0.99	0.71	13.5	12	11	0	20	nw.	Joseph Boyd.
Ottumwa	Wapello	649	14	19.0	− 8.8	50	1†	−11	29	40	2.58	+ 1.27	1.00	8.3	11	7	7	17	w.	
Pella	Marion	877	6	17.6		47	1†	−16	30	41	1.83		0.50	14.5	9	17	0	14	nw.	John H. Ver Steeg.
Perry§	Dallas	975	7	15.0		47	1	−15	29	35	2.42		0.57	16.0	14	11	6	14	n.	J. A. Harvey.
Plover	Pocahontas	1,426	12	13.2	− 8.1	45	1†	−20	29	36	1.13	+ 0.37	0.30	10.0	10	10	4	17	nw.	J. S. Smith.
Pocahontas§	...do		4	12.5		45	1†	−17	29	35	0.97		0.20	8.3	10	12	6	13	nw.	F. E. Hronek.
Ridgeway§	Winneshiek	1,215	10	15.2	− 7.1	51	2	−19	30	39	4.12	+ 1.88	0.75	20.0	25	6	4	21	w.	Arthur Betts.
Rockwell City§	Calhoun		12	14.8	− 7.8	46	1†	−17	29	30	1.95	+ 0.93	0.70	17.0	6	13	8	10		C. M. Randall.
Sac City	Sac	1,278	26	14.1	− 8.6	45	1†	−17	29	35	1.65	+ 0.49	0.40	14.5	8	9	2	20	nw.	E. N. Baily.
St. Charles§	Madison	1,070	7	17.8		48	1	−12	29	34	2.61		1.00	14.5	11	17	1	13	nw.	R. D. Minard.
Sigourney§	Keokuk	877	12	17.7	− 8.6	49	2	−13	29	37	2.59	+ 1.18	0.66	17.5	12	3	18	10	nw.	J. T. Parker.
Stockport§	Van Buren		6	16.6		53	5	−22	30	48	2.57		1.34	14.0	13	10	6	15	nw.	C. L. Beswick.
Storm Lake	Buena Vista	1,440	12	14.3[b]	− 7.1	45	1	−18	29	39[b]	0.89	+ 0 66	0.24	8.5	9	12	10	9	nw.	S. B. Fracker.
Stuart	Guthrie	1,216	10	13.8[e]	− 9.8	48[e]	1	−15[e]	30	41[e]										
Tipton§	Cedar	807	10	17.4	− 8.0	58	5	−10	29†	44	3.23	+ 1.57	1.41	19.1	9	9	8	14	nw.	F. K. Gregg.
Toledo§	Tama	856	14	15.5	− 8.2	46	1	−13	29†	35	2.96	+ 1.94	0.40	17.5	11	11	4	16	nw.	I. F. Giger.
Wapello§	Louisa	588	10	19.4	− 8.5	55	2	−11	30	36	2.48	+ 1.17	0.90	12.5	11	8	9	14	nw.	G. W. Schofield.
Washington	Washington	769	27	17.8	− 6.8	53	4	−13	29†	37	2.57	+ 1.24	0.80		10	7	9	15	nw.	Wm. A. Cook.
Waterloo§§	Black Hawk	862	25	15.3	− 6.7	48	1†	−13	29	33	2.55	+ 1.24	0.66	14.5	8	8	8	15	nw.	M. L. Newton.
Waukee	Dallas	1,039	5	14.4[a]		46[a]	2	−15	29	37[a]	2.30		0.55	13.5	11	8	12	11	nw.	Samuel F. Foft.
Waverly§	Bremer	948	12	14.9	− 6.7	48	2	−14	30	32	2.29	+ 1.11	0.41	16.6	12	3	11	17	nw.	H. S. Hoover.
Webster City§	Hamilton		3	15.5		47	2	−16	29	37	2.73		0.60	22.5	9	13	3	15	nw.	C. D. Carpenter.
West Bend§	Palo Alto	1,197	14	13.8	− 6.8	45	2	−16	29	32	0.89	0.00	0.25	5.9	9	12	3	16	nw.	Joseph Dorweiler.
Whitten§	Hardin	1,036	10	14.6[a]	− 7.0	47	2	−17	29	38	1.79	+ 0.67	0.50	10.0	7	8	6	17	nw.	F. P. Butler.
Wilton Junction§	Muscatine	683	13	17.8	− 8.0	54	2†	−13	30	36						10	4	17	w.	William Lang.
Winterset§	Madison	1,129	17	16.5	− 9.5	48	1	−12	29	33	2.05	+ 0.66	0.65	12.3	10	11	2	18	nw.	Robert S. Cooper.
Zearing§	Story		4	14.6		47	2	−15	29†	42	3.00		0.70	20.2	13	4	12	15	nw.	Orley Reese.
Missouri.																				
Darksville	Randolph	826	18	21.1	−10.2	56	1	−12	29	42	2.73	+ 1.21	0.85	12.2	6	14	2	15	w.	W. H. Broaddus.
Gorin	Scotland		23								2.36	+ 0.30	0.95	11.7	6	6	6	19	nw.	J. W. Pulliam.
Hannibal	Marian	534	18	22.2	− 9.1	57	5	− 7	29	38	2.72	+ 1.07	1.42	12.8	13	9	5	17	w.	U. S. Weather Bureau.
Louisiana	Pike	500	31	22.2	− 8.8	70	4	−14	30	44	2.36	+ 0.45	1.00	9.2	9	6	9	16	nw.	J. F. Farrell.
Mexico	Audrain	797	31	21.2	−11.8	57	2	−10	30	50	3.20	+ 1.14	1.14	10.6	9	13	1	17	w.	J. F. Llewellyn.
Steffenville	Lewis	576	15	20.4	− 8.8	50	1†	−11	29	41	6.17	+ 4.62	2.75	9.2	6	10	4	17	w.	Frank Hall.
Sublett	Adair	1,000	29	21.2	− 9.0	58	4	−10	8†	38	3.50	+ 1.72	0.95	13.5	8	8	13	10	nw.	Lewis Spriggs.
Indiana.																				
Collegeville	Jasper			20.4		62	1	−10	30	41	3.21		0.98	17.5	9	7	11	13	se.	Prof. L. C. Klosterman.
Knox§	Starke	716		20.4		58	4	−12	30	27	2.93		0.62	26.9	15	8	10	13	sw.	W. R. R. Tatman.
Laporte	Laporte	810	4			55[k]	4	−12[m]			2.20		0.81	11.0						Chas. D. Rakestraw.
Plymouth	Marshall	790		20.5		57	4	−13	30	26	3.28		0.83	23.3	13	7	9	15	w.	J. W. Siders.
Illinois.																				
Aledo	Mercer	738	9	18.4		55	2	−13	30	39	3.66		1.53	15.0	12	11	7	13	nw.	William B. Frew.
Alexander	Morgan	670	16	21.5	− 9.0	59	5	−14	30	38	1.50	− 0.50	0.30	12.2	12	5	7	19	w.	George H. Hall.
Antioch	Lake	861	8	18.8		53	4	− 6	18	35	3.50		1.40	27.5	7	6	9	16	w.	J. C. James, jr.
Ashton	Lee	830	14																	E. J. Yenerich.
Astoria	Fulton	650	9	20.3		55	2†	−12	30	37	2.46		0.55	16.7	7	8	6	17	nw.	Edward V. Bohl.
Aurora	Kane	687	30	17.6	− 8.5	54	4	−16	30	35	3.43	+ 1.36	0.84	18.3	9	8	6	17	w.	W. Holden.
Bement	Platt	700	10	21.2		58	1†	−11	30	29	1.95		1.00	16.0	5	8	9	14	nw.	Rev. C. S. Adams.
Benton	Franklin	598	7			70[h]	4	− 4[h]	30	31[h]	2.80[h]		0.60[h]	4.7[h]	11[h]	9	1	21	nw.	F. H. Stamper.
Bloomington	McLean	840	17	20.5	− 8.4	59	1	−12	30	38	2.01	− 0.26	0.38	15.2	8	9	2	20	w.	Prof. H. N. Pearch.
Cairo	Alexander	359	33	31.0	− 7.5	72	4	4	30	30	3.84	+ 0.51	1.49	1.0	12	7	9	15	nw.	U. S. Weather Bureau.
Cambridge	Henry	824	16																	R. O. Purviance.
Carlinville	Macoupin	663	19	23.0	− 9.1	61	5	−11	30	38	1.99	− 0.41	0.35	14.0	9	10	7	14	nw.	John H. Seaton.
Chester	Randolph	380	5																	F. A. Gollon, jr.
Chicago	Cook	824	36																	U. S. Weather Bureau.
Coatesburg	Adams	763	15	20.8	− 7.4	60	1	− 9	30	36	2.36	+ 0.59	1.20	6.0	6	8	6	17	w.	Dr. J. R. Lambert.
Cobden	Union	656	26	30.1	− 6.2	65	4	− 5	30	32	3.14	− 0.53	1.75		6	7	11	13	s.	John Buck.

TABLE 1.—*Climatological data for December, 1909. District No. 5*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Precipitation, in inches. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Sky. Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers
Illinois—Cont'd.																				
Colchester	McDonough	694	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Eli V. Kinsey.
Dakota	Stephenson	929	.....	15.2	.....	52	2†	−16	18†	37	3.53	.....	1.43	30.2	13	8	12	11	w.	Harold Leitzel.
Decatur	Macon	685	17	21.2	− 8.9	58	1	−10	30	31	2.40	+ 0.16	0.86	10.5	11	10	9	12	nw.	Prof. J. H. Coonradt.
Dixon	Lee	725	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. E. E. Shaw.
