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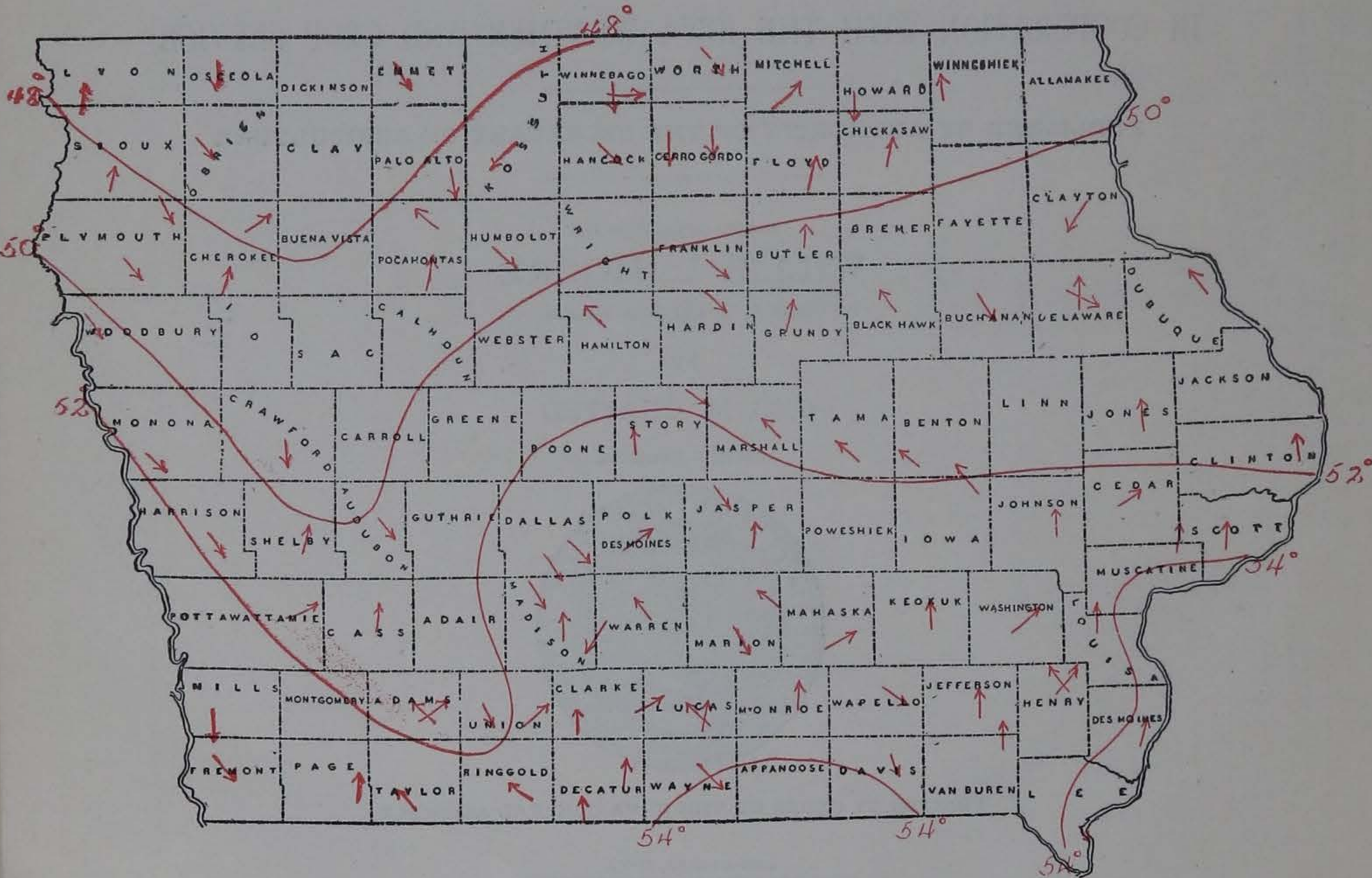
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MEAN ISOTHERMS AND PREVAILING WINDS OF OCTOBER, 1908.

Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE
 OF THE
WEATHER BUREAU.
 CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
 GEO. M. CHAPPEL, Section Director.

VOL. XIX DES MOINES, IOWA, OCTOBER, 1908. No. 10

GENERAL SUMMARY.

After the rains on September 26th to 29th, inclusive, drouthy conditions again prevailed until the night of October 19th, there being no rain between those dates except light showers on the 5th and 6th. During the first and second decades of the month the temperature was above normal, the maximum temperatures ranging from 52° to 89°, and the minimum from 31° to 65°; but, during the last decade, the temperature was considerably lower, the average for the month being slightly below the normal. From the 19th to the 28th, inclusive, the weather was cloudy with almost continuous rain. The average rainfall for the month was considerably above the normal for October and has been exceeded but four times during the past 19 years. Snow flurries were quite general over the western half of the state on the 22d and 23d, but the amounts of snowfall were small except over the southwestern counties where they ranged from one to eleven inches, which is unusual for that section of the state so early in the season.

There was a deficiency in the amount of sunshine, notwithstanding the fact that there was a large excess during the first half of the month. The dry weather and brisk winds during the first half of the month were favorable for drying out the corn crop and husking began between the 15th and 18th, and more than the usual amount would have been cribbed during October but for the rains between the 19th and 28th which prevented all field work. Husking was resumed on the 29th, and it is estimated that fully 15% of the crop had been harvested by the close of the month, at which time the work was being vigorously pushed.

The rains near the close of September revived pastures and put the soil in good condition to plow, and considerable plowing and fall seeding was done during the first ten days of October when it again became too dry, and that work was suspended until after the 27th, since which time plowing has been resumed. The long continued and, in many places, heavy rains between October 19th and 28th replenished the water supply, revived pastures and meadows and put the soil in excellent condition for winter.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 110 stations, was 51.1°, which is 0.8° below the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 49.6°, which is 0.5° below the normal; Central section, 51.2°, which is 0.6° below the normal; Southern section 52.6°, which is 1.1° below the normal. The highest monthly mean was 54.4°, at Burlington and Keokuk, Des Moines and Lee counties, and the lowest monthly mean 46.6°, at Sibley, Osceola county. The highest temperature reported was 89°, at Clarinda, Ottumwa, Ames and Woodburn, Page, Wapello, Story and Clarke counties, on the 14th and 16th; the lowest temperature reported was 17°, at Atlantic, Cass county, on the 12th. The average monthly maximum was 82.9°, and the average monthly minimum was 24.7°. The greatest daily range

was 58°, at Clarinda, Page county. The average of the greatest daily ranges was 38.5°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 118 stations, was 3.38 inches, which is 1.03 inches above the normal. By sections the averages were as follows: Northern section, 3.37 inches, which is 1.10 inches above the normal; Central section, 3.13 inches, which is .69 inch above the normal; Southern section, 3.64 inches, which is 1.29 inches above the normal. The greatest amount, 8.83 inches, occurred at Lamoni, Decatur county, and the least, .58 inch, at Clinton, Clinton county. The greatest amount in twenty-four hours, 2.96 inches, occurred at Plover, Pocahontas county, on the 24th. Measurable precipitation occurred on an average of 8 days.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 16; partly cloudy, 6; cloudy, 9. The duration of sunshine was below the normal, the percentage of the possible amount being 67 at Davenport; 60 at Des Moines; 57 at Dubuque; 62 at Keokuk; 50 at Sioux City, and 57 at Omaha, Nebraska.

WIND.—South winds prevailed. The highest velocity reported was 48 miles per hour from the south, at Sioux City, Woodbury county, on the 19th.

ERRATA IN AUGUST REVIEW.

NEW HAMPTON.—Greatest 24 hour rainfall recorded as .67 inch, on page 89, should have been .70 inch.

SIGOURNEY.—Greatest 24 hour rainfall recorded as 1.78 inches, on page 90, should have been 1.91 inches.

WEBSTER CITY.—Total precipitation recorded as 5.00 inches, on pages 89 and 94, should have been 5.05 inches.

BELETED REPORT.

BELLE PLAINE.—August. Mean temperature 66.1°; highest 87° on the 11th, 18th, 19th, 21st; lowest 27° on the 29th; greatest daily range 31°. Total precipitation 1.82 inches; greatest in 24 hours 1.73 inches; prevailing direction, south. Number of clear days 12, partly cloudy 13, cloudy 5, rainy 3.

KNOXVILLE.—September. Mean temperature 68.3°; highest 90° on the 11th and 12th; lowest 29° on the 29th; greatest daily range 33°. Total precipitation .88 inch; greatest in 24 hours .42 inch; prevailing direction, southeast. Number of clear days 17, partly cloudy 9, cloudy 4, rainy 3.

COMPARATIVE DATA FOR THE STATE—OCTOBER

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	49.2	86	16	3.48	6.82	1.59
1891.....	50.0	92	19	2.77	6.53	.85
1892.....	54.5	96	14	1.55	2.58	.00
1893.....	52.4	94	10	1.28	4.56	.02
1894.....	51.7	90	20	2.67	5.25	.63
1895.....	46.0	88	4	.47	1.38	.00
1896.....	47.9	88	12	3.13	5.05	1.51
1897.....	56.8	97	12	1.14	3.30	.03
1898.....	47.5	88	17	3.56	5.75	1.27
1899.....	56.7	95	17	1.73	4.64	.15
1900.....	59.3	90	21	3.91	8.00	1.20
1901.....	54.2	88	20	1.98	4.23	.45
1902.....	53.5	83	20	2.54	6.66	.28
1903.....	52.2	90	16	1.95	4.50	.32
1904.....	53.1	96	16	1.67	4.43	.14
1905.....	49.2	95	16	3.40	5.36	1.20
1906.....	50.5	87	7	1.96	4.25	.50
1907.....	50.4	85	10	1.50	3.71	.30
1908.....	51.1	89	17	3.38	8.83	.58

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.07 inches.
Prevailing direction of Wind, S.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement	Maximum Velocity—miles	Direction	Date	Average Hourly Velocity
Charles City	30.08	30.46	12	29.58	24	6018	23	SW	16	8.1
Davenport ..	30.09	30.52	12	29.59	24	5588	29	S	15	7.5
Des Moines...	30.05	30.45	12	29.53	25	7129	38	SW	16	9.6
Dubuque....	30.10	30.54	12	29.62	25	4288	24	SE	16	5.8
Keokuk.....	30.10	30.54	12	29.67	24, 25	5514	23	SW	24	7.4
Omaha, Neb.	30.04	30.45	8	29.46	16	7720	38	NW	24	10.4
Sioux City ..	30.04	30.46	8	29.39	16	10841	48	S	19	14.5

OBSERVERS' REMARKS.

AFTON.—*N. W. Rowell*. There was about two inches of snow fell during the night of the 22d.

ALBIA.—*J. I. Chenoweth*. The weather during the first half of the month was clear and pleasant, but from the 19th to the 28th the weather was cloudy with rain every day.

ALGONA.—*Dr. F. T. Seele'*. The weather was very pleasant up to the 19th, but from the 20th to the 28th it was cloudy with drizzling rain. One inch of snow fell on the 23d.

ALLERTON.—*Mrs. Geo. Shriver*. The rain during the latter half of the month put the ground in good condition for fall plowing. There was very little corn harvested but there are indications of a fair yield.

ALTA.—*David E. Hadden*. October was a very pleasant month. Most of the rain fell during the last decade. The first snow of the season fell on the 23d but it melted as soon as it reached the ground.

ALTON.—*W. S. Slagle*. The weather during the fore part of the month was fine for picking corn, which was then in good condition, but the latter part of the month was too wet for any field work.

AMANA.—*Conrad Schadt*. During the first and second decades the weather was very dry and the roads dusty, but copious rains fell from the 20th to the 28th.

AMES.—*J. H. Criswell*. The first half of the month was very dry and dusty with brisk to high winds, but from the 20th to the 27th gentle and almost continuous rains fell.

BAXTER.—*W. R. Vandike*. On the 23d snow and rain fell. The snow melted as it fell except on the north side of buildings where it was about half an inch deep and remained on the ground most of the day.

BEDFORD.—*E. E. Healy*. The first snow of the season came during the night of the 22d and continued during most of the 23d the amount being 6.5 inches.

BONAPARTE.—*B. R. Vale*. October was a dry and warm month but there was very little corn cribbed. The roads were good but pasturage was very light.

BRITT.—*Geo. P. Hardwick*. The temperature was high during the first half and low during the latter half of the month, but was about normal for the month. There was an excess of 3.00 inches in precipitation, most of which fell during the last decade, retarding the corn harvest. About 20% of the corn has been gathered and fall plowing is well advanced. There has been an increase in acreage seeded to rye.

CHARITON.—*C. C. Burr*. The weather was clear and warm up to the 20th with frequent showers from the 20th to the 27th. The yield of corn is very uneven and the quality is not the best.

CLEAR LAKE.—*Oscar Stevens*. Two-tenths of an inch of snow fell on the 30th, being the first of the season.

FAIRFIELD.—*Prof. R. Monroe McKinzie*. The first snow of the season was observed in the air on the 21st but it melted before reaching the ground. The month was very dry, there being less rain than in September.

FOREST CITY.—*J. A. Peters*. There has not been much corn cribbed and there is a decrease in the amount of fall plowing done.

GRAND MEADOW.—*F. L. Williams*. The weather was favorable for fall work. Plowing is well advanced and corn husking has begun. Pasturage improved during the latter half of the month.

GREENE.—*J. L. Cole*. Robbins were still in the country on the 27th.

GRINNELL.—*A. O. Price*. About 75% of the rainfall for October fell during the last decade of the month. Although the precipitation has been below normal, the streams and wells are in fairly good shape for winter.

HANCOCK.—*Wm. Armstrong*. The corn harvest began October 18th. Corn is of good quality and is yielding well.

HUMBOLDT.—*H. S. Wells*. There has been a decrease in the acreage of fall seeding, but 25% of the corn has been harvested, and 75% of the fall plowing has been done.

INWOOD.—*F. B. Hanson*. Dense smoke was observed on the 19th with a very perceptible odor of burning timber, presumably from the Michigan forest fires.

LARRABEE.—*H. B. Strever*. The weather was very dry until the 19th. About 75% of the fall plowing has been done and from 40% to 50% of the corn is in the crib.

OLIN.—*Hon. Nathan Potter*. October was an ideal fall month for drying the corn but too dry for fall plowing or seeding until the last week.

POCAHONTAS.—*F. E. Hronek*. The weather was favorable for farm work and harvesting corn up to the 20th, when rain began and continued until the 27th, stopping all field work. The last four days were clear and corn gathering was resumed, and about 40% of the corn is now in crib.

SHELDON.—*Dr. A. W. Beach*. Splendid fall weather prevailed during the first half of the month, curing the corn perfectly, but the rain during the latter half of the month prevented corn-husking and as a result but very little was cribbed.

STOCKPORT.—*C. L. Beswick*. There has been very little fall plowing done on account of dry weather and stock water is scarce in places. There has probably been about 20% of the corn cribbed or from 20% to 30% less than usual at the end of October. There has been about three times as much fall seeding done and it is mostly wheat.

WAVERLY.—*H. S. Hoover*. More than the usual amount of cloudiness prevailed during the last decade of October and the drouth was broken. Fall plowing is generally finished and the sugar beet harvest is being rushed with good to poor yield.

DROUTHS IN IOWA.

September, 1908, will go on record as having had the longest period without rain of any September since the establishment of weather stations in this state. With the exception of a few light showers in small sections of the state on the 5th, 13th and 23d, there was practically no rainfall from the night of August 31st to the night of September 25th, making, at most of the stations in this section, twenty-five rainless days. Copious rains fell in all parts of the state between the night of the 25th and the 28th. During the dry period the temperature was considerably above the normal and the weather was almost cloudless. The atmosphere was, however, more or less hazy, and over the eastern counties light to dense smoke was observed from the 14th to the 23d, presumably due to forest fires in the upper lake regions. From the 4th to the 25th, inclusive, the maximum temperatures ranged from 80 to above 90°, and the night temperatures were correspondingly high.

Previously to September 1st, the conditions had been favorable for abundance of soil moisture; there being an excess of precipitation for the state of 3.84 inches in May, 1.14 inches in June and .78 inch in August, and a deficiency of .78 inch in July, making a total excess of 4.98 inches for the four months, May to August, inclusive. All ponds, streams and sloughs were well filled with water and in May and June the rivers approached the flood stage, so that there was more than the normal amount of moisture in the soil on September 1st and all wells furnished a good supply of water during the entire month.

The effect of the dry, hot weather during September was very injurious to pastures, late potatoes, garden truck, buckwheat, late fruits and the surface water supply. By the 15th pastures were brown and the soil was too dry and hard to plow, and by the 25th the fields were dusty and most of the ponds, sloughs and small streams were dry. The stage of water in all rivers was low and in some, the stage was said to be the lowest ever before known.

While the effects of the drouth were serious and damaging to pastures, late potatoes and apples, the beneficial effects to corn more than overbalanced the injury done, and it may well be said that the dry weather was of great benefit to this state. Corn, the principal crop in this section, was unusually late due to the heavy and continuous rains during the latter part of May and June and the fore part of July, which retarded planting and prevented the cultivation of early planted fields, and as a result all corn was green and but little of it had begun to show any signs of maturity by September 1st. After September 1st, corn was rapidly pushed toward maturity and by the 15th of the month a large percentage of the early planted fields were safe from the effect of frost, and the late planted fields were making rapid progress. By the 25th fully 90 per cent of the crop was far enough advanced to escape any material injury from the frost which occurred on the 28th and 29th, and the remainder of the crop was in most cases well dented so that it will have considerable value for feed.

Agricultural interests in this state are more frequently and more extensively injured by excessive moisture than by drouthy conditions. The last serious drouth prior to 1908 was in the summer of 1901, and then the damage to crops was largely due to continuous and excessively high temperatures and hot winds coming as they did during the period of pollination and earing of corn. From April 1st to August 31st of that year, the monthly deficiency of rainfall for the state was as follows; viz: April, 1.04 inches; May, 2.15; June, .81; July, 2.10, and August, 2.70 inches, making a total deficiency for the five months of 8.80 inches. The monthly mean and daily maximum temperatures of July were higher than ever before known, the monthly mean for the state being 82.4° or 8.7° above the normal, and the daily maximum temperatures from the 1st to the 26th, inclusive, were very near or above 100°, the absolute maximum being 113° at Sigourney. The dry, hot weather was very damaging to pastures and garden truck and materially reduced the yield of corn for that year. The following is quoted from the Monthly Report of the Iowa Section for September, 1897, and shows the effects of the drouth and hot winds during that month: "This month brought a marked change and the summary ending of a peculiar and fitful crop season. The first half broke all former records of September weather for the corresponding period, by abnormally high temperatures, intense insolation, hot southerly winds and severe drouthy conditions. At the central station the sum of the excess in temperature was 228° for the first 15 days, making a daily average of over 15° above the normal. During 12 days the maximum temperatures ranged from 90 to 98°. This extreme heat and general aridity produced a notable effect upon immature crops, and all forms of vegetable life. Most of the early planted corn, which with normal temperature and moisture would have required two to four weeks to ripen in the best condition, was swiftly hurried to maturity, with more or less detriment to its quality. The transformation from milk and dough to the dented stage was too sudden to secure normal development of the grain. All corn planted betimes on deep, rich soil, well cultivated and possessing a good storage of moisture, came through with a fair average yield, and is but little impaired in quality. But the crop on exposed uplands, and on thin soils, generally suffered extensive damage by "firing" and premature drying up.

"Frosts were noted in the northern districts on September 17th and 18th, and on the morning of the 20th a killing frost was reported in all districts. The bulk of the corn crop, however, was beyond the danger line, and probably less than 10 per cent was in condition to receive any appreciable injury from the frost. But potato vines and tender garden truck were cut down in all exposed localities. As a result of the dry weather, hot winds and early frosts, the potato

yield has been greatly reduced everywhere, and in some sections the crop of late potatoes is well nigh a total failure.

"The pastures and meadows have suffered the most damaging effects of the drouth and heat. Fall pasturage was almost wholly used up, and farm stock have been quite generally fed from the corn fields, or from the forage reserves provided for the winter season.

"Fall plowing and sowing winter grain were retarded by the dry and hard condition of the soil, and the prospective acreage of winter wheat has been decreased thereby.

"With all its drawbacks and abnormal conditions, however, the season of 1897 has brought forth liberal returns for the labors of faithful tillers of the soil. The final roundup will show that the state has produced a bountiful surplus for export to less favored regions."

The most disastrous drouth of which we have authentic record as having occurred in this state was in 1894, following as it did the dry year of 1893. There was a total deficiency in rainfall in 1893 of 5.06 inches, and in 1894 there was a deficiency of 10.71 inches. From May 1st, 1893 to August 31, 1894, there was a deficiency of 17.61 inches. During that period the rainfall was below the normal for every month except December, 1893, January, March and April, 1894, when there was an excess of .12 inch, .04, .11 and .24 inch, respectively. The greatest deficiency was between May 1, 1894 and August 31, 1894, and by months was as follows, viz: May, 2.63; June, 1.85; July, 3.81; and August, 2.41, or a total deficiency of 10.70 inches for the four months. The climax of the drouth came in July when the average monthly rainfall for the state was only .63 inch, which is the smallest amount ever recorded in this state during any crop growing month. Over three fourths of the state received less than half an inch of rain during the month and a number of localities reported only a trace. On the 25th, 26th and 27th of that month, the wind velocity was very high and the temperature was generally up to 100 degrees or above. Pastures were absolutely bare of anything on which stock could secure nourishment; all small streams, shallow wells and ponds, and many deep wells and large streams were dry and corn was badly "fired". Many farmers were forced to drive their stock to or haul water from streams several miles distant in order to keep the cattle alive, and feeding hay and grain was general. The yield of corn was only 12 bushels per acre which is the smallest yield of that crop ever known in this state.

In 1886 a drouth began in Iowa in May and continued during June, July and August, which was very severe during the last two months. The records of this office show that the rainfall during those months was as follows, viz: May, 4.01 inches, all but .74 inch falling during the first decade of the month; June, 1.21; July, .27; August, 1.10 inches, making a total of 3.32 inches from the middle of May to the end of August. There was only .04 inch of rain fell during the 39 days from June 21st to July 29th, inclusive.

The precipitation charts in the National Weather Review show that the worst of the drouth was confined principally to Iowa, although parts of the adjacent states had a deficiency of rainfall during most of the summer.

The following is an extract from a description of the drouth in Iowa, furnished by Gustavus Hinrichs, M. D., then director of the "Iowa Weather Service":

"Since the middle of May Iowa has been subjected to a drouth, the most severe on record. Fortunately, the greater part of the state has been favored with rains sufficient to break the drouth temporarily toward the close of June. * * * * *

"THE DROUTH AT IOWA CITY.

"In the early summer of 1886, the last good rain fell on May 13th. Since that time we have had no rain reaching half an inch until August 4th. Thus we had no serviceable shower for 83 days. The total rains which fell in this interval were 0.02 inch during the last decade of May; 0.41 during the first, 0.17 during the second, and 0.25 inch during the third decade of June. During the entire month of July we had only one-tenth of an inch of rain here. The total rainfall during the 83 days of our drouth was 0.95 inch only. The normal rainfall for this

(Continued on page 117)

CLIMATOLOGICAL DATA FOR IOWA, OCTOBER, 1908—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit					Precip., in inches				No. rainy days	Sky			Prevailing direction of wind	OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal		Greatest in 24 hours	Total snowfall (unmelted)	Number clear days			Number partly cloudy days	Number cloudy days
SOUTHERN SECTION																				
Afton	Union	1,212	14	51.6	-1.7	82	*14	27	30	35	6.55	+3.93	1.68	2.0	9	15	7	9	sw	N. W. Rowell
Albia	Monroe	959	10	51.3	-1.9	85	15	27	31	43	2.33	-.24	1.05	.....	10	16	5	10	s	J. I. Chenoweth
Allerton	Wayne	6	6	53.0	-1.2	86	*14	28	30	37	4.74	+2.72	2.32	.....	9	20	4	7	sw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	17	49.6	-2.0	84	14	17	12	49	3.96	-1.44	1.00	4.0	9	10	8	13	s	J. W. Love
Bedford	Taylor	8	8	53.1	+4.2	87	14	24	*8	46	6.82	+4.54	1.83	6.5	10	20	3	8	se	E. E. Healy
Bloomfield	Davis	.....	.....	53.6	.....	88	14	25	31	43	1.24	.....	.38	.....	8	17	7	7	n	F. H. Roberts
Bonaparte	Van Buren	.....	.....	53.4	-1.6	86	14	26	31	40	.89	-.87	.37	.....	7	.....	.....	.....	.....	Hon. B. R. Vale
Burlington	Des Moines	544	12	54.4	-1.3	83	14	29	31	41	.77	-1.45	.37	.....	6	20	3	8	s	W. E. Poppe
Chariton	Lucas	1,042	13	52.5	-1.7	85	*14	27	30	40	3.15	+1.79	1.10	.....	5	17	6	8	se,s	C. C. Burr
Clarinda	Page	1,009	18	52.0	-2.0	89	14	22	*12	58	5.12	+2.62	1.80	11.0	10	19	2	10	s	A. S. Van Sandt
Columbus Junction	Louisa	595	7	53.6	-0.8	81	*14	28	31	35	1.88	-0.57	.84	.....	5	23	5	3	s	J. B. Johnston
Corning	Adams	1,117	16	51.6	-1.7	88	14	24	28	34	5.67	+3.34	1.95	5.0	9	16	6	9	se,sw	Jerome Smith
Corydon	Wayne	1,101	15	53.6	-1.2	86	*14	28	30	36	4.71	+2.22	2.00	T	9	16	5	10	nw	Clara Miller
Creston	Union	1,312	3	51.2	.....	83	*14	28	*28	41	6.75	.....	2.47	.....	8	16	2	13	nw	Rev. W. L. Gaston
Cumberland	Cass	9	9	.....	.....	.....	.....	.....	.....	.....	4.14	+1.53	1.77	5.0	9	18	3	10	s	J. H. Reppert
Earlham	Madison	6	6	52.0	-0.9	84	16	26	*28	37	6.38	+4.03	1.65	T	10	18	4	9	nw	Geo. Phillips
Elliott	Montgomery	3	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Henry Barnes
Fairfield	Jefferson	14	14	53.3	+0.9	86	14	a 23	12	a 42	.61	-2.31	.14	T	7	16	9	6	s	R. Monroe McKenzie
Fort Madison	Lee	516	59	.....	.....	.....	.....	.....	.....	.....	1.41	-1.21	.52	.....	5	15	5	11	sw	Miss L. A. McCreedy
Greenfield (a)	Adair	17	17	51.2	-1.9	83	15	25	29	38	5.25	+2.98	1.70	2.0	9	.....	.....	.....	.....	Geo. Brooks
Hancock	Pottawattamie	1,113	2	52.2	.....	83	*4	26	*30	39	3.46	.....	1.00	1.0	6	20	0	11	sw	W. Armstrong
Hopeville	Clarke	17	17	52.3	-1.9	84	14	28	30	36	5.19	+2.95	1.25	.....	10	11	12	8	s	M. T. Ashley
Indianola	Warren	969	17	a 53.3	-0.4	83	14	b 24	8	b 36	4.24	+2.14	1.20	.....	9	13	7	11	se	Prof. J. L. Tilton
Keokuk	Lee	574	37	54.4	-0.1	85	14	31	31	32	.87	-1.62	.36	.....	7	20	4	7	nw	Weather Bureau
Keosauqua	Van Buren	644	16	52.2	-2.6	87	14	23	*12	53	.73	-1.11	.24	.....	7	12	7	12	.....	J. H. Landes
Knoxville	Marion	920	12	53.2	-0.5	83	14	29	31	35	2.57	+1.15	.81	.....	9	16	3	12	nw	Casey & Bellville
Lacona	Warren	9	9	.....	.....	.....	.....	.....	.....	.....	4.23	+1.52	1.10	.....	8	15	10	6	.....	Agent C., B. & Q. Ry.
Lamoni	Decatur	.....	.....	53.0	.....	84	14	29	30	37	8.83	.....	2.89	T	9	17	3	11	s	T. J. Fitzpatrick
Lenox	Taylor	1,250	13	51.8	-1.8	83	14	26	28	34	7.57	+5.04	2.25	4.0	9	20	2	9	s	J. T. Hurley
Leon	Decatur	1,120	6	51.8	-1.8	84	14	29	30	44	5.45	+3.37	1.75	T	8	20	0	11	s	Morris Gardner
Massena	Cass	3	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	G. A. Hill
Mt. Ayr	Ringgold	1,236	15	52.4	-2.5	86	14	27	28	39	7.23	+4.97	2.20	2.0	10	16	5	10	se	A. F. Beard
Mt. Pleasant	Henry	729	26	53.0	+0.5	82	*14	28	31	34	1.01	-.87	.39	.....	6	17	6	8	se,sw	Prof. J. W. Edwards
Omaha, Neb.	Douglas	1,040	38	53.1	-1.1	85	14	32	30	29	1.92	-.43	1.00	T	6	14	7	10	s	Weather Bureau
Oskaloosa	Mahaska	843	24	53.2	+1.1	84	14	26	12	37	1.86	-.34	.96	.....	6	22	0	9	sw	Jos. Boyd
Ottumwa	Wapello	649	14	53.7	-1.8	89	14	29	*9	44	1.23	-1.72	.31	.....	9	15	5	11	nw	Dr. Jas. A. Hull
Pacific Junction	Mills	960	9	51.7	-2.7	85	*14	26	12	41	3.44	+1.14	1.20	T	6	14	9	8	n	H. H. McCartney
Pella	Marion	877	6	53.4	-0.2	84	14	28	31	34	2.82	+1.23	1.04	.....	9	.....	.....	.....	.....	T. W. Cox
St. Charles	Madison	1,070	7	53.3	-2.2	85	*14	29	*30	40	4.27	+4.86	1.21	T	11	17	7	7	ne	R. D. Minard
Sigourney	Keokuk	877	12	53.2	-1.1	85	14	27	31	35	1.56	-1.00	.44	.....	7	5	21	5	s	J. T. Parker
Stockport	Van Buren	6	6	53.0	.....	85	14	25	31	34	.78	-1.18	.22	.....	7	21	2	8	s	C. L. Beswick
Thurman	Fremont	11	11	52.2	-2.6	87	14	24	12	41	4.10	+1.93	1.38	4.5	7	16	4	11	nw	C. R. Paul
Wapello	Louisa	588	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Geo. W. Schofield
Washington	Washington	769	27	53.0	+0.8	84	*14	28	31	35	1.02	-1.02	.50	.....	6	13	12	6	sw	Wm. A. Cook
Winterset	Madison	1,129	17	51.8	-1.5	81	*14	28	30	31	5.64	+3.40	1.63	.....	9	15	8	8	s	Dr. Robert S. Cooper
Woodburn	Clarke	961	9	52.4	.....	89	16	21	*9	47	4.15	+2.13	1.50	T	9	17	6	8	sw	C. B. McDonough
Average	.....	.....	.....	52.6	-1.1	84.8	.....	25.4	.....	39.1	3.64	+1.29	.....	4.3	8	16	6	9	s	.....
State average	.....	.....	.....	51.1	-0.8	82.9	.....	24.7	.....	38.5	3.38	+1.03	.....	2.6	8	16	6	9	s	.....

* And other dates. a one day missing, b two days; c three days; d four days, etc. † Received too late to be included in average.

THUNDERSTORMS—STATIONS AND DATES

NORTHERN SECTION.		CENTRAL SECTION		SOUTHERN SECTION	
Stations	Dates	Stations	Dates	Stations	Dates
Alta	20	Audubon	5,21	Allerton	21,22
Charles City	20	Baxter	21	Atlantic	20
Grand Meadow	22	Carroll	5	Columbus Junction	21
Mason City	21	Delaware	6,21	Earlham	19,20,21
Northwood	21	Des Moines	18,20	Fort Madison	24
Pocahontas	20,21	Dubuque	21	Indianola	21
Ridgeway	20	Grinnell	6,20,21	Keokuk	6,21
Waverly	20	Iowa Falls	19	Omaha, Neb.	5
West Bend	21	Olin	6,21	Thurman	18,19,20
		Onawa	18		

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR THE MONTH OF OCTOBER, 1908—CONTINUED

STATIONS	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		Monthly Mean							
	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.	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.														
Pella	59	33	69	38	74	43	76	42	77	49	70	52	64	41	58	32	66	34	64	38	58	31	65	31	78	44	84	53	83	59	82	62	83	61	78	49	70	48	76	59	71	57	66	41	44	36	48	38	43	35	46	39	48	38	57	31	53	32	46	31	46	28	61	6	42	1				
Plover	59	27	71	40	76	40	76	40	74	49	65	50	62	30	58	25	63	30	61	30	53	24	63	28	70	45	78	43	80	60	80	60	72	48	66	49	66	45	61	41	66	50	66	57	63	38	43	35	44	38	43	36	55	30	44	29	40	27	45	28	61	3	36	8						
Pocahontas	57	28	72	45	74	47	73	43	63	49	63	49	53	33	55	23	64	35	57	39	50	25	62	29	73	44	80	46	80	57	79	57	80	60	65	46	61	41	66	50	66	57	63	38	43	35	44	38	43	36	59	39	54	29	46	25	42	23	62	9	40	0								
Ridgeway	58	30	65	32	75	44	75	40	78	45	70	53	63	38	62	32	65	40	65	35	58	28	63	30	80	55	82	56	83	58	86	58	70	53	65	45	74	45	75	46	70	43	65	38	43	32	42	32	45	35	45	37	45	38	50	35	60	35	55	30	48	28	63	0	40	0				
Rockwell City	60	30	65	38	70	40	75	43	65	43	65	40	58	40	65	40	65	35	60	35	58	28	63	30	80	55	82	56	83	58	86	58	70	53	65	45	74	45	75	46	70	43	65	38	43	32	42	32	45	35	45	37	45	38	50	35	60	35	55	30	48	28	63	0	40	0				
St. Charles	62	32	74	34	75	48	79	44	69	57	72	53	61	41	59	33	69	36	63	41	57	32	66	34	80	48	85	54	85	59	84	62	82	56	65	45	75	52	78	54	68	58	61	37	39	32	48	32	42	36	40	35	42	33	55	30	50	27	45	25	40	30	60	4	38	0				
Sheldon	63	26	69	44	80	51	82	60	78	45	64	42	56	31	54	25	65	38	55	25	59	24	66	27	75	45	86	46	80	55	83	58	72	45	58	45	51	37	66	38	62	47	62	40	40	29	37	29	40	32	40	36	35	41	35	52	32	45	28	42	24	37	25	58	4	35	0			
Sibley	61	26	75	26	78	43	76	42	60	43	60	43	53	31	61	26	66	26	54	36	54	25	65	27	72	34	85	43	81	57	81	57	57	45	51	37	66	38	62	47	62	40	40	29	37	29	40	32	40	36	35	41	35	52	32	45	28	42	24	37	25	58	4	35	0					
Sigourney	57	31	68	37	72	42	76	42	77	47	70	53	62	41	58	31	65	29	67	36	56	33	64	29	78	41	85	50	84	54	82	56	84	58	76	51	70	49	77	57	72	57	72	49	46	38	37	31	37	34	40	33	41	37	48	31	43	29	39	28	38	30	57	7	38	7				
Sioux Center	61	30	75	45	76	52	76	46	67	54	60	44	53	33	58	30	63	35	54	42	50	25	62	30	72	46	78	54	80	44	80	57	68	45	52	38	67	45	64	48	61	44	46	32	40	35	38	34	37	34	40	35	42	35	47	32	46	30	40	32	45	31	58	5	40	6				
Sioux City	63	31	78	50	75	53	76	52	60	55	59	43	54	36	61	29	65	41	56	39	51	28	65	36	76	49	82	47	81	58	82	57	59	46	52	40	72	46	64	48	61	44	46	32	40	35	38	34	37	34	40	35	42	35	44	40	47	40	55	32	51	35	44	30	50	25	63	7	42	3
Stockport	55	34	64	38	68	42	73	43	73	47	70	55	63	44	55	34	61	29	66	32	55	34	61	28	76	45	85	52	82	58	80	57	83	59	73	51	74	51	75	58	77	59	69	43	57	39	38	33	44	32	40	33	41	35	41	38	54	33	45	23	41	28	41	29	58	7	39	5		
Storm Lake	59	30	71	43	74	50	72	48	58	44	60	48	53	34	59	29	63	41	55	41	55	41	50	27	62	33	71	33	80	53	86	57	77	63	70	51	55	40	67	47	67	47	68	43	57	33	38	33	44	32	40	33	41	35	41	38	54	33	45	23	41	28	41	29	58	7	39	5		
Stuart	65	31	79	41	78	42	80	42	67	52	75	53	67	37	69	31	72	34	67	41	58	29	64	32	76	48	81	54	81	57	82	61	78	55	65	45	78	49	72	52	67	56	68	40	46	31	44	32	48	32	43	39	42	36	49	41	58	29	49	36	49	27	45	27	45	31	58	5	41	5
Thurman	65	32	78	48	75	53	76	44	70	56	61	52	62	33	59	29	65	27	60	42	54	32	65	24	79	50	87	48	85	61	83	64	76	59	64	48	74	54	68	56	65	41	43	35	53	38	42	35	44	40	47	40	53	34	50	31	43	29	43	27	45	27	45	31	58	5	41	5		
Tipton	58	34	64	37	75	44	75	44	74	48	69	53	62	46	62	36	63	36	68	39	60	37	60	35	72	40	80	53	86	57	77	63	70	51	55	40	67	47	67	47	68	43	57	33	38	33	44	32	40	33	41	35	41	38	54	33	45	23	41	28	41	29	58	7	39	5				
Toledo	53	30	66	37	71	45	73	40	76	46	67	51	59	40	59	31	62	28	61	40	54	31	59	26	75	43	79	53	80	58	88	60	78	58	66	49	66	46	74	54	68	56	65	41	43	35	53	38	42	35	47	30	47	40	53	34	50	31	43	29	43	27	45	31	58	5	41	5		
Washington	56	31	65	37	70	41	75	41	75	46	69	52	63	42	57	32	63	29	69	37	66	32	65	32	76	41	84	51	83	58	81	58	84	59	73	60	69	48	75	56	75	56	65	45	45	39	56	37	42	35	44	40	47	40	55	31	53	34	47	31	49	28	64	5	41	5				
Washta	63	23	76	45	80	56	78	47	76	55	65	43	60	27	66	21	66	30	64	40	55	23	65	22	74	50	87	40	85	50	84	60	75	50	60	45	72	47	70	46	62	42	62	32	40	32	39	32	40	32	41	36	42	37	56	26	50	23	45	30	42	28	62	6	37	7				
Waterloo	56	31	66	36	68	45	76	40	77	48	70	55	59	41	58	30	68	30	64	35	59	31	63	27	77	42	81	45	82	49	78	57	81	57	80	50	65	45	74	49	68	55	49	43	52	37	52	39	43	34	47	35	49	39	59	41	51	32	46	30	48	27	63	4	40	5				
Waukeo	60	29	72	40	75	43	77	41	70	50	70	52	62	37	58	28	68	30	63	41	55	29	65	28	79	36	85	55	85	60	82	63	78	54	72	53	72	52	76	54	68	53	62	40	41	32	49	35	43	38	43	37	49	37	60	30	50	30	44	30	61	4	41	2						
Waverly	52	31	64	36	72	46	73	44	74	50	66	54	54	39	54	31	65	31	59	40	53	32	60	28	74	42	79	49	80	58	77	58	76	59	64	48	64	46	72	52	67	57	63	40	40	35	51	40	40	33	45	36	48	40	56	41	46	33	41	30	45	26	60	5	41	5				
Webster City	57	27	70	39	75	43	75	41	72	48	68	49	63	34	55	25	65	27	63	37	53	29	63	23	79	41	82	44	82	57	82	59	79	57	64	45	68	50	73	55	74	55	66	39	41	33	49	35	49	35	49	37	58	33	50	30	43	30	47	27	63	3	39	5						
West Bend	55	28	70	39	73	46	74	40	65	48	63	51	54	32	55	27	63	35	57	37	50	24	61	29	73	44	81	45	76	55	79	56	72	57	57	40	67	45	72	52	66	49	57	36	37	32	43	34	44	34	46	36	43	37	56	36	47	28	45	28	45	28	59	6	39	0				
Whitten	54	28	67	38	76	46	75	43	74	41	66	49	60	49	58																																																							

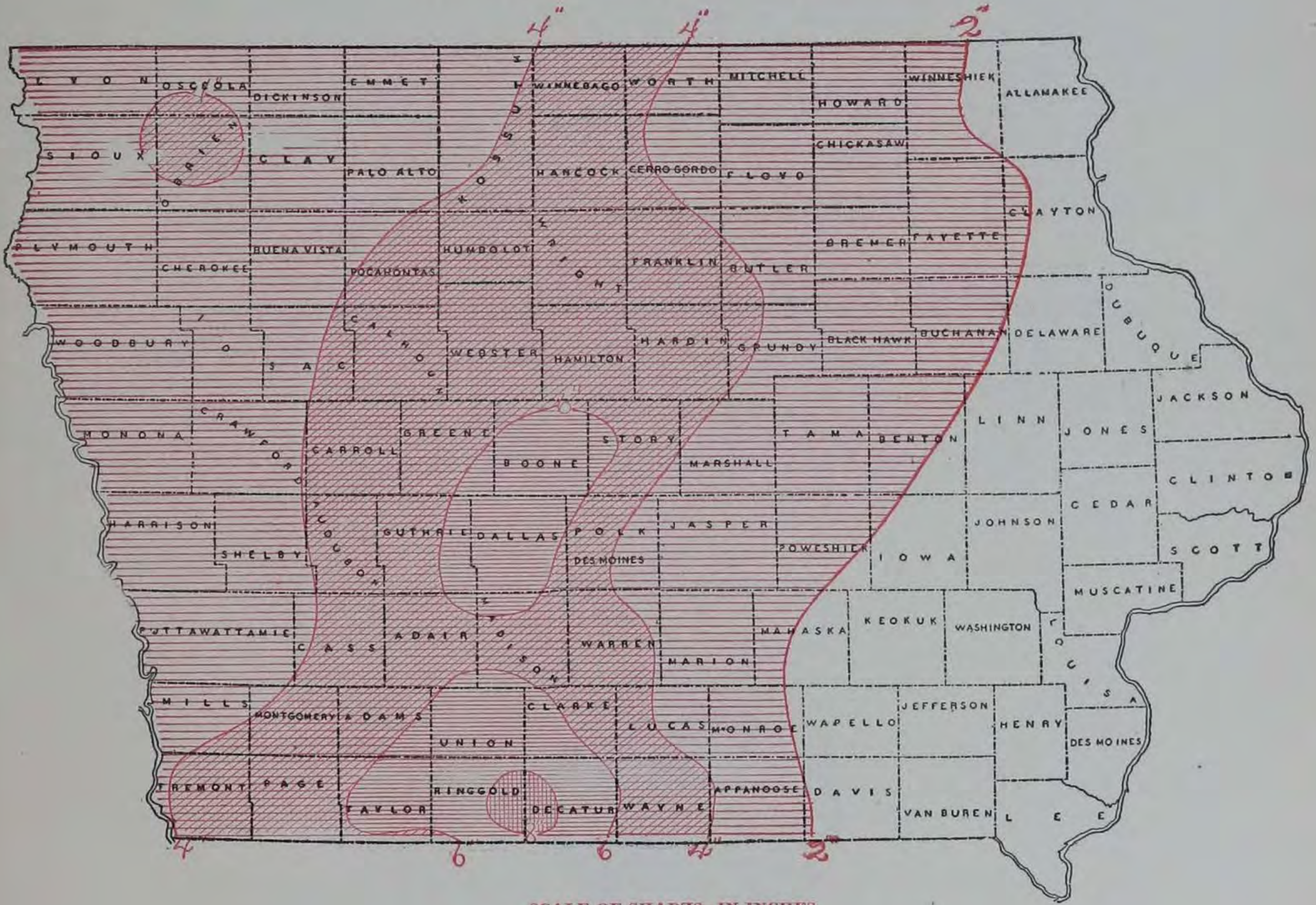
DAILY PRECIPITATION FOR IOWA, OCTOBER, 1908

STATIONS	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					
Afton					.10													.32		.67	.54	1.65	1.45	1.68	.08	.06							6.55			
Albia						.02														.07	.24	1.05	.11	.27	.19	.06	.25	.07					2.33			
Algona					.30															.54	.70	.36	.35	1.20	.15	.15	.13							3.88		
Allerton					.07	T														.09	.95	2.32	.22	.67	.21	.07	.14							4.74		
Alta					.35															1.12				.36	1.06	.06	.25							3.20		
Alta (near)					.40	.02														1.22	.05		.05	.88	.37	.13	.17							3.29		
Alton					.55															.06				.55	.81	.18	.03							2.78		
Amana					T	.01														.02	.33	.20		1.07	.13	.02	.08	.01						1.87		
Ames					.07	T														.52	1.57	1.30	.44	1.96	.21	.15	.01							6.23		
Atlantic					.31															T	1.00	.06	.75	.75	.64	.12	.30	.03						3.96		
Audubon					.30	.05														1.15	.50	.45	.40	.67	.30	.05	.17							4.04		
Baxter					.15															.12	.64	1.25	.36	.71	.12	.10	.03							3.48		
Bedford					.08		T													.74	1.14	1.24	1.13	1.83	.06	.05	.04							6.82		
Belle Plaine					.50	.24														.09	.43	.70		.76	.16	.01	.03							2.92		
Bloomfield					T															.13	.20		.21	.38	.07	.08	.15	.02						1.24		
Bonaparte					.05															.10	.27			.22	.06	.07	.12							0.89		
Boone					.20															.53	.19	1.47	.58	.68	1.47	.07	T						5.19			
Britt					.36	.04														.34	1.60	1.04	.51	1.13	.06	.09	.02				.01			5.20		
Buckingham					.35															.52	.54			1.41	.07	.14								3.03		
Burlington					.07	.01															.17	T		.37	.07	.08								0.77		
Carroll					.55															T	1.29	.08	.95	.05	1.21	1.04	.08	.41	.09					5.70		
Cedar Rapids					T	T														T	.23	.20	.02	.56	.26	.07							T	1.34		
Chariton																				T	.90	1.10	T	.70	.27	T	.18							3.15		
Charles City					.36	.04														.35	.46	.17	.14	.89	.12	.11							T	2.64		
Clarinda					.10		T													.77		1.80	.55	1.25	.48	.02	.01							5.12		
Clear Lake					.25	.15														.20	.70	.41	.60	.97	.07	.15	T							3.50		
Clinton					.15																.10	.10		T	.28		.05								0.58	
Columbus Junction																				.14	.56			.84	.10	T	.24							1.88		
Corning					.04															.90	.75	1.11	.50	1.95	.09		.10							5.67		
Corydon					.09															.06	1.02	2.00	.18	.80	.31	.09	.16								4.71	
Creston																				.24	.84	1.10	1.87		2.47	.10	.04	.09							6.75	
Cumberland					.02															.18	.65	1.12	.84	.67	.15	.19								4.14		
Davenport					.03															T	.02		.12	.58	.01	.04	.07						T	T	0.87	
Decorah					.14	.24														.09	.22	.21	.08	.77	.03	.12	.10							2.09		
Delaware					.45															T	.25			.82	.28	.15									1.95	
Denison					.65															T	.27	1.00	.10	.07	.22	.90	.48	.03	.06						3.78	
Des Moines					.13	T														T	.18	.35	1.28	.09	.37	.96	.21	.11							3.68	
De Soto					.20																.43	2.10	1.51	1.10	.78	.07	.12							6.31		
Dubuque					T	.20															.03	.18		.01	.53	.21		.04							1.20	
Earlham					.12	T														.29	.58	1.17	1.65	1.46	.78	.21	.06	.06							6.38	
Elkader					.35																.25	.36		.60	.40										1.96	
Elma					.22	.09															.14	.30	.57	.14	.50	.14	.13								2.23	
Estherville					.10															T	.92	.01	.06	T	.70	.80	.05	.58	T						3.22	
Fairfield																					.02	.14	.11		.12	.09	.05	.08							0.61	
Forest City					.45																.05	.45	2.25	.80	.20	.55	T	.20	.05						5.00	
Fort Dodge					.23																.61	.24	.82	.10	1.30	1.00	T	.13	.02						4.45	
Fort Madison					.30																T	.52			.31	T	.11	.17							2.57	
Gilman					.40	.22															.05	.45	.60	.06	.68	.05	.06								2.27	
Grand Meadow					.25																.07	.13	.66		.91	.15	.10								3.43	
Greene					.30	.17															.17	.38	.75	1.6	1.38	.06	.06								5.25	
Greenfield					.15																.70	1.35		1.70	.70	.10	.05	.10							2.23	
Grinnell					.61																.07	.58	.65	.08	.10		.01	.13							4.66	
Grundy Center					.25	.60															T	.58	.90	.17	1.96	.12	.08								4.47	
Hampton					.30															.16	1.28	.73	.10	1.16	.66										3.46	
Hancock					.52																T	.95	.63		.10	1.00	.26								3.52	
Harlan					.46																T	.97		.77	.04	.17	.78	.25	.02	.06						5.19
Hopeville					.09															.14	.33	.80	1.25	1.17	1.20	.11	.08	.02							5.73	
Humboldt					.20	.10															.72	1.94	.88	.46	1.19	.08	.16								2.80	
Independence					.80																.05	.40	.34		1.04	.15	.02								4.24	
Indianola					.08																T	.15	1.17	1.20	.35	.61	.46	.18	.04	T					2.67	
Inwood					.56																.03	.52			.79	.71	.06								1.99	
Iowa City					T																.03	.45	.10		.93	.28	.08	.11	.01						4.69	
Iowa Falls					.42	T															.11	1.45	.74	.15	.92	.80	T	.07							0.87	
Keokuk					.16																.02	.12			.31	.05	.16	.05							0.73	
Keosauqua							T														.04	.20	.03		.24	.08	.10	.10							2.57	
Knoxville					.12	.08															T	.81	.78	.10	.30</											

DAILY PRECIPITATION FOR IOWA, OCTOBER, 1908—Continued

STATIONS	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			
Stockport.....																				.10	.21	.05		.22	.04	.04	.12							0.78
Storm Lake.....					.34															1.02	.01	.01	.06	1.15	.60	.11	.17							3.47
Stuart.....					.25														.14	.73	.40	1.10	1.04	.99	.09	.06								4.80
Thurman.....					.28	T	.03												.18	1.08	.70		.45		1.38	T	T							4.10
Tipton.....					.12															.06	.47			.61	.11	.18								1.55
Toledo.....					.85															T	.55	.55		.95	.10	T								3.00
Washington.....																				.05	.25	.04		.50	.10	.08								1.02
Washta.....					.50														T	.90			.15	.75	.20	.07								2.57
Waterloo.....					.32	.26														.07	.33	.48	.04	1.09	.12	.05	T							2.76
Waukeo.....					.10	T														T	.50	2.00	1.40	1.00	.90	.20	.20							6.30
Waverly.....					.44	.12														.08	.31	.50	.10	1.20	.06	.02					T			2.83
Webster City.....					.19	.25														.53	.98	.79	.62	.93	.37	.13	T							4.79
West Bend.....					.41															.70	.21	.44	.41	.66	.19	.10	.15							3.27
Whitten.....					.30	.30														T	.50	.88	.17	1.31	.05	.06								3.57
Wilton Junction.....																				.52			1.09											1.61
Winterset.....					.11															.20	T	.62	1.08	1.63	1.05	.66	.25	.04	T					5.64
Woodburn.....					.10															.13	.80	1.50	.42	.73	.29	.07	.11							4.15
Zearing.....					.25	.23														1.30	.93			.36	1.20	.09	.12							4.48

TOTAL PRECIPITATION, OCTOBER, 1908.



SCALE OF SHADES—IN INCHES



U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR NOVEMBER, 1908.

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

DES MOINES, IOWA
EMORY H. ENGLISH, STATE PRINTER
1908

THE IOWA WEATHER AND CROP SERVICE

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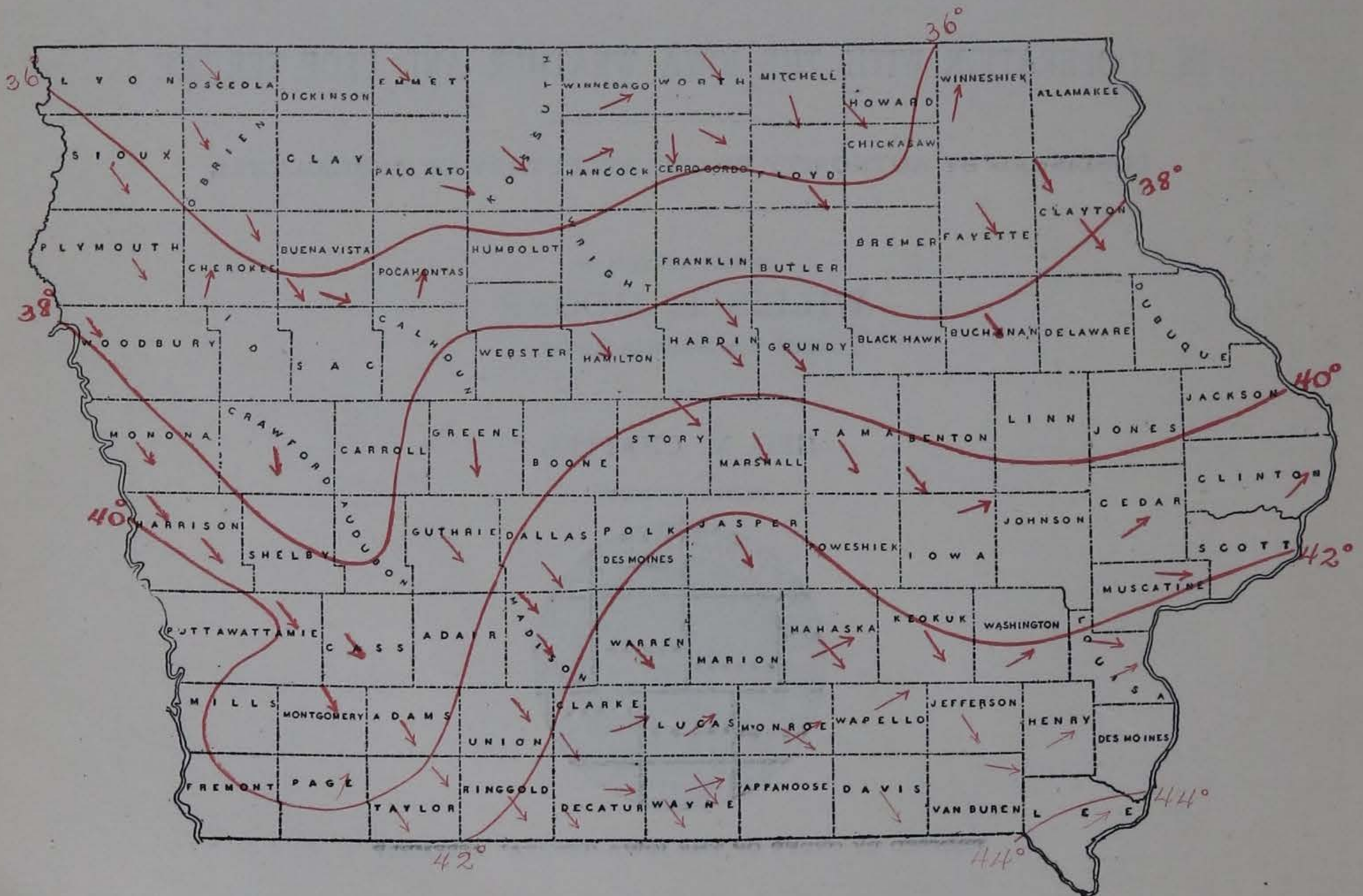
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MEAN ISOTHERMS AND PREVAILING WINDS OF NOVEMBER, 1908.

Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE
 OF THE
WEATHER BUREAU.

CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,

GEO. M. CHAPPEL, Section Director.

VOL. XIX DES MOINES, IOWA, NOVEMBER, 1908. No. 11

GENERAL SUMMARY.

The weather during the larger part of November was very mild and pleasant, altho the precipitation was above normal in all sections of the state. The rains, however, came in periods lasting but one or two days, and during the intervals there were long spells of fair weather.

The temperature was high to moderate during most of the month; the only periods of cold weather were between the 11th and 17th and on the 30th, and even then the cold was not excessive, there being no station in the state which reported a minimum temperature as low as zero. During the past eighteen years there have been only three Novembers with a higher mean temperature than was recorded during the past month, and but four during which temperatures below zero were not recorded. From the 2d to the 8th and from the 17th to the 25th the maximum temperatures ranged from 50° to above 70°; the highest occurring at most stations on the 18th.

Light and scattered rains fell on the 1st and general rains from the 22d to the 25th and on the 29th and 30th, with snow flurries on the 13th and 14th. The amounts of precipitation were small except from the 22d to the 25th, when they ranged from about half an inch to over two inches; the largest amounts being reported from the eastern counties. The conditions were unusually favorable for field and other out-door work, except during and immediately after the rainy periods when the fields were too soft to haul heavy loads of corn.

Corn husking was rapidly pushed and nearly 90 per cent of that crop had been harvested by the close of the month, with only about 9 per cent reported as being soft. The rains have replenished the water supply, and all wells and streams now have a sufficient quantity to meet all demands during the winter. Considerable fall plowing was done during the month, and meadows, pastures and fall grains are reported as being in excellent condition.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 115 stations, was 39.3°, which is 3.4° above the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 36.9°, which is 3.2° above the normal; Central section, 39.4°, which is 3.7° above the normal; Southern section, 41.5°, which is 3.3° above the normal. The highest monthly mean was 45.2°, at Keokuk, Lee county, and the lowest monthly mean, 35.4°, at Britt and Sibley, Hancock and Osceola counties. The highest temperature reported was 80°, at Saint Charles, Madison county, on the 18th; the lowest temperature reported was 5°, at Sioux Center, Sioux county, on the 30th. The average monthly maximum was 69.1°, and the average monthly minimum was 12.9°. The greatest daily range was 55°, at Sibley, Osceola county. The average of the greatest daily ranges was 39.6°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 122 stations, was 1.56 inches, which is .17 inch above the normal. By sections the averages were as follows: Northern section, 1.53 inches, which is .22 inch above the normal; Central section, 1.45 inches, which is .02 inch above the normal; Southern section, 1.70 inches, which is .26 inch above the normal. The greatest amount, 3.31 inches, occurred at Clinton, Clinton county, and the least, .21 inch, at Pacific Junction, Mills county. The greatest amount in twenty-four hours, 1.90 inches, occurred at Leon, Decatur county, on the 24th.

The average snowfall, unmelted, was 1.4 inches, the average for the three sections being as follows: Northern section, 2.2 inches; Central section, 1.2 inches; Southern section, 0.9 inch. The greatest monthly snowfall, 7.0 inches, occurred at Sioux Center, Sioux county, and the greatest 24-hour amount, 5.0 inches, at Alton and Sioux Center, Sioux county, on the 25th.

Measurable precipitation occurred on an average of 5 days.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 14; partly cloudy, 7; cloudy, 9. The duration of sunshine was slightly above the normal, the percentage of the possible amount being 59 at Charles City; 57 at Davenport; 54 at Des Moines; 47 at Dubuque; 51 at Keokuk; 55 at Sioux City, and 62 at Omaha, Neb.

WIND.—Northwest winds prevailed. The highest velocity reported was 54 miles per hour from the northwest at Sioux City, Woodbury county, on the 30th.

COMPARATIVE DATA FOR THE STATE—NOVEMBER

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	38.6	78	- 2	1.46	3.55	.71
1891.....	30.5	84	-24	1.70	3.64	.06
1892.....	32.3	70	- 3	1.10	3.16	.05
1893.....	34.0	86	-13	1.17	2.56	.05
1894.....	32.7	72	- 5	.92	2.42	T
1895.....	34.3	86	-12	1.51	3.01	.45
1896.....	29.6	82	-15	1.83	4.51	.16
1897.....	34.3	81	-19	.66	2.24	T
1898.....	32.2	78	-17	1.50	3.61	.33
1899.....	43.9	86	8	1.20	2.97	.13
1900.....	33.5	79	- 6	1.06	3.35	T
1901.....	35.8	77	2	.86	2.30	.20
1902.....	41.2	79	4	2.13	4.19	.16
1903.....	34.2	76	- 5	.52	1.74	T
1904.....	41.0	80	4	.15	.50	.00
1905.....	38.4	70	-12	2.84	5.30	.90
1906.....	35.4	76	- 5	2.03	3.86	.35
1907.....	36.7	68	- 4	1.03	2.27	.05
1908.....	39.3	80	5	1.56	3.31	.21

T indicates a Trace.
 - indicates temperature below zero.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.04 inches.
 Prevailing direction of Wind, Northwest.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement	Maximum Velocity - miles	Direction	Date	Average Hourly Velocity
Charles City	30.03	30.52	12,13	29.33	25	53.53	30	NW	30	7.2
Davenport ..	30.03	30.53	13	29.41	24	54.01	30	SW	25	7.5
Des Moines ..	30.03	30.54	12	29.34	24	56.49	32	SW	25	7.8
Dubuque....	30.04	30.53	13	29.39	25	38.37	27	SW	25	5.3
Keokuk	30.07	30.56	27	29.44	24	56.99	32	SW	24,25	7.9
Omaha, Neb..	30.06	30.65	12	29.38	25	60.63	38	NW	30	8.4
Sioux City ..	30.04	30.62	13	29.43	30	82.88	54	NW	30	11.5

KEOSAUQUA.—*J. H. Lindes*. November was a beautiful month. The fine dry weather of the first three weeks was just what was needed to dry the late or soft corn and for gathering the early or matured corn.

LARRABEE.—*H. B. Strever*. November was almost an ideal month for cribbing corn and husking was nearly completed at the end of the month. There has been less than the usual amount of fall plowing done owing to lack of rainfall.

MOUNT AYR.—*A. F. Beard*. A thunderstorm occurred on the afternoon of the 23d.

PERRY.—*J. A. Harvey*. The weather turned cold on the 30th with a brisk north wind. The temperature fell 25° during the afternoon.

POCAHONTAS.—*F. E. Hronek*. Corn was all gathered without having to husk in the snow.

SHELDON.—*A. W. Beach*. Good weather for husking corn. We had an extra large acreage and the yield will average more than 50 bushels of the best corn we have had in years. About 90% of the crop is in crib and the roads are good for marketing grain.

STOCKPORT.—*C. L. Beswick*. About all of the corn has been gathered but the yield is lighter than anticipated.

WASHTA.—*H. L. Felter*. There was some plowing done about Thanksgiving time.

WAVERLY.—*H. S. Hoover*. The weather has been excellent for out-door work and nearly all of the corn has been harvested.

IOWA CROPS—FINAL REPORT, 1908. 8

Following is a summary of crop reports from correspondents of the Iowa Weather & Crop Service, showing the average yield per acre and total yields of staple soil products, and the average prices at the farms or nearest stations, December 1, 1908. The value gained by feeding farm crops for the production of live stock, poultry, and dairy products is not taken into consideration in this report.

CORN.—A revised report of the estimated corn acreage, made July 1, after the heavy rains had ceased, indicated that the area planted this year was 8,399,610 acres, or 458,390 acres less than the area planted in 1907. The average yield per acre for the state this year was 35.9 bushels, making a total yield of 301,873,150 bushels. This exceeds the average yield of the ten preceding years by over ten million bushels. The average farm price on December 1st was 51c per bushel, making the aggregate value \$153,955,306, and the most valuable corn crop ever raised in the State. Owing to the high temperature and dry weather in September, the late planted fields were rushed toward maturity too rapidly, and as a result about 9% of the crop is reported as being soft; otherwise the condition of the crop is excellent.

WHEAT.—Winter wheat area harvested, 85,147 acres; yield per acre, 19.7 bushels; total yield, 1,678,540 bushels; average price, 86 cents per bushel; total value, \$1,443,544. Spring wheat area harvested, 323,467 acres; average yield, 15.4 bushels per acre; total product, 4,968,250 bushels; price per bushel, 86 cents; total value, \$4,272,695; aggregate value of wheat, \$5,716,239.

(Continued on page 128) 129

2,000	15	16,800	32	2,263,800	25	1,646,000	15	1,800	23	36,570	10	1,500	142	110,760	1.8	51,730	1.5	27,790
16,920	16	18,000	40	2,942,400	28	1,632,960	20	39,200	26	364,000	10	200	78	133,770	2.2	113,100	1.8	5,600
9,300	15	20,250	39	4,371,510	27	1,057,000	16	18,700	27	219,500	.....	.....	94	25,000	1.5	77,500	1.8	7,300
2,480	14	270,300	39	5,267,700	25	1,458,000	20	2,400	32	118,000	.....	.....	83	143,500	2.3	101,200	2.0	15,100
12,760	15	18,450	42	4,672,080	30	1,290,900	19	9,120	30	41,100	.....	.....	72	49,680	1.9	53,880	1.8	13,932
15,920	.....	.....	27	1,178,280	20	393,200	16	18,880	25	1,500	.....	.....	95	48,450	2.2	93,940	1.8	190
25,990	.....	.....	32	1,763,200	21	333,690	15	9,420	23	920	.....	.....	70	31,920	1.4	58,200	1.2	850
920	20	3,340	34	3,148,400	30	1,179,600	17	20,570	30	393,600	10	350	110	146,300	1.7	87,690	1.2	85,900
59,390	14	280	35	2,076,000	19	458,470	17	17,170	17	17,730	.....	.....	60	70,200	1.5	38,310	1.4	770
.....	12	12,200	25	959,000	21	857,000	15	1,300	21	63,200	12	9,600	92	53,360	1.6	24,840	1.2	20,120
1,920	19	19,190	40	2,511,200	28	1,267,280	16	5,440	28	174,160	.....	.....	89	214,490	1.7	82,620	1.6	3,470
630	16	11,360	27	1,224,180	23	993,830	15	1,650	26	15,080	10	6,800	95	48,450	1.6	31,440	1.2	14,880
3,110	13	10,140	33	2,841,630	30	1,965,300	16	4,800	22	40,040	10	8,550	90	114,900	1.8	98,910	1.0	13,370
270	14	2,390	33	2,501,070	28	2,059,680	18	14,400	24	58,320	11	10,120	65	92,950	1.9	25,080	1.6	7,720
.....	14	20,300	37	3,674,100	31	2,342,670	16	5,920	27	39,150	10	3,400	100	152,000	1.4	40,490	1.2	18,780
53,200	16	50,720	28	2,912,000	18	259,740	15	4,800	18	2,340	.....	.....	105	65,625	1.5	31,800	1.5	6,250
570	12	4,200	41	4,248,400	27	1,311,390	15	3,900	25	38,750	10	600	96	98,800	1.7	42,730	1.1	17,100
900	17	14,670	42	4,191,600	35	2,297,000	15	670	30	168,900	12	240	125	416,200	2.1	48,670	1.5	13,300
5,230	16	42,080	43	3,608,900	27	893,160	13	1,794	24	38,400	.....	.....	75	69,750	2.0	66,820	1.8	9,900
5,870	17	32,640	38	3,624,400	30	1,922,100	25	2,300	26	14,000	13	3,900	101	103,000	2.0	48,180	1.5	29,490
600	17	30,700	32	2,290,200	25	2,017,500	20	2,400	26	39,520	9	4,450	110	93,500	1.8	38,600	1.3	21,800
1,700	17	40,200	39	3,903,900	33	2,061,500	20	3,000	33	43,560	10	400	95	113,050	1.8	44,000	1.4	20,700
72,200	15	348,100	30	3,774,300	25	551,500	18	16,300	26	55,100	.....	.....	50	61,000	1.5	31,680	2.0	26,100
23,560	.....	.....	38	2,662,200	23	653,400	17	24,820	22	11,200	.....	.....	65	37,700	1.8	42,260	1.5	60
900	16	11,840	27	1,193,900	23	1,200,140	17	5,690	27	214,100	11	86,400	47	36,190	2.0	72,240	1.2	13,140
.....	15	48,000	32	2,115,200	27	1,488,500	15	1,650	31	28,200	10	2,600	100	66,000	2.0	42,720	1.6	24,400
4,500	15	95,800	38	3,174,900	26	1,007,500	18	630	26	204,360	.....	.....	98	92,120	1.6	41,200	1.4	4,950
7,500	14	15,680	39	3,759,210	28	1,132,000	17	8,410	26	64,740	.....	.....	80	106,400	1.8	89,670	1.5	1,410
6,600	16	19,500	36	2,574,000	26	783,900	19	2,050	25	153,200	.....	.....	75	90,370	1.6	100,900	1.5	2,670
8,580	17	61,540	41	4,971,200	25	1,292,250	15	7,800	29	44,080	.....	.....	75	91,500	1.8	81,600	1.6	3,480
39,400	17	1,870	38	1,916,720	23	500,000	15	25,800	28	17,360	.....	.....	60	26,400	1.6	53,000	1.6	60
6,900	20	17,400	40	4,099,600	29	1,373,100	19	26,900	31	142,910	.....	.....	90	118,800	2.1	107,200	1.9	3,500
920	20	7,000	36	2,705,000	30	856,800	14	10,200	31	230,600	.....	.....	90	106,200	2.0	99,200	1.8	1,500
17,400	16	10,000	39	3,496,700	24	846,400	18	17,190	23	74,000	.....	.....	91	74,600	2.2	100,800	1.8	450
800	19	77,500	31	3,651,800	27	3,022,920	15	6,150	24	58,800	8	11,200	60	94,200	1.8	62,700	1.5	83,100
174,400	.....	.....	32	1,765,760	14	300,400	14	42,000	20	1,300	.....	.....	53	70,200	1.6	63,000	1.5	46,300
1,600	19	13,800	39	3,912,800	24	1,166,100	16	12,400	28	36,100	.....	.....	70	134,400	1.5	24,720	1.5	8,650
82,100	20	1,520	36	2,247,480	27	614,520	18	33,800	30	15,300	.....	.....	77	43,890	1.9	33,900	2.0	960
4,900	17	850	32	1,476,160	29	378,400	15	7,100	24	9,800	.....	.....	71	29,100	1.4	58,000	1.5	11,700
4,750	14	116,600	38	3,369,400	23	1,726,100	15	1,500	26	91,780	11	440	76	103,360	1.5	26,400	1.5	16,900
8,500	14	13,300	41	3,341,090	25	564,500	20	6,600	25	89,500	.....	.....	95	64,880	1.6	62,650	1.0	22,200
12,000	15	12,600	34	3,075,900	24	755,000	20	8,100	29	87,000	.....	.....	75	69,000	1.8	59,700	1.5	1,690
28,750	16	38,000	38	3,581,500	25	699,500	20	8,900	30	61,800	.....	.....	80	57,600	2.0	63,240	1.7	1,480
10,900	18	39,000	45	4,606,200	37	1,942,100	24	9,120	30	47,400	12	360	120	200,400	1.8	64,500	1.7	3,670
31,900	11	51,260	34	2,987,200	15	236,550	18	4,770	22	24,640	.....	.....	50	38,000	1.3	2,660	1.3	6,200
1,440	14	8,600	32	1,759,000	26	1,843,600	17	3,570	26	182,520	10	58,500	95	117,800	1.6	45,130	1.2	3,270
157,000	14	132,300	30	3,630,000	12	353,760	14	4,410	27	76,950	11	1,650	90	112,500	2.0	21,640	2.0	32,100
26,900	15	630	31	1,122,200	20	181,200	12	3,240	22	6,270	.....	.....	53	26,765	1.3	40,580	1.0	1,400
44,000	13	115,000	30	2,472,000	18	325,260	14	950	22	38,000	.....	.....	70	45,900	1.8	52,400	1.5	1,650
24,000	16	13,100	41	2,651,000	30	620,700	17	44,500	20	186,000	.....	.....	90	200,700	2.0	48,000	1.9	3,090
2,470	13	40,400	39	2,768,200	31	1,911,150	18	1,980	30	416,700	10	1,800	105	137,000	2.1	57,500	1.7	18,400
.....	11	22,300	29	1,363,580	26	1,827,020	16	3,800	25	215,500	8	6,500	91	53,200	1.5	26,700	1.4	12,800
113,700	13	67,500	27	2,768,800	17	323,500	15	9,750	26	36,400	.....	.....	65	57,850	1.8	53,740	1.5	6,300
220	12	8,500	28	1,480,300	22	1,239,400	16	960	28	18,340	11	7,700	95	117,800	1.7	24,500	1.4	43,300
45,720	15	627,700	41	7,204,100	26	2,164,200	19	3,100	31	312,790	10	3,900	96	179,500	2.4	65,490	1.9	46,100
.....	16	7,400	30	2,349,600	23	1,809,410	20	2,560	25	14,500	12	9,960	74	71,700	2.0	33,600	1.5	37,200
20,600	18	53,100	41	3,737,970	24	977,500	16	4,960	28	13,160	.....	.....	80	170,400	1.7	45,840	1.2	8,250
21,200	14	250,000	31	5,614,720	18	838,600	16	4,240	28	63,840	.....	.....	75	203,250	1.9	84,660	1.0	11,580
260	19	21,280	39	3,935,100	27	999,810	16	3,040	30	114,300	.....	.....	65	61,100	1.7	70,700	1.0	2,180
14,300	15	570	33	2,003,700	19	365,370	20	5,800	26	4,080	.....	.....	76	32,300	1.7	82,700	1.1	370
2,260	16	32,160	39	4,276,350	22	1,360,260	20	980	25	134,700	8	1,400	112	120,960	2.1	53,920	1.5	19,900
34,370	20	44,200	38	3,016,400	25	613,000	19	22,900	20	572,000	.....	.....	110	669,900	2.1	89,400	1.5	7,500
3,900	13	182,200	34	3,953,160	16	696,400	25	2,700	28	225,960	10	900	90	116,550	1.8	65,800	1.5	9,670
18,000	15	467,400	42	6,480,180	27	2,023,600	18	1,800	28	780,920	10	1,100	85	120,700	1.8	43,400	1.2	23,500
3,500	17	10,000	45	4,563,000	31	1,476,200	18	4,500	32	23,000	11	440	130	111,800	1.9	51,600	1.2	14,700
400	18	43,200	43	5,052,900	32	1,679,600	19	7,030	29	326,800	.....	.....	100	210,000	2.0	42,740	1.1	4,740
37,600	15	2,850	28	2,228,240	20	384,200	20	13,600	23	45,000	.....	.....	80	48,800	1.8	80,400	1.3	1,880
5,400	15	1,380	28	1,326,000	20	309,600	17	1,800	18	7,900	.....	.....	62	39,680	1.7	58,400	1.4	1,560
29,400	.....	.....	26	1,130,700	19	364,900	14	25,900	20	1,500	.....	.....	50	23,500	1.7	65,700	1.5	310
41,800	20	1,590	28	1,214,300	18													

DAILY PRECIPITATION FOR IOWA, NOVEMBER, 1908

STATIONS	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			
Afton													.10										T	.10	1.32	.05					.35		2.02	
Albia														T	.06	.76	.25	.04							.06	.76	.25	.04				.46		1.57
Algona															T	.83	.25								.01	.83	.25					.07		1.45
Allerton	T																							.05	.01	.51	.38				.39	.03	1.42	
Alta																										.45	.31	.55				.13		1.65
Alta (near)																									.03	.85	.50				.08	.06	1.72	
Alton																									.28	.32	.50				.45	.04	1.69	
Amana	T																								.90	.66	.07				.40	.08	2.14	
Atlantic																									T	.16	.03				.08	T	.29	
Audubon																										.45	.04				.11		.90	
Baxter																									.10	.63	.01				.23	.06	1.09	
Bedford																									.02	.65	.04				.28		1.10	
Belle Plaine																									.15	.56	.11				.16	.41	1.50	
Bloomfield	.08																								T	1.36	.28	.42			.44	.06	2.67	
Bonaparte	.03																								T	.76	.27	.75			.45		2.34	
Boone																										.71	.27	T			.14		1.14	
Britt												.02	.11	.10	.02										T	1.00	.26				.18		1.69	
Buckingham																										.50					.25		.75	
Burlington																										.75	.48	.70	.04			.23		2.45
Carroll																										.90	.10	.15				.09		1.37
Cedar Rapids																										.48	.05	.26				.35	T	1.44
Chariton																										.75	.19				.31	T	1.35	
Charles City																										.72	.21				.15		1.32	
Clarinda																										.97	.04	T			.38		1.48	
Clear Lake																										1.10	.20				.05		1.48	
Clinton																										1.60	.24	.80			.50	.02	3.31	
Columbus Junction	.12																									.43	.40	.55			.48	.04	2.04	
Corning																										.72					.39		1.11	
Corydon																										.06	.60	.27			.41	.02	1.42	
Creston																											.79	.05			.04	.30	1.48	
Cumberland																										.18	.41				.16		.76	
Davenport	.25																									.63	.12	.25	.74		.47	T	2.46	
Decorah							T	T																		.48	T			T	.32	.80		
Denison																										T	.65	.48			.08	.02	1.28	
Des Moines																										.32	.36	.01			.23	T	.95	
De Soto																										.05	1.24	.02			.16	T	1.47	
Dows																										.11	.68				1.17	.16	2.12	
Dubuque	.07																									.20	.34	.15			.38	.09	1.34	
Earlham																											1.64	.05			.20	T	1.89	
Elkader																										.25	.30	.20			.30	.09	1.19	
Elliott																											.85	.05			.08		.98	
Elma								T																		.13	.87	.03			.14	.15	1.42	
Estherville																											.90		.45			.17	1.62	
Fairfield	.06																									1.15	.23	.40			.47		2.37	
Fayette									T																	.15	.57	T			.27	.19	1.22	
Forest City										T																	1.10	.08	.30			.15	1.83	
Fort Dodge																											.92	.22	T			.25	1.49	
Fort Madison	.11					.20																				.11	1.10	.51	.75		.25		3.03	
Gilman																											.70	.08			.10	.18	1.06	
Grand Meadow								T																			.33	.46	.19			.33	1.41	
Greene																											.92	.03			.08	.26	1.36	
Greenfield																											T	.60	.02		.22	T	.94	
Grinnell																											.06	.82	.05	T	.12	.26	1.36	
Grundy Center																										.30	.60				.25	.10	1.25	
Guthrie Center																											.01	.05			.20		1.03	
Hampton																											1.55	.22			.30		2.15	
Hancock																											T	.38	.03		.09	T	.58	
Harlan																											T	.55	.07		.09	.02	.79	
Hopeville																											.44	1.56	.05		.39	.02	2.58	
Humboldt																											.18	.81	.24		.01	.16	1.60	
Independence																											.10	.50	.05			.25		.94
Indianola																											T	.72	.04		.33	.02	1.21	
Inwood																											1.15	.39	.01	.02		.15	.04	1.96
Iowa City	T	.05																									.49	.47	.13		.50		1.84	
Iowa Falls																											.95	.07	T	T		.25	1.35	
Jefferson											.05																.25	1.25	.10		.10		1.95	
Keokuk	.01																										.46	.15	1.14		.36		3.05	
Keosauqua																											.41	.83	.65	.07		.48		2.48
Knoxville																											.05	.20	.25		.38	.05	1.11	
Lacopa																											.10	.48	.18		.90	.08	1.78	
Lamoni																											.73	.85	.22		.40	.05	2.30	
Larrabee																											T	.70	.53		.18	T	1.42	
Le Claire	.02	.02																									1.30	.20	.89	.23		.44	3.14	
Le Mars																																		

U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR DECEMBER, 1908.
AND
Annual Summary for 1908.

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



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1909

THE IOWA WEATHER AND CROP SERVICE

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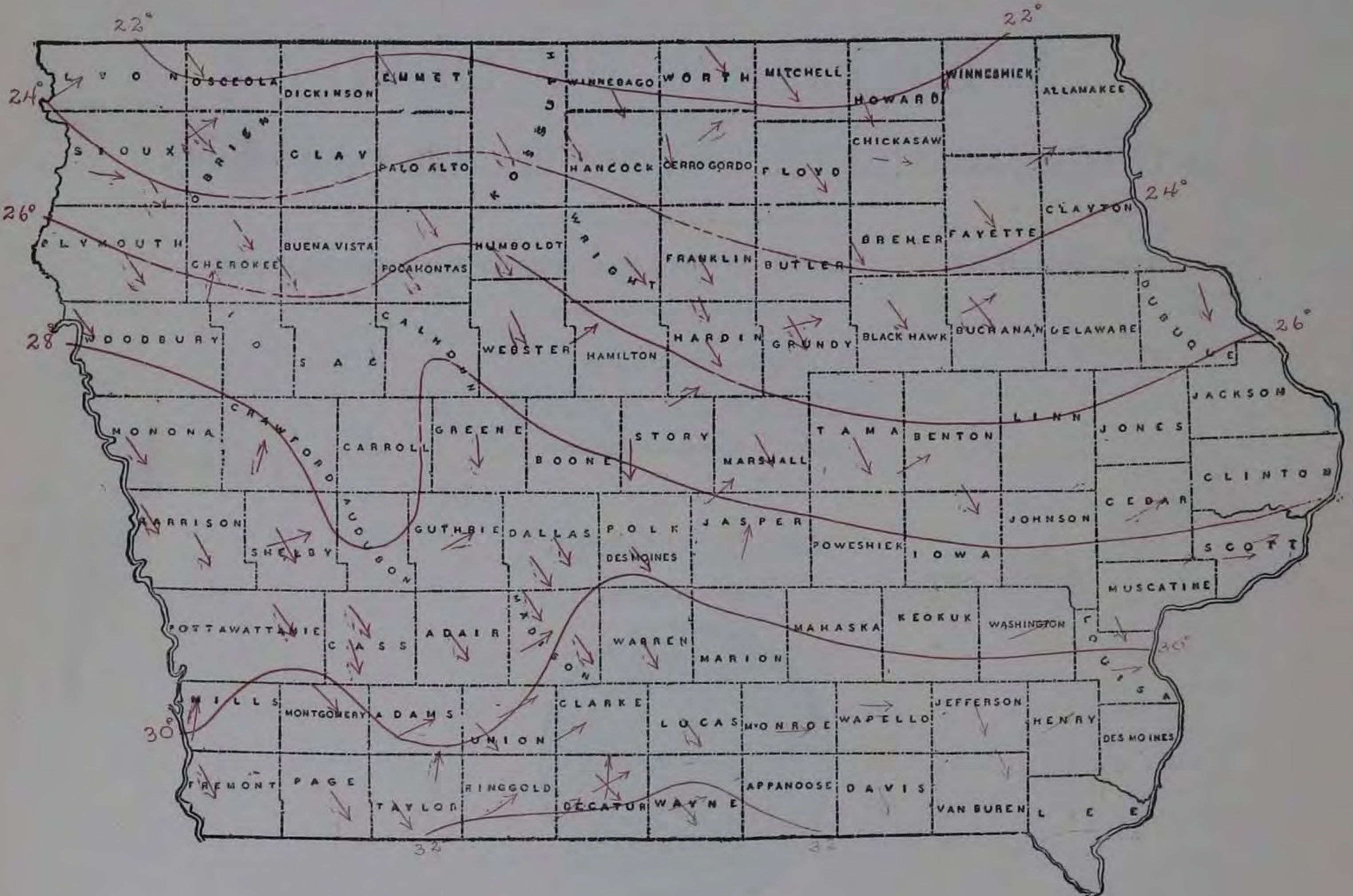
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MEAN ISOTHERMS AND PREVAILING WINDS OF DECEMBER, 1908.

Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
GEO. M. CHAPPEL, Section Director.

VOL. XIX DES MOINES, IOWA, DECEMBER, 1908. No. 12

GENERAL SUMMARY.

The month of December was unusually mild and pleasant, there being no severe storms and but two or three days of very cold weather. The mean temperature was, however, 1.6° lower than in December, 1907, due to low minimum temperatures on a few days. During the past 18 years, there have been five Decembers with a higher mean temperature and five with a smaller average amount of precipitation. The month opened clear and cold with the minimum temperature nearly zero in the northern portions of the state on the 1st and 2d which was followed by warmer weather until the 5th, when snow began falling and continued during the night. The storm was general in all parts of the state and from one to seven inches of snow fell, making it the heaviest snow storm during the month, but, fortunately, there was but little wind and the drifting was slight and travel was not materially affected. A severe cold wave swept over the state on the afternoon and night of the 6th, resulting in temperatures below zero in all but the extreme eastern counties.

From the 8th to the 29th the weather was generally pleasant with moderate temperature. The month closed with high northwest winds and a cold wave. The corn harvest was finished early in the month under the most favorable conditions and there was some plowing done in the southeastern counties between the 20th and 30th. Stock was in the stalk fields during the entire month and are reported as being in excellent condition. As the ground was covered with snow during the coldest period, winter grain has not yet been injured.

TEMPERATURE.—The monthly mean temperature for the state, as shown by the records of 115 stations, was 27.2°, which is 3.6° above the normal for Iowa. By sections the mean temperatures were as follows: Northern Section, 24.0°, which is 3.1° above the normal; Central Section, 27.4°, which is 3.6° above the normal; Southern Section, 30.2°, which is 4.0° above the normal. The highest monthly mean was 33.4° at Keokuk, Lee County, and the lowest monthly mean was 19.5° at Northwood, Worth County. The highest temperature reported was 67° at Washington, Washington County, on the 14th; the lowest temperature reported was 17° below zero at Alton, Sioux County, and Dows, Wright County, on the 7th. The average monthly maximum was 52.2°, and the average monthly minimum was 8.9° below zero. The greatest daily range was 50° at Carroll, Carroll County. The average of the greatest daily ranges was 34.2°.

PRECIPITATION.—The average precipitation for the state, as shown by the records of 120 stations, was .57 inch, which is .62 inch below the normal. By sections the averages were as follows: Northern Section, .93 inch, which is .10 inch below the normal; Central Section, .46 of an inch, which is .74 inch below the normal; Southern Section, .33 inch, which is 1.00 inch below the normal. The greatest amount, 2.07 inches, occurred at Ridgeway, Winneshiek County, and the least, .05 inch, at Greenfield, Adair County, and Whitten, Hardin County. The greatest amount in twenty-four hours, 1.18 inch, occurred at Osage, Mitchell County, on the 16th.

The average snowfall, unmelted, was 3.8 inches. By sections, the averages were as follows: Northern Section, 4.3 inches; Central Section, 4.0 inches; Southern Section, 3.1 inches. The greatest monthly snowfall, 8.4 inches, occurred at Inwood, Lyons County, and the greatest amount in twenty-four hours, 7.0 inches, at Belle Plaine, Benton County, on the 6th. Measurable precipitation occurred on an average of 3 days.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 15; partly cloudy, 8; cloudy, 8. The duration of sunshine was generally above the normal, the percentage of the possible amount being 62 at Charles City, 49 at Davenport, 60 at Des Moines, 44 at Dubuque, 53 at Keokuk, 54 at Sioux City, and 61 at Omaha, Nebr.

WIND.—Northwest winds prevailed. The highest velocity reported was 50 miles per hour from the northwest at Sioux City, Woodbury County, on the 30th.

COMPARATIVE DATA FOR THE STATE—DECEMBER.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	29.1	72	-18	.45	1.40	.00
1891.....	32.3	72	-14	2.41	4.50	1.21
1892.....	18.9	68	-29	1.65	3.04	.20
1893.....	22.0	70	-21	1.31	2.80	.46
1894.....	30.1	73	-17	.95	1.75	.25
1895.....	25.4	63	-16	1.63	5.74	.00
1896.....	30.8	70	-10	.65	1.79	T
1897.....	18.0	60	-25	1.65	3.22	.61
1898.....	18.1	60	-25	.48	1.70	T
1899.....	22.6	75	-19	1.61	4.28	.10
1900.....	26.9	63	-10	.45	2.70	T
1901.....	20.5	64	-31	.93	2.75	.05
1902.....	20.1	59	-20	2.23	5.51	.67
1903.....	19.6	58	-27	.41	1.96	T
1904.....	23.4	67	-19	1.44	3.68	.06
1905.....	27.0	62	-11	.52	1.69	T
1906.....	25.7	65	-9	1.43	2.81	.37
1907.....	28.8	62	-9	1.00	2.28	.05
1908.....	27.2	67	-17	.57	2.07	.05

T indicates a Trace.
- indicates temperature below zero.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.09 inches.
Prevailing direction of Wind, Northwest.

STATIONS	Barometer, in Inches				Wind					
	Mean	Maximum	Date	Minimum	Date	Movement	Maximum Velocity—miles	Direction	Date	Average Hourly Velocity
Charles City	30.08	30.65	2	29.60	12	6086	31	NW	31	8.2
Davenport	30.09	30.72	2	29.59	12	5986	28	NW	30	8.0
Des Moines	30.07	30.72	2	29.62	13	6034	28	NW	25	8.1
Dubuque	30.09	30.69	2	29.57	12	4970	25	NW	30	6.7
Keokuk	30.12	30.75	2	29.68	12	5628	30	W	30	7.6
Omaha, Neb.	30.11	30.75	1	29.63	13	6672	34	N	4	9.0
Sioux City	30.09	30.65	2	29.71	13	9324	50	NW	30	12.5

OBSERVER'S REMARKS.

ALBIA.—*J. I. Chenoweth.* The weather during December was dry and mild with only .20 inch of precipitation from two inches of snow, part of which remained on the ground five days. The temperature was below zero on but one day.

ALTA.—*David E. Hadden.* Compared with the normals made from the records of 18 preceding Decembers, the present month was nearly 3° warmer and the precipitation was more than one-fourth of an inch below the average. With the exception of the unusually cold weather on the 7th, the month was an ideal December.

ALTON.—*W. S. Stagle*. A very fine month with very little extremely cold or stormy weather. Cattle have had full benefit of the corn stalks.

AMANA.—*C. Schadt*. With the exception of a few cold days, the weather was fine during December and more like autumn or "Indian Summer." The temperature was above and the precipitation below the normal.

ATLANTIC.—*Thos. H. Whitney*. Sap was observed oozing from cuts in maple and box-elder trees during the fore and middle parts of the month.

BONAPARTE.—*B. R. Vale*. A mild and dry month. Stock still on pasturage and in good condition. The roads are good.

BRITT.—*Geo. P. Hardwick*. Moderate temperature and excessive cloudiness with precipitation slightly above the normal. Conditions have been favorable for field feeding of farm stock.

CHARITON.—*C. C. Burr*. December was an ideal month for the farmer. Stock is in good condition and feed is plentiful.

ELLIOTT.—*Henry Barnes*. December was a very pleasant winter month and the corn harvest was completed under favorable conditions.

FAIRFIELD.—*Prof. R. Monroe McKenzie*. The month was very dry and mild, there being but three cold periods of short duration.

GRAND MEADOW (Postnele P. O.)—*F. L. Williams*. The weather was favorable for all stock. There was no snow on the ground at the close of the month except in the woods. The roads are generally good.

INWOOD.—*F. B. Hanson*. Good weather prevailed most of the time but roads have been in poor condition.

KEOSAUQUA.—*J. H. Landes*. A beautiful fall like month with but .16 inch of precipitation.

LARRABEE.—*H. B. Strever*. December was a very mild month.

RIDGEWAY.—*Arthur Betts*. The month was mild and pleasant with thunderstorm on the 12th and a heavy rain and sleet storm on the 16th and 17th.

SHELDON.—*A. W. Beach*. A good month for late farm work. Corn is all harvested and the cattle have had good weather for feeding in the stalk fields. The roads have been rough most of the month.

STOCKPORT.—*C. L. Beswick*. The past month was the driest December for the past seven years. There was some plowing done between the 20th and 30th. The lowest temperature was zero on the 7th, which was followed by high temperature until the last day. There were but few days during 1908 on which the temperature was down to zero.

ERRATA IN OCTOBER REVIEW.

CORNING.—Minimum temperature on the 9th, recorded as 42°, on page 116, should have been 37°. Mean minimum temperature recorded as 41.3°, on page 116, should have been 41.1°.

ELKADER.—The maximum temperature on the 25th, recorded as 41°, page 116, should have been 43°. Mean maximum temperature recorded as 63.6°, on page 116, should have been 63.7°.

GRUNDY CENTER.—The maximum temperature recorded on page 114, as 87° on the 15th, should have been 81°.

GRINNELL.—The maximum on the 28th, recorded as 48° on page 116, should have been 50°. The mean maximum temperature recorded as 64.3°, on page 116, should have been 64.4°.

ONAWA.—Mean maximum temperature recorded as 65.2° on page 116, should have been 62.7°. Mean monthly temperature recorded as 53.6°, on page 114, should have been 52.4°.

BELETED REPORTS.

ELLIOTT.—October, mean temperature, 52.0°; highest, 85° on the 14th and 15th; lowest, 24° on the 12th; greatest daily range, 42°. Total precipitation, 3.31 inches; greatest in twenty-four hours, .91 inch on the 24th; total snowfall, 3.0 inches. Prevailing direction, northwest. Number of clear days 17, partly cloudy 9, cloudy 5, rainy 8.

GUTHRIE CENTER.—October, mean temperature 51.4°; highest 82° on the 14th, 15th and 16th; lowest 19° on the 29th; greatest daily range 37; total precipitation 5.12 inches; greatest in 24 hours 1.58 inches on the 23d; total snowfall 9.9 inches. Prevailing direction, northwest. Number of clear days 19, partly cloudy 3, cloudy 9, rainy 11.

PERRY.—October, mean temperature 51.7°; highest 83° on the 15th; lowest 26° on the 12th; greatest daily range 38°; total precipitation 4.55 inches; greatest in 24 hours 1.37 on the 21st and 22d; total snowfall, trace. Number of clear days 8, partly cloudy 10, cloudy 13, rainy 8.

CLIMATOLOGICAL DATA FOR IOWA, DECEMBER, 1908

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit					Precip., in Inches				Sky			Prevailing direction of wind	OBSERVERS			
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days			No. clear days	No. partly cloudy days	No. cloudy days
NORTHERN SECTION																				
Algona	Kossuth	1,213	34	24.2	+ 4.1	48	*14	-11	7	28	.90	-.13	.70	2.5	4	19	9	3	nw	Dr. F. T. Seeley
Alta	Buena Vista	1,513	17	23.8	+ 2.4	50	14	-15	*7	49	.64	-.29	.28	3.3	4	18	8	5	nw	D. E. Hadden
Alta [near]	Buena Vista										.52		.30	3.5	5					W. J. Minard
Alton	Sioux	1,305	3	24.4		45	14	-17	7	36	.71		.46	4.5	4	22	5	4	nw	W. S. Slagle
Britt	Hancock	1,236	11	21.0	+ 4.9	48	29	-13	7	27	.96	+ .20	.50	4.1	4	3	18	10	nw	G. P. Hardwick
Charles City	Floyd	1,015	20	23.2	+ 4.2	48	14	-11	7	29	1.13	-.12	.76	4.4	4	10	9	12	nw	Weather Bureau
Clear Lake	Cerro Gordo	1,241	9	21.4	+ 4.0	49	14	-11	7	30	1.10	+ .47	.50	2.0	3				n	Oscar Stevens
Decorah	Winneshiek	875	15	23.0	+ 2.0	45	14	-4	7	30	1.70	+ .34	.74	6.2	6					F. H. Baker
Dows	Wright	1,472	8	24.8	+ 3.3	50	29	-17	7	32	.39	-.42	.26		3	16	6	9	nw	G. D. Flett
Elkader	Clayton	727	27	24.1	+ 2.5	48	*28	-4	7	36	.85	-.98	.40	5.5	5	25	2	4	sw	Chas. Reinecke
Elma	Howard			21.8		46	14	-10	9	40	.75		.40	2.8	3	10	14	7	nw	H. A. Moore
Estherville	Emmet	1,298	12	22.6	+ 4.4	53	14	-10	7	44	.75	+ .13	.50	6.0	3	14	0	17	nw	A. O. Peterson
Fayette	Fayette	1,003	18	23.6	+ 2.0	46	29	-9	*7	38	1.21	-.28	.65	6.0	3				nw	R. Z. Latimer
Forest City	Winnebago	1,226	14	23.3	- 3.5	54	14	-12	7	36	.70	-.15	.50	2.0	2	18	5	8	nw	J. A. Peters
Grand Meadow	Clayton	1,180	17	23.2	+ 1.7	44	29	-5	7	31	1.34	-.12	.90	4.5	4	9	13	9	sw	F. L. Williams
Greene	Butler		9	24.9	+ 5.9	48	28	-11	7	30	.51	-.52	.26	3.0	2	6	12	13	w	J. L. Cole
Hampton	Franklin	1,155	18	25.0	+ 3.5	49	29	-12	7	30	.83	-.42	.40	4.4	4	9	16	6		E. C. Grenelle
Humboldt	Humboldt	1,095	17	27.0	+ 3.7	52	29	-8	7	38	.33	-.36	.16		3	24	0	7	nw	H. S. Wells
Inwood	Lyon	1,474	4	23.6		48	13	-15	7	34	.81		.55	8.4	7	19	6	6	sw	F. B. Hanson
Larrabee(b)	Cherokee	1,266	17	24.6	+ 2.3	47	*14	-16	7	37	.75	-.21	.43	3.2	4	15	13	3	nw	H. B. Streever
Le Mars	Plymouth	1,224	12	25.6	+ 1.9	46	14	-13	7	34	.85	+ .03	.39		4	12	14	5	nw	G. A. C. Clarke
Mason City	Cerro Gordo	1,132	11	23.5	+ 1.8	45	29	-10	7	27	.90	+ .09	.50		3	15	9	7	sw	J. S. Mills
Merrill	Plymouth																			Eric Oleson
New Hampton	Chickasaw	1,169	11	23.2	+ 3.7	43	*14	-11	7	30	1.20	+ .27	.68	1.8	4	19	5	7	w	A. F. Kemman
Northwood (j)	Worth	1,222	12	19.5	- 0.5	49	15	-12	7	32	1.56	+ .46	.82	7.0	4				nw	Charles H. Dwell
Osage	Mitchell	1,181	17	23.6	+ 4.0	50	10	-13	7	36	1.48	+ .13	1.18	7.0	2	20	1	10	nw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	12	25.4	+ 4.1	50	*14	-16	7	31	.75	-.01	.30	2.0	3	19	7	5	nw	J. S. Smith
Pocahontas	Pocahontas		4	25.6		50	14	-13	7	27	.83		.33	3.9	5	19	7	5	nw	F. E. Hronek
Ridgeway	Winneshiek	1,215	10	23.4	+ 1.1	51	14	-8	7	38	2.07	-.17	1.02	5.4	8	13	11	7	s	Arthur Betts
Rock Rapids	Lyon	1,358	9																	W. C. Wyckoff
Sheldon	O'Brien	1,422	8	23.2	+ 1.0	52	14	-16	7	35	1.40	-.59	.75	7.5	4	17	8	6	sw, nw	Dr. A. W. Beach
Sibley (a)	Osceola	1,212	15	20.8	+ 1.2	48	14	-15	8	50	.96	+ .18	.79	4.0	2	15	4	12	nw	H. G. Doolittle
Sioux Center	Sioux		9	23.8	+ 2.1	46	14	-16	7	37	.82	-.19	.27	5.5	5	17	5	9	w	J. de Ruyter
Storm Lake	Buena Vista	1,440	12	27.0	+ 5.6	50	*14	-14	7	29	.45	-.38	.23	3.2	4	15	9	7	w	Ralph H. Carr
Washer	Cherokee	1,157	10	26.6		52	29	-16	7	36	.50	-.35	.20	2.5	3	18	7	6	s, nw	H. L. Felter
Waverly	Bremer	948	12	25.0	+ 3.4	49	27	-9	7	29	.68	-.50	.40	4.0	4	10	10	11	nw	H. S. Hoover
West Bend	Palo Alto	1,197	14	25.5	+ 4.9	50	14	-15	7	31	.75	-.14	.55	2.5	3	14	8	9		Phil Dorweiler
Averages				24.0	+ 3.1	47.1		-11.7		34.0	.93	-.10		4.3	4	15	8	8	nw	
CENTRAL SECTION																				
Amana	Iowa	721	31	27.2	+ 4.6	49	29	-6	7	33	.44	-1.01	.40	4.0	3	13	9	9	nw	Courod Schadt
Ames	Story	926	27	27.6	+ 5.0	53	*28	-12	7	32	.57	-.45	.45	4.5	2	18	10	3	n	Iowa State College
Audubon	Audubon	1,301	15	26.8	+ 2.9	51	29	-11	7	32	.30	-.66	.25	2.8	3	22	4	5	sw	Geo. E. Kellogg
Baxter	Jasper	998	8	27.0	+ 2.8	52	28	-13	7	33	.58	-.31	.50	6.2	3	17	8	6	sw	W. R. Vandyke
Belle Plaine	Benton	828	18	27.0	+ 3.3	50	28	-9	7	32	.80	-.73	.70	8.0	2	14	9	8	sw	S. P. Vandike
Boone	Boone	1,134	3	27.2		55	28	-9	7	42	.47		.40	4.0	2	18	3	10		Carl Fritz Henning
Buckingham	Tama		8								.44	-.53	.38	6.5	2	5	20	6		Dr. W. A. Daniel
Carroll	Carroll	1,265	18	26.8	+ 3.4	58	28	-12	7	50	.30	-.69	.30	3.0	1	22	0	9		Frank Hughes
Cedar Rapids	Linn	733	26	26.2	+ 1.2	48	28	-4	7	34	.58	-.92	.52	6.5	3	11	4	16		Electric Light & P. Co.
Clinton (f)	Clinton	593	40	25.8	+ 0.5	43	14	1	*7	30	.49	-1.36	.27	2.8	4	11	8	12		Luke Roberts
Davenport	Scott	590	36	28.7	+ 1.5	55	14	1	7	29	.40	-1.29	.24	3.0	5	11	6	14	w	Weather Bureau
Delaware	Delaware	1,083	17																	Wm. Ball
Denison	Crawford	1,180	13	25.4	+ 4.9	55	14	-11	7	42	.11	-.48	.09	1.5	2	26	5	0	s	W. C. Van Ness
Des Moines	Polk	861	29	29.6	+ 3.9	54	28	-7	7	31	.31	-1.00	.29	4.1	4	8	17	6	nw	Weather Bureau
De Soto	Dallas	866	8	29.2	+ 2.7	56	14	-14	7	38	.61	-.65	.60	6.0	3	18	6	7	nw	R. D. Minard
Dubuque	Dubuque	639	35	25.8	+ 1.3	51	29	1	7	28	.63	-1.09	.39	4.9	6	11	6	14	nw	Weather Bureau
Fort Dodge	Webster	1,126	8	24.6	+ 2.1	49	29	-11	7	43	.75	+ .29	.45	3.0	2	15	2	14	nw	J. F. Monk
Gilman	Marshall	1,052	9								.70	-.06	.60	7.0	2					Jas. L. Wylle
Grinnell	Poweshiek	1,023	16	29.0	+ 4.6	53	28	-10	7	36	.64	-.53	.58	5.8	2	19	9	3	nw	A. O. Price
Grundy Center	Grundy	976	17	26.2	+ 3.6	50	28	-11	7	30	.85	-.33	.45	4.0	2	16	10	5	w, nw	W. H. Scott
Guthrie Center	Guthrie	1,077	13	29.0	+ 5.2	52	29	-10	7	29	.65	-.45	.58	3.5	2	21	5	5	sw	D. G. Beardsley
Harlan	Shelby	1,192	9	27.6	+ 3.6	55	14	-14	7	34	.27	-.63	.26	3.0	2	12	15	4	sw, nw	C. A. Reynolds
Independence	Buchanan	921	43	25.1	+ 3.5	47	29	-10	7	30	.90	-.46	.60	6.0	4	19	2	10	sw, nw	George Donohue
Iowa City	Johnson	683	49	26.9	+ 2.7	53	*14	-5	7	36	.43	-1.22	.38	4.5	3	12	5	14		Prof. Karl E. Guthe
Iowa Falls	Hardin	1,170	15	24.7	+ 3.6	48	28	-13	7	37	.55	-.56	.50	5.0	2	16	3	12	nw	J. B. Parmalee
Jefferson	Greene			29.1		55	*15	-11	7	39	.22		.20	2.0	2	17	8	6	n	Geo. W. Jackson
Le Claire	Scott	576									.47	-.65	.28	3.0	5				w	Margaret T. Disney
Little Sioux	Harrison		4	29.1		56	14	-13	7	37	.18		.10	1.7	3	21	3	7	nw	Geo. H. Gibson
Logan	Harrison	928	42	28.8	+ 3.6	54	14	-10	7	33	.22	-1.05	.12	2.2	2	6	20	5	nw	Glen H. Stern
Marshalltown	Marshall	947	16	26.2	+ 2.7	50	28	-13	7	45	.56	-.60	.50	5.0	2	5	18	8	nw	Agnes Musil
Montezuma	Poweshiek																			

CLIMATOLOGICAL DATA FOR IOWA, DECEMBER, 1908—Continued

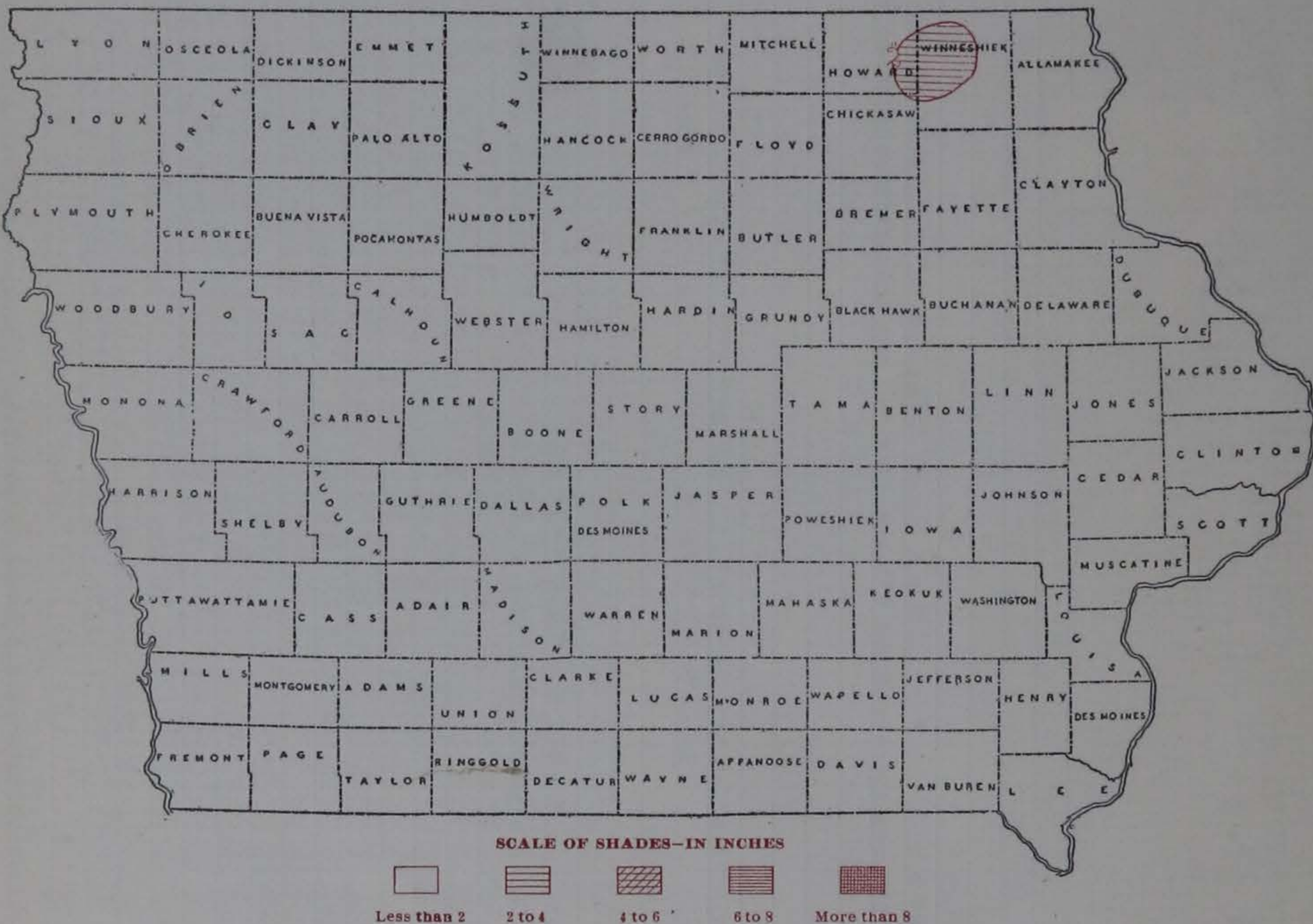
STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	Number clear days	Number partly cloudy days			Number cloudy days
SOUTHERN SECTION																				
Afton	Union	1,212	14	29.9	+ 4.2	57	29	- 8	7	32	.35	-.89	.35	3.5	1	10	14	7	sw	N. W. Rowell
Albia	Monroe	959	10	28.9	+ 3.9	61	14	- 6	7	42	.20	-.94	.20	2.0	1	13	9	9	w	J. I. Chenoweth
Allerton	Wayne	6	6	31.5	+ 5.0	60	14	- 5	7	38	.19	-.98	.19	1.9	1	20	2	9	sw, nw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	17	28.6	+ 3.7	51	*26	- 9	7	29	.46	-.69	.42	5.0	2	12	8	11	nw	J. W. Love
Bedford	Taylor	8	8	29.8	+ 4.1	56	26	- 10	7	38	.19	-.75	.19	2.0	1	19	3	9	nw	E. E. Healy
Bloomfield	Davis			30.4		60	14	- 4	7	36	.44		.40	3.0	3	16	10	5	nw	F. H. Roberts
Bonaparte	Van Buren	17	17	30.0	+ 2.1	60	14	- 1	7	34	.17	-1.86	.14	1.0	2					Hon. B. R. Vale
Burlington	Des Moines	544	12	30.8	+ 3.7	62	14	1	7	32	.65	-.90	.25	3.0	7	19	0	12		W. E. Poppe
Chariton	Lucas	1,042	13	30.9	+ 4.6	59	14	- 9	7	33	.20	-1.14	.20	3.0	1	20	6	5	nw	C. C. Burr
Clarinda	Page	1,009	18	29.1	+ 2.5	57	*14	- 8	7	49	.27	-.85	.27	2.8	1	18	3	10	nw	A. S. Van Sandt
Columbus Junction	Louisa	595	7	30.0	+ 3.4	55	14	- 2	7	32	.37	-1.09	.30	3.0	2	18	3	10	nw	J. B. Johnson
Corning	Adams	1,117	16	29.4	+ 2.3	54	*26	-11	7	35	.35	-.79	.35	3.5	1	19	8	4	sw	Jerome Smith
Corydon	Wayne	1,101	15	a31.5	+ 4.8	60	14	a- 8	7	34	.23	-1.19	.21	2.5	2	22	2	7	nw	Clara Miller
Creston	Union	1,312	3	28.0		53	29	-10	7	44	.30		.30		1	17	5	9	nw	Rev. W. L. Gaston
Cumberland	Cass	9	9								.08	-.94	.08	.8	1	15	6	10	n	J. H. Reppert
Earlham	Madison	6	6	29.8	+ 6.8	58	28	-10	7	35	.40	-.90	.40	4.0	2	14	8	9	nw	Geo. Phillips
Elliott	Montgomery	3	3	31.3		57	26	6	31	36	.60		.30	6.0	2	19	12	0	nw	Henry Barnes
Fairfield	Jefferson	14	14	29.7	+ 4.6	60	14	- 5	7	34	.29	-1.49	.23	2.8	3	21	2	8	nw	R. Monroe McKenzie
Fort Madison	Lee	516	59								.95	-.98	.75	2.0	3	13	9	9	n	Miss L. A. McCready
Greenfield	Adair	17	17	c30.0	+ 5.0	c58	29	b-12	7	38	.05	-1.20	.05	.2	1				nw	Geo. Brooks
Hancock	Pottawattamie	1,113	2	29.1		54	26	-12	7	34	.37		.32	3.5	2	18	5	18	nw	W. Armstrong
Hopeville	Clarke	17	17	a29.9	+ 3.7	57	14	a- 9	7	27	.23	-.83	.21	2.0	2	8	16	7	sw	M. T. Ashley
Indianola	Warren	969	17	a29.5	+ 3.7	52	14	a- 8	7	28	.45	-.88	.30	4.5	3				nw	Prof. J. L. Tilton
Keokuk	Lee	574	37	33.4	+ 4.0	60	14	3	7	33	.58	-1.29	.28	4.0	4	16	6	9	sw	Weather Bureau
Keosauqua	Van Buren	644	16	29.4	+ 2.0	59	14	0	7	36	.16	-1.34	.14	1.7	2	5	16	10		J. H. Landes
Knoxville	Marion	920	12																	Casey & Bellville
Lacona	Warren	9	9								.32	-1.35	.30	5.0	3	9	12	10		Agent C., B. & Q. Ry.
Lamoni	Decatur			31.0		59	14	- 5	7	34	.23		.23	3.0	1	20	1	10	sw	T. J. Fitzpatrick
Lenox	Taylor	1,250	13	29.8	+ 4.5	54	26	-13	7	35	.33	-.74	.30	3.3	2	22	4	5	s	J. T. Hurley
Leon	Decatur	1,120	6	30.6	+ 4.0	54	*14	- 7	7	34	.30	-.97	.30	3.0	1	16	4	11	s, sw, w	Morris Gardner
Massena(k)	Cass	3	3	33.6		55	*26			30										G. A. Hill
Mt. Ayr	Ringgold	1,236	15	31.0	+ 5.1	57	14	- 8	7	34	.10	-1.19	.10	2.0	1	14	8	9	sw	A. F. Beard
Mt. Pleasant	Henry	729	26	29.8	+ 3.0	56	14	- 2	7	32	.41	-.96	.38	2.8	3	14	8	9	sw	Prof. J. W. Edwards
Omaha, Neb.	Douglas	1,040	38	31.8	+ 4.7	60	26	- 3	7	32	.26	-.65	.25	2.7	3	13	8	10		Weather Bureau
Oskaloosa	Mahaska	843	24	29.0	+ 3.1	56	14	- 7	7	34	.25	-1.01	.22	3.2	4	20	0	11		Jos. Boyd
Ottumwa	Wapello	649	14	31.4	+ 3.6	62	14	3	*2	34	.30	-1.01	.20	3.0	1	10	13	8	w	Dr. Jas. A. Hull
Pacific Junction	Mills	960	9	29.3	+ 3.0	60	26	- 5	7	40	.35	-.47	.35	3.5	2	18	8	5	s	H. H. McCartney
Pella	Marion	877	6																	T. W. Cox
St. Charles	Madison	1,070	7	31.0	+ 4.7	61	14	- 8	7	33	.50	-1.12	.40	5.0	2	17	8	6	nw	R. D. Minard
Sigourney	Keokuk	877	12	29.4	+ 3.1	54	14	- 8	7	33	.32	-1.09	.30	5.0	2	7	18	6	nw	J. T. Parker
Stockport	Van Buren	6	6	30.2		59	14	0	7	35	.18	-1.21	.18	2.0	1	17	5	9	nw	C. L. Beswick
Thurman	Fremont	11	11	30.0	+ 4.5	59	26	-14	7	41	.30	-1.09	.30	3.0	1	16	9	6	nw	C. R. Paul
Wapello	Louisa	588	10	30.4	+ 2.5	57	14	3	7	24	.28	-1.03	.28	3.0	1	13	8	10	w	Geo. W. Schofield
Washington	Washington	769	27	29.6	+ 5.0	67	14	- 5	7	32	.30	-1.03	.26	2.5	4	9	16	6	sw	Wm. A. Cook
Winterset	Madison	1,129	17	29.4	+ 3.4	51	29	- 9	7	28	.50	-.89	.35	5.0	2	15	8	8	sw	Dr. Robert S. Cooper
Woodburn	Clarke	961	9	28.8		60	14	-11	7	41	.40	-.85	.40	4.0	1	17	7	7		C. B. McDonough
Average				30.2	+ 4.0	57.6		-5.9		34.5	.33	-1.00		3.1	2	16	7	8	nw	
State average				27.2	+ 3.6	52.2		-8.9		34.2	.57	-.62		3.8	3	15	8	8	nw	

* And other dates. a one day missing, b two days; c three days; d four days, etc. † Received too late to be included in average

DAILY PRECIPITATION FOR IOWA, DECEMBER, 1908—Continued

STATIONS	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				
Sioux City					.12	T					.02				T	.16	.04	T	T							T					T	T	0.34		
Stockport				T	.18					T						T	.09	.12						T									.18		
Storm Lake	T				.23						.01																						.45		
Thurman					.30	T					T				T	T	T																.30		
Toledo					.60						T																						.60		
Wapello					.28																												T	.28	
Washington					.26					.01	.01						.02																	.30	
Washita					.20	T					T					.10	.20																	.50	
Waterloo					.38											.11	.08																	.57	
Wauke					T	.06					T																							.06	
Waverly					.05	.35						T				.18	.10										T						T	.68	
Webster City					T	.30										T	T	.10								T								.40	
West Bend					T	.20											.50	.05								T								T	.75
Whitten	T				T	.05					T															T								.05	
Wilton Junction																.18																			.18
Winterset					.15	.35					T						T	T																	.50
Woodburn					.40						T						T	T	T																.40
Zearing					.42																														.42

TOTAL PRECIPITATION, DECEMBER, 1908.



APPENDIX.

ANNUAL SUMMARY, 1908.

ERRATA FOR ANNUAL SUMMARY FOR 1907.

Alta: Mean temperature, pages 146 and 151, recorded 44.9 should be 45.0. Amana: Mean temperature, page 151, recorded 18.4 should be 48.4. Buckingham: Total precipitation, page 153, recorded 36.38, should be 31.38. Clear Lake: Mean temperature for December, page 151, recorded 26.0, should be 26.2. Clinton: Precipitation for September, page 153, omitted, should be 4.47, and total precipitation, pages 146 and 153, should be 41.79. Charles City: Precipitation for June and December, page 153, recorded as 7.38 and .79, should be 7.37 and .77 respectively, and total precipitation, pages 146 and 153, recorded 32.70, should be 32.67. Denison: Precipitation for February, page 153, recorded .44, should be 1.48, and total precipitation, pages 146 and 153, recorded 28.48, should be 29.52. Keokuk: Precipitation for June, page 153, recorded 6.30, should be 6.40, and total precipitation, pages 146 and 153, recorded 38.70, should be 38.80. Knoxville: Precipitation for September, page 153, omitted, should be 2.65. Larrabee: Precipitation for September, page 153, omitted, should be 1.98, and total precipitation, pages 146 and 153, omitted, should be 22.14. Logan: Precipitation for September, page 153, omitted, should be .73, and total precipitation, pages 147 and 153, omitted, should be 23.16. Pocahontas: Mean temperature, pages 147 and 151, omitted, should be 45.6. Precipitation for May, page 153, recorded 2.19, should be 2.79. Rock Rapids: Precipitation for September, page 154, omitted, should be 4.02, and total precipitation, pages 147 and 154, omitted, should be 25.03. Sioux City: Last frost of spring, page 152, recorded May 15th, should be May 7th. Waterloo: Minimum temperature for December, page 150, recorded 8 on the 4th, should be 6 on the 31st. Whitten: Lowest temperature, page 147, recorded 20, should be -20.

GENERAL SUMMARY

The mean temperature and average precipitation were above the normal for the year, there being an excess in temperature of 2°, and in precipitation of 2.16 inches. The temperature was above normal every month of the year except May, June, July, August, and October; the greatest deficiency being in August, when it was 1.8° below the normal. The precipitation was above the normal in February, May, June, August, October, and November, the greatest excess being in May, when it was 3.84 inches above the normal. The winter months were comparatively warm and dry, and the summer months wet and cool. The excessive and almost continuous rains in May and June were very injurious, coming as they did during the planting season; but the injury was more than compensated for by the dry and warm weather during the latter part of August and most of September. The year as a whole has been the most profitable one on record for the farmer.

BAROMETER.—The mean pressure of the atmosphere for the year 1908 was 30.03 inches. The highest observed pressure was 30.75 inches on December 2d, at Keokuk, Lee county. The lowest pressure was 29.05 inches on April 24th, at Charles City, Des Moines and Sioux City, in Floyd, Polk and Woodbury counties. The range for the state was 1.70 inches.

TEMPERATURE.—The mean temperature for the state was 49.5; which is 2.0° above the normal for the state. The highest temperature reported was 101° on August 3d, at Oskaloosa and Ottumwa, in Mahaska and Wapello counties. The lowest temperature reported was 18° below zero on January 29th, at Estherville and Forest City, in Emmet and Winnebago counties. The range for the state was 119°.

PRECIPITATION.—The average amount of rain and melted snow for the year, as shown by complete records of 102 stations, was 35.26 inches, which is 2.61 inches above the normal, and 3.20 inches above the average amount in 1907. The greatest amount recorded at any station for the year was 49.98 inches at Rockwell City, Calhoun county. The least amount recorded was 24.11 inches at Dubuque, Dubuque county. The greatest monthly rainfall was 14.33

inches at Fort Madison, Lee county, in May. The least monthly precipitation was trace at Tipton, Cedar county, in December. The greatest amount in any 24 consecutive hours was 6.02 inches at Stuart, in Guthrie county, on August 15th. The average amount of snowfall was 20.7 inches. The greatest amount of snowfall, unmelted, at any station during the year was 37.0 inches at Sheldon, O'Brien county. The greatest monthly snowfall was 17.3 inches, in February, at Pacific Junction, Mills county, and the greatest 24 hour snowfall recorded was 15.8 inches on February 18th, at Pacific Junction, Mills county. Measurable precipitation occurred on an average of 86 days.

WIND.—The prevailing direction of the wind was northwest. The highest velocity reported was 60 miles per hour in Sioux City, Woodbury county, from the northeast and southwest, on May 16th and June 22d. The average daily movement of wind was 208 miles.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 176; partly cloudy 96; cloudy 94; as against 168 clear days; 94 partly cloudy, and 103 cloudy days in 1907. The duration of sunshine was slightly above the normal.

THE WEATHER BY MONTHS

During the first and second decades of January the temperature was decidedly above the normal and was not down to zero, except in the northern districts, until the 23d. After that date the temperature was more seasonable and records of zero or below were reported on one or more dates from all sections of the state; the lowest for the month and winter occurring on the 29th. The average precipitation was below the normal, and the amounts were uniformly small; the only storm of consequence was on the 31st, and was attended by rain, snow and sleet, the latter causing a great deal of damage to fruit-trees, telegraph, telephone, and electric car lines, but, on the whole, the month was exceptionally pleasant with an abundance of sunshine.

February opened cold with the temperature below zero on the 1st and 2d, and these were the coldest days of the month. After the 2d, the weather was quite moderate, except on the 19th, 20th and 27th, when the temperature was nearly to or below zero; but the average temperature for the month was considerably above the normal, the greatest excess being in the northern counties where it averaged 5.9° above the normal. The precipitation was heavier than ever before recorded in February since the organization of the State Weather Service in 1890. The snowfall was unusually heavy, and the excess in precipitation for the month was due mostly to the severe snowstorm which swept over the state on the 18th. It was the most severe storm of the winter; the amounts of snow ranged from 2 to 4 inches, in the northern counties, to 10 to 16 inches, in southern and eastern counties. The storm was attended by high winds which drifted the snow badly and delayed traffic in all sections of the state, and, on some of the railroads in the southern section, no trains were run for two days. The snow melted rapidly on the 22d and 23d, and at the close of the month the ground was uncovered except a trace in the northeastern counties.

The weather during March was exceptionally mild and pleasant with the temperature uniformly above the normal, and the precipitation below the normal, except over the east central counties. The coldest day of the month was on the 8th, when the minimum temperatures in a few of the northwestern counties were from one to eight degrees below zero. The precipitation was quite well distributed and fell mostly in the form of rain, no snow being reported except small amounts in the central and northern counties. The month afforded more than the usual number of pleasant days for farm and other outdoor work. The growth of vegetation was not as far advanced at the end of the month as it was at the close of March, 1907, but fully as much seeding of small grain and plowing for corn had been done.

April opened and closed with cool waves during which the temperatures were below freezing. During the first three days the minimum temperatures ranged from 11° to 18° over the northern district, and from 14° to 24° in the southern district. From the 3d to the 27th the weather was moderate and generally very pleasant with maximum temperatures, at some stations, above 90° on the 13th and 19th. There was an excess of sunshine, and, except in a few localities, where heavy local showers occurred, there was less than the usual amount of rainfall, the greatest deficiency occurring over the southwestern and southern counties. The conditions were exceptionally favorable for work in the fields, and the seeding of small grain was practically completed at the beginning of the third decade, and at the close of the month more than the usual amount of ground had been prepared for corn. Up to the 27th, the prospects for a fruit crop were never better, but the frosts and freezing temperatures during the last three days of the month did considerable damage to the buds, especially in southern counties.

The cool wave, which swept over the state during the last three days of April, continued until the 3d of May, causing heavy to killing frost in all parts of the state on the 2d, which resulted in further injury to fruit and garden truck. From the 3d to the close of the month there were no decided changes in temperature, it being quite moderate and uniform, so that the monthly average was but a fraction of a degree below the normal. The month was, however, characterized by abnormally heavy rainfall and the frequency of showers. Rain fell in some part of the state on every day of the month. The average amount of precipitation was 8.34 inches, or 3.84 inches above the normal. This record has been exceeded in May but twice during the past 19 years, viz.: 1892 and 1903, with an average amount of 8.77 and 8.55 inches respectively. The excessive rainfall caused flood stages in all streams and rivers, washed hillsides, overflowed low and bottom lands, prevented the completion of corn planting and the cultivation of the early planted fields. There was about 20% of the corn area to be planted at the close of the month and a great deal of replanting to be done.

During June the average temperature was below the normal and the rainfall exceeded the normal by 1.14 inch. In the western portion of the upper Des Moines river valley, the excess ranged from 4 to over 7 inches; the greatest monthly rainfall reported was 11.88 inches at Plover in Pocahontas county. Severe thunderstorms, accompanied by wind squalls and hail, were frequent; the most damaging wind storm occurred at Charles City, in Floyd county, on the afternoon of the 7th, and one of the worst hailstorms on record in this state swept over Howard, Winneshiek, Allamakee and Clayton counties on the evening of the 20th, causing damage to the extent of over \$400,000. The frequent and heavy rains prevented work in the fields, kept the rivers up to flood stages, flooded all low and flat lands and caused considerable washing of the soil on hillsides, and, as a result, farmers in some sections of the state were planting or replanting corn up to the close of the month. But in spite of the adverse conditions the early planted corn on high and well tiled land showed a good stand and was exceptionally clean, and some fields were laid by before the end of the month. The excessive moisture and moderately cool weather were very beneficial to grass, and the hay crop of 1908 will go on record as having been one of the largest yields per acre ever harvested in this state. The cherry crop was light in southern and fair in the northern counties, where the buds were not so far advanced at the time of the frosts in May.

July was an exceptionally good harvest month, the temperature being very nearly normal and but little rainfall after the 7th. The number of wind squalls and hailstorms were less than is usual in July; the worst windstorm occurred on the afternoon of the 26th in Ida county and caused considerable damage to crops and buildings; and the worst hailstorm of the month occurred on the 17th near Woodburn, Clarke county. Small grain harvest began during the second week and was nearly completed and threshing operations were in full progress before the close of the month. Corn made rapid growth but was very uneven in size, owing to the long interval of time between the early and late planted fields.

The mean temperature of August was 1.8° below and the average precipitation was .78 inch above the normal. The highest temperature of the summer was recorded during the month, the maximum

being 101°. The rainfall was fairly well distributed both as to amount and number of showers. The weather was favorable for the growth of vegetation and for farm work. Harvest was finished and threshing was well advanced at the close of the month. Corn made rapid advancement but showed no indication of ripening.

September will go on record as having had the longest drouthy period of any September during the past 19 years, and for its long period of high temperature which averaged 4.2° above the normal. With the exception of a few scattered showers on the 4th and 5th, 13th and 23d, there was no rain in the state from the night of August 31st to the night of September 25th. The warm, dry weather prevented fall plowing and was injurious to pastures and the surface water supply, but was very beneficial to corn, preparing it for the killing frost and freezing temperatures which came on the 28th and 29th. Fall plowing, which had been delayed by the dry weather, was resumed after the copious showers on the 26th, 27th and 28th.

Drouthy conditions prevailed from the 1st to the 19th of October, with an excess of temperature during the same period, but during the last decade of the month the conditions were reversed, the average temperature for the month being below and the precipitation above the normal. The clear, dry and warm weather with brisk winds during the first half of the month caused the corn crop to dry out rapidly and husking began between the 15th and 18th, but was delayed by the rains between the 19th and 28th so that only about 15% of the crop was cribbed at the close of the month.

November was an exceptionally mild and pleasant month with an average temperature 3.4° above the normal, and a slight excess of precipitation. There were no severe rain or sleet storms and but one light snowstorm. The clear and warm weather was favorable for out-door work and nearly 90% of the corn crop had been harvested by the close of the month. Considerable fall plowing was done and meadows pastures and fall grains were reported as being in good condition. The clear and mild weather continued during December, there being an excess of 3.6° in temperature and a deficiency of .62 inch in precipitation with an abundance of sunshine. There was but one period during the month when the temperatures were generally below zero. On the 6th and 7th, the temperature ranged from zero to 17° below zero.

COMPARATIVE DATA FOR THE STATE—ANNUAL.

	TEMPERATURE					PRECIPITATION			
	Mean Annual	Highest	Date	Lowest	Date	Annual	Greatest Annual	Least Annual	Average Snow Fall
1890	48.0	110	July 13	-27	January 22	31.28	45.74	16.00	.....
1891	47.3	106	August 9	-31	February 4	32.90	49.05	23.48	.....
1892	46.6	104	July 11	-38	January 19	36.58	48.77	24.78	31.7
1893	45.7	102	July *13	-36	January 14	27.59	33.27	19.19	36.2
1894	49.7	109	July 26	-37	January 25	21.94	29.81	15.65	18.4
1895	47.2	104	May 28	-33	February 1	26.77	35.25	18.57	25.5
1896	48.6	104	July 3	-20	January 4	37.23	51.60	28.68	19.8
1897	47.9	106	July *23	-30	January 25	26.97	38.18	20.21	38.5
1898	47.7	103	August 20	-25	December 31	31.34	55.47	19.51	38.6
1899	47.5	104	September 6	-40	February 11	28.68	42.06	21.79	23.2
1900	49.3	103	August 3	-27	February 15	34.15	47.33	25.05	26.3
1901	48.9	113	July 22	-31	December 15	24.41	37.69	16.35	37.2
1902	47.7	98	July 30	-31	January 27	43.82	58.80	20.14	27.7
1903	47.2	101	August 24	-27	December 13	35.39	50.53	26.41	19.1
1904	46.3	100	July 17	-32	January 27	28.51	38.93	19.34	30.3
1905	47.2	104	August 11	-41	February 2	36.56	52.26	24.66	37.9
1906	48.4	102	July 21	-32	February 10	31.60	44.34	20.63	32.5
1907	48.0	102	July 5	-31	February 5	31.61	43.90	19.93	24.3
1908	49.5	101	August 3	-18	January 29	35.26	49.98	24.11	20.4

* And other dates.

CLIMATOLOGICAL DATA FOR THE YEAR 1908

STATIONS	COUNTIES	Elevation, feet	Length of record, years	TEMPERATURE, IN DEGREES, FAH.					PRECIPITATION, IN INCHES					Total snowfall, unmelt'd	SKY				Prevailing direction of wind	
				Mean	Highest	Date	Lowest	Date	Length of record, years	Total for the year	Greatest monthly	Month	Least monthly		Month	No. rainy days	No. clear days	No. partly cloudy days		No. cloudy days
Afton	Union	1,212	14	51.1	96	July 11	- 8	Jan. 29 Dec. 7	15	37.95	8.69	May	.35	Dec.	13.5	85	151	120	95	sw
Albia	Monroe	959	11	50.2	96	Aug. 3	- 8	Jan. 29	11	32.38	10.49	May	.20	Dec.	12.5	92				nw
Algona	Kossuth	1,213	34	47.3	96	July 11	-16	Jan. 29	36	40.31	10.57	May	.33	Jan.	20.5	82	232	58	76	nw
Allerton	Wayne		6	51.8	96	Aug. 3	- 7	Jan. 29	7	34.21	10.49	May	.19	Dec.	14.4	96	218	61	87	nw
Alta	Buena Vista	1,513	17	46.5	94	July 11	-15	Dec. 7	18	42.79	8.44	May	.15	Jan.	22.8	100	176	122	68	nw
Alton	Sioux	1,305	4	47.9	98	July 10	-11	Jan. 29	4	32.52	7.29	May	.20	Jan.	26.8	88	214	66	86	nw
Amana	Iowa	721	31	49.9	97	Aug. 3	- 7	Jan. 29	33	32.19	7.45	May	.44	Dec.	18.5	95	159	128	79	nw
Ames	Story	926	28		95	Aug. 3	-12	Jan. 29 Dec. 7	31		7.95	May	.45	Mar.						
Atlantic	Cass	1,164	17	49.2	97	Aug. 3	-10	Jan. 28	17	30.86	8.80	May	.22	Jan.	18.7	68				nw
Audubon	Audubon	1,301	15	48.5	96	July 11	-11	Dec. 7	15	34.98	10.16	May	.30	Dec.	23.2	103				sw
Baxter	Jasper	998	9	49.8	95	Aug. 3	-13	Dec. 7	9	32.06	8.41	May	.38	Jan.	19.5	107				sw
Bedford	Taylor		9	51.1	97	Sept. 11	-10	Feb. 2* Dec. 7	9	33.12	7.72	June	.18	Jan.	14.8	92	214	61	91	nw
Belle Plaine	Benton	828	19	49.0	95	Aug. 3	-12	Jan. 29	2	30.22	4.33	May	.78	Jan.	33.9	90	143	109	114	se
Bloomfield	Davis		2	52.4	100	Aug. 3	- 6	Jan. 29	2	38.28	13.89	May	.44	Dec.	19.5	85	190	115	61	nw
Bonaparte	Van Buren		18	51.6	95	Aug. 3	- 8	Jan. 24	18	34.50	11.07	May	.17	Dec.	14.5	83				
Boone	Boone	1,134	4	49.0	96	Aug. 3	-12	Jan. 29	4	37.23	7.12	May	.42	Jan.	16.5	93				
Britt	Hancock	1,236	12	46.9	94	July 11	-17	Jan. 29	12	38.38	7.85	May	.42	Jan.	19.9	97	61	216	89	nw
Burlington	Des Moines	544	13	52.5	98	Aug. 16	- 3	Feb. 2	13	38.11	11.34	May	.65	Dec.		100	228	46	92	
Carroll	Carroll	1,265	19	48.4	97	Aug. 12	-12	Dec. 7	19	42.52	8.48	May	.30	Jan. Dec.	19.1	93	230	19	117	
Cedar Rapids	Linn	733	27	49.3	98	July 11 Aug. 3	- 7	Jan. 30	27	28.83	6.11	May	.31	Jan.	21.1	83	131	130	105	
Chariton	Lucas	1,042	14	51.0	98	Aug. 3	- 9	Jan. 29 Dec. 7	14	27.88	9.83	May	.20	Dec.	12.0	55	200	78	88	se
Charles City	Floyd	1,015	21	46.7	94	July 10	-14	Jan. 29	27	34.16	8.40	June	.40	Jan.	25.4	94	83	144	139	nw
Clarinda	Page	1,009	19	50.8	98	Aug. 3	- 8	Dec. 7	19	36.19	8.55	May	.20	Jan.	32.2	103	190	52	124	s
Clear Lake	Cerro Gordo	1,241	10	47.6	94	July 11	-17	Jan. 29	10	33.64	9.20	May	.23	Feb.		75				n
Clinton	Clinton	593	41	49.5	96	July 11 Aug. 3	- 8	Feb. 2	37	34.93	6.66	May	.49	Dec.	22.0	92	136	119	111	
Columbus Jct.	Louisa	595	8	51.5	94	July 12* Aug. 3	- 5	Feb. 2	8	34.76	7.92	Aug.	.37	Dec.	20.6	83	230	82	54	s
Corning	Adams	1,117	17	50.5	95	Aug. 3	-11	Dec. 7	17	38.17	12.18	May	.35	Dec.	25.0	66				se
Corydon	Wayne	1,101	16	52.2	96	Aug. 3*	- 8	Dec. 7	16	29.89	9.38	May	.23	Dec.	9.5	88	196	76	94	
Davenport	Scott	606	37	51.2	95	Aug. 3	- 4	Feb. 2	37	31.60	6.23	Aug.	.40	Dec.	25.0	101	157	96	113	nw
Decorah	Winneshiek	875	16	47.4	98	July 10	-16	Feb. 2	16	36.07	7.71	June	.50	Jan.	22.2	75				
Denison	Crawford	1,180	14	49.3	95	Aug. 3	-11	Jan. 29 Dec. 7	14	37.24	9.54	June	.11	Dec.	16.3	95				n
Des Moines	Polk	861	31	50.9	95	Aug. 3	- 7	Jan. 29	31	35.89	9.89	May	.31	Dec.	21.3	101	105	157	104	sw
De Soto	Dallas	866	9	51.0	95	July 11 Aug. 3	-14	Dec. 7	9	38.09	8.33	May	.55	Jan.		81				nw
Dows	Wright	1,142	9	47.0	93	July 11	-17	Dec. 7	9		8.36	May	.30	Jan.						
Dubuque	Dubuque	698	35	49.2	96	July 11 Aug. 3	- 6	Jan. 29	35	24.11	5.82	May	.63	Dec.	26.6	99	144	106	116	se
Earlham	Madison		7	49.6	93	July 17	-10	Dec. 7	7	40.84	9.31	May	.40	Dec.	20.5	83	189	67	110	nw
Elkader	Clayton	727	28	48.6	99	July 27	-14	Feb. 2	30	30.93	6.55	May	.55	Jan.	32.8	72	202	73	91	nw
Elliott	Montgomery		4	51.0	93	Aug. 3	-10	Feb. 2	4	36.20	11.16	May	.55	Jan.	20.5	73	207	106	53	nw
Elma	Howard			46.3	94	July 10*	-16	Jan. 29		33.27	8.26	June	.14	Jan.	10.4	86				nw
Estherville	Emmet	1,298	13	46.0	95	Sept. 12	-18	Jan. 29	13	36.47	9.13	May	.24	Jan.	16.7	83				nw
Fairfield	Jefferson	780	14		96	Aug. 3	-10	Jan. 24	23	33.17	10.41	May	.29	Dec.		76				
Forest City	Winneshiek	1,226	15	46.5	95	July 11	-18	Jan. 29	15	37.01	8.10	May	.20	Jan.	12.0	74	201	70	95	
Fort Dodge	Webster	1,126	9	47.8	96	July 11	-13	Jan. 29	9	40.63	9.24	May	.30	Jan.	13.5	89				
Grand Meadow	Clayton	1,180	18	47.0	92	July 11	-14	Jan. 29	18	37.83	7.02	May	.64	Jan.	22.7	89	115	147	104	nw
Greenfield	Adair		18		92	July 29 Aug. 3	-12	Dec. 7	18		6.67	May	.05	Dec.						
Grinnell	Poweshiek	1,023	17	50.4	96	Aug. 3	-10	Jan. 29 Dec. 7	17	32.57	8.70	May	.48	Jan.	20.3	94	189	76	101	
Grundy Center	Grundy	976	18	49.4	98	July 11	-11	Jan. 29 Dec. 7	18				.60	Jan.	17.0		209	72	85	nw
Guthrie Center	Guthrie	1,077	14	50.1	95	Aug. 3	-10	Jan. 29 Dec. 7	14	40.56	8.26	May	.56	Jan.	30.9	107	220	58	88	nw
Hampton	Franklin	1,155	19	48.6	96	July 11 Aug. 3 Sept. 11	-14	Jan. 29	19	36.43	7.48	May	.70	Jan. Sept.	27.0	89	111	190	65	
Hancock	Pottawattamie	1,113		50.3	95	Sept. 10	-12	Dec. 7		30.06	7.36	May	.25	Jan.	14.5	77	237	44	85	
Harlan	Shelby	1,192	10	49.2	97	Aug. 3	-14	Dec. 7	10	29.86	8.48	May	.27	Dec.	17.4	94	135	136	95	nw
Hopeville	Clarke		18	51.2	98	Aug. 5	- 9	Dec. 7	18	35.46	9.64	May	.23	Dec.		103	102	179	85	
Humboldt	Humboldt	1,095	18	48.6	94	July 10*	-14	Jan. 29	20	39.81	9.66	May	.18	Jan.	11.5	80				nw
Independence	Buchanan	921	44	48.5	94	Aug. 3	-11	Jan. 29	41	31.10	7.66	May	.20	Jan.	17.0	95	217	64	85	nw
Indianola	Warren	969	18	51.1	97	Sept. 22	- 8	Dec. 7	18	35.83	9.45	Aug.	.45	Jan. Dec.	16.9	99				nw
Inwood	Lyon	1,474	5	47.0	99	July 10	-15	Dec. 7	5	32.76	6.69	June	.17	Jan.	35.9	89	226	59	81	nw
Iowa City	Johnson	683	50	50.0	98	Aug. 3	- 9	Feb. 2	46	37.70	7.78	May	.32	Jan.	26.5	99	175	52	139	
Iowa Falls	Hardin	1,170	16	47.1	95	July 11	-13	Jan. 29 Dec. 7	16	35.30	7.83	May	.35	Jan.	25.0	90	210	47	109	nw
Keokuk	Lee	614	38	53.8	95	Aug. 16	- 2	Feb. 2	38	34.28	10.09	May	.51	Jan.	22.5	91	188	105	73	nw
Keosauqua	Van Buren	644	17	50.9	97	Aug. 3	- 4	Jan. 24	17	35.72	12.54	May	.16	Dec.	16.9	83	75	143	148	
Knoxville	Marion	920	13	51.8	97	Aug. 3	- 7	Jan. 29	13	36.45	10.09	May	.30	Dec.	14.9	88	164	73	129	
Larrabee	Cherokee	1,266	18	47.2	94	July 10	-16	Dec. 7	19	35.02	9.77	May	.24	Jan.	17.9	92	184	122	60	nw
Le Mars	Plymouth	1,224	13	48.0	97	July 11	-13	Dec. 7	13	30.37	8.20	May	.19	Jan.		79	184	121	61	nw
Lenox	Taylor	1,250	14	50.7	93	Aug. 3	-13	Dec. 7	14	34.32	8.02	May	.33	Dec.	14.3	77	244	45	77	s
Leon	Decatur	1,120	7	51.5	96															

MONTHLY MAXIMUM TEMPERATURES FOR 1908, WITH DATES

STATIONS	January		February		March		April		May		June		July		August		September		October		November		December			
	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date		
Afton	52	*20	46	12	79	25	83	13	88	20	91	20	96	11	94	3	90	*11	82	*14	73	18	57	29		
Albia	55	20	51	12	79	25	82	*13	86	16	87	*20	93	*29	96	3	91	11	85	15	74	18	61	14		
Algona	49	14	48	24	73	25	81	*13	84	17	85	*22	96	11	90	2	90	12	82	*14	64	18	48	*14		
Allerton	56	21	50	12	80	25	83	19	86	*16	88	20	93	*11	96	3	93	11	86	*14	78	18	60	14		
Alta	51	20	48	24	77	25	87	13	86	*19	87	22	91	11	89	2	89	*5	83	14	70	18	50	14		
Alton	46	20	52	24	76	25	85	13	87	*19	89	*21	98	10	96	2	93	12	82	*15	69	18	45	14		
Amana	52	21	50	12	72	12	79	19	85	*17	91	22	95	11	97	3	89	11	80	*15	65	22	49	29		
Ames	53	20	49	*12	78	25	83	*13	85	*19	88	*20	91	*10	95	3	93	20	89	16	..	..	53	*28
Atlantic	56	20	45	*9	82	25	87	19	92	17	88	27	96	11	97	3	96	11	84	14	70	18	51	*26		
Audubon	49	21	45	24	80	25	85	13	88	20	90	27	96	11	94	3	89	*9	81	16	69	*22	51	29		
Baxter	55	21	49	9	76	25	82	*13	86	19	88	22	93	*11	95	3	94	20	88	14	78	18	52	28		
Bedford	54	*20	53	9	82	25	86	19	87	20	87	20	94	29	96	5	97	11	87	17	72	18	56	26		
Belle Plaine	54	6	48	*12	69	12	82	19	88	20	88	22	93	11	95	3	87	*11	82	17	68	18	50	28		
Bloomfield	56	21	54	12	75	*12	83	13	85	16	88	*20	92	30	95	3	91	*11	86	14	73	18	60	14		
Bonaparte	55	21	56	12	75	*12	83	13	85	16	88	*20	92	30	95	3	91	*11	86	14	73	18	60	14		
Boone	53	20	49	24	76	25	84	19	86	19	88	27	95	12	96	3	91	12	84	14	74	18	55	28		
Britt	46	21	50	24	72	25	80	*19	85	17	87	22	94	11	89	*2	90	12	82	14	61	8	48	*14		
Burlington	56	21	57	12	74	12	80	*13	86	*19	92	21	96	30	98	16	95	*11	83	14	71	17	62	14		
Carroll	57	20	49	24	81	25	86	*13	85	*16	88	27	97	12	93	*2	93	10	83	15	66	22	48	28		
Cedar Rapids	51	21	52	12	70	25	81	19	87	*17	93	22	98	11	98	3	93	11	83	15	66	22	48	28		
Chariton	55	20	50	12	80	25	83	19	86	*16	87	20	93	29	98	3	95	11	85	*14	77	18	59	14		
Charles City	46	21	48	24	69	25	79	19	84	17	87	22	94	10	90	2	91	20	79	15	60	*18	48	14		
Clarinda	55	*20	51	9	84	25	88	19	90	20	90	27	96	*10	98	3	95	*11	89	14	75	18	57	*14		
Clear Lake	47	22	46	22	70	25	79	22	85	*17	85	*20	94	11	92	2	90	12	80	16	57	*21	49	14		
Clinton	49	21	53	12	68	*12	83	22	90	24	94	22	96	11	96	3	89	*11	81	*14	67	22	55	14		
Columbus Junction	52	21	56	12	72	12	80	22	88	17	90	*20	94	*12	94	3	88	*11	81	*14	67	22	55	14		
Corning	53	21	45	9	81	25	82	19	87	20	87	*20	93	*17	95	3	89	*11	83	14	71	18	54	*26		
Corydon	57	21	50	12	81	25	85	19	86	*19	86	20	94	29	96	3	90	12	81	15	68	19	55	14		
Davenport	52	21	55	12	71	12	78	19	87	17	90	22	94	30	95	3	90	12	81	15	68	19	55	14		
Decorah	47	21	52	24	64	25	83	22	87	17	94	23	98	10	92	*2	91	12	78	15	62	22	45	14		
Delaware	46	21	47	24	64	12	78	22	84	17	89	22	94	11	93	3	90	12	78	15	62	22	45	14		
Denison	50	21	48	13	81	25	84	13	88	27	86	*22	93	29	95	3	91	12	84	14	74	18	55	14		
Des Moines	53	21	48	12	80	25	84	19	86	20	88	20	94	10	95	3	92	20	84	14	73	18	54	28		
De Soto	55	20	48	12	81	25	88	13	88	19	88	*19	88	*20	95	11	95	3	96	*12	85	*14	79	18	56	14
Dows	48	20	49	24	75	25	83	13	86	20	87	20	93	11	91	3	92	*11	85	19	67	18	50	29		
Dubuque	50	21	52	12	68	12	79	14	85	17	88	22	96	11	96	3	91	12	79	15	64	22	51	29		
Earlham	53	20	46	12	80	25	84	19	88	20	85	*20	93	17	91	3	92	11	84	16	78	18	58	28		
Elkader	56	4	48	12	66	25	82	22	90	17	90	*22	99	27	97	3	96	11	82	15	64	*6	48	*28		
Elliott	52	21	48	22	84	25	85	19	86	20	89	27	91	*10	93	3	90	*9	85	*14	73	18	57	26		
Elma	45	21	47	24	65	25	79	22	86	17	87	*6	94	*10	92	2	90	*12	77	15	60	22	46	14		
Estherville	48	20	50	24	74	25	84	19	86	20	86	23	94	10	91	2	95	12	84	14	66	18	53	14		
Fairfield	54	21	56	12	78	11	80	19	85	16	90	23	95	12	96	3	93	*11	86	14	73	8	60	14		
Forest City	49	20	48	24	72	25	82	19	85	*12	87	22	95	11	90	2	91	*12	84	14	62	*18	54	14		
Fort Dodge	51	19	53	24	77	25	85	*13	93	*16	87	*20	96	11	91	*2	91	12	84	14	67	18	49	29		
Grand Meadow	45	21	46	24	62	25	80	22	85	17	85	*22	92	11	90	3	91	*12	76	15	61	22	44	29		
Greenfield	53	20	46	12	80	25	82	*13	84	19	..	..	92	29	92	3	91	*10	83	15	75	18	58	29
Grinnell	54	19	50	12	75	25	80	19	84	*17	90	22	94	29	96	3	93	*11	83	14	71	18	53	28		
Grundy Center	50	19	50	24	74	25	81	*13	84	*17	88	22	98	11	95	3	89	*9	82	*14	73	18	52	29		
Guthrie Center	53	20	47	24	80	25	85	13	88	20	88	*20	94	11	95	3	89	*9	82	*14	73	18	52	29		
Hampton	50	20	54	24	73	25	81	*13	87	19	89	22	96	11	96	3	96	11	85	14	65	18	49	29		
Hancock	55	20	47	9	83	25	85	19	86	20	87	27	90	11	92	3	95	11	83	14	75	18	55	14		
Harlan	56	20	48	22	83	25	85	19	86	20	86	*22	94	29	97	3	95	11	83	14	75	18	55	14		
Hopeville	54	*20	49	9	81	25	85	19	88	20	88	20	95	12	98	5	94	11	84	14	76	18	57	14		
Humboldt	48	20	52	24	78	25	81	13	87	20	86	*20	94	*10	90	2	88	12	80	*14	..	..	52	29
Independence	50	21	49	*12	72	12	79	22	83	17	88	22	93	11	94	3	93	20	79	15	67	18	47	29		
Indianola	52	*20	48	12	80	25	83	*13	85	*19	87	20	93	11	95	3	97	22	83	*14	73	18	52	14		
Inwood	48	27	48	24	79	25	88	19	85	19	91	21	99	10	95	29	95	12	84	14	72	18	48	*13		
Iowa City	53	21	52	12	76	12	83	13	88	17	92	20	97	11	98	3	94	*11	84	*15	67	*18	53	*14		
Iowa Falls	48	19	46	24	72	25	81	*13	86	19	89	22	95	11	92	3	89	12	80	15	65	18	48	28		
Keokuk	55	21	59	12	75	25	80	19	87	24	90	22	94	30	95	16	93	19	85	14	70	18	60	14		
Knoxville	54	21	51	12	79	25	83	*13	87	*17	89	22	94	*11	97	3	90	*11	83	14	72	18	57	14		
Larrabee	46	20	48	24	77	25	85	13	89	16	91	21	94	*10	92	2	89	12	81	15	68	18	47	*14		
Le Mars	45	20	45	24	74	25	85	13	85	20	87	*21	97	11	90	2	90	12	81	16	69	18	46	14		
Lenox	52	*20	46	9	80	25	83	*19	87	20	87	20	92	11	93	3	90	11	83	14	70	18	54	26		
Leon	51	21	47	9	80	25	83	19	89	20	88	*21	93	*11	96	3	90	20	84	14	71	18	54	*26		
Little Sioux	57	20	49	24	84	25	87	*13	88	*16	90	*21	95	29	95	3	95	*5	85	*14	73	18	56	14		
Marshalltown	51	*19	49	*12	75	25	81	*13	86	19	89	23														

MONTHLY REVIEW OF THE

MONTHLY MINIMUM TEMPERATURES FOR 1908, WITH DATES

STATIONS	January		February		March		April		May		June		July		August		September		October		November		December	
	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date
Afton	- 8	29	- 2	*1	15	*8	16	2	24	2	45	11	48	7	47	21	28	29	27	30	14	15	- 8	7
Albia	- 8	29	- 4	2	14	9	18	2	25	2	45	*11	49	8	47	24	28	29	27	31	17	*12	- 6	7
Albion	-16	29	- 8	*1	1	8	14	2	24	2	41	*11	47	7	45	*20	25	29	27	*11	9	*16	-11	7
Allerton	- 7	29	- 4	2	14	9	18	2	21	2	46	11	50	*7	49	19	27	29	28	30	15	15	- 5	7
Alta	-14	29	- 6	1	3	8	11	2	23	2	43	*10	45	7	47	*22	25	29	16	11	11	*16	-15	7
Alton	-11	29	- 8	2	-1	8	12	2	22	2	40	15	47	7	41	20	25	29	26	8	7	30	-17	7
Amana	- 7	29	- 9	2	16	9	19	2	29	2	44	10	50	8	44	24	28	29	26	-12	16	15	- 6	7
Ames	-12	29	- 7	2	11	8	16	2	26	2	41	*11	48	8	42	24	28	29	23	12	..	..	-12	7
Atlantic	-10	28	- 9	2	11	9	14	2	17	2	42	*10	42	8	38	24	22	*28	17	12	14	30	- 9	7
Audubon	-10	29	- 5	2	11	8	14	2	22	2	40	11	44	8	41	24	22	29	18	12	6	15	-11	7
Baxter	-12	29	-10	2	12	9	15	2	25	2	42	11	47	8	..	..	23	29	27	12	12	15	-13	7
Bedford	- 5	29	-10	*2	13	9	16	2	19	2	45	11	45	8	47	*20	23	29	24	* 9	8	15	-10	7
Belle Plaine	-10	29	-12	2	18	*8	17	2	25	2	43	11	48	8	43	24	27	29	27	12	15	15	- 9	7
Bloomfield	- 6	29	- 4	2	9	9	20	2	26	2	47	*11	51	8	48	20	27	29	25	31	15	15	- 4	7
Bonaparte	- 8	24	- 5	2	16	9	20	3	27	2	47	*15	53	8	47	24	29	29	26	31	16	*12	- 1	7
Boone	-12	29	- 4	2	10	8	15	2	27	2	43	11	49	7	47	24	27	29	28	31	11	*15	- 9	7
Britt	-17	29	-15	2	2	8	15	2	24	2	40	*11	47	7	44	*22	23	29	24	*30	6	15	-13	7
Burlington	- 2	*29	- 3	2	17	9	23	2	29	2	51	14	58	8	51	*21	31	29	29	31	19	*14	1	7
Carroll	-11	*29	- 5	*1	8	*8	12	2	20	2	42	*11	45	7	43	20	27	28	25	11	11	13	-12	7
Cedar Rapids	- 7	30	- 6	2	17	*9	19	2	29	2	46	*10	52	8	44	*24	30	*29	28	*12	18	15	- 4	7
Chariton	- 9	29	- 7	2	13	9	17	2	23	2	43	11	48	8	47	24	26	29	27	30	14	15	- 9	7
Charles City	-14	29	- 9	2	8	8	16	2	27	3	40	15	50	8	43	24	26	29	23	31	6	30	-11	7
Clarinda	- 4	29	- 5	*2	15	9	16	2	23	2	46	11	45	8	48	20	27	29	22	*12	10	15	- 8	7
Clear Lake	-17	29	- 9	2	3	8	15	2	25	2	43	*10	50	7	45	20	30	29	25	31	12	17	-11	7
Clinton	- 3	29	- 8	2	17	9	18	2	28	3	45	10	50	*1	43	24	29	29	24	30	13	13	1	*7
Columbus Junction	- 4	29	- 5	2	16	9	20	2	26	2	46	10	53	8	48	24	29	29	28	31	18	15	- 2	7
Corning	-10	*23	- 7	2	15	8	16	2	21	2	45	11	46	7	47	20	24	29	24	28	13	15	-11	7
Corydon	- 7	29	- 6	2	14	9	18	2	23	2	46	11	50	7	49	20	28	29	28	30	14	15	- 8	7
Davenport	- 2	29	- 4	2	19	9	20	2	30	2	46	10	57	8	51	24	32	29	30	31	18	30	1	7
Decorah	-14	29	-16	2	6	9	12	2	20	3	36	15	49	8	42	24	29	29	24	31	10	30	- 4	7
Delaware	-10	29	-11	2	10	9	18	2	26	2	43	16	50	8	46	20	27	29	22	31	..	..	..	..
Denison	-11	29	- 7	2	9	8	14	2	22	2	45	*11	47	7	43	*20	24	29	25	8	17	31	-11	7
Des Moines	- 7	29	- 5	2	15	8	18	2	30	2	48	10	52	7	52	24	30	29	31	12	14	30	- 7	7
De Soto	-10	29	- 6	2	14	8	15	2	26	2	43	11	48	8	44	24	26	29	24	12	16	15	-14	7
Dows	- 3	23	-10	2	6	8	15	2	24	2	41	11	42	8	40	*20	21	*28	22	1	9	15	-17	7
Dubuque	- 6	29	- 8	2	15	9	19	2	30	2	49	15	53	8	46	24	30	29	26	31	11	30	1	7
Earlham	- 9	29	- 6	1	13	*8	15	2	24	2	39	11	43	8	43	25	24	29	26	*28	16	15	-10	7
Elkader	-10	29	-14	2	12	*9	18	2	24	3	39	*15	47	8	40	24	28	29	20	31	14	17	- 4	7
Elliot	- 7	29	- 7	2	17	8	17	2	24	2	48	*10	50	7	46	*24	29	29	24	12	12	15	6	31
Elma	-16	29	- 6	1	6	8	15	2	20	3	35	15	45	8	39	*20	22	29	22	31	12	*10	-10	9
Estherville	-18	29	- 8	1	-3	8	13	2	23	3	39	15	46	7	42	24	26	*28	21	11	11	16	-10	7
Fairfield	-10	24	- 4	2	13	9	22	2	30	8	..	..	48	*1	48	24	28	29	23	12	18	15	- 5	7
Forest City	-18	29	-14	2	1	8	15	2	25	2	42	11	48	7	44	24	23	29	25	31	8	16	-12	7
Fort Dodge	-13	29	- 5	2	7	8	8	2	22	2	41	11	48	7	45	24	28	29	28	31	14	16	-11	7
Grand Meadow	-14	29	-12	29	11	8	16	2	26	2	42	*1	51	*1	46	*20	28	29	26	31	15	*15	- 5	7
Greenfield	- 5	23	- 6	2	11	19	14	2	23	2	..	..	45	7	46	20	29	25	29	14	15	15	-12	7
Grinnell	-10	29	- 4	1	14	9	17	2	25	2	41	10	48	8	46	20	26	29	27	31	15	14	-11	7
Grundy Center	-11	29	- 6	2	12	8	17	2	27	*2	42	*10	46	8	40	20	27	29	27	31	15	14	-11	7
Guthrie Center	-10	29	- 5	2	11	8	15	2	24	2	41	11	48	*7	44	24	26	29	19	29	15	15	-10	7
Hampton	-14	29	- 1	*1	7	8	15	2	27	*2	42	10	49	7	46	20	26	29	27	31	13	*16	-12	7
Hancock	- 6	29	- 8	2	14	8	15	2	23	2	45	10	49	7	47	*20	28	29	26	*30	12	15	-12	7
Harlan	- 8	29	-10	2	10	8	13	2	18	2	43	10	46	7	45	*20	25	29	24	12	11	15	-14	7
Hopeville	- 8	29	- 3	2	15	9	17	2	22	2	46	11	49	7	50	20	27	29	28	30	13	15	- 9	7
Humboldt	-14	29	- 9	2	6	8	15	2	25	2	41	15	48	7	45	20	28	29	28	* 8	8	*14	- 8	7
Independence	-11	29	- 8	2	13	9	18	2	27	2	41	15	47	8	42	24	27	29	25	31	14	15	-10	7
Indianola	- 4	29	- 5	2	16	*8	16	2	28	2	46	10	50	7	49	*20	28	29	24	8	17	15	- 8	7
Inwood	-13	29	-10	*1	-8	8	11	2	..	..	36	10	42	7	40	20	22	29	24	* 8	6	30	-15	7
Iowa City	- 6	*29	- 9	2	15	9	20	*2	29	2	45	*10	51	8	46	24	29	29	27	31	18	*13	- 5	7
Iowa Falls	-13	29	- 8	2	9	8	16	2	26	*2	39	15	46	8	41	20	25	29	22	12	14	15	-13	7
Keokuk	0	29	- 2	2	18	9	24	2	30	2	48	16	57	8	54	25	83	29	31	31	19	15	3	7
Knoxville	- 7	29	- 3	2	16	9	18	2	28	2	45	11	49	8	48	23	29	29	29	31	18	15	- 5	7
Larrabee	-15	29	-14	18	1	9	11	2	20	2	40	*14	42	7	44	20	27	29	22	11	7	30	-16	7
Le Mars	-10	29	- 7	2	1	8	13	2	23	2	40	15	45	7	43	20	26	29	26	* 8	11	30	-13	7
Lenox	-10	29	- 8	2	14	9	15	2	21	2	47	*10	47	7	49	20	27	29	26	28	12	15	-13	7
Leon	- 6	29	- 3	2	15	9	18	2	23	2	46	11	50	8	..	..	26	29	29	30	13	15	- 7	7
Little Sioux	- 8	29	- 7	2	8	8	11	2	19	2	44	10	44	7	45	20	26	29	25	*11	11	12	-13	7
Marshalltown	-12	29	- 8	2	14	*8	17	2	25	2	42	*10	45	8	41	24	25	29	25	* 8	11	16	-10	7
Mason City	-14	29	-10	2	5	8	15	2	24	3	40	*10	48	7	41	24	25	29	25	* 8	11	16	-10	7
Mt. Ayr	- 6	29	- 6	19	13	9	16	2	23	2	47	11	48	7	49	*1	28							

MONTHLY AND ANNUAL MEAN TEMPERATURES FOR 1908, WITH DEPARTURES FROM THE NORMAL

STATIONS	Jan.		Feb.		March		April		May		June		July		Aug.		Sept.		Oct.		Nov.		Dec.		Annual	
	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.
Afton	27.6	+4.9	26.8	+4.8	39.7	+3.2	52.8	+2.4	61.2	-1.1	69.2	-1.6	74.2	-1.0	71.9	-1.7	68.1	+3.0	51.6	-1.7	40.6	+3.8	29.9	+4.2	51.1	+1.6
Albia	26.2	+2.5	24.8	+4.5	39.8	+2.2	51.4	+1.8	60.4	-0.6	63.7	-2.9	73.2	-1.0	71.0	-2.4	67.5	+2.7	51.3	-1.9	41.1	+2.4	28.9	+3.9	50.2	+0.9
Algona	21.8	+8.5	22.4	+5.4	35.4	+5.8	48.6	+2.4	57.6	-1.9	65.8	-2.7	72.2	-1.2	68.1	-2.8	66.3	+4.4	49.2	+0.5	36.5	+3.7	24.2	+4.1	47.3	+2.1
Allerton	29.0	+7.1	27.4	+5.7	41.6	+3.4	52.4	+2.1	60.8	-0.2	67.8	-0.3	73.8	+1.2	72.2	-0.9	69.1	+3.8	53.0	-1.2	42.8	+2.2	31.5	+5.0	51.8	+2.3
Alta	21.0	+4.6	20.4	+2.8	33.1	+2.5	48.2	+1.5	57.4	-0.6	61.7	-2.9	71.0	-0.9	68.0	-2.5	66.6	+3.7	48.2	-2.1	36.0	+3.5	23.9	+5.5	46.5	+1.0
Alton	23.4		23.2		35.4		49.5		58.5		66.2		72.6		69.1		68.6		49.4		35.9		24.4		47.9	
Amama	26.0	+9.7	25.6	+5.5	39.4	+6.9	50.4	+1.8	60.4	+0.4	68.2	-1.2	73.6	-0.1	70.0	-0.9	66.4	+3.9	51.6	+1.7	39.8	+9.2	27.2	+4.6	49.9	+3.5
Ames	24.8	+7.3	24.8	+3.6	38.1	+4.6	50.4	+1.3	59.3	-0.2	67.0	-2.4	72.8	-1.5	69.9	-3.2	66.1	+2.6	49.4	+1.4	39.0	+3.6	28.6	+3.7	49.2	+1.4
Atlantic	26.0	+5.6	23.9	+3.1	38.0	+3.3	50.6	+1.9	58.9	-0.5	66.5	-2.6	72.5	-0.7	69.0	-1.4	66.8	+2.4	49.6	-2.0	39.0	+3.6	28.6	+3.7	49.2	+1.4
Audubon	25.2	+6.3	24.0	+4.9	37.6	+3.4	49.6	+0.9	58.8	-1.1	66.7	-1.4	72.3	+0.2	68.4	-3.4	65.6	+2.4	49.9	-1.0	37.4	+2.2	26.8	+2.9	48.5	+1.3
Baxter	25.4	+5.1	24.8	+6.7	37.9	+1.3	50.4	+1.6	59.4	-1.0	66.4	-1.2	72.2	-1.0	71.1	-0.8	67.5	+4.5	53.3	+0.1	42.4	+5.1	27.0	+2.8	49.8	+1.9
Bedford	28.6	+4.8	27.4	+6.7	40.6	+3.9	52.8	+3.5	59.2	-1.8	67.8	-0.5	73.1	-0.3	71.8	-2.1	68.3	+3.7	53.1	-1.2	40.4	+5.0	29.8	+4.1	51.1	+2.2
Belle Plaine	23.6	+5.4	23.6	+3.7	36.9	+3.5	49.7	+0.8	60.0	+0.5	68.2	-0.9	72.6	-0.2	68.6	-2.2	66.1	+2.5	51.6	+1.2	40.6	+5.7	27.0	+3.3	49.0	+1.9
Bloomfield	28.7		27.4		42.2		52.9		61.8		69.6		75.7		73.4		70.0		53.6		43.0		30.4		52.4	
Bonaparte	27.4	+4.2	27.0	+4.2	41.9	+3.9	52.6	+2.4	62.1	-0.2	68.0	-3.2	73.6	-1.9	71.0	-3.3	68.6	+1.2	53.4	-1.6	43.0	+4.5	30.0	+2.1	51.6	+1.1
Boone	24.0		22.9		36.0		49.7		58.8		66.5		73.6		70.2		68.4		51.5		39.0		27.2		49.0	
Britt	21.6	+5.6	22.5	+6.0	34.2	+3.1	47.2	+1.5	57.9	-0.1	65.6	-1.5	72.1	+0.3	67.2	-2.8	66.1	+4.4	49.2	-1.1	35.4	+1.8	24.0	+4.9	46.9	+1.8
Burlington	26.2	-0.8	26.4	+2.7	42.2	+2.4	52.0	+0.5	62.6	-1.2	71.9	+1.4	77.2	+1.8	73.8	-0.3	69.8	+3.6	54.4	-1.3	42.6	+2.9	30.7	+3.6	52.5	+1.3
Carroll	23.6	+4.6	22.7	+3.8	35.3	+2.6	49.4	+1.3	58.6	-0.3	66.2	-2.4	72.7	-0.3	69.6	-1.5	67.7	+4.7	50.0	-1.0	37.8	+3.6	26.8	+3.4	48.4	+1.6
Cedar Rapids	24.0	+5.8	22.7	+2.6	37.6	+4.0	49.3	-0.4	59.8	-0.2	68.8	-1.5	74.8	+0.1	70.6	-2.1	67.1	+3.1	51.8	+0.4	38.9	+3.0	26.2	+1.2	49.3	+1.3
Chariton	28.4	+4.7	26.0	+3.8	40.9	+4.1	51.8	+5.3	60.0	-1.3	66.6	-2.6	72.8	-1.0	71.5	-1.6	69.2	+3.7	52.5	-1.7	42.0	+3.3	30.9	+4.6	51.0	+1.7
Charles City	20.1	+8.7	21.4	+6.3	34.6	+6.2	47.7	+1.4	57.4	-2.1	65.0	-3.8	71.6	-1.9	67.4	-3.3	65.9	+4.2	49.8	+1.6	36.2	+3.2	23.2	+4.2	46.7	+2.1
Clarinda	26.9	+4.4	26.1	+3.5	40.5	+4.4	52.8	+1.9	59.4	-1.8	68.2	-2.8	73.8	-1.7	72.3	-1.9	68.6	+2.6	52.0	-2.0	40.1	+2.3	29.1	+2.5	50.8	+0.9
Clear Lake	22.0	+5.4	22.4	+7.8	34.4	+2.7	48.1	+1.1	58.1	-1.6	66.2	-2.0	72.2	-1.0	68.8	-2.9	66.4	+4.2	51.0	-0.8	37.5	+3.4	24.4	+4.0	47.6	+1.7
Clinton	25.7	+6.0	24.2	+2.4	39.2	+5.7	50.0	+1.4	60.4	+0.2	69.4	+0.2	74.2	-1.4	71.6	-0.8	68.3	+2.8	53.6	-0.8	42.5	+3.5	30.0	+3.4	51.5	+1.7
Clinton Junction	27.6	+4.3	27.0	+5.6	41.4	+2.4	51.4	+1.7	61.8	-0.4	68.9	+0.2	74.2	-1.4	71.6	-0.8	68.3	+2.8	53.6	-0.8	42.5	+3.5	30.0	+3.4	51.5	+1.7
Corning	26.2	+4.3	26.1	+4.2	39.7	+3.3	55.4	+5.6	59.4	-1.0	67.4	-2.1	72.6	-1.0	71.0	-1.5	67.6	+2.8	51.6	-1.7	39.4	+2.2	29.4	+2.2	50.5	+1.5
Corydon	29.6	+6.3	27.1	+4.9	42.4	+5.1	53.4	+2.4	61.4	+0.1	68.1	-1.8	73.8	-1.0	72.8	-0.8	69.6	+3.1	53.6	-1.2	43.0	+4.3	31.5	+4.8	52.2	+2.2
Davenport	26.6	+5.8	26.1	+2.3	40.2	+4.8	50.4	+0.2	61.2	-0.3	68.8	-2.1	75.1	-0.3	72.2	-0.8	69.4	+4.7	53.6	+1.0	41.6	+4.1	28.7	+1.5	51.2	+1.8
Decorah	20.8	+5.3	22.4	+7.1	33.8	+2.2	47.0	-0.7	58.4	-0.8	66.8	-0.6	72.6	+0.6	68.4	-1.8	67.3	+5.2	50.8	+0.6	37.5	+4.0	23.0	+2.0	47.4	+1.9
Denison	25.2	+4.9	23.3	+4.2	39.4	+5.7	50.4	+2.3	58.5	-0.8	67.2	-0.6	72.4	-0.3	69.6	-2.3	67.8	+4.1	50.6	-0.2	38.4	+2.8	28.4	+4.9	49.3	+2.1
Des Moines	27.0	+6.6	26.1	+2.0	39.8	+4.1	51.8	+1.2	60.4	-1.2	68.0	-2.4	74.4	-1.1	71.4	-1.6	68.4	+3.4	52.9	+0.4	41.5	+4.7	29.6	+3.9	50.9	+1.6
De Soto	27.4	+4.2	25.8	+5.4	39.8	+2.2	52.2	+2.5	61.0	-0.9	68.1	-0.9	73.7	+1.0	71.1	-1.9	69.1	+4.5	53.5	-0.6	40.8	+2.1	29.2	+2.7	51.0	+1.7
Dows	22.6	+5.7	22.5	+7.1	35.3	+1.7	47.8	+1.5	57.2	-1.0	65.4	-0.6	70.8	-0.7	66.2	-3.5	65.3	+3.6	49.8	-1.6	35.9	+0.9	24.8	+3.7	47.0	+1.4
Dubuque	24.8	+6.5	24.0	+2.4	37.8	+4.6	48.8	-0.1	59.7	-1.1	67.4	-2.2	73.4	-1.3	69.6	-2.4	68.1	+4.5	51.7	-0.3	38.8	+2.8	25.8	+1.3	49.2	+1.8
Earlham	26.2	+6.8	25.8	+7.8	38.1	+3.9	51.0	+3.2	58.7	-1.3	65.5	+0.3	71.9	+1.9	68.8	-1.2	66.6	+4.5	52.0	+0.9	40.4	+2.6	29.8	+6.8	49.6	+3.0
Elkader	22.8	+8.0	24.3	+6.3	36.5	+4.7	48.6	+0.6	59.3	+0.8	65.3	-1.2	74.5	+0.9	70.6	-0.4	68.1	+5.6	51.6	+2.2	38.1	+4.9	24.1	+2.5	48.6	+2.9
Elliott	26.8		26.3		40.1		53.0		60.0		67.2		73.8		71.1		69.3		52.0		40.5		31.3		51.0	
Elma	20.2		22.4		34.0		47.0		57.0		65.6		71.3		66.3		65.2		49.1		35.7		21.8		46.3	
Estherville	20.1	+5.1	20.2	+5.1	32.6	+3.6	47.1	+0.8	56.6	+0.6	64.6	-2.2	70.0	-1.1	67.0	-3.2	66.8	+6.1	47.1	-1.7	36.8	+5.5	22.6	+4.4	46.0	+1.9
Fairfield	27.8	+10.2	26.5	+4.8	41.7	+7.9	51.6	+1.8	60.4	+0.2	68.0	-2.0	73.0	+3.6	71.1	-0.2	69.2	+5.2	53.3	+0.9	43.0	+6.1	29.7	+4.6	49.0	
Forest City	19.7	+3.5	20.8	+2.8	32.5	+2.8	47.6	+1.1	57.0	-1.3	65.2	-2.0	72.0	0.0	68.2	-2.1	66.4	+4.4	49.2	-0.5	36.4	+4.0	23.3	+3.5	46.5	+1.6
Fort Dodge	22.6	+5.5	21.8	+6.5	34.9	+1.5	49.2	+1.8	58.8	-1.2	65.8	-0.8	72.1	-0.4	68.8	-2.6	67.1	+4.5	49.7	-2.6	38.2	+3.0	24.6	+2.1	47.8	+1.4
Grand Meadow	21.4	+5.9	22.0	+5.3	35.0	+3.7	47.5	+0.7	58.2	+0.1	65.0	-1.4	71.4	-2.5	70.5	-1.9	68.2	+3.5	51.2	-1.9	40.6	+4.0	30.0	+5.0	49.0	
Greenfield	27.4	+6.1	25.2	+4.6	39.0	+4.5	51.9	+2.1	59.2	-1.2	67.0	-1.2	71.4	-2.5	70.5	-1.9	68.2	+3.5	51.2	-1.9	40.6	+4.0	30.0	+5.0	49.0	
Grinnell	26.0	+5.8	25.4	+4.1	38.8	+5.7	51.1	+0.8	60.2	+0.5	67.3	-1.0	73.2	0.0	70.6	-1.0	68.3	+4.5	52.6	+1.9	42.0	+6.0	29.0	+4.6	50.4	+2.7
Grundy Center	24.7	+7.8	24.4	+6.7	38.6</																					

MONTHLY AND ANNUAL PRECIPITATION FOR 1908, WITH DEPARTURES FROM NORMAL

STATIONS	Jan.		Feb.		March		April		May		June		July		Aug.		Sept.		Oct.		Nov.		Dec.		Annual	
	Amt.	Dept.	Amt.	Dept.	Amt.	Dept.	Amt.	Dept.	Amt.	Dept.	Amt.	Dept.	Amt.	Dept.	Amt.	Dept.	Amt.	Dept.	Amt.	Dept.	Amt.	Dept.	Amt.	Dept.	Amt.	Dept.
Afton	.60	-.29	1.48	+.53	1.64	-.46	1.23	-3.14	8.69	+3.80	5.90	+1.74	3.52	-.83	5.21	+.78	.76	-2.89	6.55	+3.93	2.02	+.79	.35	-.89	37.95	+3.07
Albia	.30	-1.12	1.64	+.32	1.97	+.07	1.72	-1.11	10.49	+6.16	2.29	-2.57	3.09	-1.84	5.40	+1.25	1.38	-2.18	2.33	-.24	1.57	-.20	.20	-.94	32.38	-2.40
Algona	.33	-.46	1.00	-.27	1.82	+.26	3.21	+.73	10.57	+6.89	7.61	+3.21	2.14	-.96	6.85	+2.93	.55	-2.59	3.88	+1.79	1.45	+.17	.90	-.13	40.31	+11.57
Allerton	.31	-1.11	1.77	+.43	1.53	-.92	1.72	-1.48	10.49	+5.98	3.13	-1.56	2.89	-1.68	5.02	-1.80	1.00	-3.71	4.74	+2.72	1.42	+.43	.19	-.98	34.21	-4.54
Alta	.15	-.49	1.79	+.94	1.43	-.23	2.69	-.34	8.44	+3.66	8.03	+2.81	8.14	+3.46	6.03	+2.06	.60	-2.58	3.20	+1.06	1.65	+.42	.64	-.29	42.79	+10.48
Alton	.20	-.00	1.86	-.00	1.74	-.00	2.90	-.00	7.29	-.00	4.35	-.00	4.19	-.00	3.95	-.00	.85	-.00	2.78	-.00	1.69	-.00	.71	-.00	32.52	-.00
Amana	.44	-1.03	2.41	+1.15	2.37	+.37	3.14	+.23	7.45	+3.05	3.30	-1.11	2.44	-1.81	4.87	+1.26	1.32	-1.93	1.87	-.78	2.14	+.41	.44	-1.01	32.19	-1.20
Ames	.55	-.37	1.55	+.75	.45	-.96	1.94	-.73	7.95	+3.63	3.93	-.60	3.63	-.81	5.90	+2.23	.50	-2.89	6.23	+1.13	.00	-.00	.57	-.45	32.19	-1.20
Atlantic	.22	-.54	1.60	+.55	.85	-.90	.93	-2.13	8.80	+4.42	7.22	+1.81	2.23	-2.10	3.57	+.09	.73	-2.76	3.96	+1.44	0.29	-.69	.46	-.69	30.86	-1.50
Audubon	.55	-.10	1.29	+.50	.88	-.74	2.70	-.54	10.16	+5.92	5.69	+1.84	3.23	-.69	4.57	+.85	.67	-2.40	4.04	+1.88	0.90	-.44	.30	-.66	34.98	+5.36
Baxter	.38	-.50	.84	+.03	1.53	-.68	2.85	-.02	8.41	+3.21	6.25	+1.75	2.54	-2.50	3.02	-1.53	1.09	-2.33	3.48	+.07	1.09	-.24	.58	-.31	32.06	-2.45
Bedford	.18	-.92	1.29	+.25	.75	-1.57	1.24	-1.57	6.68	+1.43	7.72	+3.25	2.57	-2.77	3.80	-1.20	.72	-2.72	6.82	+4.54	1.10	-.19	.19	-.75	33.12	-2.22
Belle Plaine	.78	-.99	2.67	+1.21	2.37	-.14	4.14	+0.83	4.33	-.33	2.81	-1.34	2.59	-1.82	3.49	-.66	1.84	-1.14	2.92	+.57	1.50	-.22	.80	-.73	30.22	-4.78
Bloomfield	.57	-.12	1.75	-.00	2.57	-.00	2.02	-.00	13.89	-.00	4.19	-.00	3.44	-.00	4.64	-.00	.86	-.00	1.24	-.00	2.67	-.00	.44	-.00	33.28	-.00
Bonaparte	.67	-1.31	2.49	+1.26	1.51	-1.04	1.90	-1.45	11.07	+7.04	3.52	-1.10	3.70	-.03	4.41	-.24	1.83	-2.21	0.89	-.87	2.34	+.54	.17	-1.86	34.50	-1.33
Boone	.42	-.00	2.13	-.00	1.37	-.00	2.44	-.00	7.12	-.00	5.87	-.00	6.27	-.00	4.18	-.00	.63	-.00	5.19	-.00	1.14	-.00	.47	-.00	37.23	-.00
Britt	.42	-.26	.70	-.33	1.82	+.32	3.78	+1.57	7.85	+3.59	5.72	+1.64	4.33	-.10	4.83	+.78	1.08	-2.66	5.20	+3.04	1.69	+.58	.96	+.20	33.38	+8.37
Burlington	.86	-1.12	3.71	+1.93	2.18	-.68	2.16	-1.00	11.34	+7.49	5.17	+.09	2.83	-.79	2.64	-2.80	3.35	+.23	0.77	-1.45	2.45	+.67	.65	-.90	38.11	+1.67
Carroll	.30	-.51	2.58	+1.43	1.69	-.35	1.51	-1.69	8.48	+3.92	7.94	+3.27	4.30	+.29	7.76	+4.05	.59	-2.30	5.70	+3.46	1.37	+.24	.30	-.69	42.52	+11.12
Cedar Rapids	.31	-1.11	1.72	+.34	2.17	+.13	3.36	+.62	6.11	+1.53	3.23	-.64	3.06	-.98	4.12	+.62	1.39	-1.43	1.34	-1.12	1.44	+.04	.58	-.92	28.83	-2.92
Chariton	.35	-.97	.73	-.30	.99	-.09	1.81	-1.32	9.83	+5.46	3.34	-1.38	1.77	-3.69	3.42	-1.58	.94	-2.50	3.15	+.79	1.35	+.05	.20	-1.14	27.88	-6.67
Charles City	.40	-.57	1.44	+.47	1.67	-.25	2.00	-.83	6.49	+1.55	8.40	+3.30	4.34	+.76	3.49	+.07	.81	-1.99	2.64	+.61	1.32	-.07	1.16	-.12	34.16	+2.93
Clarinda	.20	-.78	1.96	+.96	.65	-1.21	1.15	-2.04	8.55	+3.71	7.03	+2.13	3.64	-1.06	5.78	+1.75	.36	-2.33	5.12	+2.62	1.48	+.32	.27	-.85	36.19	+3.22
Clear Lake	.45	-.12	.23	-.62	1.50	-.09	2.12	+.48	9.20	+3.77	7.67	+2.83	2.16	-2.58	2.97	-1.34	1.26	-1.70	3.50	+.87	1.48	+.41	1.10	+.47	33.64	+2.38
Clinton	.68	-1.24	2.56	+.47	3.08	+.06	2.70	-.31	6.66	+2.60	4.03	-.40	3.64	-.56	5.57	+1.92	1.63	-1.68	0.58	-1.82	3.31	+1.47	.49	-1.36	34.93	-.85
Columbus Jet	.78	-.69	1.70	+.52	2.01	-.50	1.69	-1.09	7.19	+3.31	3.78	-1.10	3.63	-.38	7.92	+1.70	1.77	-1.33	1.88	-.57	2.04	+.53	.37	-1.09	34.76	-.74
Corning	.80	-.11	1.80	+.92	1.69	-.05	1.19	-1.94	12.18	+7.35	6.51	+2.46	2.10	-2.25	3.78	-.45	1.01	-1.95	5.67	+3.34	1.11	-.69	.35	-.79	38.17	+6.44
Corydon	.29	-1.20	.91	-.41	1.12	-1.01	1.70	-1.46	9.38	+4.71	1.92	-2.73	3.25	-.93	3.88	-.44	1.06	-2.51	4.71	+2.22	1.42	-.03	.23	-1.19	29.89	-4.98
Cumberland	.80	-.05	1.80	+.90	2.31	+.29	.77	-1.32	12.00	+8.31	8.28	+3.60	4.42	-1.02	6.19	+2.21	1.52	-2.12	4.14	+1.53	0.76	-.22	.08	-.94	43.07	+11.17
Davenport	.69	-.88	2.37	+.81	2.24	+.03	2.22	-.66	5.13	+.94	4.57	+.46	3.30	-.25	6.23	+2.59	1.12	-2.02	.87	-1.52	2.46	+.70	.30	-1.29	31.60	-1.09
Decorah	.50	-.65	1.50	+.59	1.91	-.11	2.41	-.09	6.64	+1.97	7.71	+3.71	4.72	+1.00	4.17	+1.13	1.98	-1.75	2.00	-.42	0.80	-.75	1.70	+.34	36.07	+4.97
Denison	.40	-.84	1.70	+.84	1.11	-.40	2.41	-1.04	8.90	+4.79	9.54	+6.12	1.47	-2.59	5.87	+2.11	.67	-2.33	3.78	+1.75	1.28	+.27	.11	-.48	37.24	+8.20
Des Moines	.46	-.75	1.51	+.43	1.43	-.22	2.69	-.29	9.89	+5.33	5.93	+.97	1.56	-2.30	6.54	+2.93	.91	-2.13	3.68	+1.00	0.95	-.53	.31	-1.00	35.89	+3.44
De Soto	.55	-.29	1.32	+.44	1.21	-.38	1.41	-1.37	8.33	+4.45	4.61	+.24	5.13	-.70	6.59	+1.62	.55	-2.54	6.31	+3.98	1.47	+.25	.61	-.65	38.00	+5.05
Dows	.30	-.53	1.56	+.34	1.22	-.92	3.12	+.87	8.36	+3.23	-.00	-.00	3.34	-2.29	4.22	-.06	.80	-2.69	2.48	+.08	2.12	+.88	.39	-.42	32.19	-1.20
Dubuque	.70	-.79	1.87	+.49	1.72	-.49	2.50	-.42	5.82	+1.50	2.21	-2.34	2.06	-2.24	2.92	-.12	1.14	-2.45	1.20	-1.48	1.34	-.47	.63	-1.00	24.11	-9.90
Earlham	.65	-.43	1.97	+.85	1.58	-.18	1.00	-2.66	9.31	+4.54	6.28	+1.75	4.45	-.39	6.38	+1.25	.55	-3.24	6.38	+4.03	1.89	+.55	.40	-.90	40.84	+5.17
Elkader	.55	-.76	1.65	+.56	1.57	-.34	1.75	-.94	6.55	+2.41	4.49	+.46	4.70	+.02	2.94	+.04	2.73	-1.11	1.96	-.68	1.19	-.46	.85	-.98	30.93	-1.78
Elliott	.55	-.12	1.98	-.00	1.80	-.00	1.31	-.00	11.16	-.00	9.09	-.00	1.96	-.00	2.84	-.00	.62	-.00	3.31	-.00	0.98	-.00	.60	-.00	36.20	-.00
Elma	.14	-.00	.96	-.00	.83	-.00	3.24	-.00	7.04	-.00	8.26	-.00	3.78	-.00	3.35	-.00	1.27	-.00	2.23	-.00	1.42	-.00	.75	-.00	33.27	-.00
Estherville	.24	-.32	.83	+.15	1.45	-.02	3.60	+1.34	9.13	+4.95	7.35	+4.00	4.19	-.39	3.07	-.53	1.05	-2.18	3.22	+1.05	1.62	+.38	.75	+.13	36.47	+8.61
Fairfield	.47	-1.23	1.71	+.12	2.21	-.29	1.33	-2.11	10.41	+5.13	5.73	+.60	2.97	-1.02	4.25	+.17	.70	-2.72	0.61	-2.31	2.37	+.09	.29	-1.49	33.17	-5.10
Forest City	.20	-.44	.75	-.18	1.61	+.07	2.42	+.00	8.10	+3.71	6.02	+1.39	5.08	+1.40	4.28	+.78	1.00	-2.02	5.00	+2.70	1.83	+.60	.70	-.15	37.01	+7.31
Fort Dodge	.30	-.34	.45	-.26	1.47	-.79	3.37	+.20	9.24	+4.69	7.28	+3.47	4.88	+.85	5.83	+.19	1.12	-3.45	4.45	+1.36	1.49	+.27	.75	+.29	40.63	+6.48
Grand Meadow	.64	-.53	1.63	+.53	1.85	-.29	1.93	-1.04	7.02	+2.16	6.24	+1.44	6.98	+2.24	3.06	-.27	3.46	-.17	2.27	-.20	1.41	-.15	1.34	-.12	37.83	+3.60
Greenfield	.80	-.15	1.98	+.06	1.93	+.19	1.87	-1.51	8.70	+4.11	3.09	-1.49	2.54	-2.41	5.80	+1.18	1.95	-.40	2.23	-.24	1.36	-.27	.64	-.53	32.57	-1.10
Grinnell	.48	-.79	1.98	+1.06	1.93	+.19	1.87	-1.51	8.70	+4.11	3.09	-1.49	2.54	-2.41	5.80	+1.18	1.95	-.40	2.23	-.24	1.36	-.27	.64	-.53	32.57	-1.10
Grundy Center	.60	-.22	1.37	+.52	.95	-.87	2.23	-.82	-.00	-.00	3.63	-1.67	2.92	-1.63	3.93	+.36	.90	-2.35	4.66	-2.19	1.25	+.03	.85	-.33	32.19	-1.20
Guthrie Center	.56	-.03	2.24	+1.44	1.16	-.24	1.69	-1.05	8.26	+3.30	6.47	+2.06	3.37	-1.45	9.25	+4.93	.76	-2.33	5.12	+2.85	1.03	-.12	.65	-.45	40.56	+8.91
Hampton	.70	-.34	1.68	+.51	1.95	-.30	2.44	-.84	7.48	+2.90	6.03	+1.12	4.53	-.30	3.47	+.10	.70	-2.86	4.47	+2.04	2.15	+.59	.83	-.42	36.43	+2.20
Hancock	.25	-.00	1.78	-.00	1.41	-.00	.80	-.00	7.36	-.00	6.98	-.00	3.69													

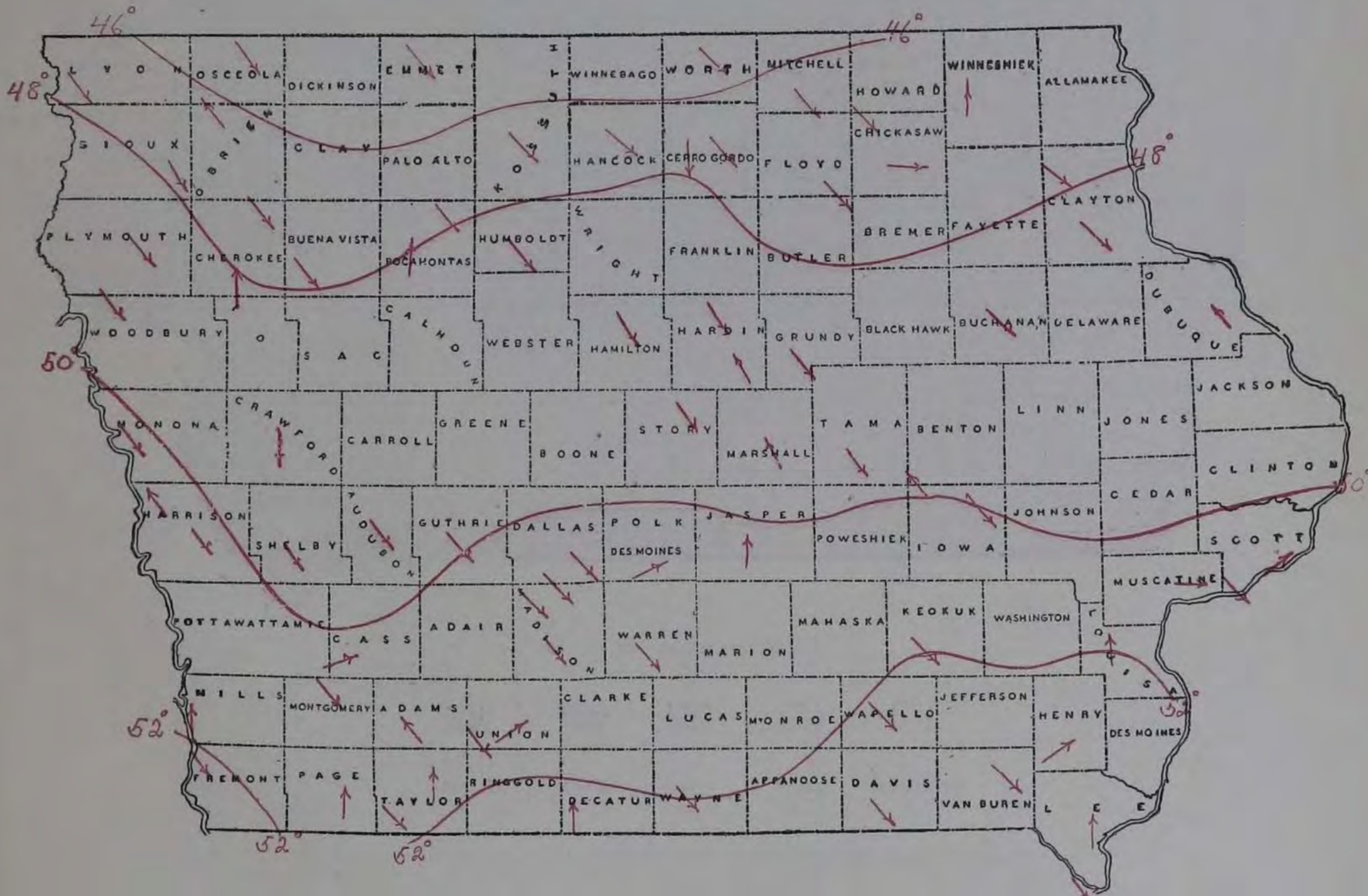
CONDENSED SUMMARY FOR 1908.

Month	TEMPERATURE IN DEGREES FAHR.										PRECIPITATION IN INCHES					AV. NO. DAYS				Prevailing Wind			
	State Average	Departure	Highest Mean	STATION	Lowest Mean	STATION	Highest	STATION	Date	Lowest	STATION	Date	State Average	Departure	Greatest Total	STATION	Least Total	STATION	With .01 or more Precip.		Clear	Pt. Cloudy	Cloudy
Jan ..	24.9	+5.7	30.4	Keokuk ...	18.5	Osage.....	60	Logan.....	6-18	Estherville ..	29	29	.44	-.56	1.50	Ft. Madison....	.09	Buckingham....	2	17	8	6	NW
Feb ..	24.3	+5.1	29.1	Keokuk ...	18.2	Rock Rapids.	59	Keokuk ...	12-16	Decorah.....	2	2	1.69	+.63	3.95	Olin.....	.23	Clear Lake.....	6	12	6	11	NW
Mar ..	37.9	+3.9	44.8	Keokuk ...	31.4	Sibley.....	85	Woodburn...	25-8	Inwood.....	8	8	1.58	-.36	3.74	LeClair.....	.45	Ames.....	6	13	7	11	NW
April	50.5	+2.0	55.8	Corning...	46.6	Sibley.....	91	Onawa.....	19 8	Ft. Dodge...	2	2	2.24	-.59	4.59	Inwood.....	.67	Little Sioux...	8	14	8	8	NW
May ..	59.4	-0.7	63.2	Keokuk ...	55.2	Rock Rapids.	93	Ft. Dodge...	*16 13	Washta.....	2	2	8.34	+3.84	14.33	Ft. Madison....	4.33	Belle Plaine....	15	9	11	11	SE
June.	67.1	-1.7	71.9	Burlington	62.9	Sibley.....	94	Decorah...	23 35	Elma.....	15	15	5.66	+1.14	11.88	Plover.....	1.77	Sigourney.....	13	12	10	8	SE
July .	73.0	-0.4	78.3	Fairfield ..	69.2	Sibley.....	100	Rockw'liC'ty	11 ...	Inwood.....	7	7	3.66	-.78	9.21	Alta (near)....	.70	Oskaloosa.....	8	16	10	5	SW
Aug..	70.0	-1.8	74.5	Keokuk ...	66.2	Sibley.....	101	Odeboldt...	29 42	Atlantic.....	24	24	4.77	+.78	10.58	Pella.....	1.35	Rock Rapids....	9	17	9	5	SW
Sept.	67.9	+4.2	71.6	Onawa.....	64.6	Mason City ..	98	Oskaloosa...	3 ...	Washta.....	29	29	1.20	-2.21	3.46	Grand Meadow..	.25	Jefferson.....	3	21	6	3	S
Oct...	51.1	-0.8	54.4	Keokuk ...	46.6	Sibley.....	89	Ridgeway...	11 ...	Atlantic.....	12	12	3.38	+1.03	8.83	Lamoni.....	.58	Clinton.....	8	16	6	9	S
Nov..	39.3	+3.4	45.2	Keokuk ...	35.4	Britt.....	80	Clarinda....	14 17	Atlantic.....	12	12	1.56	+.17	3.31	Clinton.....	.21	Pacific Jet....	5	14	7	9	NW
Dec ..	27.2	+3.6	33.4	Keokuk ...	19.5	Northwood ..	67	St. Charles...	18 5	Sioux Center	30	30	.57	-.62	2.07	Ridgeway.....	.05	Greenfield.....	3	15	8	8	NW
				Keokuk ...		Washington ..		Washington ..	14-17	Alton.....	7	7				Whitten.....							

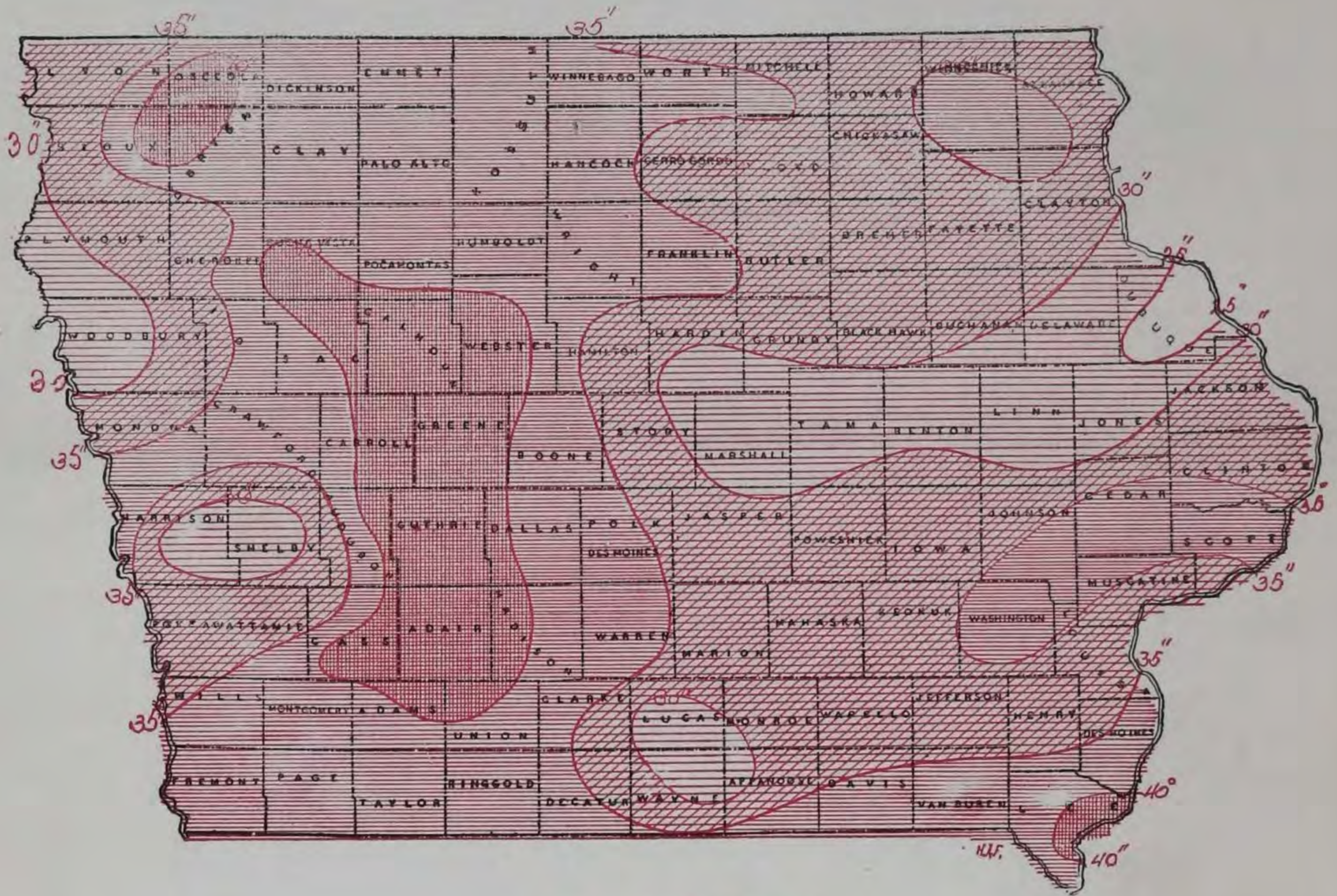
*And other dates.

MEAN ISOTHERMS AND PREVAILING WINDS OF 1908.

Lines pass thru points of equal temperature. Arrows fly with the wind.



TOTAL PRECIPITATION, 1908.



SCALE OF SHADES—IN INCHES



U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR JANUARY, 1909

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

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Des Moines, Ia.

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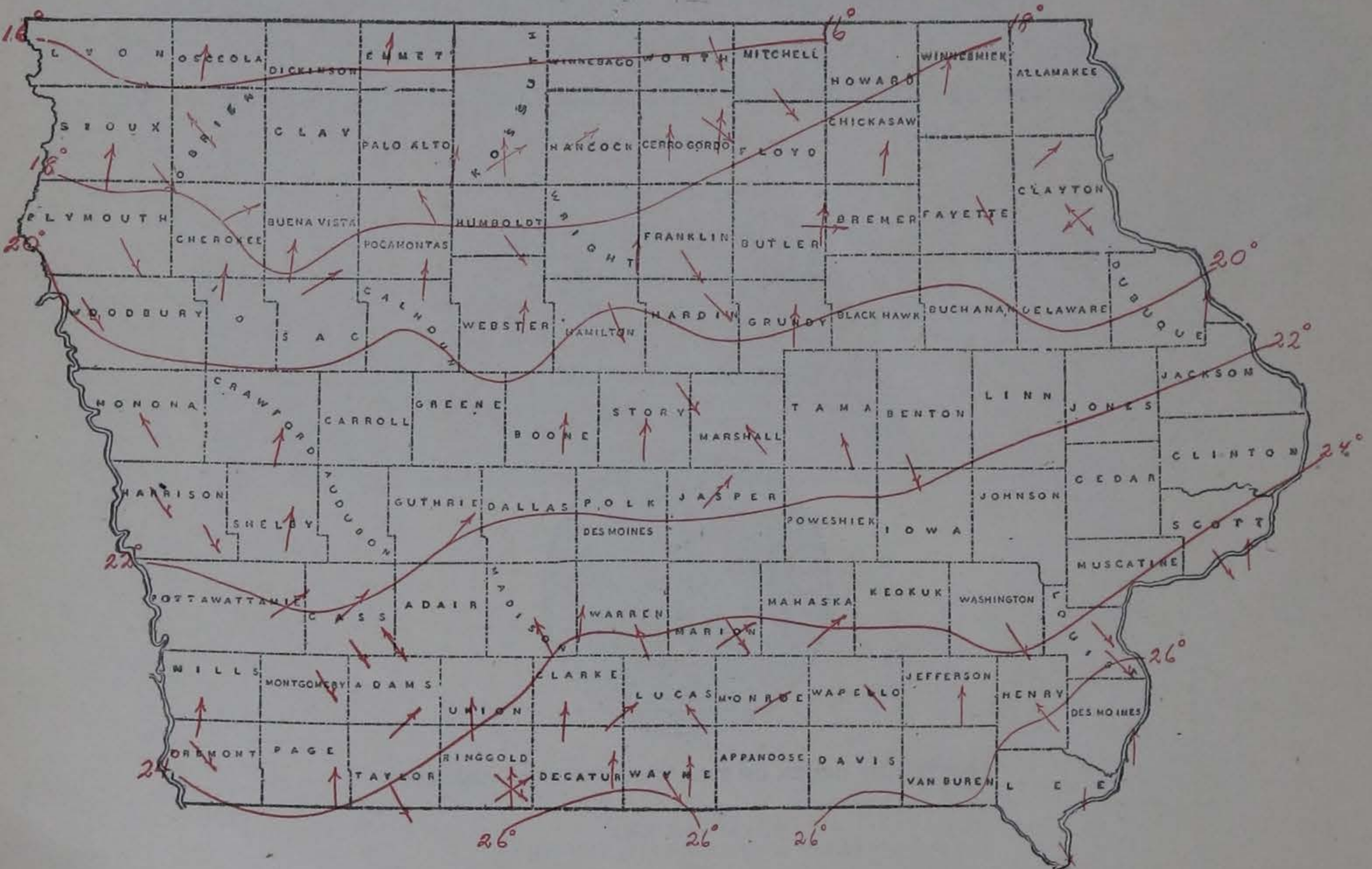
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MEAN ISOTHERMS AND PREVAILING WINDS OF JANUARY, 1909.

Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
 CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
 GEO. M. CHAPPEL, Section Director.

VOL. XX DES MOINES, IOWA, JANUARY, 1909 No. 1

GENERAL SUMMARY.

The average temperature for the month was considerably above the normal, altho seasonable temperature for January prevailed during the first half and the last three days of the month. The coldest periods of the month were between the 5th and 12th, and the 29th and 31st, when the minimum temperatures were near or below zero. The coldest day was on the 6th when the minimum temperature ranged from 10 degrees below zero in the southern counties to 25 degrees below zero in several of the northern counties. From the 13th to the 28th the weather was unseasonably warm, especially on the 23d, when the highest temperature ever recorded in January occurred at several stations in the southeastern part of the state. The last three days of the month were cold with minimum temperatures generally below zero. There was considerably more precipitation than usual, notwithstanding the fact that but little moisture fell prior to the 28th. Small amounts of snow fell between the 4th and 7th, and on the 15th and 16th. Light rain fell between the 18th and 23d with an excessive amount of foggy weather. Light rain began on the 28th increasing to heavy rain in the evening and turning to snow during the night. This storm was attended by extremely high northwest winds which continued from the night of the 28th to the morning of the 30th, making it one of the worst blizzards experienced in this section for many years. The high winds caused the snow to drift badly, and blew down hundreds of windmills and thousands of telegraph and telephone poles. All street car and railroad train service was practically abandoned, and many head of live stock perished from the cold and exposure. The storm was so fierce that live stock would not face the wind and flying snow to seek shelter. The wind, during the storm, attained a maximum velocity of 72 miles per hour at Sioux City; 66 miles at Omaha, Nebr.; 44 miles at Des Moines; 37 miles at Keokuk; 36 miles at Davenport; and 31 miles at Dubuque.

There was some plowing done between the 24th and 27th in the southeastern counties, but the alternating thawing and freezing weather was not favorable to fall grain.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 113 stations, was 21.2°, which is 1.9° above the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 17.8°, which is 1.6° above the normal; Central section, 21.3°, which is 2.1° above the normal; Southern section, 24.4°, which is 2.0° above the normal. The highest monthly mean was 28.4° at Ottumwa, Wapello county, and the lowest monthly mean 13.2° at Rock Rapids, Lyon county. The highest temperature reported was 72° at Keokuk, Lee county, on the 23d; the lowest temperature reported was 25° below zero at Grand Meadow in Clayton, Northwood in Worth, and Ridgeway in Winneshiek counties, on the 6th. The average monthly maximum was 55.1°, and the average monthly mini-

um was 17.9° below zero. The greatest daily range was 50° at Ames, Story county. The average of the greatest daily ranges was 38.8°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 119 stations, was 1.66 inches, which is 0.61 inch above the normal. By sections the averages were as follows: Northern section, 1.61 inches, which is 0.79 inch above the normal; Central section, 1.77 inches, which is 0.67 inch above the normal; Southern section, 1.60 inches, which is 0.36 inch above the normal. The greatest amount, 3.74 inches, occurred at Ridgeway, Winneshiek county, and the least, 0.41 inch, at Le Mars, Plymouth county. The greatest amount in twenty-four hours, 2.10 inches, occurred at Lacona, Warren county, on the 28th. Measurable precipitation occurred on an average of 6 days.

The average snowfall, unmelted, was 7.8 inches. By sections, the averages were as follows: Northern section, 9.3 inches; Central section, 8.2 inches; Southern section, 5.8 inches. The greatest monthly snowfall, 20.0 inches, occurred at Elkader, Clayton county, and the greatest amount in twenty-four hours, 8.0 inches, at Northwood, Worth county, on the 15th, and at Iowa Falls, Hardin county, on the 29th.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 9; partly cloudy, 6; cloudy, 16. The duration of sunshine was below the normal, the percentage of the possible amount being 29 at Davenport; 28 at Des Moines; 30 at Dubuque; 34 at Keokuk, and 35 at Sioux City.

WIND.—South winds prevailed. The highest velocity reported was 72 miles per hour from the Northwest, at Sioux City, Woodbury county, on the 29th.

COMPARATIVE DATA FOR THE STATE—JANUARY.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	19.7	61	-27	2.03	3.46	.35
1891.....	26.0	58	-4	1.75	3.99	.61
1892.....	15.3	76	-38	1.09	3.13	.10
1893.....	9.3	54	-34	.74	3.20	.13
1894.....	19.3	69	-37	1.09	2.24	.31
1895.....	13.6	68	-31	.85	2.65	.09
1896.....	23.4	68	-20	.48	2.10	T
1897.....	17.2	66	-30	2.01	6.16	.15
1898.....	23.4	52	-11	1.60	5.32	T
1899.....	19.8	68	-34	.28	1.15	T
1900.....	25.6	66	-20	.53	2.47	T
1901.....	23.7	60	-21	.74	2.34	.04
1902.....	22.4	63	-31	.88	2.83	.19
1903.....	23.0	60	-12	.28	1.46	T
1904.....	14.0	57	-32	1.18	3.68	.02
1905.....	11.2	56	-30	.91	1.82	.12
1906.....	24.6	69	-19	1.52	4.71	.23
1907.....	18.8	68	-22	1.52	5.30	.10
1908.....	24.9	60	-18	.44	1.50	.06
1909.....	21.2	72	-25	1.66	3.74	.41

T indicates a Trace.
 - indicates temperature below zero.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.17 inches.
 Prevailing direction of Wind, South.

STATIONS	Barometer, in Inches				Wind					
	Mean	Maximum	Date	Minimum	Date	Movem	Maximum Velocity—miles	Direction	Date	Average Hourly Velocity
Davenport..	30.17	30.66	7	29.06	29	5846	36	NW	29	7.9
Des Moines..	30.15	30.65	31	29.07	25	6884	44	NW	29	9.3
Dubuque....	30.19	30.71	7	29.21	29	5279	31	NW	29	7.1
Keokuk.....	30.16	30.67	31	29.12	29	6030	37	NW	29	8.1
Omaha, Neb..	30.17	30.67	30	29.22	28	7892	66	NW	29	10.6
Sioux City..	30.17	30.71	30	29.29	28	11096	72	NW	29	14.9

OBSERVER'S REMARKS.

ALBIA.—*J. I. Chenoweth.* The weather was dry and cloudy up to the 28th when rain began, turning to snow and a severe blizzard on the 29th with the temperature below zero on the 30th and 31st.

ALTA.—*David E. Hadden.* The worst blizzard experienced here in 21 years occurred between the evening of the 28th and the morning of the 30th.

ALTON.—*W. S. Slagle.* The ice harvest was discontinued on the 21st on account of the warm weather. There was considerable cloudy and misty weather during the latter part of the month with changeable wind. On the 29th the high wind together with three inches of snow on the ground made a bad blizzard.

AMANA.—*C. Schadt.* With the exception of some very cold days between the 5th and 13th and the 30th and 31st the month was generally mild and the soil absorbed the rain which fell on the 28th. The blizzard on the 29th was very severe.

ATLANTIC.—*Thos. H. Whitney.* The storm of the 28th and 29th was the most severe we have had in many years and caused considerable damage to buildings and great loss to live stock from exposure.

AUDUBON.—*Geo. E. Kellogg.* The worst storm in the history of Audubon county occurred on the 28th and 29th. The temperature dropt from 40° to 8 degrees below zero in 24 hours with high wind, sleet and snow. Many cattle and sheep perished during the night of the 28th.

BAXTER.—*W. R. Vandike.* A terrific blizzard occurred on the 29th. It was the most disastrous to live stock of any storm I have experienced during 53 years residence in Iowa. Stock would not face the storm to seek shelter and many perished. One man lost 27 head of cattle.

BEDFORD.—*E. E. Healy.* The storm on the 29th was the most severe ever known here.

BONAPARTE.—*Hon. B. R. Vale.* The maximum temperature on the 23d was 70 degrees, which is the highest recorded in January or February during the past 18 years. On six days the temperature was down to zero or below, but on the whole the month was very pleasant and dry.

BOONE.—*Carl Fritz Henning.* On the 28th rain began about 5 a. m. and continued to drizzle at intervals until 9 p. m. when heavy rain began, turning to snow during the night with rapidly falling temperature and high winds. The maximum velocity of wind occurred between 6 a. m. and 8 a. m. of the 29th when windmills, telegraph and telephone poles were blown down, buildings and trees were damaged, street car service suspended, railroad trains seriously delayed and many head of live stock, chickens and birds perished.

BRITT.—*Geo. P. Hardwick.* There was an excessive amount of cloudiness during the month. The rain of the 28th turned to snow with a gale of wind at 4 a. m. of the 29th, during which much live stock perished and many windmills were blown down. It was the worst blizzard in many years.

CHARITON.—*C. C. Burr.* The month was unusually pleasant with almost no precipitation until the 28th when we had as bad a storm as has visited this country in recent years.

CLARINDA.—*A. S. Van Sandt.* The wind velocity on the 29th was estimated to be 65 miles per hour. Many windmills and chimneys were blown down and evergreen trees uprooted. A great deal of damage was also done to window glass.

CLEAR LAKE.—*Oscar Stevens.* The worst blizzard we have had in many years occurred on the 29th.

CORYDON.—*Mrs. Clara Miller.* A large number of cattle are reported to have perished during the storm of the 28th.

DENISON.—*W. C. Van Ness.* After the rain and a little thunder and lightning on the 28th a fearful blizzard came in the evening. The high wind did much minor damage.

DOWS.—*G. R. Flett.* The blizzard on the 29th continued for 24 hours.

ELKADER.—*Chas. Reinecke.* The ice went out of the Turkey river during the 23d.

ELLIOTT.—*Henry Barnes.* January was a fairly good month for farm and feeding purposes, except the last few days when the worst blizzard experienced for 30 years prevailed on the night of the 28th and the 29th.

GRAND MEADOW (Postville P. O.)—*F. L. Williams.* The month was generally very favorable for all kinds of stock, but there were ten days on which the temperature was zero or below, and the storm of the 28th and the 29th was the worst of the winter.

GREENE.—*J. L. Cole.* The storm on the 29th was the worst we have had in years. Telegraph poles were blown down and broken and the electric light and telephone wires were down and out of service. There were 75 windmills blown down in this vicinity.