Du Quoin	Perry	459	18	27.2	− 8.2	68	4	− 5	30	32	3.71	+ 0.98	1.90	6.0	10	10	11	10	nw.	G. H. Knetzger.
Dwight	Livingston	600	15	19.4	− 9.0	56	4†	−15	30	35	2.96	+ 1.22	0.63	25.2	12	8	8	15	w.	Edward O. Welsh.
Galva	Henry	842	17	16.9	− 8.5	54	4	−14	30	35	3.64	+ 2.10	1.65	17.2	10	10	3	18	w.	Prof. F. U. White.
Greenville	Bond	635	26	24.2	− 8.4	58	4	− 6	30	33	2.36	− 0.47	0.57	12.7	12	6	5	20	nw.	M. S. Oudyn.
Griggsville	Pike	650	22	22.2	− 9.0	61	5	−10	30	41	1.21	− 0.47	0.40	8.5	6	11	10	10	w.	George F. Kneeland.
Halfway	Williamson	569	13	28.8	− 7.2	69	4	− 5	30	30	3.28	− 0.12	1.35	4.0	11	11	5	15	w.	E. L. Hearn.
Havana	Mason	475	16	22.4	− 8.4	55	2†	− 7	30	38	2.13	+ 0.06	0.60	11.8	7	2	23	6	w.	F. & C. Borgelt.
Henry	Marshall	500	20	19.2	− 8.9	56	1	−12	30	34	3.20	+ 1.35	0.95	20.5	9	15	3	13	nw.	Dr. F. A. Powell.
Hillsboro	Montgomery	675	14	23.5	− 8.3	60	4†	− 8	30	36	2.16	− 0.41	0.50	14.0	9	8	2	21	nw.	Ira L. Woodward.
Joliet	Will	541	17	18.6	− 8.6	55	4†	−12	30	35	3.50	+ 1.36	0.66	16.9	17	8	6	17	w.	F. M. Muhlig.
Kishwaukee	Winnebago	730	19	16.1	− 9.6	54	1	−13	30	38	3.23	+ 1.21	1.30	23.5	13	8	9	14	w.	George Stevens.
Knoxville.§	Knox	775	19	18.4	− 8.4	55	2	−14	30	42	4.18	+ 2.23	1.65	15.0	7	9	2	20	W.	C. N. Butt.
La Grange	Cook	657	16	18.6	− 7.7	55	1	−14	30	30	4.12	+ 2.32	0.86	18.1	10	9	8	14	nw.	Prof. F. E. Sanford.
La Harpe	Hancock	698	30	20.3	− 7.6	55	2†	−14	30	36	2.92	+ 0.57	1.18	9.0	8	10	3	18	nw.	John S. Campbell.
Lanark	Carroll	883	18	14.8	−10.0	52	1†	−21	30	42	2.57	+ 0.88	1.15	14.6	10	15	3	13	w.	M. N. Werts.
La Salle	La Salle	536	33	19.0	− 8.5	55	1	−10	30	35	3.64	+ 1.36	1.14	21.0	14	4	14	13	w.	U. S. Weather Bureau.
Lincoln	Logan	482	20	21.5	− 9.5	58	5	− 9	30	36	2.86	+ 0.75	0.95	21.5	7	9	9	13	nw.	Prof. C. S. Oglebee.
Martinton	Iroquois	633	21	18.8	− 9.5	58	4	−15	30	37	4.10	+ 1.56	1.00	17.5	11	7	7	17	w.	Joseph H. Peltier.
Mascoutah	St. Clair	425	18	26.9	− 7.4	64	4	− 7	30	34	2.68	+ 0.36	0.94	12.8	12	8	8	15	nw.	George Henrich.
Minonk	Woodford	745	15	19.6	− 7.0	58	1	−15	30	38	2.90	+ 1.13	1.00	19.5	10	7	12	12	w.	O. M. Davison.
Monmouth	Warren	784	16	19.0	− 7.9	56	2	−11	30	35	3.88	+ 2.28	1.91	12.5	11	9	6	16	nw.	Hugh R. Moffet.
Morrison	Whiteside	685	13	17.0	− 7.4	53	2	−15	30	37	3.72	+ 2.23	1.20	24.0	13	11	9	11	w.	Harold A. Maxwell.
Morrisonville	Christian	638	9	22.0	.....	59	5	−14	30	35	1.47	.....	0.42	14.0	9	10	6	15	w.	J. D. Lowis.
Mount Vernon	Jefferson	511	14	26.2	− 6.8	63	4†	− 3	29	41	2.81	+ 0.07	0.63	8.0	10	10	3	18	nw.	Theodore P. Stelle.
Oregon	Ogle	702	.....	15.8	.....	52	2	−14	30	37	3.68	.....	1.50	23.7	11	7	4	20	w.	Samuel Ray.
Ottawa	La Salle	500	23	19.1	− 9.6	56	1	−11	30	39	3.02	+ 1.01	0.71	.....	10	4	1	26	nw.	Miss Maud M. Harris.
Pana	Christian	692	22	22.1	− 9.7	58	4†	−11	30	34	2.53	− 0.19	0.56	11.5	9	12	8	11	w.	C. W. Sibley.
Peoria	Peoria	609	33	19.2	− 8.9	58	5	−12	30	39	2.50	+ 0.13	0.75	18.0	11	8	8	15	w.	U. S. Weather Bureau.
Pontiac	Livingston	546	7	20.0	.....	58	1	−13	30	33	3.22	.....	1.20	22.0	8	6	10	15	sw.	George Butterworth.
Riley	McHenry	956	50	16.6	− 6.6	53	1	−15	30	34	5.05	+ 3.22	2.32	21.8	13	7	8	16	nw.	John West James.
Rockford	Winnebago	763	13	16.9	−10.6	54	1	−10	29	36	3.48	+ 1.40	1.04	26.5	15	14	2	15	.....	Hosmer C. Porter.
Rushville	Schuyler	670	8	21.0	−10.1	56	2	−10	30	33	2.32	+ 0.58	1.10	10.5	7	0	1	30	w.	H. F. Dyson.
St. Charles	Kane	700	12	18.2	− 7.3	54	1	−12	30	32	4.44	+ 2.36	1.02	23.0	12	7	14	10	nw.	Dr. Wm. H. Bishop.
Springfield	Sangamon	644	28	22.0	− 9.3	59	5	− 7	30	38	1.47	− 0.96	0.42	13.3	11	7	5	19	w.	U. S. Weather Bureau.
Staunton	Macoupin	625	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	William F. Schaefer.
Streator	La Salle	626	15	18.8	− 8.6	58	1	−15	30	39	2.85	+ 1.07	0.75	19.5	13	8	12	11	w.	Edward F. Sweetser.
Sullivan	Moultrie	530	9	22.0	.....	60	1	−12	30	30	2.36	.....	0.62	16.8	7	7	11	13	nw.	C. A. Corbin.
Sycamore	De Kalb	855	28	16.8	− 8.5	54	1†	−13	30	37	5.27	+ 3.24	1.20	32.5	16	17	2	12	w.	Miss E. J. Davis.
Tilden	Randolph	500	23	26.5	− 9.0	65	4	− 9	30	33	2.86	+ 0.38	0.76	14.5	10	8	4	19	nw.	James A. Caldwell
Tiskilwa	Bureau	798	14	17.0	− 8.7	54	2	−16	30	36	4.66	+ 2.73	1.50	23.5	11	7	6	18	w.	F. I. Smucker.
Walnut	do	717	17	18.6	− 8.1	54	2	−12	30	35	4.37	+ 2.76	1.78	22.6	11	11	6	14	w.	O. C. Nussle.
White Hall	Green	573	.....	22.9	.....	60	5	−12	30	38	2.38	.....	0.60	12.1	13	12	4	15	w.	Dr. R. A. Pritchett.
Windsor	Shelby	681	10	22.4	− 8.2	61	4	−13	30	36	2.25	− 0.31	0.46	11.7	12	11	4	16	w.	Herbert Rose.
Winnebago	Winnebago	900	21	15.6	− 9.5	54	5	−14	30	40	4.32	+ 2.45	1.36	31.0	14	14	6	11	w.	Frank Osborn.
Yorkville	Kendall	584	21	16.8	− 9.4	53	1†	−17	30	31	1.46	− 0.30	0.70	17.3	9	13	3	15	w.	Herman A. Grimwood.
Zion	Carroll	938	13	.....	.....	.....	.....	.....	.....	.....	4.30	+ 2.77	1.20	30.0	10	17	2	12	.....	Robert F. Gillogly.

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

TABLE 2.—*Daily precipitation for December, 1909. District No. 5, Upper Mississippi Valley.*

Stations.	River basins.	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	31	
North Dakota.																																	