HOPEVILLE.—*M. T. Ashley.* Many windmills were blown down during the storm of the 29th and some live stock perished.

INWOOD.—*F. B. Hanson.* The weather has been quite variable but the mean temperature was 2 degrees above normal and the precipitation was .32 inches above normal. The storm on the 28 to 30th was the worst blizzard we have had in 21 years and if there had been more snow it would have equalled the storm of Jan. 12, 1888.

KEOSAUQUA.—*J. H. Landes.* The weather was generally cloudy, but a maximum temperature of 70° was recorded on the 23rd, which is the highest temperature on record for January. There was some plowing done. The blizzard on the 29th, which lasted all day and all night, was the most severe this vicinity has had for a long time.

KNOXVILLE.—*Casey & Bellville.* The worst blizzard we have had in years occurred on the 29th. High winds prevailed all day. All train service was abandoned, small buildings were blown over and plate glass windows were broken. Considerable stock perished.

LAMONI.—*T. J. Fitzpatrick.* Rain began at 1:30 p. m. on the 28th and continued with slight intermissions until about 11 p. m. when the wind shifted to the northwest and a blizzard came with snow, continuing all day and night of the 29th.

LARRABEE.—*H. B. Strever.* A blizzard struck here about 7 p. m. of the 28th and continued nearly 24 hours. The storm was very severe during the night and the high wind wrecked many windmills and did slight damage to buildings.

MT. PLEASANT.—*J. W. Edwards.* The high wind on the 29th drifted the snow badly.

NEW HAMPTON.—*A. F. Kemman.* The worst blizzard on record occurred on the 29th.

PERRY.—*Hon. J. A. Harvey.* Rain fell all day on the 28th, turning to snow about 10 p. m. with high northerly wind which increased to the worst blizzard I have seen in Iowa since Dec. 1, 1856.

POCAHONTAS.—*F. E. Hronek.* The worst blizzard we have had since the "Dakota Blizzard" of Jan. 12, 1888, occurred on the 29th. The wind velocity was estimated to be 50 miles per hour.

ROCK RAPIDS.—*W. C. Wyckoff.* All telephone and telegraph lines were put out of commission during the blizzard of the 28th and 29th.

SHELDON.—*A. W. Beach.* The first half of the month gave seasonable winter weather, but most of the latter half was mild and the roads were sloppy. The blizzard on the night of the 28th and the 29th was the worst winter storm we have had in many years and the high wind did much damage to buildings.

STOCKPORT.—*C. L. Beswick*. Normal January temperature prevailed until the 14th, after which it was extremely warm until the 29th. Considerable plowing was done between the 24th and 27th. Snow and extremely high wind prevailed on the 29th.

THURMAN.—*C. R. Paul*. The worst storm experienced here for many years struck the town on the evening of the 28th, following rain and a temperature of 55°.

WASHINGTON.—*Wm. A. Cook*. A very high wind with snow prevailed on the 29th.

WASHTA.—*H. L. Felter*. The blizzard on the night of the 28th and 29th did much damage to telephone lines and large glass windows.

WAUKEE.—*A. H. Blackmore*. The storm on the 29th was the worst ever known here.

WAVERLY.—*H. S. Hoover*. The worst blizzard we have had for years prevailed from 3 a. m. of the 29th to 7 a. m. of the 30th.

WEST BEND.—*Phil. Dorweiler*. The weather during January was seasonable, but the snowstorm on the 29th was the worst we have had in 15 years.

WINTERSSET.—*Robt. S. Cooper*. Lightning was observed during the snowstorm on the 29th which was the most severe storm ever known here.

WOODBURN.—*C. B. McDonough*. The worst storm we have had in

years occurred on the 29th. Snow fell from midnight of the 28th to 2 p. m. of the 29th with extremely high northwest wind.

ERRATA IN NOVEMBER REVIEW.

CLEAR LAKE.—Minimum temperature on the 18th, recorded as 33° on page 128, should have been 30°. Mean minimum temperature, recorded as 28.5°, should be 28.4°, on page 128. Mean monthly temperature recorded as 37.5° on page 126, should be 37.4°.

DENISON.—Monthly minimum temperature recorded on page 126 as 17°, should be 11°.

HUMBOLDT.—Total precipitation recorded on page 126 as 1.40 inches, should be 1.60 inches.

MT. AYR.—Maximum temperature recorded on page 127 as 69° on the 20th, should have been 76° on the 18th.

OTTUMWA.—Minimum temperature on the 24th, recorded on page 129 as 51°, should have been 48°. Mean minimum temperature recorded as 31.8°, should have been 31.6°. Monthly mean temperature recorded on page 127 as 43.2°, should have been 43.0°.

STORM LAKE.—Minimum temperature on the 29th, recorded on page 129 as 37°, should have been 22°. Mean minimum temperature recorded as 28.8°, should have been 28.3°. Monthly mean temperature recorded on page 126 as 37.9°, should have been 37.6°.

CLIMATOLOGICAL DATA FOR IOWA, JANUARY, 1909

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in Inches				Sky			Prevailing direction of wind	OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days			No. partly cloudy days	No. cloudy days
NORTHERN SECTION																				
Algona	Kossuth	1,213	34	17.6	+ 4.3	49	* 3	-22	6	41	2.21	+1.42	1.35	9.5	6	14	3	14	s,sw	Dr. F. T. Seeley
Alta	Buena Vista	1,513	17	17.0	+ 0.6	53	3	-22	6	42	1.17	+ .53	.53	7.5	8	10	8	13	s	D. E. Hadden
Alta (near)	Buena Vista										1.05	+ .46	.30	7.3	7					W. J. Minard
Alton	Sioux	1,305	3	17.6		48	3	-20	6	35	.95		.40	8.5	5	18	2	11	nw	W. S. Slagle
Britt	Hancock	1,236	11	17.4	+ 1.4	53	23	-22	6	41	1.26	+ .58	.40	6.8	6	2	14	15	sw	G. P. Hardwick
Charles City	Floyd	1,015	20																	Weather Bureau
Clear Lake	Cerro Gordo	1,241	9	18.4	+ 1.8	50	23	-24	6	41	1.35	+ .78	.55	7.5	5	11	2	18	s	Oscar Stevens
Decorah	Winneshiek	975	15	18.8	+ 3.3	45	26	-23	6	36	1.93	+ .83	.81	10.5	6					F. H. Baker
Dows (a)	Wright	1,142	8	17.7	+ 0.8	52	23	-21	6	43	1.30	+ .47	.52	8.0	4					G. D. Flett
Elkader	Clayton	727	27	19.4	+ 4.6	50	* 3	-21	6	37	1.79	+ .48	.50	20.0	7	14	1	16	ne,se,nw	Chas. Reinecke
Elma	Howard			17.6		51	23	-24	6	40	1.31		.55	8.6	8	8	14	9	se	H. A. Moore
Estherville	Emmet	1,298	12	16.0	+ 1.0	50	27	-22	6	49	1.05	+ .49	.50	9.5	5	11	0	20	s	A. O. Peterson
Fayette	Fayette	1,003	18	18.4	+ 2.3	51	23	-22	6	41	2.05	+ .77	1.22	8.9	8	9	7	15	nw	R. Z. Latimer
Forest City	Winnebago	1,226	14	16.8	+ 0.6	51	23	-24	6	33	2.25	+1.61	1.00	11.0	8	10	5	16	nw	J. A. Peters
Grand Meadow	Clayton	1,180	17	18.6	+ 3.1	45	*23	-25	6	46	1.59	+ .42	1.00	8.5	4	6	8	17	sw	F. L. Williams
Greene	Butler		9	19.7	+ 1.2	51	23	-20	6	39	1.86	+ .22	1.03	7.5	8	5	6	20	s,w	J. L. Cole
Hampton	Franklin	1,155	18	18.8	+ 3.3	55	23	-22	6	41	2.61	+1.57	1.60	11.0	4	8	15	8	nw	E. C. Grenelle
Humboldt	Humboldt	1,095	17	20.2	+ 3.4	53	23	-20	6	38	2.19	+1.64	.60	16.0	6	13	4	14	nw	H. S. Wells
Inwood	Lyon	1,474	4	16.8		48	27	-24	6	41	.85		.25	6.8	7	14	4	13	s,nw	F. B. Hanson
Larrabee	Cherokee	1,266	17	17.8	+ 0.4	51	21	-22	6	34	1.13	+ .57	.60	8.6	5	10	11	10	sw	H. B. Streever
Le Mars	Plymouth	1,224	12	18.8	- 0.4	47	3	-19	6	32	.41	- .13	.22	4.0	3	12	5	14	nw	G. A. C. Clarke
Mason City	Cerro Gordo	1,132	11	17.4	+ 2.3	46	27	-22	6	33	1.76	+ .61	.80	3.7	4	10	8	13	s,nw	J. S. Mills
Merrill	Plymouth																			Eric Oleson
New Hampton	Chickasaw	1,169	11	18.0	+ 1.2	50	23	-24	6	37	1.91	+1.08	.87	9.0	9	15	3	13	s	A. F. Kemman
Northwood	Worth	1,222	12	16.4	+ 0.1	43	23	-25	6	42	2.43	+1.58	.82	13.5	8	11	2	18	nw	Charles H. Dwelle
Osage	Mitchell	1,184	17	17.6	+ 3.6	54	23	-24	6	36	1.75	+ .83	1.00	10.0	3	16	4	11	nw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	12	17.6	- 0.4	52	3	-21	6	41	1.67	+1.09	.67	10.0	4	10	7	14	se	J. S. Smith
Pocahontas	Pocahontas		4	17.8		53	3	-20	6	41	1.94		.74	12.0	6	12	8	11	s	F. E. Hronek
Ridgeway	Winneshiek	1,215	10	19.3	+ 0.1	51	27	-25	6	40	3.74	+1.76	1.35	10.0	12	8	12	11	s	Arthur Betts
Rock Rapids	Lyon	1,358	9	13.2	+ 0.1	44	25	-20	6	26										W. C. Wyckoff
Sheldon	O'Brien	1,422	8	18.0	+ 0.4	51	3	-22	6	35	1.97	+1.38	.52	13.0	7	11	8	12	se,nw	Dr. A. W. Beach
Sibley	Osceola	1,212	15	14.7	- 0.2	49	3	-24	6	40	.70	+ .16	.20	7.0	6	15	1	15	s	H. G. Doolittle
Sioux Center	Sioux		9	16.8	- 1.1	44	*26	-21	6	33	.78	+ .30	.30	7.5	6	10	5	16	s	J. de Ruyter
Storm Lake	Buena Vista	1,440	12	18.6	+ 1.2	51	3	-21	6	36	.93	+ .22	.57	9.1	4	11	8	12	sw	Ralph H. Carr
Washta	Cherokee	1,157	10	18.8		50	* 3	-20	12	39	1.10	+ .62	.55	8.5	5	13	5	13	s	H. L. Felter
Waverly	Bremer	948	12	19.4	+ 1.5	50	23	-21	6	38	1.93	+ .99	1.47	8.8	8	8	8	15	s	H. S. Hoover
West Bend	Palo Alto	1,197	14	18.5	+ 1.7	50	3	-21	6	40	1.61	+ .91	1.12	8.8	6	6	9	16	s	Phil Dorweiler
Averages				17.8	+ 1.6	46.7		-22.1		38.6	1.61	+ .79		9.3	6	11	6	14	s	
CENTRAL SECTION																				
Amana	Iowa	721	31	22.6	+ 6.3	59	23	-17	6	37	1.73	+ .26	.74	3.3	8	6	13	12	nw	Conrad Schadt
Ames	Story	926	27	23.6	+ 5.5	59	23	e-15	12	e50	1.36	+ .44	.48		6				s	Iowa State College
Audubon	Audubon	1,301	15	20.4	+ 1.5	53	23	-19	12	38	3.17	+2.52	2.00	12.5	6	12	3	16		Geo. E. Kellogg
Baxter	Jasper	998	8	21.0	+ 0.7	58	23	-18	6	40	1.32	+ .44	.61	7.8	11	8	7	16	sw	W. R. Vandike
Belle Plaine	Benton	828	18	20.5	+ 2.3	58	23	-19	6	28	2.89	+1.12	1.45	11.3	9	5	8	18	nw	S. P. Vandike
Boone	Boone	1,134	3	20.0		58	23	-18	6	35	2.11		1.08		8	12	3	16	s	Carl Fritz Henning
Buckingham	Tama		8								1.77	+ .71			5	15	11			Dr. W. A. Daniel
Carroll	Carroll	1,265	18	20.2	+ 1.2	57	23	-19	6	40	1.37	+ .56	.75	8.5	4	14	0	17		Frank Hughes
Cedar Rapids	Linn	733	26																	Electric Light & P. Co.
Clinton	Clinton	593	40																	Luke Roberts
Davenport	Scott	580	36	24.9	+ 4.1	66	23	-15	6	37	1.72	+ .15	1.04	6.6	10	4	7	20	nw	Weather Bureau
Delaware (b)	Delaware	1,083	17	19.3	+ 3.5	54	23	-22	6	35	1.22	+ .23	.63	6.2	5				se	Wm. Ball
Denison	Crawford	1,180	13	a20.8	+ 0.5	a56	23	-18	6	a34	.86	- .38	.39	5.5	4	12	6	13	s	W. C. Van Ness
Des Moines	Polk	861	29	22.8	+ 2.4	59	23	-15	6	37	1.61	+ .40	.90	11.5	7	4	6	21	sw	Weather Bureau
De Soto	Dallas	866	8	b23.4	+ 0.2	b57	23	b-18	6	36	1.29	+ .45	.43		4	9	3	19	nw	R. D. Minard
Dubuque	Dubuque	639	35	21.4	+ 3.2	55	23	-19	6	35	1.98	+ .49	1.40	10.0	11	5	5	21	s	Weather Bureau
Fort Dodge	Webster	1,126	8	18.1	+ 1.0	52	23	-19	16	38	1.09	+ .45	.60	4.0	5	13	1	17	s	J. F. Monk
Gilman	Marshall	1,052	9								2.29	+1.46	1.03	5.0	4					Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	23.4	+ 3.2	60	23	-17	6	44	1.65	+ .38	.62		7					D. W. Brainard
Grundy Center	Grundy	976	17	20.4	+ 3.5	54	23	-21	6	47	1.85	+ .53	.50	11.5	7	13	3	15	s,nw	W. H. Scott
Guthrie Center	Guthrie	1,077	13	22.0	- 0.7	55	23	-17	6	43	1.85	+1.26	.91	8.4	8	11	4	16	sw	D. G. Beardsley
Harlan	Shelby	1,192	9	20.8	- 0.4	54	23	-17	* 6	37	1.81	+1.15	1.35		3	6	8	17	s	C. A. Reynolds
Independence	Buchanan	921	43	21.0	+ 5.8	54	23	-23	6	38	1.74	+ .51	.90	8.0	6	7	9	15	se	George Donohue
Iowa City	Johnson	683	49	21.6	+ 2.5	64	23	-19	6	39	1.97	+ .23	1.32	5.8	9	6	1	24	s	Prof. Karl E. Guthe
Iowa Falls	Hardin	1,170	15	19.0	+ 3.8	52	23	-21	6	29	2.47	+1.57	1.78	14.9	6	9	4	18	nw	J. B. Parmalee
Jefferson	Greene																			Geo. W. Jackson
Le Claire	Scott	576									1.98	+ .55	1.10	2.3	9	8	4	19	s	Margaret T. Disney
Little Sioux	Harrison		4	21.4		56	27	-16	6	38	.63		.26	3.5	4	10	3	18	nw	Geo. H. Gibson
Logan	Harrison	928	42	21.2	+ 1.9	52	3	-17	12	39	1.09	- .01	.36	7.2	5	9	12	10	nw	Glen H. Stern
Marshalltown	Marshall	947	16	19.8	+ 0.4	57	23	-21	6	42	3.06	+2.06	1.17	12.5	10	4	9			

CLIMATOLOGICAL DATA FOR IOWA, JANUARY, 1909-Continued

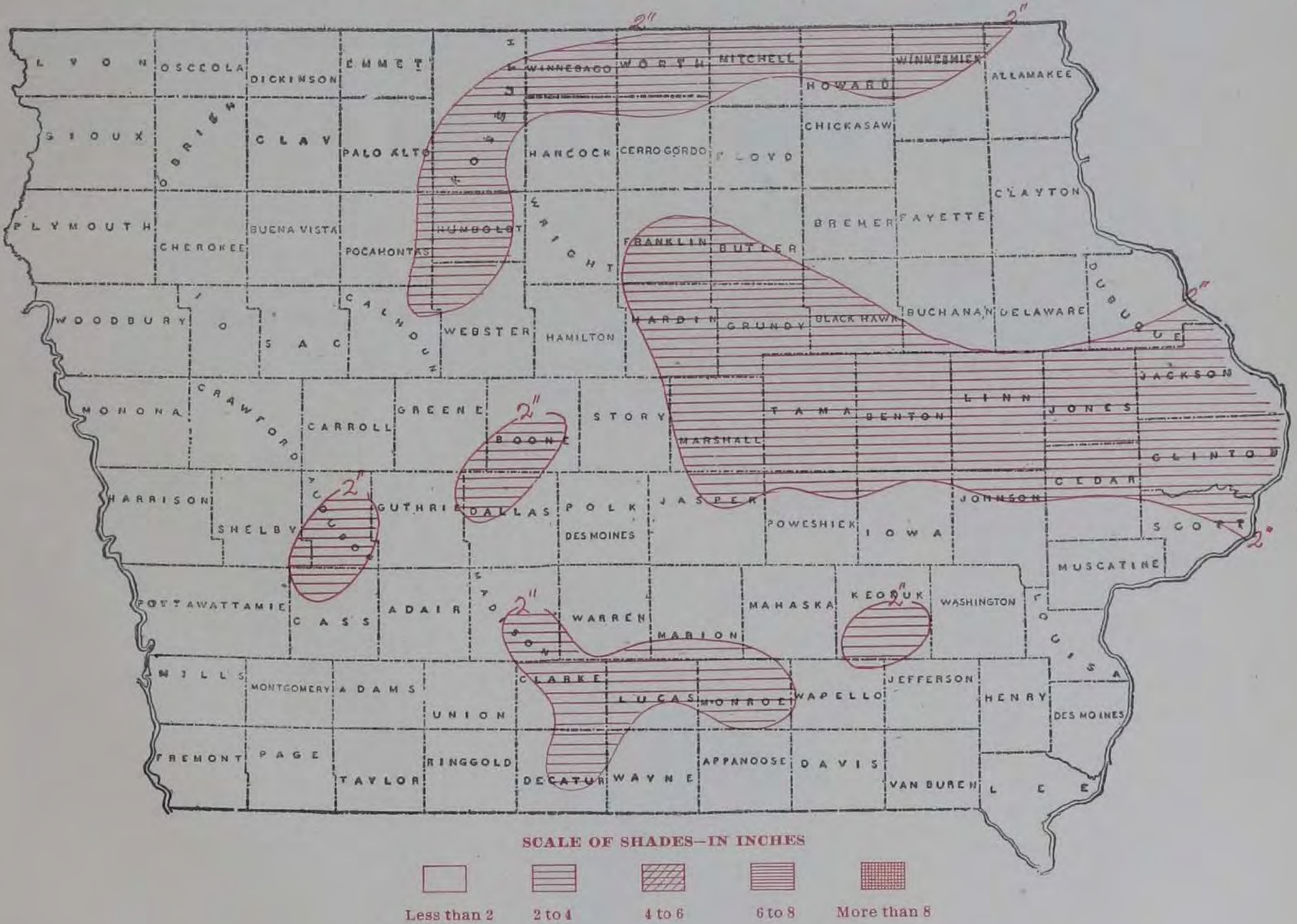
STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				No. rainy days	Sky			Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours		Total snowfall (unmelted)	Number clear days	Number partly cloudy days			Number cloudy days
SOUTHERN SECTION																				
Afton	Union	1,212	14	24.1	+ 1.4	57	*22	-14	6	40	1.51	+ .62	.65	5.5	7	4	6	21	sw	N. W. Rowell
Albia	Monroe	959	10	22.9	- 0.8	65	23	-14	6	34	2.35	+ .93	1.66	3.5	6	7	3	21	sw	J. I. Chenoweth
Allerton	Wayne	6	6	25.5	+ 3.6	63	*22	-13	6	40	1.82	+ .40	1.06	4.9	5	10	0	21	nw	Mrs. Geo. Shriver
Atlantic	Cass	1,247	17	21.8	+ 1.4	55	23	-16	6	36	1.90	+ 1.16	1.05	8.0	7	4	10	17	sw	Thos. H. Whitney
Bedford	Taylor	8	8	24.8	+ 1.0	61	23	-13	6	41	1.00	- .10	.67	2.8	7	9	5	17	nw	E. E. Healy
Bloomfield	Davis	881	8	25.5	.....	69	23	-13	6	43	1.54	.....	.91	3.8	5	7	8	16	nw	F. H. Roberts
Bonaparte	Van Buren	17	17	25.7	+ 2.5	70	23	-11	6	41	1.11	- .87	.72	2.5	5	.....	.....	.....	.....	Hon. B. R. Vale
Burlington	Des Moines	544	12	26.1	- 0.9	67	23	-12	6	34	1.62	- .36	.70	4.0	6	12	0	19	s	M. E. Poppe Jr.
Chariton	Lucas	1,042	13	24.7	+ 1.0	65	23	-15	6	38	1.50	+ .18	1.15	4.0	3	7	6	18	se	C. C. Burr
Clarinda	Page	1,009	18	22.4	- 0.1	60	*23	-13	6	35	1.27	+ .29	.85	4.0	6	9	2	20	s	A. S. Van Sandt
Columbus Junction	Louisa	595	7	25.0	+ 1.7	66	23	-14	6	49	.....	.....	.....	.....	11	5	15	se,nw	J. B. Johnson	
Corning	Adams	1,117	16	23.5	+ 1.6	57	23	-15	6	42	1.00	+ .09	.40	5.5	4	10	6	15	sw	Jerome Smith
Corydon	Wayne	1,101	15	25.4	+ 2.1	64	23	-14	6	40	1.86	+ .37	.99	5.8	4	10	1	20	s	Clara Miller
Creston	Union	1,312	3	21.4	.....	58	23	-14	6	36	1.68	.....	1.12	.....	9	8	1	22	s	Rev. W. L. Gaston
Cumberland	Cass	9	9	.....	.....	.....	.....	.....	.....	.....	2.12	+ 1.27	.82	13.0	4	14	4	13	nw	J. H. Reppert
Earlham	Madison	6	6	24.0	+ 4.6	58	23	-16	12	35	1.83	+ .75	.53	13.9	6	8	3	20	nw	Geo. Phillips
Elliott	Montgomery	3	3	23.2	.....	55	23	-15	6	33	1.28	.....	.58	7.0	4	12	8	11	nw	Henry Barnes
Fairfield	Jefferson	14	14	25.0	+ 7.4	70	23	-13	6	41	1.52	- .18	.75	3.5	5	14	3	14	s	R. Monroe McKenzie
Fort Madison	Lee	516	59	.....	.....	.....	.....	.....	.....	.....	1.94	- .02	.64	8.0	4	6	6	19	n	Miss L. A. McCready
Greenfield	Adair	17	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Geo. Brooks
Hancock	Pottawattamie	1,113	2	22.2	.....	53	*22	-15	6	34	1.81	.....	1.07	8.0	4	12	1	18	sw	W. Armstrong
Hopeville	Clarke	17	17	24.2	+ 2.8	60	23	-14	6	42	1.25	+ .31	.94	2.0	6	4	8	19	s	M. T. Ashley
Indianola	Warren	969	17	24.0	+ 3.8	60	23	a-15	6	a30	1.04	- .23	.59	7.0	7	6	4	21	se	Prof. J. L. Tilton
Keokuk	Lee	574	37	28.3	+ 4.6	72	23	-10	6	41	1.26	- .43	.70	4.5	6	8	7	16	nw	Weather Bureau
Keosauqua	Van Buren	644	16	24.8	+ 1.7	70	23	-11	6	39	1.40	+ .03	.65	4.7	8	3	4	24	.....	J. H. Landes
Knoxville	Marion	920	12	25.0	+ 1.9	62	23	-14	6	37	1.71	.....	.86	5.0	4	8	3	20	sw,nw	Casey & Bellville
Lacona	Warren	9	9	.....	.....	.....	.....	.....	.....	.....	3.25	+ 1.58	2.10	7.2	11	7	14	10	.....	Agent C., B. & Q. Ry.
Lamoni	Decatur	25.5	.....	65	23	-12	6	41	1.96	.....	.90	6.3	7	10	0	21	s	T. J. Fitzpatrick		
Lenox	Taylor	1,250	13	23.8	+ 0.5	58	23	-17	6	43	1.13	+ .37	.60	4.9	8	11	5	15	s	J. T. Hurley
Leon	Decatur	1,120	6	24.6	+ 2.4	61	22	-14	6	36	2.17	+ 1.29	1.60	2.8	5	7	8	16	s	Morris Gardner
Massena	Cass	3	3	24.0	.....	57	23	-15	6	40	.89	.....	.25	8.5	4	11	3	17	se,nw	G. A. Hill
Mt. Ayr	Ringgold	1,236	15	24.9	+ 1.6	63	22	-13	6	42	1.60	+ .36	1.00	4.0	6	9	4	18	ne,s,sw	A. F. Beard
Mt. Pleasant	Henry	729	26	25.8	+ 4.8	68	23	-12	6	43	1.26	- .20	.60	5.9	8	9	6	16	se	Prof. J. W. Edwards
Omaha, Neb.	Douglas	1,040	38	22.8	+ 2.3	57	23	-13	6	36	1.00	+ .35	.63	5.0	5	5	8	18	s	Weather Bureau
Oskaloosa	Mahaska	843	24	24.5	+ 5.3	63	23	-12	12	40	1.83	+ .91	1.68	2.5	6	9	0	22	sw	Jos. Boyd
Ottumwa	Wapello	649	14	23.4	+ 3.9	68	23	-12	6	42	1.25	- .35	.75	5.0	4	3	14	14	se	Dr. Jas. A. Hull
Pacific Junction	Mills	960	9	23.0	- 0.3	59	23	-13	6	34	1.92	+ 1.38	1.56	5.6	4	10	9	12	s	H. H. McCartney
Pella	Marion	877	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	T. W. Cox
St. Charles	Madison	1,070	7	24.2	+ 1.4	60	*22	-15	6	41	2.72	+ 1.57	.95	13.0	9	9	7	15	s	R. D. Minard
Sigourney	Keokuk	877	12	24.6	+ 1.8	63	23	-14	6	43	2.17	+ .58	1.00	7.5	7	2	17	12	.....	J. T. Parker
Stockport	Van Buren	6	6	b26.3	.....	b68	23	b-12	6	b40	1.24	- .40	.78	.....	6	.....	.....	.....	.....	C. L. Beswick
Thurman	Fremont	11	11	23.2	+ 9.0	58	23	-13	6	34	.47	- .17	.32	3.5	3	8	8	15	nw	C. R. Paul
Wapello	Louisa	588	10	26.6	+ 1.5	63	22	-11	6	44	.99	- .34	.45	.....	5	6	8	17	nw	Geo. W. Schofield
Washington	Washington	769	27	23.5	+ 4.4	66	23	-15	6	39	1.71	+ .15	.68	.....	7	3	18	10	nw	Wm. A. Cook
Winterset	Madison	1,129	17	23.4	+ 2.0	55	*22	-14	6	38	1.70	+ .79	.75	9.5	5	7	4	20	se	Dr. Robert S. Cooper
Woodburn	Clarke	961	9	24.3	.....	63	23	-15	* 6	40	2.17	+ 1.03	1.05	5.5	5	8	7	16	sw	C. B. McDonough
Average	.....	.....	.....	24.4	+ 2.0	62.2	.....	-13.6	.....	38.9	1.60	+ .36	.....	5.8	6	8	6	17	s	.....
State average	.....	.....	.....	21.2	+ 1.9	55.1	.....	-17.9	.....	38.8	1.66	+ .61	.....	7.8	6	9	6	16	s	.....

*And other dates. a one day missing, b two days; c three days; d four days, etc. †Received too late to be included in average

DAILY PRECIPITATION FOR IOWA, JANUARY, 1909—Continued

STATIONS	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	
Storm Lake					.01	.04				T					.31		T													.57	0.93	
Thurman					T		.10			T			T	T	.05	T		T												.32	0.47	
Tipton							.06								.27						T									1.53	1.89	
Toledo							.20								.30															.55	1.25	2.30
Wapello			T			T	.02								T	.24			T	T	.24								.45	.04	0.99	
Washington					T		.08								.25						.15	.07							.68	.48	1.71	
Washta					.10	.15				T					.20			.10											.25	.30	1.10	
Waterloo					.05	.02								T	T	.50													1.50	.40	2.61	
Waukeo					T								T		.03	.01					T								1.50	.40	1.94	
Waverly	.01				.10		.10						T		.15	.12					T								.40	1.07	1.98	
Webster City	T						.15						T		.40				T		T								.88	T	1.43	
West Bend					.10		.03								.35				T		T								.72	.40	1.61	
Whitten	T				.20		.10						T		.20	.30													.79	.75	2.34	
Wilton Junction						.11									.11						.67								1.07		1.96	
Winterset				T			.15			T	T			T	.20	.20			T		T								.75	.40	1.70	
Woodburn					T	T	.02			T	T			T	T	.05					T	T	.05						1.00	1.05	2.17	
Zearing			.08				.14								.30	.20													.46	.40	1.58	

TOTAL PRECIPITATION, JANUARY, 1909.



U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR FEBRUARY, 1909

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



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THE IOWA WEATHER AND CROP SERVICE

WAS ESTABLISHED BY ACT OF THE TWENTY-THIRD GENERAL ASSEMBLY, AND IS UNDER SUPERVISION

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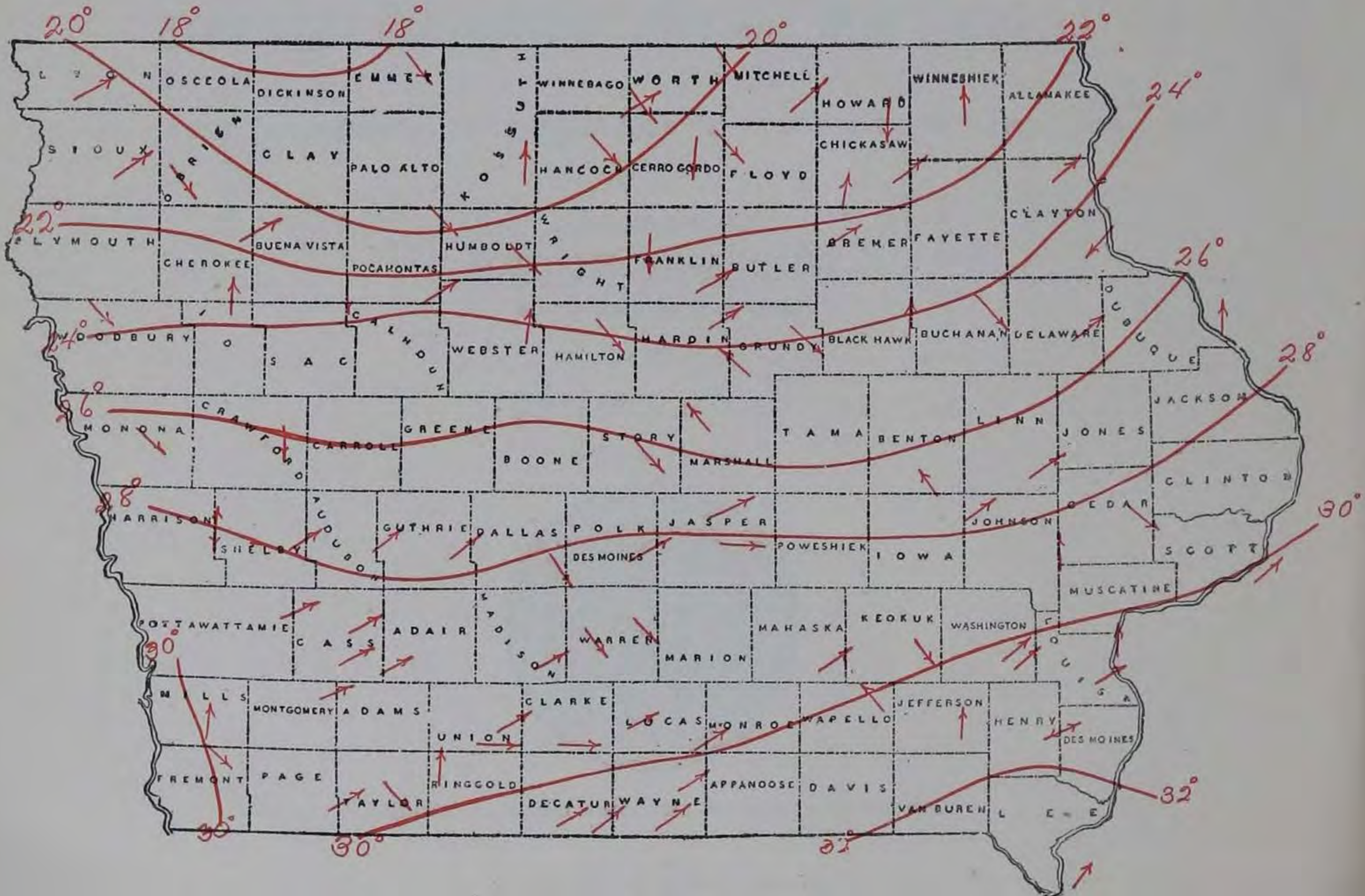
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MEAN ISOTHERMS AND PREVAILING WINDS OF FEBRUARY, 1909.

Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
GEO. M. CHAPPEL, Section Director.

VOL. XX DES MOINES, IOWA, FEBRUARY, 1909 No. 2

GENERAL SUMMARY.

The average temperature for the state for the month of February was much above the normal, and has been exceeded but twice in the past 20 years. In February, 1892, the average was 1.9° higher, and in February, 1896, it was 1.2° higher than the average for the past month. The lowest average temperature for February during the past 20 years was 12.2° in 1899, or 14° per day lower than for February, 1909. Over the larger part of the state the month was comparatively mild and at numerous stations in the southern and southeastern and at a few stations in the central counties the minimum temperature for the month was above zero. It is the first time in 27 years that sub-zero temperatures have not been recorded during February at Des Moines and Dubuque. On the other hand, reports indicate that the month was very severe in the northwestern counties where the temperature was below zero on several days, and the monthly minimum ranged from 18° to 26° below zero. The weather was remarkably warm from the 1st to the 9th, and moderately warm from the 16th to the 23d, and from the 26th to the close of the month. The highest temperature was recorded at most stations on the 4th. The coldest period was between the 9th and 16th, the lowest temperature being recorded on the 15th. Another cold period occurred on the 24th and 25th.

The average precipitation was generally above the normal, there being only 29 out of 106 stations that reported a deficiency. For the state, as a whole, the daily amounts of precipitation were not very large, but rain or snow was frequent. There were but two days between the 5th and 27th on which rain or snow did not fall at some station in the state. The worst storm of the month was on the 9th, when the second severe blizzard of the winter occurred. This storm was especially severe in the northwestern counties where the snowfall was heavy and the wind velocity was over 50 miles per hour. The snow drifted badly and caused a complete suspension of all railroad and street car traffic. Many deep snow drifts, caused by this storm, were still visible in the northern counties at the close of the month.

Another storm with blizzard characteristics occurred on the 14th but was not heavy enough to cause much damage except to again fill up the narrow cuts which had been shoveled thru the drifts caused by the previous storm. Some damage has been done to fall grains, clover and alfalfa by the alternating thawing and freezing weather.

TEMPERATURE.—The monthly mean temperature for the state, as shown by the records of 114 stations, was 26.2°, which is 7.0° above the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 21.8°, which is 5.6° above the normal; Central section, 26.8°, which is 7.2° above the normal; Southern section, 30.0°, which is 8.2° above the normal. The highest monthly mean was 34.2°, at Keokuk, Lee county, and the lowest monthly mean 17.4°, at Sibley, Osceola county. The highest temperature reported was 62°, at Burlington, Fairfield, Keokuk, and Ottumwa, in

Des Moines, Jefferson, Lee and Wapello counties, on the 4th; the lowest temperature reported was 26 below zero, at Inwood, Lyon county, on the 15th. The average monthly maximum was 54.4°, and the average monthly minimum was 4.1° below zero. The greatest daily range was 61°, at Creston, Union county. The average of the greatest daily ranges was 38.2°.

PRECIPITATION.—The average precipitation for the state, as shown by the records of 120 stations, was 1.54 inches, which is 0.48 inch above the normal. By sections the averages were as follows: Northern section, 1.42 inches, which is 0.48 inch above the normal; Central section, 1.60 inches, which is 0.52 inch above the normal; Southern section, 1.59 inches, which is 0.44 inch above the normal. The greatest amount, 4.72 inches, occurred at Perry, Dallas county, and the least, 0.30 inch, at Lenox, Taylor county. The greatest amount in twenty-four hours, 1.50 inches, occurred at Fairfield, Jefferson county, on the 7th.

The average snowfall, unmelted, was 7.7 inches, the average for the three sections being as follows: Northern section 11.9 inches; Central section, 7.1 inches; Southern section, 4.1 inches. The greatest monthly snowfall, 25.0 inches, occurred at Rockwell City, Calhoun county, and the greatest 24 hour amount, 12.0 inches, occurred at Rockwell City on the 10th.

Measurable precipitation occurred on an average of 5 days.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 11; partly cloudy, 6; cloudy, 11. The duration of sunshine was below the normal, the percentage of the possible amount being 55 at Charles City; 47 at Davenport; 48 at Des Moines; 37 at Dubuque; 52 at Keokuk, and 44 at Sioux City.

WIND.—Southwest winds prevailed. The highest velocity reported was 53 miles per hour from the northwest, at Sioux City, Woodbury county.

COMPARATIVE DATA FOR THE STATE—FEBRUARY.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	26.0	67	-24	.83	2.18	.11
1891.....	19.4	70	-31	1.16	2.41	.55
1892.....	28.1	68	-20	1.20	2.18	.12
1893.....	16.4	60	-28	1.39	2.91	.06
1894.....	19.7	60	-19	.89	2.41	T
1895.....	16.4	73	-33	.49	1.34	.02
1896.....	27.4	78	-13	.71	2.40	.04
1897.....	24.7	61	-24	.89	1.81	.22
1898.....	24.2	62	-18	1.20	3.65	.10
1899.....	12.2	75	-40	.89	4.32	.12
1900.....	14.8	60	-27	1.30	4.57	.18
1901.....	17.5	49	-21	1.01	3.00	.12
1902.....	17.6	62	-21	.73	2.39	.02
1903.....	19.8	56	-21	1.18	3.25	.30
1904.....	14.8	70	-26	.41	1.99	T
1905.....	12.8	69	-41	1.57	2.97	.44
1906.....	23.6	66	-32	1.29	2.91	.20
1907.....	25.0	65	-31	.71	1.95	.06
1908.....	24.3	59	-16	1.69	3.95	.23
1909.....	26.2	62	-26	1.54	4.72	.30

T indicates a Trace.

- indicates temperature below zero.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 29.95 inches.

Prevailing direction of Wind, Southwest.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement	Maximum Velocity—miles	Direction	Date	Average Hourly Velocity
Charles City.	29.95	30.59	15	29.16	9	5481	30	E	9	8.2
Davenport..	29.93	30.50	1	29.24	9	6257	32	NE	14	9.3
Des Moines..	29.93	30.52	15	29.08	9	6755	43	SW	9	10.1
Dubuque....	29.96	30.50	15	29.25	9	4904	28	NW	24	7.3
Keokuk.....	29.95	30.54	1	29.21	9	6698	40	SW	9	10.0
Omaha, Neb.	29.95	30.59	14	29.20	9	6964	39	NW	23	10.4
Sioux City..	29.97	30.68	14	29.25	4	9142	53	NW	9	13.6

OBSERVER'S REMARKS.

ALTA.—*David E. Hadden.* A fierce blizzard raged all day of the 9th, and the snow drifted badly. A heavy snow and sleet storm prevailed on the 22d, doing great damage to telephone and telegraph wires.

ALTON.—*W. S. Slagle.* There was snow on the ground on the 1st and 2d and from the 8th to the end of the month. The first robin was seen on the 27th. The second crop of ice was harvested during the month.

AMANA.—*C. Schadt.* Frequent precipitation and frost made muddy and rough roads.

BONAPARTE.—*B. R. Vale.* The weather was variable with frequent storms but not cold. An electrical storm occurred on the night of the 22d.

BOONE.—*Carl Fritz Henning.* The weather was very pleasant on the morning of the 6th but had become cloudy by noon and a light mist of rain began at 5 p.m., which gradually turned to snow and heavy snow was falling by 6:30 p.m. During the storm hundreds of Lapland Longspur (*Calcarius Lapponicus*) past over the city and many of them becoming exhausted fell or fluttered to the ground and many of them were found dead on the morning following.

CHARITON.—*C. C. Burr.* The temperature was above zero during the entire month with a maximum of 58° on the 4th.

ELLIOTT.—*Henry Barnes.* February was a bad month for business on account of muddy roads and feed lots. There was a great loss of live stock during the blizzards of January 29th and February 9th.

DAVENPORT.—*J. M. Sherier.* No very abnormally cold weather occurred during the month, the minimum temperature being 6° on the 10th, on which date the mean was but 8° below the average. Notably warm periods extended from the 1st to the 9th, and from the 18th to the 23d. The maximum temperature of the month, 59°, occurred on the 4th, and the excess for that date amounted to 26°. While no heavy precipitation was noted, rain or snow was of frequent occurrence, there being 13 days with 0.01 inch or more.

DUBUQUE.—*James H. Spencer.* The month has been warm and cloudy. The minimum temperature for the month, 3°, is the highest for February in 27 years at this station. It is the first time in 27 years that sub-zero temperatures have not been recorded during February. The storms of the month have not been severe at this station.

GRAND MEADOW (Postville P. O.).—*F. L. Williams.* The month was marked by frequent storms but none of them gave much snow, but the snow drifted badly during each storm. The condition of live stock is generally unfavorable.

HARLAN.—*C. A. Reynolds.* Thunder was heard at 3 p.m. on the 22d, during a snow storm.

INWOOD.—*F. B. Hanson.* According to the estimates of old pioneers February, 1909, was the most severe winter month since 1888. There were three separate storm periods and all of them were accompanied by heavy snow and high wind which drifted the snow so that highways and railroads have been blockaded for days at a time.

KEOKUK.—*Fred Z. Gosewisch.* The month has been mild as a rule, with only one cold wave. But one storm with heavy snow occurred during the month, and the ground was covered only from the 14th to the 19th. There was a heavy fall of sleet on the 14th, and high winds prevailed on the 9th, 10th and 24th. At the close of the month there is very little frost in the ground, and the roads are very heavy.

KEOSAUQUA.—*J. H. Landes.* The month of February was mild and moist with the minimum temperature 8° above zero.

POCAHONTAS.—*F. E. Hronek.* The weather has been decidedly variable, changing within 24 to 48 hours from balmy spring to severe winter storms. There is a great deal of grain to be shipped but on account of the poor conditions of the roads it has been impossible to deliver it to the elevators.

RIDGEWAY.—*Arthur Betts.* The past month has been warm for February, but there has been plenty of snow. The second severe blizzard of the winter occurred on the 9th. During the winter the temperature was below zero on 16 days and the total snowfall amounted to 30.9 inches.

SIoux CITY.—*C. D. Reed.* The total precipitation for February was 2.24 inches or 16.9 inches above the normal, which is the heaviest in 20 Februaries. It occurred mainly in two heavy snow storms on the 8th-9th and the 22d-23d. The storm on the 8th-9th was the worst from the standpoint of suspension of business and railway traffic, since the station was established, and probably since the historic storm of January 12, 1888. On the 9th all business houses closed, no trains entered or left the city, there was no street car service and many business men who went down town in the morning were obliged to sleep in their offices. The suspension of business continued on the 10th and the schools did not resume sessions fully until the 12th. The maximum wind velocity during the storm was 53 miles per hour from the northwest on the 9th.

STOCKPORT.—*C. L. Beswick.* The precipitation was .69 inch above the average for the past eight Februaries and the ground was wet most of the month and the frost was about all out by the end of the month. Stock is generally in good condition.

THE WINTER OF 1908-1909.

The mean temperature for the three winter months was 24.9°, which is 4.2° above the normal for the state. The highest temperature reported was 72° at Keokuk, Lee county, on January 23d. The lowest temperature reported was 26° below zero at Inwood, Lyon county, on February 15th. The average monthly precipitation for the state was 1.26 inches and the average total precipitation was 3.77 inches, or 0.47 inch above the winter normal. The average total snowfall, unmelted, was 19.3 inches, or one inch more than for the winter of 1907-1908. The average number of days on which .01 inch or more of precipitation was reported was 14, or one more than the average for the winter of 1907-1908. The coldest periods of the winter were from January 5th to 13th; January 29th to 31st, and from February 5th to 16th, but the severe cold of the last period was confined to the northwestern counties. The winter was 1.1° colder than the winter of 1907-1908, and 1.8° warmer than the winter of 1906-1907. The average number of clear days was 35; partly cloudy, 20; cloudy, 35, as compared with 39 clear, 21 partly cloudy, and 31 cloudy days during the winter of 1907-1908.

RELATED REPORTS.

CEDAR RAPIDS.—*January.* Mean temperature, 21.4°; highest, 60° on the 23d; lowest, 18° below zero on the 7th; greatest daily range, 35; total precipitation, 2.27 inches; greatest in 24 hours, 2.13 inches on the 28th and 29th; total snowfall, 3.5 inches; number of rainy days, 4; clear days, 6; partly cloudy days, 9; cloudy days, 16.

GREENFIELD.—*January.* Mean temperature, 24.7°; highest, 58° on the 23d; lowest, 17° below zero on the 6th; greatest daily range, 46°; number of clear days, 11; partly cloudy days, 4; cloudy days, 16.

ERRATA.

OTTUMWA.—*November.* Maximum temperature recorded as 38° on page 129, should have been 42°; mean maximum temperature, 53.5°, should have been 54.6°.

CLIMATOLOGICAL DATA FOR IOWA, FEBRUARY, 1909

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit					Precip., in Inches				Sky			Prevailing direction of wind	OBSERVERS			
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days			No. clear days	No. partly cloudy days	No. cloudy days
NORTHERN SECTION																				
Algona	Kossuth	1,213	34	21.7	+ 4.7	47	*3	-11	15	39	1.90	+ .63	.60	18.0	7	14	2	12	s	Dr. F. T. Seeley
Alta	Buena Vista	1,513	17	19.8	+ 2.5	49	*3	-14	15	48	1.77	+ .92	1.13	12.1	7	11	6	11	sw	D. E. Hadden
Alta [near]	Buena Vista										1.50	+ .61	.80	12.5	7	7				W. J. Minard
Alton	Sioux	1,305	3	21.0		48	4	-18	15	44	1.65		.80	16.5	6	16	3	9	nw	W. S. Slagle
Britt	Hancock	1,236	11	21.4	+ 4.9	48	4	- 8	15	41	1.24	+ .21	.45	12.1	7	3	16	9	nw	G. P. Hardwick
Charles City	Floyd	1,015	20	21.5	+ 6.4	45	4	- 6	16	34	1.53	+ .56	.76	15.6	8	4	9	15	s	Weather Bureau
Clear Lake	Cerro Gordo	1,241	9	22.2	+ 7.6	46	4	- 6	15	37	.72	- .13	.25	5.5	4	11	4	13	n	Oscar Stevens
Decorah	Winneschiek	975	15	21.9	+ 6.7	47	4	- 5	16	34	2.02	+ 1.11	.78	5.2	6					F. H. Baker
Dows	Wright	1,142	8	23.4	+ 8.0	52	4	- 5	*11	438	1.51	+ .29	.54	10.0	5					G. D. Flett
Elkader	Clayton	727	27	24.8	+ 6.8	56	4	- 5	11	36	1.02	- .07	.70		6	18	3	7	ne	Chas. Reinecke
Elma	Howard			20.7		48	4	- 8	11	38	1.14		.40	11.2	4	10	6	12	n	H. A. Moore
Estherville	Emmet	1,298	12	19.0	+ 3.9	52	3	-18	15	44	1.99	+ 1.31	.76	18.0	4	12	0	16	nw	A. O. Peterson
Fayette	Fayette	1,003	18	23.3		50	4	- 5	11	36	2.76		2.00	6.8	7	9	7	12	nw	R. Z. Latimer
Forest City	Winnebago	1,226	14	18.7	+ 4.1	58	3	-12	1	52	1.05	+ .12	.40	10.5	5	10	7	11	sw, nw	J. A. Peters
Grand Meadow	Clayton	1,180	17	23.2	+ 6.5	47	4	- 5	*11	35	1.05	- .05	.25	10.0	6	7	10	11	sw	F. L. Williams
Greene	Butler		9	23.2	+ 7.2	47	4	- 4	16	34	.87	- .07	.28	9.5	5	9	7	12	w	J. L. Cole
Hampton	Franklin	1,155	18	23.6	+ 6.7	53	4	- 5	15	40	1.87	+ .70	1.00	14.0	6	8	12	8	sw	E. C. Grenelle
Humboldt	Humboldt	1,095	17	24.8	+ 7.1	51	4	- 8	*15	32	1.89	+ 1.23	.80	14.0	5	14	4	10	nw	H. S. Wells
Inwood	Lyon	1,474	4	20.8		51	*3	-26	15	49	1.99		1.05	19.6	9	13	7	8	sw	F. B. Hanson
Larrabee	Cherokee	1,266	17	21.2	+ 3.4	45	*3	-20	15	40	.48	- .36	.20	4.8	5	9	17	2	sw	H. B. Streever
Le Mars	Plymouth	1,224	12	22.2	+ 5.7	47	4	-17	15	37	1.51	+ .79	.80	13.0	3	10	7	11	s	G. A. C. Clarke
Mason City	Cerro Gordo	1,132	11	20.9	+ 4.7	46	4	- 9	16	34	1.12	+ .28	.60	11.2	5	9	9	10	nw	J. S. Mills
Merrill	Plymouth																			Eric Oleson
New Hampton	Chickasaw	1,169	11	21.2	+ 6.6	43	4	- 5	11	32	.65	- .25	.25	6.5	4	11	4	13	sw	A. F. Kemman
Northwood	Worth	1,222	12	20.1	+ 4.6	47	4	- 8	15	31	2.57	+ 1.48	.80	23.5	9	15	6	7	nw	Charles H. Dwelle
Osage	Mitchell	1,184	17	22.0	+ 7.1	47	4	- 9	11	40	1.45	+ .31	.60	14.5	3	12	2	14	s, w	Dr. A. D. Bundy
Plover	Pocahontas	1,426	12	21.8	+ 5.5	48	3	-11	15	39	.90	+ .24	.30	9.0	5	15	5	8	nw	J. S. Smith
Pocahontas	Pocahontas		4	22.2		49	*3	-11	15	32	1.25		.50	11.5	8	11	5	12	sw	F. E. Hronek
Ridgeway	Winneschiek	1,215	10	23.0	+ 5.5	50	4	- 8	25	40	2.73	+ .56	.66	15.4	12	7	13	8	s	Arthur Betts
Rock Rapids	Lyon	1,358	9	19.9	+ 3.3	48	3	-17	15	38										W. C. Wyckoff
Sheldon	O'Brien	1,422	8																	Dr. A. W. Beach
Sibley	Osceola	1,212	15	17.4	+ 2.4	49	3	-18	15	50	1.30	+ .83	.60	13.0	4	12	2	14	sw	H. G. Doolittle
Sioux Center	Sioux		9	20.8	+ 4.4	47	4	-18	15	37	1.13	+ .43	.60	11.0	4	12	3	13	sw	J. de Ruyter
Storm Lake	Buena Vista	1,440	12	23.1	+ 8.1	48	*3	-15	15	436	1.99	+ 1.30	.52	9.0	6					Ralph H. Carr
Washta	Cherokee	1,157	10	23.6		52	4	-16	15	50	1.40	+ .64	.70	12.0	4	10	7	11	s	H. L. Felter
Waverly	Bremer	948	12	24.0	+ 6.5	48	4	- 1	11	32	1.04	- .10	.35	7.2	7	7	7	14		H. S. Hoover
West Bend	Palo Alto	1,197	14	22.7	+ 6.3	47	*3	-10	15	38	.78	- .17	.65	5.3	4	8	8	12		Phil Dorweiler
Averages				21.8	+ 5.6	48.7		-10.8		38.8	1.42	+ 0.48		11.9	6	11	6	11	sw	
CENTRAL SECTION																				
Amana	Iowa	721	31	28.2	+ 8.1	55	4	- 5	*10	31	1.90	+ .64	.61	6.4	8	10	5	13	sw	Conrad Schadt
Ames	Story	926	27	27.2	+ 6.0	59	4	- 2	15	40	1.45	+ .65	.45	9.5	7	12	10	6	nw	Iowa State College
Audubon	Audubon	1,301	15	25.6	+ 6.5	51	4	- 5	*15	33	2.08	+ 1.29	1.33	7.3	6	14	4	10	sw	Geo. E. Kellogg
Baxter	Jasper	998	8	27.8	+ 9.7	56	4	- 1	*13	41	1.31	+ .50	.59	7.2	8	10	5	13	sw	W. R. Vandike
Belle Plaine	Benton	828	18	27.2	+ 7.3	60	4	- 3	*10	33	1.40	- .06	.40	9.0	7	9	10	9	se	S. P. Vandike
Boone	Boone	1,134	3	24.7		58	4	- 4	15	39	1.88		.87		6	13	2	13		Carl Fritz Henning
Buckingham	Tama		8								.98	- .02	.47		5	3	15	10		Dr. W. A. Daniel
Carroll	Carroll	1,265	18	25.2	+ 6.3	58	6	-13	14	45	.52	- .63	.17	5.2	4	15	3	10		Frank Hughes
Cedar Rapids	Linn	733	26	26.5	+ 6.4	56	4	- 6	1	41	1.67	+ .29	.33	4.3	8	9	13	6	sw	Electric Light & P. Co.
Clinton	Clinton	593	40	28.2	+ 6.4	60	4	- 4	1	36	2.50	+ .41	.45	3.0	7					Luke Roberts
Davenport	Scott	580	36	31.0	+ 7.2	59	4	- 6	10	39	2.34	+ .78	.84	4.6	13	6	9	13	sw	Weather Bureau
Delaware	Delaware	1,083	17	24.6	+ 8.3	48	4	- 0	*11	30	.68	- .13	.20	3.8	6	10	8	10	sw	Wm. Ball
Denison	Crawford	1,180	13	26.0	+ 6.9	54	4	- 9	15	38	1.92	+ 1.06	1.06		4	17	2	9	n, s	W. C. Van Ness
Des Moines	Polk	861	29	29.7	+ 5.6	60	4	- 1	15	34	.90	- .18	.42	2.9	7	10	6	12	sw	Weather Bureau
De Soto	Dallas	866	8	28.8	+ 8.4	60	4	- 1	15	37	1.12	+ .24	.63	1.0	5	14	3	11	nw	R. D. Minard
Dubuque	Dubuque	639	35	26.9	+ 5.3	54	4	- 3	25	29	1.32	- .06	.50	6.9	11	5	10	13	s	Weather Bureau
Fort Dodge	Webster	1,126	8	22.0	+ 6.7	52	4	- 6	*1	46	.70	- .01	.30	7.0	4	16	1	11	s	J. F. Monk
Gilman	Marshall	1,052	9								1.70	+ .70	.79	6.0	5					Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	29.0	+ 7.7	59	4	- 4	15	35	.74	- .18	.50	1.8	4	8	9	11	sw	D. W. Brinnard
Grundy Center	Grundy	976	17	25.6	+ 7.9	53	4	- 2	11	37	.60	- .25	.20	6.0	4	13	7	8	nw	W. H. Scott
Guthrie Center	Guthrie	1,077	13	27.7	+ 7.5	55	4	- 5	15	35	1.50	- .70	.73	4.9	5	12	4	12	sw	D. G. Beardsley
Harlan	Shelby	1,192	9	26.6	+ 8.5	52	21	- 5	15	38	1.55	+ .70	.79	2.0	5	9	5	14	sw	C. A. Reynolds
Independence	Buchanan	921	43	25.0	+ 5.4	51	4	- 0	11	30	2.05	+ 1.04	.75	14.0	6	14	3	11	nw	George Donohue
Iowa City	Johnson	683	49	27.8	+ 5.3	60	4	- 4	1	41	1.89	+ .42	.82	2.2	8	12	1	15	s	Prof. Karl E. Guthe
Iowa Falls	Hardin	1,170	15	22.4	+ 6.9	49	4	- 4	*13	35	1.30	+ .26	.55	12.5	5	13	0	15	sw	J. B. Parmalee
Jefferson	Greene																			Geo. W. Jackson
Le Claire	Scott	576									2.58	+ 1.33	.79	5.5	11	9	6	13	ne	Margaret T. Disney
Little Sioux	Harrison		4	27.8		59	3	-13	15	39	1.89		1.00	4.0	5	12	6	10	se	Geo. H. Gibson
Logan	Harrison	928	42	27.8	+ 4.4	53	2	- 5	16	35	1.86	+ .66	.70		6	9	12	7	n, s, sw	Glen H. Stern
Marshalltown	Marshall	947	16	24.4	+ 5.0	56	4													

CLIMATOLOGICAL DATA FOR IOWA, FEBRUARY, 1909—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				Sky			Prevailing direction of wind	OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	Number clear days			Number partly cloudy days	Number cloudy days
SOUTHERN SECTION																				
Afton	Union	1,212	14	29.1	+ 7.1	57	4	0	15	38	.80	-.15	.25	1.0	5	10	6	12	sw	N. W. Rowell
Albia	Monroe	959	10	28.2	+ 7.9	59	4	- 7	1	47	1.43	+.11	.40	4.7	7	13	8	7	sw	J. I. Chenoweth
Allerton	Wayne	6	6	30.4	+ 8.7	58	4	4	15	37	1.90	+.56	.40	4.2	8	15	1	12	sw	Mrs. Geo. Shriver
Atlantic	Cass	1,217	17	27.6	+ 6.8	55	4	- 3	15	32	1.40	+.35	.62	3.0	5	8	10	10	sw	Thos. H. Whitney
Bedford	Taylor	8	8	31.4	+10.6	59	11	- 2	16	51	.93	-.11	.35	4.5	8	15	2	11	nw	E. E. Healy
Bloomfield	Davis	881	7	31.3	.....	61	4	5	10	38	1.90	.....	.47	5.5	11	10	7	11	nw	F. H. Roberts
Bonaparte	Van Buren	17	17	31.1	+ 8.3	61	4	6	17	36	2.36	+1.13	.49	5.5	11	.....	.....	.....	.....	Hon. B. R. Vale
Burlington	Des Moines	544	12	30.5	+ 6.8	62	4	- 1	1	40	2.33	+.55	1.00	6.6	8	13	2	13	s	M. E. Poppe, Jr.
Chariton	Lucas	1,042	13	29.3	+ 7.1	58	4	3	15	a37	.85	-.18	.35	4.0	4	12	6	10	sw	C. C. Burr
Clarinda	Page	1,009	18	28.0	+ 5.6	61	3	- 2	*16	48	.68	-.32	.34	1.5	5	13	4	11	sw	A. S. Van Sandt
Columbus Junction	Louisa	595	7	31.6	+10.4	60	4	8	*10	36	2.20	+1.02	.65	4.4	10	16	1	11	s	J. B. Johnston
Corning	Adams	1,117	16	28.5	+ 6.6	57	3	- 2	15	41	.81	-.07	.29	3.3	5	14	5	9	sw	Jerome Smith
Corydon	Wayne	1,101	15	30.8	+ 8.6	59	4	4	*10	38	1.86	+.54	.61	3.6	8	14	2	12	sw	Clara Miller
Creston	Union	1,312	3	27.7	.....	56	*1	- 5	1	61	1.25	.....	.90	.....	2	15	2	11	w	Rev. W. L. Gaston
Cumberland	Cass	9	9	.....	.....	.....	.....	.....	.....	.....	.85	-.15	.35	3.0	6	15	6	7	sw	J. H. Reppert
Earlham	Madison	6	6	29.9	+11.9	60	4	0	*15	37	1.60	+.48	.53	4.0	6	14	4	10	sw	Geo. Phillips
Elliott	Montgomery	3	3	29.4	.....	57	27	- 3	15	35	.88	.....	.60	1.8	5	13	7	8	sw	Henry Barnes
Fairfield	Jefferson	14	14	a31.1	+ 9.4	62	4	a 7	10	a36	3.44	+1.85	1.50	2.9	10	15	10	3	s	R. Monroe McKenzie
Fort Madison	Lee	22	59	.....	.....	.....	.....	.....	.....	.....	3.10	+1.21	.80	6.0	8	9	6	13	ne	Miss L. A. McCready
Greenfield	Adair	17	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Geo. Brooks
Hancock	Pottawattamie	1,113	2	28.8	.....	60	28	- 3	15	39	.93	.....	.51	2.0	4	16	3	9	sw	W. Armstrong
Hopeville	Clarke	17	17	29.6	+ 7.6	57	4	1	15	40	2.06	+1.27	.70	10.8	10	6	10	12	w	M. T. Ashley
Indianola	Warren	969	17	29.3	+ 7.0	58	4	4	16	35	2.50	+1.56	1.40	4.8	8	9	5	14	nw	Prof. J. L. Tilton
Keokuk	Lee	574	37	34.2	+ 7.6	62	4	8	10	39	2.44	+.82	.57	6.0	13	16	1	11	sw	Weather Bureau
Keosauqua	Van Buren	644	16	29.9	+ 6.8	61	4	- 5	1	44	2.26	+.81	.60	5.0	9	6	7	15	.....	J. H. Landes
Knoxville	Marion	920	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Casey & Bellville
Lacona	Warren	9	9	.....	.....	.....	.....	.....	.....	.....	.84	-.64	.22	1.0	7	8	11	9	.....	Agent C., B. & Q. Ry.
Lamoni	Decatur	.....	.....	a30.6	.....	a59	4	3	15	a40	1.01	.....	.37	1.2	9	14	0	14	sw	T. J. Fitzpatrick
Lenox	Taylor	1,250	13	28.6	+ 6.9	56	4	- 3	*15	42	.30	-.54	.08	2.0	7	15	2	11	s	J. L. Hurley
Leon	Decatur	1,120	6	29.0	+ 7.1	55	4	1	15	39	1.82	+.68	.40	4.2	10	11	4	13	sw	Morris Gardner
Massena	Cass	3	3	27.6	.....	56	4	- 3	*15	37	.95	.....	.34	1.8	6	13	4	11	sw	C. E. Smeltzer
Mt. Ayr	Ringgold	1,236	15	30.6	+ 8.1	57	*3	0	15	43	1.90	+.73	.50	4.0	9	10	7	11	sw	A. F. Beard
Mt. Pleasant	Henry	729	26	31.0	+ 7.8	60	4	7	10	35	2.53	+1.47	.57	5.2	11	10	6	12	se,nw	Prof. J. W. Edwards
Omaha, Neb.	Douglas	1,040	38	30.4	+ 6.7	61	3	- 6	15	41	1.21	+.45	.57	4.7	5	8	8	12	nw	Weather Bureau
Oskaloosa	Mahaska	843	24	29.9	+ 8.7	58	4	5	*10	36	1.58	+.47	.40	3.8	8	13	1	14	sw	Jos. Boyd
Ottawa	Wapello	649	14	32.8	+ 9.8	62	4	7	10	35	2.13	+.77	.75	3.0	7	11	3	14	se	Dr. Jas. A. Hull
Pacific Junction	Mills	969	9	29.6	+10.0	61	4	- 5	15	37	.99	+.39	.53	5.1	5	11	9	8	s	H. H. McCartney
Pella	Marion	877	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	T. W. Cox
St. Charles	Madison	1,070	7	30.1	+ 9.2	60	4	0	15	40	1.34	+.34	.33	2.6	9	12	5	11	nw	R. D. Minard
Sigourney	Keokuk	877	12	29.8	+ 8.1	58	4	5	11	36	1.93	+.62	.67	7.8	9	2	16	10	nw	J. T. Parker
Stockport	Van Buren	6	6	31.6	.....	60	4	7	* 1	35	2.18	+1.03	.55	7.0	11	13	3	12	s,sw	C. L. Beswick
Thurman	Fremont	11	11	29.8	+ 8.3	58	*3	- 8	16	38	1.09	-.24	.81	.....	4	12	5	11	nw	C. R. Paul
Wapello	Louisa	588	10	a30.6	+10.3	a59	4	a 9	* 1	a33	1.56	+.17	.45	5.5	10	14	2	12	sw	Geo. W. Schofield
Washington	Washington	769	27	30.4	+ 8.1	61	4	6	*10	35	1.88	+.66	.62	.....	9	9	9	11	sw	Wm. A. Cook
Winterset	Madison	1,129	17	28.8	+ 7.1	56	4	0	15	35	1.04	+.17	.52	2.3	6	13	3	12	sw	Dr. Robert S. Cooper
Woodburn	Clarke	961	9	29.6	.....	59	4	3	10	41	1.36	+.12	.48	4.0	6	12	4	12	sw	C. B. McDonough
Average	.....	.....	.....	30.0	+ 8.2	59.0	.....	1.1	.....	39.1	1.59	+0.44	.....	4.1	5	12	5	11	sw	.....
State average	.....	.....	.....	26.2	+ 7.0	54.4	.....	-4.1	.....	38.2	1.54	+0.48	.....	7.7	5	11	6	11	sw	.....

* And other dates. a one day missing, b two days; c three days; d four days, etc. † Received too late to be included in average

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR THE MONTH OF FEBRUARY, 1909

STATIONS	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		Monthly Mean	
	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.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.								
Afton	39	12	50	24	53	28	57	35	46	27	41	19	38	26	37	21	43	5	20	3	44	10	38	15	17	3	19	7	18	0	29	2	44	11	44	32	34	22	49	25	50	27	44	31	35	31	31	11	46	13	47	28	50	25	51	23	39.8	18.4
Albia	40	-7	50	20	53	28	59	31	35	35	45	21	33	21	45	25	20	20	24	5	46	6	40	11	24	6	16	7	16	6	29	7	38	9	38	16	31	23	49	23	54	27	39	29	37	33	24	14	45	11	54	13	52	26	48	26	38.7	17.6
Algona	38	10	43	26	47	24	47	31	43	20	34	16	32	20	25	15	25	9	11	-1	32	-7	28	1	10	-5	5	-2	11	-11	22	-9	33	14	37	26	29	21	39	19	42	22	37	25	33	25	26	1	32	-6	35	22	38	22	39	13	31.2	12.2
Allerton	42	11	50	24	53	30	58	35	51	29	41	21	34	20	38	19	44	7	25	5	45	11	41	18	23	6	24	12	15	4	30	8	38	12	38	33	33	24	50	23	56	29	43	34	38	33	33	15	46	14	53	28	53	26	52	24	41.0	19.8
Alta	40	-8	45	16	49	27	49	33	30	25	36	20	27	21	20	16	16	15	19	-8	37	-7	9	3	6	-6	3	-5	12	-14	25	-12	35	-2	36	13	28	19	40	20	46	21	36	28	30	29	14	1	27	2	37	9	38	19	40	21	29.6	10.6
Alton	40	13	44	23	46	24	48	26	40	23	35	20	35	21	21	12	16	1	7	-9	33	-11	23	3	6	-5	4	-3	8	-18	25	-9	36	12	36	25	30	20	39	17	44	21	34	24	33	24	25	1	35	0	35	17	38	22	35	22	30.6	11.3
Amana	35	9	48	18	50	27	55	31	48	27	41	21	35	29	36	26	42	11	19	5	35	6	33	19	23	10	21	13	17	9	28	11	35	15	37	32	36	27	42	20	47	26	39	27	38	33	33	11	34	5	45	24	45	25	42	25	37.1	19.4
Ames	41	11	52	23	54	26	59	32	50	25	39	21	37	21	34	26	36	-1	14	4	42	2	30	8	16	1	17	0	17	-2	27	1	38	12	38	32	33	23	43	24	51	30	39	24	35	28	34	9	43	10	41	26	48	25	45	26	37.6	16.7
Atlantic	38	15	49	25	48	27	55	35	46	26	38	23	35	27	35	27	34	2	18	1	41	9	33	9	14	2	14	4	15	-3	26	-2	45	16	37	29	32	21	45	28	48	26	41	30	34	28	28	11	44	14	42	30	47	25	49	26	36.9	18.2
Audubon	35	13	42	22	45	23	51	29	46	25	37	21	33	25	35	26	33	4	15	0	38	5	33	9	13	0	13	3	12	-5	26	-5	43	15	37	29	32	19	42	25	47	25	37	26	34	28	30	7	40	9	40	28	44	23	44	24	34.9	16.2
Baxter	39	7	49	23	49	26	56	33	48	24	41	18	39	18	33	24	49	8	23	4	42	3	35	10	18	1	18	6	15	1	35	4	38	14	37	32	34	21	48	20	55	27	42	29	34	31	31	8	88	5	46	27	50	24	45	25	38.8	16.9
Bedford	40	15	52	19	32	2	58	7	50	27	40	18	43	29	44	29	45	2	57	26	59	36	49	18	18	4	19	8	16	0	30	-2	58	15	58	32	36	25	52	23	56	24	51	33	38	32	32	14	49	16	50	25	53	23	55	25	44.3	18.6
Belle Plaine	40	7	45	20	55	25	60	31	33	30	45	21	37	22	36	26	35	19	20	3	36	4	30	23	19	8	13	12	18	5	29	6	33	16	37	28	38	25	46	21	52	26	37	29	35	33	19	9	34	3	46	24	45	24	41	23	36.2	18.3
Bloomfield	40	7	52	24	56	31	61	35	56	27	45	20	37	27	37	27	44	8	44	5	47	9	35	24	26	8	27	9	16	8	28	10	42	10	39	32	38	24	50	19	54	28	44	31	39	33	34	16	45	11	56	28	51	26	52	26	42.7	19.9
Bonaparte	41	7	53	20	55	29	61	32	53	27	43	20	35	28	40	25	45	9	26	7	43	8	50	26	29	12	29	16	17	13	28	12	39	6	38	31	35	26	49	20	54	28	40	31	40	35	36	18	41	10	55	26	51	25	48	22	41.9	20.3
Boone	41	3	50	20	55	29	58	31	28	22	38	21	27	23	34	24	24	24	16	7	41	2	16	11	14	-1	8	0	14	-4	27	-2	37	17	28	22	42	21	51	28	37	31	33	32	19	7	42	8	44	8	47	24	45	24	34.1	15.3		
Britt	35	8	42	20	47	25	48	28	39	19	37	16	33	13	26	15	28	10	13	-1	34	-7	22	1	12	-5	10	-5	10	-8	23	-6	37	12	40	27	27	21	39	14	42	21	33	24	33	27	27	0	33	-6	36	16	39	12	39	19	31.6	11.1
Burlington	39	-1	50	14	51	25	62	31	41	40	40	21	38	22	42	27	35	30	27	9	42	10	50	15	32	17	22	19	18	14	30	6	38	14	39	37	37	22	50	22	54	28	31	37	32	32	13	45	13	50	27	52	25	49	22	40.1	18.5	
Carroll	45	7	47	17	54	18	54	32	56	27	58	20	27	22	32	22	24	19	24	11	20	16	9	6	15	-2	7	-13	15	-7	29	-8	43	-2	35	33	33	20	43	21	51	27	44	27	30	30	35	5	41	7	41	12	44	20	47	23	35.8	41.0
Cedar Rapids	35	-6	49	15	49	16	56	24	48	35	40	24	34	23	36	25	41	28	18	6	35	5	33	7	22	12	19	14	17	10	27	9	37	11	37	18	31	28	41	25	47	25	39	26	36	28	20	16	33	5	45	6	37	25	41	21	35.8	17.2
Chariton	40	9	49	22	53	28	58	36	49	27	42	20	38	17	36	17	40	8	23	4	45	8	43	17	19	5	22	10	14	3	28	6	38	14	39	37	37	22	50	22	54	28	31	37	32	32	13	45	13	50	27	52	25	49	22	40.1	18.5	
Charles City	35	8	42	14	41	18	45	26	38	22	35	18	31	17	23	16	28	9	10	-1	30	-4	16	1	15	-1	9	0	13	-3	24	6	31	14	38	27	31	23	38	25	41	27	37	24	33	24	32	3	27	0	35	20	30	17	34	12	30.1	12.9
Clarinda	45	8	57	19	61	20	59	24	34	32	39	20	40	22	45	28	5	5	26	2	51	3	35	19	19	4	8	4	19	0	31	-2	46	-2	41	15	38	22	54	22	56	21	39	26	34	33	29	14	50	14	51	20	55	24	59	25	40.2	15.8
Clear Lake	33	4	38	22	44	24	46	31	40	20	35	18	35	21	30	16	25	10	20	-1	32	-5	30	4	12	5	10	-4	10	-6	20	-5	32	14	37	28	30	21	37	25	40	21	43	25	33	30	30	2	29	-2	36	22	34	15	36	10	31.3	13.0
Clinton	33	4	46	14	47	24	60	24	50	23	43	24	42	23	45	12	23	7	32	8	48	15	29	14	23	13	24	13	26																													

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR THE MONTH OF FEBRUARY, 1909—CONTINUED

STATIONS	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		Monthly Mean	
	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.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.								
Oskaloosa.....	38	10	49	24	52	29	58	36	49	27	43	21	36	25	37	26	42	9	24	5	44	8	36	17	23	6	22	11	17	5	28	8	39	15	38	33	33	24	48	21	51	27	45	32	43	33	33	13	40	10	50	27	52	26	47	29	39.9	19.9
Ottumwa.....	42	20	55	24	58	26	62	33	50	28	48	24	45	24	46	26	40	10	24	7	46	15	39	22	30	10	34	16	26	9	30	12	48	14	40	28	38	24	50	29	43	30	43	35	43	33	33	18	47	12	56	28	53	28	50	30	43.5	22.0
Pacific Junction.....	43	16	54	23	58	26	61	30	44	27	43	20	44	26	40	30	38	1	25	3	45	14	32	12	16	5	14	5	18	-5	31	-3	49	15	38	32	43	24	50	20	53	24	40	32	36	29	30	13	49	19	47	26	50	24	55	25	40.9	18.3
Perry.....	38	12	49	24	54	26	57	31	45	26	37	22	33	25	34	26	36	6	18	-2	32	-6	33	8	16	1	16	4	17	-3	29	-1	41	17	37	30	32	22	44	25	49	28	37	29	35	30	31	9	41	12	38	28	48	23	44	25	37.0	17.6
Plover.....	39	12	44	28	49	28	49	33	41	22	35	21	32	21	24	18	24	3	8	-4	33	2	25	0	7	-5	5	-2	10	-11	25	-6	33	12	37	25	27	20	39	20	45	28	36	25	33	25	25	3	36	4	33	23	30	12	40	23	30.9	13.6
Pocahontas.....	35	4	42	17	42	20	50	31	45	24	37	16	37	17	20	15	28	10	14	4	33	-7	21	6	15	0	12	6	15	-2	29	-4	37	15	40	28	33	26	45	24	48	26	36	23	35	32	32	4	26	-8	42	20	35	15	39	5	33.0	13.1
Ridgeway.....	42	12	45	15	50	20	53	26	40	31	38	31	40	32	40	25	25	5	15	-3	38	0	31	4	13	-3	8	1	15	-9	26	-3	38	12	38	15	39	22	40	25	45	28	45	25	35	22	35	5	40	5	40	26	43	24	43	21	35.7	15.4
Rockwell City.....	22	10	36	18	48	24	36	26	39	22	32	23	30	12	21	6	6	-9	8	-6	19	10	22	16	16	-2	4	-6	-4	-17	16	-5	22	4	29	10	38	24	35	28	40	26	38	26	35	24	31	20	39	1	39	22	31	20	37	26	27.0	12.8
Rock Rapids.....	44	11	46	29	58	31	60	38	50	26	43	22	34	25	35	24	41	5	25	5	49	9	36	13	20	3	20	5	18	0	34	3	46	17	41	17	40	23	52	25	58	31	41	32	35	39	31	11	45	12	52	31	55	25	51	24	41.4	18.8
St. Charles.....	43	-7	57	14	49	25	48	28	32	24	35	19	22	13	13	8	15	8	9	-9	34	-8	3	1	2	-9	0	-9	10	-18	24	-17	35	-6	33	20	27	18	41	15	43	15	31	20	28	21	12	0	35	-2	32	5	36	19	32	20	27.5	7.4
Sibley.....	38	8	49	22	51	29	58	31	51	27	42	19	38	27	38	26	43	10	23	6	41	5	40	23	24	8	23	14	19	8	28	-10	39	12	37	31	36	25	47	21	49	28	48	31	38	34	36	12	39	8	49	25	45	27	39.9	19.8		
Sigourney.....	40	13	44	25	45	29	47	29	40	22	36	21	33	20	23	11	15	0	8	-11	33	-4	21	-2	4	-6	2	-4	10	-18	25	-8	35	14	35	23	29	19	37	20	40	24	36	27	32	20	21	1	34	3	35	23	35	23	34	22	29.6	12.0
Sioux Center.....	45	19	50	30	54	29	54	31	34	24	35	25	33	24	25	18	18	-2	13	-6	37	3	28	-1	7	-3	4	-6	11	-17	28	-1	40	15	36	22	30	20	42	25	46	27	38	27	34	17	17	5	38	11	34	26	39	24	38	26	32.4	14.7
Stockport.....	40	7	51	19	54	29	60	35	53	27	42	20	35	29	40	23	45	10	29	7	42	10	50	26	29	11	29	16	18	11	32	11	39	10	38	31	37	25	50	20	58	23	38	30	42	35	39	17	40	10	56	28	56	26	58	24	42.9	20.4
Storm Lake.....	41	15	46	31	48	32	48	33	43	23	35	21	32	21	25	17	20	2	9	-12	35	-1	36	3	6	-5	4	-2	10	-15	25	-5	34	16	35	26	28	20	39	21	46	27	48	28	32	24	...	37	2	34	24	36	11	38	21	32.2	14.0	
Thurman.....	42	14	54	22	58	35	58	35	49	29	42	22	38	26	40	28	38	1	28	2	46	11	35	14	18	4	14	6	18	-4	30	-8	47	9	38	32	42	24	48	24	52	24	38	30	38	30	30	15	48	20	48	27	48	30	50	30	40.5	19.0
Tipton.....	35	7	46	21	47	28	57	35	50	29	40	24	35	29	36	27	43	10	21	7	36	7	42	22	27	17	24	17	20	13	30	14	36	12	37	28	35	28	45	25	50	30	41	32	37	33	34	13	32	7	48	26	37	25	41	24	37.9	21.1
Toledo.....	35	7	46	22	49	25	54	32	51	25	40	22	35	23	33	26	35	15	15	2	35	3	32	15	30	19	28	19	20	15	30	13	33	14	37	30	37	29	40	25	...	42	24	51	30	37	18	36	11	46	30	43	27	42	28	39.1	22.0	
Washington.....	39	7	51	21	53	28	61	33	52	29	42	20	42	31	39	26	45	10	24	6	41	7	45	20	26	11	26	16	20	11	30	11	38	10	38	31	33	27	47	21	52	29	39	31	39	33	33	13	39	6	52	26	51	24	46	25	40.8	20.1
Washta.....	47	20	47	23	50	20	52	26	42	24	36	26	33	22	30	16	21	2	14	-8	40	-10	30	5	10	-10	5	-12	14	-16	26	9	39	13	36	25	30	20	42	20	48	20	36	22	34	25	25	4	48	20	38	20	40	18	40	23	34.0	13.1
Waterloo.....	35	-7	44	16	46	19	55	24	30	29	38	21	34	22	34	24	24	22	18	1	32	1	27	4	19	3	12	8	19	2	27	3	35	9	36	19	30	26	42	25	49	25	39	26	35	32	32	8	30	3	43	10	37	22	38	23	33.6	15.0
Waukees.....	43	11	52	26	56	27	60	22	50	26	40	23	33	27	34	27	28	7	20	4	45	7	36	12	15	2	18	6	18	-1	28	3	45	15	40	32	32	23	47	25	52	27	39	30	35	31	31	11	45	13	43	13	50	25	47	26	38.6	17.9
Waverly.....	34	16	42	13	44	20	48	28	45	24	36	19	33	21	29	20	32	12	15	2	31	-1	25	8	16	1	16	6	14	0	25	3	34	15	37	29	32	25	39	26	44	26	37	24	35	31	31	7	29	2	39	20	31	21	37	15	32.5	15.5
Webster City.....	38	27	44	27	48	40	53	43	49	24	40	20	38	25	32	24	34	15	34	10	33	10	34	8	15	0	15	3	13	-2	25	-4	38	13	42	31	33	22	40	22	45	25	40	25	35	32	32	6	35	5	37	20	42	24	42	23	35.9	18.5
West Bend.....	37	12	42	27	47	27	47	29	40	22	37	18	32	22	25	17	28	12	12	0	31	5	26	2	8	-5	6	0	8	-10	22	-7	36	13	37	28	30	21	39	19	41	24	37	26	32	28	28	3	36	-2	36	21	38	21	42	19	31.4	14.0
Whitten.....	32	6	43	20	44	26	45	28	49	22	35	19	35	17	35	16	36	10	13	0	33	-1	31	9	16	-1	16	4	18	-4	19	6	22	15	39	20	37	21	40	26	43	31	46	31	40	32	46	5	42	10	47	18	53	32	47	16	35.8	15.5
Wilton Junction.....	39	12	49	26	52	29	56	36	47	28	44	20	35	25	37	25	40	6	20	5	43	8	35	15	17	3	19	3	16	0	27	2	41	18	41	32	33	24	46	26	49	29	41	31	35	32	32	13	44	29	49	25	46	25	38.4	19.3		
Winterset.....	43	10	50	17	54	25	59	35	52	28	42	18	43	23	34	10	46	5	23	3	45	6	36	15	21	4	22	8	15	9	30	4	42	15	40	32	53	20	50																			

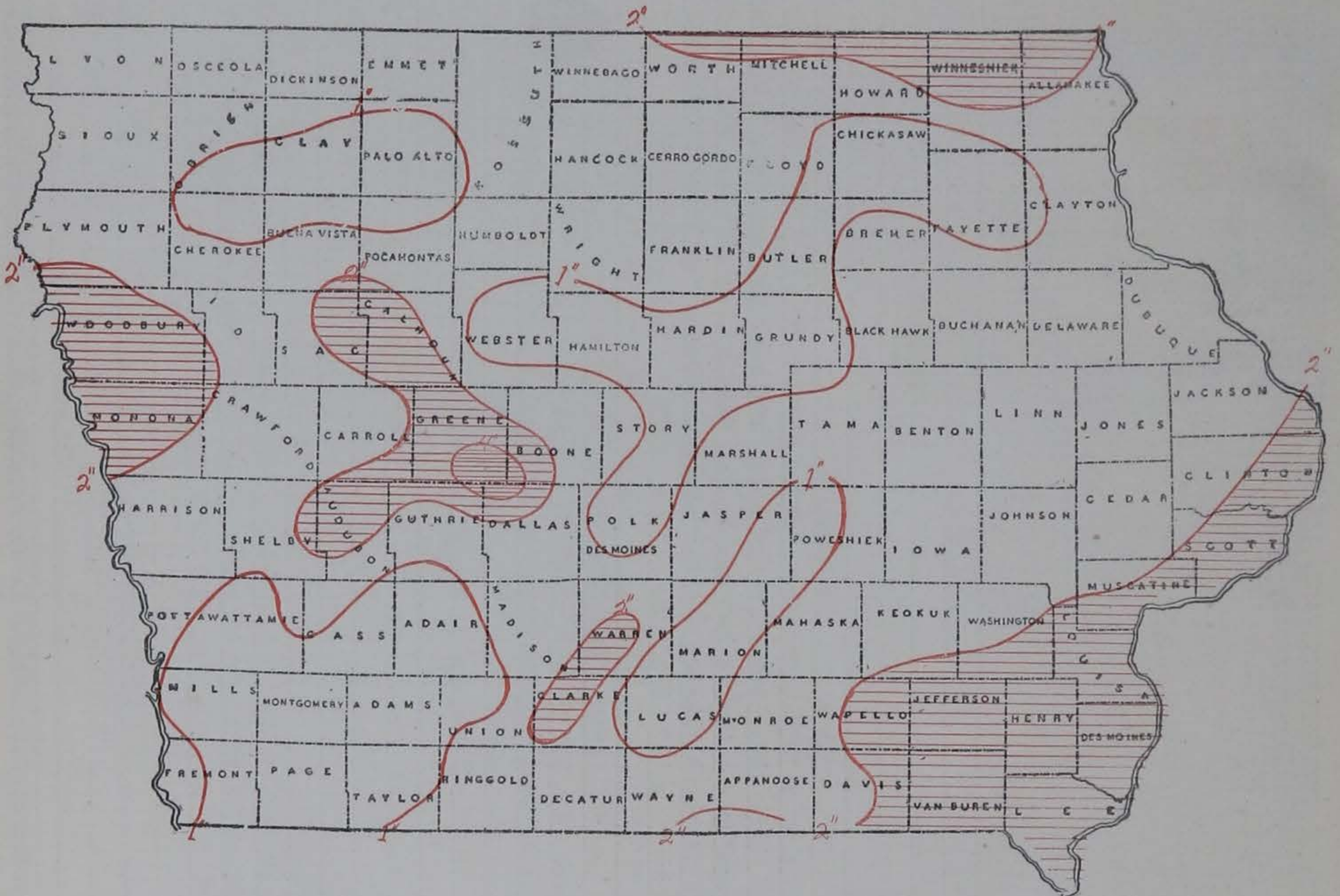
DAILY PRECIPITATION FOR IOWA, FEBRUARY, 1909

STATIONS	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		
Afton							.10		.10	.25													.20	.15					0.80	
Albia			T				.25		.35				T	.35						.02			.40	.40	.06				1.43	
Algona						.07	T	.25	.60	T				.13						T			.45	.20	T				1.90	
Allerton							.35	.22	.39				.40	T	.09	.02			T	T			.11	.32					1.90	
Alta							.03		.35	.20				.04	.01					.01			1.13	T					1.77	
Alta (near)						.05		.10	.30	.10				.10					.05				.80						1.50	
Alton						T		.20	.80	.20				.05					T				.20	.20					1.65	
Amana							.18	.06	.59	.03			T	.26					.03	.14			T	.61	T				1.90	
Ames						T	.09	.25		.45	T		.20						.05	T		.06	.35	T					1.45	
Atlantic						.04	T	.10	.62				T	T	.10				T				.54	T					1.40	
Audubon						.03		.03	1.30					.02	.20								.50							2.08
Baxter							.16	.01	.59						.07					.11	.01		.11	.25					1.31	
Bedford						T		.07	.02				.04	T	.20				.25				.31	.04					0.93	
Belle Plaine							.10		.20					.20	.10					.10			.30	.40					1.40	
Bloomfield							.34	T	.34				.14	T	.18	.09	.08		.09	.04			.11	.47	.02				1.90	
Bonaparte						.28		.21	.06	.34			.05		.27	.05	.31		.20				.10	.49	T				2.36	
Boone							.10		.87	.30				.12					T				.46	.03					1.88	
Britt						T	.13	.08		.30		T			.09							.11	.45	.08					1.24	
Buckingham						T		.15		.47				T	T				.10	T			.18	.08					0.98	
Burlington						.06	.09	.01		1.00	T				.29	.70							.12	.06					2.33	
Carroll							T		.17	.10				T	.10								.15	T					0.52	
Cedar Rapids						T	.19		.33	.07			T	.21	.05	T			.24				.28	.30					1.67	
Chariton							.35		.20				T	T	T	T							.10	.20					0.85	
Charles City						T	.07	.02	.25	.56		T		.10	T	T			T				.20	.23				T	1.53	
Clarinda									.20	.07				T	.05				T				.34	.02					0.68	
Clear Lake							.05		.25			.22							T				T	.20					0.72	
Clinton						.31		.07		.73					.45	.26				.25				.43					2.50	
Columbus Jct.						T		.25	T	.56	T		T	T	.02	.28	.11		.10	.08			T	.65	.10			.05	2.20	
Corning						.07		.20	.20				.05		.16	.01			T				.09	.34	T				1.86	
Corydon							.30	.09		.61	T		.26	T	.16	.01			T				.34	T					1.86	
Creston									.90				T	T	T				T				.35	T					1.25	
Cumberland						.10			.35	.02				.10									.18	.10					0.85	
Davenport						.15	.04	.04	.36	.49	.01		T	.14	.26	.12	.15		.21	T			.10	.27	T			T	2.34	
Decorah									.14					.06									.40	.30			.02		2.02	
Delaware							.10							.06					.20				.16						0.68	
Denison						T			.60				T	T	.10			T				1.06	.16						1.92	
Des Moines						T	.06	T	.37	.11			T	.02	.10				T	T			.17	.07			T		0.90	
De Soto							.10		.03	.60			T	T	T				T				.27	.12	T				1.12	
Dows							.08		.54	.40				.20									.29						1.51	
Dubuque						T		.02	.20	.30	.03	T	T	.06	.09				.18	.04			.06	.32	T		.02	1.32		
Earlham						T		T	.20	.53			T	T	.30				.15	T			.32	.15	T				1.60	
Elkader						T		T	.20	.50			.20						.02	.05			.05					T	1.02	
Elliott								.03	.07					.10									.60			.08			0.88	
Elma						.02	T	T	.30	.40				.14					T				T	.28			T		1.14	
Estherville							.18	T	.50	.55				T					T				.76	T					1.99	
Fairfield						T		1.50	.01	T			.02	T	1.00	.04	.13		.08	.05			.11	.50					3.44	
Forest City							.10		.30	.20													.40	.05					1.05	
Fort Dodge							T		.20	.30				T	.10								.10						0.70	
Fort Madison						.21		.10	.73	T			T	T	.43	T	.50		.80				.23	.10					3.10	
Gilman							.50	.79		.05			.05						T				T	.31	T				1.70	
Grand Meadow						T	T		.20	.20				.20					.10				.25	.10			T		1.05	
Greene						T	.07		.17	.20	T		T	T	.15								.28						0.87	
Grinnell							.10	T	.06				T	T	.02				.06				.50						0.74	
Grundy Center							.10	.10	.20					T									.20						0.60	
Guthrie Center						T	T	.10	.73				T	T	.13				T				.43	.11	T				1.50	
Hampton							.06		1.00	.15			T	.15	.13				T				.38						1.87	
Hancock							T	T	.18	.33			T	T	.07								.35	T					0.93	
Harlan						T	T	T	.79	.06	T			.03	.05	T							.62	T			T		1.55	
Hopeville							.50	.70	.20	.16			.08	.01	.03				.15				.15	.08					2.06	
Humboldt							.10		.80					.60	.10								.24	.15					1.89	
Independence									.05				.60	.10					.75				.35	.20				T	2.05	
Indianola							.03	.13	.15	.41			.07	T	.10	T			T				.21	1.40	T		T		2.50	
Inwood							.04	.01	.25	1.05				.10					.01	.01			.17	.35			T		1.99	
Iowa City							T	.07		.52	.01	.10			.02					.14			.82	.21					1.89	
Iowa Falls							T	.10		.55	.10		T		.25				T		T		.30	T			T		1.30	
Keokuk						.36	.15		.47	T		.01	.15	.14	.23	.05			.47	.10			.20	.05	.01				2.44	
Keosauqua						.22	T	.23		.42	T		T	T	.23	.02	.25			.15			.60	.14			T		2.26	
Lacona							.10	.10	.20				.10	T									.22	.10			.02		0.84	
Lamoni							.03	T	.25	.09			.37	.02	.07				T	.02	T		.14	.02					1.01	
Larrabee							.05		.10	.13				.07					T	T			.13						0.48	
Le Claire						.09	.13	.04		.79	.09			T	.30	.05	.22			.40			.34	.13				T	2.58	
Le Mars							T		.80					T									.30	.41	T				1.51	
Lenox							.03		.05	.05			T	T	.03				.03				.08	.03					0.30	
Leon						.03		T	.40	.40	T		.30	.05	.15	.02				.10			.19	.10					1.82	
Little Sioux							.01		1.00					.20									.60		.08				1.89	
Logan						T	T		.15	.69	.05			.07									.70	.20					1.86	
Marshalltown							.05		.55	.20				T	.05								T	.10						

DAILY PRECIPITATION FOR IOWA, FEBRUARY, 1909—Continued

STATIONS	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		
Stockport					.34		.21	T	.40			.02	T	.14	.02	.21		.11				.13	.55	.05						2.18
Storm Lake							.11	.02	.48					.52		.18							.68							1.99
Thurman					T	T		.03	.15			T		.10						T			.81							1.09
Tipton					T		.11		.25	.36										T		T								1.44
Toledo							.15		.40					.10						T			.50							1.25
Wapello					.08		.20	T	.45	.05				.11	.30					.16		.12	.21	T						1.56
Washington					.02	T	.19	.62	T					.26	.12					.02	.19		.30	.22			.08			1.88
Washta					T		.10	.50	T				T	.10						T			.70	T						1.40
Waterloo					.13			.51	.13	T		T	T	.09						T			.03	.29	T					1.32
Waukeo					T		.10	.10	.35	.05			T	.20						T			.60	.10						1.20
Waverly					T		.10	.15	.20				T	.20						T			.27	T						1.04
Webster City							.03					T		.10						T			.50	.15						0.92
West Bend							.03					T		.10						T			.50	.15						0.78
Whitten							T	.10	.10				T	.05						T			.77							0.45
Wilton Junction	.02				.01			.74							.04								.20							1.58
Winterset							.10	T	.52	.03		T	T	.10						.02			.27	T						1.04
Woodburn							.40	T	.48	T		.16	T	T						.08			.09	.15						1.36
Zearing							.14	.22	.22														.12	.12						0.82

TOTAL PRECIPITATION, FEBRUARY, 1909.



SCALE OF SHADES—IN INCHES



U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR MARCH, 1909

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

DES MOINES, IOWA
EMORY H. ENGLISH, STATE PRINTER
1909

THE IOWA WEATHER AND CROP SERVICE

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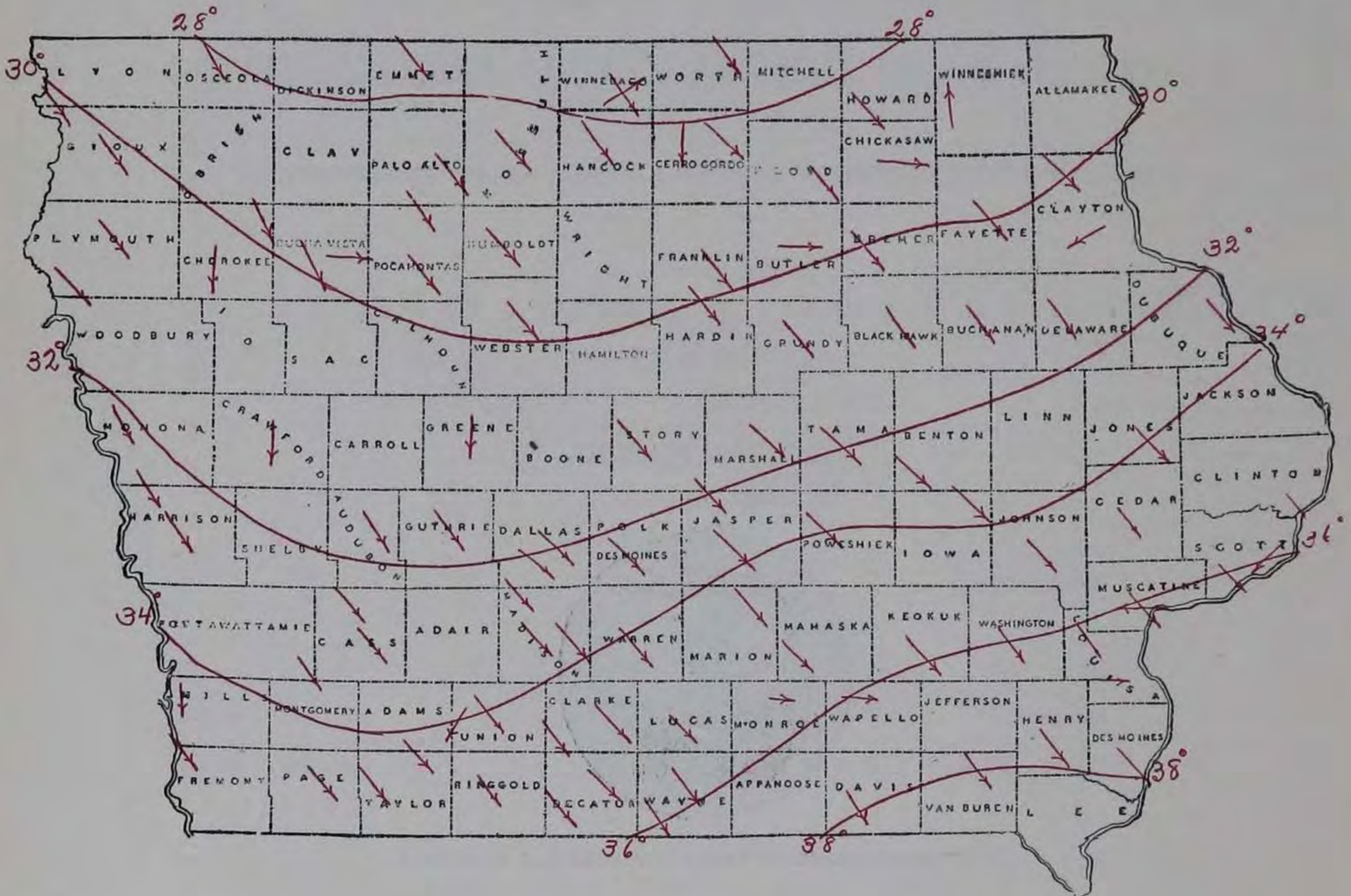
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MEAN ISOTHERMS AND PREVAILING WINDS OF MARCH, 1909.

Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
 CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
 GEO. M. CHAPPEL, Section Director.

VOL. XX DES MOINES, IOWA, MARCH, 1909 No. 3

GENERAL SUMMARY.

March, 1909, will go on record as furnishing an unusual variety of weather conditions. The first six days of the month were mild and pleasant but most of the remainder of the month was cold with frequent snow and rain storms, accompanied by thunder and lightning and brisk to high winds. The snowfall in the central and northern counties was exceptionally heavy, and exceeded all previous records for March at several stations. The low temperatures also broke all former records for the second decade of the month in the north central counties and the severity of the thunder during the snow storm on the 9th was phenomenal. The average temperature for the month was slightly below the normal, yet at the central station there was an average daily deficiency of six degrees during the last 23 days. The only days between the 8th and 31st on which there was an excess were the 22d, 23d and 24th. The 23d was the warmest day of the month when the maximum temperatures ranged from 45° in the northern to 71° in the southern counties. The lowest temperature for the month at all stations was recorded on the 17th and was generally below zero in the northern districts, the lowest being 15 below zero.

The average precipitation for the state was slightly below the normal for March, but the average snowfall was considerably above the normal and was excessive in many localities. Reports indicate that there was good sleighing from five to ten days in northern districts, which is unusual for the time of the year. Notwithstanding the fact that there was a deficiency in precipitation, there was less than the usual amount of sunshine. Reports vary as to the condition of clover and winter grains; some indicate that the alternating freezing and thawing weather has had an injurious effect and others that the plants are still in good condition, but the majority show that there has not been sufficient spring growth to permit an accurate estimate. All reports, however, agree that the continued cold nights have been favorable for fruit.

TEMPERATURE.—The monthly mean temperature for the state, as shown by the records of 116 stations, was 32.5°, which is 1.5° below the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 29.6°, which is 1.6° below the normal; Central section, 32.4°, which is 1.8° below the normal; Southern section, 35.6°, which is 1.1° below the normal. The highest monthly mean was 40.0° at Ottumwa, Wapello county, and the lowest monthly mean was 28.2° at Charles City and Fort Dodge, in Floyd and Webster counties. The highest temperature reported was 71°, at St. Charles, Madison county, on the 23d; the lowest temperature reported was -15°, at Iowa Falls, Webster City and Zearing, in Hardin, Hamilton and Story counties, on the 17th. The average monthly maximum was 59.6° and the average monthly minimum was 0.5°. The greatest daily range was 48° at Carroll, Carroll county. The average of the greatest daily ranges was 33.4°.

PRECIPITATION.—The average precipitation for the state, as shown by the records of 120 stations, was 1.53 inches, which is 0.39 inch below the normal. By sections the averages were as follows: Northern section, 1.48 inches, which is 0.25 inch below the normal; Central section, 1.48 inches, which is 0.50 inch below the normal; Southern section, 1.64 inches, which is 0.41 inch below the normal. The greatest amount, 5.00 inches, occurred at Perry, Dallas county, and the least, 0.28 inch, at Denison, Crawford county. The greatest amount in any twenty-four hours, 2.00 inches, occurred at Humboldt, Humboldt county, on the 7th. The average snowfall, unmelted, was 9.8 inches, the average for the three sections being as follows: Northern section, 13.5 inches; Central section, 9.5 inches; Southern section, 6.3 inches. The greatest monthly snowfall, 32.0 inches, occurred at Perry, Dallas county, and the greatest twenty-four hour amount, 20.0 inches, occurred at Humboldt on the 7th.

Measurable precipitation occurred on an average of 6 days.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 12; partly cloudy, 12; cloudy, 9. The duration of sunshine was below the normal, the percentage of the possible amount being 56 at Davenport; 49 at Des Moines; 45 at Dubuque; 59 at Keokuk; and 55 at Sioux City.

WIND.—Northwest winds prevailed. The highest velocity reported was 48 miles per hour from the northwest at Sioux City, Woodbury county, on the 13th.

COMPARATIVE DATA FOR THE STATE—MARCH.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	28.0	75	-24	1.57	3.67	.32
1891.....	26.8	66	-19	2.60	4.58	1.33
1892.....	31.9	48	- 6	2.22	4.58	.57
1893.....	31.8	84	- 8	2.14	4.40	.64
1894.....	41.0	84	- 5	2.03	4.52	.26
1895.....	34.4	94	-11	.83	2.60	.22
1896.....	30.9	81	-12	1.10	3.99	.16
1897.....	32.0	72	-22	2.39	6.16	.29
1898.....	37.5	72	2	1.94	6.21	.33
1899.....	23.0	75	-16	1.62	5.90	.37
1900.....	30.7	81	-13	2.06	5.15	.45
1901.....	34.2	76	- 8	2.64	5.25	.70
1902.....	39.1	79	-12	1.45	4.33	.13
1903.....	38.8	82	6	1.38	3.90	.15
1904.....	34.8	78	3	2.18	4.57	.50
1905.....	41.5	84	1	2.04	3.70	.39
1906.....	27.1	65	-14	2.34	4.55	.58
1907.....	40.6	92	- 7	1.35	5.05	.23
1908.....	37.9	85	- 8	1.58	3.74	.45
1909.....	32.5	71	-15	1.53	5.00	.28

T indicates a Trace.
 - indicates temperature below zero.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.00 inches.
 Prevailing direction of Wind, Northwest.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement	Maximum Velocity—miles	Direction	Date	Average Hourly Velocity
Charles City.....	30.00	30.57	11	29.54	9	5566	26	NW	3	7.5
Davenport.....	29.97	30.53	11	29.36	9	6692	29	NE	9	9.0
Des Moines.....	29.99	30.52	11	29.44	9	6516	31	NW	3	8.8
Dubuque.....	29.99	30.58	11	29.39	9	5307	27	NW	3	7.1
Keokuk.....	29.97	30.53	11	29.39	9	6393	32	NW	13	7.7
Omaha, Neb.....	30.02	30.54	11	29.56	26	7790	37	N	24	10.5
Sioux City.....	30.04	30.59	11	29.61	27	9700	48	NW	13	13.0

CONDITION OF FRUIT TREES.

The following report issued by the Secretary Iowa State Horticultural Society shows the average condition of fruit trees and plants on April 1, 1909:

"Apples, 92%; pears, 91%; American plums, 94%; domestica plums, 84%; Japanese plum, 74%; cherries, 91%; peaches, 15%; grapes, 84%; red raspberries, 81%; black raspberries, 78%; blackberries, 86%; strawberries, 79%.

"Nearly all fruit trees have gone thru the winter without injury, except peaches which only show about 15 per cent of live fruit buds.

"Raspberries were somewhat weakened by anthracnose, and strawberries did not make as many plants as usual during the dry weather last fall so are a little below normal this year; otherwise conditions are about normal."

OBSERVER'S REMARKS.

ALLERTON—*Mrs. Geo. Shriver*. Not much progress made in farm work but some oats have been sown.

ALTA—*David E. Hadden*. The average temperature was 2.3° below the 19 years' normal and the precipitation was .46 inch below the average for the same period. Eight inches of snow fell on the 7th and 8th but it had all melted by the end of the following week. Frost was nearly all out of the ground at the end of the month.

ALTON—*W. S. Slagle*. The season, at the end of March, is about 10 days later than it was last year. The ground has been very wet. There has been no field work nor seeding done.

AMANA—*Conrad Schadt*. The weather conditions were too cold and wet to permit much farm work being done. There was, however, some plowing done on the 27th and some wheat sown on the 30th.

AUDUBON—*Geo. E. Kellogg*. There was some plowing done during the first week of the month but the roads have been almost impassable during the whole of the month.

BAXTER—*W. R. Vandike*. There was a heavy snow storm on the 8th and 9th, accompanied by thunder, lightning and sleet. Sleighing was good for about 10 days after the storm.

BONAPARTE—*Hon. B. R. Vale*. Some sod plowing and a very little seeding was done during the last 10 days of the month altho there was 0.5 inch of snow fell on the 29th.

BOONE—*Carl Fritz Henning*. Twelve inches of snow fell on the 8th and 9th.

CHARITON—*C. C. Burr*. The temperature has been about normal with more than the usual amount of wind. Some oats have been sown.

CHARLES CITY—*E. W. McGann*. The minimum temperature on the 17th, 12° below zero, was the lowest recorded during the second decade of March for the past 18 years and the total snowfall, 23.9 inches, is the greatest on record for the past 19 years.

CORNING—*Jerome Smith*. The roads have been in better condition than usual for March and the continued low night temperatures have kept the fruit buds back. Some plowing has been done but that work has not yet become general and no seeding has been done altho the ground is in good condition to work and to receive seed as soon as it gets a little warmer. There is about two inches of wet snow on the ground this morning, April 1st.

EARLHAM—*Geo. Phillips*. The month closed with no farm work done and the grass has not yet started to grow.

ELLIOTT—*Henry Barnes*. It has been impossible to do any farm work except during the last week of the month on account of snow, rain and bad roads.

ELMA—*H. A. Moore*. The snow is all gone except in a very few places. Most of the frost is out of the ground and all roads are passable.

FOREST CITY—*J. A. Peters*. Fourteen inches of snow fell between the 8th and 10th, accompanied by a severe blizzard on the 9th, and there were a few snowdrifts left at the close of the month. Robins came on the 22d. No field work done.