Amenia	Red	.75	.05				.10			T.	T.	T.	T.				T.			.20	.40	T.	T.	T.					T.				1.50
Bottineau	Mouse	T.		.11	.36		.46	.02				.04		.06	.16		.46				.02	.02						.03		.01			1.75
Cando	Sheyenne	.03		.25										.10			.25																0.63
Crosby	Mouse		T.	.12	T.	T.	T.				.38			.28			T.	.05			T.			T.			T.	.06	.04				0.93
Devils Lake	Sheyenne	.41	.22	.03		.08								.07	T.	.08	.04	T.	T.	.02	.06	.01		.02			T.	.01					1.05
Donnybrook	Mouse				.05						.30	.20		.15														.05					0.75
Dunseith	do		.10	T.	T.			T.					.20																				0.30
Edmore	Sheyenne																																
Forman	do	.52	.01	T.	.10	.20	.10				T.	.10	.20				.30										T.	T.					1.53
Grafton	Red	.11	.20	.10	.11	1.10											.04	.40			.01		.01					.02					2.10
Granville	Mouse	.02									.08	.17	.06	.18				.13						.06									0.70
Hamilton	Pembina																																
Hannah	do	.30	.40	.30	.10	.20	.10								.10	T.				T.		.10					T.						1.60
Hansboro	Red	.04	.17		.11		.18								.11		.14					.08											0.84
Hillsboro	do	.85	.42	.05		.20						.01			.05		.20				.40				.10								2.28
Lakota	Sheyenne	.72	.70	.30	1.25	.90	.05	T.								T.	T.		.06	.03	.35	.03		T.	T.		T.		.20	.28			4.84
Langdon	Pembina	.50		.30		T.						.20	.40		.70			.20		T.		.10		.70			.40	T.					3.50
Larimore	Red																																
Lisbon	Sheyenne	.50	1.05	.10	.10	T.	.20					T.					.30				T.			T.			T.						2.25
McKinney	Mouse			T.							*	.50		.30														T.					0.80
Manfred	Sheyenne	.20	.40	.20		T.		T.			.10	.10		.20	.15		.10				.10	.05					.05	.05					1.70
Mayville	Red	.03			.05	.60									.02		.50				.20												1.40
Milnor	Sheyenne																																
Minot	Mouse	T.	T.	.01	.10			T.			.20	.10		.15	.10		.10				.01	.10	T.					T.	.01				0.88
Minto	Red	.45	.20			.43									T.		T.				.15	.05			.10			T.					1.38
Oriska	Sheyenne																																
Park River	Red																																
Pembina	do		1.20	.30		.20	.70										.20					.20	.10										2.90
Portal	Mouse																																
Power	Sheyenne	.15		.10		.50			T.			.60								.10	.36	.10					T.	T.	T.				1.85
Pratt	Mouse											.50											.40										0.70
Towner	do																																
University	Red		.10		.15												.20				.20							.10					0.75
Wahpeton	do	.67	T.			.40		T.				.15									.10												1.32
Walhalla	Pembina																																
Westhope	Mouse			T.	.03	T.	.05	T.			.08	T.	T.	.12	.02		.03	.01					.63				T.	.01		T.			0.38
Willow City	do		.10	.05							T.			.05		.10	.20				.60												1.10
Minnesota.																																	
Albert Lea	Mississippi	.10	.40	T.	T.	.40					.10	.30	.10				.20				.10	T.			.10	.26	T.						2.00
Alexandria‖‖	do	.04	T.	.10	.10	.20	.06					.08	.04				.20	T.		T.	.05	.04	.02	T.		.04		.06	T.				1.03
Angus	Red	.34	T.	T.		.05									.05					T.	T.	T.	T.	T.			T.	.12		T.			0.56
Bagley	do	.09	.20	.10	.05	.70															.20	.15											1.49
Baudette	Rainy	.11	.10		.15	.68	T.		T.					T.	T.		T.		T.	.05	.10	T.	T.			.04		T.					1.23
Beardsley	Minnesota	.45	.11	.07		.13					.03	.10		.15																			1.04
Beaulieu	Red	.23	.10	T.	.14	.23	.08								T.		.04		T.	T.	.02	T.	T.	T.				T.					0.84
Bird Island	Minnesota	T.	.12	.03	.02	.21					T.	.55	T.		T.		.02				.02	T.				T.		T.					0.97
Caledonia‖‖	Mississippi	.03	.03	.10	.31	.05	T.				.02	.50	.10				.03				.19	T.	T.		.28		.02	T.	T.				1.66
Campbell‖‖	Red	.50	.70	.24	.05	.10						.10	.40				.30				.10	.20											2.69
Cass Lake‖‖	Mississippi			T.	.20	.45	.20														.20							.10					1.15
Collegeville	do		.43		.04		.60					.13	.02					.18									T.						1.40
Crookston‖‖	Red	T.	.10	.10	.05	.30	.30									T.	.10	T.		T.	.10	.20	T.	T.	.05			.20	T.				1.50
Detroit‖‖	do	T.	T.	.48	.05	.05	.20		T.			T.	T.			T.		.22	T.	T.	T.	T.	T.					T.					1.60
Fairmont	Minnesota	*	.14	.20		.30					.10	.10	.15			T.	T.					.05			T.	.05	T.	T.					1.09
Faribault	Mississippi	.02	.28	T.	T.	.41					T.	.15	.02				.08				.03			T.	T.	T.	.10	.01					1.10
Farmington	do		T.	T.	.14	.20			T.			.20	.10				.30		T.		T.	.10				T.	T.	.10					1.14
Fergus Falls	Red	.27	.16	.05	.12	.23	.05	.01	.02			.22	.06		.02		.25		T.	.04	.15	.05			.01		.01	.02					1.76
Fort Ripley‖‖	Mississippi	T.		.22	T.	.20	.32					T.	T.	.69			.06	.04			T.	.09	T.			T.	T.	T.	T.				1.02
Fosston	Red																																
Glencoe	Mississippi		.70	.15	.05	.50						.40	.20				.30		T.		T.	.15			.05		.08	.05					2.63
Grand Meadow	do	.08	.07	T.	.03	.24			T.		.07	.23	.24	T.	T.	T.	.12	.02	T.		.02	.09	T.	T.	.07	.24	.14	.07	.03	T.	T.		1.76
Hallock	Red	.20	.10	T.		.20	.20								.05		.05			.02	.20							.10					1.12
Halstad‖‖	do	.12	.45	T.		.50											.10				.18							T.					1.15
Hinckley	St. Croix		.50	.60	T.	.71	.20						.10									.05			T.			.10					2.26
International Falls	Rainy	T.	.50		.20	.60	.30								T.		T.	T.	T.	.10	.10	T.			.10						T.	T.	1.90
Kelliher	Red	.20	.08		.19	.75						T.			.06	T.	.03	T.	T.	T.	.10	T.			T.			T.					1.41
Lake Crystal	Minnesota	.16	.31			.21					*	.42	T.				.12					.06					.06	T.					1.34
Leech Lake Dam	Mississippi		.13	.22	.12	.80	.03								T.	T.	.07		.01	T.	.08	T.	.03		.02	.01		.05					1.57
Litchfield	do																																
Little Falls	do	T.	.24	.08	.05	1.20						.60	.20		T.		.30				T.	T.		T.			T.	T.					2.67
Long Prairie	do																																
Lynd(2)	Minnesota	.36	.04	.19									.40								T.				T.								0.99
Mankato‖‖	Minnesota		.21	.18	.03	.37	.03					.18	.03									.05						.12					1.20
Milaca	Mississippi		.35			.60						T.							*	*	*	*	*	*	*	*	*	.97					1.92
Milan	Minnesota	.50	1.25	.03	.15	.15					.15	1.00	T.		T.				T.		T.	.02				T.	T.	T.					3.25
Minneapolis(1)	Mississippi	T.	.18	.05	.10	.81			T.		.03	.61	.06		T.		.32		T.	.02	.03	.05	T.	T.	.01	T.	.08	.03					2.38
Minneapolis(2)	do	.02	.22	.06	T.	.58	T.		T.			.20	.12			T.	.23		T.	T.	.07	.04		T.	.02	T.	.07	.02	T.		T.		1.65
Montevideo‖‖	Minnesota	T.	.27	.15	.14		.21					.42	.08			.20				.02	.01	.04				.01		.02					1.57
Moorhead	Red		.02	.06	.04	.56		T.	.02			.10	.02		T.	.04	.20	.02		.02	.12	T.		T.				.04		T.			1.74
Mora	St. Croix		.20	.02	.12	.60						T.	.10				.16				.10	.10	T.				T.	.04					1.44
Morris	Minnesota	.05	.17		.20							.20					.10				.05						.05	.05	.03				0.90
New London	Mississippi	T.	.69	T.	T.	.30						.56	T.	T.	T.		.12				.01	.01		T.	T.		T.						1.69
New Richland	Minnesota	.04	.26	T.	T.	.21					.08	.35	.05		T.		.19			T.	.13	.15			T.	.07	.12	.06	T.				1.71
New Ulm‖‖	do	T.	T.		.18	.45						.65	.18	.10		T.	.30	.12	.10	T.	.05	T.	T.		.02		T.						2.15
Osakis	Mississippi	T.	.29	.10	.09	.40	.01					.15	.03				.26				.10	.06				T.	.10	.03					1.62
Park Rapids‖‖	do		.10	.14	.07	.25	.35									T.	.19	.02	T.		.04	.04	.04			.03			.04				1.31
Pine River Dam	do	.25	.10	.15		.53											T.				T.												1.03
Pokegama Falls	do		T.	.14	.17	.70							T.		T.		.06			T.	.08	.02	.01		.04	T.		T.					1.22
Red Lake	Red	.08	.08	.22	.23	.90	.15														.21	T.		T.		.06		T.					1.93
Red Wing	Mississippi	T.		T.	T.	.52	T.	T.							T.		.80				.20	T.			T.	T.	.12	T.					1.64
Red Wing (river)‖‖	do		T.	T.	.04	.46	.18					T.	.20	.02		T.		.16		T.	.08	.12	T.	T.	.02	T.	T.	.10	.06				1.44
Redwood Falls	Minnesota	T.	.47		.05	.60		T.				.80					.10				.10	.05											2.17
Reeds Landing‖‖	Mississippi				.02	.40	.04					T.	.12	.05				.10			.02					.06		.12					0.93
Rochester‖‖	Mississippi				T.	.18	.06					.05	.20					.05									.06						0.60
Roseau	Rainy	.56	.14	T.	.74	T.										T.					T.	T.	T.					T.					1.44
St. Charles‖‖	Mississippi			.02	.02	.47	.05					.06	.25	.09	T.		T.	.13			T.	.08			T.	.22	.14		.01				1.54
St. Cloud	do		.45		.10	.59						.13					.21				T.	.15					T.	T.					1.63
St. Paul	do	T.	.08	.04	.10	.43			T.			.30	.12	T.			.20				.16	.01		.02	T.	T.	.04	.02			T.		1.52
St. Peter	Minnesota	T.	.70	T.	T.	.34		T.				.56	T.				T.								T.	T.	.11	T.					1.71
Sandy Lake Dam	Mississippi	T.	.12	.08	.14	.85							.03				.08				.25	.10		.04	.12			.15					1.96
Shakopee	Minnesota																																
State Sanitorium	Mississippi		.06	.22	.16	.69											.12		T.	.01	.05	.02				.02	.04						1.39
Stillwater‖‖	St. Croix				.14	.38	.12						*	.22			T.	.28	T.			.18		.03					T.	.20			1.55
Taylors Falls	do	T.		T.		.10						.10	.30				.15				.10	.20				.20	.15						1.30
Wabasha	Mississippi																																

TABLE 2.—*Daily precipitation for December, 1909. District No. 5*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Minnesota—Cont'd.																																	
Warroad	Rainy																																
West Concord	Mississippi		T.	T.		.60						.50	.10																				1.20
Willow River	St. Croix																																
Windom	Des Moines	T.	.64		.14	.37					T.	.28	T.		T.							T.			T.		T.						1.43
Winnebago‖	Minnesota		.39	.15	.05	.20						.15		.20			.15					.10	T.		T.		T.	T.					1.39
Winnibigoshish	Mississippi		.02	.08	.16	.67											.07		.02	T.	.08	T.			.04	T.		.04					1.18
Winona	...do		T.	T.	.02	.58	T.	T.	T.			.15	.28	T.	T.	T.	.15	.01			.03	.02	T.	T.	T.	.14	.16	.04	T.	T.			1.52
Worthington‖	Des Moines																																
Zumbrota	Mississippi		.09		T.	.25						.40	.01				.17				T.	T.		T.		T.	.25	T.					1.17
South Dakota.																																	
Milbank	Minnesota	T.	.30	.12		.18	.08				T.	.64	1.40	.08																			2.80
Wisconsin.																																	
Antigo	Wisconsin		.15			.20	.05		T.				.15	.10	T.	T.	.05					.02			.05				.02		T.		0.79
Barron	Chippewa		T.	.10	.02	.70	.02	.05				T.	.20				T.	T.			.05	.05			T.	.05	T.		T.				1.24
Beloit	Rock		.10	.02	.11	1.10	.08	.30		.08			1.10	.78			.22				T.			T.	*	.40	.18	T.	T.				4.47
Brodhead	...do					1.01		.20			T.	.27	1.03	.40			.10								.10	.40	.20	T.					3.71
Burnett	...do		.30	*	.25	.67		T.	T.			T.	1.10	.35		T.	.11				T.		T.		*	.31	T.	T.	T.				3.09
Delavan	...do	.15		.13		1.23		.22			.02		.72	.50	T.		.06				.04	T.				.05	.31	T.	.02				3.45
Dodgeville	...do				.50	.58	.07					.23	.30	.80			.48										.32	.36	.12				3.76
Downing	Chippewa		T.	T.		.05	T.	T.	T.	T.	T.	.10	.20	.40			.40				T.	T.		T.	T.	T.	T.	T.					1.15
Eau Claire	...do		.04	.02	T.	.63			T.			T.	.34	T.	T.	T.	.10	.03			.05	.08		T.	.04	.03	.03	.04	.03				1.46
Ellsworth	Mississippi																																
Gliddon	Chippewa						.02						*	.15	.05		.10				.05	.10	.10	.05									0.62
Grand Rapids‖	Wisconsin	T.	T.	.10	.09	.39	.15		T.	T.		*	.30	.04	.01	T.	*	.02	T.			.08		T.	T.	.17	T.	T.	.01				1.36
Grantsburg	St. Croix																																
Hancock	Wisconsin		.40		.15	.55							.40	T.			T.	T.				T.			T.	T.	T.	T.					1.50
Hatfield	Black																																
Hayward	St. Croix		T.	T.	T.	.23							.10	T.			.10				.05	.15				T.		.05					0.68
Hillsboro	Wisconsin		T.	.05	.20	.15			T.			*	.80	T.	T.	T.	.20				T.	T.		T.	.60	T.	.10	T.					2.16
Koepenick	Wisconsin		.04			.72	.10		T.	T.			.50	T.	T.	T.	T.	.10		T.	T.	T.				T.			T.				1.46
La Crosse	Mississippi	.01	T.	.08	.15	.31		T.	T.		.02	.28	.20		T.	T.	.20		T.		.08	.01		T.	.21	.08	.14	.02	T.				1.79
Lake Mills	Rock		.12	.02	.34	1.14		.10	T.			.30	.70	.30	T.	.01	.10			T.	T.	.03	.62	T.	.20	.30	.05	.10	.04		T.		3.87
Lancaster	Mississippi		T.	.05	.30	.07						*	.60								.20				*	.30	.13						1.65
Long Lake	Wisconsin		.03		.03	.33	T.		.01				.07	.10	.02	T.	.05	.08			T.	.03	T.		T.	.04	.01	T.	.07		.03		0.90
Madison	Rock	.02	T.	.28	.15	.57		.04	T.		T.	.25	.96	.24		T.	.12	T.			.01	T.		T.	.26	.12	.12	.01	T.	T.		T.	3.15
Mather‖	Wisconsin		.07	.09	.06	.37	.08						.30	.21				.15				.16				.30		.10					1.83
Mauston	...do				.15	.41	.45						*	.70											.55								2.26
Meadow Valley	...do			T.		.78							.29	.05			.08	.03	T.		T.	T.	T.	.10	.12	T.	.05						1.50
Medford	Black		T.	.10			.75					.10	.05				.15												T.				1.15
Merrill	Wisconsin		.20	T.	T.	.23			T.				.02				.25				.03				.01	.10							0.84
Minocqua	...do																																
Mondovi	Mississippi		T.	.05		.46						T.	.18	.01	T.	T.	.10				.07	.07	.05	.05	.10	.05	.05	.10	.05				1.39
Mt. Horeb	Rock	.06	.02	T.	.35	.88	T.	T.				.10	.60	.10			.10				.14				.22	.10	T.		T.				2.67
Muscoda‖	Wisconsin		T.	T.	.31	.35	.20	T.				T.	.36	.24	.05	T.	T.	.22				.15		T.	T.	.30	T.	.20	.01				2.39
Neillsville	Black					1.30					T.		.12			T.	T.				.50												1.92
New Richmond	St. Croix		T.	T.		.91						T.					.43					.21			.09				T.				1.64
Osceola‖	...do	T.	.20	T.	T.	.90						.20	.08		T.		.27			T.	T.	.23			.04	T.	T.						1.92
Portage	Wisconsin			.10		.60		T.					.28		.20		.08					T.			.30		T.	T.					1.56
Prairie du Chien‖	Mississippi		T.	T.	.55	.42					.05	.12	.32	.02			.10				T.	.01			.03	.41	.02	T.					2.05
Prentice	Chippewa		.23			.24							.28		T.		.09				.04								.06				0.94
Rhinelander	Wisconsin		.07	.03		.27	.03						.06	.07	.20	.01	.01	.12			.03	.01	T.		.01	.03	.25	.01	.05		.01		1.27
Sauk City	...do																																
Shullsburg	Mississippi		.30	.20	.34	.94		.18			.05	*	1.07	.15			T.					.10			*	.37	.17	T.					3.87
Solon Springs‖	St. Croix		.70			1.50							.10				T.				.15				T.					T.			2.15
Spooner	...do			T.	T.	1.09							.12			T.	.19		T.		.07	T.				T.							1.47
Stanley	Chippewa					.54						.10	.10	.15	T.	T.	.03				.02	T.			T.	.03	T.	.14					1.11
Stephens Point	Wisconsin		.10		T.	1.00	.20						.55	.25			.20	.05								.15	.02	.06	.05				2.63
Valley Junction	...do		.21	.23	.26	.63	T.	T.	T.				.65	.10	T.		.30	.05			.10	T.		T.	.15	.20	.10	T.					2.98
Viroqua	Mississippi				.07	.58	T.	T.	T.			.17	.23	.02		T.	.07	.02			.03	.02	T.		.20	.10	.05	.02	T.				1.58
Vudesare	Wisconsin		T.		T.	.44	T.		.03	T.			.05	.05	.06	.03	.02	.06	T.	T.	.04	T.			T.	T.	.06	T.	.05	T.			0.89
Watertown‖	Rock		.32	.09	.38	.64	.18	.05				.05	.80	.45	.15	T.		.15			T.	T.		T.	T.	.35	.08	.10	T.				3.79
Waukesha (1)	Fox		.25	T.	.30	1.17		.12				.03	.50	.20		T.	.07				T.	T.			.03	.24		.05	T.				2.96
Waukesha (2)	...do		.25	T.	.32	1.43		.15				*	1.00	.10			.20								T.	.35	.10	.05					3.95
Wausau	Wisconsin		.26	T.		.18	T.		T.	T.		T.	.21	T.	T.	T.	.05	.02				T.	T.	T.	T.	.16		T.	.02				0.90
Weyerhaeuser	Chippewa	T.	.03	.10		1.00	T.		T.			T.	.01	.22		T.	.15		T.	.07	.08	.16			T.	T.	T.	.05	T.			T.	1.87
Whitehall	Mississippi			T.		.25						T.	.40	.10			.20				T.	T.				.20	T.	.20					1.35
Iowa.																																	