GRAND MEADOW (Postville P. O.)—*F. L. Williams*. The month was stormy and disagreeable. Hay is very scarce and price is high. The spring pig crop is starting.

GRINNELL—*D. W. Brainard*. Country roads were in bad condition except during the last week of the month. No seeding has been done but considerable sod ground has been plowed during the past few days. Stubble ground is still too wet to work and there is some frost yet in the ground.

HARLAN—*C. A. Reynolds*. The alternating freezing and thawing weather and the rain and snow have made it impossible to do much work in the fields. There has practically been no seeding done and but little plowing but the conditions are becoming better and the outlook for fruit is fine.

INDIANOLA—*Prof. John L. Tilton*. Thunder was heard on the 9th while snow was falling.

INWOOD—*F. B. Hanson*. The temperature and precipitation were below and the snowfall above normal. The ground was almost in condition for spring work at the close of the month but snow began falling thus further delaying seeding.

IOWA FALLS—*J. B. Parmelee*. No seeding or field work done yet. Only one day with zero temperature but that broke the record for low temperature, —15° for March.

KEOKUK—*Fred Z. Gosewich*. The month has been mild with only one day of severe cold. The heaviest rainfall was on the 7th and 8th and snow has occurred only in light flurries. The soil has been too moist for tillage and oats have been sown only in a few favored localities.

KEOSAUQUA—*J. H. Landes*. The weather has been good for March. Oats sowing began this week. Clover is said to be killed but other prospects are good.

LEMARS—*G. A. C. Clarke*. Snow began to fall at 8 P.M. March 31st.

LEON—*Morris Gardner*. No seeding of any kind done as the ground has been too wet. Fruit buds have not started yet but grass shows a little green in favored spots. Hay is very scarce at \$13.00 per ton. The last two months have been hard on stock and feeders and many spring foals are being lost.

LITTLE SIOUX—*Geo. H. Gibson*. Cloudy weather prevailed during the greater part of the month. Five inches of snow fell during the 8th, 9th and 12th. The cool weather is considered to be beneficial to fruit trees as the buds have made no material progress. Wheat seeding began on the 29th and some plowing has been done.

MASSENA—*C. E. Smeltzer*. Field work is fully two weeks later than in average seasons.

NORTHWOOD.—*Chas. H. Dwelle*. Snow and ice are in evidence under trees and on the north side of buildings at the close of the month.

OLIN—*C. M. Miles*. The ground is in fair condition for seeding and oats seeding began on the last day of the month.

ONAWA—*C. G. Perkins*. The precipitation has been below the normal. Farmers are all ready to sow wheat and some was sown this week but the heavy snow on the night of the 31st will delay seeding. Winter wheat is looking well.

PELLA—*John H. VerSteeg*. The weather has been mild for March with but little moisture but the roads have been in an impassable condition. Some wheat was sown on the 31st but the ground is wet and cold.

PLOVER—*J. S. Smith*. Ducks, geese, robins and blackbirds were going north on the 1st and 2d, but were driven back by the storm on the 7th. The temperature was 10° below zero on St. Patrick's day. There has been no grain sown yet.

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CLIMATOLOGICAL DATA FOR IOWA, MARCH, 1909

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days	No. partly cloudy days			No. cloudy days
NORTHERN SECTION																				
Algona	Kossuth	1,213	31	29.4	-0.2	50	23	-8	17	28	1.14	- .42	.42	15.8	5	14	8	9	nw	Dr. F. T. Seeley
Alta	Buena Vista	1,513	17	28.8	-1.8	62	23	0	17	31	1.23	- .43	.81	12.0	6	9	11	11	nw	D. E. Hadden
Alta [near]	Buena Vista										1.20	- .31	.50	12.0	5	5	5	5	nw	W. J. Minard
Alton	Sioux	1,305	3	30.8		60	23	-8	17	28	0.92		.40	9.2	5	17	5	9	nw	W. S. Slagle
Britt	Hancock	1,236	11	29.3	-1.5	49	31	-9	17	31	1.40	- .10	.60	14.0	5	0	21	10	nw	G. P. Hardwick
Charles City	Floyd	1,015	20	28.2	-0.2	49	23	-12	17	33	2.18	+ .26	1.49	23.9	6	3	14	14	nw	Weather Bureau
Clear Lake	Cerro Gordo	1,241	9	29.4	-2.3	47	27	2	17	29	1.25	- .34	.60	12.5	3	9	4	18	n	Oscar Stevens
Decorah	Winneshiek	875	15	28.9	-2.7	50	23	-8	17	34	1.51	- .54	.74	11.8	6				n	F. H. Baker
Dows	Wright	1,142	8																	G. D. Flett
Elkader	Clayton	727	27	30.9	-0.9	58	23	-4	17	35	1.27	- .64	.50		6	15	13	3	ne	Chas. Reinecke
Elma	Howard			28.4		47	23	-2	11	27	1.30		.75	14.6	3	6	19	7	nw	H. A. Moore
Estherville	Emmet	1,298	12	28.6	-0.4	58	23	-8	17	35	.65	- .79	.45	8.0	3	11	0	20	nw	A. O. Peterson
Fayette	Fayette	1,003	18	30.0	-1.2	54	23	-10	17	38	1.84	- .42	1.05	10.5	8	16	8	7	nw	R. Z. Latimer
Forest City	Winneshiek	1,226	14	28.7	-1.0	49	23	-7	17	43	1.55	- .01	1.00	15.5	5	6	10	15	sw, nw	J. A. Peters
Grand Meadow	Clayton	1,180	17	29.3	-2.0	48	23	-5	17	27	1.85	- .29	.65	13.5	9	8	13	10	nw	F. L. Williams
Greene	Butler		9	30.1	-2.5	50	23	-10	17	36	1.72	+ .03	.84	27.0	6	4	12	15	w	J. L. Cole
Hampton	Franklin	1,155	18	30.0	-0.3	53	5	-5	17	30	2.35	+ .10	1.40	20.7	5	4	21	6	nw	E. C. Grenelle
Humboldt	Humboldt	1,095	17	30.6	-1.2	53	*23	-12	17	29	2.43	+ .83	2.00	23.0	4	19	2	10	nw	H. S. Wells
Inwood	Lyon	1,474	4	a30.2		a60	23	a-6	17	a34	.57		.23	6.0	5	15	11	5	nw	F. B. Hanson
Larrabee	Cherokee	1,266	17	a29.7	-1.0	a59	23	a-5	17	a28	1.31	- .18	.95	13.1	6	11	12	8	nw	H. B. Streever
Le Mars	Plymouth	1,224	12	30.6	-2.4	60	23	-2	17	36	.81	- .79	.34	12.5	5	9	13	9	nw	G. A. C. Clarke
Mason City	Cerro Gordo	1,132	11	28.3	-3.3	45	23	-8	17	26	1.07	- .61	.67	10.7	2	5	15	11	nw	J. S. Mills
Merrill	Plymouth																			Eric Oleson
New Hampton	Chickasaw	1,169	11	28.7	-3.0	48	23	-10	17	28	3.10	+1.09	.60	12.0	3	11	7	13	w	A. F. Kemman
Northwood	Worth	1,222	12	d30.0	-1.1	f48	6	c-5	17	f26	2.05	+ .19	1.20	20.4	7	12	13	6	nw	Charles H. Dwell
Osage	Mitchell	1,184	17																	Dr. A. D. Bundy
Plover	Pocahontas	1,426	12	29.6	-2.5	53	23	-10	17	33	1.50	+ .29	.70	15.0	4	16	7	8	nw	J. S. Smith
Pocahontas	Pocahontas		4	29.0		54	23	-6	17	29	1.26		.54	12.8	5	12	7	12	nw	F. E. Hronek
Ridgeway	Winneshiek	1,215	10	29.8	-3.3	50	*23	-8	17	34	2.82	- .39	1.15	17.2	10	10	16	5	s	Arthur Betts
Rock Rapids	Lyon	1,358	9	29.2	-2.4	50	22	-2	17	39	0.60	- .75	.40	6.0	2					W. C. Wyckoff
Sheldon	O'Brien	1,422	8	d29.8	-1.6	d62	23	d-6	17	d40										Dr. A. W. Beach
Sibley	Osceola	1,212	15	b23.3	-1.6	b60	23	b-7	17	b41	.85	- .61	.50	8.5	4					H. G. Doolittle
Sioux Center	Sioux		9	29.6	-3.6	59	23	0	17	27	.70	- .82	.20	7.0	5	15	1	15	nw	J. de Ruyter
Storm Lake	Buena Vista	1,440	12	30.6	+0.4	62	23	5	12	28	1.67	- .35	1.00	9.0	3	17	4	10	w	S. B. Facker
Washta	Cherokee	1,157	10	30.4		64	23	-9	17	37	.65	- .31	.50	7.5	3	17	5	9	n	H. L. Felter
Waverly	Bremer	948	12	30.6	-2.2	53	23	-6	17	29	1.70	- .25	.95	15.7	6	5	13	13	nw	H. S. Hoover
West Bend	Palo Alto	1,197	14	a29.8	-1.2	a52	23	a-7	17	a31	1.35	- .25	1.00	13.5	4					Phil Dorweiler
Averages				29.6	-1.6	53.8		-5.7		32.1	1.48	- .25		13.5	5	11	10	10	nw	
CENTRAL SECTION																				
Amana	Iowa	721	31	34.2	+1.7	58	23	5	17	28	2.09	+ .09	1.04	4.6	9	10	13	8	nw	Conrad Schadt
Ames	Story	926	27	31.8	-1.7	62	23	-12	17	45	1.71	+ .30	1.12	14.7	5	18	7	6	nw	Iowa State College
Audubon	Audubon	1,301	15	30.5	-3.7	60	23	-9	17	39	1.65	+ .03	1.20	16.0	6	12	7	12	nw	Geo. E. Kellogg
Baxter	Jasper	998	8	32.0	-4.6	61	23	-5	17	33	1.78	- .43	.81	10.4	8	16	8	7	nw	W. R. Vandike
Belle Plaine	Benton	828	18	33.2	-0.2	59	23	1	17	33	2.49	- .02	.70	16.0	10	13	13	5	nw	S. P. Vandike
Boone	Boone	1,134	3	30.8		60	23	-2	17	36	3.05		1.98	14.5	5	12	4	15		Carl Fritz Henning
Buckingham	Tama		8								.98	-1.24	.39	7.2	4	3	21	7		Dr. W. A. Daniel
Carroll	Carroll	1,265	18	30.4	-2.3	60	23	-9	17	48	1.50	- .54	.50	15.0	5	15	4	12		Frank Hughes
Cedar Rapids	Linn	733	26	32.8	-0.8	58	23	6	*17	31	1.47	- .57	.46	3.3	6	7	16	8		Electric Light & P. Co.
Clinton	Clinton	593	40	34.4	+0.9	57	23	14	*16	33	1.72	-1.30	1.04	1.0	7					Luke Roberts
Davenport	Scott	580	36	35.8	+0.4	57	23	9	17	27	1.60	- .61	1.00	1.7	11	6	17	8	nw	Weather Bureau
Delaware	Delaware	1,093	17	30.4	-1.2	52	23	-2	17	29	1.10	- .73	.47	4.0	4	11	13	7	nw	Wm. Ball
Denison	Crawford	1,180	13	31.7	-2.0	54	*5	-6	17	37	.28	-1.23	.09	2.0	5	14	6	11	n	W. C. Van Ness
Des Moines	Polk	861	29	33.6	-2.1	65	23	0	17	32	1.56	- .09	1.05	11.3	8	3	3	25	nw	Weather Bureau
De Soto	Dallas	866	8	33.9	-3.7	69	23	-11	17	46	1.73	+ .14	1.35	9.5	3	13	4	14	nw	R. D. Minard
Dubuque	Dubuque	639	35	32.8	-0.4	54	23	6	17	23	1.25	- .96	.48	4.7	7	7	14	10	nw	Weather Bureau
Fort Dodge	Webster	1,128	8	28.0	-5.4	55	23	-6	17	46	1.50	- .76	.50	15.0	5	13	2	16	nw	J. F. Monk
Gilman	Marshall	1,052	9								.50	-1.55	.45	8.0	2					Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	34.1	-1.0	61	23	1	17	31	.93	- .81	.40	6.2	5	8	16	7	nw	D. W. Brainard
Grundy Center	Grundy	976	17	30.9	-1.7	57	23	-9	17	32	1.20	- .62	.50	12.0	4	17	8	6	nw	W. H. Scott
Guthrie Center	Guthrie	1,077	13	32.2	-3.2	61	23	-10	17	41	1.94	- .54	1.28	17.5	8	14	8	9	nw	D. G. Beardsley
Harlan	Shelby	1,192	9	31.2	-3.1	63	23	-2	17	35	1.00	- .48	.70	9.7	5	8	13	10	nw	C. A. Reynolds
Independence	Buchanan	921	43	32.0	+0.2	56	23	-5	17	28	1.40	- .23	.55	8.5	4	14	6	11	nw	George Donohue
Iowa City	Johnson	683	49	34.2	+0.2	61	23	6	17	32	2.00	- .44	.75	4.0	8	13	3	15	nw	Prof. Karl E. Guthe
Iowa Falls	Hardin	1,170	15	29.0	-2.9	53	23	-15	17	42	1.80	+ .07	1.00	18.0	4	12	8	11	nw	J. B. Parmelee
Jefferson	Greene			e33.1		e59	27	e0	17	e31	e1.05	- .63	.70	10.5	3					Geo. W. Jackson
Le Claire	Scott	576									1.63	-1.01	.70	2.5	9					Margaret T. Disney
Little Sioux	Harrison		4	33.4		68	23	9	*11	34	.54		.25	5.0	4	12	9	10	nw	Geo. H. Gibson
Logan	Harrison	928	42	34.7	+0.1	67	23	12	11	38	.39	-1.42	.18		5	5	19	7	nw	Glenn H. Stern
Marshalltown	Marshall	947	16	30.6	-2.8	59	23	-6	*17	38										

CLIMATOLOGICAL DATA FOR IOWA, MARCH, 1909—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				Sky			Prevailing direction of wind	OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	Number clear days			Number partly cloudy days	Number cloudy days
SOUTHERN SECTION																				
Afton	Union	1,212	14	35.0	-1.5	67	23	4	17	34	1.34	-.76	.80	8.5	4	11	13	7	nw	N. W. Rowell
Albia	Monroe	959	10	34.0	-3.6	65	23	4	17	38	1.82	-.08	.78	3.5	10	15	7	9	w	J. I. Chenoweth
Allerton	Wayne		6	36.4	-1.9	67	23	9	17	31	2.15	-.30	.93	5.7	6	20	3	8	nw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	17	33.1	-1.6	64	23	2	17	33	.97	-.78	.71	8.5	6	7	13	11	nw	Thos. H. Whitney
Bedford	Taylor		8	36.4	-0.3	69	23	5	*11	34	1.45	-.87	.65	4.4	5	16	7	8	nw	E. E. Healy
Bloomfield	Davis			37.6		63	23	7	17	33	2.33		.69		8	13	12	6	nw	F. H. Roberts
Bonaparte	Van Buren		17	36.8	-1.2	61	2	5	17	35	1.96	-.59	.80	2.5	6					Hon. B. R. Vale
Burlington	Des Moines	544	12	37.4	-2.4	63	2	9	17	34	2.52	-.34	.85	2.0	9	16	6	9	s, nw	M. E. Poppe, Jr.
Chariton	Lucas	1,042	13	35.2	-1.6	67	23	4	17	34	1.60	+.52	.60	3.0	5	17	6	8	nw	C. C. Burr
Clarinda	Page	1,009	18	34.4	-1.7	69	23	3	11	47	1.75	-.11	.98	11.5	7	8	14	9	nw	A. S. Van Sandt
Columbus Junction	Louisa	595	7	36.4	-2.6	61	23	6	17	32	1.65	-.86	.50	2.5	8	21	5	5	nw	J. B. Johnston
Corning	Adams	1,117	16	32.8	-3.6	65	23	3	15	30	2.27	+.53	1.40	15.7	5	16	10	5	nw	Jerome Smith
Corydon	Wayne	1,101	15	37.2	-0.1	69	23	8	17	32	1.88	-.25	1.01	2.0	6	15	7	9	nw	Clara Miller
Creston	Union	1,312	3	33.3		67	23	5	17	40	.94		.31		9	16	3	12	ne	E. S. Stovall
Cumberland	Cass		9								1.10	-.92	1.00	11.0	2	22	5	4	ne	J. H. Reppert
Earlham	Madison		6	32.8	-1.4	67	23	-9	17	41	1.28	-.48	.50	12.5	5	13	10	8	nw	Geo. Phillips
Elliott	Montgomery		3	34.4		69	23	-1	11	38	.95		.60	8.0	4	17	8	6	nw	Henry Barnes
Fairfield	Jefferson		14	35.8	+2.0	62	23	4	17	33	1.84	-.73	1.22	2.5	8	20	2	9	nw	R. Monroe McKenzie
Fort Madison	Lee	516	59																	Miss L. A. McCready
Greenfield	Adair		17																	Geo. Brooks
Hancock	Pottawattamie	1,113	2																	W. Armstrong
Hopeville	Clarke		17	35.2	-0.5	66	23	5	17	33	1.55	-.23	.64	6.1	7	4	18	9	nw	M. T. Ashley
Indianola	Warren	969	17	34.4	-1.7	66	23	3	17	31	1.53	+.21	.85	9.1	8	3	7	21	nw	Prof. J. L. Tilton
Keokuk	Lee	574	37	38.9	+1.0	62	2	11	17	30	1.84	-.53	.80	0.3	8	9	17	5	nw	Weather Bureau
Keosauqua	Van Buren	644	16	36.2	-2.0	60	*1	7	17	46	1.94	-.60	.77	3.1	9	6	6	19		J. H. Landes
Knoxville	Marion	920	12	35.6	-1.8	67	23	3	17	36	2.63	+1.06	1.10	10.3	8	12	6	13	nw	Casey & Bellville
Lacona	Warren		9																	Agent C., B. & Q. Ry.
Lamoni	Decatur			36.9		67	23	11	17	31	1.59		.63	7.0	7	20	1	10	nw	T. J. Fitzpatrick
Lenox	Taylor	1,250	13	34.6	-1.7	67	23	6	*15	34	1.06	-.69	.40	6.6	7	21	3	7	nw	J. L. Hurley
Leon	Decatur	1,120	6	36.2	-1.8	66	23	9	17	33	1.75	-1.01	.65	3.7	7	15	4	12	nw	Morris Gardner
Massena	Cass		3	32.7		66	23	-3	11	36	1.09		.96	9.5	3	15	7	9	nw	C. E. Smeltzer
Mt. Ayr	Ringgold	1,236	15	36.4	-0.6	70	23	10	17	34	1.84	-.22	.90	5.7	7	13	10	8	nw	A. F. Beard
Mt. Pleasant	Henry	729	26	36.4	-0.3	60	23	8	17	31	2.08	-.35	.59	3.7	9	9	16	6	nw	Prof. J. W. Edwards
Omaha, Neb.	Douglas	1,040	38	35.7	-0.3	65	23	16	17	23	.63	-.76	.22	4.9	6	7	13	11	nw	Weather Bureau
Oskaloosa	Mahaska	843	24	35.0	-0.2	62	23	4	17	33	2.23	+.37	.49		9	16	0	15	nw	Jos. Boyd
Ottumwa	Wapello	649	14	40.0	+1.3	68	23	18	*11	29	2.09	-.05	1.00		5	11	10	10	w	Dr. Jas. A. Hull
Pacific Junction	Mills	960	9	35.2	-1.9	70	22	7	11	33	.96	-.39	.50	6.5	5	8	16	7	n	H. H. McCartney
Pella	Marion	877	6	a37.7	+4.7	a68	2	1	17	a14	1.87	+.84	.95	6.8	8	16	1	14	nw	John H. Ver Steeg
St. Charles	Madison	1,070	7	34.7	-3.5	71	23	0	17	35	2.13	+.19	1.23	9.3	8	14	10	7	nw	R. D. Minard
Sigourney	Keokuk	877	12	35.8	-1.1	62	23	4	17	32	1.91	-.15	.85	7.5	8	1	25	5	nw	J. T. Parker
Stockport	Van Buren		6	36.8		60	23	7	17	36	1.73	-.60	.53	3.0	10	18	6	7	nw	C. L. Beswick
Thurman	Fremont		11	35.2	-2.6	67	23	3	11	30	.93	-.73	.70	8.0	4	7	16	8	nw	C. R. Paul
Wapello	Louisa	588	10	37.1	-0.3	61	26	11	17	32	1.08	-1.34	.39	1.5	5	17	8	6	w	Geo. W. Schofield
Washington	Washington	769	27	35.6	+1.4	61	23	6	17	32	1.81	-.45	1.13		9	7	17	7	nw	Wm. A. Cook
Winterset	Madison	1,129	17	34.0	-1.7	65	23	1	17	34	1.04	-.89	.80	10.4	5	9	12	10	nw	Dr. Robert S. Cooper
Woodburn	Clarke	961	9	34.6		68	23	4	17	37	1.80	-.37	.72	5.0	7	9	16	6	nw	C. B. McDonough
Average				36.6	-1.1	65.4		5.4		34.2	1.64	-.41		6.3	7	13	9	9	nw	
State average				32.5	-1.5	59.6		0.5		33.4	1.53	-.39		9.8	6	12	10	9	nw	

*And other dates. a one day missing, b two days; c three days; d four days, etc. †Received too late to be included in average

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR THE MONTH OF MARCH, 1909

STATIONS	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		Monthly Mean							
	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.	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.														
Afton	57	31	55	29	48	31	48	22	56	29	52	33	46	31	35	28	33	28	31	29	20	30	9	38	21	34	17	26	14	36	9	36	15	38	4	49	30	44	23	45	23	44	26	55	29	67	38	63	34	47	31	47	31	45	29	52	24	46	25	44	28	57	27	45.9	24.8					
Albia	59	29	57	29	45	32	47	21	58	29	53	31	43	31	33	28	33	28	31	29	24	33	13	36	15	37	15	37	18	34	13	34	13	40	4	49	11	46	23	46	27	48	25	54	27	65	23	38	30	43	32	52	32	47	28	50	25	40	20	39	27	49	29	44.0	24.0					
Algona	37	27	43	25	38	28	37	20	46	29	48	29	40	32	38	21	31	23	30	15	28	13	39	8	34	16	29	11	29	10	28	17	28	10	20	-8	41	14	35	25	37	18	35	23	40	29	50	34	44	30	39	31	45	29	38	26	43	26	39	24	43	29	47	30	37.1	21.7				
Allerton	60	33	58	31	48	32	47	22	56	32	53	31	44	32	39	32	32	30	31	24	30	13	39	13	39	26	36	24	27	19	32	14	37	11	40	9	60	32	47	32	48	29	48	26	55	29	67	37	60	33	45	32	50	32	46	28	50	26	43	26	44	29	51	31	45.9	27.0				
Alta	38	26	45	26	39	27	41	23	48	27	50	29	28	25	26	18	25	19	28	13	25	8	32	10	26	15	28	8	29	10	26	11	25	0	40	15	32	21	40	20	35	22	44	29	49	29	39	26	44	23	39	21	40	26	47	27	36.9	20.7												
Alton	36	26	44	29	40	31	42	23	45	31	49	29	44	22	23	17	31	16	30	15	30	11	30	11	30	11	30	16	27	9	26	-2	40	18	39	27	40	25	38	29	50	31	60	35	48	30	49	30	48	33	47	25	45	22	39	26	41	28	47	27	39.0	22.7								
Amana	52	29	51	27	43	33	43	23	53	31	48	31	48	31	39	30	36	32	34	31	31	23	32	13	35	27	39	25	27	18	31	22	29	16	33	5	39	27	41	33	41	28	44	27	48	28	58	32	51	35	44	34	48	28	42	30	45	26	39	23	46	31	49	30	41.6	26.9				
Ames	55	29	54	27	45	32	41	21	54	30	52	31	44	26	30	27	34	22	31	18	23	8	33	20	32	9	30	12	27	2	27	12	33	-12	42	22	38	27	38	20	36	23	46	30	62	35	54	32	41	33	44	29	42	29	48	27	39	23	44	30	49	28	40.9	22.6						
Atlantic	53	30	55	29	43	32	46	23	52	30	51	32	43	29	30	24	31	25	29	18	27	7	32	20	32	13	27	12	31	7	33	15	35	2	50	30	36	28	41	23	39	26	52	29	64	37	54	32	48	31	46	31	44	28	50	24	42	23	41	27	49	26	42.1	24.1						
Audubon	50	26	54	27	42	30	44	20	52	29	50	30	42	28	28	22	31	23	30	16	23	16	23	17	30	16	23	3	25	7	27	-2	28	10	30	-9	45	20	36	27	38	21	37	30	39	22	39	23	38	27	61	32	46	32	43	32	44	27	47	27	49	24	39	25	46	28	50	27	40.7	23.2
Baxter	53	29	54	27	45	32	41	21	54	30	52	31	44	26	30	27	34	22	31	18	23	8	33	20	32	9	30	12	27	2	27	12	33	-12	42	22	38	27	38	20	36	23	46	30	62	35	54	32	41	33	44	29	42	29	48	27	39	23	44	30	49	28	40.9	22.6						
Bedford	62	28	59	33	47	32	49	19	60	31	56	33	45	28	34	28	32	27	30	19	25	5	46	20	29	14	35	5	40	14	42	11	57	34	50	23	50	24	46	26	48	27	60	29	69	40	66	33	50	32	51	29	47	27	54	24	47	26	46	22	53	25	47.9	24.9						
Belle Plaine	55	28	53	26	43	31	46	22	45	30	56	32	46	28	35	30	35	31	28	26	30	18	25	8	35	23	34	17	29	15	30	19	25	23	33	1	36	26	41	32	40	27	42	27	42	26	49	28	59	31	40	33	47	33	48	27	41	28	46	23	37	26	46	28	48	29	40.9	25.4		
Bloomfield	61	46	60	46	52	33	50	20	60	33	54	32	48	28	40	32	35	31	34	25	34	17	38	27	41	28	31	21	36	17	37	14	40	7	56	28	50	29	46	30	50	25	54	27	63	33	50	33	43	33	56	29	47	29	52	26	52	25	46	31	50	31	47.3	28.0						
Bonaparte	60	32	61	26	48	32	48	22	58	32	53	33	49	26	42	33	38	31	37	25	36	18	36	27	47	26	34	23	37	22	35	15	36	5	52	29	50	32	45	30	49	26	50	26	59	32	48	33	45	33	58	28	48	29	50	24	39	25	48	31	51	26	46.7	28.8						
Boone	52	28	54	25	45	29	44	22	55	22	53	31	32	28	30	26	30	26	28	18	25	9	33	11	30	17	28	12	25	8	29	12	31	-2	41	5	34	26	39	19	35	22	44	29	60	30	39	31	42	31	45	31	41	28	48	26	38	27	42	28	48	29	39.4	22.1						
Britt	34	21	42	25	37	28	40	21	47	30	46	29	40	24	28	22	29	26	28	16	27	5	43	13	35	6	27	8	37	19	25	5	22	-9	42	15	33	25	42	16	41	21	44	28	48	34	48	28	41	28	44	27	37	25	36	25	37	28	49	28	37.8	20.8								
Burlington	62	28	63	29	46	33	45	24	56	25	50	33	49	30	38	33	36	33	38	35	37	19	37	20	50	29	37	23	40	27	36	20	37	9	48	14	46	33	44	30	50	27	51	28	58	30	46	38	48	33	62	30	50	30	51	27	41	27	51	32	51	31	47.0	27.7						
Carroll	53	23	54	26	46	29	49	21	52	26	55	27	32	27	28	20	33	22	33	13	23	9	37	13	31	9	32	2	35	8	28	-9	48	0	41	24	40	19	34	21	43	26	60	30	37	30	30	37	30	50	29	46	30	45	26	51	21	40	24	48	25	51	23	41.5	19.7					
Cedar Rapids	51	22	50	27	40	28	43	25	52	25	48	32	38	32	35	31	33	31	30	27	30	13	33	13	35	26	26	19	27	18	28	17	32	6	37	6	40	32	40	28	43	27	49	27	58	29	40	32	46	32	43	32	49	30	44	28	50	25	47	25	44	30	50	31	45.0	25.4				
Chariton	59	32	56	28	50	32	47	21	57	31	52	30	47	28	38	30	33	28	32	21	28	9	38	23	39	20	29	16	30	11	31	14	38	4	52	30	42	30	46	28	47	24	54	28	67	36	55	32	45	32	49	30	44	28	50	25	47	25	44	30	50	31	45.0	25.4						
Charles City	39	24	43	25	35	26	34	24	48	30	46	31	34	25	32	24	32	26	25	2	28	-5	34	18	29	14	28	10	25	15	24	0	19	-12	37	18	35	22	37	11	37	20	42	26	48	33	38	32	38	28	41	27	38	29	39	26	37	28	44	30	44	26	35.8	20.6						
Clarinda	61	26	60	28	48	31	49	20	60	20	59	31	40	27	30	27	32	24	34	19	37	3	37	10	35	7	31	9	35	4	42	11	41	-10	59	12	38	27	50	28	47	26	57	28	69	34	40	33	52	32	52	29	50	27	51	26	45	28	48	26	54	25	46.6	22.3						
Clear Lake	40	25	41	22	37	27	36	23	48	29	43	25	30	22	30	22	30	27	30	18	26	8	37	16	30	16	29	10	28	15	26	9	22	2	40	11	36	26	35	16	36	18	40	27	46	23	44	30	38	32	42	28	47	28	42	26	38	27	43	30	45	30	37.0	21.8						
Clinton	54	26	52	32	43	21	44	24	45	24	42	18	43	28	43	27	39	27	39	21	37	18	37	18	37	27	40	17	32	17	32	14	40	11	36	14	40	29	44	27	46	2																												

U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR APRIL, 1909

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

DES MOINES, IOWA
EMORY H. ENGLISH, STATE PRINTER
1909

THE IOWA WEATHER AND CROP SERVICE

WAS ESTABLISHED BY ACT OF THE TWENTY-THIRD GENERAL ASSEMBLY, AND IS UNDER SUPERVISION
OF THE
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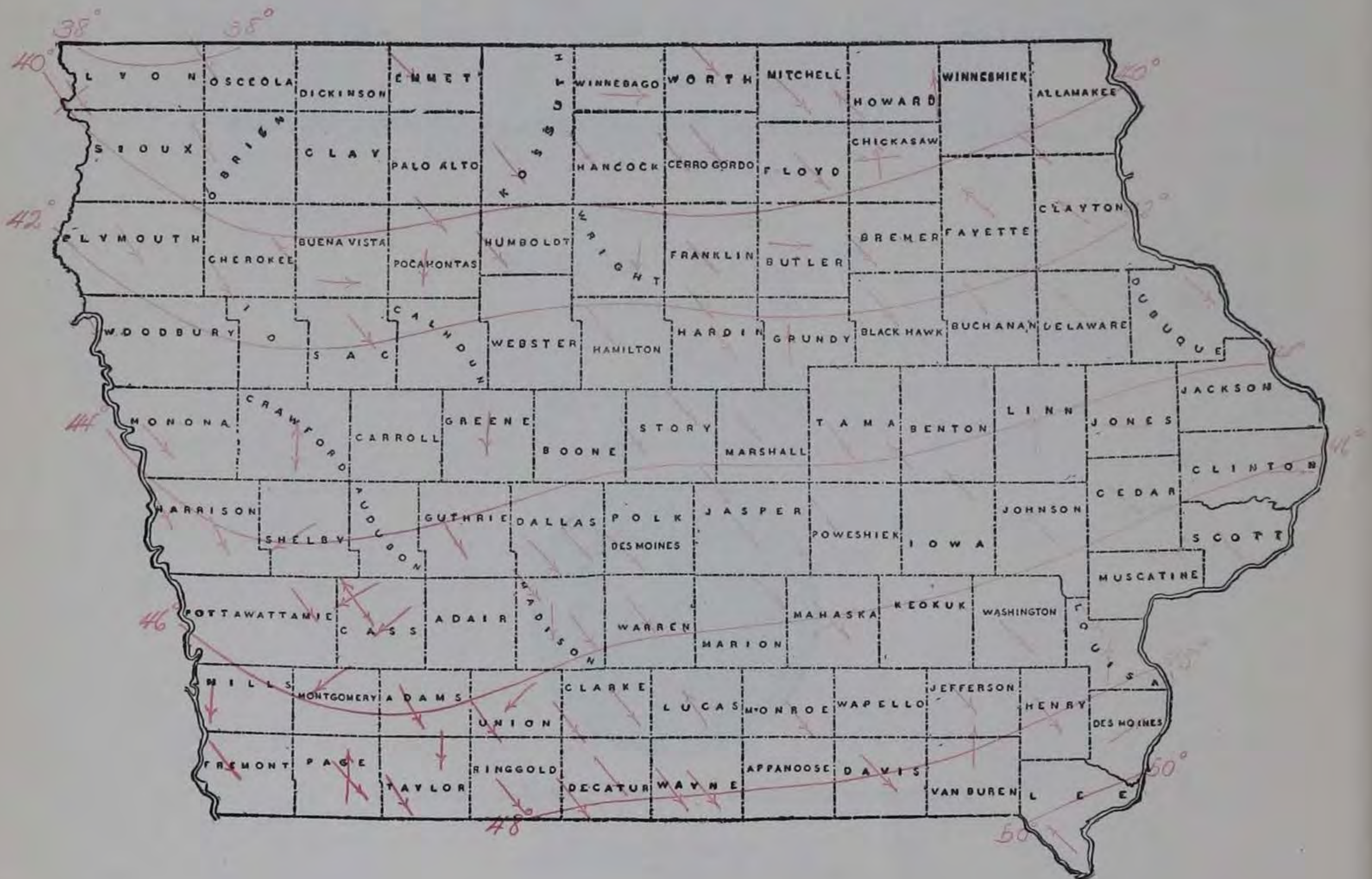
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MEAN ISOTHERMS AND PREVAILING WINDS OF APRIL, 1909.
Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
GEO. M. CHAPPEL, Section Director.

VOL. XX DES MOINES, IOWA, APRIL, 1909 No. 4

GENERAL SUMMARY.

The month was abnormally cold and cloudy with an excessive amount of precipitation in all but the extreme western counties where there was a slight deficiency. Freezing temperatures occurred in all districts every week during April, and the month closed with the temperature at freezing or below in all parts of the state. The average temperature was 2.3° higher than the average for April, 1907, which was the coldest April on record since state-wide observations have been taken and the only one colder than the past month.

The precipitation, like the cold, was almost continuous, there being very few warm or clear days. At least a trace of rain or snow fell in some part of the state on every day during the month and the average amount of snowfall was greater than the average of any preceding April since 1896. Thunder storms accompanied by hail and wind squalls were frequent, and, in many cases, were quite destructive to property. Under such adverse conditions, field work has been retarded and was, at the close of the month, about two weeks behind the average of former years. In the east central and northeast districts, where rain or snow fell almost daily from the 12th to the 30th, farm work is especially backward, and the seeding of oats in those districts was only about three-fourths finished at the close of the month. A large acreage intended for oats has been abandoned in all parts of the state, thereby reducing the acreage of that crop from 10% to 15% below the acreage of last year. The acreage of wheat has, however, been increased and there will be a decided increase in the acreage of corn if favorable weather prevails during May. Wheat and early sown oats are up and in most cases show a good stand, but there is a probability that oats, just beginning to sprout, were injured by the hard freeze which occurred on the night of the last day of the month. The continued cold weather has kept the fruit buds dormant and no blossoms have appeared except in the extreme southern counties, and the indications are thereby very favorable for a good crop.

Clover and all grasses, while making slow growth, are in good condition and reports indicate that there was very little damage done by the alternating freezing and thawing weather during the winter, and the excessive precipitation during April assures another good hay crop.

TEMPERATURE.—The monthly mean temperature for the state, as shown by the records of 117 stations, was 43.8°, which is 4.7° below the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 40.7°, which is 6.1° below the normal; Central section, 44.1°, which is 4.4° below the normal; Southern section, 46.7°, which is 3.6° below the normal. The highest monthly mean was 50.6°, at Keokuk, Lee county, and the lowest monthly mean 37.0°, at Rock Rapids, Lyon county. The highest temperature reported was 86°, at Burlington, Des Moines county, on the 29th; the lowest temperature reported was 14°, at Elma, Howard county,

and Fayette, Fayette county, on the 10th. The average monthly maximum was 76°, and the average monthly minimum was 20°. The greatest daily range was 52°, at Hancock, Pottawattamie county, and Storm Lake, Buena Vista county. The average of the greatest daily ranges was 39°.

PRECIPITATION.—The average precipitation for the state, as shown by the records of 119 stations, was 4.58 inches, which is 1.75 inches above the normal. By sections the averages were as follows: Northern section, 4.18 inches, which is 1.71 inches above the normal; Central section, 4.95 inches, which is 2.08 inches above the normal; Southern section, 4.60 inches, which is 1.46 inches above the normal. The greatest amount, 9.43 inches, occurred at New Hampton, Chickasaw county, and the least, 0.83 inch, at Hancock, Pottawattamie county. The greatest amount in any twenty-four hours, 4.60 inches, occurred at New Hampton, Chickasaw county, on the 18th. Measurable precipitation occurred on an average of 12 days.

The average amount of unmelted snowfall for the state was 3.1 inches; the greatest amount, 20.8 inches, occurred at Northwood, Worth county.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 9; partly cloudy, 9; cloudy, 12. The duration of sunshine was below the normal, the percentage of the possible amount being 58 at Charles City; 49 at Davenport; 47 at Des Moines; 41 at Dubuque; 59 at Keokuk, and 47 at Sioux City.

WIND.—Northwest winds prevailed. The highest velocity reported was 56 miles per hour from the northwest, at Sioux City, Woodbury county, on the 28th.

COMPARATIVE DATA FOR THE STATE—APRIL.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	51.8	88	2	1.80	4.46	.38
1891.....	50.6	93	13	2.15	5.06	.59
1892.....	45.4	86	14	4.75	8.38	2.43
1893.....	45.5	96	15	4.21	8.51	1.24
1894.....	51.7	93	12	3.07	6.91	.55
1895.....	54.2	98	8	2.62	5.88	.28
1896.....	54.5	94	10	5.02	9.67	2.35
1897.....	47.9	89	19	5.35	9.86	2.22
1898.....	48.1	91	14	2.56	4.82	.27
1899.....	48.9	89	1	2.40	5.76	.56
1900.....	52.2	89	19	2.67	6.62	.43
1901.....	49.9	92	15	1.79	3.47	.66
1902.....	48.2	96	9	1.71	4.15	.40
1903.....	49.8	86	17	2.98	6.00	.74
1904.....	44.1	86	13	3.63	8.97	1.52
1905.....	47.5	90	10	3.03	5.49	.63
1906.....	52.5	94	22	2.42	5.55	.53
1907.....	41.5	80	10	1.32	3.22	.24
1908.....	50.5	91	8	2.24	4.59	.67
1909.....	43.8	86	14	4.58	9.43	.83

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 29.95 inches.
Prevailing direction of Wind. Northwest.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement	Maximum Velocity—miles	Direction	Date	Average Hourly Velocity
Charles City.	29.95	30.40	10	29.41	29	7211	34	W	29	10.0
Davenport..	29.93	30.43	10	29.17	29	7765	46	NW	29	10.8
Des Moines..	29.92	30.44	8	29.33	29	8115	53	SW	11	11.3
Dubuque....	29.97	30.47	10	29.35	29	6793	39	NW	7	9.3
Keokuk.....	29.96	30.43	8	29.15	29	7745	40	SW	29	10.8
Omaha, Neb.	29.94	30.53	8	29.34	29	8799	48	NW	26	12.2
Sioux City..	29.95	30.53	8	29.46	11	11353	56	NW	28	15.8

OBSERVERS' REMARKS.

AFTON—*Hon. N. W. Rowell*. There is not a green leaf visible at the close of the month.

ALBIA—*J. J. Chenoweth*. April was a cold, backward month with 17 rainy days. There was only about one-half of the intended acreage of small grain seeded. No fruit trees in bloom at the close of the month.

ALGONA—*Dr. F. T. Seeley*. April closed with snow falling and on the whole the month was cold, damp and disagreeable.

ALLERTON—*Mrs. Geo. Shriver*. The month was cold and wet and farm work is two weeks behind the average.

ALTA—*David E. Hadden*. The month of April was very cold; the mean temperature being about 7° below the nineteen-year normal. A tornado-like wind squall occurred shortly after midnight of the 28th which did a good deal of minor damage. Several barns in town were completely destroyed and one horse was killed. The storm was very unusual for the time of day and year and the prevailing cold weather at the time of its occurrence.

ALTON—*W. S. Slagle*. Frost occurred nearly every night and all vegetation is about three weeks later than usual. The acreage of small grain is less than usual.

AMANA—*Conrad Schadt*. The weather was cold, cloudy, wet and unseasonable thruout the month and the small grain was sown under adverse conditions.

AMES—*J. H. Criswell*. The month was cold and wet and the spring work is much behind the average. About 75% of the oats are seeded. Fruit buds not opened and are still safe.

ATLANTIC—*Thos. H. Whitney*. Unfavorable weather retarded plowing and planting and reduced the product of spring farrowing. The soil has been wet and heavy notwithstanding that the precipitation was but a little above the normal.

BONAPARTE—*B. R. Vale*. Small grain all sown prior to the 12th when the rainy weather began. Grass is starting very slowly. No corn has been planted but the plowing is all done.

BRIT—*Geo. P. Hardwick*. Excessive cloudiness and low temperatures have prevailed and frost is not yet all out of the ground. Only about one-half of the oats and barley has been seeded. Trees do not show a green leaf or any bloom.

CHARITON—*C. C. Burr*. The season is 14 days late. Quite a large portion of the acreage intended for oats will not be sown as the soil is too wet for field work, but the early sown oats are coming up. The prospects for a fruit crop are fairly good.

CLINTON—*Luke Roberts*. The mean temperature was about 2.5° below the normal and the rainfall, 7.72 inches, was 3.2 inches more than the previous highest April record for the past 31 years. In April, 1882, the total rainfall was 7.40 inches.

CORYDON—*Clara Miller*. There have been two or three spring-like days during the month and the ground is very cold and wet. Farm work is fully three weeks late and some oats are still being sown. The early sown oats show a good stand.

CRESTON—*Edgar Stovall*. Continued cold and wet weather has retarded all farm work. The acreage of oats will be about 50% less than last year.

DAVENPORT—*J. M. Sherier*. The total precipitation for the month was 2.67 inches above the normal. A trace, or more, of rain fell on 20 days. A severe hailstorm occurred on the evening of the 5th, many of the hailstones measuring an inch in diameter and hundreds of square feet of glass in greenhouses were broken in this vicinity. A number of windows were blown in and some signs were broken by a wind that attained a velocity of 41 miles per hour, from the south, on the afternoon of the 6th.

DECORAH—*F. H. Baker*. One-half of the month has been stormy and some farmers have not yet sown any small grain.

DELAWARE—*Wm. Ball*. A hailstorm on the 29th did some damage to fruit buds.

DUBUQUE—*James H. Spencer*. No April, at this station, during the past 36 years has been so cold and wet. There was slightly more rain during April, 1896, but it was a warm month, while April, 1907, was colder but the rainfall was comparatively light. High winds occurred on the 6th, 7th, 11th, 28th and 29th; plate glass windows were broken and other minor damage done. There were six days with thunder storms, and on the night of the 28th-29th a residence was struck by lightning and burned to the ground. Vegetation has grown very slowly and the ground has been too wet to work thruout the month. Very little seeding has been done, and there is much complaint of the backward spring.

ELLIOTT—*Henry Barnes*. Too cold for the growth of vegetation. Small grain is all in and up with a good stand.

FAIRFIELD—*Prof. R. M. McKenzie*. The month has been cold and wet and crops and foliage on trees are backward. Heavy windstorms occurred on the 11th-12th and 28th-30th and light snow flurries occurred on the 8th, 12th and 30th.

FAYETTE—*R. Z. Latimer*. More rain and snow fell during the month than during any April for the past 20 years.

GRAND MEADOW—*F. L. Williams*. The month has been cold and wet. Seeding began on the 16th but not over one-third of it is finished.

GREENE—*J. L. Cole*. Mourning doves appeared on the 10th and wrens on the 22d. A high wind on the 29th blew down windmills and did some slight damage to buildings.

GRINNELL—*D. W. Brainard*. No fruit blossoms of any kind appeared during the month.

HANCOCK—*G. C. Rogers*. Oats are just coming thru the ground.

HOPEVILLE—*M. T. Ashley*. The storm on the 28th was destructive, washing out fills and approaches to bridges. One man near here in Decatur county lost four horses and two mules by lightning and there was some stock drowned. Rural mail carriers have not made their rounds since the storm.

INWOOD—*F. B. Hanson*. This has been the coldest and most backward April for many years and spring work is two to three weeks late. Seeding is barely finished and plowing for corn just started. The month closed cold with a snowstorm.

KEOSAUQUA—*J. H. Landes*. The month has been cold and damp. Oats are looking fairly well but on account of bad weather and high price of seed probably only 80% of the average acreage was seeded. Corn planting will begin May 1st.

LENOX—*J. L. Hurley*. Considerable damage was done to window glass by the hailstorm on the 29th.

MASSENA—*C. E. Smeltzer*. The wet weather has caused a reduction in the acreage of small grain.

NORTHWOOD—*Chas. H. Dwelle*. Seeding is about half done and grass and foliage have not yet started.

OLIN—*C. M. Miles*. The month has been very cold and wet but the oats are all sown and there is sufficient grass in pastures for stock.

OSKALOOSA—*Jos. Boyd*. About 25% of the acreage intended for small grain was not seeded on account of wet weather.

PACIFIC JUNCTION—*H. H. McCartney*. This has been the coldest and cloudiest April I can recall since 1869. The month closed with a storm and cold wave as did April, 1903. On the night of April 30th-May 1st the minimum temperature was 25°—just 2° lower than in 1903.

PELLA—*John H. VerSteeg*. The month was cold and wet with but little sunshine. Seeding was not finished at the close of the month. This has been the most backward spring since 1881. Grass is short and trees and shrubs do not show any leaves yet. There was a severe hailstorm on the 28th and a snowstorm on the 30th.

PLOVER—*J. S. Smith*. There was a regular blizzard on the morning of the 30th with two inches of snow. The temperature was down to 24° on May 1st. Hay is scarce and grass will be later than in 1881. Season is 20 days late.

RIDGEWAY—*Arthur Betts*. April, 1909, breaks the April record for the past 11 years for the number of days with snow, the number of days with hail, high winds, the amount of rainfall, and the amount of snowfall and has had the least amount of sunshine but it was not as cold as April, 1907.

ROCK RAPIDS—*W. C. Wyckoff*. On the 30th we had a regular blizzard and at times the snow was very dense, then in a few minutes it would almost cease.

SAC CITY—*E. N. Baily*. The month has been cold with frequent storms and snow flurries but the small grain is all sown. Blue grass is well started and timothy and clover sown last year is promising.

STOCKPORT—*C. L. Beswick*. Oats show a good stand and clover and timothy promise a good crop of hay.

WEST BEND—*Phil Dorweiler*. The weather has been unseasonable and farm work is backward. On the night of the 28th-29th there was a thunderstorm with hail and high wind that did considerable damage to property.

ERRATA.

Carroll, January: Total precipitation, recorded on pages 6 and 10 as 1.37 inches, should have been 1.77 inches.

Chariton, January: Maximum temperature recorded on the 30th, on page 8, as 4°, should have been 6°; mean maximum temperature, page 8, recorded as 34.2°, should have been 34.3°; mean monthly temperature recorded on page 7 as 24.7°, should have been 24.8°.

De Soto, January: Lowest temperature recorded on page 6 as -18°, should have been -16°.

Elliott, January: Maximum temperature recorded on the 6th, on page 8, as -3°, should have been 8°; maximum temperature on the 12th, recorded as 7°, should have been 10°; mean maximum tempera-

ture recorded as 32.1°, should have been 32.5°; mean monthly temperature recorded on page 7 as 23.2°, should have been 23.4°.

Fort Dodge, January: Maximum temperature recorded on the 6th, on page 8 as -9°, should have been -8°.

Independence, January: Maximum temperature recorded on the 5th on page 8, as 12°, should have been 32°; mean maximum, 30.0°, should have been 30.6°; mean monthly temperature, recorded on page 6 as 21.0°, should have been 21.3°.

Hampton, January: Total precipitation, recorded on pages 6 and 10 as 2.61 inches, should have been 3.21 inches.

Iowa Falls, January: Maximum temperature, recorded on the 7th, on page 8, as 5°, should have been 9°; minimum temperature on the 8th, recorded as -3°, should have been -10°; maximum temperature on the 11th, recorded as 0°, should have been 6°; minimum temperature recorded on the 14th as 24°, should have been 14°; mean maximum temperature recorded, 26.3°, should have been 26.6°; mean minimum temperature recorded 11.8°, should have been 11.2°; mean monthly temperature recorded on page 6 as 19.0°, should have been 18.9°.

Rock Rapids, January: Maximum temperature recorded on the 10th, on page 9, as -2°, should have been 0°; maximum on the 29th, recorded -5°, should have been 10°; mean maximum temperature recorded 19.6°, should have been 20.8°; mean monthly temperature recorded on page 6 as 13.2°, should have been 13.8°.

March Review: Under Sunshine and Cloudiness, page 25, number of partly cloudy days, recorded as 19, should have been 10.

Omaha, March: Maximum temperature recorded on the 8th on page 29, as 26°, should have been 29°; mean maximum recorded 43.4°, should have been 43.5°; mean monthly temperature recorded on page 28 as 35.7°, should have been 35.8°.

CLIMATOLOGICAL DATA FOR IOWA, APRIL, 1909

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days	No. partly cloudy days			No. cloudy days
NORTHERN SECTION																				
Algona	Kossuth	1,213	34	40.4	-5.8	72	26	20	* 9	38	3.48	+1.00	1.15	7.0	11	15	6	9	se, nw	Dr. F. T. Seeley
Alta	Buena Vista	1,513	17	39.9	-6.8	75	26	20	9	43	2.77	-0.26	.64	5.0	15	10	11	9	se	D. E. Hadden
Alta (near)	Buena Vista										2.38		.55	7.5	14					W. J. Minard
Alton	Sioux	1,305	3	41.8		77	26	21	9	43	2.80		.76	12.5	10	15	5	10	nw	W. S. Slagle
Britt	Hancock	1,236	11	39.8	-6.2	74	26	19	10	37	2.90	+ .69	1.10	4.5	12	0	21	9	nw	G. P. Hardwick
Charles City	Floyd	1,015	20	40.2	-6.1	68	17	20	10	32	5.40	+2.57	2.18	2.3	16	3	12	15	nw	Weather Bureau
Clear Lake	Cerro Gordo	1,241	9	40.4	-6.6	69	26	19	*10	35										Oscar Stevens
Decorah	Winneshiek	975	15	41.5	-5.2	68	17	17	10	33	5.90	+3.40	1.12	4.0	15					F. H. Baker
Dows	Wright	1,142	8	40.0	-6.3	67	17	18	10	37	4.03	+1.78	.83		10	10	10	10	n	G. D. Flett
Elkader	Clayton	727	27	43.0	-5.0	70	17	15	10	33	7.80	+5.11	3.60	1.8	14	4	12	4	se	Chas. Reinecke
Elma	Howard			40.0		66	*17	14	10	34	4.57		1.10	13.0	14	3	18	9	se	H. A. Moore
Estherville	Emmet	1,298	12	38.8	-7.5	73	26	20	*10	40	2.73	+ .52	.60	7.0	8	17	0	13	nw	A. O. Peterson
Fayette	Fayette	1,003	18	40.8	-5.7	70	17	14	10	35	8.02	+5.00	3.57	5.2	12	12	8	10	se, nw	R. Z. Latimer
Forest City	Winneshiek	1,226	14	39.0	-7.5	72	27	17	9	41	3.57	+1.20	.85	7.5	13	10	11	9	w	J. A. Peters
Grand Meadow	Clayton	1,180	17	40.2	-6.6	67	17	19	10	32	7.67	+4.70	2.74	6.8	14	7	11	12	nw	F. L. Williams
Greene	Butler		9	41.8	-6.3	68	17	19	10	34	4.10	+1.87	.78	3.5	13	2	14	14	w	J. L. Cole
Hampton	Franklin	1,155	18	41.4	-5.9	67	*17	19	10	35			.91	6.0	15	6	15	9	nw	E. C. Grenelle
Humboldt	Humboldt	1,095	17	42.4	-5.9	68	24	22	* 9	37	3.45	+ .84	.68	1.0	11	19	1	10	nw	H. S. Wells
Inwood	Lyon	1,474	4	40.4		72	*17	18	* 1	45	2.77		.90	15.6	12	13	6	11	ne, nw	F. B. Hanson
Larrabee	Cherokee	1,266	17																	H. B. Streever
Le Mars	Plymouth	1,224	12	41.8	-6.2	76	26	22	8	40	2.71	- .48	1.04		12	4	16	10	nw	G. A. Clarke
Mason City	Cerro Gordo	1,132	11	39.4	-8.3	67	17	18	10	34	4.09	+1.44	.70	3.2	13	7	13	10	nw	J. S. Mills
Merrill	Plymouth																			Eric Oleson
New Hampton	Chickasaw	1,169	11	40.2	-6.7	65	17	17	10	31	9.43	+7.48	4.60	3.0	13	10	8	12	n, e, s	A. F. Kemman
Northwood	Worth	1,222	12	39.3	-7.2	66	17	18	9	33	4.30	+2.14	.66	20.8	15	10	10	10	nw	Charles H. Dwelle
Osage	Mitchell	1,184	17	41.0	-4.4	66	*17	16	10	35	3.86	+1.41	.67	13.5	10	11	3	16	nw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	12	41.4	-5.2	75	26	20	13	41	2.47	+ .37	.70	5.0	9	17	5	8	nw	J. S. Smith
Pocahontas	Pocahontas		4	40.6		74	26	21	9	41	2.85		.66	3.0	11	14	2	14	n	F. E. Hronek
Ridgeway	Winneshiek	1,215	10	41.0	-6.6	71	17	19	* 9	35	6.94	+4.50	1.12	11.5	17	10	9	11	s	Arthur Betts
Rock Rapids	Lyon	1,358	9	37.0	-9.2	70	27	18	13	49										W. C. Wyckoff
Sheldon	O'Brien	1,422	8	41.8	-5.3	78	26	18	9	40	3.05	+1.32	1.00	15.0	8	6	9	15	nw	Dr. A. W. Beach
Sibley	Osceola	1,212	15	40.9	-5.2	76	26	17	* 9	46	2.60	+ .27	.53	9.1	14	9	5	16	nw	H. G. Doolittle
Sioux Center	Sioux		9	40.6	-5.4	75	26	19	9	48	2.50	+ .30	.60	13.0	9	8	6	16	nw	J. de Ruyter
Storm Lake	Buena Vista	1,440	12	42.2	-3.2	74	27	20	* 9	52	2.08	+ .26	.57	1.5	11	12	6	12	w	S. B. Fracker
Washta	Cherokee	1,157	10	43.2		77	26	19	15	44	2.33	+ .23	.60	6.5	10	8	10	12	nw	H. L. Felter
Waverly	Bremer	948	12	42.0	-5.0	69	17	24	9	32	7.83	+5.14	2.03		15	2	16	12	nw	H. S. Hoover
West Bend	Palo Alto	1,197	14	41.1	-5.2	72	26	21	* 9	39	2.51	+ .21	1.22	2.5	10	10	7	13		Phil Dorweiler
Average				40.7	-6.1	71		19		38	4.18	+1.71		7.3	12	9	9	12	nw	
CENTRAL SECTION																				
Amana	Iowa	721	31	45.5	-3.1	73	6	18	10	33	6.81	+3.90	1.13	2.6	15	6	13	11	se	Conrad Schadt
Ames	Story	926	27	47.7	-1.4	81	26	25	23	49	6.12	+3.45	1.99		14	13	10	7	nw	Iowa State College
Audubon	Audubon	1,301	15	43.2	-5.5	78	26	21	27	43	2.72	- .52	.66	2.1	11	7	8	15		Geo. E. Kellogg
Baxter	Jasper	998	8	44.2	-4.6	76	26	19	10	37	6.49	+3.62	1.33	1.0	19	12	6	12	nw	W. R. Vandike
Belle Plaine	Benton	828	18	44.4	-4.5	72	6	17	10	35	6.48	+3.17	1.56	4.0	15	7	10	13	se	S. P. Vandike
Boone	Boone	1,134	3	42.2		80	26	23	10	42	4.31		1.30	T	13					Carl Fritz Henning
Buckingham	Tama		8								5.22	+2.15	1.00	T	10					Dr. W. A. Daniel
Carroll	Carroll	1,265	18	41.1	-7.0	80	26	21	9	48	2.53	- .67	.74	1.2	13	9	10	11		Mrs. Joseph J. Wolfe
Cedar Rapids	Linn	733	26	44.4	-5.3	73	7	20	*10	46	6.36	+3.62	1.35	T	10	6	13	11	s	Electric Light & P. Co.
Clinton	Clinton	593	40	46.8	-1.8	76	17	16	10	33	7.72	+4.71	2.74	T	9	9	12	9	w	Luke Roberts
Davenport	Scott	580	36	46.8	-3.4	81	29	22	10	41	6.02	+3.14	1.97	T	17	10	6	14	nw	Weather Bureau
Delaware	Delaware	1,083	17	41.1	-4.7	67	17	15	10	31	5.66	+2.88	2.05	1.8	11	9	16	5	se	Wm. Ball
Denison	Crawford	1,180	13	43.2	-4.9	78	26	21	13	44	2.20	-1.25	.85	0.8	15	14	5	11	n	W. C. Van Ness
Des Moines	Polk	861	29	45.1	-5.5	76	26	24	10	34	5.14	+2.16	1.34	T	15	3	10	17	nw	Weather Bureau
De Soto	Dallas	866	8	45.6	-4.1	78	26	24	10	35	5.03	+3.25	1.76	T	10	15	2	13	nw	R. D. Minard
Dubuque	Dubuque	639	35	43.4	-5.6	66	17	21	10	29	7.40	+4.48	2.45	1.7	18	7	10	13	nw	Weather Bureau
Fort Dodge	Webster	1,126	8	40.6	-6.8	75	26	23	* 9	40										J. F. Monk
Gilman	Marshall	1,052	9								6.18	+3.82	1.59		12					Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	45.4	-4.9	75	26	19	10	36	5.72	+2.34	1.12		12	4	16	10	nw	D. W. Brainard
Grundy Center	Grundy	976	17	43.6	-3.8	70	17	24	9	36	7.37	+4.32	1.90	1.0	10	8	11	11	s	J. B. Calderwood
Guthrie Center	Guthrie	1,077	13	44.9	-4.4	79	26	24	* 9	45	4.35	+1.61	1.08	1.5	15	12	6	12	nw	D. G. Beardsley
Harlan	Shelby	1,192	9	44.0	-4.3	80	26	23	* 8	42	2.76	+ .30	.70	T	15	4	14	12	ne	C. A. Reynolds
Independence	Buchanan	921	43	42.4	-7.0	69	17	21	10	36	15.84	+3.46	1.75		9	13	7	10	nw	George Donohue
Iowa City	Johnson	633	49	45.2	-2.3	73	6	17	10	44	7.21	+4.07	1.92	0	17	9	7	14	se	Prof. Karl E. Guthe
Iowa Falls	Hardin	1,170	15	40.8	-5.9	69	17	19	10	37	5.31	+2.43	1.41	3.0	13	13	2	15	nw	J. B. Parmelee
Jefferson	Greene			48.8		81	27	31	9	47	1.48	-1.12	.50	T	5	6	11	13	n	Geo. W. Jackson
Le Claire	Scott	576									6.29	+3.92	1.83	T	15					Margaret T. Disney
Little Sioux	Harrison		4	45.2		82	26	20	* 8	42	1.83		.59	0.5	10	11	3	16	nw	Geo. H. Gibson
Logan	Harrison	928	42	45.6	-4.3	83	26	23	8	45	2.09	- .72	.42	T	13	10	11	9	nw	Glenn H. Stern

CLIMATOLOGICAL DATA FOR IOWA, APRIL, 1909—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	Number clear days	Number partly cloudy days			Number cloudy days
SOUTHERN SECTION																				
Afton	Union	1,212	14	46.4	-4.0	78	26	22	9	40	5.24	+ .87	1.35	0.5	10	5	12	13	ne	N. W. Rowell
Albia	Monroe	959	10	45.0	-4.6	80	29	21	* 3	43	5.36	+2.53	1.21	0.5	17	10	5	15	nw	J. I. Chenoweth
Allerton	Wayne	6	6	47.2	-3.1	79	29	23	10	36	4.40	+1.20	1.76	3.0	12	16	2	12	nw	Mrs. Geo. Shriver
Atlantic	Cass	1,247	17	45.0	-3.7	81	26	24	8	39	3.83	+ .77	0.71	1.5	15	4	7	19	ne, se, nw	Thos. H. Whitney
Bedford	Taylor	8	8	47.0	-2.3	82	26	22	* 9	39	3.41	+ .60	1.02	2.0	12	10	4	16	nw	E. E. Healy
Bloomfield	Davis	881	17	45.4	.....	84	29	20	10	43	3.92	.....	1.44	1.0	15	10	7	13	nw	F. H. Roberts
Bonaparte	Van Buren	17	17	48.4	-1.8	81	29	19	10	40	3.51	+ .16	.88	1.0	12	.....	.....	.....	sw	Hon. B. R. Vale
Burlington	Des Moines	544	12	48.4	-3.1	86	29	19	10	40	3.51	+ .16	.88	1.0	12	.....	.....	.....	sw	M. E. Poppe, Jr.
Chariton	Lucas	1,042	13	47.0	+0.5	78	29	22	10	37	5.01	+1.88	1.45	1.0	7	11	8	11	se	C. C. Burr
Clarinda	Page	1,009	18	45.6	-5.3	82	26	25	* 1	46	2.91	- .28	1.09	1.0	14	12	3	15	s, nw	A. S. Van Sandt
Columbus Junction	Louisa	595	7	48.0	-1.7	82	29	19	10	42	5.16	+2.38	1.30	0.5	13	12	6	6	nw	J. B. Johnston
Corning	Adams	1,117	16	45.8	-4.0	80	26	20	9	38	4.82	+1.69	1.18	2.0	11	10	7	13	nw	Jerome Smith
Corydon	Wayne	1,101	15	47.6	-3.4	78	*26	23	10	34	4.74	+1.58	1.78	T	14	10	10	10	nw	Clara Miller
Creston	Union	1,312	3	43.6	.....	80	26	23	* 9	46	4.85	.....	1.34	0	13	13	6	11	se, nw	E. S. Stovall
Cumberland	Cass	9	9	.....	.....	.....	.....	.....	.....	.....	5.36	+3.27	1.16	4.0	12	11	5	14	sw	J. H. Reppert
Earlham	Madison	6	6	45.1	-2.7	77	26	24	* 9	37	7.20	+3.54	1.53	T	13	9	5	16	nw	Geo. Phillips
Elliott	Montgomery	3	3	46.2	.....	82	26	25	8	43	4.05	.....	1.08	2.0	10	15	6	9	ne	Henry Barnes
Fairfield	Jefferson	14	14	47.0	-2.8	82	29	16	10	41	4.84	+1.36	1.10	T	12	12	9	9	nw	R. Monroe McKenzie
Fort Madison	Lee	516	59	.....	.....	.....	.....	.....	.....	.....	3.98	+ .80	.72	T	10	6	9	15	s	Miss L. A. McCreedy
Greenfield	Adair	17	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Geo. Brooks
Hancock	Pottawattamie	1,113	2	45.0	.....	80	*26	20	8	52	0.83	.....	.20	0	10	13	6	11	nw	G. C. Rogers
Hopeville	Clarke	17	17	46.4	-3.3	77	26	23	* 9	37	6.31	+3.08	1.80	T	13	1	12	17	nw	M. T. Ashley
Indianola	Warren	939	17	b46.3	-4.4	b75	26	c22	23	c39	3.94	+ .54	.95	T	13	7	3	20	nw	Prof. J. L. Tilton
Keokuk	Lee	574	37	50.6	-1.4	85	29	25	10	39	4.99	+1.65	1.24	T	11	12	9	9	se	Weather Bureau
Keosauqua	Van Buren	644	16	47.6	-4.0	85	29	19	10	45	4.20	+ .51	1.07	T	13	5	8	17	.....	J. H. Landes
Knoxville	Marion	920	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Casey & Bellville
Lacona	Warren	9	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent C., B. & Q. Ry.
Lamoni	Decatur	.....	.....	47.8	.....	82	29	23	9	39	4.36	.....	1.52	T	17	17	2	11	nw	T. J. Fitzpatrick
Lenox	Taylor	1,250	13	46.2	-3.8	79	26	22	* 8	44	6.19	+3.16	3.00	1.2	11	16	6	8	n	J. L. Hurley
Leon	Decatur	1,120	6	47.0	-4.3	79	26	23	10	38	5.67	+2.25	1.65	T	13	6	7	17	nw	Morris Gardner
Massena	Cass	3	3	45.0	.....	80	26	22	9	45	4.89	.....	1.09	.....	9	10	5	15	ne	C. E. Smeltzer
Mt. Ayr	Ringgold	1,236	15	47.0	-3.8	79	18	22	9	49	5.55	+2.27	*2.00	T	13	8	8	14	nw	A. F. Beard
Mt. Pleasant	Henry	729	26	48.5	-2.6	84	29	20	10	41	3.92	+ .71	.93	T	17	7	15	8	nw	Prof. J. W. Edwards
Omaha, Neb.	Douglas	1,040	38	45.6	-4.9	83	26	26	8	37	1.34	-1.67	.25	1.3	10	6	7	17	n	Weather Bureau
Oskaloosa	Mahaska	843	24	46.4	-3.6	79	29	19	10	42	6.29	+3.56	1.50	2.5	15	11	0	19	sw, w	Jos. Boyd
Ottumwa	Wapello	649	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. Jas. A. Hull
Pacific Junction	Mills	969	9	46.9	-3.1	85	26	23	8	46	2.59	+ .04	.83	T	12	3	22	5	n	H. H. McCartney
Pella	Marion	877	6	46.5	-3.3	75	6	19	10	35	2.36	+3.84	1.62	T	17	14	6	10	nw	John H. Ver Steeg
St. Charles	Madison	1,070	7	46.1	-4.5	77	* 4	22	+ 10	36	7.16	+3.64	1.38	T	15	11	11	8	nw	R. D. Minard
Sigourney	Keokuk	877	12	47.0	-4.2	80	29	18	10	38	5.78	+2.61	1.25	T	15	0	23	7	.....	J. T. Parker
Stockport	Van Buren	6	6	47.6	.....	83	29	17	10	39	3.69	+ .57	.82	1.5	15	10	7	13	s	C. L. Beswick
Thurman	Fremont	11	11	47.0	-3.6	84	27	24	* 8	46	2.21	-4.20	.54	.....	8	7	13	10	nw	C. R. Paul
Wapello	Louisa	588	10	48.4	-3.0	80	29	20	9	37	4.20	+1.61	1.23	T	11	14	10	6	s	Geo. W. Schofield
Washington	Washington	769	27	46.8	-3.7	83	29	19	10	42	5.01	+2.35	1.36	.....	17	2	19	9	nw	Wm. A. Cook
Winterset	Madison	1,129	17	45.6	-4.8	76	26	24	* 8	36	5.82	+2.10	1.17	T	14	4	12	14	n	Dr. Robert S. Cooper
Woodburn	Clarke	961	9	46.0	.....	78	26	17	9	40	5.72	+2.86	1.67	T	13	7	9	14	nw	C. B. McDonough
Average	.....	.....	.....	46.7	-3.6	81	.....	21	.....	41	4.60	+1.46	.....	0.7	13	9	9	12	nw	.....
State average	.....	.....	.....	43.8	-4.7	76	.....	20	.....	39	4.58	+1.75	.....	3.1	12	9	9	12	nw	.....

* And other dates. a one day missing, b two days; c three days; d four days, etc. † Received too late to be included in average. ‡ Partly estimated.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR THE MONTH OF APRIL, 1909

STATIONS	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		Monthly Mean							
	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.	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.														
Afton	45	34	54	26	58	31	75	40	65	41	66	40	47	33	43	25	41	22	55	23	70	45	66	41	57	25	59	37	44	28	53	36	74	37	72	41	52	32	58	35	48	40	50	30	64	28	68	40	60	38	78	38	56	30	59	38	71	43	44	53	38.4	34.3						
Albia	41	31	56	27	57	21	74	34	66	34	76	44	50	35	43	20	41	26	57	21	71	45	69	37	52	26	54	30	44	31	55	32	74	39	73	46	54	39	54	35	49	37	51	31	59	30	66	36	57	41	78	41	52	33	55	34	80	37	41	33	57.1	32.9						
Algona	48	30	52	31	52	29	60	37	52	27	43	32	42	30	36	25	34	20	45	20	68	37	46	32	46	20	38	29	46	24	62	37	63	38	59	40	53	30	55	28	47	35	42	29	55	21	67	29	56	32	72	44	60	23	42	34	39	35	39	30	50.6	30.3						
Allerton	42	32	54	29	56	33	75	42	65	45	74	41	51	34	45	25	42	21	51	23	69	44	66	32	53	25	55	40	45	32	51	40	75	43	72	44	51	38	50	41	47	43	53	30	59	30	65	37	58	41	77	41	63	33	61	38	79	46	46	34	58.3	36.0						
Alta	41	31	52	31	55	27	62	30	53	35	35	32	38	30	38	23	37	20	53	21	66	25	45	31	46	23	37	29	45	26	65	30	67	37	45	42	55	28	52	32	41	35	43	29	64	30	69	31	63	30	75	32	52	22	46	24	40	35	35	28	50.5	29.3						
Alton	45	32	52	31	53	28	62	39	50	36	42	31	38	30	40	23	37	21	54	25	62	45	49	31	44	22	43	29	46	25	64	35	68	37	64	39	55	27	52	25	45	32	43	29	64	23	71	30	64	32	77	44	65	22	51	36	46	35	39	30	52.8	30.8						
Amana	50	27	55	29	54	37	67	39	64	45	73	47	52	36	41	29	38	26	46	18	67	39	62	33	50	26	47	35	45	34	55	43	68	35	67	45	53	40	58	36	53	41	52	31	50	26	66	40	58	41	63	40	59	34	47	38	62	41	42	34	55.5	35.5						
Ames	47	33	56	34	63	34	71	45	68	57	77	47	57	40	40	38	38	50	50	75	75	75	67	53	36	50	34	43	28	60	38	70	36	69	41	54	33	60	37	59	38	47	32	60	30	65	28	68	38	63	36	81	44	77	28	72	40	67	39	64	32	59.9	35.5					
Atlantic	42	33	54	30	56	32	67	41	60	39	50	35	45	33	44	24	41	26	57	25	69	47	55	32	54	26	48	34	43	27	53	34	73	36	68	40	52	32	55	39	45	38	50	30	65	28	69	41	61	37	81	44	68	29	55	41	55	40	40	33	55.8	34.2						
Audubon	43	32	54	28	53	29	65	38	58	37	50	34	41	32	39	23	38	22	55	23	68	45	53	32	50	23	47	31	42	24	55	36	70	31	67	39	51	30	56	35	46	37	47	28	65	24	68	39	65	38	78	50	64	21	51	38	51	38	40	30	54.3	32.2						
Baxter	42	29	55	29	55	31	70	39	62	37	65	39	49	32	40	25	39	24	51	19	67	39	64	32	55	23	51	34	43	27	53	37	70	34	70	41	54	34	57	33	47	38	50	29	57	24	66	24	66	29	52	44	70	32	68	39	71	44	44	33	59.4	34.7						
Bedford	50	33	55	26	57	30	67	43	65	46	60	38	47	32	46	24	45	22	60	24	72	49	69	34	57	22	58	39	44	29	52	38	79	40	70	41	50	23	56	39	46	39	52	29	63	31	66	40	62	39	82	44	70	32	68	39	71	44	44	33	59.4	34.7						
Belle Plaine	49	29	58	31	58	35	68	40	65	42	72	44	52	34	38	27	39	23	49	17	67	37	38	36	52	24	46	34	40	30	55	37	70	35	65	55	55	37	59	35	49	36	51	29	55	25	66	38	60	38	65	39	52	32	47	33	60	39	41	31	52.7	31.7						
Bloomfield	41	30	55	27	59	34	78	38	70	51	77	47	54	35	44	28	43	23	51	20	72	40	59	32	55	26	54	37	49	34	52	40	79	43	73	52	53	40	56	41	51	43	54	32	60	27	70	40	42	44	80	37	61	36	59	38	84	45	54	35	60.4	36.5						
Bonaparte	49	30	57	30	58	34	75	42	72	48	74	47	57	40	42	27	44	23	48	19	69	40	63	33	52	27	49	37	46	37	57	42	76	43	67	44	55	42	58	40	49	44	54	32	57	27	67	38	61	45	78	39	59	38	57	38	84	44	50	36	59.5	37.2						
Boone	39	32	54	33	56	32	68	32	58	38	50	36	44	31	35	26	39	24	54	23	65	25	46	32	52	25	45	29	43	28	58	31	68	37	52	42	53	32	55	36	45	40	46	31	59	28	67	32	59	34	80	38	51	27	50	29	47	38	41	31	52.7	31.7						
Britt	51	27	49	29	50	29	53	38	51	40	44	32	43	30	34	25	31	20	41	19	60	35	42	31	45	20	36	28	47	23	61	37	64	35	58	38	52	28	52	29	48	35	35	27	49	21	63	30	53	27	49	21	63	30	53	32	74	45	60	23	50	29	47	38	41	31	52.7	31.7
Burlington	52	31	55	32	58	33	68	38	77	45	73	50	58	44	44	29	44	24	55	22	67	38	55	50	52	29	50	34	51	35	58	31	75	43	70	45	54	42	60	41	53	40	58	33	55	30	65	39	65	45	75	40	56	42	55	41	86	44	44	37	59.6	37.1						
Carroll	39	29	55	29	55	27	68	34	58	36	38	32	44	31	41	23	42	21	54	22	68	26	48	27	53	22	41	29	45	23	60	30	69	34	52	42	53	29	55	32	42	38	48	28	62	25	69	31	62	32	80	32	54	24	49	25	43	37	40	29	52.9	29.3						
Cedar Rapids	51	27	53	27	53	33	67	37	63	39	73	47	52	35	53	29	37	27	45	20	66	20	40	39	51	27	46	29	47	35	56	35	70	35	66	40	54	41	57	87	51	37	51	33	55	29	69	31	62	32	80	32	54	24	49	25	43	37	40	29	52.9	29.3						
Chariton	47	32	55	28	56	33	75	40	70	42	74	40	49	34	43	26	41	23	61	22	70	43	60	31	54	25	53	39	43	37	72	37	70	43	52	36	54	38	49	41	51	30	59	29	66	39	60	38	76	39	59	38	57	38	84	44	50	36	59.5	33.9								
Charles City	48	26	49	32	52	35	58	35	56	35	39	32	46	30	34	26	32	22	43	20	60	37	42	30	49	25	36	30	46	27	61	38	68	36	60	45	55	34	56	34	46	33	40	29	50	24	65	33	56	33	59	43	48	28	40	32	38	34	35	30	48.9	31.6						
Clarinda	47	25	58	26	57	32	74	36	63	40	54	37	48	31	47	25																																																				

MONTHLY REVIEW OF THE

DAILY PRECIPITATION FOR IOWA, APRIL, 1909

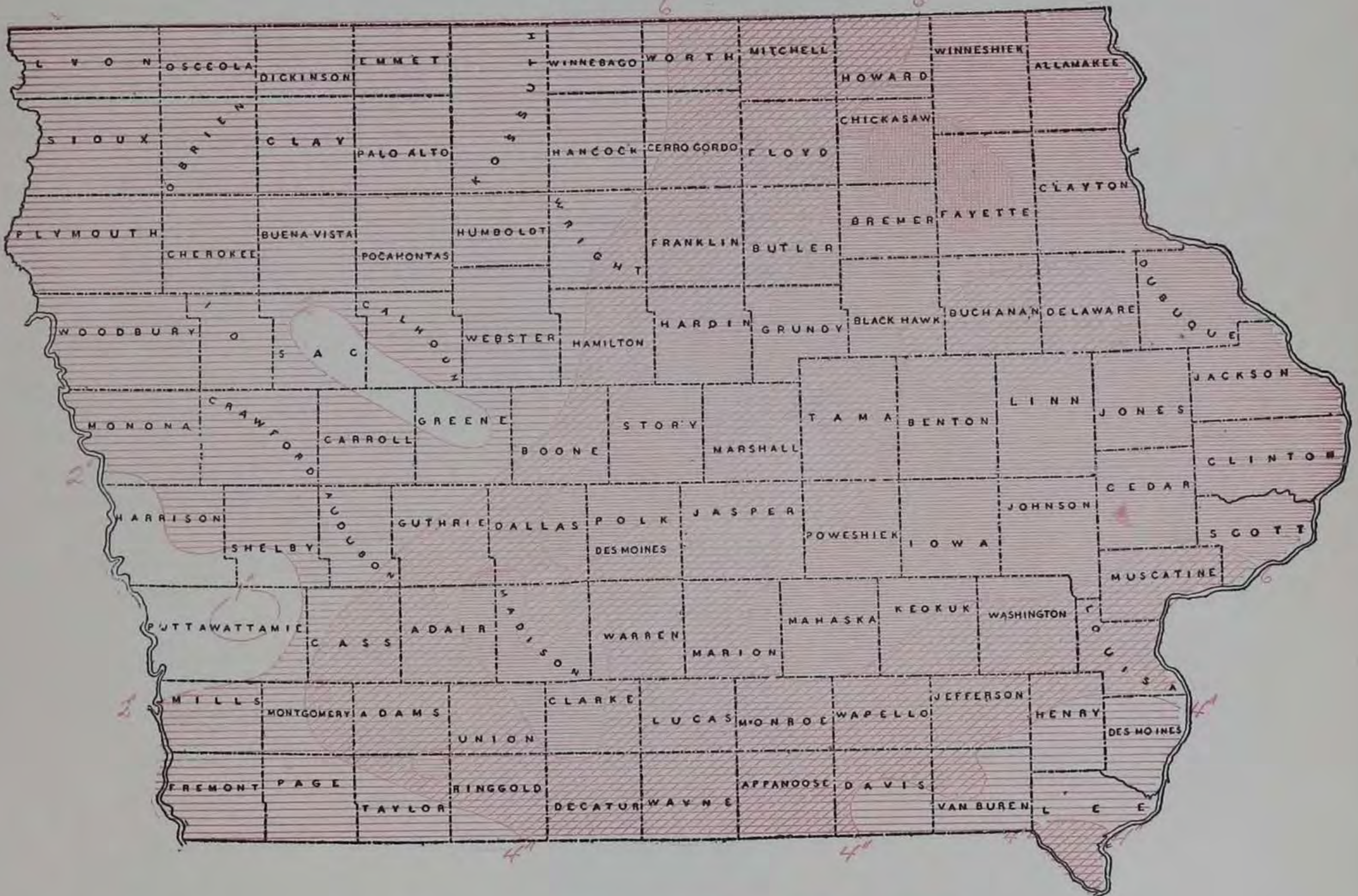
STATIONS	DAY OF MONTH																														TOTAL			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				
Afton	.05	T						T			1.35		.03	.17	.22		.39			1.13														5.24
Albia	.10	T				.03		T	T		1.21	.45	.03	.04	.45	.15	.15	.47		.75	.04		.03	.30	.48		.04	1.38					5.36	
Algona						.26	.16				.19		.25		T	.12	.33		T	.77		T	.13			.20	.95	.12					3.48	
Allerton	.37	T				T		T			1.76		.05	.20	.42		.35			.85		T		.15	.09	.05	.06	.05					4.40	
Alta	.34					.01	.38				.19		.04	.03	.02		.35	T		.55	.09		.01			.10	.05	.31	.15				2.77	
Alta (near)	.28					.10	.10				.18		.09	T	.03	.40			.04	.55						.10	.05	.31	.15				2.38	
Alton	.50					.35	.25				T		.25	T		.11			T	.34		T	.04			.05	.76	.15					2.80	
Amana		.06				.33		T			1.00		.06	.27	.33		1.13		.90		.20	.03	.47	.39		.01	1.09	.04					6.81	
Ames	.03					.25	T	.02			1.42		.13		.31		1.22		.51		.06		.06	.06	.04	T	1.99	.02					6.12	
Atlantic	.44	.02				.22	T				.71		.07	.60		.28	.09		.04	.33		T	T	.65		.04	.26	.01					3.83	
Audubon	.15					.18					.50		.66	.04		.10			.20	.15		T	.48			.15	.11	.07					2.72	
Baxter	.10	.05				.64	.03	.01			1.33		.16	.50	.50	.02	1.06		.75		.29		.33	.03	.13	.02	.52	.02					6.49	
Bedford	.50	.07				.07	T				1.02		.04	.11	.10		.24		.01	.81						.26	.15	.11					3.41	
Belle Plaine		.10			.28	.13	T	T			.80		.37		.80	.02	1.02		.70			.13	.08	.36		.06	1.56	.07					6.48	
Bloomfield	.21	.07				.14		T			1.44		.03	.22	.64	.01	.26	.01		.60			.01	.09		.05	.14	T					3.92	
Bonaparte		.06									.88		.10	.34	.60	.03	.54			.55			.08		.06	.02	.25	T					3.51	
Boone		T				.27	.08		T		1.30	T	.14		.18	T	.42	.36		.52	.02		T	.11		.08		.67	.16				4.31	
Britt		T				.14	.12		T				.25		.05	.08	.18			.55			.06	.01		.21	1.10	.15					2.90	
Buckingham						.10	T				.87		.17	.38		.47	.38			.60		T		.70		.55	1.00	T					5.22	
Burlington			.07			.50	.06		T	T	.04	.58		.12	.16	.67		.52	.03	.57	.02			.01			.02	.42					3.79	
Carroll	.10	.05				.19	.08		T		.38		T	.12	.10		.05			.45	.05				.10		.74	.12					2.53	
Cedar Rapids		T			.09	.28		T			1.45		T	.55			1.27		.85			T	T	.75		1.35	.41	T					6.36	
Chariton	.38	T						T			1.45		T	.55			1.27		.85			T	T	.75		1.35	.41	T					6.36	
Charles City		.06				.34	.03		T		.15	.63		.48			1.16	1.02		.31			.08		.04	.01	.29	.55	.08				5.40	
Clarinda	.20	.07				.42					1.09		T	.13	.07	.05	.17		.38							.07	.09	.17						2.91
Clinton		.07				.64					.64		.09		.72		1.98		.68					.16			.07	.09	.17					7.72
Columbus Jct.	T	.02				.15		T			1.78		.20	.10	.84		1.30	.05		.55			.07	T	.30	.05	T	.75					5.16	
Corning	.20	.12				.62					1.78			.24	.02		.42			.48				.24			1.18	.12						4.82
Corydon	.31	.02				.11			T		1.78	T	.13	.24	.34		.45			.82			T		.03	.17	.01	T	.81	.02				4.74
Creston	.17	.18	.05			.13	T				1.30	.02	T	T	.42	.03	.22	.20		.30	T			.49		T	1.34	T					4.85	
Cumberland	.40					.36					1.16	.02		.85		.87			.32				.92			.05	.03	.21	.17					5.36
Davenport		.04			.46	.11	T	T	T		.49		.06	.72	.18	.01	1.97	T	.03	.57		.01	.09	.06	.02	.51	.69	T					6.02	
Decorah		.02				.55	.07				1.12		.85		T	.25	.55		.67			.03	.20	.33	.08	.40	.52	.26						5.90
Delaware		.03				.07					.31		.18		.30		1.45		.70					.36	.03	.18	2.05	T						5.66
Denison	.23	.04				.15	.01	T			.10		.06	.12		.05	.03		.41		T	.01	.01		.05	T	.85	.08					2.20	
Des Moines	.23	.02				.31	T	T	T		.41	.93		.10	.92		T	.71		.15	.61		T	.43	T	.16	.03	.03						5.14
De Soto	.18	T				.56		T			1.76		.13	.51	.37	T	.34			.50			.33		T	.35	T							5.03
Dows						.21	.11				.83		.67	.66					.67					.07		.12	.56	.13						4.03
Dubuque		.03			.21	.01	.01	T	T		.61		.06	.23	.01	.64	1.81		.03	.79		T	.04		.37	.06	.99	1.48	.02					7.40
Earlham	.40	.04				.73			T		1.53		.14	.78	.37		1.08		T	.53			.75	.21		.59	.05							7.20
Elkader						.10	.08		.02		.75		.35	.10			3.60		.72				.03	.20	.10	.45	1.20	.10						7.80
Elliott	.65	.08			.22						1.08		.24	.05		T	.13		.42				.95		.23		.23							4.05
Elma		T				.25	.05		.03		.05	.75		.10		T	.07	1.10		.40		T	T	.30	.27	.50	.50	.20						4.57
Estherville						T	.50		T		T		.30		.08	T	T		.60	T		T	.40			.25	.50	.10						2.73
Fairfield		T				.04		T			1.05		.11	.16	.65		1.10		.72		.21		.07	.23		.09	.41	T						4.84
Fayette		.02				.48	T	T			.25		.40		.08	.44	3.13		.80			T		.36		.48	.55	.03						8.02
Forest City		T					.50				.15		.13	.20		.10	.20	.10		.55			.32	T	.05	.25	.85	.20						3.57
Fort Dodge	T						.40	T	T		.25		.20	.10	T		.32	.20		.65	.06		T			.42	.25							
Ft. Madison				.70					T		.23		T		.20	.72	.60		.14	.60				.10			.69	T						3.98
Gilman	T	T				T		T			1.18	.12	T	.81	.03		1.59		.77			.20	.20		.17	.10	.93	.08						6.18
Grand Meadow						.38	.12		T		.82		.53	.03	T	.03	2.74		.65		T	.20	.10	.05	.40	1.40	.22							7.67
Greene		.03				.29	.06				.69		.30			.08	.78		.66		.05		.11		.35	.59	.11							4.10
Grinnell	.02					.17		T			1.12		.10	.30	.64	T	.87		.75		.33		.58	.10		.79	T							5.72
Grundy Center		T				1.07	T				1.90		.25	T		1.10		.78				.10	.10	T	.15	1.80	.12							7.87
Guthrie Center	.08	.06				.37		T	T		1.08		.15	.63	.36	.01	.21		T	.52		T	T	.54		.11	.06	.10	.07					4.35
Hampton	.03					.40					.65		.35	.03		.54	.91		.55	.08		.03	T		.12	.05	.66	.29	.05					4.84
Hancock						.05					.10		T	.20		.12	.02		T	.09			.05	.06		T	.12	T						0.83
Harlan	.14	.01				.21	T				.70		.01	.56		.02	.02		T	.35			.39	.05		.16	.01	.02	.11					2.76
Hopeville	.14	.05				.07			T		1.46		.01	.22	.14		.92		.92			T		.37	.13		1.80	.08						6.81
Humboldt						.65	.08				.15		.40		.02	.41	.36		.52				.04		.04		.68	.14						3.45
Independence						.35					.30	.60				1.26	.62		.54					.27	.15	1.75		T						5.84
Indianola	.27	.02				.04	T	T			T		.06	.55	.48		.53		.95	T	.03	T	.06</											

DAILY PRECIPITATION FOR IOWA, APRIL, 1909—Continued

STATIONS	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				
Sioux Center	.20				.60	T			.01		.10		.20	T		.38	T		.02	.42			.24		T		.09		.39	.23	.52	.20	2.50	
Sioux City	.37	T			.30	T			.03		.82		.06	.07	.71	.01	.74	.03		.63			.10		T		.02	.01	.23	.01	.23	.01	3.69	
Stockport		.07			.18				T																								2.08	
Storm Lake	.23				.10	.11																											.10	2.21
Thurman	.30	.10			.42	T	T	T			.54		T	.02	T		.27			.38			T	T									6.11	
Tipton		.10			.03	T	T	T			.78		.17		1.02		1.50			.67			T			.11	.15						5.70	
Toledo		T									.90		.15	1.00	.50		.75			.70					.15	.20	.10	.10	1.15	T		4.20		
Wapello		.08			.38						.88		.11	.68	.09	.40	.49		1.36					.12	.03		.19	.03	.73	.12	.05	5.01		
Washington		.05			.05		.01																										2.33	
Washta	.60				.12					.10			.05	.04		.28	1.79			.56				.02	.03	.36		.33	.99	.16		6.49		
Waterloo		.04			.37						1.16		.33	.07		.28	1.79			.56													7.05	
Waukeo		T			1.00				T		2.00		.02	.75	.50	T	1.00	.01		.75						.50	T	.01	T	.01	.01	7.83		
Webster City		.50			.42	.07					1.50		.30		.05	.41	1.80	.01		.61							.20	.06	.14	2.03	.20	7.83		
Waverly		.03			.26	T	T				.05		.40			.50	1.14			.55			T		T	T	.52	.14	1.08	.05	3.97			
West Bend	T				.21				T		.10		.22	T		.11	.01		.10	.48								.10	1.40	.06	6.99			
Whitten	T	T			1.33	T	T	T			1.70	T		.30			1.01		T	.61							.40	.08				5.15		
Wilton Junction					.20						.90				1.30	1.02												1.33					5.82	
Winterset	.12				.17			T	T		1.17		.06	.47	.28	.01	.78	T		.84								.05	.87	.05	5.72			
Woodburn	.19	.04			T			T			1.67		T	.26	.15	.02	.37			.92								.01	1.42	.05	6.87			
Zearing					.45						1.81			.14		.19	.22	.72		.50			.04			.31	.07	.06	2.33	.03		6.87		

TOTAL PRECIPITATION, APRIL, 1909.

SCALE OF SHADES—IN INCHES



U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR MAY, 1909

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



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1909

THE IOWA WEATHER AND CROP SERVICE

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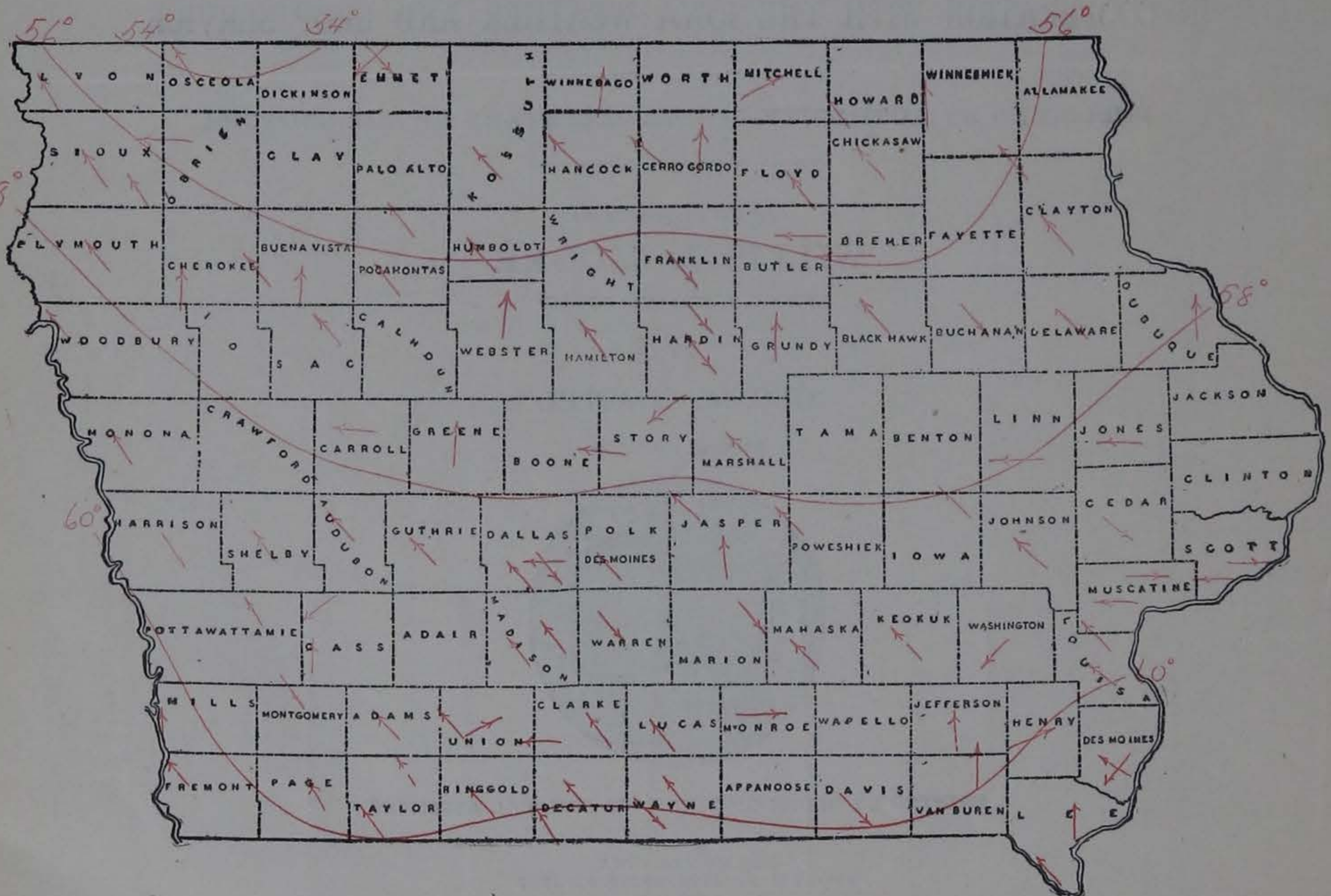
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MEAN ISOTHERMS AND PREVAILING WINDS OF MAY, 1909.

Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE
 OF THE
WEATHER BUREAU.

CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,

GEO. M. CHAPPEL, Section Director.

VOL. XX DES MOINES, IOWA, MAY, 1909 No. 5

IOWA CROP REPORT, JUNE 1, 1909.

ACREAGE OF FARM CROPS. ESTIMATED CONDITION OF STAPLE CROPS,
 FRUIT AND LIVE STOCK.

Reports received June 1st from county and township correspondents of the Iowa Weather and Crop Service show the following results as to the number of acres and average condition of staple farm crops; also the condition of fruit and live stock.

CORN.—The unfavorable conditions that prevailed during March and April prevented the seeding of the usual acreage of small grain and the acreage of corn has thereby increased a little over 5 per cent as compared with the acreage planted in 1908. So the acreage is about 105, and the average condition on June 1st was rated at 94. Last year at corresponding date it was 92 per cent.

WHEAT.—The drouth of last August, September and October prevented the seeding of as large an acreage of winter wheat as was anticipated and the cold wet weather during the early spring months of this year caused a reduction in the acreage of spring wheat of about 2 per cent. The estimated acreage is now, winter wheat 100 and spring wheat 98 and the average condition is 92 and 94 per cent respectively. Last year the estimates were 101 and 100.

OATS.—The acreage of oats is placed at 94 per cent and the average condition 90 per cent. Last year the condition on June 1st was 102 per cent.

RYE.—Acreage seeded, compared with last year, 95 per cent, and the average condition 94 per cent. Last year the condition was 101 per cent.

BARLEY.—Acreage 98; estimated condition 94 per cent as compared with 101 per cent last year.

FLAX.—Area seeded, 97 per cent; condition, 95 per cent.

POTATOES.—Acreage planted, 102 per cent; condition, 96 per cent. Last year condition 98.

MEADOWS.—There has been a reduction of about 2 per cent in area of meadows, the acreage being 98 per cent. The condition 97 per cent as compared was 104 per cent last year. Grass was slow in starting this spring but owing to favorable weather in May the condition is improving rapidly.

Pastures are about 99 per cent in acreage and 97 per cent in condition.

CONDITION OF FRUIT.—As Compared With an Average Crop.—Apples, 90 per cent; plums, 92; peaches, 22; grapes, 94; strawberries, 85; raspberries, 90; blackberries, 85; cherries, 82.

CONDITION OF LIVE STOCK.—Cattle, 94 per cent; hogs, 95; horses, 96; sheep, 96; foals, 90; spring pigs, 85.

The acreage of crops cannot be tabulated until the returns of the township assessors are received from all the counties. The complete report of acreage will probably be published in July.

GENERAL SUMMARY.

The average temperature for the month was considerably below the normal and was the lowest for May, with one exception, 1907, since 1893. The cool wave that spread over the state at the close of April, continued during the first three days of May and caused freezing temperatures on one or more of those days in all parts of the state and was attended, on the first by snow flurries over the central and northern counties. The night temperatures continued below normal most of the time until the 29th but there were several days when the temperatures were unusually high, especially the fifth when the maximum was 90° or above in all but the extreme southeastern counties.

The precipitation for the state at large was slightly below the normal but there was a slight excess over the district comprising the three northern tiers of counties. The average for the state was four inches less than the average for May 1908. From the third to the 11th and from the 16th to the 23d the weather was generally dry but showers were frequent during the remainder of the month with an occasional heavy downpour, accompanied in several localities by hail and wind squalls which did some damage. On the whole the month was favorable for farm operations and good progress was made in field work. Corn was practically all planted by the close of the month except on low and wet ground and cultivation was general. The stand, color and vitality of corn is exceptionally good. Grass and small grain made rapid growth during the latter half of the month and was reported to be nearly up to the average for the last of May. The continued cold weather during April and the fore part of May kept the fruit buds dormant until near the middle of the month thereby escaping any material damage by the late frosts. The average date for all kinds of fruit trees to be in full bloom at Des Moines is about May 5th, but they were not in full blossom this year until May 16th.

TEMPERATURE.—The monthly mean temperature for the state, as shown by the records of 111 stations, was 57.9°, which is 2.2° below the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 56.3°, which is 2.2° below the normal; Central section, 58.0°, which is 2.2° below the normal; Southern section, 59.3°, which is 2.3° below the normal. The highest monthly mean was 61.0°, at Keokuk, Lee county, and the lowest monthly mean 54.2°, at Dows, Wright county, and Sibley, Osceola county. The highest temperature recorded was 97°, at Onawa, Monona county, on the 5th; the lowest temperature reported was 18°, at Inwood, Lyon county, on the 2d, and at Washta, Cherokee county, on the 3d. The average monthly maximum was 92.0°, and the average monthly minimum was 24.1°. The greatest daily range was 63°, at Fort Dodge, Webster county. The average of the greatest daily ranges was 45.7°.

PRECIPITATION.—The average precipitation for the state, as shown by the records of 121 stations, was 4.34 inches, which is 0.16 below the normal. By sections the averages were as follows: Northern section, 4.59 inches, which is 0.04 inch above the normal; Central section, 4.09 inches, which is 0.38 inch below the normal; Southern section, 4.34 inches, which is 0.13 inch below the normal. The greatest amount, 7.85 inches, occurred at Rockwell City, Calhoun county, and the least, 1.86 inches, at Waterloo, Black Hawk county. The greatest amount in 24 hours, 3.95 inches, occurred at Rockwell City, Calhoun county, on the 14th and 15th. Measurable precipitation occurred on an average of 9 days. The average amount of unmelted snowfall for the state was 0.1 inch; the greatest amount, 2.5 inches, occurred at Grand Meadow, Clayton county.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 12; partly cloudy, 12; cloudy, 7. The duration of sunshine was slightly above the normal, the percentage of the possible amount being 70 at Charles City; 65 at Davenport; 66 at Des Moines; 59 at Dubuque; 75 at Keokuk, and 53 at Sioux City.

WIND.—Southeast winds prevailed. The highest velocity reported was 63 miles per hour from the northwest, at Sioux City, Woodbury county, on the 6th.

COMPARATIVE DATA FOR THE STATE—MAY.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890	57.7	90	26	3.56	6.44	1.61
1891	58.3	94	21	3.18	7.10	1.46
1892	54.0	88	29	8.77	12.64	4.87
1893	56.6	96	26	3.45	5.82	1.65
1894	61.1	96	22	1.87	4.77	0.33
1895	61.7	104	24	3.19	5.79	0.84
1896	65.5	100	34	6.69	11.79	3.40
1897	58.5	96	20	1.92	3.59	0.21
1898	59.6	92	26	4.67	7.82	2.22
1899	60.2	90	27	6.23	11.47	3.09
1900	63.2	98	22	3.31	6.98	0.96
1901	60.7	95	28	2.35	4.57	0.72
1902	63.8	97	25	5.39	18.04	0.87
1903	61.6	91	24	8.55	15.45	2.88
1904	59.6	93	27	3.78	8.15	1.50
1905	58.3	88	28	5.95	10.83	2.57
1906	60.8	95	24	3.54	10.72	0.89
1907	53.5	96	14	3.48	7.68	0.71
1908	59.4	93	13	8.34	14.33	4.33
1909	57.9	97	18	4.34	7.85	1.86

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 29.87 inches.
Prevailing direction of Wind, Southeast.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement	Maximum Velocity—miles	Direction	Date	Average Hourly Velocity
Charles City	29.88	30.18	10	29.39	15	6109	30	NW	6	8.2
Davenport	29.88	30.23	11	29.47	5	6648	38	NE	25	8.9
Des Moines	29.85	30.17	10	29.35	5	6875	35	SW	12	9.2
Dubuque	29.90	30.23	11	29.47	5	5691	30	NW	6	7.6
Keokuk	29.88	30.22	11	29.50	5	6162	36	W	1	8.3
Omaha, Neb.	29.84	30.17	10	29.31	5	6825	38	NW	6	9.2
Sioux City	29.85	30.20	10	29.42	30	10585	63	NW	6	14.2

AVERAGE DATES OF LAST KILLING FROST IN SPRING AND FIRST IN AUTUMN, IN IOWA.

Station	Length of Record, Years	FROST			
		Average Date of		Date of	
		First Killing in Autumn	Last in Spring	Earliest Killing in Autumn	Latest in Spring
Charles City	17	Sept. 26	May 16	Sept. 12	May 29
Davenport	35	Oct. 13	April 22	Sept. 18	May 22
Des Moines	31	Oct. 10	April 22	Sept. 13	May 22
Dubuque	35	Oct. 13	April 21	Sept. 27	May 21
Keokuk	37	Oct. 15	April 11	Sept. 18	May 4
Omaha, Nebraska	38	Oct. 12	April 16	Sept. 18	May 19
Sioux City	19	Sept. 27	May 4	Sept. 13	May 21

OBSERVERS' REMARKS.

ALBIA.—*J. I. Chenoweth.* There was 5.38 inches of rain as compared with 10.49 inches in May 1908. Farm work is further advanced than it was at the close of May, last year. The last damaging frost occurred on the 10th, which reduced the small fruit prospects 50%.

ALGONA.—*Dr. F. T. Seeley.* There is considerable corn yet to plant on low ground owing to frequent and heavy rains during the latter part of the month.

ALLERTON.—*Mrs. Geo. Shriver.* Rains during the last decade of the month delayed farm work and there is some corn to be planted. Oats and grass are growing rapidly.

ALTA.—*David E. Hadden.* May 1909 was generally cloudy and wet.

ALTON.—*W. S. Slagle.* The fore part of the month was very cold but the latter half was favorable for all crops. All fruits, except cherries, give promise of abundant yields. Corn, grass and small grains are in fine shape and are doing well.

AMANA.—*Conrad Schadt.* The last severe frost occurred on the 3d but as the season was late, no damage was done. Fruit trees bloomed profusely and the stand of all crops is very good.

BEDFORD.—*E. E. Healy.* Ice, three-fourths of an inch thick, formed on May 1st.

BONAPARTE.—*B. R. Vale.* The total rainfall was 4.13 inches as compared with 11.07 for May, 1908. Good weather for farming up to the 25th but since that date there has been too much rain. The season is two weeks later than the average. Locust trees are in full bloom.

BURLINGTON.—*M. E. Poppe, Jr.* A slight earthquake shock of short duration was felt at 8:45 a. m. of the 26th.

BRITT.—*Geo. P. Hardwick.* There was an excessive amount of cloudiness and high winds. A local hail storm on the last day of the month did considerable damage to young fruit. More than the usual area yet to seed to "catch" crops. Prospects for oats not encouraging.

CHARITON.—*C. C. Burr.* There is some corn to plant yet but the early planted is up and shows a good stand on high ground. Soil is wet and the season is 14 days late. Oats small and uneven; grass good and fruit prospects are average.

CLINTON.—*Luke Roberts.* The mean temperature was about normal. The coldest day was the 1st, which gave a mean of 35.7 degrees or 9.3 degrees below normal and was the coldest "May day" during the last 31 years. It was not only cold but squally and extremely disagreeable.

CORYDON.—*Clara Miller.* The wind storm on the 29th did some damage to trees, flues and a few buildings.

CRESTON.—*E. Stovall.* Corn planting, which had been retarded by wet weather, was almost completed at the close of the month.

ELKADER.—*Chas. Heinecke.* A slight earthquake was felt about 9 a. m. of the 26th.

ELLIOTT.—*Henry Barnes.* A very good growing month and at its close all vegetation was in a healthy condition. Corn shows a good stand and grass and fruit are doing well.

FOREST CITY.—*J. A. Peters.* Plum trees were in bloom on the 19th. Corn planting was finished at the close of the month and the first planting was up but no cultivating had been done.

GRAND MEADOW (Postville P. O.)—*F. L. Williams.* On May 1st there were, in many places, snow drifts two feet deep but they were all gone on the 5th. Pastures and small grain were very backward until the end of the month.

GREENE.—*J. L. Cole.* A maximum temperature of 95° was recorded on the 5th. It was the highest on record for May during the past 13 years.

INWOOD.—*F. B. Hanson.* The first half of the month was dry, the latter half wet and interfered with field work. Corn planting is, however, about finished. Fruit trees are through blooming and promise large yields.

KEOSAUQUA.—*J. H. Landes.* May was a fairly good month for putting in corn and it was nearly all planted by the 20th. The acreage is large, the stand is good and cultivation is now in progress. The late rains came in time to help out the oats and hay crops.

OLIN.—*C. M. Miles.* On the whole May has been a fine month. All vegetation is in good condition and much ahead of last year at this time in growth.

PELLA.—*John H. Ver Steeg.* The month closed with warm growing weather. Corn is all planted except on low lands and is germinating vigorously. Small grain is doing well and the prospects are encouraging. A severe wind storm on the 30th damaged windmills and outbuildings.

PLOVER.—*J. S. Smith.* The first three weeks of the month were ideal for all kinds of farm work and the soil was in good condition for planting corn.

POCAHONTAS.—*F. E. Hronek.* The weather during the first half of May was fine for farm work but there was an excess of rain and cloudy weather during the latter half, which made the low ground too wet to plow. Corn is two weeks ahead of last year and shows a good stand.

RIDGEWAY.—*Arthur Betts.* The past month was colder than any May during the past eleven years except May, 1907, which was 5.5 colder than this month. On the 5th the maximum temperature was 95°, which is the highest on record for May. The last frost occurred on the 4th.

SHELDON.—*A. W. Beach.* Corn is all in and most of the rows were visible by the 31st. Everything is nearly up to the average.

STOCKPORT.—*C. L. Beswick.* Corn is all planted and prospects are generally good for all kinds of crops. The soil is well supplied with moisture at the close of the month.