Albia	Des Moines	T.	.30		.30	.10	T.	.20				T.	.10	T.	T.								T.	T.	T.	.80							1.80
Algona	...do	.10	.11	.03	.10	.24					.20	.07	.05	.04	T.	T.	T.					.05			.12	.18	T.						1.29
Amana	Iowa	.21	.03	.12	.52	.33		.12			.08	.08	.25	.05			T.					T.	T.		.35	.23							2.37
Ames	Skunk	.04	.02	.03	2.00	.50	.50	1.50			.05	T.					T.								55	.10							5.29
Baxter	...do	.06	.22	.44	.33	.20	.01	.06			.05	.08	.12	.01	.02	T.	T.					T.	.01		.40	.03		T.					2.04
Belle Plaine	Iowa	.11	.06	.11	.51	.28	.10	.15			.10	.05	.30	T.	T.	T.	.05	T.					.10		.20	.60							2.72
Bloomfield	Mississippi	.16	.38	1.16	T.	.10	.30				.10	.20	.10	.05	.02										.90				T.				3.47
Bonaparte	Des Moines	.10	.06	T.	.58	.62		.20			T.	.10	.25											.20	.30								2.41
Boone	...do	T.	.29		.42	.60		.10				.20	.10	T.	.02		T.						T.	T.	.08	.64	T.		T.				2.45
Britt	Iowa																																
Buckingham	Cedar	.13		.15	.35	.05	.01						.18												.63								1.50
Burlington	Mississippi				.11	1.50	.05	.50				.08	.50	.10	.20	.10	T.					T.	T.	T.	.05	1.20	T.	T.	T.				4.39
Carroll	Raccoon	.15	.15	.05		.20	.10				.20	.10		.10											.40								1.45
Cedar Rapids	Cedar	.06	T.	.14	.12	.02	.18				.13	.22	.11	T.	T.	T.	T.					.02	T.			.50	T.		T.				1.50
Charles City	...do	.17	.07	.17	.22	.23	T.	.01	T.			.07	.11	.12				.07		T.		.02	.05	T.	T.	.36	.05	.06	.01	T.			1.79
Clear Lake	...do	1.00	.35	T.		.10						.05	.05				T.								.20		.05						1.80
Clinton	Mississippi	T.	T.	.05		1.40		.51			.55		2.12	.20		T.	T.					.02				1.15	.10						6.10
Columbus Jct.	Iowa	.12		T.	.34	.80		.15				.10	.15	.40	.08	.04									.30	.24							2.72
Davenport	Mississippi	.01		.01	.75	.65	.03	.15				.09	.40	.39	.07	.01	T.	T.	T.			T.	T.	T.	.39	.17		T.	T.	T.			3.12
Decorah	...do	T.	.08	.15	.65	.32	T.	T.				.04	.28	.18	T.		T.	.15		T.	.15	.05		T.	.42	.13	.15	.05	.04				2.24
Delaware	...do		.10		.35	.47		.03				.05	.05	.10	T.		T.					.08		T.	.21		.20						1.64
Des Moines	Des Moines	.10	.03	.56	.36	.06	.07	.01				.15	.03	.05	.01	.02		T.				T.	T.		.73	.08		T.					2.32
De Soto	Raccoon	.22	T.	.54	.59	T.	T.	.20				T.	T.			T.									.50	T.							2.05
Dows	Iowa																																
Dubuque	Mississippi	.02	T.	.17	.35	.39	.04	.01				.14	.19	.21	.03	T.	T.	.06		T.		.01	.03		T.	.30	.04	.08	.01	T.			2.08
Earlham	Raccoon	.64	.05	.55	.20	.59	T.	.20				.10	.11	T.	T.	.10		T.				.05	.05	T.	.50	.30		.05	T.				3.49
Elkader	Mississippi				.45	.53		T.					.26	.20	.09			T.			T.	.20				.62	.11						2.46
Elma	Wapsipinicon	.10	T.	T.	.14	T.						.10	.10	.05	.05		.30	.08			T.	T.	T.	.01	.20		T.	T.					1.13
Estherville	Des Moines	.30	.45	.04	.50								.20		.06																		1.55
Fairfield	Skunk	.20	.05	T.	.82	.42	.02	.14				.10	.08	.12	T.	.04					T.	T.	T.		.40			T.					2.39
Fayette	Mississippi	.10		.35	.13	.45		T.	T.		.09	.18	.28	.11		T.	.14				.02	.19	T.		.40	.30	.10	T.					2.84
Forest City	Cedar	.05	.15	T.	T.	.20	T.					.30	T.		T.		T.	T.				T.	T.	T.	.50		.20	T.					1.40
Fort Dodge	Des Moines	T.	.24	T.	.15	.20	T.	T.			.10		T.	.20	T.		T.						.05	T.	.05	.40							1.39
Ft. Madison	Mississippi				1.60	T.	.50				.10			T.	T.	T.	T.					T.						T.	T.				2.20
Gilman	Iowa	.25	T.	.30	.25	.37	.10		T.	T.	.20	T.	T.				T.				T.		.20			1.20							2.87
Grand Meadow	Mississippi		.07		.28	.50		T.			.10	.10	.40				.20				T.	.10	T.	.30	.30		.10						2.45
Greene	Cedar	.12	.36	.03	.24	.22					.12	.07	.10				.08					.07	T.		.25	.15	.07	.07					1.95

TABLE 2.—*Daily precipitation for December, 1909. District No. 5*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Iowa—Cont'd.																																	
Grinnell	Iowa	.09	.20	.20	.20	.05	T.				.15	.05	.20		T.		T.					T.	T.		.45	.40							1.99
Grundy Center	Cedar	.20	.18	.15																													
Guthrie Center	Raccoon	.47		.33	.49	.09	.01	.05			.07	.10	.04		.13							T.	T.		.44	.43		T.					2.65
Hampton	Cedar	.35	.08	.30	.10	.02					.45	.05	.10			.04					.05				.65		.04						2.23
Humboldt	Des Moines	.08	.13	.04		.30					.20	.12							.07	T.	T.				.42								1.36
Independence	Wapsipinicon		.07			.05		.05			.40	.20	.25	T.			.20				.05	.15			1.20								2.62
Indianola	Des Moines	.20		.29	.33	.10	.05	.05			.10	.05			.05							.05	T.		.60	.40		.05					2.32
Iowa City	Iowa		.20		.30	.80	.03	.12			T.	.05	.28	T.	.06		T.	T.				T.	T.			.68							2.52
Iowa Falls	...do	T.	.27	.08	.35	.39	.10	.10	T.		.10	.45		.03	T.	.02	.05	T.				.10	T.	T.	T.	.60		T.	T.	T.			2.64
Jefferson	Raccoon	.50	T.	.02	.30	.10	.02				.02		T.		.05		T.					T.			.50	.20							1.71
Keokuk	Mississippi	.05		T.	1.18	.22	.24	.14			T.	.24	.13	T.	T.	T.	T.				T.	T.	T.		.24	.12		T.	T.				2.56
Keosauqua	Des Moines		.17		.03	1.49	.02	.15				.08	.17	T.	T.	T.	T.	T.					.02	T.	.10	.55		T.					2.78
Knoxville	...do	.17	.17	.14	.50	.53	.05	.20			.10	.05	.05		.05	T.						T.	T.		.65		T.	T.					2.66
Lacona	...do	.90	.02	.15	.48	.32		.28		.17		.20	.28									.20	.30		.40	.20		.10					4.00
Le Claire	Mississippi		.03		.02	1.58	.05	.22	T.			.24	.67	.23	.02	T.	T.	T.				T.	T.	T.	T.	.63	.04		.01		T.		3.74
Marshalltown	Iowa	T.	.22		.55	.50	.05	.11				.16	.07	.13		T.	.02					T.	.06	T.	.01	1.10							2.98
Mason City	Cedar	.15	.40	T.	.04	.28					.12	.15	.05									.10				.25		T.	.05				1.59
Mt. Pleasant	Skunk	.48		T.	.55	1.11	T.	.25			.15	.02	.17	.05	T.						T.	T.	T.		.45	.15		T.					3.38
Muscatine	Mississippi		.04		.05	1.20	.03	.26				.10	.40	.08	.08	T.	T.	T.				T.	T.	T.	T.	.60	.06		T.				2.90
New Hampton	Wapsipinicon	.10		T.	T.	T.					.08	.20	.20				T.				T.	T.			.40	.10	.15						1.23
Newton	Skunk	.10	.12	.26		.50					.11	.10	.07											.34	.25								1.85
Northwood	Cedar	.12	.21	.05	.02	.30		T.			.10	.10	.10		T.	T.	.20	T.			.05	.15			.05	.15	.10	T.					1.70
Olin	Wapsipinicon																																
Osage	Cedar		.34				.50					.60	.50				.40											.55					2.89
Oskaloosa	Des Moines	.08	.11	.20	.51	.07	.22				.08	.05	.02	.08								T.		.48	.35								2.25
Pella	...do	.02	.12	.02	.50	.05		.24				.20	T.									T.			.46	.22			T.				1.83
Perry	Raccoon	.15	.10	*	.57	.10	*	.10			*	.20	.20	T.	.05							.05	T.		.40	.50		T.					2.42
Plover	Des Moines	.05	.07	.01	.05	.30	T.				.20	.05	.10	T.	T.		T.					T.		T.	.10	.20	T.	T.					1.13
Pocahontas	...do	T.	.08	.10	.05	.04	.17				.12	.02	.07		T.		T.					T.			.12	.20							0.97
Ridgeway	Mississippi	.11	.15	.18	.22	.36	.01	.01	.01		.08	.08	.31		.01	.01	.34	.24	.01		.07	.23	.03	.03	.75	.25	.30	.24	.09				4.12
Rockwell City	Raccoon	.25				.30				.10	.30													.30	.70								1.95
Sac City	...do	.17	.03			.20	.25				.20	T.	.10		T.		T.								.30	.40			T.				1.65
St. Charles	Des Moines	.26		.50	.40	.07	.08				.20	.05	.03	.02								T.			.05	.95		T.					2.61
Sigourney	Skunk	.12	.10	.06	.40	.66		.11			.05	.20	.18		.06	T.						T.	T.		.30	.35							2.59
Stockport	...do	.15	.05	.01	.64	.70	T.	.14			.08	.02	.21	.01	.02	T.	T.				T.		T.		.30	.24		T.	T.				2.57
Storm Lake	Raccoon	.21			.04	.24						.13	.03										.02		.09	.11			.02				0.89
Tipton	Cedar	.08				1.18	*	.12			*	*	.47	T.	T.	T.						T.			*	1.38			T.				3.23
Toledo	Iowa		.40	.12	.34	.35	.20				.30	.20	.20				.05								.40	.40							2.96
Wapello	Iowa	.03	.04		.21	.90		.19			T.	.32	.22	.06	.01		T.					T.	T.		.24	.26							2.48
Washington	Skunk	.35		.06		.78	.08				.06		.35	.03	.06							T.			*	.80							2.57
Waterloo	Cedar	.18	T.	.43		.53		.03			.36	T.	.19	T.		T.	T.					.17			.66		T.	T.					2.55
Waukee	Raccoon	.18	T.	.55	.44	.05	.10	T.			.07	.07	.25	T.	T.	T.	T.	T.				.04	T.		.49	.06		T.	T.				2.30
Waverly	Cedar	.17	.05	.05	.10	.41	T.	T.			.25	T.	.20				.10				T.	.12	T.		.50	.30	.04	T.					2.29
Webster City	Des Moines	T.	.21	T.	.13	.20	.14				.60	.60	T.		T.		T.					.05	T.		.40	.40		T.	T.				2.73
West Bend	...do	.08	.22	.01	*	.25					.03	T.	.15				.10					.05	T.		T.	T.							0.89
Whitten	Iowa	.21	T.	.13	.45	.10		T.			.30				T.		T.					.10			.50								1.79
Wilton Junction	Cedar																																
Winterset	Des Moines	.37	.05	.40	.10	T.	T.	.10			.08	T.	.10	T.	.10		T.					T.	T.		.65	.10		T.					2.05
Zearing	Iowa	.09	.09	.25	.30	.40		.20			.20	.20	.02				.05					.20			.70	.30							3.00
Missouri.																																	
Darksville	Charlton				.85	.68	.30					.40													.30	.20							2.73
Gorin	Mississippi	.17			.95	T.		.28				.10	.24									T.			.62								2.36
Hannibal	...do	.14			1.18	.24	.19	.12			.03	.34	.12	.02	.02	T.							.01		.25	.06		T.	T.				2.72
Louisiana	...do	.13			.20	1.00			.20				.40			.03									.10	.20	.10						2.36
Mexico	...do		.54	T.		1.14	.01	.27				.30	.25	.01	T.								T.	T.	.13	.45				.10			3.20
Steffenville	Mississippi	.35	.03	T.	.75	.95	.35		.20																.17	.70							3.50
Sublett	Charlton	2.50	T.	T.	2.75	T.	T.	.20			T.	.02													.40	.30							6.17
Warrenton	Mississippi	T.	.17	T.		.60		.42				.18	.21	.20	.03									T.	.08	.35	T.			.04			2.28
Indiana.																																	
Collegeville	Iroquois		.19			.34		.61			*	.10	.70		.04	.10						T.	T.		T.	.98	.15						3.21
Knox	Kankakee		T.			.39	T.	.41				.10	.41	.49	.06	T.	.01					.01	.01		.04	.58	.08	.22	.06	.06			2.93
Laporte	...do		.05		T.	.34		.80		T.	.10		.81		T	T.	T.	T.			*	*	*	*	*	*	*	*	*	.20			2.20
Plymouth	...do		T.			.34		.36				.12	.43	.52	.04	T.	.03					.02	T.		.08	.83		.19	.14	.18			3.28
Illinois.																																	
Aledo	Mississippi	.05			.06	1.53		.30			.50	.03	.45	.10	.01		T.						T.	T.	.20	.41		T.	.02	T.			3.66
Alexander	Illinois	.04	T.	T.	.08	.13		.30			.02	.06	.25	.17	T.	.05						T.	.02	T.	.10	.28		T.	T.				1.50
Antioch	...do							.20			.20		1.40		.50		.20									.75		.25					3.50
Ashton	Mississippi																																
Astoria	Illinois	T.	T.	T.	.20	.50		.50			.06	T.	T.	.30	T.	T.					T.	T.	T.	T.	.35	.55		T.	T.				2.46
Aurora	...do		.23		.76	T.		.25			T.	.12	.72	.50	.03			T.				T.			T.	.60	.22	T.	T.				3.43
Beardstown	...do																																
Bement	Mississippi				.15	.20		.40				T.	T.	.20		T.									T.	1.00							1.95
Benton	...do	.05	.10			.60		.25			T.	45	.35	.50	.10								T.		.25	.10			.05				2.80
Bloomington	Illinois	T.			.13	.30		.31		T.			33	27	T.	.01									.28	.38		T.					2.01
Cairo	Mississippi	.20	.18		.14	.55	.23	.04			.07	1.43	.42	.22		T.							T.		.34	T.			.02			T.	3.84
Cambridge	...do																																
Carlinville	Illinois	.08	T.		.20	.21		.26			T.	.25	.23	.26	T.	T.							T.		.15	.35		T.	T.				1.99
Carlyle	Mississippi																																
Chester	...do																																
Chicago	Illinois	.01	.13		.20	.50	T.	.55			.06	.14	.84	.59	.02	T.	.04				.03	.04	T.		.24	.50	.15	.01	.13		T.		4.18
Coatsburg	Mississippi	T.			.44	1.20	.40					.10	.02			T.									.20								2.36
Cobden	...do	.15	.45		.23	.29					T.	1.75	.27																				3.14
Colchester	Illinois																																
Dakota	...do		.01		.05	1.07		.06			.03	.08	1.43	.18			.06					T.		T.	.10	.30	.03	.13	T.			3.53
Decatur	...do	.02			.15	.31		.86			T.	.05	.10	.45	T.	.01						T.	T.		.35	.10		T.	T.				2.40
Dixon	Mississippi																																
Du Quoin	...do	.08	.07		.03	.25	.25				1.90	.38	.25										T.		.33	.17			T.				3.71
Dwight	Illinois		.03		T.	.47		42			.10	.14	.59	.42	.01	T.	T.					T.			.11	.63	T.	.02	.02	T.			2.96
Galva	...do	.01	T.	T.	.14	1.65		.29			.07	.16	.49	.16	T.	T.	T.						T.		.21	.46			T.				3.64
Grafton	Mississippi					.46	.12					.30	.20	.08									T.	T.	T.		.60	.30					2.06
Greenville	...do	.05	.02		.05	.57		.55			.15	.20	.05	.25	T.								.02		.20	.25		T.	T.				2.36
Griggsville	Illinois	T.			.24			.40			T.	.12	T.	.10		T.							T.		.10	.25		T.	T.				1.21
Halfway	Mississippi	.05		.23	.08	.27		.38			T.	1.35	.33	.31									T.		.11	.09			.08				3.28
Havana	Illinois	T.			.23	.30		.23					.34	.18								T.			.25	.60							2.13
Henry	...do		T.		.24	.66		.40			.03	.09	.50	.33	T.	T.									.10	.85		T.	T.				3.20
Hillsboro	Mississippi	.04	T.	T.	.08	.35	T.	.35			T.	.50	.15	.30											.04	.35							2.16
Joliet	Illinois	.02	.35	T.	.29	.33		.42			.12	.03	.53	.48	.03	T.	.02					.03			.22	.44	.13	.04	.02				3.50
Kishwaukee	Mississippi	T.	T.	T.	.10	1.30		.04			.01	.06	1.01	.29		T.	.02					.05		T.	.12	.11	.01	T.					3.23
Knoxville	Illinois	.10		.04		1.65		.64		T.		.50		.15								T.				1.10							4.18
La Grange	...do		.62			.53	.24					.20	.86	.59	T.	T.						.10			.15	.65	T.	.18	T.				4.12
La Harpe	...do	T.		T.	.16	1.18		.58			T.	.14	.09	.11	T.	T.	T.				T.	T.			.30	.36		T.	T.				2.92
Lanark	Mississippi	T.	.03	T.	T.	1.15					.15	.12	.55	.15	T.		.04							T.	.10	.25	T.	.03					2.57
La Salle	Illinois	T.	T.	T.	.79	.37	.05	.37			.26	.14	.48	.28	.01	.01	T.			T.		T.		T.	.36	.43	.06	T.	.03				3.64
Lincoln	...do		T.	T.	.11	.33		.45			T.	T.	.32	.50	T.	T.	T.					T.	T.		.20	.95							2.86

TABLE 2.—*Daily precipitation for December, 1909. District No. 5*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Illinois—Cont'd.																																	