THURMAN.—*C. R. Paul.* A heavy hail storm at 7:30 p. m. on the 12th with .65 inch of rain in about 15 minutes did much damage to fruit trees and garden truck.

WAVERLY.—*H. S. Hoover.* There was very little growth in plant life during the first 10 days of the month, although a maximum temperature of 90° was recorded on the 5th. The mornings were remarkably cool until the 29th.

WHITTEN.—*Dr. F. P. Butler.* Cherries started to bloom on the 14th.

THUNDERSTORMS—STATIONS AND DATES.

NORTHERN SECTION.

Stations	Dates	Stations	Dates
Algona.....	14, 30	Le Mars.....	11, 17, 18, 23
Alta.....	13, 14, 16, 18, 19, 20, 23, 29, 30	Mason City.....	13, 14, 15, 30, 31
Alton.....	14, 17, 18, 29	Osage.....	12, 14, 30
Charles City.....	12, 13, 14, 23, 29, 30, 31	Pocahontas.....	11, 12, 15, 17, 18, 23, 29, 31
Elkader.....	12, 14, 15, 23	Ridgway.....	13, 14, 23, 30, 31
Elma.....	13, 24	Sheldon.....	14, 24, 28
Estherville.....	29	Sioux Center.....	14, 17, 23, 29
Grand Meadow.....	13, 14, 15	Storm Lake.....	15, 24, 30
Greene.....	30	Washta.....	13, 18, 22, 29
Humboldt.....	15, 24, 30	Waverly.....	13, 14, 15, 24, 30
Inwood.....	20	West Bend.....	14, 15, 30, 31
Larrabee.....	13, 16, 19, 29		

CENTRAL SECTION.

Stations	Dates	Stations	Dates
Amana.....	14, 29, 31	Grinnell.....	12, 13, 14, 15, 28, 30, 31
Audubon.....	12, 14, 17, 23, 29	Guthrie Center.....	12, 13, 14, 29
Baxter.....	13, 14, 15	Harlan.....	14, 15, 17, 23, 29, 30
Boone.....	14, 29	Iowa City.....	12, 13
Carroll.....	13, 14, 15, 30, 31	Iowa Falls.....	13, 14, 23, 29
Clinton.....	6, 12, 13, 14	Onawa.....	12, 14, 20, 23
Davenport.....	6, 12, 13, 14, 15, 29, 30	Sioux City.....	13, 14, 18, 19, 29
Delaware.....	14, 15	Waterloo.....	14, 29
Des Moines.....	12, 13, 14, 15, 28, 29, 31	Waukeee.....	13, 30
Dubuque.....	6, 13, 14, 15, 28, 31	Whitten.....	12, 14, 23
Fort Dodge.....	30	Zearing.....	14

SOUTHERN SECTION.

Stations	Dates	Stations	Dates
Allerton.....	12, 14, 26, 30, 31	Indianola.....	12, 15, 29, 31
Atlantic.....	12, 13, 14, 17, 29	Keokuk.....	6, 8, 12, 13, 14, 15, 26, 29, 30
Bloomfield.....	14, 15, 26, 29, 30	Keosauqua.....	15, 25, 30
Columbus Junction.....	6, 12, 14, 15, 30	Leon.....	12, 13, 14, 15, 18, 25, 30, 31
Corydon.....	12, 31	Mt. Pleasant.....	6, 12, 13, 15, 23, 29
Earlham.....	12, 13, 14, 15, 18, 30	Oskaloosa.....	29, 31
Elliott.....	13, 14, 15, 25, 30	Pacific Junction.....	12, 14, 30
Fairfield.....	6	Sigourney.....	12, 13, 14, 15, 30
Fort Madison.....	6, 8, 13, 14, 30	Stockport.....	6, 8, 27, 30
Hancock.....	13, 15, 24, 30	Wapello.....	14, 15, 25, 30
Hopeville.....	13, 14, 18, 30	Woodburn.....	12, 13, 14, 30

RELATED REPORT.

LARRABEE.—*April.* Mean temperature, 39.8°; maximum temperature and date, 78° on the 26th; Minimum temperature and date, 18° on the 9th; greatest daily range, 47°; total precipitation, 2.12 inches; greatest in 24 hours, 1.14 inches; total snowfall, 8.8 inches; number of rainy days, 6.

ERRATA.

FEBRUARY, 1909.—*Belle Plaine.* Maximum temperature recorded on page 19 on the 13th and 24th, as 19, should have been 23 and 33 respectively; mean maximum temperature recorded 36.2°, should have been 36.9°; mean temperature recorded on page 17 as 27.2°, should have been 27.6°.

DECORAH.—Maximum temperature recorded on page 19, on the 6th, as 24°, should have been 27°; maximum temperature recorded on the 24th as 15°, should have been 30°; mean maximum, 31.4°, should have been 32.2°; mean monthly temperature recorded on page 17, as 21.9°, should have been 22.3°.

CARROLL.—Minimum temperature recorded on page 19 on the 18th, as 33°, should have been 29°; mean minimum recorded 41.0°, should have been 44.5°.

FORT DODGE.—Minimum temperature recorded on page 19 as 25°, should have been 24°.

IOWA FALLS.—Minimum temperature recorded on page 19 on the 3d, as 20, should have been 15°; minimum temperature recorded on the 17th as 16°, should have been 12°; minimum temperature recorded on the 18th as 31°, should have been 23°; minimum temperature recorded on the 26th as 18°, should have been 12°; mean minimum recorded 15.4°, should have been 14.6°; mean monthly temperature recorded on page 17 as 22.4°, should have been 22.0°.

WAPPELLO.—Total precipitation recorded on pages 18 and 22, as 1.56, should have been 1.76 inches.

BELLE PLAINE.—*March, 1909.* Page 29; maximum temperature, 10th, published 28°, should have been 31°; mean maximum temperature published 40.9°, should have been 41.0°.

ELLIOTT.—Page 28; mean temperature published 34.4°, should be 34.8°.

ELMA.—Pages 27 and 31, total precipitation published 1.30, should have been 0.85 inch.

HUMBOLDT.—Page 27; highest temperature, published 53°, should be 57°; date of highest temperature published 23*, should have been 23.

PELLA.—Page 28; mean temperature, published 37.7°, departure from normal temperature +4.7°, highest temperature 68°, date 2, greatest daily range 44°, should be omitted; page 30, all maximum temperatures and mean monthly maximum should have been omitted.

AFTON.—*April, 1909.* Page 40; monthly mean maximum temperature published 38.4°, should have been 58.4°.

BLOOMING SUNDAYS.

The following is a copy of a record kept by Hon. Isaac Brandt, Des Moines, Iowa, showing the Sunday in each year since 1858, on which all kinds of fruit trees were in full or partial bloom. From a phenological standpoint it is the most interesting and complete record of which we have any knowledge. It will be noticed that "Blooming Sunday" occurred this year on May 16th or three days later than on any other year since 1858, and 11 days later than the average date for all of the years.

1858	May 9	1871	May 7	1884	May 4	1897	May 2
1859	May 1	1872	May 5	1885	May 3	1898	May 5
1860	May 6	1873	May 4	1886	May 9	1899	May 7
1861	May 12	1874	May 3	1887	May 8	1900	May 6
1862	May 4	1875	May 2	1888	May 6	1901	April 28
1863	May 3	1876	April 30	1889	May 5	1902	May 4
1864	May 1	1877	May 6	1890	May 4	1903	May 10
1865	April 30	1878	April 28	1891	May 10	1904	May 8
1866	May 6	1879	May 4	1892	May 8	1905	May 7
1867	May 5	1880	May 2	1893	May 7	1906	May 6
1868	May 10	1881	May 1	1894	May 6	1907	May 5
1869	May 2	1882	May 8	1895	May 5	1908	May 10
1870	May 1	1883	May 13	1896	May 3	1909	May 16

CLIMATOLOGICAL DATA FOR IOWA, MAY, 1909

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days	No. partly cloudy days			No. cloudy days
NORTHERN SECTION																				
Algona	Kossuth	1,213	34	57.0	-2.5	90	5	24	*1	41	5.80	+2.12	1.93	T	9	16	8	7	se	Dr. F. T. Seeley
Alta	Buena Vista	1,513	17	56.0	-2.0	94	5	21	1	50	6.54	+1.76	1.77	T	12	5	22	4	se	D. E. Hadden
Alta [near]	Buena Vista										6.20	+1.37	1.77	0	13					W. J. Minard
Alton	Sioux	1,305	3	57.6		95	5	21	3	55	4.91		1.36	0	13	11	12	8	se	W. S. Slagle
Britt	Hancock	1,236	11	51.6	-3.4	90	5	22	3	51	5.29	+1.03	1.89	1.3	10	2	18	11	se	G. P. Hardwick
Charles City	Floyd	1,015	20	56.0	-3.5	91	5	26	1	49	3.42	-1.52	1.29	0.6	13	3	13	15	se	Weather Bureau
Clear Lake	Cerro Gordo	1,241	9	57.6	-2.1	89	4	25	1	54	3.73	-1.70	1.37	0	6	16	3	12	se	Oscar Stevens
Decorah	Winneshiek	875	15	58.5	-0.7	95	5	26	1	48	2.45	-2.22	1.35	0	12					F. H. Baker
Dows	Wright	1,142	8	54.2	-4.0	92	5	21	*1	48	3.07	-2.06	0.96	0	8	16	9	6	se	G. D. Flett
Elkader	Clayton	727	27	58.4	-2.1	94	5	23	3	47	3.14	-1.00	2.20	0	8	17	12	2	se	Chas. Reinecke
Elma	Howard			55.2		90	5	25	4	46	2.70		0.73	T	10	5	18	8	se	H. A. Moore
Estherville	Emmet	1,293	12	54.9	-2.3	93	5	23	1	51	6.47	+2.29	1.38	0	14	6	9	16	ne, nw	A. O. Peterson
Fayette	Fayette	1,003	18																	R. Z. Latimer
Forest City	Winneshiek	1,226	14	55.6	-2.7	93	5	24	1	50	4.69	+ .30	1.34	1.0	11	9	16	6	s	J. A. Peters
Grand Meadow	Clayton	1,180	17	55.6	-2.5	88	5	26	*1	38	3.89	- .97	1.57	2.5	13	7	17	7	se, nw	F. L. Williams
Greene	Butler		9	57.6	-1.8	95	5	25	3	51	2.85	-1.79	1.12		11	5	18	8	e	J. L. Cole
Hampton	Franklin	1,155	18	57.4	-0.9	95	5	25	1	44	3.31	-1.27	1.35	T	11	6	20	5	nw	E. C. Grenelle
Humboldt	Humboldt	1,095	17	56.0	-3.4	95	5	21	3	147	7.14	+2.78	3.40	0	11	20	4	7	se	H. S. Wells
Inwood	Lyon	1,474	4	56.2		95	5	18	3	53	4.92		2.07	0	14	13	11	7	se	F. B. Hanson
Larrabee	Cherokee	1,266	17	56.6		94	5	22	1	52	5.30		1.29	0	12	5	22	4	se	H. B. Streever
Le Mars	Plymouth	1,224	12	57.9	-1.4	92	5	22	1	50	5.08	+ .29	2.32	T	11	5	22	4	se	G. A. C. Clarke
Mason City	Cerro Gordo	1,132	11	55.3	-3.1	89	5	24	3	41	4.19	- .47	1.42	0	10	6	19	6	s	J. S. Mills
Merrill	Plymouth										4.49		1.20		9					Eric Oleson
New Hampton	Chickasaw	1,169	11	55.2	-2.7	88	5	26	*1	46	4.21	- .43	1.45	T	10	13	13	5	se	A. F. Kemman
Northwood	Worth	1,222	12																	Charles H. Dwelle
Osage	Mitchell	1,184	17	57.4	+0.3	94	5	27	*1	51	3.47	-1.29	1.15	1.5	7	9	14	8	sw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	12	56.6	-2.5	93	5	23	3	48	5.00	+ .73	1.78	0	10	19	9	3	se	J. S. Smith
Pocahontas	Pocahontas		4	55.4		93	5	22	1	48	5.19		2.02	T	12	7	16	8	se	F. E. Hronek
Ridgeway	Winneshiek	1,215	10	56.7	-2.9	95	5	27	*1	50	3.36	-2.01	1.31	2.3	11	18	8	5	s	Arthur Betts
Rock Rapids	Lyon	1,358	9	56.1	-0.5	95	5	22	1	55	4.05	+ .66	1.12	0	7					W. C. Wyckoff
Sheldon	O'Brien	1,422	8	56.2	-1.7	95	5	20	*1	60	6.03	+ .93	2.00	T	12	9	13	9	e	Dr. A. W. Beach
Sibley	Osceola	1,212	15	54.2	-3.1	94	5	21	3	59	4.61	+ .65	1.14	T	14	11	9	11	se	H. G. Doolittle
Sioux Center	Sioux		9	56.6	-1.7	92	5	21	2	49	6.61	+1.76	3.50	T	15	12	13	6	se	J. de Ruyter
Storm Lake	Buena Vista	1,440	12	57.0	-0.6	89	5	22	1	47	6.30	+2.42	1.71	T	12	8	14	9	s	S. B. Fracker
Washita	Cherokee	1,157	10	56.7		95	5	18	3	53	7.66	+2.81	2.00	T	11	14	8	9	s	H. L. Felter
Waverly	Bremer	948	12	56.7	-3.3	90	5	27	*1	47	2.14	-2.56	0.98	0.4	10	4	17	10	e	H. S. Hoover
West Bend	Palo Alto	1,197	14	56.8	-1.8	92	5	24	3	46	5.00	+1.37	1.56	0.1	13	7	16	8		Phil Dorweiler
Average				56.3	-2.2	92.6		23.4		49.2	4.59	+0.04		0.3	10	10	13	8	se	
CENTRAL SECTION																				
Amana	Iowa	721	31	58.4	-1.6	89	5	28	3	34	2.40	-2.00	0.73	0.1	10	13	12	6	se	Conrad Schadt
Ames	Story	926	27	59.4	-0.1	93	5	25	3	43	4.17	- .15	1.01	T	8	13	14	4	e	Iowa State College
Audubon	Audubon	1,301	15	56.1	-3.8	93	5	21	10	53	4.03	- .21	1.55	0	10	10	6	15	se	Geo. E. Kellogg
Baxter	Jasper	993	8	57.8	-2.6	93	5	26	*1	42	6.36	+1.16	3.67	T	9	16	11	4	se	W. R. Vandike
Belle Plaine	Benton	823	18	58.2	-1.3	93	5	25	3	44	2.81	-1.85	1.24	T	8	11	14	6	s	S. P. Vandike
Boone	Boone	1,134	3	57.2		94	5	25	1	51	4.81		2.08	T	10	15	7	9		Carl Fritz Henning
Buckingham	Tama		8								3.72	- .08	2.34	0	6	10	19	2		Dr. W. A. Daniel
Carroll	Carroll	1,265	18	56.0	-2.9	93	5	21	1	47	6.28	+1.72	2.40	0	9	15	6	10	e	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	26	58.2	-1.8	92	5	29	2	54	3.05	-1.53	1.06	0	8	16	5	10	e	Electric Light & P. Co.
Clinton	Clinton	593	40	58.6	-1.6	86	29	29	3	41	4.19	+ .13	1.58	0	11	15	7	9		Luke Roberts
Davenport	Scott	580	36	59.2	-2.3	88	5	30	1	33	3.23	- .96	1.17	T	11	10	11	10	e	Weather Bureau
Delaware	Delaware	1,083	17	56.0	-2.3	84	*5	25	*1	43	3.51	- .68	2.82	0.5	9	10	19	2	nw	Wm. Ball
Denison	Crawford	1,180	13	58.4	-0.9	93	5	23	1	49	5.65	+1.55	1.41	0	13					W. C. Van Ness
Des Moines	Polk	861	31	59.2	-2.4	92	5	27	1	36	4.24	- .32	1.67	T	12	7	8	16	se	Weather Bureau
De Soto	Dallas	866	8	58.8	-3.1	94	5	24	1	43	4.29	+ .41	1.90	T	7	14	6	11	se	R. D. Minard
Dubuque	Dubuque	639	35	58.2	-2.6	90	5	30	1	39	2.32	-2.00	1.48	0.3	10	12	12	7	s	Weather Bureau
Fort Dodge	Webster	1,126	8	57.1	-2.9	89	5	24	3	63	5.78	+1.23	2.52	T	12					J. F. Monk
Gilman	Marshall	1,052	9								4.92	+1.10	3.46	0	8					Jas. L. Wylle
Grinnell	Poweshiek	1,023	16	58.2	-1.5	95	5	26	3	45	2.89	-1.70	0.90	0	8	8	13	10	se	D. W. Brainard
Grundy Center	Grundy	976	17	57.4	-1.1	93	5	26	1	41	3.63	-1.53	1.15	0.5	10	14	9	8	s	J. B. Calderwood
Guthrie Center	Guthrie	1,077	13	59.0	-1.6	93	5	24	1	47	5.52	+ .56	2.56	T	8	13	12	6	se	D. G. Beardsley
Harlan	Shelby	1,192	9	57.6	-2.7	94	5	23	1	52	4.25	.00	1.00	0	10	4	17	10	se	C. A. Reynolds
Independence	Buchanan	921	43	56.3	-2.9	89	5	27	1	48	2.19	-1.97	1.56	0.2	6	19	8	4	nw	George Donohue
Iowa City	Johnson	683	49	59.2	-1.1	91	5	27	3	44	4.40	+ .03	1.30	0	8	17	2	12	se	Prof. Karl E. Guthe
Iowa Falls	Hardin	1,170	15	55.6	-3.1	90	5	24	3	58	3.53	- .67	1.18	0	10	14	5	12	nw	J. B. Parmelee
Jefferson	Greene					94	5				5.48	+ .47	2.60	0	6	13	12	6	s	Geo. W. Jackson
Le Claire	Scott	576									3.05	+1.26	1.17	0.1	9					Margaret T. Disney
Little Sioux	Harrison		4	59.4		96	5	22	*1	51	4.05		1.23	0	10	10	9	12	se	Geo. H. Gibson
Logan	Harrison	928	42	59.6	-1.4	95	5	23	1	53	3.82	- .31	1.61	0	10	7	18	6	nw	Glenn H. Stern
Marshalltown	Marshall	947	16	56.1	-3.6	84	29	26	*1	49	3.49	-1.24								

CLIMATOLOGICAL DATA FOR IOWA, MAY, 1909-Continued

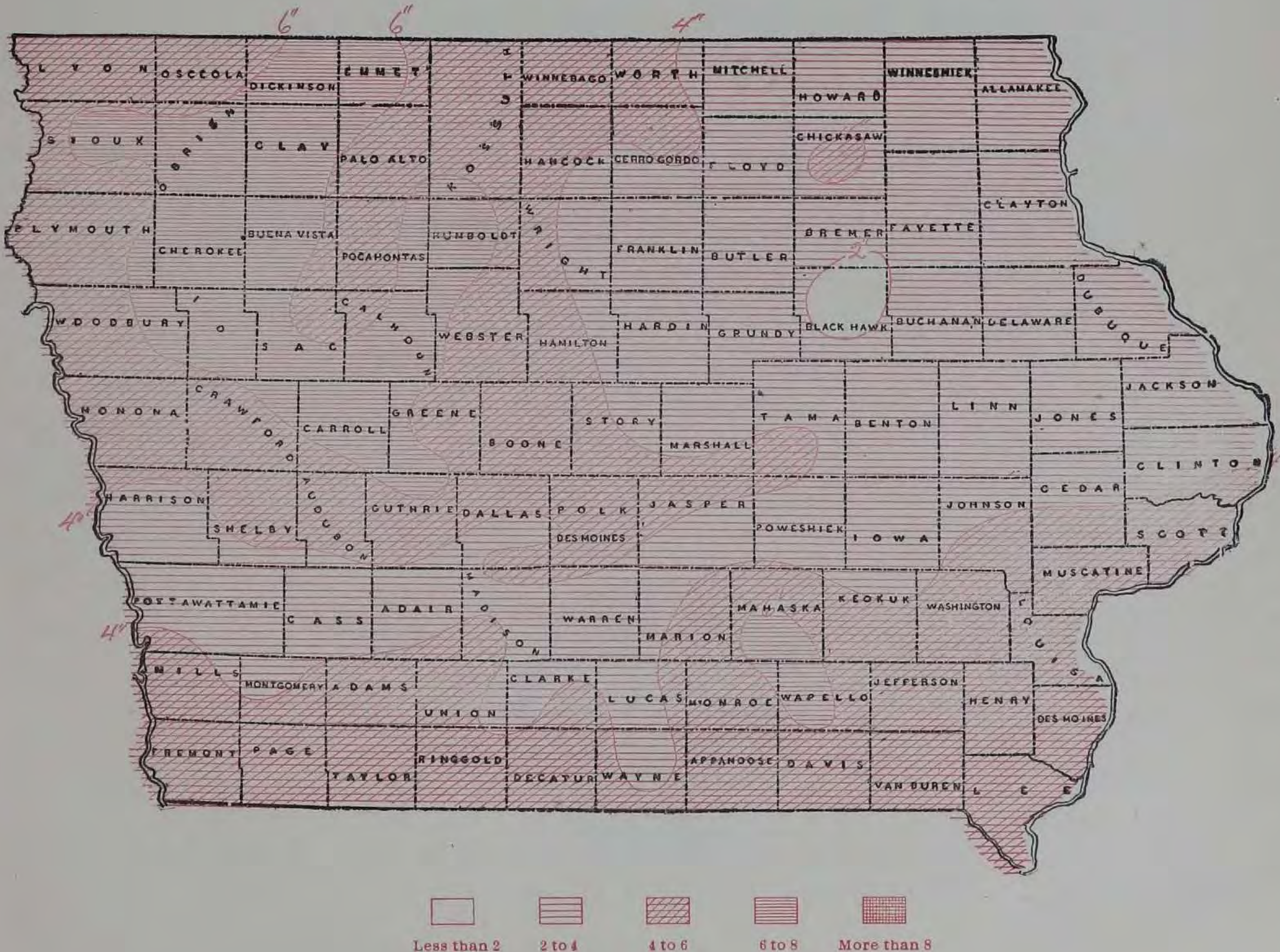
STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit					Precip., in inches				No. rainy days	Sky			Prevailing direction of wind	OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal		Greatest in 24 hours	Total snowfall (unmelted)	Number clear days			Number partly cloudy days	Number cloudy days
SOUTHERN SECTION																				
Afton	Union	1,212	14	60.0	-2.3	91	5	24	1	41	4.65	-.24	1.10	0	6	10	15	6	sw	N. W. Rowell
Albia	Monroe	959	10	57.6	-3.4	90	5	25	2	46	5.33	+1.05	1.63	0.4	11	13	15	3	e	J. I. Chenoweth
Allerton	Wayne	6	6	59.4	-1.6	91	5	27	1	41	4.21	-0.30	1.62	T	10	23	2	6	nw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	17	59.4	0.0	96	5	24	1	46	3.43	-.95	1.16	0	10	4	14	13	ne	Thos. H. Whitney
Bedford	Taylor	8	8	58.8	-2.2	93	5	24	2	47	3.76	-1.49	0.92	0	13	15	8	8	se	E. E. Healy
Bloomfield	Davis	59.8	5	59.8	.....	95	5	27	1	43	5.69	.....	2.45	0	10	15	12	4	nw	F. H. Roberts
Bonaparte	Van Buren	17	17	59.3	-3.0	91	5	30	*1	39	4.13	+ .10	1.95	0	7	.....	.....	.....	.....	Hon. B. R. Vale
Burlington	Des Moines	544	12	60.4	-3.4	90	5	30	2	39	3.83	-.02	1.19	0	9	17	5	9	ne, se	M. E. Poppe, Jr.
Chariton	Lucas	1,042	13	58.4	-2.9	89	5	25	1	36	3.89	-.48	1.22	T	7	14	8	9	se	C. C. Burr
Clarinda	Page	1,009	18	59.0	-2.2	96	5	24	1	53	4.78	-.06	2.23	0	10	15	8	8	se	A. S. Van Sandt
Columbus Junction	Louisa	595	7	60.2	-2.0	88	5	29	*1	36	3.48	-.40	1.30	T	7	17	10	4	se	J. B. Johnston
Corning	Adams	1,117	16	58.6	-1.8	92	5	24	1	44	4.99	+ .16	1.06	0	9	9	12	10	se	Jerome Smith
Corydon	Wayne	1,101	15	a59.3	-2.0	90	5	b26	1	b36	3.97	-.70	1.54	0	10	14	11	6	se	Clara Miller
Creston	Union	1,312	3	57.7	.....	92	5	24	1	40	5.27	.....	1.18	T	9	19	8	4	se	E. S. Stovall
Cumberland	Cass	9	9	57.8	-2.2	82	29	25	1	42	3.59	-.10	0.91	0	11	21	2	8	s	J. H. Reppert
Earlham	Madison	6	6	57.8	-2.2	82	29	25	1	42	3.82	-.95	1.10	0	6	11	9	11	se	Geo. Phillips
Elliott	Montgomery	3	3	59.0	.....	94	5	24	1	47	3.79	.....	0.93	0	9	16	13	2	nw	Henry Barnes
Fairfield	Jefferson	14	14	59.3	-0.9	90	5	27	3	37	5.08	-.20	2.35	0	6	15	11	5	s	R. Monroe McKenzie
Port Madison	Lee	516	59	59.3	-0.9	90	5	27	3	37	4.36	-.04	2.03	0	7	8	15	8	s	Miss L. A. McCreedy
Greenfield	Adair	17	17	59.7	.....	95	5	23	1	45	2.27	.....	0.48	0	7	16	10	5	se	Geo. Brooks
Hancock	Pottawattamie	1,113	2	59.7	.....	95	5	23	1	45	2.27	.....	0.48	0	7	16	10	5	se	G. C. Rogers
Hopeville	Clarke	17	17	58.8	-1.4	90	5	25	1	37	3.82	-.87	1.68	0	8	3	20	8	e	M. T. Ashley
Indianola	Warren	939	17	a59.0	-1.7	91	5	a21	1	a35	2.47	-2.17	1.07	T	6	10	5	16	nw	Prof. J. L. Tilton
Keokuk	Lee	574	37	61.0	-2.2	89	5	31	1	33	3.03	-1.32	1.01	T	11	17	11	3	se	Weather Bureau
Keosauqua	Van Buren	644	16	59.4	-3.2	91	5	29	2	43	4.75	+ .38	2.58	T	10	4	17	10	.....	J. H. Landes
Knoxville	Marion	920	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Casey & Bellville
Lacona	Warren	9	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Agent C., B. & Q. Ry.
Lamoni	Decatur	.....	.....	59.9	.....	91	5	25	1	40	4.63	.....	1.52	T	12	20	3	8	se	T. J. Fitzpatrick
Lenox	Taylor	1,250	13	58.8	-2.4	91	5	22	1	48	5.75	+1.03	2.12	0	11	14	12	5	se	J. T. Hurley
Leon	Decatur	1,120	6	59.4	-3.5	90	5	24	1	48	4.92	+ .47	1.35	T	11	11	10	10	se	Morris Gardner
Massena	Cass	3	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. E. Smeltzer
Mt. Ayr	Ringgold	1,236	15	60.2	-1.5	93	5	24	1	43	4.85	-.91	1.50	0	9	11	14	6	se	A. F. Beard
Mt. Pleasant	Henry	729	26	59.9	-2.3	91	5	29	1	38	4.54	+ .36	1.89	T	10	15	12	4	sw	Prof. J. W. Edwards
Omaha, Neb.	Douglas	1,040	38	60.8	-1.7	95	5	25	1	44	3.80	-0.70	1.44	0	10	3	17	11	se	Weather Bureau
Oskaloosa	Mahaska	843	24	59.1	-1.3	91	5	28	*1	39	7.05	+3.37	2.08	0	10	20	2	9	se	Jos. Boyd
Ottumwa	Wapello	649	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. Jas. A. Hull
Pacific Junction	Mills	960	9	59.6	-2.0	96	5	22	2	50	4.70	+ .69	2.35	0	10	6	23	2	s	H. H. McCartney
Pella	Marion	877	6	58.5	-2.8	91	5	25	3	38	4.21	-.11	1.39	T	9	22	1	8	nw	John H. Ver Steeg
St. Charles	Madison	1,070	7	59.0	-2.9	93	5	25	1	42	3.70	-1.22	1.58	0	8	9	18	4	se	R. D. Minard
Sigourney	Keokuk	877	12	59.8	-3.2	92	5	26	3	41	4.65	+ .52	1.83	T	8	1	28	2	se	J. T. Parker
Stockport	Van Buren	6	6	58.5	.....	90	5	29	*1	38	4.22	+ .46	2.09	T	10	22	4	5	s	C. L. Beswick
Thurman	Fremont	11	11	60.1	-2.2	95	5	20	2	50	4.95	-.25	1.60	0	11	10	11	10	se	C. R. Paul
Wapello	Louisa	583	10	59.6	-3.0	90	5	32	*1	36	3.36	-.53	1.50	0	6	18	10	3	se	Geo. W. Schofield
Washington	Washington	769	27	58.8	-2.2	92	5	27	3	40	4.08	+ .57	1.63	0	10	12	13	6	ne	Wm. A. Cook
Winterset	Madison	1,129	17	60.2	-1.0	92	5	25	1	42	4.55	+ .09	1.93	T	9	9	12	10	se	Dr. Robert S. Cooper
Woodburn	Clarke	961	9	57.9	.....	80	5	25	1	40	5.45	+ .56	1.57	T	8	8	16	7	se	C. B. McDonough
Average	.....	.....	.....	59.3	-2.3	91.3	.....	25.7	.....	41.6	4.34	-0.13	.....	T	9	13	11	7	se	.....
State average	.....	.....	.....	57.9	-2.2	92.0	.....	24.1	.....	45.7	4.34	-0.16	.....	0.1	9	12	12	7	se	.....

* And other dates. a one day missing, b two days; c three days; d four days, etc. † Received too late to be included in average.

DAILY PRECIPITATION FOR IOWA, MAY, 1909—Continued

STATIONS	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		
Sigourney	T	T				T		.04				.12	.26	.67	.80										T	1.88	T	.45			.43		4.65
Sioux Center		T									T	.04	T	.06			.34		.04	.09	.40	.12	.24	3.50	.52	.50	.02		.35	.21	.18	6.61	
Sioux City		T								T	T	.01	T	.04	.11				.21	.97	T	T		.39	.88	.86	.30		.21		T	3.98	
Stockport	T	T				.02		.08				.04	.01	.05	.83										T	2.09		.27		.02	.81		4.22
Storm Lake		T									.03	.02	.04		1.68					.34	.22			.17	1.71	.50	.53			.96	.10	6.30	
Thurman		T						.08			T	.27	.75	1.60	.46		T	.55							.10	.30	.10		.62	.12	T	4.95	
Tipton						.28						.69		.55	.91											1.09			.51	.43		4.46	
Toledo											T	.13		.48	2.60									.15	T	.50			.28			4.14	
Wapello											T	.17			.46										T	1.50		.13		T	.74	T	3.36
Washington		.03	.02			.18		.01					.15	.35	.83											1.63	.30		.58			4.08	
Washta	T	T										.02	.13	1.20			T	2.00	.50					.50	1.30	.65	.55		.77		.04	7.66	
Waterloo	.07										T	.03	.02	.36	1.05									T	.14	.03	.01		.14			1.86	
Waukee	T		T									.01	.04	.03	.41	.54	T								.70	1.07	.05		.01	.73	.05	3.64	
Waverly	T	.04						.10				.02	.01	.30	.98											.09	.08	.03		.49		2.14	
Webster City											T	.52	.03	.65	.85	.01									.26	.22	.11	.02		1.28	.14	4.09	
West Bend		.01									T	.03	.10	T	.36	1.56		.02			.01				.55	.52	.50	.12		1.12	.10	5.00	
Whitten	T	T	T									.17	T	.50	1.03			T						.10	T	.27	.05	T		1.52		3.64	
Wilton Junction		.10											1.00	.60											.90	.11		.30	.50			3.51	
Winterset	T	T									T	.02	.05	.81	.54				.06						.23	.87	T		T	1.93	.04	4.55	
Woodburn	T										T	.23	.53	1.28	.35				T	T					.12	1.02	T		1.57	.35	5.45		
Zearing														.88	.76											.02	.29	.04		.73	.05	2.77	

TOTAL PRECIPITATION, MAY, 1909.
SCALE OF SHADES—IN INCHES



U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR JUNE, 1909

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



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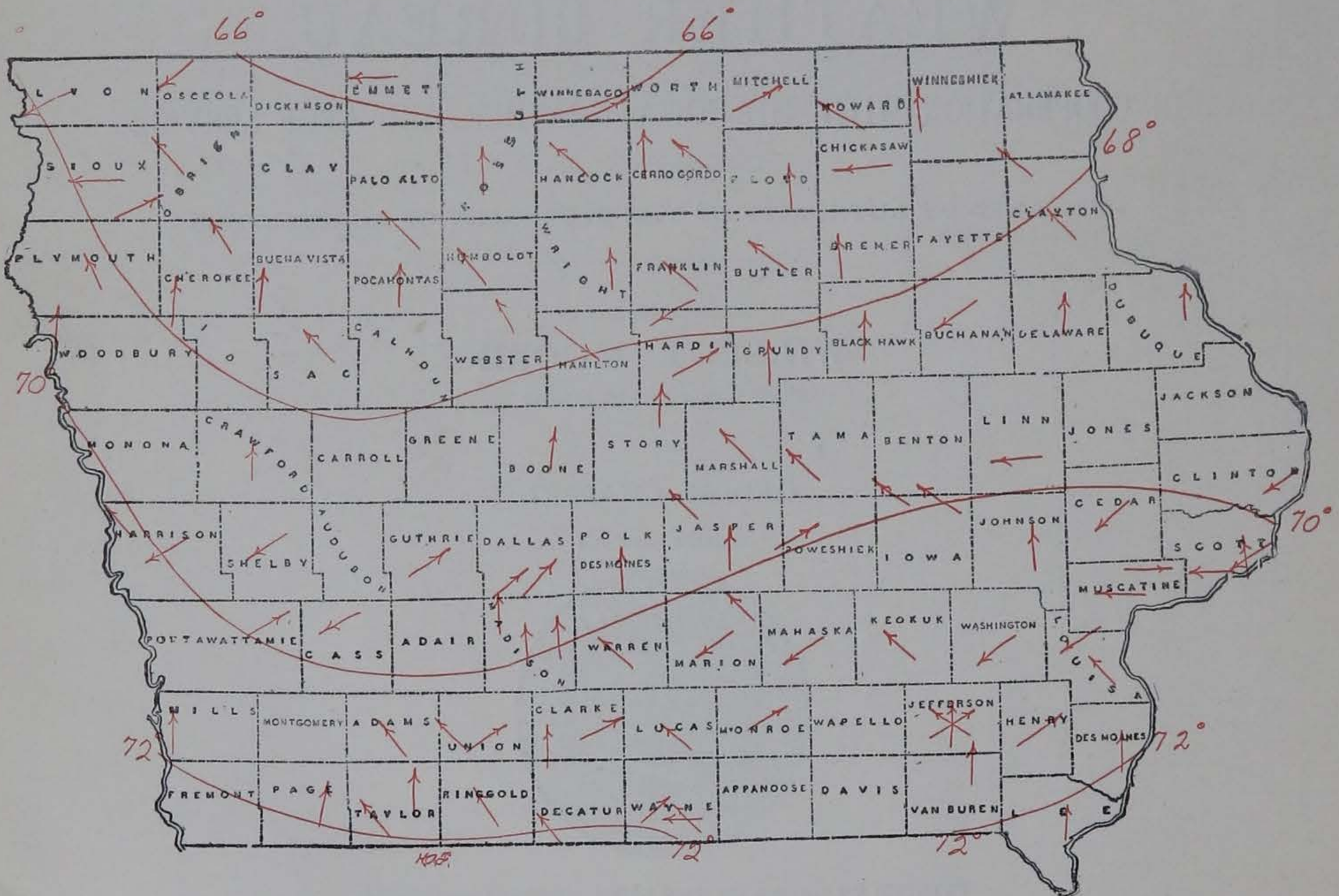
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MEAN ISOTHERMS AND PREVAILING WINDS OF JUNE, 1909.
Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
 CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
 GEO. M. CHAPPEL, Section Director.

VOL. XX DES MOINES, IOWA, JUNE, 1909 No. 6

IOWA CROP REPORT, JULY 1, 1909.

Following is a summary of reports received from crop correspondents of the Iowa Weather and Crop Service, showing the estimated condition of staple crops July 1, 1909, as compared with the average condition on that date in past years: Corn, 92 per cent; winterwheat, 96; spring wheat, 95; oats, 91; rye, 96; barley, 94; flax, 94; hay crop, 100; pastures, 103; potatoes, 100; apples, 76; plums, 68; grapes, 85.

Condition July 1, 1908: Corn, 85 per cent; winter wheat, 99; spring wheat, 94; oats, 90; rye, 95; barley, 93; flax, 89; hay crop, 103; pastures, 104; potatoes, 99; apples, 50; plums, 40; grapes, 80.

July 1st average of the past ten years: Corn, 89 per cent; winter wheat, 92; spring wheat, 92; oats, 90; rye, 93; barley, 94; flax, 92; hay crop, 88; pastures, 96; potatoes, 98.

A revised estimate of the area of corn planted this year shows about 102 per cent, or an average increase of 2 per cent, compared with the area planted in 1908, and a decrease of a little over 2 per cent as shown by reports on June 1, 1909, before the heavy rains began.

GENERAL SUMMARY.

The average temperature for the month was only a fraction of a degree above the normal but the rainfall was considerably above the average for June. The first week was moderately warm, there being a daily excess of about three degrees, but on the 8th the temperature was much lower and it remained below normal until the 19th. The lowest temperature occurred generally on the 15th but no frost was reported from the northern stations as there was on June 15, 1908. From the 20th to the close of the month the temperature was considerably above the normal, the maximum occurring at many stations on the 30th.

There was an excess of rainfall in all districts of the State but there were a few comparatively small areas where a slight deficiency was reported, the most notable one being along the Mississippi river from Scott county southward to Des Moines county. The heaviest rainfall was over Union and the adjacent counties where the monthly amounts ranged from 8.00 inches to over 13.00 inches. It was also heavy over the Missouri divide and the extreme northwestern county. Showers occurred at some station in the state on every day of the month except the 19th. And yet there were on an average, 12 clear days. Thunder and lightning accompanied most of the showers but wind squalls and severe hail storms were not as frequent as usual. The frequent and excessive rains caused high water in all rivers and creeks, especially in the western districts. The flat and bottom lands were flooded two or three times and a large acreage of corn was finally abandoned after being replanted once or twice. The surplus moisture also inter-

ferred with the cultivation of corn on ground not thoroughly drained and many fields are quite foul. With all the adverse conditions corn on uplands and well drained fields, and these comprise nearly 90 per cent of the total corn acreage, has made very satisfactory progress considering its late start and much of it is up to the standard for this season of the year and the fields were generally clean. Where the fields have not received proper cultivation the corn is short and uneven and it depends on future weather as to whether or not it matures. The condition of small grain, grass, potatoes and garden truck has improved during the month, but there has been a decline in the condition of fruit.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 111 stations, was 69.1°, which is 0.3° above the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 67.6°, which is 0.2° above the normal; Central section 69.3°, which is 0.3° above the normal; Southern section 70.3°, which is 0.3° above the normal. The highest monthly mean was 72.8° at Keokuk, Lee county, and Keosauqua, Van Buren county, and the lowest monthly mean 64.8°, at Dows, Wright county. The highest temperature reported was 96°, at Keosauqua, Van Buren county, on the 26th; the lowest temperature reported was 40°, at Elma, Howard county, on the 15th. The average monthly maximum was 90°, and the average monthly minimum was 48°. The greatest daily range was 43°, at Dows, Wright county. The average of the greatest daily ranges was 32°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 120 stations, was 6.41 inches, which is 1.89 inches above the normal. By sections the averages were as follows: Northern section, 6.00 inches, which is 1.43 inches above the normal; Central section, 6.15 inches, which is 1.78 inches above the normal; Southern section, 6.41 inches, which is 1.89 inches above the normal. The greatest amount, 13.30 inches, occurred at Afton, Union county, and the least, 2.80 inches, occurred at Davenport, Scott county. The greatest amount in twenty-four hours, 6.00 inches, occurred at Perry, Dallas county, on the 25th. Measureable precipitation occurred on an average of 13 days.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 12; partly cloudy, 10; cloudy, 8. The duration of sunshine was about normal, the percentage of the possible amount being 74 at Charles City; 57 at Davenport; 62 at Des Moines; 75 at Keokuk, and 51 at Sioux City.

WIND.—South winds prevailed. The highest velocity reported was 48 miles per hour from the Southwest, at Sioux City, Woodbury county, on the 20th.

COMPARATIVE DATA FOR THE STATE—JUNE.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890	72.7	106	44	7.76	16.53	1.57
1891	69.1	99	37	5.39	19.88	1.68
1892	69.2	102	42	5.19	14.16	.67
1893	71.2	100	40	3.91	7.56	1.36
1894	73.2	104	34	2.67	6.20	.57
1895	69.7	102	34	4.32	9.26	.98
1896	69.1	100	40	3.11	7.89	.81
1897	69.1	103	29	3.81	9.38	1.03
1898	71.4	99	42	4.72	12.48	1.90
1899	70.7	100	42	5.04	11.99	1.10
1900	69.7	102	38	3.98	12.35	.67
1901	72.3	106	30	3.71	7.84	1.05
1902	65.2	97	32	7.16	16.04	1.46
1903	64.6	96	30	2.86	6.04	.75
1904	67.1	94	35	3.45	8.35	.44
1905	69.9	100	36	5.53	14.89	1.80
1906	67.9	99	37	3.92	8.27	1.48
1907	66.5	98	36	5.35	9.33	2.07
1908	67.1	94	35	5.66	11.88	1.77
1909	69.1	96	40	6.41	13.30	2.80

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 29.97 inches.
Prevailing direction of Wind, Northwest.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement	Maximum Velocity—miles	Direction	Date	Average Hourly Velocity
Charles City.	29.98	30.30	18	29.73	13	3909	29	NW	22	5.4
Davenport ..	29.97	30.32	18	29.75	3	4244	26	W	23	5.9
Des Moines ..	29.95	30.27	15	29.74	24	4671	32	NE	29	6.5
Dubuque	30.00	30.38	18	29.75	13	3703	25	NW	26	5.1
Keokuk	29.97	30.31	15	29.77	3	3995	22	NW	7	5.5
Omaha, Neb.	29.94	30.24	15	29.72	24	5073	27	NW	22	7.0
Sioux City ..	29.95	30.24	15	29.78	1	7526	48	SW	20	10.5

OBSERVER'S REMARKS.

AFION.—*N. W. Rowell.* The rainfall was heavier during the last month than in any June in the last fifteen years. The normal rainfall for the month is 4.54 inches, and the total for the past month was 13.30 inches. There were ten storms with lightning.

ALBIA.—*J. I. Chenoweth.* Rain fell on 15 days during the month and the total amount was 7.06 inches, or 4.77 inches more than for June, 1908. The sunshine was, however, fully up to the normal, but the excessive rain interfered with cultivation and the corn fields are weedy.

ALGONA.—*F. T. Seeley.* Although we have had rain or a trace of rain on 15 days of the month, farm work is as far advanced at the close of the month as it was at the close of June, 1908.

ALLERTON.—*Mrs. Geo. Shriver.* Excessive rainfall has hindered corn cultivation and some fields are very weedy. Grass and oats have also been damaged.

ALTA.—*D. E. Hadden.* The temperature was 0.8° below the nineteen year normal, and 2.3° warmer than June, 1908. The total rainfall was 2.36 inches less than in June of last year.

ALTON.—*W. S. Slagle.* There has been very little thunder during June and on the whole the month has been fine for all crops. Notwithstanding its late start, corn is nearly up to the normal and the third plowing is in progress. Barley headed nicely.

AMANA.—*C. Schadt.* Rain fell on 13 days and the latter part of the month was hot and very sultry. Seven head of cattle were killed by lightning on the 24th.

AMES.—*J. H. Criswell.* A splendid month for growth of corn which is in very fine condition except on some of the low ground, which was inundated by heavy rain on the 26th. Alfalfa hay was cut and put up in good condition. Winter wheat and oats lodged badly by the wind and rain of the 26th and 29th, and there is some rust on wheat.

AUDUBON.—*Geo. E. Kellogg.* Crops over a small area around Audubon were destroyed by hail on the night of the 12th. The excessive rains during the latter part of the month flooded low lands and destroyed much of the corn.

BAXTER.—*W. R. Vandike.* A good deal of rain fell, mostly at night during the latter part of the month, but the days were fairly clear, and corn made rapid growth.

BELLE PLAINE.—*S. C. VanDike.* A severe electric storm occurred on the night of the 24th.

BONAPARTE.—*Hon. B. R. Vale.* The first half of the month was wet but the latter half was seasonable. Fall grain is ripening early and 50 per cent of the corn will be laid by prior to the Fourth.

BRITT.—*Geo. P. Hardwick.* Vegetation started later last spring than ever before known, but made the most rapid growth in June ever observed.

CHARITON.—*C. C. Burr.* The month has been unfavorable for the corn crop which is now very uneven, and the soil is too wet for cultivation.

CLINTON.—*Luke Roberts.* The temperature during the first and second decades of the month was below the normal, but there was an average daily excess of 4.5° during the third decade. Crops, and especially corn, made rapid advancement.

CRESTON.—*Edgar Stovall.* An excessive rain and electric storm on the 9th caused considerable damage.

DUBUQUE.—*J. H. Spencer.* The heaviest rainfall was on the 24th, when 1.46 inches fell in an hour. Streets were flooded and damaged in some localities; also crops on low lands. The damage was slight, however, compared with the beneficial effects of the rainfall. There were several severe electrical storms, but there was no serious damage by lightning in this vicinity.

ELLIOTT.—*Henry Barnes.* A splendid growing month, which closed with crops of all kinds in fine condition.

FOREST CITY.—*J. A. Peters.* Corn is about as far advanced as usual at the close of June.

GRAND MEADOW. (Postville P. O.)—*F. L. Williams.* The month was favorable for all farm crops and corn is clean and up to the normal in size.

GRINNELL.—*D. W. Brainard.* All crops are in splendid condition at the close of the month.

GUTHRIE CENTER.—*D. G. Beardsley.* A good month for all crops.

INWOOD.—*F. B. Hanson.* The month has been notable for frequent rains, measureable precipitation having fallen on 16 days. Farm work has been much retarded thereby. Some corn was replanted early in the month. The season is now nearly up to the normal.

KEOKUK.—*Fred Z. Gosewisch.* Heavy rains of the 7th and 9th flooded a large tract of river bottoms planted with corn. The weather was cool and dry from the 9th to 20th; the floods receded and the bottom lands were replanted to a great extent. Corn has made good growth and is clean on well drained lands.

KEOSAUQUA.—*J. H. Landes.* In the main June was a good crop month; the result being that crops of all kinds look well, except where corn had to be replanted on account of ravages of worms. Wheat harvest began last month.

LAMONI.—*Prof. T. J. Fitzpatrick.* There was much lightning during the month and considerable loss of stock is reported. Grass is quite good but corn is in poor condition.

LE MARS.—*G. A. C. Clark.* On the night of the 26th over 2 inches of rain fell in one and a half hours, with almost continuous lightning and thunder.

NORTHWOOD.—*Chas. H. Dwelle.* Corn is in better condition than it has been at the close of June for several years.

PELLA.—*John H. VerSteeg.* The month closed with high temperatures and more drying weather, but as a whole it has been unfavorable for cleaning the corn fields and about 30 per cent of the corn is still very weedy.

PERRY.—*Hon. J. A. Harvey.* At 7 P. M. of the 24th excessive rain began, accompanied by much thunder and lightning, which continued for an hour and a half. At midnight another heavy rainstorm began and continued from one and a half to two hours. Six inches of rain fell during the two storms.

PLOVER.—*J. S. Smith.* Rain fell and thunder occurred on 18 days during the month, and while there was 6.21 inches more rain in June, 1908, there is more moisture now in the soil than there was at this time last year. Corn is much better than last year.

RIDGEWAY.—*Arthur Betts.* The records of the past eleven years show that June was a normal month as to temperature and precipitation. The last decade was especially warm and crops are looking well.

SHELDON.—*Dr. A. W. Beach.* There has been too much rain; streams have been out of their banks and low lands have been under water a good share of the month. All crops have suffered more or less damage.

STOCKPORT.—*C. L. Beswick.* There has been a deficiency of precipitation and an excess of temperature. Corn is growing rapidly at close of month but is little below the average for the end of June.

WAUKEE.—*S. F. Foft.* The weather was close and sultry during the latter part of month. Corn is two to three feet in height and fully up to the average. Small grain, pastures and meadows look good.

WAVERLY.—*H. S. Hoover.* Extremely heavy rain, thunder, lightning and wind occurred on the 6th between 7:30 P. M. and 8:00 P. M. Corn and all crops as well as weeds are growing very rapidly.

WEST BEND.—*Jos. Dorweiler.* Corn made rapid growth the last week, but the soil is too wet for cultivating.

BELATED REPORTS.

FAYETTE.—*April.* (4 days missing). Mean temperature, 54.1°; maximum temperature and date, 91° on the 5th; minimum temperature and date, 26° on the 4th; greatest daily range of temperature, 45°; precipitation record incomplete.

MASSENA.—*April.* Mean temperature, 58.7°; maximum temperature and date, 93° on the 5th; minimum temperature and date, 22° on the 1st; greatest daily range of temperature, 48°; precipitation, total, 4.91; greatest in 24 hours, 1.29 on the 30th; days with, 9; number of days clear, 14; partly cloudy, 11; cloudy, 6.

NORTHWOOD.—*April.* (6 days missing from temperature record.) Mean temperature, 56.4°; maximum and date, 88° on the 5th; minimum and date, 25° on the 1st, 2d and 3d; greatest daily range of temperature, 40°; precipitation, total, 3.65 inches; greatest in 24 hours and date, 1.44 on the 15th; days with, 7; number of days clear, 9; partly cloudy, 14; cloudy, 8.

ERRATA.

BELLE PLAINE.—*March.* Page 29, 10th, maximum temperature published 28°, should be 31°; mean maximum, 40.9°, should be 41.0°.

ELLIOTT.—*March.* Page 28, mean temperature published 34.4° should be 34.8°.

ELMA.—*March.* Pages 27 and 31, total precipitation published 1.30 should be 0.85.

HUMBOLDT.—*March.* Page 27, highest temperature published 53° should be 57°.

PELLA.—*March.* Page 28, mean temperature, highest temperature and date and greatest daily range of temperature should be omitted; page 30, daily maximum temperature and mean maximum temperature should be omitted.

WASHINGTON.—*April.* Page 39, total precipitation published 5.01 inches should be 5.02; departure from normal published plus 2.35 should be plus 2.34; page 43, total precipitation published 5.01 should be 5.02.

WHITTEN.—*April.* Page 38, maximum temperature published 66° on the 4th should be 68° on the 17th.

THUNDER STORMS—STATIONS AND DATES.

NORTHERN SECTION.

Algona	.....	1, 6, 13, 16, 21, 23, 24, 25, 26, 27
Alta	.....	1, 5, 7, 16, 20, 23, 24, 26, 27
Alton	.....	.....6, 23, 24, 26, 27
Britt	.....	.....16
Charles City	.....	1, 2, 6, 7, 12, 16, 21, 22, 23, 24, 26
Clear Lake	.....	.....3
Elkader	.....	1, 5, 16, 21, 22, 23, 25, 26
Elma	.....	1, 2, 3, 4, 5, 6, 7, 16, 22, 23, 24, 25, 26, 27
Grand Meadow	.....	.....22, 23, 24, 25, 26
Greene	.....	.....1, 6, 7
Humboldt	.....	.....14, 23, 25, 26, 27
Inwood	.....	.....12, 15, 20, 21, 23, 24, 26, 27
Larrabee	.....	.....2, 6, 11, 13, 16, 20, 23, 24, 26, 27
Le Mars	.....	.....1, 6, 12, 17, 21, 24, 26
Mason City	.....	1, 3, 4, 6, 7, 8, 9, 13, 16, 21, 22, 23, 24, 25, 26
Northwood	.....	.....1, 2, 4, 13, 16, 23, 25, 26
Plover	.....	1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 16, 20, 22, 23, 24, 26, 27, 29
Pocahontas	.....	1, 2, 3, 6, 7, 8, 12, 16, 18, 21, 23, 24, 25, 26, 27
Ridgeway	.....	1, 3, 6, 7, 9, 12, 16, 22, 23, 24, 26
Sheldon	.....	.....6, 12, 13, 21, 23, 24, 26, 27
Sioux Center	.....	.....2, 7, 22, 23, 26, 27
Storm Lake	.....	.....2, 7, 9, 17, 23, 26
Washita	.....	1, 2, 5, 7, 11, 12, 16, 20, 23, 24, 26
Waverly	.....	1, 2, 3, 6, 12, 22, 23, 24, 26, 27
West Bend	.....	.....1, 5, 13, 16, 26

CENTRAL SECTION.

Amana	.....	.....7, 13, 23, 24, 25
Ames	.....	.....26
Audubon	.....	7, 9, 12, 21, 22, 23, 24, 25, 26, 27, 29
Baxter	.....	.....9, 27
Belle Plaine	.....	.....24
Boone	.....	1, 6, 7, 21, 25, 27
Carroll	.....	1, 2, 7, 9, 24, 25, 26
Clinton	.....	1, 3, 7, 23, 24, 26
Davenport	.....	1, 2, 7, 9, 16, 22, 23, 24, 25, 26
Delaware	.....	.....1, 7, 17, 24, 25, 27
Des Moines	.....	1, 7, 8, 9, 12, 13, 22, 23, 24, 25, 26, 27, 29
Dubuque	.....	1, 6, 16, 21, 22, 23, 24, 26
Grinnell	.....	1, 2, 3, 8, 9, 13, 16, 23, 24, 25, 26, 27, 29
Guthrie Center	.....	1, 6, 7, 12, 16, 21, 22, 24, 25, 27, 29
Harlan	.....	1, 7, 8, 9, 13, 16, 20, 21, 22, 23, 24, 25, 27, 29, 30
Iowa City	.....	.....21, 23, 24
Iowa Falls	.....	1, 3, 6, 12, 13, 16, 20, 22, 23, 24, 26, 29
Onawa	.....	1, 3, 6, 7, 9, 12, 13, 21, 22, 23, 24, 27, 28
Perry	.....	.....8, 9, 20, 29
Sioux City	.....	1, 2, 5, 6, 12, 16, 20, 21, 22, 23, 24, 26, 27, 28
Waterloo	.....	.....1, 16, 22, 23, 24, 26
Waukeo	.....	.....9, 25, 27
Whitten	.....	1, 9, 22, 23, 24, 25, 26, 27

SOUTHERN SECTION.

Afton	.....	1, 7, 8, 9, 12, 13, 21, 22, 27, 30
Albia	.....	.....1, 6, 8, 12, 16, 22
Allerton	.....	.....2, 7, 8, 9, 22, 25, 27, 29, 30
Atlantic	.....	1, 6, 7, 9, 12, 21, 22, 23, 25, 27, 29, 30
Chariton	.....	.....13, 28, 30
Columbus Junction	.....	1, 7, 8, 9, 16, 17, 21, 24, 25
Corning	.....	.....6, 7, 8, 9, 13, 21, 30
Corydon	.....	.....7, 8, 22, 30
Creston	.....	.....8, 22
Earlham	.....	1, 7, 8, 9, 13, 22, 24, 25, 27, 29, 30
Elliott	.....	1, 7, 8, 16, 21, 22, 23, 24, 25
Fairfield	.....	8, 9, 17, 21, 24, 25, 28, 29
Fort Madison	.....	1, 7, 9, 16, 21, 25, 27
Hancock	.....	.....7, 8, 9, 20, 21
Hopeville	.....	1, 2, 7, 8, 9, 22, 25, 30
Indianola	.....	1, 7, 12, 21, 22, 23, 24, 26
Keokuk	.....	4, 7, 9, 16, 21, 22, 23, 25, 27, 28
Keosauqua	.....	.....8, 9, 22, 25
Lamoni	.....	.....7, 8, 22, 25, 30
Lenox	.....	1, 7, 8, 9, 13, 16, 27, 30
Mount Pleasant	.....	.....7, 8, 13, 24, 26
Omaha, Neb.	.....	1, 2, 6, 7, 8, 9, 12, 20, 21, 22, 23, 24, 27, 28, 29, 30
Pella	.....	1, 2, 13, 16, 21, 24, 27, 28, 29
Sigourney	.....	.....8, 9, 24, 27
Stockport	.....	.....7, 9, 29
Thurman	.....	7, 13, 16, 20, 21, 22, 23, 25, 27, 28, 29, 30
Woodburn	.....	1, 2, 7, 8, 11, 12, 27, 28, 29, 30

MONTHLY REVIEW OF THE

CLIMATOLOGICAL DATA FOR IOWA, JUNE, 1909

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit					Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days			No. partly cloudy days	No. cloudy days
NORTHERN SECTION																				
Algona	Kossuth	1,213	34	67.6	-0.9	89	29	47	15	30	6.03	+1.63	1.88	0	13	20	3	7	s	Dr. F. T. Seeley
Alta	Buena Vista	1,513	17	68.3	+0.6	88	*5	46	15	30	5.67	-0.45	1.05	0	16	9	16	5	s	D. E. Hadden
Alta [near]	Buena Vista																			W. J. Minard
Alton	Sioux	1,305	3	68.6		92	5	45	15	36	5.96		2.02	0	13	15	5	10	sw	W. S. Slagle
Britt	Hancock	1,236	11	67.6	+0.5	92	28	46	15	30	6.21	+2.13	1.55	0	17	2	21	7	se	G. P. Hardwick
Charles City	Floyd	1,015	20	67.0		90	30	45	15	30	5.40	+0.30	1.06	0	16	6	10	14	s	Weather Bureau
Clear Lake	Cerro Gordo	1,241	9	69.4	+1.2	90	*20	50	*7	34	5.12	+0.28	1.04	0	15	16	3	11	s	Oscar Stevens
Decorah	Winneshiek	875	15																	F. H. Baker
Dows	Wright	1,142	8	65.8	-0.2	87	30	41	6	43	7.12	+2.70	1.92	0	12	15	8	7	s	G. D. Flett
Elkader	Clayton	727	27	71.6	+2.5	95	*28	41	13	38	4.80	+0.77	1.12	0	9	15	10	5	se	Chas. Reinecke
Elma	Howard			67.8		88	30	40	15	36	4.46		.90	0	16	11	15	4	se	H. A. Moore
Estherville	Emmet	1,298	12	66.2	-0.6	88	*5	45	15	32	6.71	+3.36	1.95	0	14	12	5	13	e	A. O. Peterson
Fayette	Fayette	1,003	18																	R. Z. Latimer
Forest City	Winneshiek	1,226	14	67.1	-0.1	90	30	45	14	31	5.78	+1.15	1.80	0	12	19	5	6	sw	J. A. Peters
Grand Meadow	Clayton	1,180	17	68.4	+0.2	86	30	45	1	34	4.90	+0.10	1.70	0	14	7	16	7	se	F. L. Williams
Greene	Butler			69.0	+0.9	93	30	43	15	36	5.41	+1.29	1.52	0	13	10	11	9	se	J. L. Cole
Hampton	Franklin	1,155	18	68.4	+0.6	91	30	46	15	32	5.21	+0.31	1.75	0	15	7	14	9	se	E. C. Grenelle
Humboldt	Humboldt	1,095	17			89	30				7.10	+2.39	3.24	0	12	16	4	10	se	H. S. Wells
Inwood	Lyon	1,474	4	67.4		89	*20	45	15	41	8.53		1.90	0	16	13	13	4	ne	F. B. Hanson
Larrabee	Cherokee	1,266	17	68.0	-0.5	92	26	47	15	33	7.32	+1.84	1.40	0	12	10	14	6	se	H. B. Streever
Le Mars	Plymouth	1,224	12	67.6	-0.7	88	20	44	15	31	7.22	+3.06	4.36	0	12	8	17	5	se	G. A. C. Clarke
Mason City	Cerro Gordo	1,132	11	66.2	-1.0	87	*20	42	15	33	5.96	+0.07	1.18	0	16	10	14	6	se	J. S. Mills
Merrill	Plymouth										4.16		0.75	0	13					Eric Oleson
New Hampton	Chickasaw	1,169	11	67.0	+0.7	86	*27	45	15	29	6.18	+1.93	.90	0	14	15	10	5	e	A. F. Kemman
Northwood	Worth	1,222	12	66.5	+0.5	90	29	45	15	30	5.20	+0.32	1.15	0	11	14	11	5		Charles H. Dwelle
Osage	Mitchell	1,184	17	68.0	+1.9	94	30	43	15	33	6.61	-2.08	1.70	0	14	14	7	9	sw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	12	68.5	+0.9	92	28	43	15	35	5.67	+1.32	1.45	0	18	20	7	3	se	J. S. Smith
Pocahontas	Pocahontas		4	66.8		89	30	45	15	31	7.29		2.80	0	15	9	13	8	s	F. E. Hronek
Ridgeway	Winneshiek	1,215	10	68.2	-0.1	94	28	46	*10	33	5.43	+1.28	1.24	0	15	16	8	6	s	Arthur Betts
Rock Rapids	Lyon	1,358	9	68.4	+1.0	91	29	48	8	29	7.57	+2.86	2.00	0	11					W. C. Wyckoff
Sheldon	O'Brien	1,422	8	67.8	+1.4	91	*5	44	16	37	6.77	+2.25	1.67	0	14	14	7	9	se	Dr. A. W. Beach
Sibley	Osceola	1,212	15	65.4	-0.6	89	5	44	15	34	6.85	+2.33	2.90	0	16	15	6	9	ne	H. G. Doolittle
Sioux Center	Sioux		9	67.7	+0.9	89	4	47	15	33	4.48	-0.25	1.65	0	14	15	8	7	e	J. de Ruyter
Storm Lake	Buena Vista	1,440	12	67.3	+0.3	87	26	50	*8	127	3.48	-1.31	.80	0	11					S. B. Fracker
Washta	Cherokee	1,157	10	67.7		91	*28	41	15	40	6.32	+2.00	1.75	0	10	11	9	10	s	H. L. Felter
Waverly	Bremer	948	12	67.1	-0.4	85	*29	44	15	29	6.35	+2.10	2.35	0	12	9	13	8	s	H. S. Hoover
West Bend	Palo Alto	1,197	14	68.8	+1.4	93	28	47	15	35	6.37	+2.15	2.00	0	15	12	8	10		Phil Dorweiler
Average				67.6	+0.2	90		45		33	6.00	+1.43		0	14	13	10	7	se	
CENTRAL SECTION																				
Amana	Iowa	721	31	69.4	0	89	*26	49	15	33	5.51	+1.10	1.65	0	13	9	12	9	se	Conrad Schadt
Ames	Story	926	27	70.3	+0.9	90	30	48	15	34	5.00	+0.47	2.05	0	14	18	6	6		Iowa State College
Audubon	Audubon	1,301	15	68.4	+0.3	90	26	44	15	37	6.58	+2.73	1.08	0	15	11	4	15		Geo. E. Kellogg
Baxter	Jasper	998	8	69.0	+1.4	93	25	50	15	31	5.48	+0.98	1.72	0	16	21	5	4	se	W. R. Vandike
Belle Plaine	Benton	828	18	68.8	-0.3	87	*5	47	1	34	5.99	+1.82	2.00	0	13	9	15	6	se	S. P. Vandike
Boone	Boone	1,134	8	69.4		90	30	51	15	30	7.02		1.37	0	19	13	5	12	s	Carl Fritz Henning
Buckingham	Tama		8								3.60	-1.34	.95	0	9	12	14	4		Dr. W. A. Daniel
Carroll	Carroll	1,265	18	67.6	-1.0	90	*29	48	15	32	9.79	+5.12	4.00	0	14	12	9	9		Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	26	69.8	-0.5	89	*20	50	15	33	4.44	-0.57	1.71	0	8	13	4	13	e	Electric Light & P. Co.
Clinton	Clinton	593	40	69.5	-0.2	91	*22	44	15	38	6.01	+1.58	3.42	0	10	12	11	7	ne	Luke Roberts
Davenport	Scott	580	36	70.4	-0.5	90	30	49	15	27	2.80	-1.31	1.10	0	12	8	11	11	e	Weather Bureau
Delaware	Delaware	1,083	17	67.6	-0.2	87	*26	47	15	32	7.91	+3.73	3.92	0	14	11	13	6	s	Wm. Ball
Denison	Crawford	1,180	13	68.0	+0.2	88	*26	45	24	34	7.75	+4.33	2.37	0	15					W. C. Van Ness
Des Moines	Polk	861	31	70.0	-0.4	88	*26	45	11	29	7.01	+3.05	1.67	0	18	6	6	18	s	Weather Bureau
De Soto	Dallas	866	8	69.2	+0.2	88	*26	43	13	35	6.37	+2.00	1.78	0	14	16	6	8	sw	R. D. Minard
Dubuque	Dubuque	639	35	68.7	-0.9	90	30	46	15	27	6.61	+2.06	2.41	0	13	9	9	12	s	Weather Bureau
Fort Dodge	Webster	1,126	8	69.2	+2.6	91	20	45	15	34	7.21	+3.40	1.64	0	12	13	4	13	sw	J. F. Monk
Gilman	Marshall	1,052	9								4.88	-0.14	1.52	0	11					Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	69.6	+1.3	90	30	50	18	32	6.00	+1.42	1.30	0	12	4	17	9	sw	D. W. Brainard
Grundy Center	Grundy	976	17	68.6	+0.4	90	28	44	15	33	8.76	+3.46	1.72	0	11	14	7	9	s	J. B. Calderwood
Guthrie Center	Guthrie	1,077	13	69.8	+0.8	90	*6	48	15	33	6.06	+1.65	1.01	0	16	15	6	9	sw	D. G. Beardsley
Harlan	Shelby	1,192	9	68.4	-0.1	89	30	48	15	33	6.84	+2.22	1.25	0	16	6	14	10	ne	C. A. Reynolds
Independence	Buchanan	921	43	67.4	-1.0	88	30	42	15	31	5.78	+1.00	1.94	0	11	19	6	5	ne	George Donohue
Iowa City	Johnson	683	49	70.8	+1.5	92	30	48	19	37	4.58	0	1.28	0	13	9	15	6	s	Prof. Karl E. Guthe
Iowa Falls	Hardin	1,170	15	67.5	0	88	*26	44	15	37	5.63	+1.11	2.01	0	15	13	5	12	ne	J. B. Parmelee
Jefferson	Greene																			Geo. W. Jackson
Le Claire	Scott	576	4	69.9		91	*5	48	13	36	4.63	+0.54	1.19	0	10				ne, s	Margaret T. Disney
Little Sioux	Harrison		42	69.0	-0.9	90	6	51	*3	30	5.72	-0.59	1.72	0	15	13	6	11	se	Geo. H. Gibson
Logan	Harrison	928	42	69.0	-0.9	90	6	51	*3	30	6.02	+0.59	1.72	0	14	7	17	6	ne	Glenn H. Stern
Marshalltown	Marshall	947	16	68.4	-0.3	89</														

CLIMATOLOGICAL DATA FOR IOWA, JUNE, 1909—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	Number clear days	Number partly cloudy days			Number cloudy days
SOUTHERN SECTION																				
Afton	Union	1,212	14	71.0	+0.2	92	26	52	15	34	13.30	+9.14	3.19	0	13	6	14	10	sw	N. W. Rowell
Albia	Monroe	959	10	68.8	-0.8	87	30	51	*1	30	7.06	+2.20	1.79	0	15	9	13	8	sw	J. I. Chenoweth
Allerton	Wayne		6	70.3	+2.2	89	30	52	15	29	10.24	+5.55	4.50	0	15	14	10	6	sw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	17	70.0	+0.9	90	*26	50	15	31	9.08	+3.67	2.42	0	13	7	9	14	ne	Thos. H. Whitney
Bedford	Taylor		8	70.1	+1.8	89	*26	53	*4	32	5.76	+1.29	0.95	0	14	13	8	9	se	E. E. Healy
Bloomfield	Davis																			C. R. Davis
Bonaparte	Van Buren		17	70.2	-1.0	88	24	47	15	31	5.93	+1.25	3.03	0	7					Hon. B. R. Vale
Burlington	Des Moines	544	12	72.5	+2.0	92	27	51	19	30	4.37	-0.71	1.03	0	13	15	11	4	s	M. E. Poppe, Jr.
Chariton	Lucas	1,042	13	69.1	-0.1	89	30	50	15	32	6.33	+1.61	1.20	0	11	10	11	9	se	C. C. Burr
Clarinda	Page	1,009	18	71.0	0	93	6	50	1	33	10.39	+5.49	2.62	0	15	15	11	4	s	A. S. Van Sandt
Columbus Junction	Louisa	595	7	70.9	+2.2	92	30	48	15	33	2.95	-1.93	0.98	0	8	13	14	3	ne	J. B. Johnston
Corning	Adams	1,117	16	69.3	+0.3	90	*26	52	*4	31	10.11	+6.06	2.30	0	13	6	17	7	se	Jerome Smith
Corydon	Wayne	1,101	15	70.3	+0.4	87	*21	52	*15	30	6.92	+2.27	2.42	0	14	9	9	12	e, se	Clara Miller
Creston	Union	1,312	3	69.2		89	26	52	*4	30	12.17		2.17	0	14	15	8	7	se	E. S. Stovall
Cumberland	Cass		9								6.92	+2.24	1.45	0	15	19	4	7	ne	J. H. Reppert
Earlham	Madison		6	68.8	+3.6	88	30	47	15	31	6.82	+2.29	1.46	0	14	9	9	12	s	Geo. Phillips
Elliott	Montgomery		3	69.8		88	26	53	*4	28	6.55		1.38	0	13	11	15	4	s	Henry Barnes
Fairfield	Jefferson		14	71.0	+1.1	91	30	47	15	35	5.92	+0.79	2.34	0	13	13	10	7	s, se, sw	R. Monroe McKenzie
Fort Madison	Lee	516	59								7.79	+3.41	2.53	0	10	3	9	18	s	Miss L. A. McCready
Greenfield	Adair		17										1.60	0	14	13	10	7	sw	Geo. Brooks
Hancock	Pottawattamie	1,113	2	70.6		93	26	50	*1	36	8.38			0	14	13	10	7	sw	G. C. Rogers
Hopeville	Clarke		17	70.0	+0.3	89	27	52	15	30	8.83	+4.78	2.67	0	16	2	14	14	s	M. T. Ashley
Indianola	Warren	969	17	69.6	-0.1	88	*26	b51	16	b31	5.76	+1.58	1.56	0	13	3	17	10	se	Prof. J. L. Tilton
Keokuk	Lee	574	37	72.8	+0.3	90	24	50	15	29	5.11	+0.76	2.50	0	8	11	17	2	s	Weather Bureau
Keosauqua	Van Buren	644	16	72.8	+1.1	96	26	47	*15	38	4.35	-0.20	1.54	0	9	4	15	11		J. H. Landes
Knoxville	Marion	920	12	71.0	-0.6	90	*23	53	*11	31	5.88	+1.56	1.63	0	12	8	10	12	ne	Casey & Bellville
Lacona	Warren		9											0	19	16	3	11	se	Agent C., B. & Q. Ry.
Lamoni	Decatur			71.8		94	29	54	11	23	8.10		1.65	0	12	15	10	5	s	T. J. Fitzpatrick
Lenox	Taylor	1,250	13	69.5	+0.2	88	*24	53	*13	31	7.69	+3.42	2.32	0	12	15	10	5	s	J. T. Hurley
Leon	Decatur	1,120	6								10.35	+5.57		0						Morris Gardner
Massena	Cass		3																	C. E. Smeltzer
Mt. Ayr	Ringgold	1,236	15	70.5	+0.5	91	30	53	14	31	8.11	+3.39	2.10	0	14	8	11	11	se	A. F. Beard
Mt. Pleasant	Henry	729	26	71.4	0	90	30	48	15	32	4.50	+0.02	1.32	0	10	18	9	3	sw	Prof. J. W. Edwards
Omaha, Neb.	Douglas	1,040	38	70.4	-1.2	91	26	56	13	26	7.54	+2.49	2.07	0	13	3	14	13	s	Weather Bureau
Oskaloosa	Mahaska	843	24	70.2	+0.7	89	26	52	19	26	5.21	+1.10	1.08	0	11	19	2	9	ne	Jos. Boyd
Ottumwa	Wapello	649	14																	Dr. Jas. A. Hull
Pacific Junction	Mills	960	9	69.8	+0.1	90	26	49	4	33	8.90	+4.44	3.40	0	11	4	26	0	s	H. H. McCartney
Pella	Marion	877	6	69.1	-2.2	87	30	50	19	31	4.61	+0.83	1.13	0	15	17	3	10	se	John H. Ver Steeg
St. Charles	Madison	1,070	7	69.2	+0.6	89	26	43	13	35	6.59	+2.25	1.78	0	15	10	12	8	s	R. D. Minard
Sigourney	Keokuk	877	12	70.6	-0.2	91	30	51	19	33	7.02	+3.04	2.80	0	14	3	25	2	se	J. T. Parker
Stockport	Van Buren		6	70.4		86	*24	50	15	24	3.57	-2.79	1.94	0	9	15	8	7	s	C. L. Beswick
Thurman	Fremont		11	71.6	+0.6	92	26	50	15	37	6.04	-0.21	1.72	0	12	9	12	9	ne	C. R. Paul
Wapello	Louisa	588	10	68.9	-0.7	b85	25	b48	14	b23	3.87	+0.31	1.51	0	11				se	Geo. W. Schofield
Washington	Washington	769	27	69.5	-2.2	87	*23	50	15	30					12	5	19	6	ne	Wm. A. Cook
Winterset	Madison	1,129	17	71.0	+0.9	92	26	54	*11	32	4.84	-0.99	.93	0	14	6	13	11	s	Dr. Robert S. Cooper
Woodburn	Clarke	961	9	69.0		92	30	48	*15	36	8.94	+4.56	2.80	0	13	6	18	6	sw	C. B. McDonough
Average				70.3	+0.3	90		51		31	7.07	+2.45		0	12	10	12	8	s	
State average				69.1	+0.3	90		48		32	6.41	+1.89		0	13	12	10	8	s	

* And other dates. a one day missing, b two days; c three days; d four days, etc. † Received too late to be included in average.

MONTHLY REVIEW OF THE

DAILY PRECIPITATION FOR IOWA, JUNE, 1909

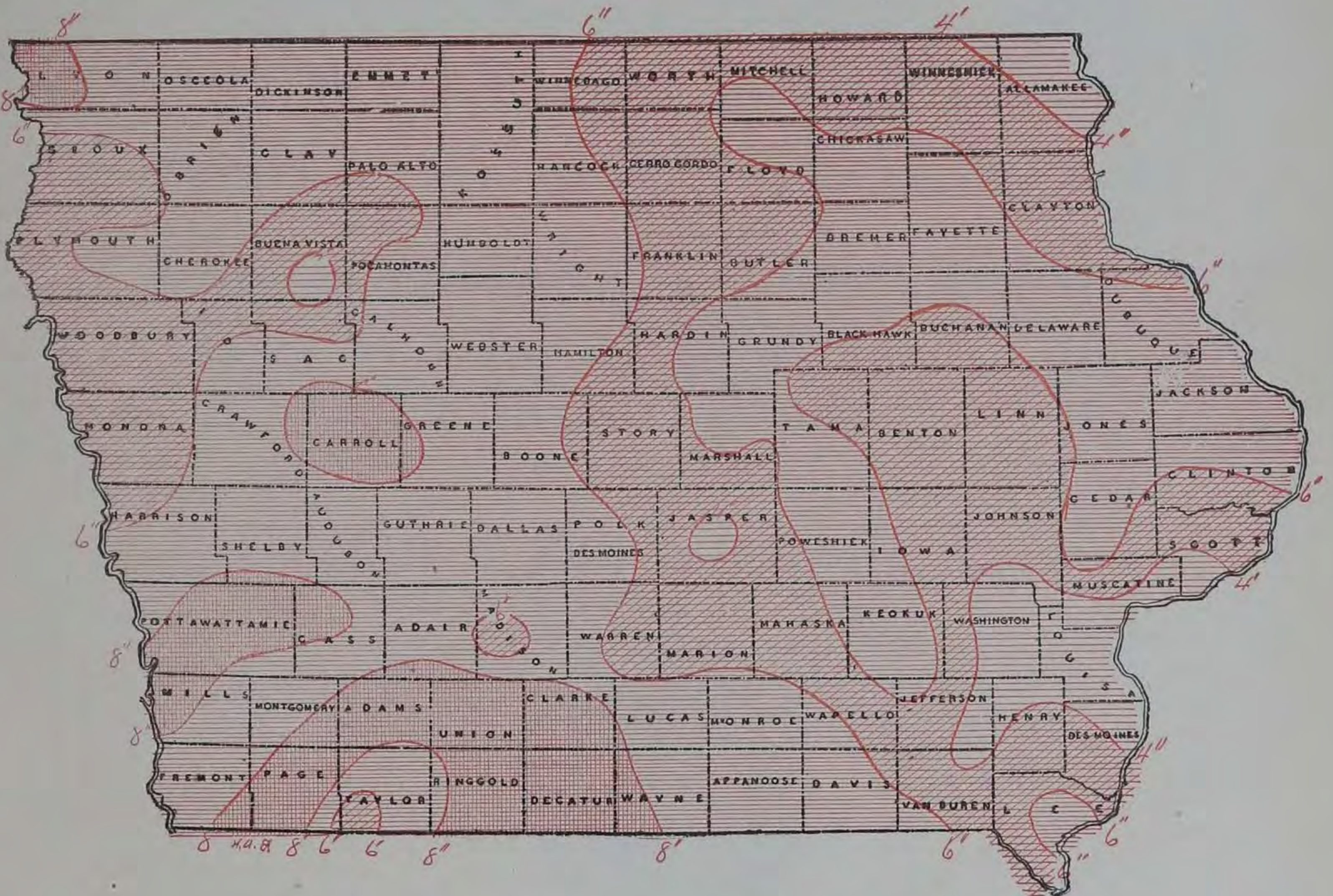
STATIONS	DAY OF MONTH																														TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Alton	.44	.53	T				3.19	1.20	1.38		.06	1.00	.33			.08					.69	.60		T			1.95			1.85	13.30
Albia	.10		.90	.03			.37	1.10	1.44	.08		.15	.36				T						.06	.24	.03	1.79	.01	.40		7.06	
Algona	.11	T	T			1.88	.19	.18	.10				.51			.16					.48		.60	.15	.61	1.01	.05			6.03	
Allerton	.05	.03	.03				.23	4.50	1.66		T	.47	.15			T	.02					.38			.06		1.08	.17	.40	1.01	10.24
Alta	.18	.55	T		T	.18	.30	.18	.22	.02		.23	.13				.95				1.05		.88	.08	.02	.50	.20			5.67	
Alta (near)	.06	.15					.14	.53	.04	.24		.25				T	.18				1.32		1.38	.03	.19	.04	.64			6.23	
Alton	.17	.13	.22			.59	.56	.03	.07			T	.18			T					.37	T	.13	.04		1.45	2.02			5.86	
Amana	.81		.32	.04			.01	1.65	.52			T	.14								.21	.02	.47	.47	.49	.36				5.51	
Ames	.07		.08				.14	.27	.48			T	.08								1.06	.81	T		.15	.25	.28	.46		9.08	
Atlantic	1.11	T	.10			T	2.42	.30	2.11		T	.01	.02				T				.45	.47	.12	.02	.51	.80	T	.05		6.58	
Audubon	.76	.10	.14				1.06	.22	1.08			.15	.65								.16	.09	.25				1.72	.01	.32		5.48
Baxter	.46	.01	.06	.05			.22	.35	1.65	.01		.05	.07				.43					.58			T		.39	.12	.18	T	5.76
Bedford	.58	.36	.04				.17	.57	.53				.24								.04	.02	.26	T	2.00	.80		.03		5.99	
Belle Plaine	.58	.05	.70		T		.58	1.40	3.03												.35		.02			.33	.22			5.93	
Bonaparte							.85	.78	.87	.04		.08	.28	.03			.04				.36	.10	.03	.60	1.37		1.01		.15	7.02	
Boone	.25	.14	.02	.02		T	.85	.78	.87	.04		.08	.28	.03			.04				.36	.10	.03	.60	1.37		1.01		.15	7.02	
Britt	.15	.16	.49	.01		.49	.27	.17	.05			T	.47			.91	.12				.16	.01	.72	.36		1.55	.12			6.21	
Buckingham	.10	T	.10			T	.56	.11	.40			.12											.95	.72	T	.54				3.80	
Burlington	.02						.79	1.03	.58			.05		.03			.06						.70	.01	.13	.07	.70	.20	T	4.37	
Carroll	.04	1.07	.09				.90	.30	1.53			.10	.18			.35					.27	.40		.44	.12	4.00				9.79	
Cedar Rapids	T	T	T				1.71	.08	.12			T	.12								T	.13	.70	1.02		.56				4.44	
Chariton	.64	.35	T				.54	1.02	1.20	T		.52	.34			T					.22	.37	.66	.33	.04	1.06	.01		.22	6.33	
Charles City	.28		.01		.01	.68	.72	.07	.32			.19	T			.45					.22	.37	.66	.33	.04	1.06	.01		.22	6.33	
Clarinda		1.64	.28				2.30	.38	.86			.07	.45			.51					.41	.45	.07	.10			.09	.16		2.62	10.39
Clear Lake	.60	.08	.45	.15		.15	.55	.15	.20			.30									.15	.15	.15	.35	.65	1.04				5.12	
Clinton	.15	.26	.03				.25	.98	.80								T				.14			.22	T			.30	.05		2.95
Columbus Jct.	.21						2.30	.75	1.36	T	.13	T	.42			.25					1.72	.71	.07		T		1.13	.37	.32	10.11	
Corning	T	.58	T				.33	1.20	2.42	T	T	.40	.27			T					1.65	1.35	.02	T	T		.38	1.14		T	12.17
Corydon	.22	.02	.01				1.90	.57	2.17			1.67	.44				.15														6.92
Creston	.08	.63	T	.02			1.45	.65	.76		.21					.01					.76										6.92
Cumberland	.14	.42	.11				.17	.40	.51	.02		T	T			.12	T						.18	1.01	.07	.13	T			2.80	
Davenport	.13	.03	.03	T			3.92	.54	.64	.02		.02	.10			.39					.10	.14		.16	.67	.10	.40				7.91
Delaware	.71						1.14	.62	.46			.10	.25				.72				.27	.26	.55	.02	T		2.37		.04	7.75	
Denison	.36	.21	.04		T	.11	1.45		1.00			.10	.25								.02	.22	.69	.39	.33	.98	.28	.02	.72	7.01	
Des Moines	.38	T	.03			T	.51	.49	1.66	.01	.11	.04	.13								.64	.20	.05	.21	.78	1.15				6.37	
De Soto	.13	.37	.09				.21	.33	1.78			.23	.20								.48	.11	1.02		.38	1.92	.53		.18	7.12	
Dows		.14				1.46	.59					.26				.05					.48	.11	1.02		.38	1.92	.53		.18	7.12	
Dubuque	.12	T	T			.05	1.14	.62	.46			T	.02			.07	T				.91	.30	T	.17	.37	1.19		.07		6.82	
Earlham	.60	.32	.05				.05	1.12	.56	.19							.36				1.07	.73	.11		.03	1.10			.32	4.80	
Elkader							1.38	.64	.54		.03					.04															6.55
Elliott	.38	.18					.04	.54	.02	.28		.14				.45															4.46
Elma	.37	.27		.03	.03		.40		1.15	T	.05	T	.43	.10		1.20															6.71
Estherville	.10	.08	.30				.01	1.94	2.34	.01		.01					.04														5.92
Fairfield	.01		T				.25	T	.30	.05	T		.88				.60														5.78
Forest City		.26	.11	1.80			.04	1.17	.50	.30	.11		.16	T			.10				.15			.90	1.50		1.64			7.21	
Fort Dodge	T	T		.64			.04	1.17	.50	.30	.11		.16	T			.10				.15			.90	1.50		1.64			7.21	
Ft. Madison		T	.06				2.50		2.53			.08				.43					.07			.25							7.79
Gilman	.16	T	.32	T			.02	1.70	.18	.12			.15		.58	.09															4.88
Grand Meadow			.08				.02	1.70	.18	.12			.15		.58	.09															4.90
Greene	.53	.12					.95	1.52	.08	.13			.08		.19	.17					.07										5.41
Grinnell	.60	.13	.23			T	.21	1.26	1.30			T	.40																		6.00
Grundy Center	1.23	1.27	.09				.60	.71	.45			.11	.30				.06				.48	1.72	T	1.17	.98	T		.31		8.76	
Guthrie Center	.06	.53	.11				1.01	.34	.97			.13	.02			.33					.20										6.06
Hampton	.10	.16					.70	.23	.05	.03		.13	.02			.33					1.20	1.10	.60	.09	.02		.50	.08	.24		5.21
Hancock	.90		.02				1.40	.60	1.60		T	.03				.01															8.38
Harlan	.58		.25		T		1.25	.46	1.01			.01	.55			.01															6.84
Hopeville	.35	.43	.01				2.67	1.86	.93		.08	.42	.29			.07					.15	.58									8.83
Humboldt			.40		.10		.15	.15	.10	.22				.45							.22										7.10
Independence	.43	.07				.01	1.94	.32	.60			.45	.01			.65															5.78
Indianola	.30	.15	T	T			.65	1.48	.75	T	T	.46	.02								1.90	1.55	.03	.16	.04	1.39	1.65			5.76	
Inwood	.07	.26				.31	.04	.01	.01			.45	.01			.65															8.53
Iowa City	.70		.06	.04			.06	1.28	.22	.36			.01								.54		.14	.66	.35						4.58
Iowa Falls	.03	.23	.11	.02		T	.95	.35	.03	T		T	.11	.03							.03		.10	.89	.32		2.01			T	5.63
Keokuk		T		.04			2.50		1.28		.01					.02					.01	T	T								5.11
Keosauqua							.04	1.54	1.53	.09		T	T																		4.35
Knoxville	.36	T	T		</																										

DAILY PRECIPITATION FOR IOWA, JUNE, 1909-Continued

STATIONS	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	
Stockport	T						.12	.73	1.94			.05									.08		.05	T	T		.35	.23	.02		3.57
Storm Lake	.01	.35				T	.41	.02	.29				.19				.38				.54	.87	.04				.38				3.48
Thurman	.10	T					1.42	T	.54	T	T		.54			.35				T	.88	.04	.02				.12	1.72	T	.21	6.04
Tipton	.18	.73					1.83	3.73	.54												.08		.98	1.00	.18						9.25
Toledo	.55	.05	.25				.30	.45	.53				.25							T	.10	.40		4.00	.65	.20					7.73
Wapello	.11						.74	1.51	.63	.05			.25				.13			T	.09		.23		.12	.03					3.87
Washta	T	T			.40		1.05				.15	.15	T				.48				.35		T	1.04	.20		1.00	.90			6.32
Waterloo	.75		T		T	T	.63	.42	.08	.08		.05				.04						.93	.44	2.38		.41					6.21
Waukeo	.10	.12	.04				.23	.38	1.33	.01		.23	.20								.26	.23	.07	.11	.71		1.35		T		5.37
Waverly	.65	.27		.02			.02	2.35	.30	.28		.05	.02				.78					.28	.22		.41	.68	.02				6.35
Webster City	T	T	T				.58	.62	.45	.58			.11				.32				.38	T	1.35	T	.30	.90	.98				6.57
West Bend	.07	.26	.09		1.12		.12	.05	.18			T	.55	T		.39					.55		.70	.06	.14	2.00	.09	T			6.37
Whitten	.45	.21	.04			T	.70	.38	.52			T	T									.22	.80	.16	2.12	2.20	.07				7.87
Wilton Junction		.40					.65									.78							1.70	.20							3.73
Winterset	.10	.36	.13	T			.30	.40	.93	T		.65	.52				T	T		T	.13	.33		.14	.09		.70	.06	T	T	4.84
Woodburn	.73	.15	T				.83	1.09	1.15			.71	.45			T					T	.25		.06	.25		2.80	.15	T	.32	8.94
Zearing	.20	.10	.06				.47	.16	.69			.08	.09									.20	.87		.99	1.24	.08				5.23

TOTAL PRECIPITATION, JUNE, 1909.

SCALE OF SHADES—IN INCHES



U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR JULY, 1909

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



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THE IOWA WEATHER AND CROP SERVICE

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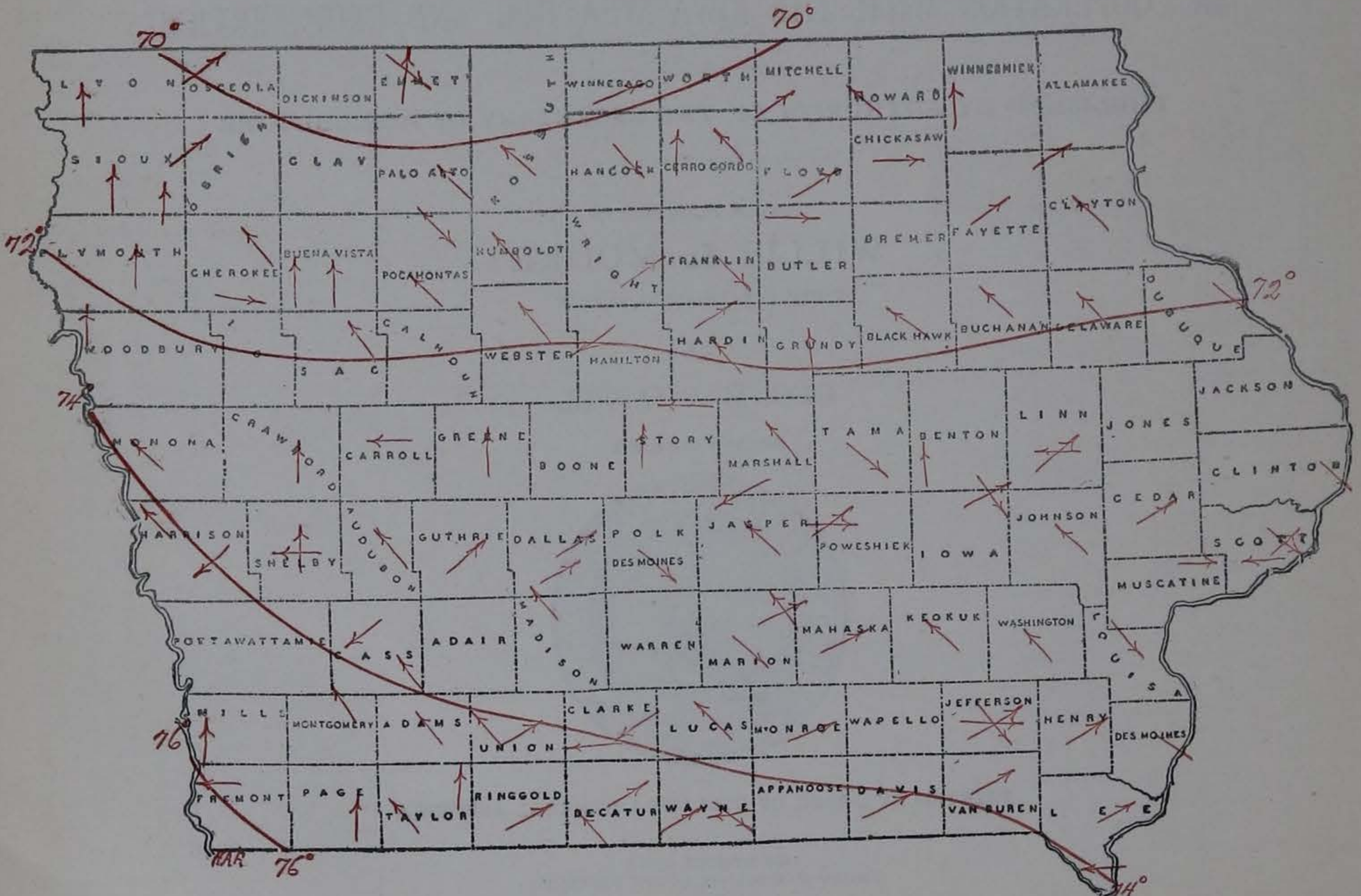
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MEAN ISOTHERMS AND PREVAILING WINDS OF JULY, 1909.
 Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.

CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,

GEO. M. CHAPPEL, Section Director.

VOL. XX DES MOINES, IOWA, JULY, 1909 No. 7

IOWA CROP REPORT—AUGUST, 1909.

Following is a summary of reports received from crop correspondents of the Iowa Weather and Crop Service, showing the estimated condition of the staple crops August 1, 1909, as compared with the average condition on that date in past years: The condition of corn has improved materially during July over the larger part of the state, but there has been a corresponding decrease over large sections of the southern counties, due to the excessive rains during the first ten days of July, so that the average for the state at large is 91 per cent; spring wheat, 92; oats, 92; barley, 87; flax, 93; hay crop, 101.5; pastures, 102; potatoes, 92; apples, 65; and grapes, 80.

The condition on August 1, 1908, was: corn, 88 per cent; spring wheat, 93; oats, 85; flax, 92; barley, 94; hay crop, 104; pastures, 102; potatoes, 93; apples, 48; grapes, 78.

GENERAL SUMMARY.

Showers were heavy and frequent from the 3d to the 12th, and the temperature was unusually low from the 3d to the 7th; but, as a whole, July was one of the best harvest months on record. The latter half of the month was characterized by moderately warm weather, light and widely scattered showers, a high percentage of sunshine, and the rarity of thunderstorms and wind squalls. The rainfall was especially heavy over the southern, central and western districts during the first decade, and caused high water in all creeks and rivers within the area of heavy rainfall. Bottom lands were flooded for the third time this season and many thousands acres of corn had to be abandoned. The heavy rains also prevented haying, and, in the southern districts where the small grain was ready for the harvester, the ground was too wet and soft to run machinery; but after the 12th the weather changed suddenly from wet and cool to comparatively dry and warm. During the second decade much of the belated corn was given some cultivation, but, owing to its rapid growth due to the higher temperature, the stalks soon became too high to permit further cultivation, and many fields were laid by in a weedy condition. The third decade was the warmest part of the month, the 29th being the warmest day, when the maximum temperature ranged generally from 90 to over 100 degrees. During this period the showers continued light and scattered; the 26th was the only day on which the showers were at all general, and, as in the first and second decades, the heaviest rainfall was over the western half of the state. At the close of the month the surface of the ground was dry over the larger part of the state, and the crops in the eastern districts were beginning to feel the effect of the drouth. Exceptionally rapid progress was made during the latter half of the month in haying and harvesting, and most of the hay and grain crops were secured in excellent condition. Corn made re-

markably rapid advancement and nearly all the early planted fields were in full tassel and earing nicely at the close of the month. The belated corn was doing its best, but most of it got too late a start to mature unless frost occurs much later than usual. There was some threshing done before the close of the month, and the early reports indicate a good yield of wheat of very fine quality. Oats straw is short, but the yield will be fair and the quality is better than for the past two years. Barley is generally poor. Pastures and potatoes were still in good condition at the close of the month, but they, as well as corn, were needing more rain.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 117 stations, was 72.3°, which is 1.1° degrees below the normal for Iowa. By sections the mean temperatures were as follows: Northern section 71.2°, which is 0.9° below the normal; Central section, 72.1°, which is 1.6° below the normal; Southern section 73.5°, which is 1.0° below the normal. The highest monthly mean was 75.8° at Thurman, Fremont county, and the lowest monthly mean 69.3°, at Sibley, Osceola county. The highest temperature reported was 102°, at Elkader, Clayton county, and Ridgeway, Winneshiek county, on the 29th; the lowest temperature reported was 46° at Washta, Cherokee county, on the 24th. The average monthly maximum was 95°, and the average monthly minimum was 52°. The greatest daily range was 42°, at Decorah, Winneshiek county. The average of the greatest daily ranges was 31°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 126 stations, was 4.77 inches, which is 0.33 inch above the normal. By sections the averages were as follows: Northern section, 4.08 inches, which is 0.20 inch below the normal; Central section, 4.25 inches, which is 0.26 inch below the normal; Southern section 5.99 inches, which is 1.45 inches above the normal. The greatest amount, 12.20 inches, occurred at Mount Ayr, Ringgold county, and the least, 1.20 inches, at Waterloo, Black Hawk county. The greatest amount in twenty-four hours, 6.50 inches, occurred at Allerton, Wayne county, on the 6th. Measureable precipitation occurred on an average of 10 days.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 15; partly cloudy, 8; cloudy, 8. The duration of sunshine was below the normal, the percentage of the possible amount being 80 at Charles City; 63 at Davenport; 63 at Des Moines; 65 at Dubuque; 64 at Keokuk, and 55 at Sioux City.

WIND.—Southwest winds prevailed. The highest velocity reported was 38 miles per hour from the North, at Sioux City, Woodbury county, on the 30th.

COMPARATIVE DATA FOR THE STATE—JULY.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	75.6	110	45	1.98	5.00	0.37
1891.....	68.5	99	41	4.22	8.20	1.67
1892.....	73.0	104	38	5.29	12.86	1.71
1893.....	75.0	102	47	3.33	8.84	1.49
1894.....	76.4	109	39	0.63	3.50	T
1895.....	72.1	104	55	3.40	10.10	0.45
1896.....	73.6	104	42	6.90	12.67	1.61
1897.....	75.6	106	42	3.26	7.60	1.01
1898.....	73.4	102	42	2.98	12.88	0.55
1899.....	73.1	101	38	3.07	8.66	0.42
1900.....	73.4	102	37	6.15	18.45	1.80
1901.....	82.4	113	46	2.34	5.97	0.22
1902.....	73.1	99	41	8.67	13.57	4.87
1903.....	72.9	100	40	4.83	12.72	0.94
1904.....	70.6	100	38	4.41	11.97	1.28
1905.....	70.6	102	40	2.91	7.08	0.69
1906.....	70.9	102	42	3.04	7.05	0.26
1907.....	73.7	102	41	7.27	13.66	3.97
1908.....	73.0	100	42	3.66	9.21	0.70
1909.....	72.3	102	46	4.77	12.20	1.20

OBSERVER'S REMARKS.

ALBIA.—*J. I. Chenoweth*. The total rainfall for the month was 6.42 inches, or 2.33 inches more than in July, 1908. After the 8th the weather was very favorable with showers at night, which did not delay harvesting and hay making.

ALLERTON.—*Mrs. George Shriver*. Corn is growing rapidly. The yield of oats is light, but the quality is good. The hay crop is very heavy and the greater part of it has been harvested in excellent condition.

ALTA.—*David E. Hadden*. July, 1909, was warm and showery, although the temperature was about 1.5 degrees below the 19-year normal.

ALTON.—*W. S. Slagle*. The small grain harvest is progressing rapidly. The straw is, however, very short. Barley is yielding about ten bushels per acre, and is a poor crop. Oats are of good weight and quality, and are yielding about twenty bushels per acre. Much of the hay was damaged by rains. Corn is extra fine.

ANAMA.—*C. Schadt*. During the first decade, heavy rains caused high stages of water in all rivers and creeks, and did some damage to crops. The rainfall during the remainder of the month was timely and beneficial. Small grain and hay crops are harvested and are very good. The weather during the second and third decades of the month was favorable for corn which promises to become one of the best crops.

ATLANTIC.—*Thos. H. Whitney*. Although no unusual temperatures were recorded, prevailing high relative humidity caused much distress. On the 30th 2.40 inches of rain fell in one hour within a radius of five miles from this station only, and was not accompanied by the usual lightning or wind.

AUDUBON.—*Geo. E. Kellogg*. July was not a good month for haying and harvesting, as showers were too frequent. The yield of barley is very light, but corn is doing well, although quite weedy.

BAXTER.—*W. R. Vandike*. The latter half of the month was dry until the 31st, when .75 inch of rain fell, which was beneficial to corn and late potatoes.

BLOOMFIELD.—*C. R. Davis*. The rains from the 4th to the 7th did great damage to crops on low lands. Wheat, oats and hay were gathered in good condition.

BONAPARTE.—*B. R. Vale*. The first half of the month was exceedingly wet but the latter half was seasonable and very warm at the close of the month. Rain is much needed.

BRITT.—*Geo. P. Hardwick*. The excessive cloudiness during the first half of the month prevented evaporation and as a result the ground was too wet to cultivate corn, which was "laid by" very weedy. The yield of oats is poor but the quality is fair. The yield of wheat is good but the acreage is short.

CHARITON.—*C. C. Burr*. Normal weather conditions prevailed during the latter half of the month and good progress has been made with all harvest work. The hay crop was immense and was saved in good condition. Corn is in all stages of growth and pasturage is fine.

CLINTON.—*Luke Roberts*. The mean temperature was a little below normal while the rainfall was 0.5 inch above the normal. The weather was unusually fine for securing the matured crops, which were good in eastern Iowa.

CORYDON.—*Mrs. Clara Miller*. One remarkable feature of the month was the absence of thunderstorms. No storms of any consequence occurred at this station, although distant thunder was heard several times.

DAVENPORT.—*J. M. Sherier*. With the exception of the 1st, 2d, 9th, 10th, 15th, 28th and 29th the temperature was below the normal throughout the month. The weather was unusually cool from the 3d to 7th inclusive, and also on the 26th. Rain fell at an excessive rate on the 10th, 1.98 inches being recorded in three hours and 35 minutes on that date. Hail ranging in size from 0.2 to 0.7 inch in diameter, fell from 10:38 to 10:45 P. M. of the 14th.

DECORAH.—*F. H. Baker*. The ground is very dry and pasturage is short, but the weather was all right for the harvest.

DUBUQUE.—*J. H. Spencer*. The temperature was below normal from the 3d to 27th inclusive, except on three days and July 4th was the coolest Fourth of July since this station was established, 1874. This has been the driest July since 1894. There have been no severe storms during the month and the maximum wind velocity was only 24 miles per hour on the 22d.

ELLIOTT.—*Henry Barnes*. As a whole July was a fine month for farm work and the growth of vegetation, closing with fine crop prospects. The hay and grain harvest is nearly completed with good yields and corn was never better.

FOREST CITY.—*J. A. Peters*. Corn was silking at the close of the month and the tame hay harvest was finished. About one-third of the small grain is in shock. An ideal month for all crops.

GRAND MEADOW (Postville P. O.).—*F. L. Williams*. The month was dry and favorable for all crops. Hay went into the barns in perfect condition.

GRINNELL.—*D. W. Brainard*. The month of July, 1909, will be recorded as one of the best harvest months on record.

INWOOD.—*F. B. Hanson*. The first decade of the month was rainy, which delayed the hay harvest. The remainder of the month has been fine and a vast amount of hay has been put up in good condition, although some was cut too late to be of the best quality. Harvest is nearly finished.

KEOSAUQUA.—*J. H. Landes*. There was a decided earthquake shock felt here at 10:30 P. M. of July 18th. With the exception of wet weather during the first seven days the month was fine for the harvest and the grain was taken care of in good order. Corn looks well.

LAMONI.—*T. J. Fitzpatrick*. The first quarter of the month was very wet, there having been over ten inches of rainfall in four days. The middle of the month was dry and sultry. Corn crop prospects are poor but hay and grain were good and well secured.

LARRABEE.—*H. B. Strever*. The heavy rainfall in the fore part of the month interfered considerably with corn tillage and haying.

LEON.—*Morris Gardner*. The month was remarkable for so little wind and so much rain. It was the wettest month since this station was established in 1902.

MASSENA.—*C. E. Smeltzer*. There were several prostrations from heat on the 29th. We have never had better prospects for corn but rain is needed.

MT. AYR.—*A. F. Beard*. The total rainfall was 12.20 inches, which is .41 inch larger than ever before recorded at this station in one month.

PELLA.—*John H. Ver Steeg*. The weather has been favorable since July 8th for finishing cultivation of corn, haying and harvesting. Corn has made good growth and some fields are silking and potatoes are promising.

RIDGEWAY.—*Arthur Betts*. This has been the driest July on record. The 29th was the warmest day since 1901, but the 3d to 6th were phenomenally cool. Only one thunderstorm during the month.

SHELDON.—*Dr. A. W. Beach.* A splendid month for maturing crops. Hay was secured without rain. Corn is well up to the average.

STOCKPORT.—*C. L. Beswick.* Hay is fine quality and is about all harvested. Winter wheat and oats yield about 30 bushels. The heavy rain from the 4th to the 7th decreased the yield materially. Corn is growing rapidly.

WAUKEE.—*Saml. F. Foft.* Harvesting is completed. Corn is all in tassel and is looking well and fully up to the average.

WAVERLY.—*H. S. Hoover.* Pastures need moisture and corn is curling from the dry, hot winds.

TORNADO IN CHEROKEE COUNTY.

Soon after 6 P. M., of Sunday, July 11th, a black, threatening, funnel-shaped cloud was observed several miles west of Washta that proved to be a small but vigorous tornado. The first farm struck by the storm was the Kerney Wise place, about two miles west of town, where the trees of a thick grove on each side of the house were broken off, but no damage was done to the building. It then swept in an east-southeast direction for forty rods where the one and a half story house of Elijah Crum was blown six rods to the southeast, turned bottom side up and smashed beyond repair. The barn, which contained several horses, was completely torn to pieces and scattered over the surrounding fields. Only one of the horses was hurt and that one but slightly. The foundation was all that remained of the large hog house and the corn crib, recently built, was moved several feet and badly damaged. Near by observers at this point saw two funnel-shaped clouds, but only one of them reached the earth. The storm track was about four rods wide at the Wise farm, but varied from two to four rods wide as it passed through a corn field between the Crum place and the Little Sioux river. The storm crossed the river below the S. Lyman place at nearly right angles to the river, taking up a large amount of water as it went over, and then raised up, dipping down again about six miles southeast of Washta, where it destroyed the barns and outbuildings on the S. Cipperly place, the R. E. Knapp place, occupied by Herbert Hind, and the Henry Ashton place. The storm track was here about twenty rods wide, and two miles in length. Mr. H. L. Felter, co-operative observer at Washta, who kindly furnished the information for this report, says that there was very little wind except quite near the tornado; that there was about .05 inch of rain preceding the storm and that the only thunder heard was at a distance and thirty minutes before the storm. A very heavy roar was heard during the passage of the cloud. The estimated damage to crops and property is placed at \$8,000, but there was no loss of life and no one was seriously injured.

BELATED REPORTS.

FAYETTE.—June, 1909: Mean temperature, 67.2°; maximum temperature and date, 89° on the 30th; minimum temperature and date, 41° on the 13th; greatest daily range of temperature, 34°; precipitation, total 6.77 inches; greatest in 24 hours, 2.36 on the 7th; days with, 12; number of days clear, 15; partly cloudy, 6; cloudy, 9.

MASSENA.—June, 1909 (7 days missing): Mean temperature, 69.6°; maximum temperature and date, 91° on the 26th and 29th; minimum temperature, 50° on the 4th and 11th; greatest daily range, 33°; precipitation and weather record incomplete.