Loami	Illinois	.06		T.	.05	.20		.28			T.	T.	.20	.30	T.	T.						T.	T.	.10	.12		T.	T.	T.				1.31
Martinton	do	.63				.25	1.00	T.			.30	.03	.85	.10	T.	T.						T.	T.		.65	.15	.04	T.	.10				4.10
Mascoutah	Mississippi	.10	.03	.01	.09	.33		.28				.94	.18	.30	T.								T.		.20	.18			.04				2.68
Minonk	Illinois	T.	T.	T.	.10	.45		.24			T.	.15	.55	.30	.08	T.	T.					T.	T.	T.	.16	.84		T.	.03	T.			2.90
Monmouth	Mississippi	.02			.36	1.91		.27			.02	.15	.38	.06	T.										.20	.46			.05				3.88
Morrison	do		T.	.03	.04	1.20	T.	.40			.25	.25	.64	.12	T.	T.	.05					.03			.20	.46			.05	T.			3.72
Morrisonville	Illinois	T.	T.	.05	.22	.20		.18			T.	.13	.15	.15	T.	T.							T.		.11	.28		T.	T.				1.47
Mt. Vernon	Mississippi		.04	.05		.25	.12	.34				.63	.45	.44											T.	.34				.15			2.81
Oregon	do				.03	1.50		.35			.05	.02	.30	.48	T.	T.	T.							T.	.15	.20	T.	.50	.10				3.68
Ottawa	Illinois		.04		.05	.71	.27				.15	.12	.70	.38		T.	T.								.15	.45	T.	T.					3.02
Pana	Mississippi	.05		T.	.04	.35	T.	.51				.18	.17	.46	T.	T.							T.		.21	.56			T.				2.53
Peoria	Illinois	T.	T.	.02	.22	.28	.05	.32			.04	.22	.32	.25	T.	T.	T.				T.	T.	T.	T.	.44	.34	T.	T.	T.	T.			2.50
Pontiac	do				.02	.40		.30			T.	.10	.60	.40	T.	T.	T.					T.			.20	1.20		T.	.10				3.32
Riley	Mississippi		.03		.08	2.32		.35			T.	.12	.86	.56			.02					.04		T.	.12	.41	T.	.12	.02				5.05
Rockford	do		.02	.01	.06	1.04	.13	.19	T.			.09	.79	.40	.15		T.	.03				.02				.33		.20	.02	T.			3.48
Rushville	Illinois	.04			1.10		.40					.13	T.	.05		T.						T.	T.	T.	.10	.50	T.	T.	T.				2.32
St. Charles	do		.32		.02	1.02		.35			T.	.12	.70	.60	T.	T.	.05					.05			.20	.80	T.	.21	T.				4.44
Springfield	Illinois	.01	T.	T.	.05	.19	T.	.21			.03	.04	.21	.25	.01	T.						T.	T.	T.	.32	.15		T.	T.	T.			1.47
Staunton	Mississippi																																
Streator	Illinois		.01		.03	.42	.08	.31	.01			.22	.35	.50	.06	T.	T.		T.				T.			.75	.08	.03	T.	T.			2.85
Sullivan	Mississippi		T.	T.	.06	.33		.60				T.	.29	.10		T.						T.	T.		.62	.36							2.36
Sycamore	do		.05		.02	1.20	.35	.35				.20	.25	.30	.10	.30	T.	.05				.15				1.10	.30	.35	.20				5.27
Tilden	do	.05	.06		T.	.44		.45				.76	.25	.33	T.								T.		.28	.16			.08				2.86
Tiskilwa	Illinois	.03			.07	1.50	.30				.10	.75	.06	.50	T.	T.	T.					T.	T.	T.	.20	1.10		T.	.05	T.			4.66
Walnut	Mississippi	T.			.01	1.78		.22			.24	.05	.80	.28	.01	T.	T.					T.			.15	.81		.02					4.37
Warsaw	do				1.53		.32																		.32								2.17
White Hall	Illinois	.09		T.	.08	.23		.35			T.	.28	.29	.20	.03	.02							.06		.13	.60			.02				2.38
Windsor	Mississippi	T.	.02	.03	.04	.40		.40			T.	.20	.04	.46		T.							.01		.20	.40			.05				2.25
Winnebago	do	T.			.06	1.30		.15			.20	.40	.50	.40		T.	.25					.08			.30	.35	.20	.08	.05				4.32
Yorkville	Illinois		T.			T.	T.	.25			.05	.05	.05	.30	.01	.02						T.			T.	.70	T.	.03	T.				1.46
Zion	Mississippi			.20		1.20		.40			.30	.30	.80	T.			.10									.30	.50	T.	.20				4.30

TABLE 3.—*Maximum and minimum temperatures at selected stations, December, 1909. District No. 5, Upper Mississippi Valley.*

Date.	North Dakota.										Minnesota.																			
	Bottineau.§§		Devils Lake.		Lisbon.§§		Minot.§§		Pembina.§§		Collegeville.		Crookston.§§		Grand Meadow.		Montevideo.§§		Moorhead.		New Ulm.§§		PineRiverDam.		St. Paul.		Winnibigoshish.	
	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...	30	30	35	19	36	34	33	31	28	28	44	37	35	34	46	35	54	40	38	31	41	23	43	12	48	38	44	36
2...	18	10	19	8	23	21	20	9	18	15	43	38	25	25	49	40	43	39	32	18	37	19	46	32	46	41	39	35
3...	4	4	8	0	12	10	8	5	15	-4	43	32	13	12	42	37	22	19	18	8	23	15	40	28	41	29	36	26
4...	10	-2	2	-12	5	-3	9	-1	-4	-6	33	15	10	5	37	21	11	5	8	2	17	10	30	12	29	20	28	10
5...	10	-11	-1	-7	2	-2	3	-11	-2	-8	18	3	6	0	30	10	6	-4	3	0	9	5	20	5	28	1	13	3
6...	5	-5	4	-8	0	-10	5	-8	-6	-8	5	-5	7	-2	14	0	4	-8	1	-5	7	-1	12	-5	5	-2	6	-4
7...	-3	-8	-3	-10	0	-13	1	-9	-22	-22	2	-7	0	-10	6	-3	5	-5	0	-8	5	-3	0	-10	2	-3	0	-14
8...	1	-15	-4	-22	0	-12	-2	-15	-12	-36	2	-6	-8	-8	5	-7	5	-7	-2	-12	5	-5	2	-7	5	-8	3	-12
9...	0	-25	-13	-31	-5	-23	0	-24	-8	-34	2	-16	-8	-26	7	-10	5	-16	-12	-20	5	-12	-2	-20	-2	-14	-1	-23
10...	7	-23	4	-17	15	-20	6	-15	2	-20	9	-10	12	-23	20	-5	19	-10	15	-19	14	-11	12	-15	20	-6	18	-18
11...	14	-9	11	-1	15	-8	14	-3	18	-12	24	0	20	-8	26	10	25	10	22	15	20	4	26	4	27	19	20	5
12...	19	4	19	9	26	-5	21	-17	23	2	25	19	26	8	25	23	27	15	23	12	27	15	30	12	29	21	28	10
13...	24	10	22	15	25	15	27	10	21	11	27	20	27	16	26	19	28	20	26	21	27	19	23	19	30	23	29	15
14...	10	10	16	0	20	15	15	9	11	10	27	14	20	19	25	16	28	21	22	3	26	20	32	-2	26	16	28	-13
15...	26	-2	27	-4	30	-5	30	5	10	-5	22	1	13	-2	21	1	18	-4	14	-2	20	1	34	-3	19	4	18	-3
16...	9	0	25	-3	7	5	10	5	-2	-2	15	5	6	4	24	2	5	-5	18	-2	14	-1	16	-2	17	4	13	3
17...	8	-2	3	-12	10	-3	0	-5	0	-18	11	-9	4	-2	11	-8	7	-10	5	-6	10	-3	9	-9	5	-6	8	-8
18...	0	-20	1	-13	7	-14	5	-20	8	-5	5	-10	2	-5	3	-14	6	-5	2	-7	6	-4	7	-9	3	-10	6	-5
19...	6	-12	5	-1	8	-12	2	-27	2	-10	9	-11	8	-9	7	-8	7	-6	8	-8	9	-7	10	-10	5	-11	9	-7
20...	10	-7	11	2	15	-5	8	-13	8	-12	11	1	12	1	9	-5	14	-3	10	6	14	-2	11	-6	12	4	12	5
21...	17	5	14	9	18	2	15	0	12	-2	19	6	15	4	16	4	18	0	16	9	18	6	18	8	19	10	18	10
22...	19	8	20	8	22	3	20	8	18	5	20	13	20	8	20	6	23	8	20	12	22	12	18	9	20	16	17	11
23...	8	-5	13	-1	22	10	15	5	5	5	18	12	18	12	21	7	22	12	19	8	24	14	18	8	18	13	16	11
24...	9	-15	3	-14	16	3	8	-13	5	-5	25	13	12	0	22	11	17	11	10	-7	18	15	19	12	27	15	20	13
25...	6	-12	8	-18	12	-6	18	-8	0	-10	17	0	5	-9	21	-1	10	-4	3	-7	16	7	18	-10	21	-4	16	-1
26...	11	-6	9	1	12	-8	20	8	5	-8	17	3	25	-7	15	-8	19	-3	12	-3	21	3	10	-16	11	-5	6	-2
27...	10	2	13	-7	16	-7	18	6	-2	-10	17	0	1	1	11	-3	17	0	12	-6	22	-4	9	-4	13	3	8	-10
28...	2	-2	-4	-21	8	-7	6	0	-8	-18	15	-2	-2	-16	10	-8	7	-7	0	-15	7	-3	10	-8	6	-9	0	-11
29...	12	-19	16	-22	15	-30	30	-25	-4	-22	1	-21	6	-28	-1	-16	10	-20	4	-23	21	-17	-3	-22	-5	-18	3	-25
30...	29	-8	31	11	32	-29	40	0	-2	-16	21	-9	16	-10	18	-17	37	-5	23	3	23	-16	16	-6	18	-5	19	-13
31...	29	9	34	18	34	12	20	18	-4	-18	34	8	27	4	32	3	40	20	31	15	37	5	31	3	32	6	25	3
Mns	11.6	-3.7	11.2	-4.0	14.8	-3.0	13.7	-3.1	4.3	-7.5	18.7	4.3	12.0	-0.4	19.9	4.3	18.0	3.2	12.9	0.4	18.2	3.4	18.2	00.0	18.5	5.9	16.3	0.9

Date.	Wisconsin.														Iowa.													