WEST BEND.—June, 1909: Mean temperature, 68.8°; maximum temperature and date, 93° on the 28th; minimum temperature and date, 47° on the 15th; greatest daily range of temperature, 35°; precipitation, total, 6.37 inches; greatest in 24 hours, 2.00 inches on the 26th; days with, 15; number of days clear, 12; partly cloudy, 8; cloudy, 10.

ERRATA.

Page 61: Belated reports, Fayette, Massena and Northwood, published April, should be May.

Des Moines, June, 1909: Total precipitation published 7.01 inches, should be 7.03; departure, published +3.05, should be +3.07.

Massena, June, 1909: Letter published with temperature record, "f", should be "g".

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MONTHLY REVIEW OF THE

CLIMATOLOGICAL DATA FOR IOWA, JULY, 1909

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days	No. partly cloudy days			No. cloudy days
NORTHERN SECTION																				
Algona	Kossuth	1,213	34	71.3	-2.1	93	2	52	5	31	2.90	-0.20	1.11	0	6	21	2	8	se	Dr. F. T. Seeley
Alta	Buena Vista	1,513	17	70.4	-1.5	93	2	52	5	27	5.86	+1.18	1.68	0	16	13	10	8	s	D. E. Hadden
Alta [near]	Buena Vista										8.37	+3.49	1.90	0	15					W. J. Minard
Alton	Sioux	1,305	3	71.5		98	2	50	22	39	6.61		2.70	0	11	19	3	9	s	W. S. Slagle
Britt	Hancock	1,236	11	71.1	-0.7	92	2	52	*4	30	3.63	-0.80	1.27	0	9	4	17	10	nw	G. P. Hardwick
Charles City	Floyd	1,015	20	70.8	-2.7	93	2	53	5	32	1.77	-1.81	0.54	0	9	6	13	12	sw	Weather Bureau
Clear Lake	Cerro Gordo	1,241	9	71.8	-1.4	97	29	50	*4	32	2.83	-1.91	1.35	0	5	22	1	8	s	Oscar Stevens
Decorah	Winneshiek	875	15	73.6	+1.6	98	1	50	24	42	1.29	-2.43	.50	0	4					F. H. Baker
Dows	Wright	1,142	8	69.8	-1.7	91	2	50	4	31	2.57	-3.06	.93	0	7	17	5	9	sw	G. R. Flett
Elkader	Clayton	727	27	73.6	-0.0	102	29	48	*6	40	1.60	-3.08	.65	0	4	20	6	5	se	Chas. Reinecke
Elma	Howard			69.8		92	2	49	24	35	2.52		0.93	0	8	4	24	3	se	H. A. Moore
Estherville	Emmet	1,298	12	69.6	-1.5	94	2	51	5	32	4.75	+0.17	1.00	0	10	20	0	11	s, nw	A. O. Peterson
Fayette	Fayette	1,003	18	70.6	-2.5	97	29	48	24	39	1.65	-2.44	0.70	0	5	19	5	7	sw	R. Z. Latimer
Forest City	Winneshiek	1,226	14	70.4	-1.6	94	2	52	5	30	3.13	-0.55	1.40	0	5	19	5	7	sw	J. A. Peters
Grand Meadow	Clayton	1,180	17	69.6	-0.9	91	29	52	*4	30	1.30	-3.44	.40	0	6	12	13	6	sw	F. L. Williams
Greene	Butler		9	72.7	-0.6	97	29	52	4	35	2.91	-1.79	1.74	0	7	9	13	9	w	J. L. Cole
Hampton	Franklin	1,155	18	72.2	-0.2	94	29	52	5	31	2.73	-2.10	1.06	0	7	12	9	10	nw	E. C. Grenelle
Humboldt	Humboldt	1,095	17	72.2	-0.7	94	2	52	24	30	4.89	+0.95	1.08	0	9	24	3	4	se	H. S. Wells
Inwood	Lyon	1,474	4	71.6		97	2	50	23	33	4.37		0.96	0	15	20	3	8	s	F. B. Hanson
Larrabee	Cherokee	1,266	17	71.3	-1.5	97	2	50	*4	31	5.79	+1.42	1.93	0	8	15	8	8	se	H. B. Strever
Le Mars	Plymouth	1,224	12	70.4	-2.0	90	*2	52	*4	28	6.82	+2.35	1.92	0	11	12	13	6	s	G. A. C. Clarke
Mason City	Cerro Gordo	1,132	11	69.9	-1.6	93	2	50	15	33	2.24	-1.82	0.97	0	7	13	13	5	se	J. S. Mills
Merrill	Plymouth										10.35		5.60	0	11					Eric Oleson
New Hampton	Chickasaw	1,169	11	70.0	-1.4	92	22	48	4	33	1.94	-2.25	0.55	0	9	11	13	7	w	A. F. Kemman
Northwood	Worth	1,222	12								1.61	-2.11	0.75	0	3	14	11	6	sw	Charles H. Dwelle
Osage	Mitchell	1,184	17	71.9	+1.4	95	*2	52	*4	35	4.50	+0.13	1.95	0	13	19	5	7	se, nw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	12	72.1	-0.5	96	2	50	24	36	5.83		1.52	0	14	10	13	8	se	J. S. Smith
Pocahontas	Pocahontas		4	70.8		93	2	52	*4	28	1.24	-3.42	0.40	0	8	17	10	4	s	F. E. Hronek
Ridgeway	Winneshiek	1,215	10	71.9	-1.5	102	29	52	5	32	1.24	-3.42	0.40	0	8	17	10	4	s	Arthur Betts
Rock Rapids	Lyon	1,358	9	73.8	+2.0	95	2	53	*5	34	4.63	+1.76	1.21	0	10					W. C. Wyckoff
Sheldon	O'Brien	1,422	8	71.8	-0.3	79	2	50	*4	36	5.85	+0.71	2.30	0	15	18	5	8	sw	Dr. A. W. Beach
Sibley	Osceola	1,212	15	69.3	-0.9	94	2	51	*5	29	3.21	-0.76	1.10	0	15	18	5	8	sw	H. G. Doolittle
Sioux Center	Sioux		9	71.0	-0.2	93	2	51	4	31	7.74	+3.03	3.95	0	11	17	4	10	s	J. de Ruyter
Storm Lake	Buena Vista	1,440	12	71.0	-0.9	92	2	51	4	27	5.87	+1.57	1.75	0	12	16	8	7	s	S. B. Fracker
Washta	Cherokee	1,157	10	70.8		95	2	46	24	37	6.89	+2.44	2.75	0	10	13	10	8	w	H. L. Felter
Waverly	Bremer	948	12	71.2	-1.2	91	*2	52	5	30	1.57	-2.97	0.42	0	8	10	14	7		H. S. Hoover
West Bend	Palo Alto	1,197	14	72.0	-0.1	96	2	52	*4	34	5.29	+1.51	1.20	0	12					Phil Dorweiler
Average				71.2	-0.9	95		51		33	4.08	-0.20		0	9	15	8	8	se	
CENTRAL SECTION																				
Amana	Iowa	721	31	72.0	-1.7	95	29	52	4	31	6.62	+2.37	2.33	0	10	14	9	8	se, nw	Conrad Schadt
Ames	Story	926	27	72.3	-2.0	95	29	51	5	31	3.00	-1.44	2.20	0	8				s	Iowa State College
Audubon	Audubon	1,301	15	71.5	-0.6	92	2	48	24	33	7.33	+3.41	2.65	0	12	17	4	10	se	Geo. E. Kellogg
Baxter	Jasper	998	8	71.2	-2.0	94	29	52	5	27	5.30	+0.26	2.02	0	13	19	6	6	ne	W. R. Vandike
Belle Plaine	Benton	828	18	70.2	-2.6	96	*1	51	8	32	4.94	+0.53	1.80	0	10	11	12	8	s	S. P. Vandike
Boone	Boone	1,134	3	71.9		95	2	54	*4	29	4.12		1.40	0	12	16	4	11		Carl Fritz Henning
Buckingham	Tama		8								1.66	-3.01	0.61	0	6	17	7	7		Dr. W. A. Daniel
Carroll	Carroll	1,265	18	70.6	-2.4	92	*1	52	*4	30	4.51	+0.50	1.87	0	6	16	5	10	e	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	26	72.4	-2.3	97	29	53	5	29	4.21	+0.17	1.53	0	6	16	4	11	e, sw	Electric Light & P. Co.
Clinton	Clinton	593	40	71.8	-2.0	95	29	47	19	34	4.73	+0.53	1.89	0	8	12	13	6	nw	Luke Roberts
Davenport	Scott	580	36	72.6	-2.8	96	29	52	5	24	4.68	+1.13	1.98	0	14	15	8	8	e	Weather Bureau
Delaware	Delaware	1,083	17	70.7	-1.2	94	29	50	*4	31	2.22	-1.93	1.25	0	5	15	13	3	se	Wm. Ball
Denison	Crawford	1,180	13	71.4	-1.3	91	2	49	24	33	6.08	+2.02	1.84	0	11	18	5	8	s	W. C. Van Ness
Des Moines	Polk	861	29	72.9	-2.6	96	29	54	4	25	4.41	+0.55	1.68	0	14	8	12	11	nw	Weather Bureau
De Soto	Dallas	866	8	73.0	+0.3	95	29	53	24	30	2.88	-2.95	1.38	0	12	21	2	8	sw	R. D. Minard
Dubuque	Dubuque	639	35	71.8	+2.9	96	29	53	5	28	1.30	-3.00	0.40	0	8	14	9	8	nw	Weather Bureau
Fort Dodge	Webster	1,126	8	71.1	-1.4	94	2	52	18	35	5.29	+1.26	1.30	0	10	17	1	13	se	J. F. Monk
Gilman	Marshall	1,052	9								5.33	+0.74	3.13	0	10					Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	72.2	-1.0	98	29	52	5	32	4.85	-0.10	1.90	0	11	12	10	9	w, sw	D. W. Brainard
Grundy Center	Grundy	976	17	71.8	-0.4	96	29	52	4	34	2.04	+2.51	0.50	0	10	20	4	7	s	J. B. Calderwood
Guthrie Center	Guthrie	1,077	13	72.9	-0.5	94	2	52	24	32	4.58	-0.24	1.75	0	14	17	6	8	sw	D. G. Beardsley
Harlan	Shelby	1,192	9	72.3	-0.9	93	18	50	24	34	5.03	-0.28	2.60	0	10	5	14	12		C. A. Reynolds
Independence	Buchanan	921	43	71.0	-1.9	96	29	49	4	33	1.53	-3.06	0.96	0	5	18	7	6	se, nw	George Donohue
Iowa City	Johnson	683	49	72.6	-1.6	99	29	52	*4	32	5.75	+1.27	2.19	0	12	17	8	6	se	Prof. Karl E. Guthe
Iowa Falls	Hardin	1,170	15	70.4	-1.6	93	2	52	5	34	2.07	-2.03	0.85	0	8	19	4	8	sw	J. B. Parmelee
Jefferson	Greene			72.8		94	4	54	24	39	5.49	+1.63	2.25	0	7	18	6	7	s	Geo. W. Jackson
Le Claire	Scott	576									3.41	-1.21	0.95	0	10					Margaret T. Disney
Little Sioux	Harrison		4	73.9		95	2	53	24	31	4.13		1.35	0	8	17	4	10	se	Geo. H. Gibson
Logan	Harrison	928	42	73.2	-1.5	95	2	52	24	32	6.83	-1.64	4.42	0	8	17	8	6	ne	Glenn H. Stern
Marshalltown																				

CLIMATOLOGICAL DATA FOR IOWA, JULY, 1909-Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				No. rainy days	Sky			Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours		Total snowfall (unmelted)	Number clear days	Number partly cloudy days			Number cloudy days
SOUTHERN SECTION																				
Afton	Union	1,212	14	75.2	0	97	29	58	*23	30	5.21	+0.86	1.85	0	11	11	13	7	sw	N. W. Rowell
Albia	Monroe	959	10	71.5	-2.7	94	29	55	5	28	6.42	+1.49	1.32	0	11	15	9	7	sw	J. I. Chenoweth
Allerton	Wayne	6	6	73.6	+1.0	96	29	57	*4	29	11.86	+7.29	6.50	0	10	19	5	7	sw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	17	74.2	+1.0	94	29	53	24	32	6.00	+1.67	2.40	0	12	13	9	9	ne	Thos. H. Whitney
Bedford	Taylor	8	8	74.6	+1.2	99	29	51	24	34	7.29	+1.95	2.90	0	13	19	3	9	se	E. E. Healy
Bloomfield	Davis	75.5	8	75.5	.....	98	29	54	4	35	7.90	.....	3.25	0	11	11	13	7	sw	F. H. Roberts
Bonaparte	Van Buren	17	17	72.5	-3.0	97	29	53	4	27	7.35	+3.62	2.50	0	9	.....	.....	.....	.....	Hon. B. R. Vale
Burlington	Des Moines	544	12	73.0	-2.4	96	29	53	4	27	5.46	+1.84	1.80	0	10	18	6	7	nw	M. E. Poppy, Jr.
Chariton	Lucas	1,042	13	71.9	-1.9	97	29	56	*4	32	6.11	+0.65	2.70	0	7	18	7	6	se	C. C. Burr
Clarinda	Page	1,009	18	74.8	-0.7	97	29	52	24	33	7.55	+2.85	2.65	0	10	15	2	14	s	A. S. Van Sandt
Columbus Junction	Louisa	595	7	72.8	-2.8	95	29	55	19	27	5.10	+1.09	2.00	0	9	21	4	6	nw	J. B. Johnston
Corning	Adams	1,117	16	74.0	+0.4	95	29	51	24	33	6.87	+2.52	2.83	0	11	10	12	9	se	Jerome Smith
Corydon	Wayne	1,101	15	73.6	-1.2	96	29	57	*4	26	7.34	+3.16	2.82	0	12	16	8	7	e, nw	Clara Miller
Creston	Union	1,312	3	72.3	.....	95	29	50	24	34	5.16	.....	2.18	0	11	16	5	10	se	E. S. Stovall
Cumberland	Cass	9	9	.....	.....	.....	.....	.....	.....	.....	4.73	-0.71	1.16	0	9	19	4	8	sw	J. H. Reppert
Earlham	Madison	6	6	72.2	+2.2	95	29	50	24	32	3.78	-1.06	0.96	0	10	18	2	11	se	Geo. Phillips
Elliott	Montgomery	3	3	74.0	.....	92	29	59	24	24	8.44	.....	5.00	0	8	14	11	6	se	Henry Barnes
Fairfield	Jefferson	14	14	73.3	-1.4	93	29	54	5	28	7.61	+3.62	2.57	0	11	16	8	7	sw, w, nw	R. Monroe McKenzie
Fort Madison	Lee	516	59	.....	.....	.....	.....	.....	.....	.....	5.99	+2.03	2.55	0	6	11	8	12	sw	Miss L. A. McCreedy
Greenfield	Adair	17	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Geo. Brooks
Hancock	Pottawattamie	1,113	2	74.8	.....	96	2	54	*23	32	2.85	.....	2.00	0	4	19	1	11	se	G. C. Rogers
Hopeville	Clarke	17	17	73.4	-0.7	96	29	56	*23	27	7.36	+2.51	2.49	0	14	9	14	8	e	M. T. Ashley
Indianola	Warren	969	17	72.7	-2.0	95	29	a56	5	a26	1.67	-2.59	1.11	0	11	15	5	11	se, sw	Prof. J. L. Tilton
Keokuk	Lee	574	37	73.6	-3.4	93	29	54	4	27	5.46	+1.43	2.86	0	10	13	11	7	e	Weather Bureau
Keosauqua	Van Buren	644	16	73.0	-2.9	97	*1	56	*4	32	6.94	+2.81	2.40	0	8	9	13	9	.....	J. H. Landes
Knoxville	Marion	920	12	73.8	-1.7	96	29	54	4	29	6.48	+2.02	2.22	0	10	12	11	8	sw	Casey & Bellville
Lacona	Warren	9	9	.....	.....	.....	.....	.....	.....	.....	4.83	+0.35	1.80	0	9	9	13	8	.....	Agent C., B. & Q. Ry.
Lamoni	Decatur	75.2	.....	99	29	53	4	32	11.78	.....	4.05	.....	.....	0	17	18	5	8	se	T. J. Fitzpatrick
Lenox	Taylor	1,250	13	73.8	0	95	29	54	24	28	9.86	+4.92	3.90	0	13	18	3	10	s	J. T. Hurley
Leon	Decatur	1,120	6	74.3	+1.1	95	29	57	*4	32	10.90	+6.48	4.15	0	15	13	9	9	sw	Morris Gardner
Massena	Cass	3	3	73.4	.....	98	29	43	24	43	3.79	.....	2.30	0	6	21	1	9	se	C. E. Smeltzer
Mt. Ayr	Ringgold	1,236	15	74.6	-0.4	97	29	52	4	32	12.20	+6.89	3.90	0	16	14	12	5	sw	A. F. Beard
Mt. Pleasant	Henry	729	26	72.3	-3.3	92	29	53	*4	26	6.39	+2.56	1.95	0	10	15	7	9	sw	Prof. J. W. Edwards
Omaha, Neb.	Douglas	1,040	38	75.6	-0.9	94	2	58	23	24	4.40	+0.07	1.80	0	11	13	10	8	s	Weather Bureau
Oskaloosa	Mahaska	843	24	72.6	-1.8	93	29	55	5	28	3.94	-0.03	1.70	0	12	19	0	12	sw	Jos. Boyd
Ottumwa	Wapello	649	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. Jas. A. Hull
Pacific Junction	Mills	960	9	74.6	+0.4	94	29	53	24	32	3.13	-2.00	0.92	0	8	16	12	3	s	H. H. McCartney
Pella	Marion	877	6	71.4	-4.6	92	29	54	5	28	2.92	-1.44	0.86	0	11	24	0	7	se, sw	John H. Ver Steeg
St. Charles	Madison	1,070	7	72.8	-1.3	95	29	57	5	26	2.21	-3.58	0.80	0	11	15	10	6	se	R. D. Minard
Sigourney	Keokuk	877	12	73.2	-2.6	96	29	53	5	32	2.70	-1.60	0.70	0	8	1	16	14	se	J. T. Parker
Stockport	Van Buren	6	6	72.0	.....	91	29	55	4	25	8.57	+3.98	4.62	0	10	17	4	10	ne	C. L. Beswick
Thurman	Fremont	11	11	75.8	+0.4	95	2	52	24	32	3.45	-2.46	1.32	0	10	11	12	8	e	C. R. Paul
Wapello	Louisa	588	10	71.3	-3.9	90	29	53	5	22	3.99	+0.77	1.34	0	10	19	8	4	e	Geo. W. Schofield
Washington	Washington	769	27	71.8	-3.7	94	29	53	*4	26	2.68	-0.94	1.11	0	9	8	13	10	se	Wm. A. Cook
Winterset	Madison	1,129	17	75.0	+1.0	96	*2	56	*23	32	2.39	-3.29	0.93	0	11	14	9	8	s	Dr. Robert S. Cooper
Woodburn	Clarke	961	9	72.3	.....	96	29	50	24	33	6.51	+1.35	2.60	0	11	13	11	7	ne	C. B. McDonough
Average	.....	.....	.....	73.5	-1.0	95	.....	54	.....	29	5.99	+1.45	.....	0	10	15	8	8	sw	.....
State average	.....	.....	.....	72.3	-1.1	95	.....	52	.....	31	4.77	+0.33	.....	0	10	15	8	8	se	.....

* And other dates. a one day missing, b two days; c three days; d four days, etc.

DAILY PRECIPITATION FOR IOWA, JULY, 1909—Continued

STATIONS	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		
St. Charles				.46	.80	.10	.06				.10		.02	.18								.06			.24	.09		.10					2.21
Sheldon	.20		2.25		.05	.05		.25	2.30	.20				.35							T					T		.10			.15	5.85	
Sibley		.04	.75	.05	.04	.01		1.10	.41	.26			.15	.12							.10	.01				.01	.01		T	.15	3.21		
Sigourney		.01	.70	.70	.35					.04												.12				.53		.25				2.70	
Sioux Center		.08	.95	.17	.05			.50	3.45	1.23				.51							.08				.03					.69	7.74		
Sioux City		T	1.13	.04	.10	.03	T	.89		.86				.24							.10				.42		T		.28	4.09			
Stockport			T	1.52	1.62	1.06			.54	T	.09	T		T								.10			.11	.46	T	T	.04	.03	8.57		
Storm Lake			1.40	.23	.17	.06	.05		1.01				.30				.76					.02			.06	.04			1.75	5.87			
Thurman			T	1.32	.41	T	T		.10	.05	.15		T	.05	T											.59	.10		.12	.56	3.45		
Tipton		.08		.35	.93	1.37	.16							.08				.07								T		.12	.77	.41	4.17		
Toledo			.55	1.70	2.01	.08			.25		.08			.15												.15	.12	.12		T	5.16		
Wapello		.06		1.07	1.34	.41			.79		.14											.07			.05	.01	.05			T	3.99		
Washington					.68	1.11	.37	.02		.05	.02											.08			.20		.15				2.68		
Washta			T	2.75	.07	.23		.93	1.20	.75		T	.16												.05					.67	6.89		
Waterloo			.47	.22	.15			.04		T		T				.09						T			.20	T			.03	1.20			
Waukeo			.33	.36	1.52	.04	T		.03		.05		.10	.20			.33							.16	.06		.02		1.25	4.45			
Waverly			.29	.42	.18			.25		.04							.08								.23	.03			.05	1.57			
Webster City			.35	.38	.70	.15		1.04		1.18		T	.51				.42				T			T	.10			T	.49	5.30			
West Bend			1.20	.19	.13	.05	T	.18	.07	.16	.68	T					1.17				.08			T	.02			.86	5.29				
Whittem			.42	.55	.66	.58			.57				T	T			.20				T			T	T	T		T	T	2.98			
Wilton Junction			1.96	.15		.70																		.25		.24				3.30			
Winterset			T	.44	.93	.06	.63	.02		.10			T	.17			T							.35	.09		.12		.08	2.39			
Woodburn			.17	2.60	.73	.58	.02			.05			T	T			T							1.05		.28	.07	T	.48	6.51			
Zearing			.27	.68	1.08	.04			.23					.03	.04		.32								.13					.27	3.09		

TOTAL PRECIPITATION, JULY, 1909.

SCALE OF SHADES—IN INCHES



U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR AUGUST, 1909

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

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1909

SEP 30 1909

THE IOWA WEATHER AND CROP SERVICE

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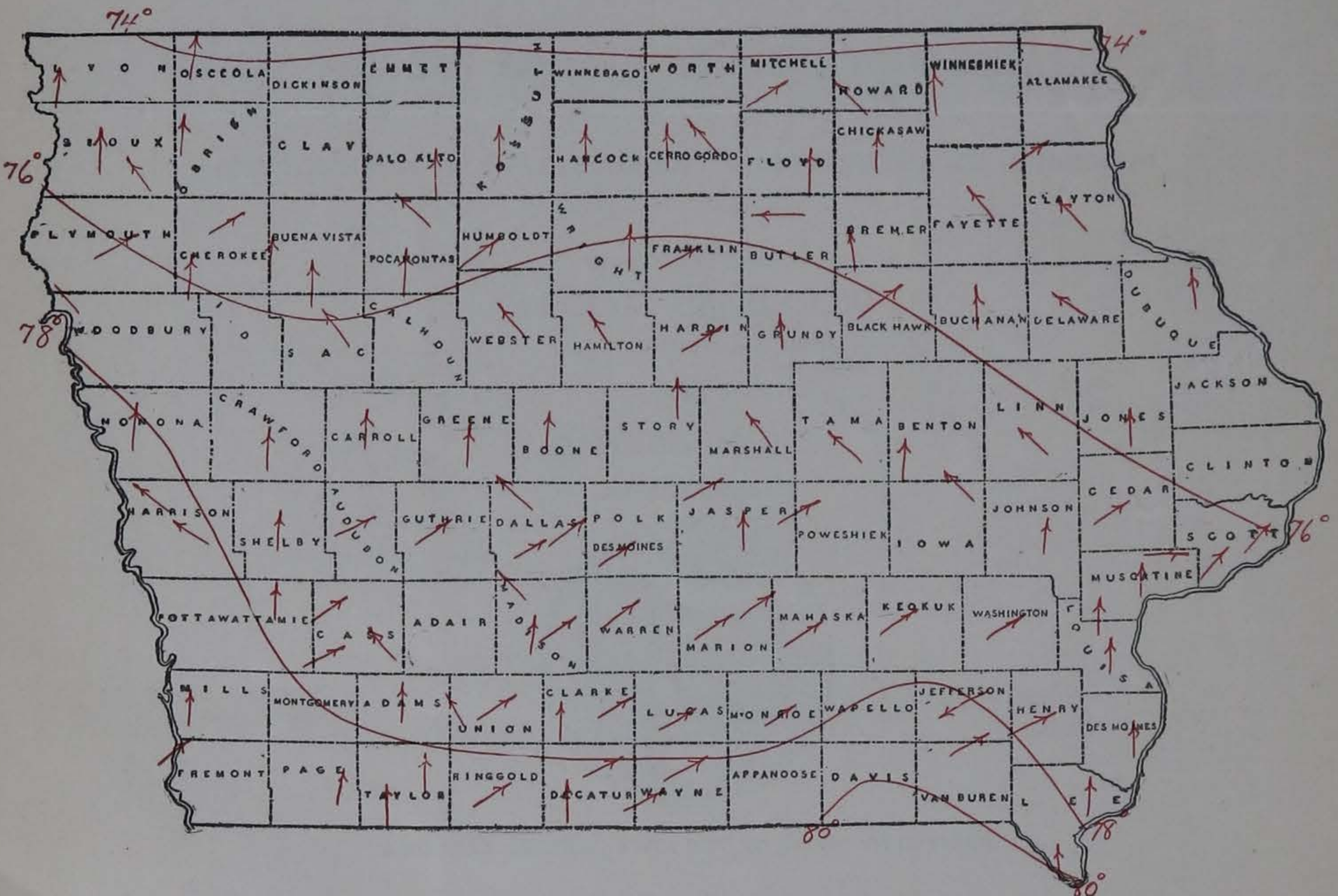
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MEAN ISOTHERMS AND PREVAILING WINDS OF AUGUST, 1909.

Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
 CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
 GEO. M. CHAPPEL, Section Director.

VOL. XX DES MOINES, IOWA, AUG., 1909 No. 8

CROP ACREAGE FOR 1909.

Following is an estimate of the acreage of the staple crops for 1909 based on the reports of crop correspondents of the Iowa Weather and Crop Service, and the acreage for 1908 as shown by the returns of the township assessors: Winter wheat, 133,740 acres; spring wheat, 265,330; corn, 8,213,280; oats, 4,261,410; rye, 49,590; barley, 492,320; tame hay, 3,485,550; wild hay, 886,740; pastures, 8,901,970; flax, 25,520; potatoes, 127,840 acres.

The full report showing the acreage of the various crops by counties, will be found on another page of this report.

GENERAL SUMMARY.

August, 1909, will be noted for its uniformly high temperatures, the small number of cloudy days, and, over the larger part of the state, the small amount of rainfall. Both the day and night temperatures were high until the 28th, when a cool wave passed over the state, resulting in light frosts on low ground on the morning of the 29th, over the northern and, in a few localities, in southern districts; but no damage was done to vegetation. The maximum temperatures were up to or above 90° on ten days in northern and twenty-one days in southern counties, and the average of the monthly maximum temperatures was 96°.

The rainfall was deficient in all but the northeast and extreme north central counties; yet at least a trace of rain fell in some part of the state on every day of the month, except the 19th and 20th. During the second decade, showers were frequent and the rainfall heavy over the northeast and north central districts; but over the remainder of the state the showers were extremely local, and the rainfall generally very light. The monthly rainfall ranged from a trace in Jefferson county to 8.21 inches in Chickasaw county. Drouthy conditions prevailed during the entire month over the southern half of the state, and the condition of the corn crop deteriorated from 10 to 25 per cent. There was also some depreciation in a few localities in the northern districts, but the early planted corn, on rich soil and well cultivated fields, withstood the drouth remarkably well and much of it was well up to the average of past years at the close of the month.

The drouth also seriously affected the pastures, fall plowing, late potatoes and the fruit crops. The pasturage was so short in many sections that it was necessary to give stock extra feed. The usual amount of fall plowing has been reduced and the acreage of fall

grains will be considerably less than was anticipated. The second crop of hay will also be short, and the clover seed crop will be much smaller than last year. The dry, cloudless weather was favorable for stacking and threshing grain, and that work progressed rapidly. Shock threshing was practically completed at the close of the month.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 114 stations, was 76.1, which is 4.3° above the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 74.7°, which is 4.4° above the normal; Central section, 76.2°, which is 4.3° above the normal; Southern section, 77.3°, which is 4.0° above the normal. The highest monthly mean was 80.4°, at Bloomfield, Dallas county, and the lowest monthly mean 71.2°, at Olin, Jones county. The highest temperature reported was 103°, at Bedford, Taylor county, on the 16th, and at Bloomfield, Davis county, on the 15th; the lowest temperature reported was 33°, at Washta, Cherokee county, on the 29th. The average monthly maximum was 96°, and the average monthly minimum was 44°. The greatest daily range was 52°, at Massena, Cass county. The average of the greatest daily ranges was 34°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 122 stations, was 1.81 inches, which is 2.18 inches below the normal. By sections the averages were as follows: Northern section, 3.04 inches, which is 0.48 inch below the normal; Central section, 1.51 inches, which is 2.54 inches below the normal; Southern section, 0.87 inch, which is 3.53 below the normal. The greatest amount, 8.21 inches, occurred at New Hampton, Chickasaw county, and the least, a trace, at Fairfield, Jefferson county. The greatest amount in twenty-four hours, 4.30 inches, occurred at New Hampton, Chickasaw county, on the 9th. Measurable precipitation occurred on an average of 5 days.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 21; partly cloudy, 8; cloudy, 2. The duration of sunshine was above the normal, the percentage of the possible amount being 83 at Charles City, 78 at Davenport, 84 at Des Moines, 65 at Dubuque, 84 at Keokuk, and 81 at Sioux City.

WIND.—South winds prevailed. The highest velocity reported was 36 miles per hour from the Southeast, at Sioux City, Woodbury county, on the 23d.

COMPARATIVE DATA FOR THE STATE—AUGUST.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	68.4	102	36	3.41	6.44	1.02
1891.....	69.1	106	34	4.24	13.02	1.23
1892.....	71.4	102	40	2.24	4.69	0.65
1893.....	69.4	101	30	2.32	6.22	0.40
1894.....	74.6	108	38	1.58	4.53	T
1895.....	71.9	103	37	4.43	10.63	0.67
1896.....	71.7	104	34	3.52	12.25	0.86
1897.....	68.9	104	35	1.86	4.98	0.47
1898.....	71.2	103	40	3.44	10.55	0.58
1899.....	74.4	100	41	3.68	10.45	1.12
1900.....	77.4	103	44	4.65	10.43	1.26
1901.....	73.8	105	40	1.29	4.46	T
1902.....	69.1	98	37	6.58	15.47	1.57
1903.....	69.1	101	41	6.64	17.74	2.55
1904.....	69.1	97	35	3.43	6.75	0.66
1905.....	74.3	104	44	4.05	8.47	1.04
1906.....	74.1	101	33	3.95	10.51	0.92
1907.....	71.1	99	37	4.33	9.67	1.05
1908.....	70.0	101	38	4.77	10.58	1.35
1909.....	76.1	103	33	1.81	8.21	T

"T" indicate a trace.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.00 inches.
Prevailing direction of Wind, South.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum Velocity—miles	Direction	Date	Average Hourly Velocity
Charles City.	30.00	30.39	29	29.77	27	3868	25	NW	15	5.2
Davenport ..	30.01	30.32	29	29.73	15	3870	33	E	1	5.2
Des Moines .	29.98	30.38	29	29.73	17	4720	29	SW	29	6.3
Dubuque....	30.02	30.37	29	29.75	15	3823	23	SW	31	5.1
Keokuk	30.02	30.32	29	29.75	15	3469	17	N	31	4.7
Sioux City ..	29.97	30.43	29	29.78	17	7821	36	SE	23	10.5

OBSERVERS' REMARKS.

AFTON.—*N. W. Rowell.* August was an exceedingly hot and dry month.

ALBIA.—*J. I. Chenoweth.* The month was dry and hot, there being only one thunderstorm, which gave 1.03 inches of rain over about two miles square. It was, however, an excellent month for threshing grain, but corn suffered greatly during the last two weeks on account of the drouth. Some farmers estimate that the crop deteriorated 35 per cent.

ALGONA.—*Dr. F. T. Seeley.* August has been a very hot, dry month. The temperature was 90° or above on nine days.

ALLERTON.—*Mrs. Geo. Shriver.* The weather was very hot and dry. The corn crop was badly damaged and pasturage is short. Apples are falling badly.

ALTA.—*David E. Hadden.* The mean temperature for August, 1909, was the highest in twenty years and was 4.7° above the normal. The rainfall was 1.60 below the normal and the sunshine was greatly in excess, there being no day completely cloudy. It was an ideal month for corn.

ALTON.—*W. S. Slagle.* The light frost on the 29th did no damage. Dry weather has retarded fall plowing but the weather has been excellent for harvesting and second haying. It has been too dry for potatoes and plums, but corn is in fine shape and most of it will be out of danger from frost by September 15th.

ANAMA.—*C. Schadt.* The month was very dry with much sunshine, there being only one cloudy day. The temperature was very high most of the time, but the month closed with much cooler weather.

ATLANTIC.—*Thos. H. Whitney.* Frost was observed on low land on the morning of the 29th, but did no damage to vegetation.

BAXTER.—*W. R. Vandike.* The month was very hot, with only one cloudy and five partly cloudy days. Pastures are drying up and corn has been damaged about 15 per cent.

BLOOMFIELD.—*C. R. Davis.* Corn has been damaged 35 per cent from continued drouth. Pastures are dry and much stock being fed.

BONAPARTE.—*B. R. Vale.* August was an exceptionally hot and dry month, with only .17 inch of rain, yet we had 5.46 inches more rain in June and July than in 1908.

BRITT.—*Geo. P. Hardwick.* There was an excess of temperature and sunshine, and a deficiency of precipitation, but there was sufficient moisture for crop needs. There were no serious storms. Pasturage is exceptionally good and there was an average crop of hay, but oats yield only 20 bushels per acre. Belated corn advanced rapidly.

CHARITON.—*C. C. Burr.* The month has been abnormally hot and dry. Corn has suffered seriously on sandy soil. There is no surface water and pastures are dry.

CLINTON.—*Luke Roberts.* The mean temperature was 3.1° above normal, and 2.6° above that of July. There was 73 per cent of sunshine, which is 9 per cent above the normal. There was no damage by drouth and crops are in good condition.

CORYDON.—*Clara Miller.* The late corn has been damaged by the dry weather, but the early planted and well cultivated is good. Pastures are drying up.

ELLIOTT.—*Henry Barnes.* The dry and hot weather retarded the development of corn, damaged pastures and prevented fall plowing.

FAYETTE.—*R. Z. Latimer.* Light frost was observed on the mornings of the 29th and 30th.

GRAND MEADOW. (Postville P. O.)—*F. L. Williams.* The month was very dry except from 9th to 14th, when rains were excessive. Pasturage is good but the ears on late corn are rather small.

GRUNDY CENTER.—*J. B. Calderwood.* A remarkably dry month, but corn will be about an average crop.

INWOOD.—*F. B. Hanson.* High temperatures prevailed until the last four days of the month. The precipitation has been rather light, but the corn crop is very promising, except possibly some late replanted fields. Nearly the entire crop should be safe from frost by the first week in October. Barley yields are very poor, but oats are good quality with light yield.

KEOSAUQUA.—*J. H. Landes.* A remarkably dry and hot month. The drouth and excessive heat has badly injured the corn crop, turned the pastures brown and prevented fall plowing.

LAMONI.—*T. J. Fitzpatrick.* It has been exceedingly dry all the month with only two cloudy days and less than one-half inch of rainfall. All crops deteriorated. The maximum temperature for the year, 100.5°, occurred on the 12th.

LARRABEE.—*H. B. Strever.* An excellent month for harvesting and threshing. Very little plowing done and vegetation badly in need of rain at close of month.

LEON.—*Morris Gardner.* Driest August on record at this station.

LOGAN.—*G. H. Stern.* The rain, 2.04 inches, on the 22d, was extremely local, the country within a mile on each side of Logan received little or no rain.

MASSENA.—*C. E. Smeltzer.* There was a white frost on low ground on the 29th. The dry weather has injured the late planted corn and potatoes, but the early corn, on new ground, is going to be good and is nearly out of the way of frost.

MT. AYR.—*A. F. Beard.* With twenty-nine clear days and with the temperature up to 90° or above on twenty-four of them we are getting very dry at present. On the evening of the 28th there was a windstorm with some hail in the southeast part of the county.

NORTHWOOD.—*Chas. H. Dwelle.* The worst storm of the season occurred five miles southeast of here on the 13th. Trees were uprooted and buildings were damaged, but the storm was not very extensive.

OLIN.—*C. M. Miles.* This has been a very fine month for threshing. The average yield of oats is about forty bushels per acre. Corn is in fine condition and some fall plowing has been done.

PELLA.—*John H. VerSteeg.* Dry weather with high temperatures prevailed during the month and the corn crop depreciated considerably on thin soil and wet and weedy fields.

PLOVER.—*J. S. Smith.* A whole month without a cloudy day is something that has not occurred before in twenty years. Corn suffered from the drouth and late potatoes will not make 50 per cent of a crop.

RIDGEWAY.—*Arthur Betts.* This was the warmest August since 1900, but August, 1907, was wetter. There was only .18 inch of rainfall from July 9th to August 9th, but heavy rains fell during the second decade of the month.

SHELDON.—*A. W. Beach.* Shock threshing done without rain. It has been too dry for pastures and fall plowing. The month was abnormally hot.

SIGOURNEY.—*J. T. Parker.* There was much damage done by wind and hail on the 27th.

STOCKPORT.—*C. L. Beswick.* August was extremely dry, hot and cloudless. Corn has been cut short and pastures are dry and brown.

(Continued on Page 88)

CLIMATOLOGICAL DATA FOR IOWA, AUGUST, 1909

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days	No. partly cloudy days			No. cloudy days
NORTHERN SECTION																				
Algona	Kossuth	1,213	34	74.8	+ 3.9	93	15	44	29	31	2.36	-1.56	1.05	0	6	25	2	4	s	Dr. F. T. Seeley
Alta	Buena Vista	1,513	17	75.2	+ 4.7	93	27	43	29	31	2.37	-1.60	0.84	0	8	19	12	0	s	D. E. Hadden
Alta (near)	Buena Vista										2.96	-0.63	0.76	0	9				s	W. J. Minard
Alton	Sioux	1,305	3	76.6		97	15	36	29	41	0.99		0.70	0	4	27	2	2	se	W. S. Slagle
Britt	Hancock	1,236	11	74.2	+ 4.2	94	11	41	29	31	2.12	-1.93	0.71	0	7	11	19	1	s	G. P. Hardwick
Charles City	Floyd	1,015	20	73.6	+ 2.9	93	2	41	29	34	6.88	+3.46	2.74	0	10	15	9	7	s	Weather Bureau
Clear Lake	Cerro Gordo	1,241	9	75.4	+ 3.7	94	2	46	29	41	3.39	-0.92	1.35	0	7	24	3	4	s	Oscar Stevens
Decorah	Winneshiek	875	15	75.4	+ 5.2	100	2	43	30	40	4.93	+1.89	1.60	0	8				s	F. H. Baker
Dows	Wright	1,142	8	74.9	+ 5.2	95	14	43	29	38	0.59	-3.69	0.31	0	4	21	5	5	s	G. D. Flett
Elkader	Clayton	727	27	72.0	+ 1.0	102	2	42	30	42	2.17	-0.73	0.44	0	9	13	18	0	se	Chas. Reinecke
Elma	Howard			73.0		93	2	53	21	35	5.48		1.87	0	8	10	19	2	se	H. A. Moore
Estherville	Emmet	1,295	12	73.6	+ 3.4	94	* 11	42	29	37	1.85	-1.75	1.00	0	6	15	0	16	s	A. O. Peterson
Fayette	Fayette	1,003	18	73.8	+ 4.7	97	2	41	30	38	2.55	-0.72	0.85	0	11	24	3	4	se	R. Z. Latimer
Forest City	Winneshiek	1,226	14																s	J. A. Peters
Grand Meadow	Clayton	1,180	17	72.2	+ 3.3	89	* 1	45	* 29	28	4.23	+0.90	1.43	0	9	11	14	6	sw	F. L. Williams
Greene	Butler		9	75.8	- 4.3	93	2	43	29	41	3.84	-0.03	1.66	0	8	10	16	5	e	J. L. Cole
Hampton	Franklin	1,155	18	76.6	+ 6.0	95	15	45	29	34	3.15	-0.22	1.30	0	10	13	15	3	sw	E. C. Grenelle
Humboldt	Humboldt	1,095	17	75.4	+ 7.5	98	2	40	29	35	0.75	-2.69	.30	0	6	30	1	0	sw	H. S. Wells
Inwood	Lyon	1,474	4	75.2		96	16	38	29	40	2.70		1.15	0	8	22	5	4	s	F. B. Hanson
Larrabee	Cherokee	1,267	17	74.9	+ 3.7	94	12	40	29	33	0.81	-2.67	0.25	0	6	21	9	1	sw	H. B. Strever
Le Mars	Plymouth	1,224	12	74.8	+ 3.3	91	27	39	29	31	1.43	-1.45	0.58	0	8	23	7	1	sw	G. A. C. Clarke
Mason City	Cerro Gordo	1,132	11	72.8	+ 2.8	90	* 1	43	29	35	5.13	+1.53	1.34	0	10	14	13	4	se	J. S. Mills
Merrill	Plymouth																		s	Eric Oleson
New Hampton	Chickasaw	1,165	11	72.1	+ 2.6	89	* 1	48	30	30	8.21	+5.18	4.30	0	10	20	10	1	s	A. F. Kemman
Northwood	Worth	1,222	12					45	29		6.07	+2.03	1.50	0	10	17	10	4	nw	Charles H. Dwelle
Osage	Mitchell	1,184	17	75.0	+ 7.0	96	1	44	29	35	6.87	+3.84	2.00	0	11	19	4	8	sw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	12	75.4	+ 4.5	97	15	37	29	34	0.90	-3.63	0.42	0	5	27	4	0	se	J. S. Smith
Pocahontas	Pocahontas		4	74.8		93	27	43	29	32	2.07		1.17	0	4	18	10	3	s	F. E. Hronek
Ridgeway	Winneshiek	1,215	10	75.4	+ 3.4	96	* 1	47	29	33	6.20	+2.48	3.66	0	11	20	9	2	s	Arthur Betts
Rock Rapids	Lyon	1,358	9	77.3	+ 7.0	97	29	34	31	48	0.75	-1.68	0.30	0	4				s	W. C. Wyckoff
Sheldon	O'Brien	1,422	8	77.0	+ 5.7	101	15	36	29	37	1.63	-2.05	1.00	0	6	27	4	0	s	Dr. A. W. Beach
Sibley	Osceola	1,212	15	73.8	+ 4.9	93	* 15	40	* 29	41	1.45	-2.21	0.66	0	6	22	4	5	s	H. G. Doolittle
Sioux Center	Sioux		9	74.9	+ 3.8	94	15	42	29	33	1.07	-2.56	0.53	0	3	27	3	1	s	J. de Ruyter
Storm Lake	Buena Vista	1,440	12	76.0	+ 5.3	93	15	43	29	33	2.66	-0.66	1.21	0	6	24	7	0	s	S. B. Fracker
Washta	Cherokee	1,157	10	76.2		97	27	33	29	47	1.92	-0.86	0.83	0	6	23	7	1	s	H. L. Felter
Waverly	Bremer	948	12	74.4	+ 3.6	92	24	46	29	30	1.73	-1.23	0.50	0	10	11	14	6	s	H. S. Hoover
West Bend	Palo Alto	1,197	14	75.0	+ 5.4	93	15	42	29	30	1.07	-2.87	0.29	0	6	21	8	2	s	Phil Dorweiler
Average				74.7	+ 4.4	95		42		36	3.04	-0.48		0	7	19	9	3	s	
CENTRAL SECTION																				
Amana	Iowa	721	31	75.2	+ 4.3	96	14	45	30	34	1.00	-2.61	0.50	0	5	22	8	1	se	Conrad Schadt
Ames	Story	926	27																s	Iowa State College
Audubon	Audubon	1,301	15	74.2	+ 2.4	97	10	37	29	38	0.41	-3.31	0.29	0	2	27	3	1	sw	Geo. E. Kellogg
Baxter	Jasper	998	8	75.2	+ 3.3	96	14	46	29	33	0.71	-3.84	0.28	0	6	25	5	1	sw	W. R. Vandike
Belle Plaine	Benton	828	18	74.6	+ 3.8	97	14	44	* 29	32	1.05	-3.10	0.78	0	3	19	10	2	s	S. P. Vandike
Boone	Boone	1,134	3	76.2		96	14	44	29	29	0.86		0.39	0	6	19	8	4	s	Carl Fritz Henning
Buckingham	Tama		8								1.10	-3.93	0.46	0	8	15	16	0	s	Dr. W. A. Daniel
Carroll	Carroll	1,265	18	74.8	+ 3.7	95	14	39	28	38	0.30	-3.41	0.23	0	2	26	5	0	s	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	26	76.6	+ 3.9	98	15	50	* 29	31	1.16	-2.34	0.86	0	4	20	9	2	se	Electric Light & P. Co.
Clinton	Clinton	593	40	74.4	+ 3.1	95	14	47	30	32	5.20	+1.55	2.80	0	9	18	10	3	s	Luke Roberts
Davenport	Scott	580	36	77.3	+ 4.2	96	14	51	29	30	2.34	-1.30	1.19	0	5	17	11	3	sw	Weather Bureau
Delaware	Delaware	1,083	17	73.0	+ 3.4	93	14	45	29	31	4.04	+0.50	1.57	0	10	17	13	1	se	Wm. Ball
Denison	Crawford	1,180	13	75.8	+ 3.9	94	* 14	50	30	32	0.71	-3.05	0.44	0	2	27	3	1	s	W. C. Van Ness
Des Moines	Polk	861	29	78.1	+ 5.1	96	14	50	29	29	0.14	-3.47	0.11	0	3	14	14	3	sw	Weather Bureau
De Soto	Dallas	866	8	77.2	+ 4.2	97	* 14	44	30	41	0.74	-4.23	0.49	0	2	29	1	1	sw	R. D. Minard
Dubuque	Dubuque	639	35	75.0	+ 3.0	93	14	51	30	26	1.50	-1.51	0.60	0	8	15	8	8	s	Weather Bureau
Fort Dodge	Webster	1,126	8	77.2	+ 5.8	97	27	43	29	35	0.65	-4.99	0.22	0	4	22	2	7	se	J. F. Monk
Gilman	Marshall	1,052	9								1.35	-2.43	0.65	0	4				s	Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	77.4	+ 5.8	101	14	46	30	36	2.04	-2.58	1.59	0	5	16	12	3	sw	D. W. Brainard
Grundy Center	Grundy	976	17	75.6	+ 4.6	95	* 14	42	* 29	37	1.55	-2.02	0.68	0	8	18	12	1	s	J. B. Calderwood
Guthrie Center	Guthrie	1,077	13	76.4	+ 4.2	95	14	42	29	35	1.26	-3.06	1.00	0	4	26	4	1	sw	D. G. Beardsley
Harlan	Shelby	1,192	9	75.8	+ 3.6	97	16	40	29	38	0.88	-3.34	0.49	0	2	11	19	1	s	C. A. Reynolds
Independence	Buchanan	921	43	74.3	+ 4.2	95	15	45	* 29	36	1.91	-1.28	0.83	0	9	19	10	2	n,s,sw	George Donohoe
Iowa City	Johnson	683	49	77.5	+ 5.8	100	* 13	48	29	38	1.88	-2.36	0.85	0	6	22	7	2	s	Prof. Karl E. Guthe
Iowa Falls	Hardin	1,170	15	73.7	+ 3.8	93	* 11	40	29	36	1.19	-2.19	0.81	0	7	24	2	5	sw	J. B. Parmelee
Jefferson	Greene			78.6		96	* 11	42	29	38				0					s	Geo. W. Jackson
Le Claire	Scott	576									2.66	-0.93	0.93	0	8				sw	Margaret T. Disney
Little Sioux	Harrison		4	78.0		99	16	43	29	36	1.57		0.76	0	5	26	5	0	se	Geo. H. Gibson
Logan	Harrison	928	42	77.8	+ 5.1	98	16	41	29	39	2.96	-0.78	2.04	0	2	18	13	0		

CLIMATOLOGICAL DATA FOR IOWA, AUGUST, 1909—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit							Precip., in inches				No. rainy days	Sky			Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)		Number clear days	Number partly cloudy days	Number cloudy days			
SOUTHERN SECTION																					
Afton	Union	1,212	14	77.4	+ 3.8	99	*12	46	29	36	1.36	-3.07	1.26	0	1	25	5	1	sw	N. W. Rowell	
Albia	Monroe	959	10	76.4	+ 3.0	95		27	43	29	1.04	-3.11	1.03	0	2	18	9	4	sw	J. I. Chenoweth	
Allerton	Wayne		6	78.2	+ 5.1	99		15	45	29	0.34	-6.48	1.21	0	2	27	2	2	sw	Mrs. Geo. Shriver	
Atlantic	Cass	1,164	17	77.3	+ 6.0	98	*15	43	29	37	0.44	-3.04	0.34	0	2	10	18	3	sw	Thos. H. Whitney	
Bedford	Taylor		8	77.3	+ 3.4	103		16	42	29	1.37	-3.69	1.10	0	3	27	1	3	s	E. E. Healy	
Bloomfield	Davis			80.4		103		15	44	29	0.82		0.55	0	2	20	11	0	sw	C. R. Davis	
Bonaparte	Van Buren		17	78.4	+ 4.1	98	*13	46	29	39	0.17	-4.48	0.11	0	3					Hon. B. R. Vale	
Burlington	Des Moines	544	12	79.1	+ 5.0	100	*14	51	29	34	0.87	-4.57	0.59	0	3	28	2	1	s	M. E. Poppy, Jr.	
Chariton	Lucas	1,042	13	76.6	+ 3.5	97		15	44	29	0.82	-4.18	0.35	0	3	26	3	2	sw	C. C. Burr	
Clarinda	Page	1,009	18	77.8	+ 3.6	102		15	43	30	0.95	-3.08	0.49	0	4	26	2	3	s	A. S. Van Sandt	
Columbus Junction	Louisa	595	7	77.0	+ 4.6	96	*14	48	29	29	0.50	-5.72	0.50	0	1	25	6	0	s	J. B. Johnston	
Corning	Adams	1,117	16	75.9	+ 3.4	97	*15	47	29	33	1.51	-2.70	1.37	0	2	15	15	1	s	Jerome Smith	
Corydon	Wayne	1,101	15	78.6	+ 5.0	98		15	45	22	0.49	-3.83	0.33	0	2	22	7	2	sw	Clara Miller	
Creston	Union	1,312	3	77.0		100	*12	45	29	39	1.94		1.16	0	4	23	4	4	se	E. S. Stovall	
Cumberland	Cass		9								0.50	-3.48	0.50	0	1	30	1	0	sw	J. H. Reppert	
Earlham	Madison		6	76.4	+ 6.4	98		15	41	30	0.88	-4.25	0.41	0	5	30	0	1	se	Geo. Phillips	
Elliott	Montgomery		3	77.0		95	*12	44	29	31	0.54		0.54	0	1	23	7	1	se	Henry Barnes	
Fairfield	Jefferson		14	79.8	+ 8.5	96		14	45	29	a31	T	-4.08	T	0	0	17	10	4	ne	R. Monroe McKenzie
Fort Madison	Lee	516	59								0.18	-3.61	0.18	0	1	12	15	3	s	Miss L. A. McCready	
Greenfield	Adair		17																	Geo. Brooks	
Hancock	Pottawattamie	1,113	2	78.2		98	*15	43	29	40	0.53		0.40	0	2	28	3	0	s	G. C. Rogers	
Hopeville	Clarke		17	76.5	+ 3.3	97		15	46	29	1.49	-2.32	0.66	0	4	17	12	2	s	M. T. Ashley	
Indianola	Warren	969	17	78.0	+ 5.2	96		14	48	29	a29	0.97	-3.71	0.50	0	5	19	7	5	sw	Prof. J. L. Tilton
Keokuk	Lee	574	37	79.5	+ 4.9	98		15	52	30	0.68	-2.56	0.66	0	2	24	6	1	s	Weather Bureau	
Keosauqua	Van Buren	644	16	77.8	+ 3.3	98	*15	43	30	44	0.23	-3.59	0.12	0	2	7	21	3		J. H. Landes	
Knoxville	Marion	920	12	77.2	+ 3.5	95		13	49	30	1.25	-3.42	0.92	0	3	18	8	5	sw	Casey & Bellville	
Lacona	Warren		9								1.46	-3.36	0.60	0	3					Agent C., B. & Q. Ry.	
Lamoni	Decatur			77.6		100		12	47	29	0.37		0.37	0	1	29	0	2	s	T. J. Fitzpatrick	
Lenox	Taylor	1,250	13	76.4	+ 3.5	96		16	48	28	1.50	-2.62	1.40	0	2	29	1	1	s	J. L. Hurley	
Leon	Decatur	1,120	6	77.3	+ 4.2	98		15	48	*29	0.54	-5.40	0.39	0	2	25	3	3	sw	Morris Gardner	
Massena	Cass		3	75.2		102		12	34	49	0.92		0.90	0	2	29	2	0	sw	C. E. Smeltzer	
Mt. Ayr	Ringgold	1,236	15	78.1	+ 4.1	99	*15	48	29	36	1.38	-2.37	1.17	0	3	25	5	1	sw	A. F. Beard	
Mt. Pleasant	Henry	729	26	77.2	+ 3.9	94		14	49	29	0.21	-3.86	0.17	0	2	22	9	0	sw	Prof. J. W. Edwards	
Omaha, Neb.	Douglas	1,040	38																	Weather Bureau	
Oskaloosa	Mahaska	843	24	76.9	+ 5.0	96		14	45	30	0.12	-3.10	0.11	0	2	28	1	2	sw	Jos. Boyd	
Ottumwa	Wapello	649	14																	Dr. Jas. A. Hull	
Pacific Junction	Mills	960	9	76.0	+ 2.5	98	*12	41	29	36	0.65	-3.18	0.42	0	2	25	6	0	s	H. H. McCartney	
Pella	Marion	877	6	74.9	+ 0.5	95		14	40	29	0.23	-3.95	0.08	0	4	25	4	2	sw	John H. Ver Steeg	
St. Charles	Madison	1,070	7	78.1	+ 4.9	98		16	49	29	0.80	-3.53	0.62	0	3	26	4	1	sw	R. D. Minard	
Sigourney	Keokuk	877	12	78.0	+ 4.2	98		14	46	29	2.67	-1.18	2.42	0	3	4	27	0	sw	J. T. Parker	
Stockport	Van Buren		6	76.9		95	*14	50	*29	31	0.71	-4.35	0.71	0	1	23	6	2	sw	C. L. Beswick	
Thurman	Fremont		11	77.4	+ 3.6	98		15	45	30	0.50	-3.89	0.20	0	3	20	11	0	sw	C. R. Paul	
Wapello	Louisa	588	10	76.2	+ 2.7	92		24	52	30	1.50	-3.50	1.24	0	3	21	10	0	s	Geo. W. Schofield	
Washington	Washington	769	27	77.0	+ 3.9	97		14	46	29	0.26	-3.45	0.24	0	2	11	17	3	sw	Wm. A. Cook	
Winterset	Madison	1,128	17	78.3	+ 5.7	96	*11	46	29	32	0.43	-3.30	0.35	0	3	19	10	2	s	Dr. Robert S. Cooper	
Woodburn	Clarke	961	9	75.7		98		15	42	30	3.15	-2.43	2.22	0	4	26	3	2	sw	C. B. McDonough	
Average				77.4	+ 4.1	98		46		36	0.87	-3.53		0	2	22	7	2	sw		
State average				76.1	+ 4.3	96		44		35	1.81	-2.18		0	5	21	8	2	s		

* And other dates. a one day missing, b two days; c three days; d four days, etc. † Received too late to be included in average. ‡ Received too late to be used in average.

IOWA CROPS, 1909—NUMBER OF ACRES BY COUNTIES.

COUNTIES	Winter Wheat—Acres	Spring Wheat—Acres	Corn—Acres	Oats—Acres	Rye—Acres	Barley—Acres	Hay (Tame)—Acres	Hay (Wild)—Acres	Pastures—Acres	Flax—Acres	Potatoes—Acres
Adair	175	3,910	92,675	27,707	310	4,980	52,970	4,380	112,210		1,034
Adams	1,550	1,160	65,741	21,857	175	1,700	28,610	1,930	79,940		520
Allamakee	550	675	40,000	31,830	490	13,390	45,745	4,530	107,360	220	930
Appanoose	1,730	410	42,000	12,370	620	100	50,110	1,600	112,600		410
Audubon	25	4,470	80,330	34,410	60	5,860	30,450	3,300	75,250		775
Benton	55	500	125,830	68,120	740	12,640	47,100	6,540	108,630		1,480
Black Hawk	12	160	83,630	49,150	2,400	5,480	36,140	13,700	95,280		2,150
Boone	40	1,507	100,100	52,830	241	1,648	22,204	17,670	73,710		1,050
Bremer	25	140	60,370	48,190	830	5,900	18,900	25,460	71,200		1,330
Buchanan	15	210	84,770	45,860	550	3,420	41,110	14,290	99,980		1,050
Buena Vista	40	1,920	96,720	71,620	35	1,295	22,830	17,100	68,090	275	2,095
Butler	25	180	96,230	65,040	1,720	3,140	28,800	10,850	79,450	50	1,650
Calhoun	60	300	93,720	67,670	105	1,920	16,640	16,630	65,593		320
Carroll	120	6,100	103,070	57,730	160	5,500	25,480	13,110	75,650		2,000
Cass	2,140	8,560	96,350	35,440	200	2,930	42,970	2,600	97,860		1,270
Cedar	630	890	87,530	30,730	670	18,340	49,000	300	89,130		970
Cerro Gordo	35	197	81,900	67,350	260	2,160	34,500	14,640	73,580	340	1,720
Cherokee	40	1,180	102,270	67,220	15	5,400	31,890	11,650	80,390	30	1,460
Chickasaw	45	800	61,000	59,340	270	5,800	40,140	15,890	75,390	1,460	1,090
Clarke	1,240	180	47,650	14,720	260	850	43,150	380	90,280		385
Clay	80	425	66,590	60,310	40	1,110	24,600	22,010	66,770	410	700
Clayton	750	880	71,800	53,480	1,560	18,460	56,590	3,970	137,000	10	1,870
Clinton	580	1,390	109,360	37,920	1,370	10,810	65,090	3,870	129,740	20	1,185
Crawford	370	14,470	133,900	57,590	200	8,260	50,390	7,430	118,310		2,250
Dallas	1,500	1,880	112,200	45,280	530	1,360	29,060	6,350	103,370		890
Davis	2,040	70	53,900	19,380	1,410	100	50,810		186,300		400
Decatur	2,780	20	54,720	23,490	290	35	39,400	620	115,980	60	420
Delaware	40	190	82,270	37,930	1,240	14,400	46,900	7,830	107,500	50	1,242
Des Moines	4,300	35	56,920	27,960	950	830	28,660	260	66,590		1,090
Dickinson	60	720	39,100	36,000	80	2,650	14,700	17,580	42,820	410	530
Dubuque	170	730	65,760	43,250	390	6,700	52,090	1,380	120,520		1,715
Emmet		500	45,600	37,890	50	1,080	23,600	13,150	47,000	490	530
Fayette	200	680	87,520	61,720	450	13,390	58,170	15,700	142,680	620	2,060
Floyd	95	380	72,500	69,820	450	2,380	32,200	6,110	63,900	840	1,225
Franklin	35	715	90,130	67,460	140	2,550	26,610	15,200	77,300	100	1,985
Fremont	2,250	2,140	121,230	11,420	230	125	17,590	4,130	62,350		525
Greene	15	370	102,200	50,900	70	2,120	22,810	13,030	57,710	120	900
Grundy	30	540	88,650	66,960	40	7,650	27,340	8,700	69,900		6,210
Guthrie	630	7,320	69,100	32,530	190	1,910	34,700	4,725	103,790		610
Hamilton	430	1,530	105,830	63,200	90	870	25,330	20,860	81,770	170	1,600
Hancock	25	1,140	68,450	65,750	60	2,150	20,850	19,050	66,460	490	950
Hardin	105	2,030	98,800	61,130	115	2,120	27,760	21,980	73,150	25	1,330
Harrison	6,880	14,900	124,550	20,600	230	2,520	19,900	12,140	96,040		1,280
Henry	1,890	100	75,630	26,700	1,030	280	26,410	10	83,830		500
Howard	20	575	40,480	30,900	435	8,950	33,538	13,700	58,140	4,170	860
Humboldt	30	1,890	55,400	52,900		805	23,450	18,270	59,740	220	650
Ida	60	1,860	85,860	40,000	35	1,830	27,590	2,490	56,740	50	850
Iowa	405	2,050	90,000	38,940	370	2,210	57,540	975	97,700		1,350
Jackson	325	845	58,320	22,900	790	7,085	60,980	1,000	149,150		945
Jasper	700	5,750	118,800	49,040	765	2,270	50,525	1,900	133,220		1,670
Jefferson	2,410	390	59,430	25,200	1,250	660	36,870	40	93,230		515
Johnson	655	1,360	100,400	46,360	1,645	3,450	54,760	1,580	107,980		1,680
Jones	40	215	78,140	24,630	610	8,780	53,130	500	102,660		640
Keokuk	915	3,350	90,300	37,000	980	3,050	46,660	450	98,010		730
Kossuth	80	2,900	119,450	105,410	35	3,230	33,570	64,060	121,680	1,450	1,710
Lee	10,600	30	48,780	19,100	3,290	150	38,920	100	98,320		1,190
Linn	30	1,000	96,080	45,020	1,250	3,210	52,000	5,800	110,800		1,780
Louisa	5,110	510	63,570	19,890	2,220	380	19,440	660	65,950		620
Lucas	1,535	100	53,300	16,800	610	170	46,380	690	97,040		430
Lyon	30	1,400	93,200	76,560	135	26,860	19,600	11,100	55,170	180	2,420
Madison	540	1,620	76,680	18,520	190	4,580	40,020	1,900	124,800		700
Mahaska	590	1,800	70,900	26,200	530	2,300	33,740	710	72,800		775
Marion	1,990	3,690	76,000	23,430	625	2,800	35,000	700	104,560		590
Marshall	485	2,145	98,500	56,800	110	1,490	40,880	1,380	79,000		2,270
Mills	2,785	4,550	85,080	12,420	70	450	21,130	3,640	58,780		790
Mitchell	20	540	54,220	72,550	150	8,320	34,150	2,880	59,380	2,900	1,470
Monona	15,700	11,890	121,134	27,330	330	3,400	15,250	12,730	87,460	25	1,540
Monroe	1,130	625	25,600	7,100	50	94	29,970	45	77,000		400
Montgomery	4,500	10,690	87,500	15,240	120	1,080	28,160	900	69,880		615
Muscatine	2,550	780	61,680	17,320	3,280	9,740	28,670	1,480	80,000		2,565
O'Brien	170	870	81,270	62,530	25	14,500	27,720	11,300	63,620	170	1,460
Oceola	10	320	50,700	58,640	10	10,700	23,100	10,800	39,660	515	845
Page	9,680	4,730	107,290	15,540	400	1,550	33,790	2,200	88,790		840
Palo Alto		390	57,700	47,500	25	670	14,400	29,850	54,730	500	960
Plymouth	2,430	25,250	169,600	89,550	130	12,410	29,860	24,200	109,330	35	2,100
Pocahontas	130	430	82,000	75,390	100	770	14,800	26,600	71,100	910	880
Polk	1,600	4,080	85,400	35,600	210	700	27,940	5,790	70,570		2,440
Pottawattamie	2,670	16,440	189,190	41,230	200	4,260	49,600	10,900	122,870		2,970
Poweshiek	60	2,000	93,240	38,280	185	4,470	49,180	350	110,710		960
Ringgold	2,100	130	52,200	20,480	200	170	44,000	188	108,200		350
Sac	220	840	109,420	64,900	25	6,600	28,590	13,230	75,560	1,400	1,110
Scott	2,380	2,720	67,350	19,710	1,450	24,720	33,500	3,710	69,600	20	8,430
Shelby	500	10,320	118,220	38,060	145	11,280	35,880	6,480	89,120	85	1,380
Sioux	850	14,450	149,280	83,130	30	28,070	28,850	20,800	80,800	115	1,680
Story	500	890	107,400	56,300	200	1,395	11,240	72,390			885
Tama	60	3,550	110,910	62,970	300	10,440	57,040	3,250	116,700		2,760
Taylor	3,900	220	65,310	18,150	500	1,130	40,030	900	109,080		575
Union	600	440	54,440	19,220	180	1,080	40,060	900	99,700		900
Van Buren	4,030	20	48,000	16,830	1,270	165	35,490	25	185,450		320
Wapello	1,796	220	49,850	19,540	950	640	37,000	65	87,790		1,000
Warren	2,320	2,300	72,610	20,490	480	1,400	45,060	740	109,750		1,100
Washington	970	1,080	90,920	42,970	500	1,340	42,320	140	100,020		750
Wayne	1,380	40	70,580	22,770	260	45	60,540	100	117,120	40	330
Webster	90	3,130	103,050	81,610	120	845	22,910	27,360	92,190	890	1,200
Winnebago	20	5,200	45,000	37,560	15	2,740	16,430	20,690	48,140	990	865
Winneshiek	190	3,140	70,000	59,710	320	22,900	54,290	10,670	116,830	3,170	1,190
Woodbury	7,725	9,250	149,510	59,550	130	8,690	28,930	16,350	98,280	20	2,100
Worth		2,340	38,120	49,000		2,880	19,130	17,260	49,920	1,690	630
Wright	325	1,550	85,440	68,790	40	2,135	24,920	18,340	73,410	290	1,390
Total for State	133,748	265,339	8,213,280	4,261,414	49,591	492,327	2,485,552	866,743	8,501,97	25,525	127,841

U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR SEPTEMBER, 1909

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

DES MOINES, IOWA
EMORY H. ENGLISH, STATE PRINTER
1909

OCT 25 1909

THE IOWA WEATHER AND CROP SERVICE

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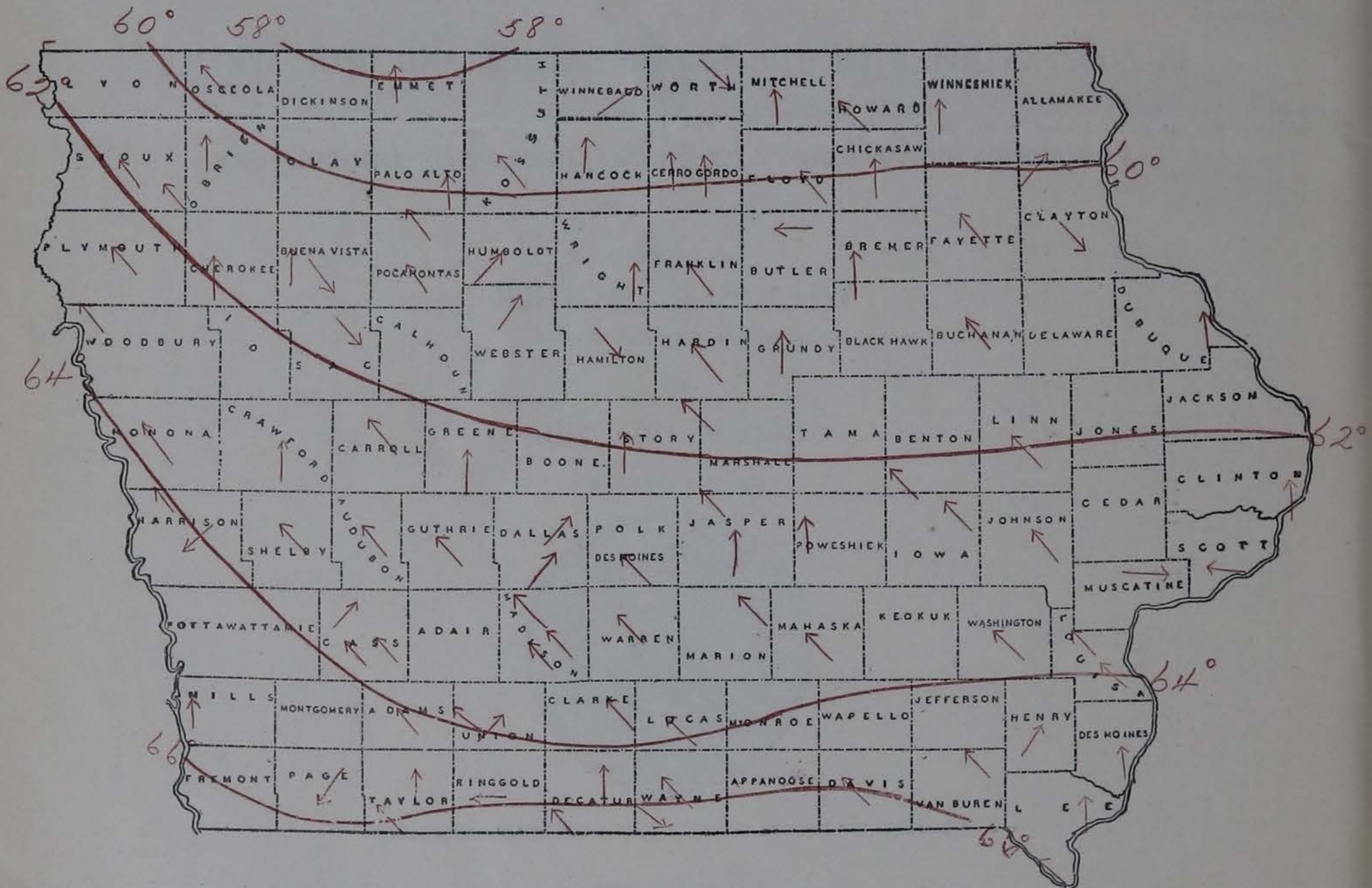
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MEAN ISOTHERMS AND PREVAILING WINDS OF SEPTEMBER, 1909.

Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
GEO. M. CHAPPEL, Section Director.

VOL. XX DES MOINES, IOWA, SEPT., 1909 No. 9

GENERAL SUMMARY.

The hot and drouthy conditions prevailing at the close of August were broken by lower temperatures on the 1st and copious and general showers on the 2d of September. From the 2d to the 14th showers occurred in some part of the state every day, and were general and the rainfall heavy between the 12th and 14th. Another period of showery weather prevailed between the 19th and 24th, but the last six days were generally clear and pleasant, although the night temperatures were quite low.

The temperatures were below normal from the 1st to the 8th; 14th to 16th; 22d to 27th, and on the last day of the month; the lowest occurring on the 27th when the minimum was below the freezing point at several stations in the northern counties. Light frosts occurred on low ground in the extreme northern part of the state on the 1st and 5th, and in all parts of the state on the 23d, 24th and 27th. On the latter date the frost was heavy on low ground over the northern and northeastern counties, but reports indicate that no damage was done to vegetation except in a very few places where some of the tender vines were injured.

The warmest periods were between the 9th and 13th and from the 17th to the 21st, when the maximum temperatures ranged from 80 to 87 degrees over the northern and from 85 to 94 degrees over the southern districts, the highest occurring generally on the 12th or 13th. The rains during the first half of the month revived the pastures and softened the ground sufficiently to permit fall plowing to be resumed, and excellent progress was made in plowing and seeding fall grains during the remainder of the month. The rains came too late, however, to be of much value to the early planted corn, but reports indicate that the rains and the subsequent warm weather were beneficial to the late planted corn, which improved one or two points during the month. The dry weather during the last six days caused the corn to mature and dry out rapidly, and nearly 90 per cent of the crop was safe at the close of the month from any damaging effect of frost. Heavy wind squalls on the 12th did material damage in blowing down corn over the northern, western and southwestern counties.

The potato crop did not recover from injury received during the August drouth and the yield will be very light.

The second crop of hay was lighter than last year but was put up in good condition.

TEMPERATURE.—The monthly mean temperature for the state, as shown by the records of 114 stations, was 62.4°, which is 1.3° below the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 60.6°, which is 1.5° below the normal; Central section 62.6°, which is 1.0° below the normal; Southern section 64.1°, which is 1.4° below the normal. The highest monthly mean was 66.7°, at Bloomfield, Davis county, and the lowest monthly mean 58.4°, at Estherville, Emmet county. The highest tempera-

ture reported was 94°, at Bonaparte, Van Buren county and Fairfield, Jefferson county, on the 13th, and at Clarinda, Page county and Massena, Cass county, on the 12th; the lowest temperature reported was 30°, at Elkader, Clayton county, Fayette, Fayette county, and Humboldt, Humboldt county, on the 27th, and at Washta, Cherokee county, on the 24th. The average monthly maximum was 88°, and the average monthly minimum was 36°. The greatest daily range was 54°, at Olin, Jones county. The average of the greatest daily ranges was 36°.

PRECIPITATION.—The average precipitation for the state, as shown by the records of 122 stations, was 3.58 inches, which is 0.17 inch above the normal. By sections the averages were as follows: Northern section, 3.54 inches, which is 0.13 inch above the normal; Central section, 3.23 inches, which is 0.01 inch below the normal; Southern section, 3.98 inches, which is 0.41 inch above the normal. The greatest amount, 7.34 inches, occurred at Thurman, Fremont county, and the least, 1.39 inches, at Gilman, Marshall county. The greatest amount in twenty-four hours, 3.35 inches, occurred at Amana, Iowa county, on the 13th and 14th. Measurable precipitation occurred on an average of 9 days.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 14; partly cloudy, 8; cloudy, 8. The duration of sunshine was about the normal, the percentage of the possible amount being 66 at Charles City; 70 at Davenport; 64 at Des Moines; 54 at Dubuque; 60 at Keokuk, and 55 at Sioux City.

WIND.—Southeast winds prevailed. The highest velocity reported was 41 miles per hour from the South, at Sioux City, Woodbury county, on the 18th.

COMPARATIVE DATA FOR THE STATE—SEPTEMBER.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	59.3	96	23	2.97	4.85	1.36
1891.....	67.3	104	23	1.33	3.60	.13
1892.....	64.7	99	29	1.53	4.15	.16
1893.....	64.7	102	18	2.34	5.49	.74
1894.....	65.1	100	26	3.57	7.43	.67
1895.....	66.8	103	22	3.03	7.43	.85
1896.....	58.5	95	22	4.09	9.96	1.82
1897.....	70.9	106	26	2.04	5.88	0.00
1898.....	65.3	99	29	2.69	8.45	.41
1899.....	62.5	104	15	.93	4.32	T
1900.....	61.4	99	26	4.98	8.82	2.48
1901.....	63.3	102	26	4.77	13.62	1.71
1902.....	59.1	88	23	4.35	10.41	1.65
1903.....	60.8	94	28	3.81	8.79	1.42
1904.....	64.0	94	30	2.78	8.33	.09
1905.....	65.8	96	36	3.81	13.18	.50
1906.....	67.2	100	27	4.16	11.10	.64
1907.....	62.8	98	25	2.75	6.06	1.38
1908.....	67.9	98	20	1.20	3.46	.25
1909.....	62.4	94	30	3.58	7.34	1.39

"T" indicates a trace.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.09 inches.
Prevailing direction of Wind, Southeast.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum Velocity—miles	Direction	Date	Average Hourly Velocity
Charles City..	30.10	30.63	26	29.56	21	3503	26	SW	12	4.9
Davenport..	30.09	30.58	26	29.55	21	4098	21	SW	28	5.7
Des Moines..	30.07	30.56	26	29.54	21	4247	29	W	12	5.9
Dubuque....	30.12	30.65	26	29.61	21	3689	20	N	23	5.1
Keokuk.....	30.10	30.55	26	29.54	21	3665	20	SW	28	5.1
Omaha.....	30.06	30.50	26	29.60	21	4475	35	SW	12	6.2
Sioux City..	30.07	30.49	26	29.56	21	7274	41	S	18	10.1

OBSERVER'S REMARKS.

AFTON.—*N. W. Rowell.* There has been no frost on the uplands but light frost occurred on the morning of the 30th, on bottom lands. Corn is all matured.

ALBIA.—*J. I. Chenoweth.* September was a fine fall month but the first half was attended by frequent showers. The rain, however, was quite beneficial to late corn and fall pastures. There was no frost except possibly very light on low land.

ALGONA.—*Dr. F. T. Seeley.* September has passed without a frost. The leaves on the trees are still green; also the tomatoes and pumpkin vines.

ALLERTON.—*Mrs. Geo. Shriver.* Light frost on the 27th, but there was no damage done, and the bulk of the corn crop is now safe from damaging effect of frost.

ALTA.—*David E. Hadden.* First half of the month was showery, but the latter half was ideal with nights cool, but the days dry and warm. Very light frost in low places was noted on two or three mornings, being most noticeable on the 23d.

ALTON.—*W. S. Slagle.* Light frost occurred on the 23d and 24th, but no damage was done. Corn is entirely out of danger of frost. Soil is in fine tilth for plowing and pastures are in fine shape. The potato crop is small. Leaves are beginning to fall.

AMANA.—*C. Schadt.* The month was dry with fresh winds and abundance of sunshine, which were favorable for threshing and haymaking. Enough rain fell, however, for plowing and seeding fall grains. The season was one of the poorest for fruit crops. Apples, pears and plums generally dropped from the trees before ripening. No frost occurred during September.

ATLANTIC.—*Thos. H. Whitney.* Trace of frost on lowlands on several nights, but no vegetation was injured. Rains were not excessive and corn has matured well except in places where badly tangled by wind on the night of the 12th.

BLOOMFIELD.—*C. R. Davis.* The corn, although poor, is maturing and getting out of the way of frost.

BONAPARTE.—*Hon. B. R. Vale.* September has been a pleasant and seasonable month with no killing frost. There has been only a little plowing done and there will be a small acreage of fall grain.

BRITT.—*Geo. L. Hardwick.* There have been no serious storms or extremes of temperature and the last week was exceptionally fine for maturing the belated corn, some of which is yet green. Pasturage is good and live stock is generally healthy. Fall plowing is well advanced.

BURLINGTON.—*Max E. Poppe, Jr.* An earthquake shock was felt at 4 A. M. and another at 6 A. M. on the 27th.

CHARITON.—*C. C. Burr.* There has been about the usual amount of plowing and seeding done but the soil is now too dry to work well and there is very little surface water. Corn is maturing nicely.

CLINTON.—*Luke Roberts.* Light frost occurred on the 23d, 24th and 27th, but vegetation was not damaged. Corn ripened in good time. The last decade of the month was cool but clear and the month averaged about normal.

CORYDON.—*Clara Miller.* Corn was blown down badly in places during the storm of the 13th.

ELLIOTT.—*Henry Barnes.* The close of the month finds corn, pastures and soil for plowing, in good condition except that corn was blown down badly. There will be an increase in the acreage of fall wheat.

FAYETTE.—*R. Z. Latimer.* Frost occurred on eight days, but did no serious damage to corn. The frost on the morning of the 27th was the most severe and cut all tender vegetation and late corn on low lands.

FOREST CITY.—*J. A. Peters.* There was no killing frost during the month. Corn is all out of the way of frost except on very low ground. Pasturage is excellent.

GRAND MEADOW (Postville P. O.)—*F. L. Williams.* The month was favorable for finishing the ripening of the late corn. Pasturage is good and live stock of all kinds are doing well. Fall plowing is well advanced and threshing is about finished.

GRINNELL.—*D. W. Brainard.* September was one of the most beautiful, comfortable and profitable months on record at this station.

GUTHRIE CENTER.—*D. G. Beardsley.* During the thunder storm on the night of the 12th, considerable damage was done to shade and fruit trees by high winds. Many apples and much of the corn were blown down and some chimneys damaged.

INWOOD.—*F. B. Hansen.* September has been cool with frequent rains. Light frost occurred on three dates, but no damage resulted. Corn is drying slowly. Threshing will soon be finished. Fall plowing was resumed after the rains.

JEFFERSON.—*G. W. Jackson.* Pastures are in splendid condition at the close of the month and frost has done no damage up to this time.

KEOSAUQUA.—*J. H. Landes.* There have been only two light frosts during the month and apparently they did no damage. Corn is out of the way of frost and cribbing will soon begin.

LARRABEE.—*H. B. Strever.* It was too dry to plow until after the rain on the 11th. There has been no frost to damage vegetation and corn is practically ripe at the close of the month.

MASON CITY.—*J. S. Mills.* Light frost occurred on the 23d, 24th, 25th and 26th and heavy frost on the 27th.

MASSENA.—*C. E. Smeltzer.* There was frost on four nights but no damage was done. Corn is now safe from frost and the early corn on new ground is far ahead of last year's crop. Pasturage is fine but the second hay crop is short.

NORTHWOOD.—*Chas. H. Dwelle.* Corn is out of the way of frost and is of excellent quality and the yield is good.

PELLA.—*John H. Ver Steeg.* Frost occurred on five mornings during the last week of September, but did no damage. Corn is now out of all danger.

POCAHONTAS.—*F. E. Hronek.* No frost to injure the tenderest plants and the month closes with the finest kind of weather for maturing corn. Plowing and threshing progressing and pastures are in good condition.

RIDGEWAY.—*Arthur Betts.* The temperature and precipitation were below the normal of eleven years. September, 1908, was eight degrees warmer than this month and in 1902 it was two degrees cooler. The past month was frostless except a little around the sloughs on the 26th and 27th. Nearly all of the rain came during the first fortnight.

SHELDON.—*Dr. A. W. Beach.* The rains during the month have put the soil in good tilth and made abundant feed in pastures; also added an extra crop of late hay which was cut the last ten days of September. A heavy crop of corn has been well cured without frost.

SIGOURNEY.—*J. T. Parker.* Frost occurred on six days but no damage was done.

STOCKPORT.—*C. L. Beswick.* There was no killing frost in September but light frost occurred on several days during the last decade of the month. Corn is all safe and fall grain is about all in. Pastures in fair condition.

WAUKEE.—*Samuel F. Foft.* Light frosts reported on the 5th, 23d, 24th, 25th, 26th, 27th and 30th, but no damaging effects observed. Corn is ripening up good and pastures are improved since last month.

WAVERLY.—*H. S. Hoover.* September was a beautiful month to finish up the fall work, but the last week has been too dry to do first class plowing. Pastures are generally good and stock is doing well.

WHITTEN.—*Dr. F. P. Butler.* A severe electrical storm occurred on the night of the 12th.

CLIMATOLOGICAL DATA FOR IOWA, SEPTEMBER, 1909

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit					Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days			No. partly cloudy days	No. cloudy days
NORTHERN SECTION																				
Algona	Kossuth	1,213	34	60.6	-1.3	85	10	38	27	34	4.71	+1.57	1.88	0	9	15	7	8	se	Dr. F. T. Seeley
Alta	Buena Vista	1,513	17	60.8	-2.1	85	10	37	23	35	2.15	-1.03	0.50	0	12	12	12	6	s	D. E. Hadden
Alta [near]	Buena Vista										2.16	-1.57	0.43	0	12					W. J. Minard
Alton	Sioux	1,305	3	61.0		85	*11	35	*5	37	4.42		2.20	0	10	12	11	7	se	W. S. Slagle
Britt	Hancock	1,236	11	60.7	-1.0	84	*10	35	23	33	3.70	-0.04	1.16	0	10	6	19	5	s	G. P. Hardwick
Charles City	Floyd	1,015	20	59.6	-2.1	84	20	36	27	31	3.12	+0.32	1.66	0	9	7	11	12	se	Weather Bureau
Clear Lake	Cerro Gordo	1,241	9	63.0	+0.8	88	10	38	*26	32	4.54	+1.58	1.20	0	8	16	0	14	s	Oscar Stevens
Decorah	Winneshiek	875	15	59.6	-2.5	84	*10	32	27	32	3.17	-0.56	1.08	0	6					F. H. Baker
Dows	Wright	1,142	8	60.6	-1.1	87	10	34	27	36	3.58	+0.09	1.43	0	7	13	6	11	s	G. D. Flett
Elkader	Clayton	727	27	59.8	-2.7	89	11	30	27	49	2.15	-1.69	1.25	0	4	17	0	13	nw	Chas. Reinecke
Elma	Howard					82	10				3.08		0.54	0	10	8	16	6	se	H. A. Moore
Estherville	Emmet	1,298	12	58.4	-2.3	82	*18	36	5	37	4.69	+1.46	2.20	0	8	19	0	11	s	A. O. Peterson
Fayette	Fayette	1,003	18	59.4	-2.7	88	10	30	27	36	2.77	-0.46	1.13	0	8	18	7	5	se	R. Z. Latimer
Forest City	Winneshiek	1,226	14	60.8	-1.2	88	10	38	24	38	3.60	-0.02	2.07	0	5	17	3	10	sw	J. A. Peters
Grand Meadow	Clayton	1,180	17	59.2	-2.7	80	*10	35	*26	33	2.68	-0.95	1.02	0	11	12	8	10	sw	F. L. Williams
Greene	Butler		9	61.4	-2.1	87	10	35	27	35	3.69	+0.55	1.40	0	10	5	13	12	e	J. L. Cole
Hampton	Franklin	1,155	18	62.6	-0.3	91	10	36	27	34	4.26	+0.70	1.40	0	8	9	13	8	se	E. C. Grenelle
Humboldt	Humboldt	1,095	17	61.5	-1.0	86	10	30	27	38	4.22	+1.05	1.10	0	9	17	4	9	sw	H. S. Wells
Inwood	Lyon	1,474	4	61.7		85	11	34	5	37	4.38		2.53	0	11	13	8	9	se	F. B. Hanson
Larrabee	Cherokee	1,266	17	60.1	-2.7	83	9	36	23	30	4.87	+1.45	1.20	0	11	11	13	6		H. B. Strever
Le Mars	Plymouth	1,224	12	60.6	-1.9	83	11	38	5	28	5.72	+1.94	2.25	0	12	12	10	8	se	G. A. C. Clarke
Mason City	Cerro Gordo	1,132	11	59.0	-4.0	82	10	33	27	31	3.75	+1.39	1.70	0	9	11	13	6	s	J. S. Mills
Merrill	Plymouth																			Eric Oleson
New Hampton	Chickasaw	1,169	11	59.4	-2.3	79	20	37	*23	29	2.38	-1.13	0.91	0	7	16	6	8	w	A. F. Kemman
Northwood	Worth	1,222	12	60.4	-0.4	81	*10	36	27	31	4.09	+0.74	1.23	0	10	18	4	8	nw	Charles H. Dwell
Osage	Mitchell	1,184	17	61.8	+1.8	88	10	35	27	35	3.20	-0.36	1.35	0	6	12	8	10	se	Dr. A. D. Bundy
Plover	Pocahontas	1,426	12	61.2	-1.6	87	9	35	*5	37	3.07	-1.32	0.88	0	7	19	6	5	se	J. S. Smith
Pocahontas	Pocahontas		4	60.0		86	10	38	*5	30	3.07		0.68	0	8	12	8	10	se	F. E. Hronek
Ridgeway	Winneshiek	1,215	10	62.0	-1.2	88	10	36	1	36	3.74	-0.57	1.59	0	10	16	9	5	s	Arthur Betts
Rock Rapids	Lyon	1,358	9																	W. C. Wyckoff
Sheldon	O'Brien	1,422	8	61.0	-0.5	85	*11	34	23	43	4.12	+0.43	2.10	0	10	14	8	8	s	Dr. A. W. Beach
Sibley	Osceola	1,212	15	59.0	-1.8	85	10	35	23	40	3.72	+0.35	1.95	0	10	18	3	9	se	H. G. Doolittle
Sioux Center	Sioux		9	60.4	-0.9	84	11	39	23	30	4.33	+0.65	2.23	0	11	14	9	7	se	J. de Ruyter
Storm Lake	Buena Vista	1,440	12	62.0	-0.7	84	*9	39	5	31	2.16	-0.93	0.66	0	9	14	6	10	nw	S. B. Fracker
Washta	Cherokee	1,157	10	61.2		88	10	30	24	44	2.44	-1.34	0.61	0	9	14	9	7	s	H. L. Felter
Waverly	Bremer	948	12	61.1	-1.4	83	*10	37	*24	32	2.60	-0.34	0.85	0	10	9	13	8	s	H. S. Hoover
West Bend	Palo Alto	1,197	14	60.8	-0.3	84	10	37	23	33	3.72	+0.29	1.75	0	10	13	7	10	s	Phil Dorweiler
Average				60.6	-1.5	85		35		35	3.54	+0.13		0	9	13	8	9	se	
CENTRAL SECTION																				
Amana	Iowa	721	31	62.1	-0.4	87	13	34	27	35	3.96	+0.71	3.35	0	4	15	7	8	se	Conrad Schadt
Ames	Story	926	27	61.8	-1.7	89	13	33	27	34	2.82	-0.57	1.00	0	8	13	7	10	s	Iowa State College
Audubon	Audubon	1,301	15	60.4	-2.8	85	*11	32	27	34	5.32	+2.19	1.52	0	10	13	8	9	se	Geo. E. Kellogg
Baxter	Jasper	998	8	62.3	-0.7	86	10	36	*23	39	2.20	-1.22	1.14	0	8	17	6	7	se	W. R. Vandike
Belle Plaine	Benton	828	18	62.4	-1.2	86	13	36	*24	37	1.84	-1.12	1.06	0	7	14	8	8	se	S. P. Vandike
Boone	Boone	1,134	3	61.8		84	12	41	*24	35	4.24		1.26	0	12	15	4	11		Carl Fritz Henning
Buckingham	Tama		8								2.06	-0.93	1.05	0	5	18	7	5		Dr. W. A. Daniels
Carroll	Carroll	1,265	18	60.6	-2.4	87	9	38	*22	37	5.23	+2.34	1.59	0	9	15	4	11	se	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	26	62.6	-1.4	88	*12	38	*27	42	3.91	+1.09	2.56	0	4	13	8	9	se	Electric Light & P. Co.
Clinton	Clinton	593	40	61.8	-1.5	90	13	32	30	37	2.27	-1.04	0.60	0	8	11	15	4	e	Luke Roberts
Davenport	Scott	580	36	63.6	-1.1	91	13	40	27	30	1.50	-1.64	0.76	0	7	17	4	9	e	Weather Bureau
Delaware	Delaware	1,083	17	60.4	-1.4	82	20	36	27	36	2.86	-0.41	1.18	0	7	15	10	5	se, s	Wm. Ball
Denison	Crawford	1,180	13	62.4	-1.3	88	3	34	24	36	4.43	+1.43	0.98	0	13	17	7	6	s	W. C. Van Ness
Des Moines	Polk	861	29	63.8	-1.2	89	12	41	27	34	2.06	-1.01	0.56	0	9	10	9	11	se	Weather Bureau
De Soto	Dallas	866	8	64.8	+0.2	92	12	34	27	42	3.39	+0.30	1.39	0	8	18	2	10	sw	R. D. Minard
Dubuque	Dubuque	639	35	62.2	-1.4	87	13	36	27	32	4.28	+0.69	3.25	0	9	15	6	9	s	Weather Bureau
Fort Dodge	Webster	1,126	8	61.7	-0.9	91	10	37	27	43	3.73	-0.84	1.27	0	6	16	1	13	sw	J. F. Monk
Gilman	Marshall	1,052	9								1.39	-1.51	0.44	0	6					Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	64.2	+0.4	89	13	36	27	39	1.86	-0.49	0.70	0	9	11	9	10	s	D. W. Brainard
Grunder Center	Grundy	976	17	62.8	-0.3	88	10	31	30	40	3.87	+0.62	2.20	0	8					J. B. Calderwood
Guthrie Center	Guthrie	1,077	13	63.0	-0.9	86	*11	36	27	31	4.33	+1.24	1.36	0	11	16	6	8	se	D. G. Beardsley
Harlan	Shelby	1,192	9	62.2	-0.8	87	11	36	23	36	7.19	+3.48	1.55	0	10	11	11	8	se	C. A. Reynolds
Independence	Buchanan	921	43	61.3	-0.4	85	10	35	27	35	2.44	-1.51	1.35	0	7	17	7	6	se	George Donohoe
Iowa City	Johnson	683	49	62.2	-1.4	88	13	33	27	39	2.43	-1.32	1.35	0	7	18	2	10	se	Arthur G. Smith
Iowa Falls	Hardin	1,170	15	59.8	-1.8	85	*10	33	27	43	2.63	-0.34	1.27	0	6	16	2	12	se	J. B. Parmelee
Jefferson	Greene			64.2		88	*10	36	27	39			1.72	0						Geo. W. Jackson
Le Claire	Scott	576									2.03	-1.75	0.49	0	8					Margaret T. Disney
Little Sioux	Harrison		4	65.0		92	12	35	24	41	4.62		1.50	0	13	13	8	9	se	Geo. H. Gibson
Logan	Harrison	928	42	63.9	-0.2	89	11	37	24	41	6.16	+2.91	1.39	0	12	11	14	5		

CLIMATOLOGICAL DATA FOR IOWA, SEPTEMBER, 1909—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	Number clear days	Number partly cloudy days			Number cloudy days
SOUTHERN SECTION																				
Afton	Union	1,212	14	63.8	-1.3	90	12	38	27	32	2.78	-0.87	1.01	0	8	11	11	8	sw	N. W. Rowell
Albia	Monroe	959	10	62.7	-2.1	88	12	38	*27	37	3.63	+0.07	0.84	0	11	14	5	11	sw	J. I. Chenoweth
Allerton	Wayne	6	6	85.0	-0.3	90	12	39	27	32	4.56	-0.15	1.50	0	10	19	3	8	nw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	17	64.2	-0.2	91	12	37	27	36	6.03	+2.54	1.54	0	11	12	3	15	sw	Thos. H. Whitney
Bedford	Taylor	8	8	65.0	+0.4	92	12	35	*23	39	5.53	+2.09	1.25	0	12	18	4	8	se	E. E. Healy
Bloomfield	Davis	66.7	93	10	36	27	46	3.55	.....	1.54	0	7	13	8	9	9	se	C. R. Davis		
Bonaparte	Van Buren	17	17	64.4	-3.0	94	13	37	27	32	3.26	-0.78	1.59	0	8	.....	.....	.....	.....	Hon. B. R. Vale
Burlington	Des Moines	544	12	64.4	-1.8	91	*12	39	27	41	4.47	+1.35	1.91	0	10	20	1	9	s	M. E. Poppe, Jr.
Chariton	Lucas	1,042	13	63.6	-1.9	90	12	37	*23	36	3.97	+0.53	0.95	0	8	16	5	9	se	C. C. Burr
Clarinda	Page	1,009	18	64.4	-1.8	94	12	35	27	43	5.59	+2.90	1.17	0	13	19	1	10	ne	A. S. Van Sandt
Columbus Junction	Louisa	595	7	63.8	-1.7	90	13	37	27	33	2.39	-0.76	1.16	0	6	23	4	3	se	J. B. Johnston
Corning	Adams	1,117	16	63.4	-1.4	90	12	37	27	35	5.12	+2.16	1.55	0	7	14	8	8	se	Jerome Smith
Corydon	Wayne	1,101	15	65.2	-1.3	90	12	39	27	33	4.99	+1.40	2.50	0	10	18	4	8	se	Clara Miller
Creston	Union	1,312	3	63.2	.....	92	12	36	*24	39	4.25	.....	1.02	0	11	16	2	12	se	E. S. Stovall
Cumberland	Cass	9	9	.....	.....	.....	.....	.....	.....	4.14	+0.50	1.20	0	11	22	3	5	sw	J. H. Reppert	
Earlham	Madison	6	6	63.0	+0.9	90	12	32	27	36	4.33	+0.54	2.17	0	7	19	1	10	se	Geo. Phillips
Elliott	Montgomery	3	3	64.0	.....	90	12	35	27	35	5.03	.....	1.85	0	9	14	10	6	se	Henry Barnes
Fairfield	Jefferson	14	14	64.4	+0.4	b94	13	b34	27	b41	2.17	-1.30	1.40	0	9	17	6	7	sw, w	R. Monroe McKenzie
Fort Madison	Lee	516	59	.....	.....	.....	.....	.....	.....	4.24	+0.43	1.82	0	6	14	6	10	s	Miss L. A. McCready	
Greenfield	Adair	17	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Geo. Brooks
Hancock	Pottawattamie	1,113	27	64.4	.....	91	12	38	24	36	4.90	.....	1.50	0	8	14	10	6	se	G. C. Rogers
Hopeville	Clarke	17	17	64.1	-2.3	89	13	37	27	33	1.83	-1.66	0.61	0	7	12	12	6	s	M. T. Ashley
Indianola	Warren	969	17	64.2	-1.3	90	12	41	27	33	2.74	-0.36	0.99	0	8	12	9	9	se	Prof. J. L. Tilton
Keokuk	Lee	574	37	65.7	-0.7	93	13	42	27	29	3.46	-0.51	2.08	0	9	15	6	9	se	Weather Bureau
Keosauqua	Van Buren	644	16	63.4	-3.5	93	13	34	27	43	3.14	-1.26	1.04	0	12	13	7	10	.....	J. H. Landes
Knoxville	Marion	920	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Casey & Bellville
Lacona	Warren	9	9	.....	.....	.....	.....	.....	.....	3.21	-0.62	1.00	0	7	13	10	7	.....	.....	Agent C. B. & Q. Ry.
Lamoni	Decatur	.....	.....	64.2	.....	90	12	38	27	31	5.75	.....	1.57	0	10	17	0	13	se	T. J. Fitzpatrick
Lenox	Taylor	1,250	13	63.5	-1.8	90	12	39	*23	47	3.71	+0.38	1.00	0	8	21	4	5	s	J. L. Hurley
Leon	Decatur	1,120	6	64.4	-0.4	90	12	38	27	31	4.65	-0.15	2.05	0	9	12	9	9	s	Morris Gardner
Massena	Cass	3	3	62.5	.....	94	12	33	*25	38	5.23	.....	1.42	0	8	16	3	11	se	C. E. Smeltzer
Mt. Ayr	Ringgold	1,236	15	65.8	-0.9	93	12	39	27	35	4.30	+0.77	1.25	0	11	12	8	10	e	A. F. Beard
Mt. Pleasant	Henry	729	26	63.7	-1.3	89	*13	38	27	30	2.27	-1.41	0.94	0	7	17	7	6	sw	Prof. J. W. Edwards
Omaha, Neb.	Douglas	1,040	38	65.6	-0.2	93	12	46	24	35	5.25	+2.22	1.51	0	11	12	8	10	se	Weather Bureau
Oskaloosa	Mahaska	843	24	63.2	-1.3	85	12	37	27	32	3.73	+0.70	0.93	0	9	18	0	12	se	Jos. Boyd
Ottumwa	Wapello	649	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. Jas. A. Hull
Pacific Junction	Mills	969	9	63.6	-0.9	92	12	35	24	41	5.88	+2.42	2.51	0	8	12	13	5	s	H. H. McCartney
Pella	Marion	877	6	62.8	-3.6	88	11	32	27	38	1.70	-0.80	0.56	0	7	.....	.....	.....	.....	John H. Ver Steeg
St. Charles	Madison	1,070	7	64.8	-0.6	93	12	41	27	32	2.29	-1.35	0.58	0	6	18	4	8	se	R. D. Minard
Sigourney	Keokuk	877	12	64.0	-1.6	89	13	38	27	32	4.03	+1.01	2.22	0	6	9	17	4	.....	J. T. Parker
Stockport	Van Buren	6	6	63.7	.....	90	13	31	27	43	3.13	-1.11	1.09	0	9	16	3	11	se	C. L. Beswick
Thurman	Fremont	11	11	64.6	-1.2	92	12	37	27	36	7.34	+2.55	1.63	0	11	10	12	8	.....	C. R. Paul
Wapello	Louisa	588	10	64.6	-1.1	90	13	40	27	33	2.33	-1.11	0.78	0	7	19	6	5	.....	Geo. W. Schofield
Washington	Washington	769	27	63.4	-1.2	89	13	37	27	35	3.67	+0.99	2.35	0	8	11	15	4	.....	Wm. A. Cook
Winterset	Madison	1,129	17	64.4	-1.2	90	12	40	27	30	2.74	-0.62	0.75	0	8	4	15	11	se	Dr. Robert S. Cooper
Woodburn	Clarke	961	9	62.0	.....	91	12	33	30	44	3.61	-0.39	1.00	0	9	13	7	10	se	C. B. McDonough
Average	.....	.....	.....	64.1	-1.4	91	.....	37	.....	36	3.98	+0.41	.....	0	9	15	7	8	se	.....
State average	.....	.....	.....	62.4	-1.3	88	.....	36	.....	36	3.58	+0.17	.....	.....	9	14	8	8	se	.....

* And other dates. a one day missing, b two days; c three days, etc. † Received too late to be included in average.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR THE MONTH OF SEPTEMBER, 1909—CONTINUED

Table with columns for stations (Oskaloosa, Pacific Junction, Pella, etc.) and rows for days (1-31) and monthly means. Each cell contains maximum and minimum temperature values.

RELATED REPORTS.

AMES.—August, 1909: Mean temperature, 76.2°; maximum temperature and date, 97° on the 14th; minimum temperature and date, 44° on the 30th; greatest daily range of temperature, 42°; precipitation, total, 0.52 inch; greatest in 24 hours, .23 inch on the 22d; days with, 5; number of days clear, 21; partly cloudy, 7; cloudy, 3.

FOREST CITY.—August, 1909: Mean temperature, 74.8°; maximum and date, 94° on the 11th, 25th and 26th; minimum temperature, 43° on the 29th; greatest daily range of temperature, 32°; precipitation, total, 2.81 inches; greatest in 24 hours, 1.55 on the 13th and 14th; days with, 6; number of days clear, 25; partly cloudy, 0; cloudy, 6.

ERRATA.

LAMONI.—May, 1909: Total precipitation, published 4.63 inches, should be 4.72 inches.

WOODBURN.—May, 1909: Maximum temperature and date, published 80° on the 5th, should be 84° on the 29th.

THUNDER STORMS—STATIONS AND DATES.

NORTHERN SECTION.

Table listing stations in the Northern Section (Albion, Alta, Alton, etc.) and the dates of thunderstorms for each.

CENTRAL SECTION.

Table listing stations in the Central Section (Amana, Audubon, Baxter, etc.) and the dates of thunderstorms for each.

SOUTHERN SECTION.

Table listing stations in the Southern Section (Albia, Allerton, Atlantic, etc.) and the dates of thunderstorms for each.