	Delavan.		Eau Claire.		La Crosse.		Madison.		Mauston.		Spooner.		Wausaw.		Algona.		Cedar Rapids.§§		Charles City.		Davenport.		Des Moines.		Dubuque.		Keokuk.	
	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...	52	32	49	34	52	33	50	34	51	30	51	37	51	34	43	38	49	37	46	37	52	34	48	42	50	36	50	39
2...	47	44	47	39	50	45	48	41	47	40	44	22	46	36	45	35	53	37	48	39	55	43	45	38	51	44	55	44
3...	48	42	45	40	45	38	45	39	45	40	43	39	41	37	37	28	42	39	39	35	47	38	40	36	44	39	48	40
4...	43	40	42	28	38	31	42	39	40	35	41	38	40	36	29	13	42	39	35	22	47	42	36	23	43	39	47	41
5...	51	14	46	9	51	8	51	10	50	15	38	9	48	23	15	4	32	31	32	3	55	15	25	8	54	11	45	19
6...	20	10	10	2	16	3	20	7	18	6	10	-1	33	4	14	0	19	9	12	3	26	12	19	8	21	9	26	14
7...	20	5	8	0	11	4	15	1	15	5	6	-5	12	3	9	-3	9	6	7	1	20	1	9	1	15	4	24	6
8...	7	-2	9	-1	11	-2	8	-2	12	-2	9	-6	10	-3	7	-8	6	-2	6	-5	6	-2	6	-3	8	-2	7	-5
9...	12	-3	5	-8	11	-4	12	-1	10	-2	5	-11	11	1	8	-7	12	-2	7	-6	10	-2	11	-4	14	-2	11	-4
10...	19	-1	19	-6	21	-1	20	-3	19	1	19	-9	22	0	16	-1	21	-2	18	-1	18	6	20	7	19	5	20	6
11...	28	17	28	8	30	20	29	20	28	18	27	11	25	14	26	15	29	9	28	17	29	18	29	20	29	19	32	19
12...	34	27	29	23	30	26	33	27	28	25	25	21	27	22	27	22	23	20	27	32	35	27	30	26	33	29	31	29
13...	34	27	31	17	30	24	31	26	29	24	31	20	31	22	28	21	29	27	26	23	33	26	28	24	30	26	30	26
14...	30	20	31	18	30	19	29	17	28	20	24	16	31	22	29	22	32	26	27	21	31	24	29	22	31	22	30	24
15...	24	10	22	7	24	1	21	4	27	9	21	0	24	11	24	2	22	21	13	4	27	9	23	11	26	3	27	16
16...	28	-4	11	-1	16	2	22	-2	18	0	16	-1	13	0	32	6	36	6	29	6	35	8	36	5	32	3	38	12
17...	19	-3	16	-2	16	-5	14	-3	9	0	15	-7	14	8	8	-6	6	3	6	-4	11	0	8	-1	12	-5	24	3
18...	7	-11	2	-12	4	-11	4	-7	5	-12	5	-4	13	-8	6	-11	6	-4	4	-10	6	-5	10	-4	6	-8	12	-1
19...	10	-9	7	-7	9	-6	8	-4	7	-8	9	-10	12	0	11	-9	11	-4	6	-3	10	-3	11	-7	11	0	14	-1
20...	20	-8	12	-1	14	-2	9	-6	10	-3	4	4	11	2	11	-4	16	-2	11	-4	16	-1	19	-2	13	-4	23	2
21...	16	4	22	2	21	7	16	5	16	0	22	9	22	2	19	5	18	0	16	7	16	9	20	4	19	9	20	7
22...	27	4	22	8	25	3	21	11	21	5	21	10	22	15	18	10	22	10	19	7	22	11	20	10	25	7	22	14
23...	21	-4	18	5	17	6	17	7	16	5	19	13	19	6	21	9	22	5	18	6	20	7	23	9	19	7	24	14
24...	27	6	20	12	24	14	22	12	22	-2	21	-10	19	11	29	18	26	2	24	17	27	20	30	20	25	17	30	23
25...	28	21	24	10	25	2	25	14	26	18	21	-4	28	18	20	2	23	21	21	-6	28	3	20	1	26	5	29	13
26...	23	-1	11	-7	10	-5	14	-2	22	-8	10	-10	25	-1	22	-3	13	-3	13	-8	14	-5	23	0	12	-2	22	-2
27...	14	-4	14	6	16	4	13	2	15	-5	12	-3	16	-5	22	2	20	-7	17	1	14	2	25	11	15	0	22	10
28...	13	1	10	-2	8	1	9	-1	12	-3	7	-8	16	-1	17	-2	14	9	16	-6	19	-1	22	-2	17	-1	22	5
29...	8	-9	8	-10	3	-10	2	-8	4	-5	4	-21	14	-6	1	-15	-1	-8	-6	-16	-1	-10	-1	-12	3	-11	5	-7
30...	8	-17	16	-10	18	-9	10	-8	11	-17	13	-9	10	-7	30	-6	19	-13	20	-7	17	-10	32	-2	15	-11	29	-9
31...	29	-7	24	0	26	1	24	-1	26	-4	23	3	25	-3	37	18	34	-1	32	4	34	13	38	24	26	0	41	24
Mns	24.7	7.8	21.3	6.5	22.6	7.7	22.1	8.8	22.2	7.3	20.2	4.3	23.6	9.5	21.3	6.3	23.0	10.0	19.9	6.5	25.1	10.6	23.7	10.1	24.0	9.3	27.7	13.6

TABLE 3.—*Maximum and minimum temperatures at selected stations, December, 1909. District No. 5*—Continued.

Date.	Hannibal, Mo.		Laporte, Ind.		Illinois. Cairo.		Greenville.		La Salle.		Monmouth.		Mt. Vernon.§§		Peoria.		Springfield.		Winnebago.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	52	42	54	30	56	47	55	38	55	34	51	35	61	33	56	38	55	36	53	31
2	56	39	48	38	58	46	53	46	54	48	56	44	56	40	53	46	53	43	53	44
3	52	38	52	35	57	46	56	54	49	41	48	34	56	40	50	40	51	38	47	37
4	52	44	55	42	72	51	58	46	53	47	47	43	63	47	58	45	58	46	45	41
5	57	19	54	19	61	31	57	24	55	20	53	18	63	34	58	19	59	21	54	14
6	28	17	32	16	45	26	35	20	26	16	25	13	36	20	29	16	30	20	23	11
7	24	1	28	4	34	18	33	6	24	3	23	7	28	20	23	0	29	5	20	4
8	8	− 2	7	− 4	23	12	8	− 1	6	0	7	− 3	23	4	6	− 3	8	− 1	6	− 3
9	13	− 4	8	− 4	25	8	12	− 3	11	0	11	− 4	19	0	9	− 4	11	− 2	10	− 4
10	28	5	6	− 1	36	20	28	5	18	5	19	3	43	3	22	1	26	6	18	− 1
11	34	28	28	14	45	36	35	28	29	18	28	19	40	13	32	22	34	26	28	15
12	33	26	36	25	46	29	35	28	35	29	34	28	43	33	35	31	35	28	33	28
13	30	26	38	28	32	28	28	26	34	27	32	27	33	23	31	27	31	27	33	27
14	32	26	29	21	43	30	32	28	31	24	30	24	36	28	30	25	33	27	30	18
15	27	17	25	18	34	28	29	22	27	10	27	14	29	21	26	9	27	15	23	7
16	40	12	31	1	45	24	37	29	35	7	35	7	40	18	35	7	37	11	30	− 3
17	14	6	31	.....	37	20	29	10	12	2	25	1	29	15	12	0	17	7	18	− 5
18	14	2	11	.....	20	14	15	3	9	− 3	10	− 4	19	5	9	− 4	12	2	3	−12
19	18	1	12	− 5	23	15	21	5	14	0	13	− 5	24	8	13	− 4	15	3	10	− 7
20	25	8	.....	.....	33	15	27	8	16	0	20	− 1	33	7	18	− 1	23	7	10	− 7
21	22	11	.....	.....	36	19	25	15	16	11	17	6	34	9	15	8	20	12	14	4
22	23	18	.....	.....	29	22	25	16	24	12	24	14	23	15	24	15	24	16	19	4
23	27	18	.....	.....	32	19	27	18	20	7	20	9	33	19	20	17	23	18	20	− 1
24	32	27	.....	.....	33	30	32	25	27	19	28	19	32	19	28	19	31	20	23	14
25	32	7	.....	.....	34	20	30	16	28	9	27	13	28	25	28	6	31	10	26	17
26	26	− 2	.....	.....	30	14	18	1	14	3	15	− 5	28	16	17	− 5	25	0	17	− 6
27	23	13	.....	.....	33	26	26	12	17	0	12	5	30	8	17	3	19	10	12	− 7
28	24	2	.....	.....	32	15	25	6	18	3	20	4	16	15	21	0	23	5	11	4
29	4	− 7	.....	.....	16	5	6	− 4	7	− 9	4	− 8	14	− 3	4	−11	5	− 5	5	−12
30	30	− 5	.....	.....	30	4	23	− 6	13	−10	19	−11	30	− 2	15	−12	19	− 7	12	−14
31	43	21	28	− 2	47	29	38	20	32	3	35	13	43	2	35	10	40	18	27	− 2
Means	29.8	14.6	.....	.....	38.0	24.1	30.9	17.5	26.1	11.9	26.3	11.6	35.0	17.3	26.7	11.6	29.2	14.9	23.6	7.6