DAILY PRECIPITATION FOR IOWA, SEPTEMBER, 1909

STATIONS	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					
Afton	1.01					.59	.05					.07	.24	.40									.34	.08									2.78		
Albia	T	.82	.02			.10	.30			.61	.04			.48	.84	.25						.07	.10										3.63		
Algona		.23	.05									.47	1.88	.09	.93						.30	T	.60	.16	T								4.71		
Allerton	T	.45	.15			.50	.06	1.13	.01				.34	.10	1.50								.32										4.56		
Alta		.19	.12		T	.05	.02		.01			.18	.50	.14	.28	.17					.10		.13	.23		.03							2.15		
Alta (near)		.35	.06	T	.02	.07						.40	.32	.11	.43						.10	.10	.12	.08									2.16		
Alton	T	.42	.04	.08	T	T						.56	2.20	.22	.25						T	.43	T	.18	T	.04							4.42		
Amana		.53		T				.08					T	.70	2.65								T	T		T	T						3.96		
Ames		.16	T	.03		.08			T			.15	.22	1.00	1.00						T	T		.18	T								2.82		
Atlantic	1.07	.55		.05		.48	T					.31	.27	.60	1.54								1.05	.09	.02								6.03		
Audubon		.42		.06		.25	.01					.12	1.10	.52	1.52								1.27	.05									5.32		
Baxter		.34	.01	T		.07		T	T			.01	.53	1.14								.05		.05	T								2.20		
Bedford		.12	.75		.29		.79	.12	.04	.89				1.25	.18							.01		1.05	.04								5.53		
Belle Plaine		.52	T			T		.02	.08				.11	.02	1.06							T		.03									1.84		
Bloomfield		.70		.08		.42		.48	.02					1.54									.21		.18								3.55		
Bonaparte		.80		.03		.20		.22	.03					1.59									.21		.18								3.26		
Boone		T	.35	T		.06	.20		T	.13		.19	1.24	1.26	.08						.02	T	.02	.65	T	.04							4.24		
Britt	T	.17	.05	T				.03				.33	1.16	.07	.95						.08	T	.02	.68	.18								3.70		
Buckingham		.36												1.05	.50							.05												2.06	
Burlington		.78	T	.01	.03	.10	.08	.20	T					1.91	.73								T	.44	.19									4.47	
Carroll		.30			.22	.26						.66	1.59	.73	.10						12		1.25											5.23	
Cedar Rapids		.50	T	T				T	T			T	.09	2.56	.76								T	T	T								3.91		
Chariton	.92			T		.53		.45	.24				.33	.40	.95								.15											3.97	
Charles City		.55	.03					.04				.14	.33	.30	1.64							T	.08	T	.01									3.12	
Clarinda	T	.90	.27	.18		.36	.04	.57	.12	.82	.02		1.00	.56									.67			.08								5.59	
Clear Lake		.33						.40	.60	.40			.18	1.20									1.40	.03										4.54	
Clinton		.50				.22	.02	.02				.08	.30	.60									.25	.30	T									2.27	
Columbus Jct		.78		T		T	.05	.19	.01				T	1.16								T	.20											2.39	
Corning	.70	.82		T		.48	.11	T	T				1.55	.39									1.07	T										5.12	
Corydon		.86		.09		.57	.01	.27	.42			.08	2.00	.59								T		.19	T									4.99	
Creston		.23	.04	1.02	.06	.10	.46	T	.02	T			1.01	.29									.97			.05								4.25	
Cumberland		.15	.18	.12		.17	.21	.23	.26			1.20	.87										.74	.01										4.14	
Davenport		.27		T		T		.03	T				.04	.07	.69							T	.25	.15										1.50	
Decorah			.62					.07				.05	1.08	.65	.70																			3.17	
Delaware		.56	.03					T	.07			.13	.40	.98	.47								.15											2.86	
Denison		.42	.02	.05		.36						T	.16	.35	.34							.53	.02	.88	.04	.13								4.43	
Des Moines		.56		T		.35		T	.02			T	.05	1.39	.52							T	T	.22	.03	.03								2.06	
De Soto		.55		.02		.45		T	.01			T	.05	1.39	.52								.40											3.39	
Dows		.11	.08									.43	.25	.85	1.43								.43											3.58	
Dubuque		.35		T				.21	.03			T	.15	3.02	.45								.01	.01	.05									4.28	
Earlham		.57		.11		.47			T			T	.12	2.17	.45								.44											4.33	
Elkader		.57				.08		.08				.25		1.25									T											2.15	
Elliott		.90		.10		.43						.18	.98	1.85									.40	.11										5.03	
Elma		.54	.50	T		.02	.02		.35	.35	.42	.33		.20	.20	.12						T	T	.20	1.10									4.69	
Estherville	T	.38	T	T				T				.15	2.20		.20	.12						.34	.20	1.10										4.69	
Fairfield		.02				.14	.02	.29	.01				.01	1.40									.07	.21											2.17
Fayette		.80	.04			.10		.10				T	.03	.60	1.13								.04	T	.03										2.77
Forest City		.55	T					T					2.07	.06	.85	.07						T													3.60
Fort Dodge	T	.16				T	T	T	T				.73	1.27	1.05							.06		.46										3.73	
Ft. Madison		.36				.18		.25	T				1.15	1.82									T	.48											4.24
Gilman		.38		T				.08	T			T	.20	.22	.44								T	.07											1.39
Grand Meadow		.54	.10					.10	T			.02	.22	.55	1.02	.02							.03	.05	.03										2.68
Greene		.51	.10			.05	.02		.13	.30	.96	1.40											.05	.07											3.69
Grinnell		.64				.05		.06	.10			T	.05	.14	.70								.05	.07											1.86
Grundy Center		.25	.07	T				.05	T				T	2.20	.90									.10	.05	.25									3.87
Guthrie Center		.45	.03			.35	.01		.01			.08	.33	1.25	1.36								T	T	.42	.04									4.33
Hampton		.23	.03					.05				1.40	.13	.97	1.35								.10												4.26
Hancock		.52	.80		T	.60		T				.30	T	1.50	1.18							T	T	.50	.10										4.90
Harlan	1.55	.62		.03		.47	T	T				.19	1.26	1.08	1.15							T	.81	.03	T									7.19	
Hopeville	.08					.61		.13					.21	.44									.02		.34	T									1.83
Humboldt		.22	.06					.01				1.10	.52	.80	1.05								.10		.36										4.22
Independence		.23	.04			.18		.07					.07	.55	1.35									.02											2.44
Indianola		.68		.02		.47	T	.01				.01	.43	.99									.13												2.74
Inwood		.61	.03		.01	T		T	.21			.13	2.53	.05	.03							.56	.09	.13										4.38	
Iowa City			.56					.09					.03	.60	1.13								.12	T	.04										2.43
Iowa Falls			.24	T	T																														

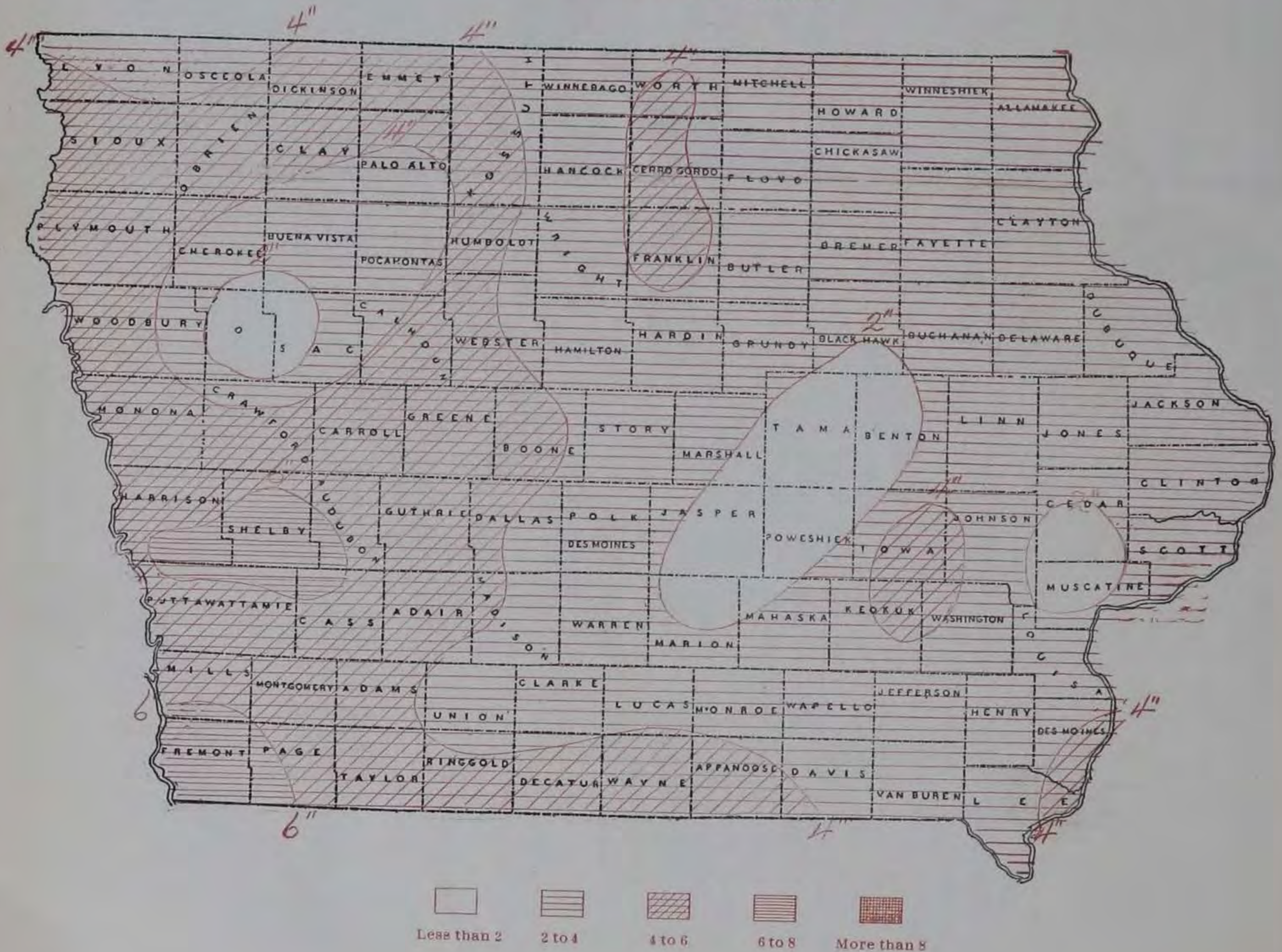
MONTHLY REVIEW OF THE

DAILY PRECIPITATION FOR IOWA, SEPTEMBER, 1909—Continued

STATIONS	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				
Sibley	.04	.47				.02					.15	1.95	.14	.07	.15					.42			.31										3.72	
Sigourney	.82		T		.16		.73	T			.18	2.23	.22	T	2.22							.04		T									4.03	
Sioux Center	.72	.04	.03	T		T				.04		.37	.14	.40	.08					.05	.58		.18		.06								4.33	
Sioux City	T	.48		T	.01	.21		T	.01											.27		T	.02		T								1.99	
Stockport	.75	.19	.03			.07		.75	.05			.66	.24	.10	.30							.13	T	.07									3.13	
Storm Lake	.28		T	T								.08	T	1.63	1.12							.04	.47		.02								2.16	
Thurman	1.17		.15			1.59	T	.32	.37																								7.34	
Tipton	.41							T	T														.83	.08									2.33	
Wapello	.29							.30	.07					.66	.78								.10	.13									1.51	
Washington	.67					.02		.12				.15	.03	2.35									.10	.13									2.33	
Washta	.40					.10						.47	.17	.12	.21						.18		.15	.18									3.67	
Waterloo	.46	T						.03	.05			.05	.13	.94	.33							.61	.18										2.44	
Waukeo	.44	T	.02	.30				.02	T			.02	.30	1.07	.45								T	.02	T	.07							2.08	
Waverly	.44	.04	.02					.05	.01			.17	.17	.85	.81									.27	.06								2.95	
Webster City	.15							T				.31	.26	1.07	1.24										.04								2.60	
West Bend	.18	.05	T					T	T	.58	1.17	.13	.67								T		.84										3.87	
Whitten	.32	T	T					T	T			T	T	1.80	.62						.11	.03	.60	.20	T							3.72		
Wilton Junction	.42													.56	.50								T	T	T								2.74	
Winterset	.75		.02	T	.45			.1	.03			T	.05	.62	.40																		1.48	
Woodburn	T	.70	.06			.46	.02	.15	.28			T	.71	1.00								T	T	.42									2.74	
Zearing	.21		.05									.10	2.05	1.07										.23	T								3.61	
																																		3.48

TOTAL PRECIPITATION, SEPTEMBER, 1909.

SCALE OF SHADES—IN INCHES



U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR OCTOBER, 1909

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

DES MOINES, IOWA
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1909

NOV 30 1909

THE IOWA WEATHER AND CROP SERVICE

WAS ESTABLISHED BY ACT OF THE TWENTY-THIRD GENERAL ASSEMBLY, AND IS UNDER SUPERVISION
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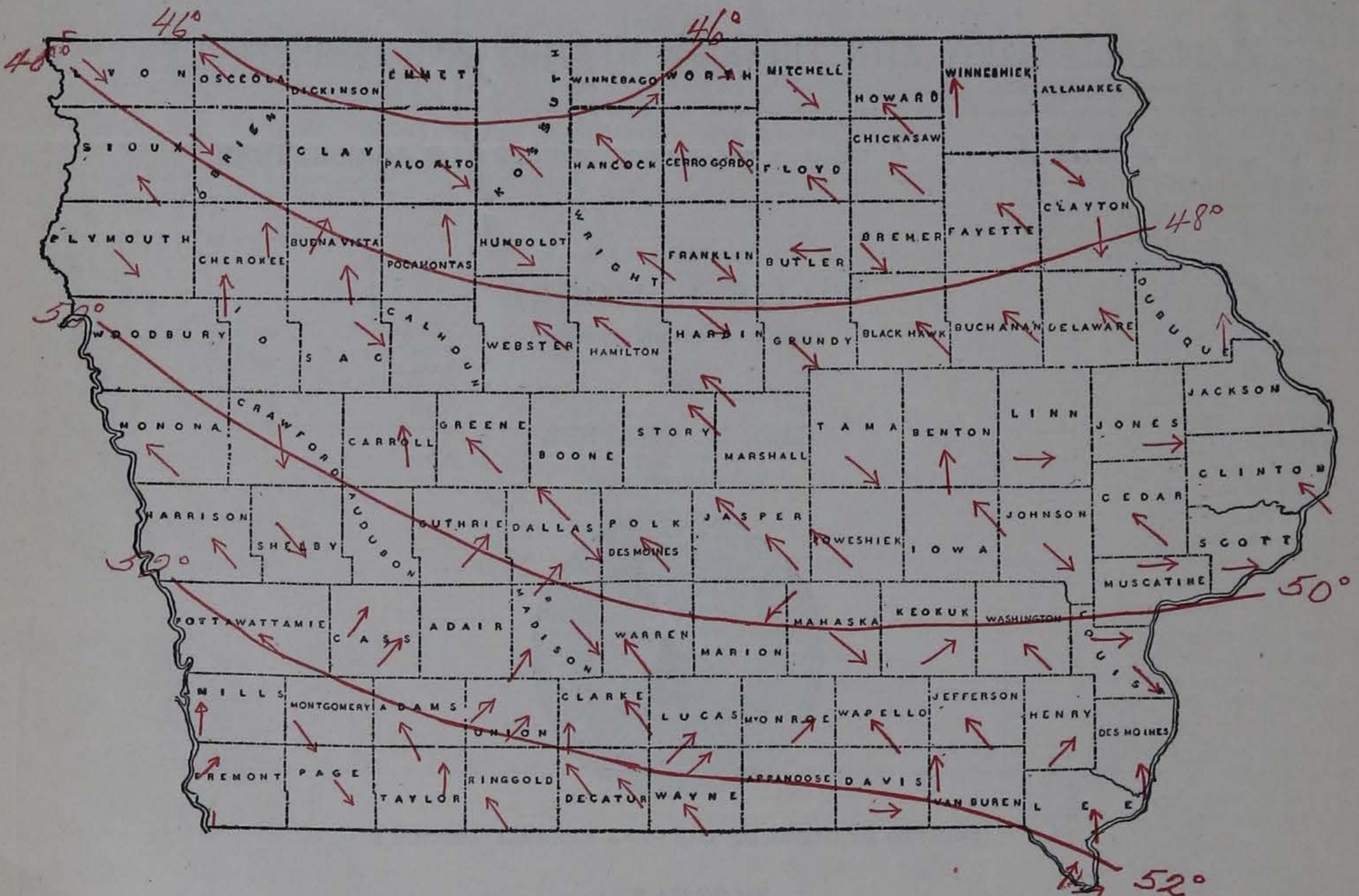
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MEAN ISOTHERMS AND PREVAILING WINDS OF OCTOBER, 1909.

Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
GEO. M. CHAPPEL, Section Director.

VOL. XX DES MOINES, IOWA, OCT., 1909 No. 10

The mean temperature for the month was slightly below the normal; the average daily deficiency ranged from 2.2 degrees in the northern districts to 2.3 degrees in the southern districts. The warmest periods of the month were between the 1st and the 9th and between the 29th and 31st, when the maximum temperatures ranged from 70 to 89 degrees in the northern, and from 75 to 95 degrees in the southern districts; the highest occurring generally on the 2d, but at many stations the maximum for the month occurred on the 3d, 4th, 6th, 7th or 8th. The coolest period was between the 10th and 20th; the lowest temperature occurred on the 12th or the 13th, except over the extreme northern and northeastern counties where it occurred on the 28th. During the past 19 years, there have been five cooler Octobers, but there are no records of as low temperature during the first 15 days of October as was registered this month on the 12th and 13th, when the minimum temperatures ranged from 10 to 20 degrees over the northern and from 15 to 23 degrees over the southern counties. The ground was frozen to such an extent that potatoes remaining in the ground were considerably damaged. Cabbage and turnips were also injured, and over the southern portion of the state, many thousand bushels of apples were frozen on the trees. As there had been no killing frost or freezing temperatures previously to the 12th, much of the vegetation was still green; and corn, though ripe, was not dry enough to withstand such a severe freeze without injury to its germinating qualities. The leaves fell from the trees soon after the freeze without their usual fall coloring.

The precipitation was generally below the normal over the northern two-thirds of the state and slightly above the normal over the southern third. There was no rain between the first and seventh, but from the 8th to the 12th the rainfall was general and was mixed with light snow flurries on the 11th and 12th, which is much earlier than usual for the first snow of the season. From the 13th to the 19th, there were only a few scattered and generally light showers, but from the 20th to the 23d and on the afternoon and evening of the 31st the rainfall was again quite general. Between the 24th and the 30th the weather was generally clear and pleasant. While the rainfall was below normal, there has been enough moisture for the growth of winter wheat and for fall plowing, but not enough to have any material effect on the stage of streams and ponds which are low. Corn husking was begun about the middle of the month but reports indicate that there is still too much moisture in the ears to warrant its being cribbed in large quantities. A great deal of care should be taken in selecting and caring for the seed corn, or next year's crop will show a very poor stand.

TEMPERATURE.—The monthly mean temperature for the state, as shown by the records of 114 stations, was 49.7°, which is 2.2° below the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 47.9°, which is 2.2° below the normal; Central section 49.7° which is 2.1° below the normal; Southern

section 51.5°, which is 2.3° below the normal. The highest monthly mean was 57.8°, at Mt. Pleasant, Henry county, and the lowest monthly mean 42.6°, at Elkader, Clayton county. The highest temperature reported was 97°, at Bloomfield, Davis county, on the 2d; the lowest temperature reported was 10°, at Washta, Cherokee county, on the 13th. The average monthly maximum was 85°, and the average monthly minimum was 18°. The greatest daily range was 54°, at Iowa Falls, Hardin county. The average of the greatest daily ranges was 40°.

PRECIPITATION.—The average precipitation for the state, as shown by the records of 118 stations, was 2.22 inches, which is 0.13 inch below the normal. By sections the averages were as follows: Northern section, 1.71 inches, which is 0.56 inch below the normal; Central section, 2.08 inches, which is 0.36 inch below the normal; Southern section, 2.87 inches, which is 0.52 above the normal. The greatest amount, 4.70 inches, occurred at Cumberland, Cass county, and the least, 0.48 inch, at Independence, Buchanan county. The greatest amount in twenty-four hours, 2.33 inches, occurred at St. Charles, Madison county, on the 9th. Measurable precipitation occurred on an average of 6 days.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 16; partly cloudy, 6; cloudy, 9. The duration of sunshine was slightly below the normal, the percentage of the possible amount being 68 at Charles City; 66 at Davenport; 59 at Des Moines; 58 at Dubuque; 55 at Keokuk, and 56 at Sioux City.

WIND.—Southeast winds prevailed. The highest velocity reported was 49 miles per hour from the north at Sioux City, Woodbury county, on the 11th.

The average snowfall was a trace, and the greatest amount in 24 hours, 0.5 inch at Estherville, Emmet county, on the 12th, and also at Keokuk, Lee county.

COMPARATIVE DATA FOR THE STATE—OCTOBER.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	49.2	86	16	3.48	6.82	1.59
1891.....	50.0	92	19	2.77	6.53	.85
1892.....	54.5	96	14	1.55	2.58	.00
1893.....	52.4	94	10	1.28	4.56	.02
1894.....	51.7	90	20	2.67	5.25	.63
1895.....	46.0	88	4	.47	1.38	.00
1896.....	47.9	88	12	3.13	5.05	1.51
1897.....	56.8	97	12	1.14	3.30	.03
1898.....	47.5	88	17	3.56	5.75	1.27
1899.....	56.7	95	17	1.73	4.64	.15
1900.....	59.3	90	21	3.91	8.00	1.20
1901.....	54.2	88	20	1.98	4.23	.45
1902.....	53.5	83	20	2.54	6.66	.28
1903.....	52.2	90	16	1.95	4.50	.32
1904.....	53.1	96	16	1.67	4.43	.14
1905.....	49.2	95	16	3.40	5.36	1.20
1906.....	50.5	87	7	1.96	4.25	.50
1907.....	50.4	85	10	1.50	3.71	.30
1908.....	51.1	89	17	3.38	8.83	.58
1909.....	49.7	97	10	2.22	4.70	.48

ATMOSPHERIC PRESSURE AND WIND.
Mean Barometer for the month reduced to sea level, 30.06 inches.
Prevailing direction of Wind, Southeast.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum Velocity—miles	Direction	Date	Average Hourly Velocity
Charles City..	30.06	30.61	?	29.61	10	5588	26	?	?	7.5
Davenport..	30.07	30.61	19	29.62	11	5955	34	NW	21	8.0
Des Moines..	30.04	30.56	18	29.66	31	6168	33	NW	11	8.3
Dubuque....	30.08	30.67	19	29.59	11	4752	24	NW	11	6.4
Keokuk.....	30.09	30.58	19	29.72	11	5688	30	NW	?	7.6
Omaha.....	30.04	30.56	18	29.59	31	6372	33	NW	11	8.6
Sioux City..	30.04	30.62	18	29.62	31	9918	49	N	11	13.3

OBSERVERS' REMARKS

AFTON.—*N. W. Rowell*. October did not give the usual amount of fair weather.

ALBIA.—*J. I. Chenoweth*. There was no frost until the 12th but on the 13th the temperature went down to 19°, doing great damage to apples on the trees.

ALGONA.—*Dr. F. T. Seeley*. There was a fine auroral display on the night of the 19th-20th. October has been a very good month for field work.

ALTA.—*David E. Hadden*. Compared with the average of the preceding 19 years the month was 1.6° cooler and the precipitation was 1.07 inches below the normal. It was, however, an ideal October; the first killing frost of the season occurred on the 12th and the first snow flurries were observed on the same day.

ALTON.—*W. S. Slagle*. The first killing frost occurred on the 12th but did no injury to corn. The month was fine for farm work. Pastures are in good condition.

AMANA.—*C. Schadt*. The first frost of the season, which was a killing one, occurred on the 12th. A bright aurora was observed on the evening and night of the 18th.

ATLANTIC.—*Thos. H. Whitney*. The cold spell beginning on the 12th destroyed a large per cent of the apple crop and damaged potatoes near the surface of the ground.

BAXTER.—*W. R. Vandike*. The temperature was down to 15° on the morning of the 13th and was the lowest on record for that early in October.

BEDFORD.—*E. E. Healy*. The first snow of the season fell on the 16th.

BONAPARTE.—*B. R. Vale*. With the exception of the freeze from the 12th to the 14th, October was a seasonable month as to temperature and rainfall. Corn husking has been in progress during the last ten days.

BOONE.—*Carl Fritz Henning*. A severe electrical storm occurred on the night of the 9th, during which a \$10,000 residence was struck by lightning and burned to the ground. The ground was covered with snow on the evening of the 11th and scattering snow flakes fell on the 12th. During the night of the 12th the ground froze hard enough to hold up a team of horses and a wagon on rough ground.

BRITT.—*Geo. P. Hardwick*. The first killing frost occurred on the 11th and the freeze from the 11th to the 14th not only killed the foliage on the trees but froze the corn sufficiently to kill the germ. The month, however, was very fine for farm operations.

CHARITON.—*C. C. Burr*. Corn is a poor crop and still too heavy to put in crib. A large per cent of the apple crop was frozen on the trees, on the 13th and ruined. Stock looks well, but pasturage is getting short.

CLINTON.—*Luke Roberts*. The first nine and the last two days were mild but the remainder of the month was cold with freezing temperature on most of the days, but for out-of-door work the month was quite favorable.

CRESTON.—*Edgar Stovall*. The month was generally cold with a hard freeze on the 13th and 14th.

DAVENPORT.—*J. M. Sherier*. The first freezing temperature of the season, 27°, occurred on the 12th, though no frost was observed on that date. Killing frost, with a minimum temperature of 23°, occurred on the 13th. Very light snow flurries were observed on the 11th and 12th. The temperature was continuously above the average from the 2d to the 9th, inclusive, and was below the normal from the 10th to the 20th inclusive, with the greatest departures, —25° and —22° on the 12th and 13th respectively. The rainfall amounted to 0.01 inch or more, on but six days.

DURUQUE.—*J. H. Spencer*. The first killing frost of autumn occurred on the morning of the 12th. There was no white frost, but a temperature of 29° killed all tender vegetation. The ground at 7 a. m. of the 12th was thinly covered with snow. With the exception of October 9th and 10th, 1906, when snow flurries occurred this is the only October snowfall at this station since 1898. The 12th, with an average temperature of 32°, was the coldest day here during the first 15 days of October since the station was established in 1873. It was the coldest October at this station in 13 years, and the daily mean temperature was above normal only on eight days.

ELLIOTT.—*Henry Barnes*. October was a fairly good month for farm work. Corn gathering begun with yield fully up to expectations, 35 bushels per acre on old ground to 70 on new or sod ground.

FOREST CITY.—*J. A. Peters*. October was a beautiful autumn month. There has been considerable corn put in cribs and the corn in fields is in good condition for cribbing. The first killing frost occurred on the 12th.

INWOOD.—*F. B. Hanson*. The first killing frost of the season occurred on the 12th. On the 13th the temperature fell to 12° which is much lower than usual for the time of the year. The temperature since has been low. Some potatoes and vegetables were damaged by the early freeze. Corn husking has begun with variable yields. Corn is not very dry and its keeping quality is doubtful.

KEOSAUQUA.—*J. H. Landes*. October was a fine fall month. Corn is being cribbed. The first killing frost, on the 12th, was severe, the minimum temperature being 20°, and as a result, hundreds of bushels of unpicked apples were frozen.

KEOKUK.—*Fred Z. Gozewisch*. The precipitation has been sufficient for the growth of wheat and both wheat and fall pastures are looking well, although streams and ponds are low. The low temperature of the 13th damaged the apple crop, which was yet in the orchards, to some extent. On the whole the month, although somewhat cool, has been favorable for agriculture.

LAMONI.—*Prof. T. J. Fitzpatrick*. October was a month of contrasts. There were 15 clear days, 15 cloudy and one partly cloudy day. There were warm days and cold days. There was drouth and moisture, but all in all it was a month of decent fall weather. The freeze was so hard on the 13th that the leaves soon fell and without their usual fall coloring.

LARRABEE.—*H. B. Strever*. Corn was killed by frost on the 12th and badly frozen on the 13th with practically no seed corn saved.

LITTLE SIOUX.—*Geo. H. Gibson*. The auroral display on the 18th was the finest seen here in many years.

MASSENA.—*C. E. Smeltzer*. Corn husking is under full progress. Some pieces are yielding as high as 65 bushels per acre and the yield generally is better than was expected.

Mt. AYR.—*A. F. Beard*. Ice that formed in tubs, etc., on the nights of the 11th and 12th did not thaw out during the following days.

OLIN.—*C. M. Miles*. October was a very fine month with plenty of rain for fall plowing. Corn husking began about the 12th and the yield will average in this vicinity about 50 bushels per acre.

PELLA.—*John H. Ver Steeg*. The first killing frost occurred on the 12th, with a quarter of an inch of snow on the same date. The last three days of the month were quite warm.

SHELDON.—*Dr. A. W. Beach*. October was a great month for fall work on the farm. The first frost being delayed until the 12th of the month, corn planted as late as the 10th of June was fully matured and a big crop of corn is being gathered. About one-third of the crop has been gathered. The hard freeze on the 13th spoiled about 5,000 bushels of potatoes in this vicinity.

SIOUX CITY.—*C. D. Reed*. There was a decided cold wave for the season on the 11th, 12th and 13th. The minimum for the month was 17°, on the 13th. This is the lowest temperature in 20 years to occur so early in October. The ground was frozen to such an extent that potatoes remaining in the ground were considerably damaged. Cabbage and turnips were also greatly injured. The first killing freeze of the season was on the 12th, though no frost was deposited on that date because of the brisk to high wind. Snow flurries preceded this freeze on the 11th. It is rare at this station, that snow flurries precede the first killing frost or freeze of autumn. Beginning about 7 p. m. of the 18th the aurora borealis began to show as a slowly increasing white light in the northern sky, having something of the appearance of the eastern sky at the rising of the full moon. By 7:30 p. m. well defined streamers began to shoot upward and by 10 p. m. some of them had reached an altitude of 45° to 50°. The brightest display was slightly to the east of north. By 11:30 p. m. no streamers remained and by midnight the display had faded away. Colors were not visible at any time and there was no noticeable arch or crown of light.

STOCKPORT.—*C. L. Beswick*. Very little fall plowing was possible until the last decade. Corn gathering is in progress at the close of the month with yield above expectations. Pastures are only fair but stock is generally in good condition.

WASHTA.—*H. L. Fetter*. Considerable of the winter apple crop was frozen on the trees between the 10th and 13th. There was a heavy thunder storm on the last day of the month.

WAUKEE.—*Samuel F. Foft*. Farmers are beginning to gather corn but it is a little too damp yet although the quality is fair to good and the yield will average only five bushels less than the crop of 1908. It is not often that leaves and vegetables are killed by such a hard freeze as on the 13th, before being even nipped by a frost.

WEST BEND.—*Phil. Dorweiler*. The month was favorable for farm work and frost held off long enough to save the corn crop.

CLIMATOLOGICAL DATA FOR IOWA, OCTOBER, 1909

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days	No. partly cloudy days			No. cloudy days	
NORTHERN SECTION																					
Algona	Kossuth	1,213	34	48.0	-0.7	81	7	15	13	41	2.21	+0.12	.49	T	6	20	0	11	se	Dr. F. T. Seeley	
Alta	Buena Vista	1,513	17	48.5	-1.8	85	3	14	13	48	1.15	-0.99	.70	T	5	16	10	5	nw	D. E. Hadden	
Alta [near]	Buena Vista										2.01	-0.18	.92	T	6	18	5	8	nw	W. J. Minard	
Alton	Sioux	1,305	3	49.6		84	2	15	13	36	1.43		.58	T	6	18	5	8	nw	W. S. Slagle	
Britt	Hancock	1,236	11	47.0	-3.3	79	2	16	13	39	1.47	-0.69	4.00	T	4	12	10	9	se	G. P. Hardwick	
Charles City	Floyd	1,015	20	47.0	-1.2	82	2	17	28	37	2.48	+0.45	1.16	T	8	13	8	10	se	Weather Bureau	
Clear Lake	Cerro Gordo	1,241	9	49.0	-2.8	85	7	18	28	40	2.75	+0.12	.85	T	4	15	1	15	s	Oscar Stevens	
Decorah	Winneshiek	875	15	46.8	-3.4	79	2	13	28	35	1.19	-1.23	.41	T	5					F. H. Baker	
Dows	Wright	1,142	8	48.4	-3.0	88	8	15	13*	43	2.13	-0.27	.75	T	0	6	18	2	11	se	G. D. Flett
Elkader	Clayton	727	27	42.6	-6.8	86	2	12	28	50	1.46	-1.18	.85	T	0	4	11	11	9	n	Chas. Reinecke
Elma	Howard					79	7				1.30		.50	T	6	13	12	6	se	H. A. Moore	
Estherville	Emmet	1,298	12	46.2	-2.6	84	7	16	28	44	1.47	-0.70	.55	T	4	22	0	9	nw	A. O. Peterson	
Fayette	Fayette	1,003	18	46.7a	0.0	81a	2*	10a	28	42a	1.05	-1.60	.45	T	7				se	R. Z. Latimer	
Forest City	Winneshiek	1,226	14	47.2	-2.5	85	4	18	28	52	0.75	-1.55	.40	T	2	20	2	9	sw	J. A. Peters	
Grand Meadow	Clayton	1,180	17	46.6	-2.6	78	7	19	28	34	1.81	-0.66	.76	T	6	10	11	10	nw	F. L. Williams	
Greene	Butler		9	47.9	-4.2	84	2	16	28	40	1.70	-0.46	.93	T	6	8	12	11	e	J. L. Cole	
Hampton	Franklin	1,155	18	49.2	-1.6	89	2	18	13*	43	2.64	+0.21	1.20	T	0	7	13	11	7	nw	E. C. Grenelle
Humboldt	Humboldt	1,095	17	49.8	-0.2	83	2*	17	13	36	1.37	-0.52	.88	T	4	22	1	8	nw	H. S. Wells	
Inwood	Lyon	1,474	4	49.0a		83a	5*	12a	13	36a	1.27		.67	T	0.1	6	22	1	8	nw	F. H. Hanson
Larrabee	Cherokee	1,266	17	48.2	-2.1	81	2*	14	13	40	2.58	+0.46	.85	T	4	18	9	4	s	H. B. Strever	
Le Mars	Plymouth	1,224	12	49.2	-2.1	78	5*	15	13	34	1.91	+0.02	.75	T	5	12	10	9	nw	G. A. C. Clarke	
Mason City	Cerro Gordo	1,132	11	46.5	-3.1	80	7	15	28	40	1.55	-0.57	.65	T	6	14	8	9	se	J. S. Mills	
Merrill	Plymouth																				
New Hampton	Chickasaw	1,169	11	46.3	-4.5	76	7	17	28	35	1.04	-1.22	.66	T	6	17	5	9	se	A. F. Kemman	
Northwood	Worth	1,222	12	46.6	-3.1	78	7	17	28	40	1.57	-1.03	.80	T	4	16	6	9	nw	Charles H. Dwell	
Osage	Mitchell	1,184	17	48.5	+1.1	85	2	16	28	39	2.09	-0.33	1.29	T	3	13	5	13	nw	Dr. A. D. Bundy	
Plover	Pocahontas	1,426	12	48.3	-2.3	86	7	15	13	45	2.13	-0.39	1.00	T	5	18	6	7	s	J. S. Smith	
Pocahontas	Pocahontas		4	47.8		84	7	15	13	43	1.04		.56	T	0.2	6	19	4	8	s	F. E. Hronek
Ridgeway	Winneshiek	1,215	10	49.2	-3.2	87	2	18	28	40	1.50	-1.67	.51	T	7	17	5	9	s	Arthur Betts	
Rock Rapids	Lyon	1,358	9																		
Sheldon	O'Brien	1,422	8	49.2	-2.2	85	2	12	13	42	1.90	-0.69	.80	T	6	19	2	10	se	Dr. A. W. Beach	
Sibley	Osceola	1,212	15	45.8a	-3.8	81a	6	14a	13	37a	1.41	-0.68	.55	T	4	21	0	10	se	H. G. Doolittle	
Sioux Center	Sioux		9	48.6	-2.4	81	2	13	13	34	1.59	-0.59	.55	T	4	14	6	11	nw	J. de Ruyter	
Storm Lake	Buena Vista	1,440	12	50.3d	-2.0	85c	2	23e	12	36e	1.60	-0.09	.60	T	5	20	3	8	s	S. B. Fracker	
Washta	Cherokee	1,157	10	49.6		87	6*	10	13	46	3.39	+1.30	1.50	T	4	18	5	8	s	H. L. Felter	
Waverly	Bremer	948	12	48.7b	-3.3	81d	7	17	28	40d	1.22	-1.09	.59	T	7	12	7	12	nw	H. S. Hoover	
West Bend	Palo Alto	1,197	14	48.5	-0.4	82	7	16	13	38	1.13	-0.71	.52	T	4	15	6	10	nw	Phil Dorweiler	
Average				47.9	-2.2	83		16		40	1.71	-0.56		T	5	16	6	9	nw		
CENTRAL SECTION																					
Amana	Iowa	721	31	48.9	-1.0	83	2	19	13	38	1.81	-0.84	.50	T	9	19	3	9	se	Conrad Schadt	
Ames	Story	926	27	49.1	-1.9	86	7	18	28	42	1.59	-3.51	1.14	T	6	18	6	7		Iowa State College	
Audubon	Audubon	1,301	15	48.7	-2.2	83	2	14	13	43	2.38	+0.22	.74	T	7	17	4	10	nw	Geo. E. Kellogg	
Baxter	Jasper	998	8	49.9	-3.3	87	2	15	13	42	2.42	-0.39	.93	T	8	16	5	10	nw	W. R. Vandike	
Belle Plaine	Benton	828	18	49.0	-1.4	85	2	17	13	43	1.34	-1.01	.51	T	7	15	8	8	s	S. P. Vandike	
Boone	Boone	1,134	3	49.6		90	2	20	13*	39	2.54		.96	T	6	18	2	10		Carl Fritz Henning	
Buckingham	Tama		8								1.78	-0.32	.67	T	6	16	8	7		Dr. W. A. Daniels	
Carroll	Carroll	1,265	18	47.5	-3.5	86	1	12	12	44	3.78	+1.54	1.80	T	5	16	6	9	s	Mrs. Jos. J. Wolfe	
Cedar Rapids	Linn	733	26	48.6	-2.8	84	2	21	13	42	1.28	-1.18	.70	T	5	19	3	9	w	W. J. Greene	
Clinton	Clinton	593	40	48.4	-2.1	79	2	20	28	40	3.06	+0.66	1.00	T	5	15	10	6	se	Luke Roberts	
Davenport	Scott	580	36	50.6	-2.0	82	2	23	13	29	2.37	-0.02	.90	T	7	18	6	7	w	Weather Bureau	
Delaware	Delaware	1,083	17	46.5	-2.5	79	2	17	28	40	0.93	-1.27	.40	T	6	15	11	5	se	Wm. Ball	
Denison	Crawford	1,180	13	50.6	-0.2	86	2	14	13	37	1.71	-0.32	.70	T	8+	21	4	6	n	W. C. Van Ness	
Des Moines	Polk	861	29	51.4	-1.1	89	2	20	13	39	2.89	+0.21	1.06	T	7	13	5	13	se	Weather Bureau	
De Soto	Dallas	866	8	52.1	-2.0	95	2	17	13	51	2.14	-0.19	.62	T	7	16	3	12	sw	R. D. Minard	
Dubuque	Dubuque	639	35	48.4	-3.6	79	2	23	28	32	2.03	-0.65	.89	T	0.1	8	14	7	10	s	Weather Bureau
Fort Dodge	Webster	1,126	8	49.1	-3.2	88	2	18	13*	51	1.34	-1.75	.75	T	4				se	J. F. Monk	
Gilman	Marshall	1,052	9								3.49	+0.89	1.68	T	7					Jas. L. Wylie	
Grinnell	Poweshiek	1,023	16	51.2	+0.5	90	2	16	13	43	3.37	+0.90	1.38	T	6	17	3	11	se	D. W. Brainard	
Grundy Center	Grundy	976	17	48.2	-3.6	83	7	17	28	40	1.93	-0.54	1.27	T	4				nw	J. B. Calderwood	
Guthrie Center	Guthrie	1,077	13	49.9	-2.5	85	2	16	13	37	2.52	+0.25	.58	T	10	17	5	9	sw	D. G. Beardsley	
Harlan	Shelby	1,192	9	50.0	-2.8	86	2	15	13	40	1.81	-0.95	.55	T	7	12	10	9	nw	C. A. Reynolds	
Independence	Buchanan	921	43	47.6	-1.6	84	2	16	28	40	0.48	-1.88	.17	T	4	21	1	9	se	George Donohoe	
Iowa City	Johnson	683	49	48.0	-3.1	84	2	18	13*	48	1.59	-1.19	.94	T	4	17	2	12	nw	Arthur G. Smith	
Iowa Falls	Hardin	1,170	15	46.5	-3.2	83	2	16	28	54	1.82	-0.33	.68	T	6	22	0	9	nw	J. B. Parmelee	
Jefferson	Greene			50.5		89	2	16	13	42	2.33		.65	T	5	17	7	7	se	Geo. W. Jackson	
Le Claire	Scott	576					3				2.26	+0.37	1.18	T	5				sw	Margaret T. Disney	
Little Sioux	Harrison		4	52.4		90	2	17	13	40	1.69		.56	T	6	17	5	9	se	Geo. H. Gibson	
Logan	Harrison	928	42	51.6	-0.6	87	2	17	13	36	1.02	-1.37	.75	T	4	12	12	7	se	Glenn H. Stern	
Marshalltown	Marshall	947	16																	Ralph B. Reasoner	
Montezuma	P																				

CLIMATOLOGICAL DATA FOR IOWA, OCTOBER, 1909-Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	Number clear days	Number partly cloudy days			Number cloudy days
SOUTHERN SECTION																				
Afton	Union	1,212	14	50.9	-2.4	86	2*	19	13	37	3.50	+0.88	1.05	T	8	17	7	7	sw	N. W. Rowell
Albia	Monroe	959	10	49.8	-3.4	88	2*	19	13	44	2.98	+0.41	1.55	T	7	14	7	10	sw	J. I. Chenoweth
Allerton	Wayne	6	6	51.2 ^c	-3.0	90 ^c	2*	19 ^c	13	39 ^c				T					sw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	17	51.3	-0.3	87	2	18	13	38	2.90	+0.38	.80	T	7	11	7	13	se	Thos. H. Whitney
Bedford	Taylor	8	8	52.0	-2.3	89	4	15	13	42	3.04	+0.76	.71	T	9	17	5	9	se	E. E. Healy
Bloomfield	Davis			53.5		97	2	19	13	50	3.55		1.31	T	7	12	8	11	w	C. R. Davis
Bonaparte	Van Buren	17	17	51.0	-4.0	89	3	19	13	41	3.21	+1.45	.92	T	8					Hon. B. R. Vale
Burlington	Des Moines	544	12	51.0	-4.7	84	3	20	13	35	2.65	+0.43	1.33	T	6	21	1	9	s	M. E. Poppe, Jr.
Chariton	Lucas	1,042	13	51.2	-3.0	91	3	18	13	41	2.14	-0.22	1.12	T	5	19	6	6	se	C. C. Burr
Clarinda	Page	1,009	18	51.6	-2.4	91	2*	20	12	49	2.78	+0.23	1.06	T	8	19	3	9	nw	A. S. Van Sandt
Columbus Junction	Louisa	595	7	50.4	-4.0	83	2	19	13	35	2.16	-0.29	.58	T	6	23	2	6	w	J. B. Johnston
Corning	Adams	1,117	16	50.1 ^a	-3.2	87 ^a	3	18 ^a	13	36 ^a	3.16	+0.83	.80	T	8				se	Jerome Smith
Corydon	Wayne	1,101	15	52.9	-1.9	92	3	19	13	38	2.39	-0.10	1.13	T	10	18	3	10	se	Clara Miller
Creston	Union	1,312	3	51.6		88	3*	16	13	46	2.99		.90	T	6	21	1	9	w	E. S. Stovall
Cumberland	Cass	9	9								4.70	+2.09	1.18	T	6	22	2	7	sw	J. H. Reppert
Earlham	Madison	6	6	52.81	+1.7	87 ⁱ	3	18 ^h	12	38 ⁱ				T					se	Geo. Phillips
Elliott	Montgomery	3	3	50.8		86	2	20	17	39	3.07		.75	T	8	19	5	7	nw	Henry Barnes
Fairfield	Jefferson	14	14	50.8	-1.6	91	2	19	13	47	3.32	+0.40	1.33	T	8	19	3	9	nw	R. Monroe McKenzie
Fort Madison	Lee	516	59								3.51	+0.89	1.17	T	6	10	11	10	s	Miss L. A. McCready
Greenfield	Adair	17	17																	
Hancock	Pottawattamie	1,113	27	51.0		86	2	18	13	41	2.15		.75	T	6	17	6	8	se	G. C. Rogers
Hopeville	Clarke	17	17	51.8		90	2*	18	13	40	3.26	+1.02	1.12	T	8	14	7	10	s	M. T. Ashley
Indianola	Warren	969	17	52.3	-1.4	89	2*	20	13	37	2.45	+0.35	.88	0.1	8	12	7	12	se	Prof. J. L. Tilton
Keokuk	Lee	574	37	52.4	-2.1	88	3	23	13	35	4.48	-1.99	1.45	0.5	10	14	9	8	sw	Weather Bureau
Keosauqua	Van Buren	644	16	49.3	-5.5	89	3	20	13*	53	2.31	-0.47	1.12	T	8	6	14	11		J. H. Landes
Knoxville†	Marion	920	12	52.2	-1.5	87	2	20	13	39	2.54	+0.12	.83	T	6	16	4	11	se	Casey & Bellville
Lacona	Warren	9	9								3.01	+0.30	1.15	T	6	12	14	5		J. B. Atter
Lamoni	Decatur			51.2		85	3	20	13	36	3.63		1.93	T	9	15	1	15	se	T. J. Fitzpatrick
Lenox	Taylor	1,250	13	51.4	-2.2	85	3	17	13	36	2.93	+0.40	.87	T	8	18	4	9	s	J. L. Hurley
Leon	Decatur	1,120	6	51.2	-2.4	85	3	20	13	38	3.20	+1.12	1.50	T	9	14	6	11	se	Morris Gardner
Massena	Cass	3	3	50.8 ^e		87 ^e	4	13 ^e	13	40 ^e			1.42	T	?					C. E. Smeltzer
Mt. Ayr	Ringgold	1,236	15	52.6	-2.3	88	2*	21	13	37	4.32	+2.06	1.00	T	10	15	9	7	se	A. F. Beard
Mt. Pleasant	Henry	729	26	50.9	-0.6	82	3	20	13	34	2.76	+0.88	.88	T	5	19	3	9	sw	Prof. J. W. Edwards
Omaha, Neb.	Douglas	1,040	38	53.7	-0.5	89	2	26	13	32	1.70	-0.65	.85	T	6	14	6	11	nw	Weather Bureau
Oskaloosa	Mahaska	843	24	50.8	-1.3	85	2	20	13	37	2.78	+0.58	1.13	T	6	18	1	12	nw	Jos. Boyd
Ottumwa	Wapello	649	14	50.4 ^e	-4.6	86 ^e	7*	21 ^e	13	31 ^e				T					se	W. J. Mesmer
Pacific Junction	Mills	960	9	51.0	-3.4	86	2	18	13	38	1.83	-0.47	1.53	T	4	16	11	4	s	H. H. McCartney
Pella	Marion	877	6	51.0	-2.6	89	2	11	13	50	2.52	-0.07	1.14	0.2	5	19	2	10	nw	John H. Ver Steeg
St. Charles	Madison	1,070	7	53.0	-2.5	91	2*	20	13	39	4.09	+1.68	2.33	T	6	20	4	7	sw	R. D. Minard
Sigourney	Keokuk	877	12	50.9	-3.4	85	2*	16	14	48	2.49	+0.53	.93	T	9	16	6	9	s	J. T. Parker
Stockport	Van Buren			49.5		90	2*	16	14	48	2.49	+0.53	.93	T	9	16	6	9	s	C. L. Beswick
Thurman	Fremont	11	11	52.4	-2.4	87	2*	20	13	40	1.34	-1.83	.42	T	6	15	6	10	sw	C. R. Paul
Wapello	Louisa	588	10	50.7	-3.7	81	2*	23	13	31	2.40	+0.53	.69	T	6	19	6	6	nw	Geo. W. Schofield
Washington	Washington	769	27	51.0	-1.2	84	2	19	13	43	1.78	-0.26	.88	T	7	16	10	5	se	Wm. A. Cook
Winterset	Madison	1,129	17	51.0	-2.3	85	7	20	13	35	2.32	+0.08	1.04	T	8	15	4	12	nw	Dr. Robert S. Cooper
Woodburn	Clarke	961	9	50.6		92	3	15	13	45	3.03	+1.01	1.37	T	8	18	6	7	se	C. B. McDonough
Average				51.5	-2.3	88		19		40	2.87	+0.52		T	7	16	6	9	se	
State average				49.7	-2.2	85		18		40	2.22	-0.13		T	6	16	6	9	se	

* And other dates. a one day missing, b two days; c three days, etc. † Received too late to be included in average.

U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR NOVEMBER, 1909

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

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THE IOWA WEATHER AND CROP SERVICE

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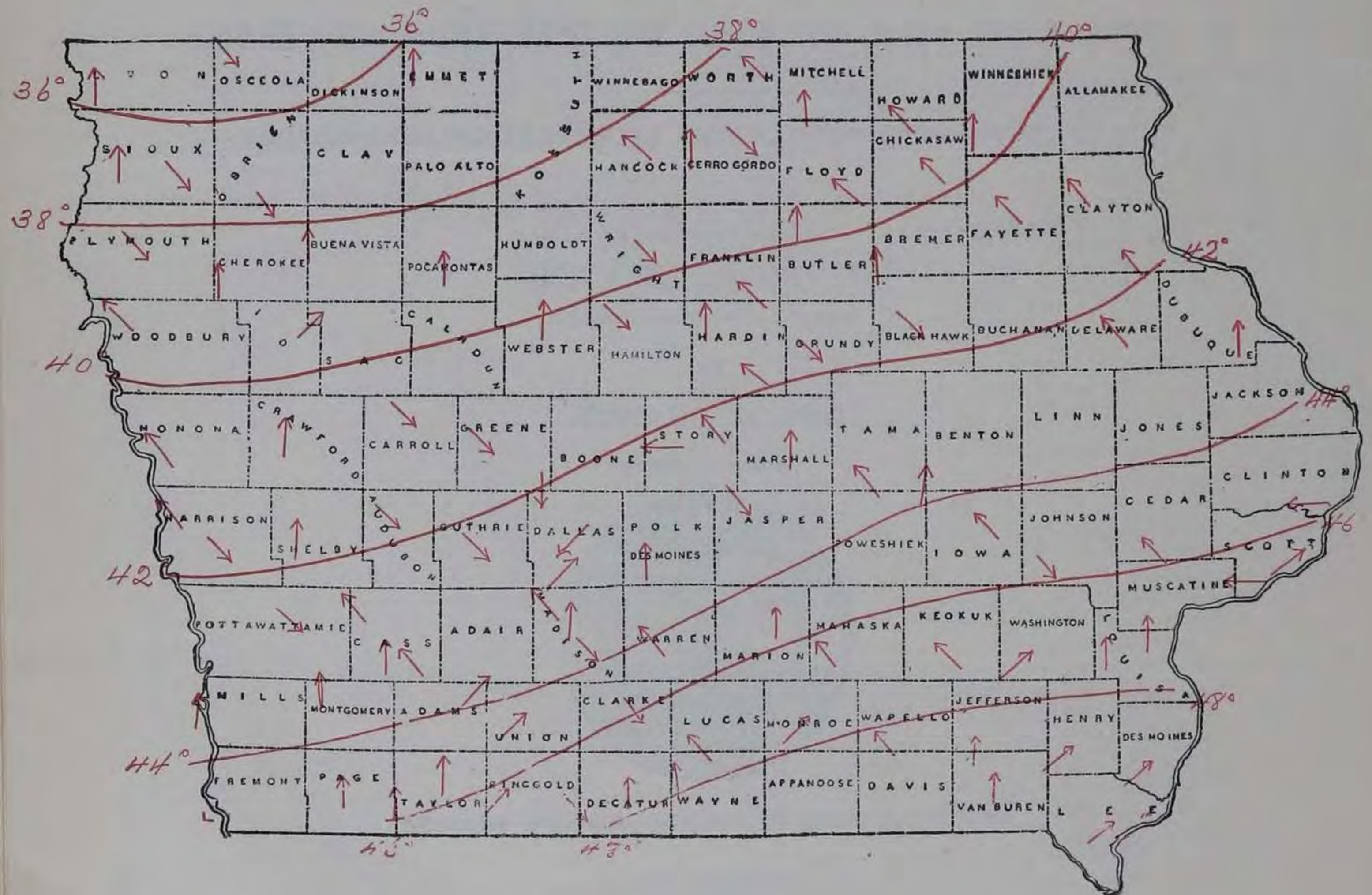
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MEAN ISOTHERMS AND PREVAILING WINDS OF NOVEMBER, 1909.

Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
GEO. M. CHAPPEL, Section Director.

VOL. XX DES MOINES, IOWA, NOV., 1909 No. 11

GENERAL SUMMARY

The month will go on record as having been the wettest and one of the warmest Novembers since State-wide observations began in 1890. Both the temperature and precipitation were above the normal at every station in the State, which is unprecedented; and the temperature was above the normal on all but four or five days of the month. The average temperature for the State was 42.4 degrees, which is 6.5 degrees above the normal and the highest average for November during the past nineteen years, except in 1899, when the average was 43.9 degrees. The first decade was the warmest part of the month, and the highest temperature occurred generally between the 4th and 6th, when the maximum temperature ranged from 66° to 77° over the northern district, which comprises the three northern tiers of counties; from 68° to 81° over the central district, comprising the three central tiers of counties; and from 74° to 84° over the southern counties. The only cold periods of the month were on the 17th and 18th, and the 22d and 23d; the lowest temperature occurring generally on the 18th, when minimum temperatures ranged from -4° to 12° over the northern district; the lowest being reported from the western part of the district or the northwestern part of the State. Over the central counties the minimum ranged from 3° to 17°, and from 6° to 18° over the southern district.

The precipitation was excessive in all districts, and was well distributed throughout the month, there being only three days on which rain or snow did not fall in some part of the State, viz.: 4th, 18th and 19th. The heaviest precipitation occurred between the 11th and 16th, but the amounts were heavy on the 1st, 7th, 22d, 23d and 28th, and the monthly amounts at many stations exceeded all former records for November. The amounts of snowfall over the northern counties also exceeded all November records. Heavy snow fell on the 15th, 16th, 22d and 23d, and the monthly amounts ranged from 8 inches to 29.5 inches in the northern district. The frequent and heavy rains and the frostless weather caused high water in all rivers and creeks, many of which, especially in the central and western districts, were at flood stage and overflowed the bottom lands, which is also an unprecedented condition for November. The rains interfered with the corn harvest and made the roads so muddy that they were almost impassable. Much of the corn is lying on the ground, and the grain is seriously damaged by the excessive moisture. From 35 to 40 per cent of the corn crop is still in the fields, and, unless the weather conditions improve at an early date, a large percentage of it will be lost or ruined. Corn in cribs is surcharged with moisture, and the warm, moist weather has caused it to mold badly. The excessive rains have, however, been beneficial for grass, alfalfa and fall grains, all of which are reported to be in good condition. The rains also assure an abundant water supply for the winter and will put the soil in good condition for early spring work, if the weather is favorable at that time. Fall plowing progressed until the close of the month.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 117 stations, was 42.4°, which is 6.5° above the normal for Iowa. By sections the mean temperatures were as follows. Northern section, 38.7°, which is 5.0° above the normal;

Central section, 42.8°, which is 7.1° above the normal; Southern section, 45.8°, which is 7.6° above the normal. The highest monthly mean was 50.2°, at Keokuk, Lee county, and the lowest monthly mean, 34.4°, at Sibley, Osceola county. The highest temperature reported was 84°, at St. Charles, Madison county, on the 5th; the lowest temperature reported was -4°, at Washta, Cherokee county, on the 18th. The average monthly maximum was 74°, and the average monthly minimum was 9°. The greatest daily range was 44°, at Estherville, Emmet county, and at Woodburn, Clarke county. The average of the greatest daily ranges was 37°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 123 stations, was 5.39 inches, which is 4.00 inches above the normal. By sections the averages were as follows: Northern section, 5.89 inches, which is 4.58 inches above the normal; Central section, 5.11 inches, which is 3.68 inches above the normal; Southern section, 5.18 inches, which is 3.74 inches above the normal. The greatest amount, 11.48 inches, occurred at Humboldt, Humboldt county, and the least, 2.07 inches, at Independence, Buchanan county. The greatest amount in twenty-four hours, 4.08 inches, occurred at Harlan, Shelby county, on the 13th. Measurable precipitation occurred on an average of 10 days.

The average amount of unmelted snowfall was 6.8 inches, averaging as follows: Northern section, 13.7 inches; Central section, 4.5 inches; and Southern section, 2.3 inches; the greatest amount was at Plover, Pocahontas county, 29.5 inches, and the least amount was a trace at a number of stations in the Central and Southern sections.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 10; partly cloudy, 7; cloudy, 13. The duration of sunshine was below the normal, the percentage of the possible amount being 41 at Charles City; 46 at Davenport; 34 at Des Moines; 45 at Dubuque; 43 at Keokuk, and 47 at Sioux City.

WIND.—South winds prevailed. The highest velocity reported was 46 miles per hour from the South, at Sioux City, Woodbury county, on the 10th.

COMPARATIVE DATA FOR THE STATE—NOVEMBER.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	38.6	78	-2	1.46	3.55	.71
1891.....	30.5	84	-24	1.70	3.64	.06
1892.....	33.3	70	-3	1.10	3.16	.05
1893.....	34.0	86	-13	1.17	2.56	.05
1894.....	32.7	72	-5	.92	2.42	T
1895.....	34.3	86	-12	1.51	3.01	.45
1896.....	29.6	82	-15	1.83	4.51	.16
1897.....	34.3	81	-19	.66	2.24	T
1898.....	32.2	78	-17	1.50	3.61	.33
1899.....	43.9	86	8	1.20	2.97	.13
1900.....	33.5	79	-6	1.06	3.35	T
1901.....	35.8	77	2	.86	2.30	.20
1902.....	41.2	79	4	2.13	4.19	.16
1903.....	34.2	76	-5	.52	1.74	T
1904.....	41.0	80	4	.15	.50	.00
1905.....	38.4	70	-12	2.84	5.30	.90
1906.....	35.4	76	-5	2.03	3.86	.35
1907.....	36.7	68	-4	1.03	2.27	.05
1908.....	39.3	80	5	1.56	3.31	.21
1909.....	42.4	84	-3	5.39	11.48	2.07

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.08 inches.
Prevailing direction of Wind, South.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum, Velocity—miles	Direction	Date	Average Hourly Velocity
Charles City.	30.08	30.61	8	29.54	20	5862	31	SW	14	8.1
Davenport..	30.09	30.58	8	29.60	20	6687	31	S	14	9.3
Des Moines..	30.05	30.55	8	29.55	20	6614	40	SW	11	9.2
Dubuque....	30.11	30.63	8	29.59	20	5399	22	S	11	7.5
Keokuk.....	30.10	30.56	15	29.59	1	6761	35	SE	14	9.4
Omaha, Neb.	30.07	30.60	8	29.56	20	6789	30	NW	20	9.4
Sioux City..	30.07	30.66	8	29.49	20	9617	46	S	10	13.4

OBSERVERS' REMARKS

AFTON.—*N. W. Rowell.* The weather was unusually cloudy; there being 16 cloudy days, 6 partly cloudy and only 8 clear days during the month. Fields are too wet to plow or to permit corn husking, and on account of wet and warm weather corn is rotting on the stalks.

AFTON.—*J. I. Chenoweth.* There were 12 rainy days during November with 4.51 inches of precipitation, which was beneficial to fall pastures and winter wheat.

ALGONA.—*Dr. F. T. Seeley.* There has been an unprecedented amount of precipitation for November; there being 23.5 inches of snow and a total of 8.04 inches of precipitation. A large amount of corn is still in the fields.

ALLERTON.—*Mrs. Geo. Shriver.* About all of the corn has been gathered but the quality and yield are poor.

ALTA.—*David E. Hadden.* November, 1909, was wet and warm. Compared with the normal for the past 19 years there was an excess of 4.1° of temperature and 4.88 inches of precipitation. Eleven inches of snow fell and the cloudiness was excessive. Much of the corn was still in the fields at the close of the month.

ALTON.—*W. S. Slagle.* A good deal of misty weather prevailed during the month. About 25 per cent of the corn is still in the fields and that in cribs is not keeping well. The 16.5 inches of snow disappeared without any indication of a flood.

AMANA.—*C. Schadt.* The month was warm and moist. The mean temperature was 11.5 degrees and the precipitation was 2.41 inches above the normal. The roads are very bad and muddy.

AMES.—*M. McDonald.* The weather was very cloudy and wet with rather uniformly high temperature. Soft fields and bad roads make unfavorable conditions for picking and cribbing corn.

ATLANTIC.—*Thos. H. Whitney.* Excessive precipitation combined with cloudy days have made roads very heavy and greatly impeded the gathering of corn, besides injuring its quality, both in crib and fields.

BAXTER.—*W. R. Vandike.* November was a very cloudy month. The sun did not shine over one-third of the time and the month closed with a very foggy and misty day.

BEDFORD.—*E. E. Healy.* A heavy thunderstorm occurred on the 7th, and several buildings were struck by lightning.

BONAPARTE.—*Hon. B. R. Vale.* There was more precipitation during the month than in any November in the past 19 years, but the soil has taken in all the surplus moisture.

BRITT.—*Geo. P. Hardwick.* Very changeable and unseasonable weather with excessive rain and snowfall and only two clear days. Ground has been so muddy that only a little farm or road work was done. Two-fifths of the corn is still in the field and much of it is rotting on account of being on the ground.

BURLINGTON.—*Max E. Poppe, Jr.* The first snow fell and the first sleet storm occurred on the 23d.

CHARLES CITY.—*E. W. McGann.* The month was characterized by high temperature, excessive precipitation and a great lack of sunshine, cloudy weather prevailing. The most distinguishing features of the month were the thunderstorms on the 7th and 11th, and the heavy snow on the 21st and 22d, the total depth being 11.3 inches, which is the heaviest fall on record. The Cedar River was bank full from the 15th to the close of the month, and flooded much of the low lands and did considerable injury, especially as a great deal of the corn was still in the fields.

CHARITON.—*C. C. Burr.* The corn crop is below the average as to yield and quality. Hay, however, is plentiful and all stock goes into winter quarters in good condition. High values prevail for all farm products.

CLINTON.—*Luke Roberts.* This has been the warmest November in 31 years. The mean temperature, the maximum temperature, the minimum temperature, the warmest day, the coldest day and

the rainfall were each above the normal. The prevailing wind was from the south for the first time in November in 31 years.

DECORAH.—*F. H. Baker.* The rainfall exceeded all former records for November at this station.

DUBUQUE.—*J. H. Spencer.* The past month was the warmest November by 0.2° since the record began at this station in 1874. The total amount of precipitation was 2.94 inches, which has been exceeded only twice in November in 28 years. The flow of water in the rivers of this district was slightly greater than normal, due to heavy rains in Wisconsin and probably Minnesota on the 12th and 13th which caused the rivers to rise about two to four feet from the 12th to about the 22d. A large meteor fell west of this station at about 4:45 P. M. of the 28th. People who observed it claim that it was accompanied by a noise resembling light thunder and that it moved from south to north.

EARLHAM.—*Geo. Philips.* The fields are and have been very soft and there is some corn still ungathered. Corn is spoiling, both in the fields and in the cribs.

ELLIOTT.—*Henry Barnes.* From 40 to 50 per cent of the corn remains in the fields and is badly down and rotting. Corn in crib seriously damaged by warm, wet weather and unless a change comes soon a large per cent of it will not be marketable.

FOREST CITY.—*J. A. Peters.* About one-third of the corn is still in the fields and much of that in cribs is rotting. The cobs are very soft. The amount of precipitation breaks all records for November. There was a great deal of foggy weather during the latter part of the month.

GRAND MEADOW (Postville P. O.)—*F. L. Williams.* The month was warm, moist and cloudy. Pastures are still green and plowing is still in progress at the end of the month. Some corn is molding in cribs.

GRINNELL.—*D. W. Brainard.* The past month was one of the worst Novembers for securing the corn crop ever known in this section.

GUTHRIE CENTER.—*D. G. Beardsley.* The month has been so wet that farmers are having a serious time in gathering their corn. The last two days were very foggy.

HARLAN.—*C. A. Reynolds.* November has been an unusually bad month. On account of the heavy rains, rivers and creeks have been out of their banks, roads almost impassable, and the corn fields so soft that wagons would get stuck in the mud with only a partial load on.

HUMBOLDT.—*Henry S. Wells.* Corn is not all garnered yet on account of the frequent rains and heavy snows, but there is scarcely any frost in the ground and farmers are plowing on the last day of the month.

INWOOD.—*F. B. Hanson.* The first decade of the month was favorable for corn picking and other farm work, and the corn was fairly dry at the end of the decade. Snow fell on the 12th and since then the weather has been most disagreeable with rain, snow and fog much of the time. Only 50 per cent of the corn had been gathered up to that time and there is still 35 per cent of the crop in the fields and some of the corn picked early has spoiled in the cribs. The yields vary from 35 to 65 bushels per acre, with an average of about 50 bushels per acre.

KEOKUK.—*Fred Z. Gosewisch.* The month has been unusually warm with plenty of rain. Streams and ponds are full, assuring plenty of water for the winter and pastures continue green. The gathering of corn has been retarded by soft ground, and in cases where the corn was blown down the grain has been damaged.

KEOSAUQUA.—*J. H. Landes.* November was a fairly good month for fall work and most of the corn is in cribs.

LAMONI.—*T. J. Fitzpatrick.* The month was good for the corn harvest, the crop generally being secured. There were only a few cold days, but there were 17 cloudy ones. All in all it was a month of pleasant fall weather.

LARRABEE.—*H. B. Strever*. The month has been very mild with an unusual amount of snow (24 inches). There is no frost in the ground at the close of the month, but there is about 50 per cent of the corn crop still in the fields.

LE MARS.—*G. A. Clarke*. Snow drifted badly on the afternoon of the 16th, and also on the 23d, but the last five days of the month were damp and foggy.

MASSENA.—*C. E. Smeltzer*. The wet weather has interfered with the corn harvest, but a few farmers have finished husking. Some of the corn is spoiling in the crib.

MT. AYR.—*A. F. Beard*.—A severe thunderstorm with vivid lightning occurred on the 7th.

NORTHWOOD.—*C. H. Dwelle*. Corn is badly down in the fields and only half of the crop has been gathered. Corn in cribs is spoiling rapidly and dealers will not handle this year's crop as it is too soft. There was 20 inches of snow and 5.40 inches of rain fell during the month.

ODEBOLT.—*E. Starner*. There was a brilliant rainbow observed at 11:30 A. M. on the 11th.

ONAWA.—*C. G. Perkins*. There was 5.34 inches of precipitation, including 12.5 inches of snow during the month, and was the largest amount recorded in November in the past 30 years. There was 5.21 inches in November, 1886.

PELLA.—*John H. Ver Steeg*. Cloudy and wet weather prevailed during November with two inches of snow on the 22d. Corn husking was about finished at end of the month. The germinating qualities of seed corn are seriously injured.

PLOVER.—*J. S. Smith*. There were 29.5 inches of snow fell during the month, breaking all former records for November. Only about 50 per cent of the corn has been husked on account of the fields being so soft that it was impossible to haul more than half of a load at a time.

POCAHONTAS.—*F. E. Hronek*. The month was the wettest and worst November on record. Corn is heating in cribs and spoiling in the fields on account of being down in the water and slush. The roads are impassable.

RIDGEWAY.—*Arthur Betts*. This was one of the warmest Novembers and broke all former records for November on the amount of precipitation. The first snow since May 2d fell on the 15th, and 12.5 inches of snow fell on the 22d.

SAC CITY.—*E. N. Baily*. Corn is in poor condition on account of rain and snow. About 75 per cent of the crop is in crib but is reported to be molding badly.

SHELDON.—*A. W. Beach*. November was a very bad month. The snow on the 16th made corn picking difficult and there has been no time since when work could be done. Corn left in the field is badly injured and it represents 25 per cent of the crop in this vicinity.

SIoux CITY.—*C. D. Reed*. The highest temperature was 75° on the 4th, which exceeded all previous records for high temperatures in November. Six inches of snow fell on the 15th and 16th, which greatly interfered with street cars in the city and covered much ungathered corn lying on the ground in the fields. Another heavy snow, totaling 5.0 inches, occurred on the 22d and 23d. The total snowfall for the month was 12.1 inches, being the largest amount in the past 21 Novembers.

STOCKPORT.—*C. L. Beswick*. November was unusually warm and fall plowing was in progress at the close of the month. Corn is mostly all gathered and fall grain is getting a good start.

WAPELLO.—*G. W. Schofield*. The month has been good for wheat and grass, but too damp for corn picking. Much of the corn is rotting in the fields.

WAUKEE.—*Samuel F. Foft*. Damp weather is delaying corn gathering which is usually from 60 to 75 per cent in the cribs at the close of November, but not more than 50 per cent of this year's crop has been gathered. Dandelions are in bloom in many yards.

WATERLOO.—*M. L. Newton*. High water in rivers is unusual at this season of the year.

WAVERLY.—*H. S. Hoover*. The past month gave the greatest amount of precipitation of any November in the past 21 years.

WEST BEND.—*Phil Dorweiler*. The Month was wet and the roads bad. There is considerable corn left in the fields.

WHITTEN.—*Dr. F. P. Butler*. Owing to the wet weather and mud in the fields corn is rotting badly. There is much of the corn yet to be gathered and that in the cribs is spoiling.

RELATED REPORTS

MARSHALLTOWN.—*October, 1909*. Mean temperature, 48.2°; highest temperature and date, 89° on the 3d; lowest and date 17° on the 13th; greatest daily range of temperature, 47°; precipitation, total, 1.97 inches; days with, 6; clear days, 17; partly cloudy, 4; cloudy, 10.

ROCK RAPIDS.—*October, 1909*. Mean temperature, 48.5°; highest temperature and date, 78° on the 5th; lowest and date, 14° on the 13th; greatest daily range of temperature, 46°; precipitation, total, 1.09 inches; days with, 3.

ERRATA

WASHINGTON.—*February, 1909*. Page 18, number of clear days published as 9, should be 8.

THURMAN.—*April, 1909*. Page 39, precipitation departure, published as -4.20, should be -1.20.

ESTHERVILLE.—*June, 1909*. Page 62, total precipitation published as 6.71, should be 7.01.

LAMONI.—*June, 1909*. Page 63, total precipitation published as 8.10, should be 8.11.

ATLANTIC.—*July, 1909*. Page 75, greatest precipitation in 24 hours published as 2.40 should be 3.09.

AUDUBON.—*July, 1909*. Page 74, greatest precipitation in 24 hours, published as 2.65, should be 2.98.

BOONE.—*July, 1909*. Page 74, greatest precipitation in 24 hours, published as 1.40, should be 1.71.

CEDAR RAPIDS.—*July, 1909*. Page 74, greatest precipitation in 24 hours, published as 1.53, should be 2.63.

COLUMBUS JUNCTION.—*July, 1909*. Page 75, lowest temperature and date, published as 55 on the 10th, should be 53 on the 5th.

OMAHA.—*October, 1909*. Page 108, mean temperature published as 53.7, should be 53.6; departure, -0.5, should be -0.6; greatest precipitation in 24 hours, 0.85, should be 1.38; page 109, minimum temperature, 14th, published as 46, should be 36; mean minimum, 44.2, should be 43.9.

IOWA CROPS—FINAL REPORT, 1909

Following is a summary of reports from crop correspondents of the Iowa Weather and Crop Service and Threshermen, showing the average yield per acre and total yields of staple soil products, and the average prices at the farms or nearest stations, December 1, 1909. The value gained by feeding farm crops for the production of live stock, poultry and dairy products is not taken into consideration in this report.

CORN.—A revised report of the estimated corn acreage, made August 1st, after the heavy rains had ceased, indicated that the area planted this year was 8,213,280, or 186,330 acres less than the estimated acreage planted in 1908. The average yield per acre for the State this year was 32.9 bushels, making a total yield of 269,812,000 bushels. Of this amount about 35 per cent is still in the fields, and a large percentage of the corn in the cribs is in very poor condition. There is no record of corn being in as poor con-

(Continued on page 122)

FINAL CROP REPORT, 1909.

AVERAGE YIELD PER ACRE AND TOTAL PRODUCT—BY COUNTIES.

Counties	Winter Wheat		Spring Wheat		Corn		Oats		Rye		Barley		Flax Seed		Potatoes		Hay (Tame)		Hay (Wild)	
	Bushels per acre	Total Bushels	Bushels per acre	Total Bushels	Bushels per acre	Total Bushels	Bushels per acre	Total Bushels	Bushels per acre	Total B'sh'ls	Bushels per acre	Total Bushels	Bushels per acre	Total B'sh'ls	Bushels per acre	Total Bushels	Tons per acre	Total Tons	Tons per acre	Total Tons
Adair	17	3,000	12	46,900	30	2,780,000	21	581,800	17	3,700	17	84,600	58	60,000	1.5	79,400	1.5	6,500		
Adams	17	26,300	12	13,900	26	1,709,000	25	546,400	16	2,800	19	32,300	64	33,300	1.6	45,700	1.7	3,200		
Allamakee	18	9,900	17	11,500	36	1,440,000	38	1,219,500	16	7,800	28	374,900	13	2,860	100	93,000	1.6	73,200	1.5	6,700
Appanoose	18	31,100	13	5,300	26	1,092,000	28	346,300	13	8,000	19	1,900	67	27,500	1.3	65,100	1.5	2,400		
Audubon	18	450	10	44,700	32	2,570,000	22	757,000	15	900	14	82,000	100	77,500	1.3	39,500	1.1	3,600		
Benton	24	1,300	16	8,000	36	4,781,000	32	2,179,800	18	13,300	17	214,800	85	125,800	1.5	70,600	1.2	7,800		
Black Hawk	20	240	15	2,400	35	2,927,000	34	1,671,100	17	40,800	30	164,400	85	182,700	1.8	65,000	1.5	20,000		
Boone	19	760	10	15,100	27	2,702,000	24	1,267,900	17	4,100	16	26,400	63	66,150	1.2	26,600	1.2	21,200		
Bremer	21	520	17	2,400	36	2,173,000	29	1,397,500	22	18,200	30	177,000	82	109,000	1.9	35,900	1.3	33,000		
Buchanan	19	280	17	3,600	34	2,882,000	31	1,421,600	19	10,400	25	85,500	95	99,700	1.8	74,000	1.9	27,100		
Buena Vista	16	640	12	23,000	34	3,288,000	28	2,005,300	15	500	22	28,400	10	2,750	80	167,600	2.2	50,200	2.0	34,200
Butler	18	450	13	2,300	32	3,079,000	26	1,691,000	14	24,100	21	65,900	12	600	80	132,000	1.8	51,800	1.4	15,100
Calhoun	20	1,200	14	4,200	27	2,530,000	23	1,556,400	15	1,600	22	42,200	106	33,900	1.9	31,600	1.4	23,400		
Carroll	20	2,400	13	79,300	34	3,504,000	26	1,500,900	15	2,400	12	66,000	70	140,000	2.0	50,900	1.5	19,600		
Cass	21	44,900	14	119,800	33	3,289,000	27	956,800	16	3,200	25	73,200	109	138,400	2.0	85,900	2.2	5,700		
Cedar	24	15,100	18	16,000	36	3,151,000	35	1,075,500	15	10,000	19	348,400	78	75,600	1.9	93,100	1.5	400		
Cerro Gordo	21	730	15	2,900	34	2,784,000	22	1,481,700	15	3,900	22	47,500	9	3,060	87	149,600	1.9	65,500	1.6	23,400
Cherokee	18	720	13	15,300	33	3,374,000	27	1,814,900	16	240	16	86,400	10	300	115	167,900	1.8	57,400	1.4	16,300
Chickasaw	20	900	15	12,000	33	2,013,000	23	1,364,800	12	2,900	27	156,600	11	16,000	80	87,200	1.7	68,200	1.5	22,800
Clarke	14	17,400	14	2,500	20	953,000	25	368,000	16	4,100	19	16,100	125	48,100	1.4	60,400	1.0	400		
Clay	18	1,400	13	5,500	34	2,264,000	27	1,628,300	12	500	22	24,400	9	3,700	75	52,500	1.7	41,800	1.2	26,400
Clayton	20	15,000	22	19,400	37	2,656,000	28	1,597,400	15	23,400	18	332,200	11	110	130	243,100	1.9	108,400	1.2	4,700
Clinton	23	13,300	16	22,200	37	4,046,000	32	1,213,400	18	24,600	25	270,200	12	240	102	120,800	1.5	97,600	1.3	5,000
Crawford	26	9,600	13	188,100	35	4,686,000	27	1,554,930	11	2,200	24	198,200	92	207,000	2.0	100,700	1.8	13,300		
Dallas	20	30,000	13	24,400	33	3,702,000	29	1,313,100	14	7,400	17	23,100	68	60,500	1.7	49,400	1.8	11,400		
Davis	19	38,800	15	1,050	28	1,509,000	34	658,900	15	21,000	20	2,000	68	27,200	1.5	76,200	1.5	900		
Decatur	15	41,700	13	260	18	984,000	22	516,700	15	4,300	18	600	9	540	27	11,300	1.4	55,100	1.5	900
Delaware	21	840	18	3,400	35	2,879,000	29	1,099,900	16	19,800	17	244,800	13	650	73	100,600	1.7	79,700	1.8	14,000
Des Moines	21	90,300	16	500	32	1,821,000	31	866,700	15	14,200	29	24,000	86	93,700	1.5	43,000	1.5	400		
Dickinson	14	840	15	8,700	26	1,016,050	20	720,000	12	1,000	17	45,000	12	4,920	109	57,700	1.8	26,400	1.1	13,300
Dubuque	19	3,200	17	12,400	36	2,367,000	40	1,730,000	16	6,200	25	167,500	88	150,900	1.4	72,900	1.5	2,000		
Emmet	16	8,000	29	8,000	29	1,322,000	22	833,500	15	750	20	21,600	10	4,900	83	44,000	1.5	35,400	1.2	15,700
Fayette	24	4,800	19	12,900	36	3,150,000	32	1,975,000	24	10,800	21	281,200	10	6,200	75	154,500	1.6	93,000	1.0	15,700
Floyd	18	1,700	14	5,300	33	2,392,000	22	1,536,000	17	7,600	21	50,100	12	10,000	85	104,100	1.8	57,900	1.4	8,500
Franklin	24	840	12	8,600	35	3,154,000	29	2,056,300	13	1,800	21	53,500	8	800	90	178,600	1.6	42,500	1.0	15,200
Fremont	24	51,000	18	38,500	35	4,243,000	25	285,500	20	4,600	15	1,900	120	63,000	2.0	35,180	2.0	8,200		
Greene	18	300	12	4,400	28	2,861,000	25	1,272,500	20	1,400	20	42,400	9	1,080	86	77,400	1.7	38,600	1.5	19,500
Grundy	22	660	22	11,800	36	3,280,000	30	2,008,800	25	1,000	20	153,000	103	639,600	2.0	54,600	1.5	13,000		
Guthrie	22	13,860	10	73,200	28	1,934,000	23	748,200	15	2,800	19	36,300	88	53,600	1.0	34,700	1.0	4,700		
Hamilton	22	9,400	15	22,900	29	3,069,000	25	1,580,000	22	2,000	22	19,100	9	1,500	85	136,000	1.9	48,100	1.5	31,300
Hancock	18	450	16	18,200	34	2,327,000	23	1,512,200	15	900	21	45,100	9	4,400	122	115,900	1.7	35,400	1.5	28,800
Hardin	22	2,310	16	32,500	35	3,458,000	29	1,772,700	16	1,800	30	63,600	11	270	100	133,000	1.7	47,100	1.4	30,700
Harrison	20	137,600	13	193,700	34	4,234,000	26	535,600	13	3,000	22	55,400	71	35,500	1.8	47,500	1.5	15		
Henry	29	54,800	16	1,600	32	2,420,000	26	694,200	23	28,700	24	6,700	71	49,800	1.9	63,700	1.5	20,500		
Howard	28	560	18	10,300	31	1,254,000	28	865,200	22	9,600	28	250,600	10	41,700	58	49,800	1.9	35,200	1.1	20,100
Humboldt	18	540	14	26,400	34	1,883,000	30	1,587,000	18	630	17	31,100	10	500	100	85,000	2.0	55,100	1.4	3,400
Ida	19	1,140	13	24,200	35	3,005,000	25	1,000,000	18	5,500	21	46,400	63	85,000	1.9	109,000	1.1	1,000		
Iowa	23	10,100	17	34,800	35	3,150,000	29	1,129,200	15	15,000	21	148,700	110	103,900	1.9	115,800	1.8	1,800		
Jackson	21	6,800	18	15,200	37	2,157,000	22	503,800	19	7,600	18	40,800	49	81,800	1.3	65,700	1.2	2,300		
Jasper	22	15,400	15	86,200	33	3,920,000	28	1,373,100	10	23,700	22	14,500	69	35,500	1.5	55,300	1.4	50		
Jefferson	24	57,800	16	6,000	29	1,723,000	29	730,800	19	26,300	28	96,600	98	164,600	1.7	93,000	1.0	1,580		
Johnson	23	15,100	17	23,100	36	3,614,000	30	1,390,800	16	9,500	24	210,700	90	57,660	2.0	106,200	1.5	750		
Jones	25	1,000	18	3,800	37	2,891,000	30	738,900	14	18,200	24	73,200	100	73,000	1.8	83,800	1.6	720		
Keokuk	25	22,900	14	46,900	34	3,070,000	31	1,147,000	23	600	25	80,700	9	13,000	110	188,100	1.5	50,300	1.4	89,700
Kossuth	20	1,600	17	49,300	33	3,941,000	26	2,740,600	18	52,600	20	3,000	61	72,600	1.9	74,000	1.5	150		
Lee	21	222,600	16	480	35	1,707,000	33	630,300	16	20,000	21	67,400	100	178,000	1.0	52,000	1.2	6,900		
Linn	23	700	14	14,000	36	3,458,000	27	1,215,500	16	35,500	20	7,600	70	43,400	1.6	31,000	2.0	1,300		
Louisa	23	117,500	16	8,100	32	2,034,000	28	556,900	16	9,750	19	3,200	44	18,900	1.1	51,000	1.0	700		
Lucas	18	27,600	15	1,500	20	1,066,000	28	470,400	16	2,000	25	671,500	7	1,260	80	193,600	1.5	29,400	1.0	11,100
Lyon	20	600	13	18,200	32	2,982,000	26	1,990,500	15	3,000	17	77,800	66	46,200	1.7	68,000	1.2	2,300		
Madison	20	10,800	13	21,000	29	2,223,000	22	407,400	16	9,000	23	52,900	80	62,000	1.7	57,300	1.5	1,060		
Mahaska	20	11,800	15	27,000	33	2,339,000	26	681,200	17	10,600	22	61,600	76	44,800	2.0	77,000	1.5	1,050		
Marion	22	43,800	16	59,000	33	2,508,000	26	609,100												

CLIMATOLOGICAL DATA FOR IOWA, NOVEMBER, 1909

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days	No. partly cloudy days			No. cloudy days
NORTHERN SECTION																				
Algona	Kossuth	1,213	34	37.6	+ 4.8	71	4*	4	18	35	8.04	+ 6.76	2.25	23.5	11	9	8	13	sw	Dr. F. T. Seeley
Alta	Buena Vista	1,513	17	37.8	+ 5.3	74	4	4	17	37	6.13	+ 4.90	1.90	11.0	14	9	8	13	s	D. E. Hadden
Alta [near]	Buena Vista										5.56	+ 4.07	1.40	13.2	13					W. J. Minard
Alton	Sioux	1,305	3	37.6		72	4*	1	18	36	3.94		1.18	16.5	8	15	5	10	nw	W. S. Slagle
Britt	Hancock	1,236	11	39.4	+ 5.8	72	5	6	18	36	7.55	+ 6.44	2.54	16.6	13	2	14	14	se	G. P. Hardwick
Charles City	Floyd	1,015	20	38.9	+ 5.9	69	4	4	23	36	6.06	+ 4.67	1.77	13.6	13	5	6	19	se	Weather Bureau
Clear Lake	Cerro Gordo	1,241	9	40.5	+ 6.4	70	6	10	18	30	5.87	+ 4.80	2.05	9.5	9	14	0	16	s	Oscar Stevens
Decorah	Winneshiek	875	15	40.5	+ 7.0	67	4	0	23	35	7.91	+ 6.36	2.35	9.5	10					F. H. Baker
Dows	Wright	1,142	8	40.6	+ 5.7	73	4*	2	23	34	6.04	+ 4.80	2.62	P	7	8	4	18	nw	G. R. Flett
Elkader	Clayton	727	27	39.4	+ 6.2	72	4	12	18	40	4.51	+ 2.86	1.21	4.0	8	13	3	14	se	Chas. Reinecke
Elma	Howard					66	4*				6.03		1.47	14.5	9	6	11	13	se	H. A. Moore
Estherville	Emmet	1,298	12	36.2	+ 4.9	75	4	0	18	44	3.46	+ 2.22	1.05	12.0	10	13	3	14	s	A. O. Peterson
Fayette †	Fayette	1,003	18	41.1	+ 8.2	68	6*	2	23	37	4.36	+ 2.94	0.90	5.8	11	9	7	14	se	R. Z. Latimer
Forest City	Winneshiek	1,226	14	37.6	+ 5.2	73	4	3	18	36	7.21	+ 5.98	1.90	15.5	9	11	5	14	w	J. A. Peters
Grand Meadow	Clayton	1,180	17	41.2	+ 8.2	67	10	5	23	32	4.44	+ 2.88	1.03	7.0	10	3	12	15	se	F. L. Williams
Greene	Butler		9	40.6	+ 4.7	70	4	4	23	36	7.54	+ 5.39	2.20	11.0	9	5	10	15	s	J. L. Cole
Hampton	Franklin	1,155	18	40.1	+ 6.7	75	4	5	18	36	6.74	+ 5.18	1.50	14.0	12	7	11	12	se	E. C. Grenelle
Humboldt	Humboldt	1,095	17	40.4	+ 6.4	74	6	2	18	40	11.48	+ 10.11	3.44	14.0	9	13	4	13	nw	H. S. Wells
Inwood	Lyon	1,474	4	35.6		77	5	3	23	37	3.08		1.38	12.3	12	16	5	9	s	F. B. Hanson
Larrabee	Cherokee	1,266	17	37.0a	+ 4.1	71	6	1a	18	35a	5.92	+ 4.90	1.40	24.0	13	9	8	13	nw	H. B. Strever
Le Mars	Plymouth	1,224	12	38.4	+ 3.9	70	6	5	18	37	4.35	+ 3.12	1.12	13.0	9	10	8	12	nw	G. A. C. Clarke
Mason City	Cerro Gordo	1,132	11	38.0	+ 5.2	68	4	4	23	36	6.73	+ 5.09	2.33	13.2	8	9	8	13	nw	J. S. Mills
Merrill	Plymouth																			
New Hampton	Chickasaw	1,169	11	39.2	+ 4.5	66	6	2	23	29	7.16	+ 5.76	2.22	8.0	8	14	4	12	se	A. F. Kemman
Northwood	Worth	1,222	12	37.6	+ 4.4	68	4	2	18	31	7.40	+ 5.92	2.50	20.0	7	13	6	11	se	Charles H. Dwelle
Osage	Mitchell	1,184	17	40.0	+ 9.1	70	4*	4	18	35	7.51	+ 6.08	2.05	18.0	8	8	4	18	s	Dr. A. D. Bundy
Plover	Pocahontas	1,426	12	37.8	+ 3.5	73	6	0	18	36	4.73	+ 3.11	1.50	29.5	9	12	6	12	n	J. S. Smith
Pocahontas	Pocahontas		4	37.3		74	8	23	38	38	6.92		1.80	18.0	8	11	11	8	s	F. E. Hronek
Ridgeway	Winneshiek	1,215	10	41.3	+ 4.1	76	3	5	18*	36	9.50	+ 7.68	2.10	14.1	12	9	9	12	s	Arthur Betts
Rock Rapids	Lyon	1,358	9	37.8	+ 5.9	71	6	5	17*	42	2.60	+ 1.54		20.0	4					W. C. Wyckoff
Sheldon	O'Brien	1,422	8	37.8	+ 1.7	76	6	0	18	38	5.05	+ 3.97	1.30	18.5	9	11	6	13	nw	Dr. A. W. Beach
Sibley	Osceola	1,212	15	34.8a	+ 2.8	75	4*	2a	17*	40a	4.02	+ 3.03	1.62	9.2	10				nw	H. C. Doolittle
Sioux Center	Sioux		9	36.2	+ 0.9	70	6	4	17	30	2.47	+ 1.76	1.09	9.5	8	11	5	14	s	J. de Ruyter
Storm Lake	Buena Vista	1,440	12	40.0d	+ 3.9	71a	4	1d	17	31d	3.91	+ 2.09	1.19	10.5	7					S. B. Fracker
Washta	Cherokee	1,157	10	37.7		77	4	9	18	45	5.18	+ 4.21	2.18	10.5	10	8	9	13	s	H. L. Felter
Waverly	Bremer	948	12	41.9	+ 6.8	69	4*	4	23	35	6.31	+ 4.91	2.15	6.0	10	5	8	17	s	H. S. Hoover
West Bend	Palo Alto	1,197	14	38.6	+ 6.1	71	4*	3	18	33	6.23	+ 4.89	2.64	12.8	10	8	7	15	s	Phil Dorweiler
Average				37.7	+ 5.0	71		3		36	5.89	+ 4.58		13.7	10	10	7	13	s	
CENTRAL SECTION																				
Amana	Iowa	721	31	44.7	+ 14.1	73	11	12	23	32	4.14	+ 2.41	.90	3.0	11	8	12	10	se	Conrad Schadt
Ames †	Story	926	27	42.8	+ 8.7	74	6	9	18	40	4.16	+ 2.97	2.07	4.5	10	8	7	15	e	Iowa State College
Audubon	Audubon	1,301	15	42.1	+ 6.9	75	5	10	17*	33	8.57	+ 7.23	3.77	9.5	12	13	3	14	nw	Geo. E. Kellogg
Baxter	Jasper	998	8	43.4	+ 6.1	76	6	12	17*	38	4.23	+ 2.90	0.75	3.2	11	11	8	11	nw	W. R. Vandike
Belle Plaine	Benton	828	18	43.4	+ 8.5	74	6	10	23	39	3.68	+ 1.96	0.70	4.5	11	11	11	8	s	S. P. Vandike
Boone	Boone	1,134	3	41.4		75	4*	9	18	40	7.67		2.50	5.0	10	12	4	14		Cari Fritz Henning
Buckingham	Tama		8								2.83	+ 1.38	0.84	0.7	8	9	15	6		Dr. W. A. Daniels
Carroll	Carroll	1,265	18	38.0	+ 3.8	77	4	3	17	37	7.26	+ 6.13	2.80	7.0	8	6	5	19	nw	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	26	44.1	+ 8.2	74	12	15	18*	39	2.82	+ 1.42	0.89	1.0	10	14	3	13	w	W. J. Greene
Clinton	Clinton	593	40	45.2	+ 9.5	70	13	16	18*	33	3.58	+ 0.74	1.11	1.0	9	5	14	11	e	Luke Roberts
Davenport	Scott	580	36	46.8	+ 9.3	72	13	17	18	35	3.92	+ 2.16	1.26	0.7	12	10	9	11	e	Weather Bureau
Delaware	Delaware	1,083	17	41.7	+ 8.9	68	11	10	23	33	3.54	+ 1.97	0.85	3.0	8	9	15	6	se	Wm. Ball
Denison	Crawford	1,180	13	40.1a	+ 4.5	77a	5	05	18	42a	8.13	+ 7.12	2.74	6.1	11				s	W. C. Van Ness
Des Moines	Polk	861	29	44.8	+ 8.0	76	6	14	17*	36	3.71	+ 2.23	1.67	1.8	11	5	4	21	s	Weather Bureau
De Soto	Dallas	866	8	44.8	+ 6.1	81	5	12	17*	42	4.27	+ 3.05	1.29	1.0	10	11	4	15	sw	R. D. Minard
Dubuque	Dubuque	639	35	44.2	+ 8.2	71	13	13	23	36	2.94	+ 1.13	1.19	3.5	12	9	10	11	s	Weather Bureau
Fort Dodge	Webster	1,126	8	39.2	+ 4.0	75	4*	7	18	38	7.14	+ 5.92	2.20	9.5	9	15	0	15	s	J. F. Monk
Gilman	Marshall	1,052	9								3.97	+ 2.57	0.65	T	11					Gas. L. Wylie
Grinnell	Poweshiek	1,023	16	45.5	+ 9.5	75	4*	12	18	36	4.28	+ 2.65	1.58	2.5	10	9	8	13	s	D. W. Brainard
Grundy Center	Grundy	976	17	43.0	+ 9.0	71	4*	10	23	36	5.78	+ 4.56	1.90	2.0	8	6	8	16	nw	J. B. Calderwood
Guthrie Center	Guthrie	1,077	13	43.5	+ 6.2	78	4	9	18	39	7.78	+ 6.63	3.68	7.0	13	12	1	17	nw	D. G. Beardsley
Harlan	Shelby	1,192	9	41.4	+ 4.2	78	5	6	18	39	5.85	+ 4.81	4.08	8.0	11	11	6	13	s	C. A. Reynolds
Independence	Buchanan	921	43	43.8	+ 11.2	69	4*	6	23	36	2.07	+ 0.75	0.58	4.5	6	12	7	11	s	George Donohoe
Iowa City	Johnson	683	49	43.4	+ 7.7	73	6*	11	24	41	4.88	+ 2.62	1.12	2.0	12	12	0	18	nw	Arthur G. Smith
Iowa Falls	Hardin	1,170	15	39.6	+ 6.5	70	4*	8	18	39	5.70	+ 4.45	1.30	6.5	12	12	1	17	s	J. B. Parmelee
Jefferson	Greene			42.5		77	5	10	18	37	6.13	+ 4.82	2.71	8.0	8	8	5	17	nw	Geo. W. Jackson
Le Claire	Scott	576									5.10	+ 3.63	1.08	1.5	15					Margaret T. Disney
Little Sioux	Harrison		4	41.4		79	5	3	17	41										

CLIMATOLOGICAL DATA FOR IOWA, NOVEMBER, 1909—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit							Precip., in inches				Sky			Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	Number clear days	Number partly cloudy days			Number cloudy days
SOUTHERN SECTION																				
Alton	Union	1,212	14	45.0	+ 8.2	76	5	13	17*	32	5.20	+ 3.97	1.83	3.5	10	18	6	16	sw	N. W. Rowell
Albia	Monroe	959	10	44.6	+ 5.9	81	5	11	17	39	4.51	+ 2.74	1.08	1.0	11	9	8	13	sw	J. I. Chenoweth
Allerton	Wayne	6	6	46.8c	+ 6.2	80c	5	14c	18	40c										Mrs. Geo. Shriver
Atlantic	Cass	1,164	17	42.9	+ 7.5	78	5	10	18	37	8.66	+ 7.68	3.44	5.0	12	6	6	18	se	Thos. H. Whitney
Bedford	Taylor	8	8	45.0	+ 9.6	77	5	10	18	38	4.21	+ 2.92	0.86	1.2	11	12	3	15	s	E. E. Healy
Bloomfield	Davis																			C. R. Davis
Bonaparte	Van Buren	17	17	48.0	+ 9.5	79	5	13	18	34	3.84	+ 2.04	1.15	0.1	8					Hon. B. R. Vale
Burlington	Des Moines	544	12	47.5	+ 7.8	76	5*	15	18	35	4.53	+ 2.75	1.35	T	11	16	4	10	sw	M. E. Poppe, Jr.
Chariton	Lucas	1,042	13	46.0	+ 7.3	81	5	12	18	38	4.74	+ 3.44	1.30	1.0	8	8	7	15	se	C. C. Burr
Clarinda	Page	1,009	18	44.3	+ 6.5	79	5	13	18	42	5.74	+ 4.58	1.95	5.0	12	11	3	16	s	A. S. Van Sandt
Columbus Junction	Louisa	595	7	47.4	+ 8.4	75	6	15	18	32	4.76	+ 3.25	1.20	1.0	9	17	3	10	s	J. B. Johnston
Corning	Adams	1,117	16	44.1	+ 6.9	74	5	12	17	38	5.62	+ 4.42	2.24	4.0	10	9	9	12	se	Jerome Smith
Corydon	Wayne	1,101	15	47.9	+ 9.2	82	5	13	18	38	3.46	+ 2.01	1.01	T	9	13	2	15	s	Clara Miller
Creston	Union	1,312	3	43.2		79	5	12	18	40	4.92		1.70	1.0	10	16	2	12	sw	E. S. Stovall
Cumberland	Cass	9	9								3.36	+ 2.38	1.90	3.0	7	15	4	11	s	J. H. Reppert
Earlham	Madison	6	6	44.8	+ 7.0	79	5*	13	17*	41	5.87	+ 4.53	1.32	5.0	11	9	3	18	se	Geo. Phillips
Elliott	Montgomery	3	3	43.2		78	5	12	18	39	7.78		3.30	6.0	11	10	7	13	s	Henry Barnes
Fairfield	Jefferson	14	14	48.0b	+ 11.1	80b	5	15b	18	37b	4.72	+ 2.44	1.65	0.5	9					R. Monroe McKenzie
Fort Madison	Lee	516	59								4.28	+ 2.14	2.25		6	8	8	14	sw	Miss L. A. McCreedy
Greenfield	Adair	17	17																	
Hancock	Pottawattamie	1,113	27	43.0		78	6	10	18	36	8.38		3.00	7.0	8	11	1	18	nw	G. C. Rogers
Hopeville	Clarke	17	17	45.8	+ 9.1	79	5	13	18	35	4.60	+ 3.51	1.39	1.0	10	8	9	13	s	M. T. Ashley
Indianola	Warren	969	17	46.0	+ 7.7	78	5	14	18	34	5.09	+ 3.67	1.12	4.0	11	8	0	22	se	Prof. J. L. Tilton
Keokuk	Lee	574	37	50.2	+ 10.8	79	5	17	18	29	3.97	+ 2.12	1.33	T	9	9	9	12	se	Weather Bureau
Keosauqua	Van Buren	644	16	46.6	+ 7.7	78	5	14	18*	41	3.28	+ 1.78	1.00	0.5	10	5	15	10		J. H. Landes
Knoxville†	Marion	920	12																	Casey & Bellville
Lacona	Warren	9	9								4.59	+ 3.12	1.20	2.0	12	3	17	10		J. B. Atter
Lamoni	Decatur			47.0		75	5	13	18	33	3.66		1.01	1.0	14	13	0	17	nw	T. J. Fitzpatrick
Lenox	Taylor	1,250	13	45.0	+ 7.1	75	5	12	18	31	4.42	+ 3.20	1.40	2.5	11	13	5	12	s	J. L. Hurley
Leon	Decatur	1,120	6	47.8	+ 7.2	76	6	14	18	38	3.50	+ 1.58	0.95	1.5	9	7	7	16	s	Morris Gardner
Massena	Cass	3	3	41.6		75	6	6	17*	38	7.25		2.65	1.5	9	11	2	17	se	C. E. Smeltzer
Mt. Ayr	Ringgold	1,236	15	46.8	+ 7.9	79	5	14	17*	36	4.29	+ 2.93	0.91	1.8	15	9	6	15	sw	A. F. Beard
Mt. Pleasant	Henry	729	26	47.7	+ 10.3	74	6	15	18	32	4.95	+ 3.39	2.05	0.8	9	11	9	10	sw	J. W. Edwards
Omaha, Neb.	Douglas	1,040	38	43.9	+ 6.2	77	5	14	17	32	6.24	+ 5.18	2.53	5.2	13	7	10	13	s	Weather Bureau
Oskaloosa	Mahaska	843	24	46.5	+ 9.5	75	6	15	18	37	4.01	+ 2.52	2.00	1.2	8	11	0	19	se	Jos. Boyd
Ottumwa	Wapello	649	14	48.4	+ 8.9	80	5*	15	18	38			1.2		4	6	20	se	W. J. Mesmer	
Pacific Junction	Mills	960	9	42.4	+ 3.3	76	4	11	18	41	9.74	+ 8.80	3.04	4.1	11	8	11	11	s	H. H. McCartney
Pella	Marion	877	6	45.7	+ 8.4	78	10	11	23	41	5.50	+ 4.07	2.18	2.0	10	14				John H. Ver Steeg
St. Charles	Madison	1,070	7	46.4	+ 5.3	84	5	11	17	41	5.18	+ 3.75	1.62	3.0	11	15	3	12	nw	R. D. Minard
Sigourney	Keokuk	877	12	46.4	+ 7.5	75	6	13	18	33	5.30	+ 3.75	0.97	3.0	12	3	20	7	se	J. T. Parker
Stockport	Van Buren		6	46.2		79	5	12	18	38	3.51	+ 2.00	1.13	0.5	12	12	5	13	s	C. L. Beswick
Thurman	Fremont	11	11	44.0	+ 5.4	77	6	10	18	39	10.33	+ 9.03	3.96	4.0	12	7	7	16	nw	C. R. Paul
Wapello	Louisa	588	10	48.2	+ 7.0	74	6	18	18	30	3.29	+ 1.89	0.86	T	10	10	10	10	se	Geo. W. Schofield
Washington	Washington	769	27	46.4	+ 10.2	76	5*	14	18	34	6.04	+ 4.63	1.98	?	11	9	11	10	sw	Wm. A. Cook
Winterset	Madison	1,129	17	44.2	+ 7.4	75	5	13	17*	35	4.26	+ 2.97	1.17	3.0	9	11	5	14	s	Dr. Robert S. Cooper
Woodburn	Clarke	961	9	47.2		80	5	11	18	44	4.66	+ 3.42	1.30	3.0	11	11	5	14	sw	C. B. McDonough
Average				45.8	+ 7.6	78		13		37	5.18	+ 3.74		2.3	10	10	6	14	s	
State average				42.4	+ 6.5	74		9		37	5.39	+ 4.00		6.8	10	10	7	13	s	

* And other dates. a one day missing, b two days; c three days, etc. † Received too late to be included in average.

THUNDERSTORMS—STATIONS AND DATES

NORTHERN SECTION.	CENTRAL SECTION.	SOUTHERN SECTION.
Algona	Amana	Albia
Alta	Audubon	Allerton
Alton	Baxter	Atlantic
Britt	Boone	Bedford
Clear Lake	Carroll	Clarinda
Elma	Clinton	Columbus Junction
Estherville	Delaware	Corning
Fayette	Fort Dodge	Corydon
Grand Meadow	Grinnell	Earlham
Greene	Guthrie Center	Elliott
Hampton	Harlan	Fairfield
Inwood	Independence	Fort Madison
Larrabee	Iowa City	Hopeville
Le Mars	Iowa Falls	Indianola
Mason City	Little Sioux	Keosauqua
New Hampton	Logan	Lamoni
Northwood	Onawa	Leon
Plover	Stuart	Mount Ayr
Pocahontas	Waterloo	Mount Pleasant
Ridgeway	Wauke	Oskaloosa
Sheldon	Whitten	Ottumwa
Sibley		Pacific Junction
Sioux Center		Pella
Storm Lake		Sigourney
Waverly		Thurman
West Bend		Wapello
		Washington
		Winterset
		Woodburn

DAILY PRECIPITATION FOR IOWA, NOVEMBER, 1909

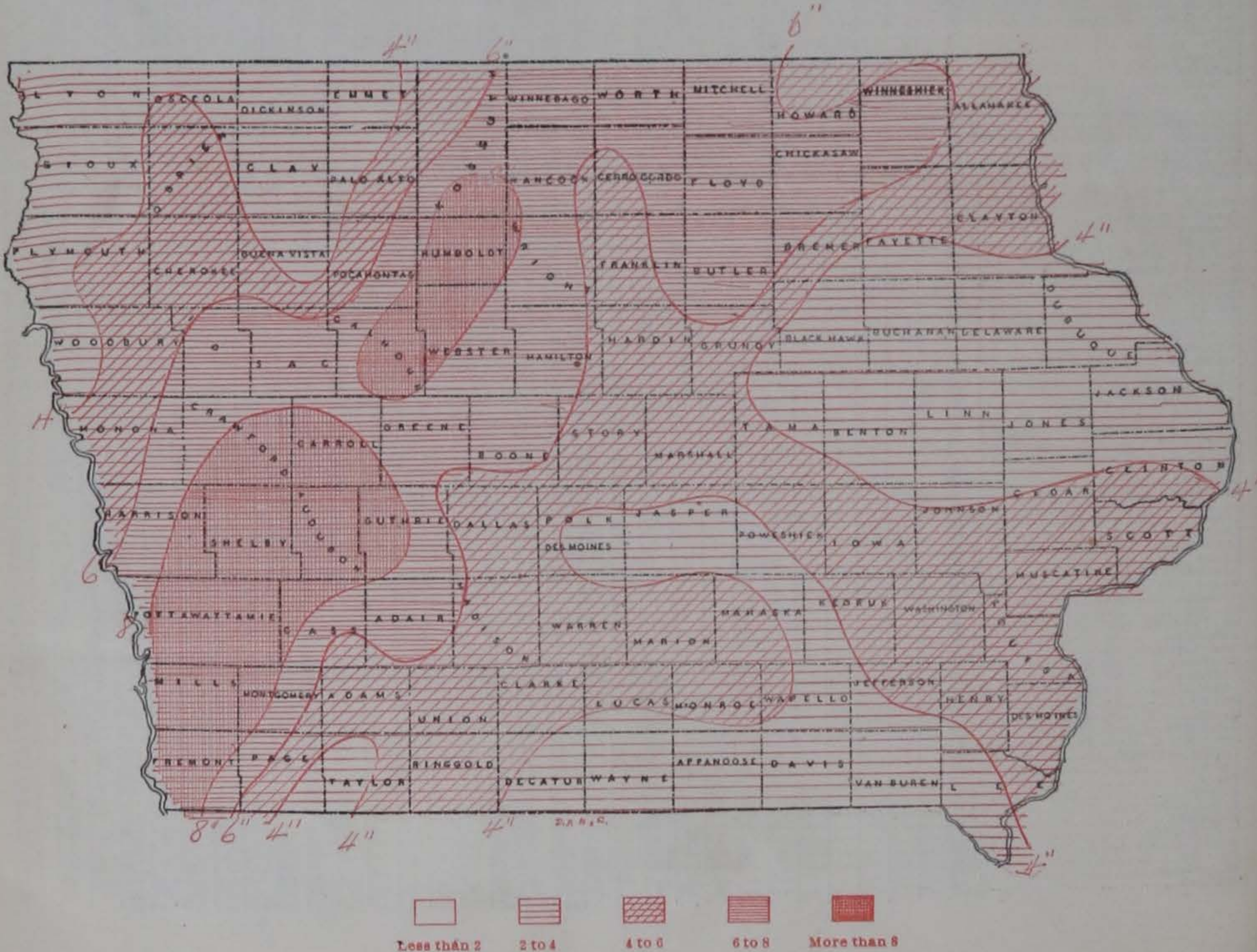
STATIONS	DAY OF MONTH																														TOTAL		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
Afton	.59						1.55				.10		1.83	.07	.10								.30	.05					.59		.02	5.20	
Albia	.15	.01					T 1.08	T				.20	.70	.20	.89								.85	.05		.05			.33	T	T	4.51	
Algona	1.50		?								1.29	T 2.25	.28	.02	.70								.10	.80	T	.07		T 1.03	T	T	8.04		
Allerton	?	?					1.00	.20	.02			T .05	.46	.12	.03	1.00							.39	T	T		T	.20		T	?		
Alta	1.50	.15									.90	.10	.40	1.90	.40								.03	.45	.06	.13		.01	.07		.03	6.13	
Alta (near)	1.05										1.10	T .88	1.40		.40								.02	.40	.10	.10		.01	.03	T	.03	5.56	
Alton	.68								T		.18		.30	1.18	T .80								.05	.60	.15					T		3.94	
Amana	.19						.55	.05			.10	.05	.75	.36	.90	T								.64		.12			.43			4.14	
Ames	.74						.47			T		.07	2.00	.04	.05	.10							.30	T					.37	T	.02	4.16	
Atlantic	1.14						.53		T	T	.66	.80	3.44	.35	.24	.29							.39	.15	.02		T	T	.65	T		8.66	
Audubon	1.40						.06				.27	.10	3.77	.55	.25	.39							.45	.25	.10				.98			8.57	
Baxter	.27						.75	.21		.01	.37	.31	.88	.05	.17	.30							.31		T		.02		.56		.02	4.23	
Bedford	.17						.69	.06	T	T		.72	.86	.20	.28	.42							.24	.11				.46	T	T		4.21	
Belle Plaine	.52						.34			.04	.10	.15	.70	.14	.68								.45		.11			.45				3.68	
Bonaparte	.43						.62	.10				.11		.53	1.15								.75					.15				3.84	
Boone	2.20	T					.04	.07			.36	.12	2.50	.60	.78							T	.60	T				.40				7.67	
Britt	1.23						.03				1.44	.06	2.54	T .07	.80								.21	.80		T	T	.05	.21	.05	.06	7.55	
Buckingham	.16						.40				.37	.84		.24	.40								.07					.35				2.83	
Burlington	1.35	.06					.47				.60	.06	.08	.50									T	.70	.04			.02	.35			4.53	
Carroll								1.00			2.80	1.95	.30										.30	.10				.58			.23	7.26	
Cedar Rapids	.20						.44				.09	.68	.21	.44	T	T						T	.22	.12		.12		.30	T			2.82	
Chariton	.42						1.30		T		.22	T .70	.15	T .95									.80	T				.20				4.74	
Charles City	.41						.19				1.58	.44	1.33	.24	.49	.11							.18	.50	.43	T .06	.08	.04				6.06	
Clarinda		.02					.24	.74			.08	T 1.95	.80	.84									.30	.30	.10			.66		.01		5.74	
Clear Lake	.20						.50				1.42		2.05	.30									.05	.60				.25	.50			5.87	
Clinton							.65			.01	.22		.30	.20									.81		.01			.27				3.58	
Columbus Jct.	.67	.05					1.20				.05		.38	T 1.00	T								1.00		T			.40	.01			4.76	
Corning	.18						.71			T	.25	*	2.24	.17	T .67								.20	.20				1.00	T			5.62	
Corydon	.16						.59	.16	T		T .08	.52	.10	T 1.01									.57	T			T	.27	T	T		3.46	
Creston	1.09	T					.43	.35			.15	T 1.70	.21	.34									.02	.10	T		T	.53	T	T		4.92	
Cumberland	.08											.21	1.90	.03	.06								.01					1.07				3.36	
Davenport	.15						1.25	.01	T		.17	.14	T .16	.06	.87								.27	.57		.06		.21				3.92	
Decorah	1.25						.02			T	2.35	.35	1.40	.32	.68								.30	.94				.30		T		7.91	
Delaware	.82						.28				.16		.83		.85								.08		.19			.33				3.54	
Denison	1.24									.10	1.17	T 2.73	1.58	.03	.42								.15	.07			T	.03	.60	T		8.13	
Des Moines	.03						.49		T	T	.02	.85	.53	.03	.22	.20							.09	.17	T	T		T	.78	T		3.71	
De Soto	.59						.33				.31	.10	1.29	.03	T .58								.29	T		T	T	.73		.02		4.27	
Dows	.96						.50				1.13		2.62	.56									.06					.21				6.04	
Dubuque	.15						.15				.16	.29	.19	.16	.15	1.04							.01	.32		.16		.16				2.94	
Earlham	.50						.89			T	.36	.20	1.82	.04	.14	.61							.31	.10			.90					5.87	
Elkader	1.21						.15				.79	.67		.14									T	1.17		.14		.24				4.51	
Elliott				.29			.06			T	.36	.70	3.30	.61	.68	.10							.40	.35			.93	T				7.78	
Elma	1.20						.10			T	1.40		1.47	.05	T .60								.05	1.14		T		.02				6.03	
Estherville	1.05										.60	T	.20	.60	.30	.10								.30				.20	.05			.06	3.46
Fairfield	.23						1.65	.07			T	.12	.17	.33	T 1.00								.85	T				.30	T			4.72	
Fayette	.48						.25			T	.60	.10	.80	.40	.10	.58							.48		.17		T	.40				4.36	
Forest City	1.55	.14									1.10		1.12	1.90	.60								.05	.65			.10					7.21	
Fort Dodge	.88	.05						.16			1.20	.40	2.20	1.35	.30								T	.60	T	T					T	7.14	
Ft. Madison	.25					2.25					.30			T .55									.85					.08				4.28	
Gilman							.65	.49		.02	.41	.23	.53	.32	.20	.43							.26	T			.43					3.97	
Grand Meadow	.91	T					.09			T	1.03		.68	.18	.45								.10	.60		.06		.34				4.44	
Greene	1.37						.25				1.83		2.20	.15	.67								.69		.08		.30					7.54	
Grinnell							1.58			.12	.11	.22	.56	.34	T .72								.15		T		.44	T	.04			4.28	
Grundy Center	.55						1.90				.66		1.20	.37	.40	T	T						.20				.50					5.78	
Guthrie Center	.75						.22			T	.73	.10	3.68	.18	.20	.48							.49	.04	.01		.89	T	.01			7.78	
Hampton							.35		.02	1.15	.40	1.50	.83		.95							.03	.85				.58		.03			6.74	
Hancock	.50										.50		3.00	2.30	.58								.30	.20			1.00	T	T			8.38	
Harlan	1.98						.04			T	.27	T 4.08	1.67	T .57									.37	.20	T		T	.03	.63	T	.01	5.85	
Hopeville	.11						1.39			T	.20	.54	.80	.26	.47								.41	T	T		.40					4.60	
Humboldt	3.44						.10				1.96		2.68	.68	.73								.70	1.07				.12				11.48	
Independence							.28				.33		.58	.23	T								.45	.20								2.07	
Indianola	.37						1.12	.01		T	.56	.46	.58	.05	.11	.47							T	.62			T	.74				5.09	
Inwood	.34								.01	T	T .09	.29	1.38	.10	.35								.03	.45			.01	.02				3.08	
Iowa City	.82	.08						.67		.03	T .33	.58	.31		1.12								.54	.05		T	.30	.05				4.88	
Iowa Falls	.98	.04						.54		T	.61	.33	1.30	.52	*	.56	T						T	.40	T		.02		.40		T	5.70	
Jefferson	1.07									.50	.05	1.00	2.71	.10	.10								.60	T			T	T	T			6.13	
Keokuk	.35						1.																										

DAILY PRECIPITATION FOR IOWA, NOVEMBER, 1909—Continued

STATIONS	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		
Sibley	.90									.18			.28	1.62		.50							.02	.20	.10			.18	.04		T	4.02
Sigourney	.25						.95	.60				.24	.05	.75	.16		.97						.80	.30	.02			.31	.20	T	5.30	
Sioux Center	.22								T	*	.24	.05	.34	1.00	.30							.05	.30				.02				2.47	
Sioux City	.11								T	.25	.04	.25	.13	.20	.35	.12					T	.35	.10	.04	T	T	.02	.01	.01	.04	3.02	
Stockport	.33						.50	.63				.03	.16	.17	.04	.85					T	.63	.02				.11	.04	T	3.51		
Storm Lake	.88									1.19		1.05	T		.40							.33	.05				.01				3.91	
Thurman	1.05						.28		T	T	.12	.84	3.96	1.99	.21	.61						.24	.12	T	T	.05	.86	T	T	10.33		
Tipton	.32						.49				.27	*	.34	.38		1.41					*	.79	.23				.35				4.58	
Toledo	.10						.70	.50			.40		.75	.25	T	.65						.10		.12			.50				4.07	
Wapello	.50						.25	.28	T		.09	.04	.03	.13		.86						.86		T			.25				3.29	
Washington	.70	.03					1.98				.02	.13	.19	.98		1.05				*	.72					.24					6.04	
Washta	.52									.63		.65	2.18		.30	.30						.30		.05	.15		.10				5.18	
Waterloo	.06						.18		T	T	.35		.84	.26	T	.46						.36	.13				.42				3.06	
Waukeo	.44						.17		T	T	.20	.54	1.31		.30	.39					T	.25	T	.06	.01		.82	.01	.01		4.51	
Waverly	.66						.43				.04	2.15	1.30	.10	.22	.32						.42	.14				.53				6.31	
Webster City	1.55						.37				1.36	T	2.23	.25	T	.10						.60	T	T			.30	T	T		6.86	
West Bend	1.28									T	1.18		*	2.64	.45							.05	.50	.03		T	.08				6.23	
Whitten	.93						.36				.19	.25	1.25		T	T								T			1.50				4.48	
Wilton Junction	.96						.90				.33	.18	.23		1.20							.60	T			.23					4.63	
Winterset	.34						.60				T	.05	.24	1.00		.22	.34					.30					1.17				4.26	
Woodburn	.50						1.30	.06	T	T	.05	.30	.50		.13	.80						.75		T			.26			.01	4.66	
Zearing	.65						.18				1.52		1.85		.10							.25									5.27	

TOTAL PRECIPITATION, NOVEMBER, 1909.

SCALE OF SHADES—IN INCHES



U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR DECEMBER, 1909
Annual Summary for 1909

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

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EMORY H. ENGLISH, STATE PRINTER
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FEB 11 1910

THE IOWA WEATHER AND CROP SERVICE

WAS ESTABLISHED BY ACT OF THE TWENTY-THIRD GENERAL ASSEMBLY, AND IS UNDER SUPERVISION
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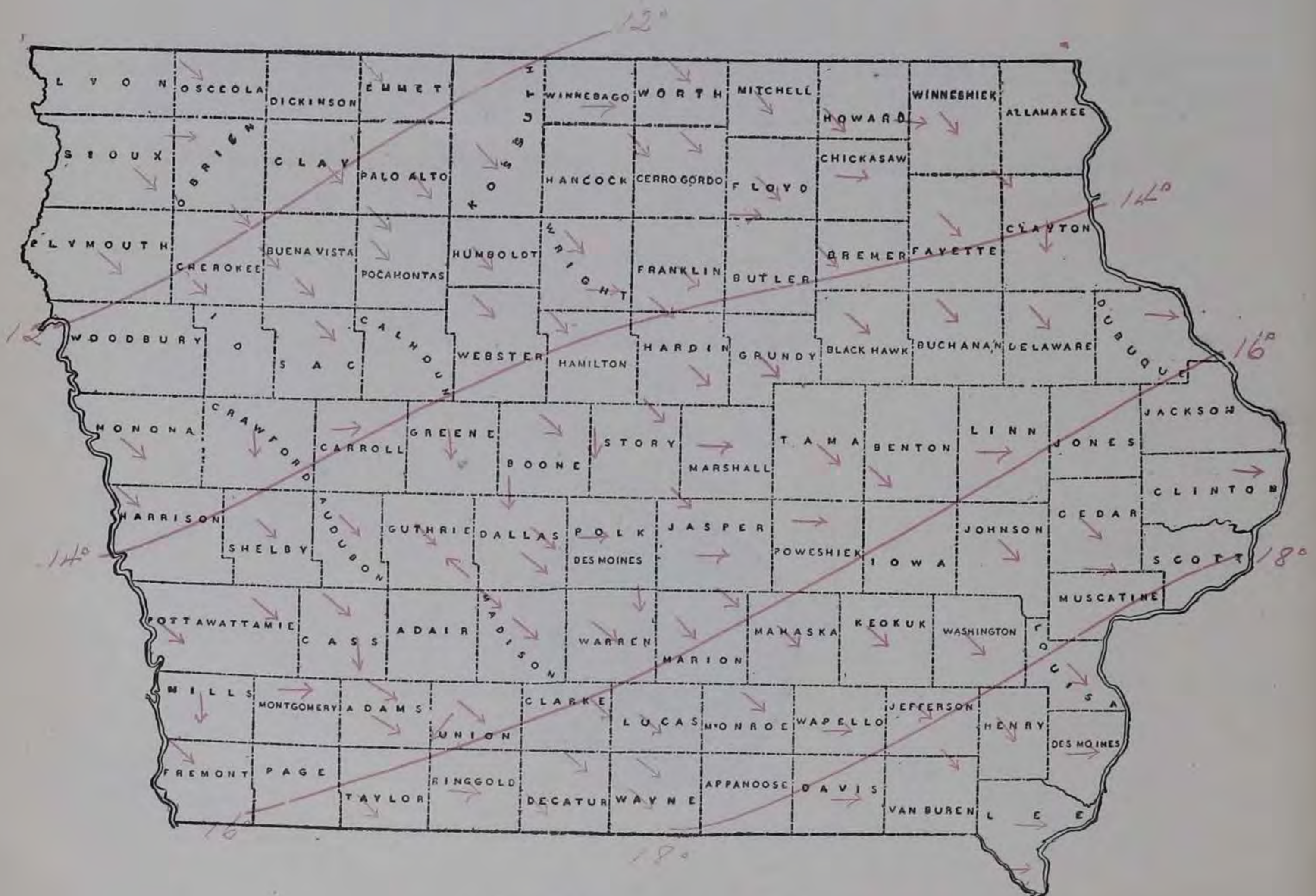
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MEAN ISOTHERMS AND PREVAILING WINDS OF DECEMBER, 1909.

Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
 CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
 GEO. M. CHAPPEL, Section Director.

VOL. XX DES MOINES, IOWA, DEC., 1909 No. 12

GENERAL SUMMARY

December, 1909, will be noted for its low average temperature, excessive cloudiness and the frequency of snow storms. It was the coldest December since state-wide observations began in 1890, and probably the coldest since 1876. The average temperature was 12.1° lower than the average for December, 1908, and 2.9° lower than any other December since 1890. The monthly minimum temperatures were not, however, as low as in 1892, 1901 and 1903, but the weather was continuously cold from the 5th to the 30th inclusive. The first four days were moderate, with maximum temperatures above 40° and ranged from 45° to 60° on the 2d. A cold wave passed over the state on the 5th, and from that date to the 30th the maximum temperatures were below the freezing point, except on one or two days, and the minimum temperatures were near or below zero. At many stations, the minimum temperature was below zero on a greater number of days than was ever before recorded during the month of December. The lowest temperature was recorded on the 29th, except in the extreme southeastern counties where the minimum occurred on the 30th.

The average precipitation was .99 inch above the normal and has been exceeded in December only twice during the past 20 years. In 1891 the average precipitation was .26 inch greater, and in 1902 it was .05 inch greater than the average for the past month. Rains were general from the 1st to the 3d, changing to snow in the northern district on the latter date, to sleet over the southern and eastern districts on the 4th and to snow over the larger part of the state on the 5th. After the 5th, snow fell at frequent intervals, but the daily amounts were generally light except on the 24th and 25th, when the amounts ranged from 2 to 12 inches of dry snow; the larger amounts being reported from the central and east central districts. At least a trace of precipitation fell at some station in the state 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 total snowfall for the state was 13.7 inches, and the ground was covered with snow from the 3d in the northern and from the 5th in the southern and eastern districts until the close of the month, and there has been more good sleighing than for many years so early in the winter. The snow has afforded good protection to winter grains, meadows, and alfalfa, and they are reported to be in excellent condition. The deep snow and severe cold weather have, however, put a stop to all drainage work and prevented the completion of corn husking. Fully 25 to 30 per cent of the corn is still in the fields, and much of it is covered with snow. The heavy snowfall on the 24th and 25th delayed all freight and the Christmas passenger traffic, but, as there was but little wind, no trains were stalled.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 116 stations, was 15.1°, which is 8.5° below the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 13.3°, which is 7.6° below the normal; central section 15.2°, which is 8.6° below the normal; southern section 16.9°, which is 9.3° below the normal. The highest monthly mean was 20.6°, at Keokuk, Lee county, and the lowest monthly mean 10.1°, at Sibley, Osceola county. The highest temperature reported was 60°, at Keokuk, Van Buren county, on the 1st; the lowest temperature reported was -26°, at Inwood, Lyon county, on the 29th. The average monthly maximum was 49°, and the average monthly minimum was -15°. The greatest daily range was 55°, at Sibley, Osceola county. The average of the greatest daily ranges was 37°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 114 stations, was 2.18 inches, which is .99 inch above the normal. By sections the averages were as follows: Northern section, 1.75 inches which is .72 inch above the normal; central section, 2.30 inches, which is 1.10 inch above the normal; southern section, 2.49 inches, which is 1.16 above the normal. The greatest amount, 6.10 inches, occurred at Clinton, Clinton county, and the least, .89 inch, at Storm Lake, Buena Vista county and at West Bend, Palo Alto county. The greatest amount in twenty-four hours, 2.32 inches, occurred at Clinton, Clinton county, on the 12th and 13th.

The average depth of snowfall for the State was 13.7 inches; the greatest depth was 29.0 inches at Sheldon, O'Brien county, and the least was 5.9 inches at West Bend, Palo Alto county.

Measurable precipitation occurred on an average of 11 days.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 10; partly cloudy, 5; cloudy, 16. The duration of sunshine was below the normal, the percentage of the possible amount being 35 per cent at Charles City; 35 per cent at Davenport; 38 per cent at Des Moines; 36 per cent at Dubuque; 31 per cent at Keokuk, and 35 per cent at Sioux City.

WIND.—Northwest winds prevailed. The highest velocity reported was 50 miles per hour from the northwest, at Sioux City, Woodbury county, on the 16th.

COMPARATIVE DATA FOR THE STATE—DECEMBER.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	29.1	72	-18	.45	1.40	.00
1891.....	32.3	72	-14	2.41	4.50	1.21
1892.....	18.9	68	-29	1.65	3.04	.20
1893.....	22.0	70	-21	1.31	2.80	.46
1894.....	30.1	73	-17	.95	1.75	.25
1895.....	25.4	63	-16	1.63	5.74	.00
1896.....	30.8	70	-10	.65	1.79	T
1897.....	18.0	60	-25	1.65	3.22	.61
1898.....	18.1	60	-25	.48	1.70	T
1899.....	22.6	75	-19	1.61	4.28	.10
1900.....	26.9	63	-10	.45	2.70	T
1901.....	20.5	64	-31	.93	2.75	.05
1902.....	20.1	59	-20	2.23	5.51	.67
1903.....	19.6	58	-27	.41	1.96	T
1904.....	23.4	67	-19	1.44	3.68	.06
1905.....	27.0	62	-11	.52	1.69	T
1906.....	25.7	65	-9	1.43	2.81	.37
1907.....	28.8	62	-9	1.00	2.28	.05
1908.....	27.2	67	-17	.57	2.07	.05
1909.....	15.1	60	-26	2.18	6.10	.89

T indicates a Trace.

- indicates temperature below zero.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.08 inches.
Prevailing direction of Wind, Northwest.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum Velocity, miles	Direction	Date	Average Hourly Velocity
Charles City.	30.05	30.47	23	29.62	2	5696	26	NW	16	7.7
Davenport ..	30.05	30.52	23	29.57	13	6617	28	W	5	8.9
Des Moines ..	30.07	30.47	22	29.58	2	6416	29	W	5	8.6
Dubuque....	30.06	30.52	23	29.59	5	4749	22	SW	5	6.4
Keokuk	30.10	30.55	23	29.66	13	6440	35	SW	5	8.7
Omaha, Neb..	30.12	30.46	29	29.51	1	7072	32	NW	16	9.5
Sioux City ..	30.12	30.50	29	29.55	1	9814	50	NW	16	13.2

OBSERVER'S REMARKS

AFTON.—*N. W. Rowell.* The past month was the coldest December for 15 years.

ALBIA.—*J. I. Chenoweth.* December was a genuine winter month; there being two to nine inches of snow on the ground after the 7th and there were nine days with the temperature below zero. A fine quality of ice from twelve to fourteen inches thick is being harvested.

ALGONA.—*Dr. F. T. Seeley.* There has been a great deal of snow and winter weather during December. The temperature was below zero on twelve days.

ALTA.—*David E. Hadden.* December, 1909 was the coldest December in twenty years; the mean temperature being 10.5° below the normal. The ground was well covered with snow nearly all the month.

ALTON.—*W. S. Slagle.* There has been snow on the ground continuously since the 5th and there has been fine sleighing. Much of the corn was marketed during the month as the severe cold weather kept it in shipping condition.

AMANA.—*C. Schadt.* This has been the coldest December for many years and there was 8.5 inches of snow on the ground at the end of the month.

ATLANTIC.—*Thos. H. Whitney.* December was a cold and snowy month, and, as the pastures and stock fields have not been available in general, the price of hay and feed has been unusually high. Much of the corn still remains in the fields.

BAXTER.—*W. R. Vandike.* The snow was ten inches deep at the close of the month and the sleighing was good.

BELMOND.—*Geo. P. Hardwick.* Excessive snow and blustering weather prevented the completion of the corn harvest and one-fifth of the crop is still in the fields at the end of the year.

BLOOMFIELD.—*C. R. Davis.* About 10 per cent of the corn crop is yet in the fields.

BONAPARTE.—*B. R. Vale.* The precipitation was above and the temperature below the normal but as there were no severe storms it was a pleasant month for feeding stock.

BRITT.—*L. M. Goodman.* There was only one day during the last half of the month on which the temperature was above the freezing point.

BURLINGTON.—*Max E. Poppe Jr.* The 11th of December was the most disagreeable day for years. The ground was covered with an ice-sheet and the sharp wind, driving sleet in all directions, made all roads and walks dangerous.

CHARITON.—*C. C. Burr.* The month has given the greatest snow-fall and the lowest temperature of recent years. Feed is scarce and high in price but stock is doing fairly well.

CHARLES CITY.—*Edward W. McGann.* The mean temperature was only 0.2° higher than the mean of the coldest December on record. The 29th was the coldest day of the month, when the mean temperature was 11° below zero. The total precipitation was above the normal and came principally in the form of light snow; the total

depth for the month being 16.3 inches and falling upon 18 days. At the close of the month the ground was covered to the depth of 7.6 inches and good sleighing prevailed. The month was especially noted for its high humidity, frequent light snows and a great deficiency of sunshine, cloudy weather generally prevailing.

CLARINDA.—*A. S. Van Sandt.* This has been the coldest December since records began here in 1888.

CLINTON.—*Luke Roberts.* The precipitation was 4.22 inches above the normal and the greatest amount in any December for 31 years.

CRESTON.—*E. S. Stovall.* There has been about five inches of snow on the ground since the 5th of the month.

DAVENPORT.—*J. M. Shriver.* With the exception of the periods from the 1st to the 5th and the 12th to the 15th inclusive, the temperature was continuously below the normal, the greatest deficiency for any day being 29° on the 29th when the mean temperature was 6° below zero. A trace or more of snow occurred on 18 days, the total for the month being 16.3 inches, which is the greatest amount on record for any December, with the single exception of that for December 1887. On the evening of the 29th the depth of snow on the ground was 11.3 inches, 7.1 inches of which fell in one storm, on the 24th and 25th.

DUBUQUE.—*J. H. Spencer.* This has been the coldest December since 1886, when the average was 16°. In 35 years the average has been lower only twice. The maximum temperature was below the freezing point on more dates than ever before recorded in December. The total amount of unmelted snow, 17.7 inches, is the largest amount on record in December since 1887. There were 17 days when .01 of an inch or more fell, a greater number than during any December at this station, with one exception. The heavy snow storm of the 24th and 25th was the most serious of the month. The snow drifted badly and railroad traffic was much interfered with. The severe cold also delayed trains during the greater portion of the month and made the shipment of perishable produce very difficult. Most of the rivers in this district froze over during the first ten days of the month. The Mississippi froze over at Dubuque on the 17th and at the close of the month the ice was about ten inches thick. Sleighing was fine from about the 10th until the close of the month.

ELLIOTT.—*Henry Barnes.* Bad roads and cold and stormy weather prevailed during the month. Stock cannot be turned into the corn fields as much of the corn is ungathered, and as a result and the heavy feeding of hay, the price of hay is \$10 to \$15 per ton.

FOREST CITY.—*J. A. Peters.* There has been no opportunity to pick the corn remaining in the fields.

GRAND MEADOW (P. O. Postville).—*F. L. Williams.* The month was extremely stormy and cold, there being 14 days on which the temperature was down to or below zero. There is no bare ground at the end of the month and most of the roads are drifted full of snow.

GRINNELL.—*D. W. Brainard.* This has been the coldest December known here and we have had the best run of sleighing in several years. The ice harvest is also the best on record for December but the month was very unfavorable for the corn harvest. There are several hundred acres of corn unpicked and the grain is under a foot of snow.

HARLAN.—*C. A. Reynolds.* December was about as stiff a winter month as we have ever had.

INWOOD.—*F. B. Hanson.* Most of the corn that was in the field the first of the month is still unpicked. Much of the corn is down and it has been impossible to pick it on account of snow and cold.

KEOKUK.—*Fred Z. Gosewisch.* The month has been continuously cold with the minimum below 32° each day since the 5th and the ground has been covered with snow since the afternoon of the 5th. This has been the coldest December since 1876, and at the close of the month the ice in the canal is 14 inches thick.

CLIMATOLOGICAL DATA FOR IOWA, DECEMBER, 1909

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days	No. partly cloudy days			No. cloudy days	
NORTHERN SECTION																					
Algona	Kossuth	1,213	34	13.8	-6.3	45	2	-15	29	36	1.29	+ .26	.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	+ .40	.33	11.0	11	9	6	16	nw	D. E. Hadden	
Alta [near]	Buena Vista										1.39	+ .55	.30	12.0	10					W. J. Minard	
Alton	Sioux	1,305	3	12.2		46	1	-18	29	37	1.90		.74	11.0	12	15	3	13	nw	W. S. Slagle	
Belmond	Wright			15.2		46	2	-14	29	35	2.64		.40	15.9	20	0	15	16	nw	G. P. Hardwick	
Charles City	Floyd	1,015	20	13.2	-5.8	48	2	-16	29	29	1.79	+ .51	.44	16.3	16	3	6	22	nw	Weather Bureau	
Clear Lake	Cerro Gordo	1,241	9	14.6	-5.8	45	*1	-15	29	36	1.80	+1.17	1.00		7	10	0	21	nw	Oscar Stevens	
Decorah	Winneshiek	875	15	14.8	-6.2	50	2	-15	29	32	2.24	+ .88	.42	17.0	15					F. H. Baker	
Dows	Wright	1,142	8	16.4	-5.1	45	2	-18	30	41						10	2	19	w	G. R. Flett	
Elkader	Clayton	727	27	13.4	-8.2	55	3	-19	18	32	2.46	+ .63	.62	16.5	8	5	20	6	n	Chas. Reinecke	
Elma	Howard					49	2	-17	29		1.13		.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	+ .93	.59	6.5	6	14	0	17	nw	A. O. Peterson	
Fayette †	Fayette	1,003	18	13.7	-12.9	49	2	-21	30	36	2.84	+1.35	.53	24.5	15	9	11	11	nw	R. Z. Latimer	
Forest City	Winneshiek	1,226	14	12.2	-7.6	45	*1	-15	29	43	1.40	+ .55	.50	12.0	6	7	3	21	w	J. A. Peters	
Grand Meadow	Clayton	1,180	17	13.4	-8.1	50	2	-17	*20	39	2.45	+ .99	.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	+ .92	.36		14	4	6	21	w	J. L. Cole	
Hampton	Franklin	1,155	18	13.7	-7.8	46	2	-16	29	37	2.23	+ .98	.65	17.2	12	7	8	16	nw	E. C. Grenelle	
Humboldt	Humboldt	1,095	17	14.8a	-8.5	46	2	-17	29	38a	1.36	+ .67	.42	12.0	8	16	1	14	nw	H. S. Wells	
Inwood	Lyon	1,474	4	10.6		45	1	-26	29	38	1.65		.53	11.0	16	13	8	10	w	F. B. Hanson	
Larrabee	Cherokee	1,266	17	12.6	-9.7	44	*1	-21	29	35	1.84	+ .88	.60	15.7	16	12	6	13	nw	H. B. Strever	
Le Mars	Plymouth	1,224	12	13.1	-10.6	46	1	-16	29	39	1.04	+ .22	.31		12	10	8	13	nw	G. A. C. Clarke	
Mason City	Cerro Gordo	1,132	11	13.8	-7.9	46	*1	-14	29	34	1.59	+ .78	.40	10.0	10	9	6	16	nw	J. S. Mills	
New Hampton	Chickasaw	1,169	11	12.6	-6.9	47	2	-17	*29	31	1.23	+ .30	.40	10.5	7	6	6	19	w	A. F. Kemman	
Northwood	Worth	1,222	12	13.3	-6.7	47	2	-16	29	29	1.70	+ .60	.30	13.0	14	13	4	14	nw	Charles H. Dwelle	
Osage	Mitchell	1,184	17	13.6	-6.0	46	2	-20	30	34	2.89	+1.54	.60		6	9	5	17	nw	Dr. A. D. Bundy	
Plover	Pocahontas	1,426	12	13.2	-8.1	45	*1	-20	29	36	1.13	+ .37	.39	10.0	10	10	4	17	nw	J. S. Smith	
Pocahontas	Pocahontas		4	12.5		45	*1	-17	29	35	.97		.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	.75	20.0	25	6	4	21	w	Arthur Betts	
Rock Rapids	Lyon	1,358	9																		
Sheldon	O'Brien	1,422	8	11.9	-10.3	45	*1	-20	29	37	3.40	+2.59	.50	29.0	19	7	5	19	w	Dr. A. W. Beach	
Sibley	Osceola	1,212	15	10.1	-9.5	43	*1	-20	29	55	1.39	+ .61	.50	9.5	9				nw	H. G. Doolittle	
Sioux Center	Sioux		9	12.0	-9.7	45	1	-19	29	40	.90	+ .11	.20	8.5	7	8	0	23	w	J. de Ruyter	
Storm Lake	Buena Vista	1,440	12	14.3b	-7.1	45	1	-18	29	39b	.89	+ .06	.24	8.5	9	12	10	9	nw	S. B. Fracker	
Washta	Cherokee	1,157	10	13.2		50	1	-21	19	32	1.05	+ .20	.30	8.5	8	6	11	14	nw	H. L. Felter	
Waverly	Bremer	948	12	14.9	-6.7	48	2	-14	30	32	2.29	+1.11	.41	16.6	12	3	11	17	nw	H. S. Hoover	
West Bend	Palo Alto	1,197	14	13.8	-6.8	45	2	-16	29	32	.89	0	.25	5.9	9	12	3	16	nw	Phil Dorweiler	
Average				13.3	-7.6	47		-17		36	1.75	+ .72		13.0	11	9	6	16	nw		
CENTRAL SECTION																					
Amana	Iowa	721	31	17.0	-5.6	51	5	-13	30	37	2.37	+ .92	.52	12.0	12	8	8	15	nw	Conrad 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	
Audubon	Audubon	1,301	15	15.2	-8.7	46	*1	-14	29	34	2.01	+1.05	.50	11.2	11	14	2	15	nw	Geo. E. Kellogg	
Baxter	Jasper	998	8	15.3b	-8.9	47c	2	-15a	29	38d	2.04	+1.15	.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	.60	16.5	14	9	2	20	nw	S. P. VanDike	
Boone	Boone	1,134	3	14.1		46	1	-15	30	45	2.45		.64	13.0	9	9	3	19	nw	Carl Fritz Henning	
Buckingham	Tama		8								1.50	+ .53	.63		7	9	9	13		Dr. W. A. Daniels	
Carroll	Carroll	1,265	18	13.2	-10.2	45	1	-19	28	43	1.45	+ .46	.40	11.0	9	13	3	15	w	Mrs. Jos. J. Wolfe	
Cedar Rapids	Linn	733	26	16.5	-8.5	53	2	-13	30	32	1.50	0	.50	12.2	10	12	2	17	w	W. J. Greene	
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	
Davenport	Scott	580	36	17.8	-8.4	55	2	-10	29	40	3.12	+1.43	1.36	16.3	13	6	9	16	w	Weather Bureau	
Delaware	Delaware	1,083	17	13.2	-9.2	51	2	-17	30	32	1.64	+ .26	.47	12.3	10	8	14	9	nw	Wm. Ball	
Denison	Crawford	1,180	13	14.4	-9.1	46	*1	-15	29	34	1.90	+1.31	.50	17.2	13	12	4	15	n	W. C. Van Ness	
Des Moines	Polk	861	29	16.9	-8.8	48	1	-12	29	34	2.32	+1.01	.73	16.0	14	10	2	19	w	Weather Bureau	
De Soto	Dallas	866	8	16.0a	-10.5	48	1	-15	29	42a	2.05	+ .79	.59	10.5	5	20	1	10	nw	R. D. Minard	
Dubuque	Dubuque	639	35	16.6	-7.9	54	5	-11	29	43	2.08	+ .36	.66	17.7	17	8	7	16	w	Weather Bureau	
Fort Dodge	Webster	1,126	8	13.0	-9.5	47	1	-14	*29	44	1.39	+ .93	.40	10.0	8	13	1	17	nw	J. F. Monk	
Gilman	Marshall	1,052	9								2.87	+2.11	1.20	17.0	8					Jas. L. Wylie	
Grinnell	Poweshiek	1,023	16	17.2	-7.2	49	2	-13	29	35	1.99	+ .82	.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	.49	13.0	12	12	6	13	nw	D. G. Beardsley	
Harlan	Shelby	1,192	9	13.5	-10.5	46	1	-18	29	33	1.81	+ .91	.46	16.5	15	8	7	16	nw	C. A. Reynolds	
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	
Iowa City	Johnson	683	49	15.8	-8.4	53	4	-17	30	38	2.52	+ .87	.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	.74	17.5	13	12	0	19	nw	J. B. Parmelee	
Jefferson	Greene			16.2		47	2	-16	29	39	1.71	+ .96	.50	12.2	9	14	4	13	n	Geo. W. Jackson	
Le Claire	Scott	576				47	1	-22	29	47	1.62	+ .62	1.58	17.4	12					Margaret T. Disney	
Little Sioux	Harrison		4	13.4		47	1	-22	29	47	1.62	+ .62	1.58	17.4	12					Geo. H. Gibson	
Logan	Harrison	928	42	13.8	-11.4	47	1	-16	*19	39	1.93	+ .66	.41		?	11	12	4	15	ne	Glenn H. Stern
Marshalltown	Marshall	947	16	14.6	-8.9	48	2	-13	*29	38	2.98	+1.82	1.10	16.2</							

CLIMATOLOGICAL DATA FOR IOWA, DECEMBER, 1909-Continued

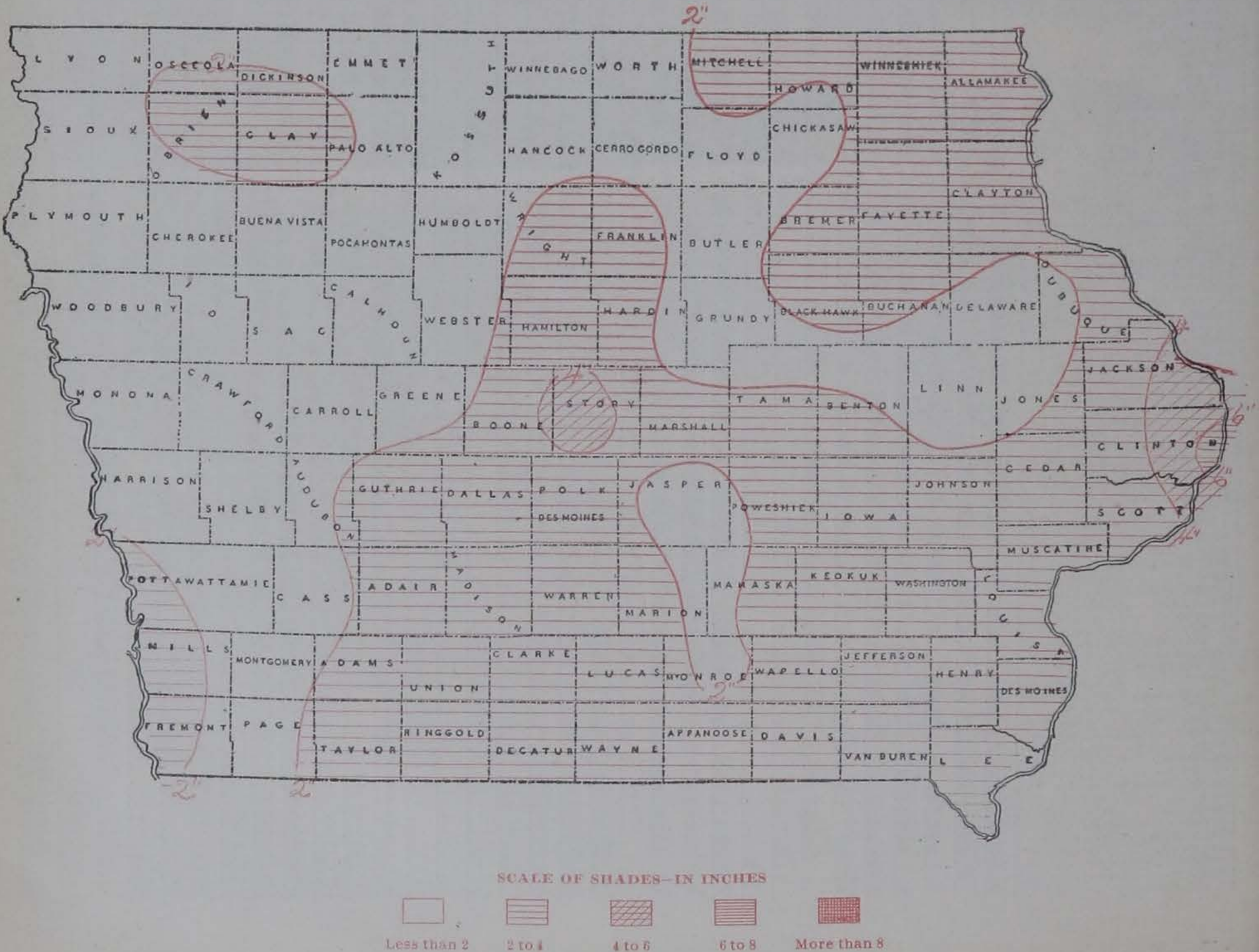
STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				Sky			Prevailing direction of wind	OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	Number clear days			Number partly cloudy days	Number cloudy days
SOUTHERN SECTION																				
Alton	Union	1,212	14	16.6	-9.1	49	1	-14	29	36	2.59	+1.35	.74	13.0	9	9	5	17	nw	N. W. Rowell
Albia	Monroe	959	10	16.4	-8.6	49	1	-13	29	31	1.80	+.66	.89	9.2	6	8	7	16	nw	J. I. Chenoweth
Allerton	Wayne	6	6	17.8	-8.7	50	1	-13	29	40	2.28	+1.11	.50	7.7	13	12	4	15	nw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	17	14.4	-10.5	48	2	-16	29	33	1.94	+.79	.65	15.0	9	10	5	16	nw	Thos. H. Whitney
Bedford	Taylor	8	8	16.2	-9.5	50	1	-17	29	41	2.30	+1.36	.55	11.2	10	11	4	16	nw	E. E. Healy
Bloomfield	Davis	15.8a	17	17.7	-10.2	51	2	-13	30	42a	3.47	.....	1.16	17.8	11	8	5	18	w	C. R. Davis
Benaparte	Van Buren	17	17	17.7	-10.2	51	2	-13	30	41	2.41	+.38	.62	7.0	9	.....	.....	.....	.....	Hon. B. R. Vale
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	M. E. Poppe, Jr.
Chariton	Lucas	1,042	13	16.2	-10.1	49	1	-14	29	39	2.45	+1.11	1.00	13.0	9	11	8	12	nw	C. C. Burr
Clarinda	Page	1,009	18	15.0	-11.6	51	1	-14	30	51	1.88	+.76	.36	12.5	13	12	6	13	nw	A. S. Van Sandt
Columbus Junction	Louisa	595	7	19.2	-7.4	55	2	-11	30	37	2.72	-1.26	.80	15.0	11	12	5	14	w	J. B. Johnston
Corning	Adams	1,117	16	14.4a	-12.7	49	1	-17	29	42b	2.38	+1.24	.96	10.0	5	14	5	12	nw	Jerome Smith
Corydon	Wayne	1,101	15	17.4	-9.3	49	1	-13	29	41	2.14	+.72	.61	.....	13	14	3	14	nw	Clara Miller
Creston	Union	1,312	3	16.4	.....	49	1	-16	29	41	1.96	.....	.53	.....	6	13	2	16	ne	E. S. Stovall
Cumberland	Cass	9	9	.....	.....	.....	.....	.....	.....	.....	1.80	+.78	.80	13.0	5	13	3	15	n	J. H. Reppert
Earlham	Madison	6	6	15.2	-6.8	47	1	-13	29	39	3.49	+2.19	.64	16.5	14	15	0	16	nw	Geo. Phillips
Elliott	Montgomery	3	3	15.3	.....	48	1	-16	29	36	1.80	.....	.50	13.0	8	12	7	12	w	Henry Barnes
Fairfield	Jefferson	14	14	17.8	-7.3	49	1	-13	30	39	2.39	+.61	1.24	10.4	11	16	12	3	nw	R. Monroe McKenzie
Fort Madison	Lee	516	59	.....	.....	.....	.....	.....	.....	.....	2.20	+.27	1.60	6.0	3	6	5	20	w	Miss L. A. McCready
Greenfield	Adair	17	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hancock	Pottawattamie	1,113	27	14.0	.....	46	1	-17	29	36	1.66	.....	.50	12.6	7	13	2	16	nw	G. C. Rogers
Hopeville	Clarke	17	17	16.4	-9.8	50	1	-14	29	37	2.07	+1.01	.63	.....	13	7	7	17	nw	M. T. Ashley
Indianola	Warren	969	17	16.6a	-9.2	48	1	-12	29	35a	2.32	+.99	.60	14.8	13	14	2	15	nw	Prof. J. L. Tilton
Keokuk	Lee	574	37	20.6	-8.8	55	2	-9	30	38	2.56	+.69	1.38	8.3	9	8	9	14	w	Weather Bureau
Keosauqua	Van Buren	644	16	18.6	-8.8	60	1	-14	30	41	2.78	+1.28	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	.65	11.5	12	12	4	15	nw	Casey & Bellville
Lacona	Warren	9	9	.....	.....	.....	.....	.....	.....	.....	4.00	+2.33	.90	25.0	14	5	20	6	.....	J. B. Alter
Lamoni	Decatur	17.6	17.6	.....	.....	53	2	-13	29	38	2.60	.....	.88	14.0	11	12	2	17	nw	T. J. Fitzpatrick
Lenox	Taylor	1,250	13	15.6	-9.7	50	1	-17	29	35	1.72	+.65	.50	8.1	11	17	2	12	nw	J. L. Hurley
Leon	Decatur	1,120	6	16.6	-10.0	51	1	-14	29	37	3.27	+2.00	.80	12.2	13	4	11	16	nw	Morris Gardner
Massena	Cass	3	3	13.7	.....	49	2	-17	19	38	2.71	.....	1.04	14.0	5	18	2	11	nw	C. E. Smeltzer
Mt. Ayr	Ringgold	1,236	15	16.8	-9.1	51	1	-14	29	36	2.63	+1.34	.85	9.5	12	13	4	14	nw	A. F. Beard
Mt. 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
Omaha, Neb. †	Douglas	1,040	38	15.6	-10.5	47	1	-9	29	38	2.33	-1.17	.57	19.1	16	10	5	16	nw	Weather Bureau
Oskaloosa	Mahaska	843	24	17.4	-8.5	49	2	-13	*29	40	2.25	-.99	.71	13.5	12	11	0	20	nw	Jos. Boyd
Ortuma	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	W. J. Mesmer
Pacific Junction	Mills	960	9	14.4	-11.9	48	1	-18	29	44	2.37	-1.55	.60	18.3	11	10	9	12	n	H. H. McCartney
Pella	Marion	877	6	17.8	-8.3	47	1	-16	30	41	1.83	-1.00	.50	14.5	9	17	0	14	nw	John H. Ver Steeg
St. Charles	Madison	1,070	7	17.8	-8.5	48	1	-12	29	34	2.61	+.99	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	.66	17.5	12	3	18	10	nw	J. T. Parker
Stockport	Van Buren	6	6	16.6	.....	53	5	-22	30	48	2.57	-1.18	1.34	14.0	13	10	6	15	nw	C. L. Beswick
Thurman	Fremont	11	11	14.6	-10.0	48	1	-18	19	40	2.07	+.68	.64	13.9	12	9	8	14	nw	C. R. Paul
Wapello	Louisa	588	10	19.4	-8.5	55	2	-11	30	36	2.48	-1.17	.90	12.5	11	8	9	14	nw	Geo. W. Schofield
Washington	Washington	769	27	17.8	-6.8	53	4	-13	*29	37	2.57	-1.24	.80	?	10	7	9	15	nw	Wm. A. Cook
Winterset	Madison	1,120	17	16.5	-9.5	48	1	-12	29	33	2.05	+.65	.65	12.3	10	11	2	18	nw	Dr. Robert S. Cooper
Woodburn	Clarke	961	9	16.6	.....	52	1	-15	29	41	2.09	+.84	.56	16.0	12	10	4	17	nw	C. B. McDonough
Average	.....	.....	.....	16.9	-9.3	50	.....	-14	.....	39	2.49	+1.16	.....	13.1	10	11	5	15	nw	.....
State average	.....	.....	.....	15.1	-8.5	49	.....	-15	.....	37	2.18	+0.99	.....	13.7	11	10	5	16	nw	.....

*And other dates. a one day missing, b two days; c three days, etc. † Received too late to be included in average.

DAILY PRECIPITATION FOR IOWA, DECEMBER, 1909—Continued

STATIONS	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				
Sheldon	.25	.10	.20	.25	.25					.50	.40	.10	.10	.10	.10	.20					.10	.10	.10	.20	T	.25	.05	.05					3.40		
Sibley	.07	.33	.04	.10	.50	T				T	.20	T	T	.05	T	.05	.05				T	T		T	T								1.39		
Siourney	.12	.10	.06	.40	.66	.11				.05	.20	.18		.06	T						T	T		.30	.35								2.59		
Sioux Center	.05		.20	.20	.10					.20	.05	T		T		.10					T	T	T	T		T							0.90		
Sioux City	.31	.02	.10	.24	.04	.01	T			.05	.04	.02	.07	.03		.01					T	T		.01	.08		T	T	.01		T		1.04		
Stockport	.15	.05	.01	.64	.70	T	.14			.08	.02	.21	.01	.02	T						T		T		.30	.24		T	T				2.57		
Storm Lake	.21			.04	.24					.13	.03																							0.89	
Thurman	T	.64	.28	.23	.05	.03	T			.15		.12	T	.05	T								.02		.09	.11					.02			2.07	
Tipton	.08				1.18	*	.12			*	*	.47	T	T	T								T	T	T	.40	.02		T	.10				3.23	
Toledo		.40	.12	.34	.35	.20				.30	.20	.20				.05																			3.23
Wapello	.03	.04		.21	.90		.19			T	.32	.22	.06	.01		T									.40	.40								2.96	
Washington	.35		.06		.78	.08				.06		.35	.03	.06											.24	.26								2.48	
Washta	.30	.05	.10	.20	.05	T				.10	T	.05	T		T								T	T		.20	T		T					1.05	
Waterloo	.18	T	.43		.53		.03			.36	T	.19		T	T	T							.17		.66		T		T					2.55	
Wauke	.18	T	.55	.44	.05	.10	T			.07	.07	.25	T	T	T	T							.04	T		.49	.06		T	T				2.30	
Waverly	.17	.05	.05	.10	.41	T	T			.25	T	.20				.10							T	.12	T	.50	.30	.04	T	T				2.29	
Webster City	T	.21	T	.13	.20	.14				.60	.60	T		T		T							.05	T	.40	.40		T	T					2.73	
West Bend	.08	.22	.01	*	.25					.03	T	.15				.10							.05	T		.40	.40		T	T				0.89	
Whitten	.21	T	.13	.45	.10		T			.30				T		T							.10		.50									1.79	
Winterset	.37	.05	.40	.10	T	T	.10			.08	T	.10	T	.10		T							T	T	.65	.10		T						2.05	
Woodburn	.23		.16	.40	T	.10	.20			.10	.25	.05		.05	T								.05	T		.35	.15		T					2.09	
Zearing	.09	.09	.25	.30	.40		.20			.20	.20	.02		.05		.05							.20		.70	.30								3.00	

TOTAL PRECIPITATION, DECEMBER, 1909.



APPENDIX.

ANNUAL SUMMARY, 1909

GENERAL SUMMARY

The mean temperature was very nearly normal, there being an excess of only 0.1°; but the average snowfall was considerably above the normal of the past twenty years. The average snow fall was greater than ever before recorded since state-wide observations began in 1890, and the average precipitation has been exceeded only once, in 1901, during that time. January, February, June and November gave an excess of temperature and precipitation. There was a deficiency of both temperature and precipitation during March, May and October, while April, July, September and December gave a deficiency of temperature and an excess of precipitation. August gave an excess of temperature and a deficiency of precipitation, and both the temperature and precipitation were below normal in October. The spring and early summer months were cool and wet; but August was hot and dry. The most notable characteristics of the weather during 1909 were the continuously cold weather during the fore part of the planting season; the excessive rains in June and the first half of July; the droughty conditions in August; the high temperature and excessive precipitation in November; and the severe cold and abnormally heavy snowfall in December.

BAROMETER.—The mean pressure of the atmosphere for the year 1909 was 30.02 inches. The highest observed pressure was 30.71 inches, at Dubuque, Dubuque county, on January 7th, and at Sioux City, Woodbury county, on January 30th. The lowest pressure observed was 29.06 inches, at Davenport, Scott county, on January 29th. The range for the State was 1.65 inches.

TEMPERATURE.—The mean temperature for the State was 47.6°, which is 0.1° above the normal for the State. The highest temperature reported was 103°, at Bloomfield, Davis county on August 15th and at Baxter, Jasper county on August 16th. The lowest temperature reported was -26°, at Inwood, Lyon county, on February 15th and December 29th. The range for the State was 129°.

PRECIPITATION.—The average amount of rain and melted snow for the year as shown by complete records of 97 stations, was 40.01 inches, which is 7.36 inches above the normal, and 4.75 inches above the average amount in 1908. The greatest amount recorded at any station for the year was 53.48 inches, at Perry, Dallas county. The least amount recorded was 27.20 inches, at Buckingham, Tama county. The greatest monthly rainfall was 13.30 inches, at Afton, Union county, in June. The least monthly precipitation was a trace, at Fairfield, Jefferson county, in August. The greatest amount in any 24 consecutive hours was 6.50 inches, at Allerton, Wayne county, on July 6th. The average amount of snowfall was 46.8 inches. The greatest amount of snowfall, unmelted, at any station during the year was 90.8 inches, at Algona, Kossuth county. The greatest monthly snowfall was 32.0 inches, at Perry, Dallas county, and the greatest 24-hour snowfall was 20.0 inches, at Humboldt, Humboldt County, on March 7th. Measurable precipitation occurred on an average of 104 days.

WIND.—The prevailing direction of the wind was south. The highest velocity reported was at Sioux City, Woodbury county, 72 miles per hour, from the northwest, on January 29th.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 152; partly cloudy, 92 and cloudy, 121, as against 176 clear days; 96 partly cloudy; and 94 cloudy days in 1908. The duration of sunshine was below normal in all but the summer months when it was slightly above the seasonal average.

THE WEATHER BY MONTHS

From a climatic standpoint, 1909 was, in many respects, a year of extremes and gave many adverse conditions to the agriculturist, especially during the planting, growing and harvesting season.

During January, the temperature and precipitation were above the normal, although seasonable temperature prevailed during the first half and the last three days of the month. The coldest periods of the month were between the 5th and 12th and 29th and 31st,

when the minimum temperatures were near or below zero. The coldest day was the 6th, when the minimum temperature ranged from 10° below zero in the southern counties to 25° below zero in several of the northern counties. From the 13th to the 28th the weather was unseasonably warm, especially on the 23d, when the highest temperature ever recorded in January occurred at several stations in the southeastern part of the State. The last three days of the month were cold, with minimum temperatures generally below zero. There was considerable more precipitation than normal, notwithstanding the fact that but little moisture fell prior to the 28th. Small amounts of snow fell between the 4th and 7th, and on the 15th and 16th. Light rain fell between the 18th and 23d, with an excessive amount of foggy weather. Light rain began on the 28th, increasing to heavy rain in the evening, and turning to snow during the night. The storm was attended by extremely high north-west winds, which continued from the night of the 28th to the morning of the 30th, making it one of the worst blizzards experienced in this section for many years. The high winds caused the snow to drift badly, and blew down hundreds of windmills and thousands of telegraph and telephone poles. All street car and railroad train service was practically abandoned, and many head of live stock perished from cold and exposure. The storm was so fierce that live stock would not face the wind and flying snow to seek shelter. The maximum velocity of the wind during the storm, ranged from 31 miles an hour at Dubuque to 72 miles an hour at Sioux City, and was probably higher on the prairies.

February was much warmer than usual, except over the north-western counties, where the temperature was below zero on several days, and the monthly minimum ranged from 18° to 26° below zero; but over the larger part of the State the month was very mild, many stations reporting a monthly minimum temperature above zero. It was the first time in 27 years that sub-zero temperatures were not recorded during February at Des Moines and Dubuque. The weather was remarkably warm from the 1st to the 9th, and moderately warm from the 16th to the 23d, and from the 26th to the close of the month. The highest temperature was recorded at most stations on the 4th; the coldest temperature being recorded on the 15th. Another cold period occurred on the 24th and 25th. The average precipitation was generally above the normal, and rain or snow fell frequently, although the daily amounts were not large. The worst storm of the month was on the 9th, when the second severe blizzard of the winter occurred. This storm was especially severe in the northwestern counties, where the snowfall was heavy and the wind velocity was over 50 miles an hour. The snow drifted badly and caused a complete suspension of all railroad and street car traffic. Many deep snow drifts, caused by the storm, were still visible in the northern counties at the close of the month. Another storm with blizzard characteristics occurred on the 14th, but was not heavy enough to cause much damage except to again fill up the cuts that had been shoveled through the drifts caused by the previous storm. The alternating thawing and freezing weather was not favorable to fall grains, clover and alfalfa.

The first six days of March were mild and pleasant, but most of the remainder of the month was cold with frequent snow and rain storms, accompanied by thunder and lightning and brisk to high winds. The snowfall in the central and northern counties was exceptionally heavy, and exceeded all previous records for March at several stations. The low temperatures also broke all former records for the second decade of the month in the north central counties, and the severity of the thunder during the snow storm on the 9th was phenomenal.

The average temperature for the month was slightly below the normal, yet at Des Moines there was an average daily deficiency of six degrees during the last 23 days. The only days between the 18th and the 31st on which there was an excess were the 22d, 23d and 24th. The 23d was the warmest day of the month, when the

maximum temperatures ranged from 45° in the northern to 71° in the southern counties. The lowest temperature for the month at all stations was recorded on the 17th and was generally below zero in the northern districts; the lowest being 15° below zero. The average precipitation for the State was slightly below normal for March, but the average snowfall was considerably above the normal and was excessive in many localities. There was good sleighing from five to ten days in the northern districts, which was unusual for that time of the year. There had not been sufficient growth at the close of the month to determine whether or not the alternately freezing and thawing weather during the winter had been injurious to clover, winter grains and alfalfa.

April was abnormally cold and cloudy with an excessive amount of precipitation in all but the extreme western counties where there was a slight deficiency. Freezing temperatures occurred in all districts every week during April, and the month closed with the temperature at freezing or below in all parts of the State; but the average temperature for the month was 2.3° higher than the average for April, 1907, which was the coldest April on record and the only one colder than the past month. The precipitation, like the cold, was almost continuous, there being at least a trace of rain or snow in some part of the State on every day during the month, and the average snowfall was greater than the average of any preceding April since 1896. Thunder storms accompanied by hail and wind squalls were frequent, and in many cases were quite destructive to property. Under the adverse conditions, field work was retarded and was, at the close of the month, about two weeks behind the average of former years. Field work was especially backward in the east central and southeastern districts, where rain or snow fell almost daily from the 12th to the 30th, and the seeding of oats in those districts was only about three-fourths finished at the close of the month. A large acreage intended for oats was abandoned in all parts of the state, thereby reducing the acreage of that crop 6 per cent below the acreage of 1908. The acreage of wheat was, however, increased. Wheat and early sown oats were up at the close of the month, but growing very slowly on account of the frequent freezing weather. No blossoms appeared on fruit trees except in the extreme southern counties, which was considered to be a favorable indication for a good fruit crop.

The cool wave that spread over the State at the close of April continued during the first three days of May, and caused freezing temperatures on one or more of those days in all parts of the State, and was attended, on the first day, by snow flurries over the central and northern counties. The average temperature for the month was considerably below the normal and was the coldest for May, with one exception, 1907, since 1893. The night temperatures continued below the normal most of the time until the 29th; but there were several days when the day temperatures were unusually high, especially the 5th when the maximum was 90° or above in all but the extreme southeastern counties. The precipitation for the State at large was slightly below the normal, but there was a slight excess over the district comprising the three northern tiers of counties. From the 3d to the 11th, and from the 16th to the 23d the weather was generally dry, but showers were frequent during the remainder of the month with an occasional heavy down-pour, accompanied in several localities by hail and wind squalls, which did some damage. On the whole, the month was favorable for farm operations and good progress was made in field work. Corn was practically all planted by the close of the month, except on low and wet ground, and cultivation was general. Grass and small grain made rapid growth during the latter half of the month, and was nearly up to the average for the last of May. The continued cold weather during April and the fore part of May kept the fruit buds dormant until the middle of the month, thereby escaping any material damage by the late frosts. The average date for all kinds of fruit trees to be in full bloom at Des Moines is about May 5th, but they were not in full bloom this year until the 16th.

The average temperature for June was only a fraction of a degree above the normal, but the rainfall was considerably above the average for June. The first week was moderately warm, there being a daily excess of about 3 degrees; but from the 8th to the 19th the temperature was below the normal, the lowest being on the 15th. The last decade of the month was warmer than usual. There was an excess of rainfall in all districts of the State, the greatest excess being over Union and the adjacent counties, where the monthly amounts ranged from 8 inches to over 13 inches. It was also heavy over the Missouri Divide and the extreme north-western counties. Showers occurred at some station of the state on every day of the month except the 19th but yet there were on an average, 12 clear days. Thunder and lightning accompanied most of the showers, but wind squalls and severe hail storms were

not as frequent as usual. The frequent and excessive rains caused high water in all rivers and creeks, especially in the western districts. The flat and bottom lands were flooded two or three times, and a large acreage of corn was finally abandoned after being replanted once or twice. The surplus moisture also interfered with the cultivation of corn on ground not thoroughly drained and many fields were quite foul; but on high and well drained ground corn made very satisfactory progress and was generally clear. The condition of small grain, grass, potatoes and garden truck improved during the month, but there was a decline in the condition of fruit.

During July, showers were heavy and frequent from the 3d to the 12th, and the temperature was unusually low from the 3d to the 7th; but, as a whole, July was one of the best harvest months on record. The latter half of the month was characterized by moderately warm weather, light and widely scattered showers, a high percentage of sunshine and the rarity of thunder storms and wind squalls. The rainfall was especially heavy over the southern, central and western districts during the first decade, and caused high water in all creeks and rivers within the area of heavy rainfall. Bottom lands were flooded for the third time this year and many thousand acres had to be abandoned. The heavy rains also prevented haying and in the southern districts, where the small grain was ready for the harvester, the ground was too wet and soft to run machinery. After the 12th the weather changed suddenly from wet and cool to comparatively dry and warm. During the second decade much of the belated corn was given some cultivation; but owing to its rapid growth, due to the higher temperature, the stalks soon became too high to permit further cultivation and many fields were laid by in a weedy condition. The third decade was the warmest part of the month, the 29th being the warmest day, when the maximum temperatures ranged generally from 90° to over 100°. During this period the showers continued light and scattered, and at the close of the month the surface of the ground was dry over the larger part of the State, and the crops in the eastern districts were beginning to feel the effects of the drought. Exceptionally rapid progress was made during the latter half of the month in haying and harvesting, and most of the hay and grain crops were secured in excellent condition. Clover made rapid advancement, and nearly all of the early planted fields were in full tassel and earing nicely at the close of the month, and the late planted fields were improving. Some threshing was done before the close of the month. Pastures and potatoes were still in good condition at the end of the month, but they, as well as corn, were needing more rain.

August, 1909, will be noted for its uniformly high temperatures, the small number of cloudy days, and, over the larger part of the State, the small amount of rainfall. Both the day and the night temperatures were high until the 28th, when a cool wave passed over the State, resulting light frosts on low ground on the morning of the 29th over the northern and, in a few localities, in southern districts, but no damage was done to vegetation. The maximum temperatures were up to or above 90° on ten days in northern and 21 days in southern counties, and the average of the monthly maximum temperatures was 96°. The rainfall was deficient in all but the northeast and extreme north central counties; yet at least a trace of rain fell in some part of the State on every day of the month except the 19th and 20th. During the second decade, showers were frequent and the rainfall heavy over the northeast and north central districts; but over the remainder of the State, the showers were extremely local, and the rainfall generally very light. The monthly rainfall ranged from a trace in Jefferson county to 8.21 inches in Chickasaw county. Droughty conditions prevailed during the entire month over the southern half of the State, and the condition of the corn crop deteriorated from 10 to 28 per cent; but the early planted corn, on rich soil and well cultivated fields withstood the drought remarkably well and much of it was well up to the average of past years at the close of the month. The dry, cloudless weather was, however, favorable for stacking and threshing grain, and that work progressed rapidly. Shock threshing was practically completed at the close of the month.

The hot and droughty conditions prevailing at the close of August were broken by lower temperatures on the first and copious and general showers on the 2d of September. From the 2d to the 14th showers occurred in some part of the State every day, and were general and the rainfall heavy between the 12th and 14th. Another period of showery weather prevailed between the 19th and 24th, but the last six days were generally clear and pleasant, although the night temperatures were quite low. The average temperature was below the normal, but the maximum temperatures ranged from 80° to 87° over the northern, and from 85° to 94° over the southern districts, between the 9th and 13th and from the 17th to the 21st. The lowest temperature occurred on the 27th, when the minimum was below the freezing point at several stations in the northern

counties. Light frost occurred on low ground in the extreme northern part of the State on the 1st and 5th and in all parts of the State on the 23d, 24th and 27th. On the 27th the frost was heavy on low ground over the northern and northeastern counties, but little or no damage was done, except to tender vines. The rains during the first half of the month revived the pastures and softened the ground sufficiently to permit fall plowing to be resumed, and excellent progress was made in plowing and seeding fall grains during the remainder of the month. The rains were beneficial to the late planted corn and the dry weather during the last six days caused the early corn to mature rapidly, and nearly 90 per cent of the crop was beyond danger of frost by the end of the month. High winds on the 12th did much damage in blowing down and breaking corn stalks. The yield of potatoes and the second crop of hay were light on account of the August drought.

The mean temperature for October was slightly below the normal, the average daily deficiency being 2.2°; but between the 1st and 9th and the 29th and 31st the maximum temperatures ranged from 70° to 89° in the northern and from 75° to 95° in the southern districts, the highest occurring generally on the 2d. During the past 19 years there have been five colder Octobers, but there are no records of as low temperature during the first 15 days of October as was registered during that period in October, 1909 when the minimum temperatures ranged from 10° to 20° over the northern and from 15° to 23° over the southern counties. The ground was frozen to such an extent that potatoes remaining in the ground were considerably damaged. Cabbage and turnips were also injured, and over the southern portion of the State many bushels of apples were frozen on the trees. The precipitation, while below the normal for the month, was general from the 8th to the 12th, and the rainfall was mixed with light snow flurries on the 11th and 12th, which is much earlier than usual for the first snow of the season. Rains were also general between the 20th and 23d and on the afternoon and evening of the 31st. Fall plowing was continued and the growth of winter grains was satisfactory. Corn husking was begun about the middle of the month, but owing to the excessive amount of moisture in the cob, it could not be cribbed in large quantities.

November, 1909, will go on record as having been the wettest and one of the warmest Novembers since state-wide observations began in 1890. Both the temperature and precipitation were above the normal at every station in the State, which is unprecedented for that season of the year. The average temperature for the State was 42.4° which is 6.5° above the normal and the highest average for November during the past 19 years, except in 1899, when the average was 43.9°. Maximum temperatures ranged from 66° to 77° over the northern and from 74° to 84° over the southern counties between the 4th and 6th, which were the warmest days in the month. The only cold periods of the month were on the 17th and 18th and the 22d and 23d; the lowest temperature occurring generally on the 18th, when the minimum ranged from -4° to 12° over the northern district and from 6° to 18° over the southern district. The 4th, 18th and 19th were the only days in the month on which rain or snow did not fall in some part of the State. The heaviest precipitation occurred between the 11th and 16th, but the amounts were heavy on the 1st, 7th, 22d, 23d and 28th, and the monthly amounts exceeded all former records for November. The amounts of snowfall over the northern counties also exceeded all November records. Heavy snow fell on the 15th, 16th, 22d and 23d, and the monthly amounts ranged from 8 inches to 29.5 inches in the northern district. The frequent and heavy rains and the frostless weather caused high water in all rivers and creeks, many of which, especially in the central and western districts, were at flood stage and overflowed the bottom lands, which is also an unprecedented condition for November. The rains interfered with the corn harvest and made the roads so muddy that they were almost impassable. Much of the corn was lying on the ground and the grain was seriously damaged by the excessive moisture. From 35 to 40 per cent of the corn crop was still in the fields at the close of the month. Corn in cribs was surcharged with moisture, and the warm, moist weather caused it to mold badly. The excessive rains have, however, been beneficial to grass, alfalfa and fall grains, all of which were in good condition at the close of the month. The rains also assured an abundant water supply for the winter. Fall plowing was still progressing at the close of the month.

December, 1909, will be noted for its low average temperature, excessive cloudiness and the frequency of snow storms. It was the coldest December since state-wide observations began in 1890 and probably the coldest since 1876. The average was 12.1° lower than the average for December, 1908, and 2.9° lower than that for any other December since 1890. The low average was not due, however, to extremely low minimum temperatures, but to continuously cold weather. The first four days were moderate, but from the 5th to the 30th the maximum temperatures were below the freezing point, except on one or two days, and the minimum temperatures were near or below zero. At many stations, the minimum temperature was below zero on a greater number of days than ever before recorded during the month of December. The lowest temperature was recorded generally on the 29th. The average precipitation was .99 inch above the normal and has been exceeded in December only twice during the past 20 years. Rains were general from the 1st to the 3d or 4th, but after the latter date snow storms were of frequent occurrence. The amounts were generally small, except on the 24-25th, when they ranged from 2 to 12 inches of dry snow, the greatest amounts being reported from the central and east central districts. At least a trace of precipitation fell at some station in the State 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 total snowfall for the State was 13.7 inches, and the ground was covered with snow from the 3d in the northern and from the 5th in the southern and eastern districts until the close of the month. There was more good sleighing than for many years so early in the winter. The snow has afforded good protection to winter grains, meadows and alfalfa, and they were in excellent condition at the end of the year. The deep snow and the severe cold weather, however, put a stop to all drainage work and prevented the completion of corn husking. About 25 to 30 per cent of the corn was still in the fields on December 31st, and much of it was covered with ice and snow. The heavy snowfall on the 24-25th delayed all freight and the Christmas passenger traffic.

The year, as a whole, though erratic as regards climatic conditions, was a profitable one to the farmer and stock raiser, notwithstanding the fact that the yields of farm products were not as large as usual.

COMPARATIVE DATA FOR THE STATE—ANNUAL.

	TEMPERATURE					PRECIPITATION			
	Mean Annual	Highest	Date	Lowest	Date	Annual	Greatest Annual	Least Annual	Average Snow Fall
1890	48.0	110	July 13	-27	January 22	31.28	45.74	16.00	...
1891	47.3	106	August 9	-31	February 4	32.90	49.05	23.48	...
1892	46.6	104	July 11	-38	January 19	36.58	48.77	24.78	31.7
1893	45.7	102	July *13	-36	January 14	27.59	33.27	19.19	36.2
1894	49.7	109	July 26	-37	January 25	21.94	29.81	15.65	18.4
1895	47.2	104	May 28	-33	February 1	26.77	35.25	18.57	25.5
1896	48.6	104	July 3	-20	January 4	37.23	51.60	28.68	19.8
1897	47.9	106	July *23	-30	January 25	26.97	36.18	20.21	38.5
1898	47.7	103	August 20	-25	December 31	31.34	55.47	19.51	38.6
1899	47.5	104	September 6	-40	February 11	28.68	42.06	21.79	23.2
1900	49.3	103	August 3	-27	February 15	34.15	47.33	25.05	26.3
1901	48.9	113	July 22	-31	December 15	24.41	37.69	16.35	37.2
1902	47.7	98	July 30	-31	January 27	43.82	58.80	20.14	27.7
1903	47.2	101	August 24	-27	December 13	35.39	50.53	26.41	19.1
1904	46.3	100	July 17	-32	January 27	28.51	38.93	19.34	30.3
1905	47.2	104	August 11	-41	February 2	36.56	52.26	24.66	37.9
1906	48.4	102	July 21	-32	February 10	31.60	44.34	20.63	32.5
1907	48.0	102	July 5	-31	February 5	31.61	43.90	19.93	24.3
1908	49.5	101	August 3	-18	January 29	35.26	49.98	24.11	20.7
1909	47.6	103	August *15	-26	February *15	40.01	53.48	27.20	46.8

* And other dates.

CLIMATOLOGICAL DATA FOR THE YEAR 1909

STATIONS	COUNTIES	Elevation, feet	Length of record, years	TEMPERATURE, IN DEGREES, FAH.					PRECIPITATION, IN INCHES					Total snowfall, unmelt'd	SKY				Prevailing direction of Wind	
				Mean	Highest	Date	Lowest	Date	Length of record, years	Total for the year	Greatest monthly	Month	Least Monthly		Month	No. rainy days	No. clear days	No. partly cloudy days		No. cloudy days
Afton	Union	1,212	16	49.5	99	Aug. 12	-14	{ Jan. 6 Dec. 29	16	47.48	13.30	June	0.80	Feb.	32.0	92	127	113	125	sw
Albia	Monroe	959	12	48.2	97	Aug. 27	-14	Jan. 6	12	43.78	7.06	June	1.04	Aug.	22.8	114	145	96	124	sw
Algona	Kossuth	1,213	36	45.0	93	{ Aug. 2 Aug. 15	-22	{ Jan. 6 Jan. 6	37	42.07	8.04	Nov.	1.14	Mar.	90.8	100	197	53	115	s
Allerton	Wayne		8	50.2	99	Aug. 15	-13	{ Jan. 6 Dec. 29	8											
Alta	Beuna Vista	1,513	19	44.5	94	May 5	-22	Jan. 6	19	38.14	6.54	May	1.15	Oct.	58.6	130	132	132	101	s
Alta [near]	Beuna Vista		1																	
Alton	Sioux	1,305	5	45.5	98	July 2	-20	Jan. 6	5	41.01	8.37	July	1.05	Jan.	61.5	125				
Amana	Iowa	721	32	48.2	96	Aug. 14	-17	Jan. 6	34	36.48	6.61	July	0.92	Mar.	74.2	103	200	61	104	nw
Ames	Story	926	30	48.1	97	Aug. 14	-15	Jan. 12	34	40.34	6.81	April	1.00	Aug.	32.3	114	140	115	110	se
Atlantic	Cass	1,164	19	48.4	98	Aug. 15	-16	{ Jan. 6 Dec. 29	18	37.19	6.12	April	0.52	Aug.	101					
Audubon	Audubon	1,301	16	46.4	97	Aug. 10	-19	Jan. 12	16	46.58	9.08	June	0.44	Aug.	41.0	109	96	111	158	sw
Baxter	Jasper	998	10	47.4	96	Aug. 14	-18	Jan. 6	10	46.25	8.57	Nov.	0.41	Aug.	58.6	108	167	56	142	
Bedford	Taylor		10	49.9	103	Aug. 16	-17	Dec. 29	10	39.64	6.49	April	0.71	Aug.	43.6	135	184	76	105	nw
Belle Plaine	Benton	829	20	47.3	97	Aug. 14	-19	Jan. 6	20	39.45	7.49	July	0.93	Feb.	26.1	117	182	54	129	se
Bloomfield	Davis		3		103	Aug. 15	-13	{ Jan. 6 Dec. 30	3	37.63	6.48	April	1.05	Aug.	61.3	114	133	121	111	s
Bonaparte	Van Buren		19	50.3	98	Aug. 13	-15	Dec. 30	19											nw
Boone	Boone	1,134	5	46.6	96	Aug. 14	-18	Jan. 6	5	39.24	7.35	July	0.17	Aug.	18.6	93				
Britt	Hancock	1,236	13		91	Aug. 11	-22	Jan. 6	13	45.06	7.67	Nov.	0.86	Aug.		116				
Buckingham	Tama								10	27.20	5.22	April	0.98	Feb.						
Burlington	Des Moines	544	12	50.7	100	Aug. 14	-13	Dec. 30	14	40.83	5.46	July	0.87	Mar.						
Carroll	Carroll	1,265	20	45.4	95	Aug. 14	-19	{ Jan. 6 Dec. 28	20	44.92	9.79	June	0.30	Aug.	36.6	111	201	44	120	s
Cedar Rapids	Linn	733	28	47.8	98	Aug. 14	-18	Jan. 7	23	34.14	6.36	April	1.16	Aug.	24.3	83	151	89	125	w
Chariton	Lucas	1,042	15	49.1	97	{ July 29 Aug. 15	-15	Jan. 6	15	39.41	6.33	June	0.82	Aug.	26.0	77	169	81	115	se
Charles City	Floyd	1,015	19		93	July 2			19		6.88	Aug.								
Clarinda	Page	1,009	20	49.0	102	Aug. 15	-14	Dec. 30	20	46.27	10.39	June	0.68	Feb.	35.5	117	174	59	132	s
Clear Lake	Cerro Gordo	1,241	12	46.0	97	July 29	-24	Jan. 6	12											s
Clinton	Clinton	593	42		95	July 29			43											s
Columbus Jct.	Louisa	505	9	50.2	96	Aug. 14	-14	Jan. 6	9											
Corning	Adams	1,117	18	48.4	97	Aug. 15	-17	Dec. 29	18	48.66	10.11	June	0.81	Feb.	40.5	90	211	71	83	se
Corydon	Wayne	1,101	17	50.5	98	Aug. 15	-14	Jan. 6	17	42.04	7.34	July	0.49	Aug.	112	173	67	125	se	
Creston	Union	1,312	5	48.0	100	Aug. 12	-16	Dec. 29	5	47.38	12.17	June	0.94	Mar.	104	191	44	130	se	
Cumberland	Cass									39.17	6.92	June	0.50	Aug.	47.0	89	223	43	99	sw
Davenport	Scott	606	38	49.7	96	July 29	-15	Jan. 6	39	35.64	6.02	April	1.60	Mar.	29.9	132	127	108	130	e
Decorah	Winneshiek	875	17		100	Aug. 2	-23	Jan. 6	17											
Delaware	Delaware		19	45.4	94	July 29	-22	Jan. 6	19	35.31	7.91	June	0.68	Feb.	31.1	95				
Denison	Crawford	1,180	16	46.9	94	Aug. 14	-18	Jan. 6	16	41.62	8.13	Nov.	0.28	Mar.	114					se
Des Moines	Polk	861	31	49.0	96	July 29	-15	Jan. 6	31	36.03	7.03	June	0.14	Aug.	53.5	125	93	85	187	sw
De Soto	Dallas	866	10	49.0	97	Aug. 14	-16	Jan. 6	10	35.30	6.37	June	0.74	Aug.		87	196	37	132	sw
Dows	Wright	1,142	10		95	Aug. 14	-21	Jan. 6	10											
Dubuque	Dubuque	639	37	47.5	96	July 29	-19	Jan. 6	37	35.01	7.40	April	1.25	Mar.	44.9	132	120	97	138	s
Earlham	Madison		8	48.6	98	Aug. 15	-16	Jan. 12	8						51.0					se
Elkader	Clayton	727	29	45.7	102	July 29	-21	Jan. 6	31	34.17	7.80	April	1.02	Feb.		89	172	101	92	se
Elliott	Montgomery		5	48.9	95	Aug. 12	-16	Dec. 29	5	44.16	8.44	July	0.54	Aug.	37.8	81	176	104	85	nw
Elma	Howard		1		93	Aug. 2	-24	Jan. 6	1	34.57	6.03	Nov.	0.85	Mar.	106	90	187	88		se
Estherville	Emmett	1,298	15	43.4	94	July 2	-22	Jan. 6	15	37.67	7.01	June	0.65	Mar.	61.5	92	172	17	177	nw
Fairfield	Jefferson	780	18	50.3	96	Aug. 14	-13	{ Jan. 6 Dec. 30	26	42.85	7.61	July	T	Aug.	19.8	103				s
Fayette	Fayette		20	44.9	97	July 2	-22	Jan. 6	20						61.7					
Forest City	Winnebago	1,226	16	44.1	94	July 2	-24	Jan. 6	16	37.79	7.21	Nov.	0.75	Oct.	73.0	87	163	72	130	sw
Fort Dodge	Webster	1,126	10	45.5	97	Aug. 27	-19	Jan. 16	10											
Fort Madison	Lee		51						61	43.82	7.79	June	0.18	Aug.		70	102	112	151	s
Gilman	Marshall								17	38.87	6.18	April	0.50	Mar.	88					
Grand Meadow	Clayton	1,180	19	44.6	98	July 29	-25	Jan. 6	19	37.86	7.67	April	1.05	Feb.	63.5	113	95	142	128	sw
Greene	Butler		12	46.2	96	Aug. 2	-20	Jan. 6	12	38.44	7.54	Nov.	0.87	Feb.	110	76	138	151		w
Grinnell	Poweshiek	1,023	18	49.0	101	Aug. 14	-17	Jan. 6	18	36.32	6.00	June	0.74	Feb.	100					sw
Grundy Center	Grundy	976	19	46.9	96	July 29	-21	Jan. 6	19											s
Guthrie Center	Guthrie	1,077	15	48.1	98	Aug. 14	-17	Jan. 6	15	44.34	7.78	Nov.	1.26	Aug.	52.3	124	177	78	120	sw
Hampton	Franklin	1,155	20	46.2	95	May 5	-22	Jan. 6	20	42.54	6.74	Nov.	1.87	Feb.	76.9	112	100	164	101	nw
Hancock	Pottawattamie	1,113	5	48.7	98	Aug. 15	-17	Dec. 29	5											
Harlan	Shelby	1,192	11	47.1	97	Aug. 16	-18	Dec. 29	11	40.78	7.19	Sept.	0.88	Aug.	41.4	109	95	138	132	s
Hopeville	Clarke		18	49.4	97	Aug. 15	-14	{ Jan. 6 Dec. 29	19	44.43	8.83	June	1.49	Aug.		116	87	143	135	s
Humboldt	Humboldt	1,095	19		98	Aug. 2	-20	Jan. 6	22	48.27	11.48	Nov.	0.75	Aug.	80.0	94	223	33	109	nw
Independence	Buchanan	921	46	46.4	96	July 29	-23	Jan. 6	43	30.05	5.84	April	0.48	Oct.	73	185	71	109		nw
Indianola	Warren	969	19	49.4	96	Aug. 14	-15	Jan. 6	19	32.48	5.76	June	0.97	Aug.	39.8	111	118	71	176	se
Inwood	Lyon	1,474	6	44.6	97	July 2	-26	{ Feb. 15 Dec. 29	6	37.08	8.53	June	0.57	Mar.	71.4	131	187	82	96	s
Iowa City	Johnson	689	50	48.2	100	Aug. 13	-19	Jan. 6	47	41.10	7.21	April	1.59	Oct.		113	160	49	156	s
Iowa Falls	Hardin	1,170	17	44.7	93	July 2	-21	Jan. 6	17	36.09	5.70	Nov.	1.19	Aug.	66.2	105	179	33	153	nw
Jefferson	Greene		7		96	Aug. 11			11											
Keokuk	Lee	614	39	52.3	98	Aug.														

CLIMATOLOGICAL DATA FOR THE YEAR 1909—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	TEMPERATURE, IN DEGREES, FAH.					PRECIPITATION, IN INCHES					Total snowfall, unmelt'd	SKY				Prevailing direction of wind	
				Mean	Highest	Date	Lowest	Date	Length of record, years	Total for the year	Greatest monthly	Month	Least monthly		Month	No. rainy days	No. clear days	No. partly cloudy days		No. cloudy days
Lamoni	Decatur	3	3	50.5	100	Aug. 12	-13	Dec. 29	3	49.54	11.78	July	0.37	Aug.	29.5	133	201	17	147	se
Larrabee	Cherokee	1,266	19	44.8	97	July 2	-22	Jan. 6	20	39.47	7.32	June	0.48	Feb.	75.0	104				
Le Claire	Scott								10	39.36	6.29	April	1.63	Mar.	29.3	121				nw
Le Mars	Plymouth	1,224	14	45.4	92	May 5	-19	Jan. 6	14	39.01	7.22	June	0.41	Jan.	103	127	136	102		
Lenox	Taylor	1,250	15	48.9	96	Aug. 16	-17	Jan. 6	15	46.26	9.86	July	0.30	Feb.	25.3	109	208	57	100	s
Leon	Decatur	1,120	8		98	Aug. 15*	-14	Jan. 6	8	52.74	10.90	July	0.54	Aug.	24.4					
Little Sioux	Harrison		5	48.4	99	Aug. 16	-22	Dec. 29	5	34.22	5.93	Nov.	0.54	Mar.	33.5	97	161	65	139	se
Logan	Harrison		43	48.4	98	Aug. 16	-17	Jan. 12	43	43.26	8.29	Nov.	0.39	Mar.	100	125	152	88	nw	
Marshalltown	Marshall	947	18		98	Aug. 14*	-21	Jan. 6	18										se	
Mason City	Cerro Gordo	1,132	13	44.0	93	July 2	-22	Jan. 6	13	39.18	6.73	Nov.	1.07	Mar.	52.0	100	117	139	109	nw
Massena	Cass		4	47.9	102	Aug. 12	-17	Dec. 19	4											
Mt. Ayr	Ringgold	1,236	17	50.1	99	Aug. 15*	-14	Dec. 29	17	52.97	12.20	July	1.38	Aug.	125	147	98	120	sw	
Mt. Pleasant	Henry	729	29	50.7	94	Aug. 14	-13	Dec. 30	16	38.79	6.39	July	0.21	Aug.	27.8	108	166	103	96	sw
Muscatine	Muscatine								13	37.62	5.53	Nov.	1.58	Mar.	33.7	115				w
New Hampton	Chickasaw	1,169	13	44.2	92	July 22	-24	Jan. 6	13	47.44	9.43	April	0.65	Feb.	100	159	89	117	w	
Newton	Jasper		21	49.0	96	Aug. 14	-16	Jan. 6	22	29.55	9.15	April	0.81	Aug.	75	162	91	112	s	
Northwood	Worth	1,222	14						13										105	nw
Odebolt	Sac	1,356	12	47.3	97	Aug. 14*	-17	Jan. 6	13	38.57	7.77	June	0.44	Aug.	87	201	67	97		
Olin	Jones		12		92	Aug. 15			12											
Omaha, Neb.	Douglas	1,040	39	50.0	98	Aug. 12	-13	Jan. 6	39	36.07	7.54	June	0.63	Mar.	38.8	110	102	122	141	s
Onawa	Monona	1,051	10	49.3	97	May 5	-15	Jan. 6	10	37.73	5.80	June	0.83	Mar.	69.1	119	200	43	122	se
Osage	Mitchell	1,184	19	45.5	96	Aug. 1	-24	Jan. 6	23											
Oskaloosa	Mahaska	843	27	49.4	96	Aug. 14	-13	Dec. 29*	34	41.02	7.05	May	0.12	Aug.	108	193	7	165	sw	
Ottumwa	Wapello	649	15						11	43.66	9.74	Nov.	0.65	Aug.	39.6	91	129	167	69	s
Pacific Jct.	Mills	960	11	48.8	98	Aug. 12	-18	Dec. 29	11											
Pella	Marion		8		95	Aug. 14			8											
Perry	Dallas		9	47.5	96	Aug. 14	-16	Jan. 6	9	45.48	9.92	June	0.31	Aug.						
Plover	Pocahontas	1,426	13	45.3	97	Aug. 15	-21	Jan. 6	14	36.22	7.28	Nov.	0.90	Feb.	78.5	99	202	71	92	se
Pocahontas	Pocahontas		6	44.6	93	July 2	-20	Jan. 6	6	39.68	7.29	June	0.97	Dec.	65.8	107	147	103	115	s
Ridgeway	Winneschiek	1,215	12	46.1	102	Aug. 27	-25	Jan. 6	12	51.32	9.50	Nov.	1.24	July	90.5	150	154	112	99	s
Rock Rapids	Lyon		11		97	Aug. 29			11											
Rockwell City	Calhoun		13	47.3	97	Aug. 27	-19	Jan. 6	14	47.95	8.90	Nov.	0.05	Aug.	72	205	52	108		
Sac City	Sac		28		94	Aug. 27			34											
St. Charles	Madison	1,070	9	49.7	98	Aug. 16	-15	Jan. 6	9	40.82	7.16	April	0.80	Aug.	42.4	112	176	89	100	nw
Sheldon	O'Brien	1,422	10		101	Aug. 15	-22	Jan. 6	10											
Sibley	Osceola	1,212	17	42.8	94	May 5	-24	Jan. 6	17	32.11	6.85	June	0.70	Jan.	56.3	112				nw
Sigourney	Keokuk	877	14	49.8	98	Aug. 14	-14	Jan. 6	14	43.33	7.02	June	1.91	Mar.	109	37	259	69		
Sioux Center	Sioux		11	44.6	94	Aug. 15	-21	Jan. 6	11	34.30	7.74	July	0.70	Mar.	56.5	97	163	63	139	s
Sioux City	Woodbury	1,135	21	46.5	96	July 2	-17	Jan. 5	21	29.64	5.20	June	0.60	Jan.	59.7	119	109	110	146	nw
Stockport	Van Buren		6	49.7	95	Aug. 14*	-22	Dec. 30	8	37.61	8.57	July	0.71	Aug.	27.5	115				s
Storm Lake	Beuna Vista	1,440	14	46.0	93	Aug. 15	-21	Jan. 6	21	33.54	6.30	May	0.89	Dec.	47.6	95				nw
Thurman	Fremont		13	49.6	98	Aug. 15	-18	Dec. 19	13	40.72	10.33	Nov.	0.50	Aug.	29.4	96	125	121	119	nw
Tipton	Cedar	807	11	49.8	100	Aug. 14	-14	Jan. 6	11	44.93	9.25	June	1.44	Feb.						
Toledo	Tama	856	16	47.3	95	July 29	-20	Jan. 6	16	40.83	7.73	June	0.95	Mar.	40.0	84				
Wapello	Louisa		12	50.1	92	Aug. 24	-11	Jan. 6	12	31.25	4.20	April	0.99	Jan.						
Washington	Washington	769	28	49.3	97	Aug. 14	-15	Jan. 6	19											
Washita	Cherokee	1,157	5	45.8	97	Aug. 27	-21	Dec. 19	12	40.33	7.66	May	0.65	Mar.	53.5	90	155	95	115	nw
Waterloo	Black Hawk	862	23	47.0	98	July 29	-20	Jan. 6	27	32.56	6.49	April	1.20	July	43.3	102				
Waukee	Dallas	1,039	6	48.1	95	Aug. 14	-15	Jan. 6	7	38.14	7.05	April	0.91	Mar.	33.3	107	133	125	107	nw
Waverly	Bremer	948	14	46.0	92	Aug. 24	-21	Jan. 6	14	36.76	7.83	April	1.04	Feb.	115	85	141	139		
Webster City	Hamilton		5	47.9	98	Aug. 11*	-19	Jan. 6	5	41.76	6.86	Nov.	0.92	Feb.	84	148	111	106	nw	
West Bend	Palo Alto	1,197	17	45.5	96	July 2	-21	Jan. 6	17	35.95	6.37	June	0.78	Feb.	48.9	103				
Whitten	Hardin	1,036	13		96	July 29	-22	Jan. 6	13											
Wilton Jct.	Muscatine	683	15		96	Aug. 14	-14	Jan. 6	15											
Winterset	Warren	1,129	19	49.4	96	July 2*	-14	Jan. 6	19	33.18	5.82	April	0.43	Aug.	102	122	101	142	s	
Woodburn	Clarke		5	48.8	98	Aug. 15	-15	Jan. 6*	11	48.49	8.94	June	1.36	Feb.	33.5	107	141	106	118	sw
Zearing	Story		6	46.9	98	July 29	-19	Dec. 29	6											
Average				47.6					6	40.01					46.8	104	152	92	121	s
Extremes and date					103	August 15 & 16	-26	Feb. 15			13.30	June	T	Aug.						

* And other dates.

MONTHLY REVIEW OF THE

MONTHLY MAXIMUM TEMPERATURES FOR 1909, WITH DATES

STATIONS	January		February		March		April		May		June		July		August		September		October		November		December			
	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date		
Afton	57	*22	57	4	67	23	78	26	91	5	92	26	97	29	99	*12	90	12	86	*2	76	5	49	1		
Albia	65	23	49	4	65	23	80	29	90	5	87	30	94	29	95	27	88	12	88	*2	81	5	49	1		
Algona	49	*3	47	*3	50	23	72	26	70	5	80	29	93	2	93	15	85	10	81	7	71	*4	45	2		
Allerton	63	*22	58	4	67	23	79	29	91	5	89	30	96	29	99	15	90	12	90	*2	80	5	50	1		
Alta	53	3	49	*3	62	23	75	26	94	5	88	*5	93	2	93	27	85	10	85	2	74	4	44	1		
Alton	48	3	48	4	60	23	77	26	95	5	92	5	98	2	97	15	85	*11	84	2	72	*4	46	1		
Amana	59	23	55	4	58	23	73	6	89	5	89	*26	95	29	96	14	87	13	83	2	73	11	51	5		
Ames	58	23	59	4	62	23	81	26	93	5	90	30	95	29	97	14	89	13	86	7	74	6	47	*1		
Atlantic	55	23	55	4	64	23	81	26	96	5	90	*26	94	29	98	*15	91	12	87	2	78	5	48	2		
Audubon	53	23	51	4	60	23	78	26	93	5	90	26	92	2	97	10	85	*11	83	2	75	5	46	*1		
Baxter	58	23	56	4	61	23	76	26	93	5	93	25	94	29	96	14	86	10	87	2	76	6	47	2		
Bedford	61	23	59	11	69	23	82	26	93	5	89	*26	99	29	103	16	92	12	89	4	77	5	50	1		
Belle Plaine	58	23	60	4	59	23	72	6	93	5	87	*5	96	*1	97	14	86	13	85	2	74	6	53	1		
Bonaparte	70	23	61	4	61	2	84	29	91	5	88	24	97	29	98	*13	94	13	89	3	79	5	51	2		
Boone	58	23	58	4	60	23	80	26	94	5	90	30	95	2	96	14	84	12	90	2	75	*4	46	1		
Burlington	67	23	62	4	63	2	83	29	90	5	92	27	96	29	100	*14	91	*12	84	3	76	*5	55	*3		
Carroll	57	23	58	6	60	23	80	26	93	5	90	*29	92	*1	95	14	87	9	86	1	77	4	45	1		
Cedar Rapids	60	23	56	4	58	23	73	6	92	5	89	*20	97	29	98	14	88	*12	84	2	74	11	53	2		
Chariton	65	23	58	4	67	23	78	29	89	5	89	30	97	29	97	15	90	12	91	3	81	5	49	1		
Charles City			45	4	49	23	68	17	91	5	90	30	93	2	93	2	84	20	82	2	60	4	48	2		
Clarinda	60	*23	61	3	69	23	82	26	96	5	93	6	97	29	102	15	94	12	91	*2	79	5	51	1		
Clear Lake	50	23	46	4	47	27	69	26	89	4	90	*20	97	29	94	2	88	10	85	7	70	6	45	*1		
Columbus Junction	66	23	60	4	61	23	82	29	88	5	92	30	95	29	96	*14	90	13	83	2	75	6	55	2		
Corning	57	23	57	3	65	23	80	26	92	5	90	*26	95	29	97	*15	90	12	87	3	74	5	49	1		
Corydon	64	23	59	4	69	23	78	*26	90	5	87	*21	96	29	98	15	90	12	92	3	82	5	49	*1		
Creston	58	23	56	*1	67	23	80	26	92	5	89	26	95	29	100	*12	92	12	88	*3	78	5	49	1		
Davenport	66	23	59	4	57	23	81	29	88	5	90	30	96	29	96	14	91	13	82	2	72	13	55	2		
Delaware	54	23	48	4	52	23	67	17	84	*5	87	*26	94	29	93	14	82	20	79	2	68	11	51	2		
Denison	56	23	54	4	54	*5	78	26	93	5	88	*26	91	2	94	*14	88	3	86	2	77	5	46	*1		
Des Moines	59	23	60	4	65	23	76	26	92	5	88	26	96	29	96	14	89	12	89	2	76	6	48	1		
De Soto	57	23	60	4	69	23	78	26	94	5	88	*26	95	29	97	*14	92	12	95	2	81	5	48	1		
Dubuque	55	23	54	4	54	23	66	17	90	5	90	30	96	29	93	14	87	13	79	2	71	13	54	5		
Earlham	58	23	60	4	67	23	77	26	82	29	88	30	95	29	98	15	90	12	87	3	79	*5	47	1		
Elkader	50	*3	56	4	56	23	70	17	94	5	95	*28	102	29	102	2	89	11	86	2	72	4	55	3		
Elliott	55	23	57	27	69	23	82	26	94	5	88	26	92	29	95	*12	90	12	86	2	78	5	48	1		
Estherville	50	27	52	3	58	23	73	26	93	5	88	*5	94	2	94	*11	82	*18	84	7	75	4	45	1		
Fairfield	70	23	62	4	62	23	82	29	90	5	91	30	93	29	96	14	94	13	91	2	80	5	49	*1		
Fayette	51	23	50	4	54	23	70	17	91	5	89	30	97	2	97	2	88	10	81	*2	68	*6	49	2		
Forest City	51	23	58	3	49	23	72	26	93	5	90	30	94	2	94	*11	88	10	85	4	73	4	45	*1		
Fort Dodge	52	23	52	4	55	23	75	26	94	5	91	20	94	2	97	27	91	10	88	2	75	*4	47	1		
Grand Meadow	45	*23	47	4	48	23	67	17	88	5	86	30	91	29	89	*1	80	*10	78	7	67	10	50	2		
Greene	51	23	47	4	50	23	68	17	95	5	93	30	97	29	98	2	87	10	84	2	70	4	47	2		
Grinnell	60	23	59	4	61	23	75	26	95	5	90	30	98	29	101	14	89	13	90	2	75	*4	49	2		
Grundy Center	54	23	53	4	57	23	70	17	93	5	90	28	96	29	95	*14	88	10	83	7	71	*4	47	2		
Guthrie Center	55	23	55	4	61	23	79	26	93	5	90	*6	94	2	95	14	86	*11	85	2	78	4	47	*1		
Hampton	55	23	53	4	53	5	67	*17	95	5	91	30	94	29	95	15	91	10	89	2	75	4	46	2		
Hancock	53	*22	60	28	65	23	80	*26	95	5	93	26	96	2	98	*15	91	12	86	2	78	6	46	1		
Harlan	54	23	52	21	63	23	80	26	94	5	89	30	93	18	97	16	87	11	86	2	78	5	46	1		
Hopeville	60	23	57	4	66	23	77	26	90	5	89	27	96	29	97	15	89	13	90	*2	79	5	50	1		
Humboldt	53	23	51	4	57	*23	68	24	95	5	89	30	94	2	98	2	86	10	83	*2	74	6	46	2		
Independence	54	23	51	4	56	23	69	17	89	5	88	30	96	29	95	15	85	10	84	2	69	*4	48	*1		
Indianola	60	23	58	4	66	23	75	26	91	5	88	*26	95	29	96	14	90	12	89	*2	78	5	48	*1		
Inwood	48	27	51	*3	60	23	72	*17	95	5	89	*20	97	2	96	16	85	11	83	*5	77	5	45	1		
Iowa City	64	23	60	4	61	23	73	6	91	5	92	30	99	29	100	*13	88	13	84	2	73	*6	53	4		
Iowa Falls	52	23	49	4	53	23	69	17	90	5	88	*26	93	2	93	*11	85	*10	83	2	70	*4	46	*1		
Keokuk	72	23	62	4	62	2	85	29	89	5	90	24	93	29	98	15	93	13	88	3	79	5	55	2		
Keosauqua	70	23	61	4	60	*1	85	29	91	5	96	26	97	*1	98	*15	93	13	89	3	78	5	60	1		
Lamoni	65	23	59	4	67	23	82	29	91	5	94	29	99	29	100	12	90	12	85	3	75	5	53	2		
Larrabee	51	21	45	*3	59	23	78	26	94	5	92	26	97	2	94	12	83	9	81	*2	71	6	44	*1		
Le Mars	47	3	47	4	60	23	76	26	92	5	88	20	90	*2	91	27	83	11	78	*5	70	6	46	1		
Lenox	58	23	56	4	67	23	79	26	91	5	88	*24	95	29	96	16	90	12	85	3	75	5	50	1		
Little Sioux	56	27	59	3	68	23	82	26	96	5	91	*5	95	2	99	16	92	12	90	2	79	5	47	1		
Logan	52	3	53	*2	67	23	83	26	95	5	90	6	95	2	98	16	89	11	87	2	78	*3	47	1		
Marshalltown	57	23	56	4	59	23	69	*4	84	29	89	30	95	29	98	*14					80	3	74	6	48	2
Mason City	46	27	46	4	45	23	67	17	89	5	87	*20	93	2	90	*1	82	10	80	7	68	4	46	*1		
Massena	57	23	56	4	66	23	80	26	93	5	91	*26	98	29	102	12	94	12	87	4	75	6	49	2		
Mt. Ayr	63	22	57	*3	70	23	79	18	93	5	91	30	97	29	99	*15	93	12	88	*2	79	5	51	1		
Mt. Pleasant	68	23	60	4	60	23	84	29	91	5	90	30	92	29	94	14	89	13	82	3	74	6	54	2		
New Hampton	50	23	43	4																						

MONTHLY MINIMUM TEMPERATURES FOR 1909, WITH DATES

STATIONS	January		February		March		April		May		June		July		August		September		October		November		December	
	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date
Afton	-14	6	0	15	4	17	22	9	24	1	52	15	58	*23	46	29	38	27	19	13	13	*17	-14	29
Albia	-14	6	-7	1	4	17	21	*3	25	2	51	*1	55	5	43	29	38	*27	19	13	11	17	-13	29
Algona	-22	6	-11	15	-8	17	20	*9	24	*1	47	15	52	5	44	29	38	27	15	13	4	18	-15	29
Allerton	-13	6	4	15	9	17	23	10	27	1	52	15	57	*4	45	29	39	27	19	13	14	18	-13	29
Alta	-22	6	-14	15	0	17	20	9	21	1	46	*5	52	5	43	29	37	23	14	13	4	17	-19	29
Alton	-20	6	-18	15	-2	17	21	9	21	3	45	15	50	22	36	29	35	*5	15	13	1	18	-18	29
Amana	-17	6	5	*10	5	17	18	10	28	3	49	15	52	4	45	30	34	27	19	13	12	23	-13	30
Ames	-15	12	-2	15	-12	17	25	23	25	3	48	15	51	5	44	30	33	27	18	28	9	18	-14	29
Atlantic	-16	6	-3	15	2	17	24	8	24	1	50	15	53	24	43	29	37	27	18	13	10	18	-16	29
Audubon	-19	12	-5	*15	-9	17	21	27	21	10	44	*13	48	24	37	29	32	27	14	13	10	*17	-14	29
Baxter	-18	6	1	*13	-5	17	19	10	26	*1	50	15	52	5	46	29	36	*23	15	13	12	*17	-15	29
Bedford	-13	6	-2	16	5	*11	22	*9	24	2	53	*4	51	24	42	29	35	*23	15	13	10	18	-17	29
Belle Plaine	-19	6	3	*10	1	17	17	10	25	3	47	1	51	8	44	*29	36	*24	17	13	10	23	-15	30
Bonaparte	-11	6	6	17	5	17	19	10	30	*1	47	15	53	4	46	29	37	27	19	13	13	18	-15	30
Boone	-18	6	-4	15	-2	17	23	10	25	1	51	15	54	*4	44	29	41	*24	20	*13	9	18	-15	30
Burlington	-12	6	-1	1	9	17	22	10	30	2	51	19	53	4	51	29	39	27	20	13	15	18	-13	30
Carroll	-19	6	-13	14	-9	17	21	9	21	1	48	15	52	*4	39	28	38	*22	12	12	3	17	-19	28
Cedar Rapids	-18	7	-6	1	6	*17	20	*10	22	2	50	15	53	5	50	*29	38	*27	21	13	15	*18	-13	30
Chariton	-15	6	3	15	4	17	22	10	25	1	50	15	56	*4	44	*29	37	*23	18	13	12	18	-14	29
Charles City	-13	6	-2	*16	3	11	25	*1	24	1	50	1	52	24	43	30	35	27	20	12	13	18	-14	30
Clarinda	-13	6	-2	*16	3	11	25	*1	24	1	50	1	52	24	43	30	35	27	20	12	13	18	-14	30
Clear Lake	-24	6	-6	15	2	17	19	*10	25	1	50	*7	50	*4	46	29	38	*26	18	28	10	18	-15	29
Columbus Junction	-14	6	8	*10	6	17	19	10	29	*1	48	15	53	5	48	29	37	27	18	13	12	17	-17	29
Corning	-15	6	-2	15	3	15	20	9	24	1	52	*4	51	24	47	29	37	27	19	13	13	18	-13	29
Corydon	-14	6	4	*10	8	17	23	10	26	1	52	*15	57	*4	45	29	39	27	19	13	13	18	-13	29
Creston	-14	6	-5	1	5	17	23	*9	24	1	25	*4	50	24	45	29	36	*24	16	13	12	18	-16	29
Davenport	-15	6	6	10	9	17	22	10	30	1	49	15	52	5	51	29	40	27	23	13	17	18	-10	29
Denaware	-22	6	0	*11	-2	17	15	10	25	*1	47	15	50	*4	45	29	36	27	17	28	10	23	-17	30
Denison	-18	6	-9	15	-6	17	21	*13	23	1	45	24	49	24	50	30	34	24	14	13	5	18	-15	29
Des Moines	-15	6	1	15	0	17	24	10	27	1	54	11	54	4	50	29	41	27	20	13	14	*17	-12	29
De Soto	-16	6	-1	15	-11	17	24	10	24	1	43	13	53	24	44	30	34	27	17	13	12	*17	-15	29
Dubuque	-19	6	3	25	6	17	21	10	30	1	46	15	53	5	51	30	36	27	23	28	13	23	-11	29
Earlham	-16	12	0	*15	-9	17	24	*9	25	1	47	15	50	24	41	30	32	27	18	12	13	*17	-13	29
Elkader	-21	6	-5	11	-4	17	15	10	28	3	41	13	48	*6	42	30	30	27	12	28	12	18	-19	18
Elliott	-15	6	-3	15	-1	11	25	8	24	1	53	*4	59	24	44	29	35	27	20	17	12	18	-16	29
Estherville	-22	6	-18	15	-8	17	20	*10	23	1	45	15	51	5	42	29	36	5	16	28	0	18	-17	29
Fairfield	-13	6	7	10	4	17	16	10	27	3	47	15	54	5	50	29	34	27	19	13	15	18	-13	30
Fayette	-22	6	-5	11	-10	17	14	10	26	4	41	15	48	2	41	30	30	27	10	28	2	23	-21	30
Forest City	-24	6	-12	1	-7	17	17	9	24	1	45	14	52	5	43	29	38	24	18	28	3	18	-15	29
Fort Dodge	-19	16	-6	*1	-6	17	23	*9	24	3	45	15	52	18	43	29	37	27	18	*13	7	18	-14	*29
Grand Meadow	-25	6	-5	*11	-5	17	19	10	26	*1	45	1	52	*4	45	*29	35	*26	19	28	5	23	-17	*20
Greene	-20	6	-4	16	-10	17	19	10	25	3	43	15	52	4	43	29	35	27	16	28	4	23	-14	29
Grinnell	-17	6	4	15	1	17	19	10	26	3	50	18	52	5	46	30	36	27	16	13	12	18	-13	29
Grundy Center	-21	6	-2	11	-9	17	24	9	26	1	44	15	52	4	42	*29	31	30	17	28	10	23	-14	29
Guthrie Center	-17	6	-5	15	-10	17	24	*9	24	1	48	15	52	24	42	29	36	27	18	*13	5	18	-16	29
Hampton	-22	6	-5	15	-5	17	19	10	25	1	46	15	52	5	45	29	36	27	18	*13	5	18	-16	29
Hancock	-15	6	-3	15	8	11	20	8	23	1	50	*1	54	*23	43	29	38	24	18	13	10	18	-17	29
Harlan	-17	*6	-5	15	-2	17	23	*8	23	1	48	15	50	24	40	29	36	23	15	13	6	18	-18	29
Hopeville	-14	6	1	15	5	17	23	*9	25	1	52	15	56	*23	46	29	37	27	18	13	13	18	-14	29
Humboldt	-20	6	-8	*15	-12	17	22	*9	21	3	42	15	52	24	40	29	30	27	17	13	2	18	-17	29
Independence	-23	6	0	11	-5	17	21	10	27	1	42	15	49	4	45	*29	35	27	16	28	6	23	-16	30
Indianola	-15	6	4	16	3	17	22	23	21	1	52	16	56	5	48	29	41	27	20	13	14	18	-12	29
Inwood	-24	6	-26	15	-6	17	18	*1	18	3	45	15	50	23	38	29	34	5	12	13	-3	23	-26	29
Iowa City	-19	6	-4	1	6	17	17	10	27	3	48	19	52	*4	48	29	33	27	18	*13	11	24	-17	30
Iowa Falls	-21	6	-4	*13	-15	17	19	10	24	3	44	15	52	5	40	29	33	27	16	28	8	18	-15	29
Keokuk	-10	6	8	10	11	17	25	10	31	1	50	15	54	4	52	30	42	27	23	13	17	18	-9	30
Keosauqua	-11	6	-5	1	7	17	19	10	29	2	47	*15	56	*4	43	30	34	27	20	*13	14	*18	-14	30
Lamoni	-12	6	3	15	11	17	23	9	25	1	54	11	53	4	47	29	38	27	20	13	13	18	-13	29
Larrabee	-22	6	-20	15	-5	17	18	9	22	1	47	15	50	*4	40	29	36	23	14	13	1	18	-21	29
Le Mars	-19	6	-17	15	2	17	22	8	22	1	44	15	52	*4	39	29	38	5	15	13	5	18	-16	29
Lenox	-17	6	-3	*15	6	*15	22	*8	22	1	53	13	54	24	48	29	39	*23	17	13	12	18	-17	29
Little Sioux	-16	6	-13	15	9	*11	20	*8	22	*1	48	13	53	24	43	29	35	24	17	13	3	17	-22	29
Logan	-17	12	-5	16	12	11	23	8	23	1	51	*3	52	24	41	29	37	24	17	13	9	17	-16	*19
Marshalltown	-21	6	-8	1	-6	*17	20	10	26	*1	48	15	52	*5	42	29	33	27	17	13	11	18	-13	*29
Mason City	-22	6	-9	16	-8	17	18	10	24	3	42	15	50	15	43	29	33	27	15	28	4	23	-14	29
Massena	-15	6	-3	*15	-3	11	22	9	22	1	50	*4	43	24	34	29	33	*25	13	13	6	*17	-17	19
Mt. Ayr	-13	6	0	15	10	17	22	9	24	1	53	14	52	4	48	29	39	27	21	13	14	*17	-14	29
Mt. Pleasant	-12	6	7	10	8	17	20	10	29	1	48	15	53	*4	49	29	38	27	20	13	15	18	-13	30
New Hampton	-24	6																						

MONTHLY REVIEW OF THE

MEAN ANNUAL AND MONTHLY TEMPERATURES WITH DEPARTURES FROM THE NORMAL FOR 1909

STATIONS	Jan.		Feb.		March		April		May		June		July		Aug.		Sept.		Oct.		Nov.		Dec.		Annual	
	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.
Afton	24.1	+1.4	29.1	+7.1	35.0	-1.5	46.4	-4.0	60.0	-2.3	71.0	+0.2	75.2	0.0	77.4	+3.8	69.8	-1.3	50.9	-2.4	45.0	+8.2	16.6	-9.1	49.5	0.0
Albia	22.9	-0.8	28.2	+7.9	34.0	-3.6	45.0	-4.6	57.6	-3.4	68.8	-0.8	71.5	-2.7	76.4	+3.0	62.7	-2.1	49.8	-3.4	44.6	+5.9	16.4	-8.6	48.2	-1.1
Algona	17.6	+4.3	21.7	+4.7	29.4	-0.2	40.4	-5.8	57.0	-2.5	67.6	-0.9	71.3	-2.1	74.8	+3.9	60.6	-1.3	48.0	-0.7	37.6	+4.8	13.8	-6.3	45.0	-0.2
Allerton	25.5	+3.6	30.4	+8.7	36.4	-1.8	47.2	-3.1	59.4	-1.6	70.3	+2.2	73.6	+1.0	78.2	+5.1	65.0	-0.3	51.2	-3.0	46.8	+6.2	17.8	-8.7	50.2	+0.7
Alta	17.0	+0.6	19.8	+2.5	28.8	-1.8	38.9	-6.8	56.0	-2.0	68.3	+0.6	70.4	-1.5	75.2	+4.7	60.8	-2.1	42.5	-1.8	37.8	+5.3	11.2	-10.2	44.5	-1.0
Alton	17.6		21.0		30.8		41.8		57.6		68.6		71.5		76.6		61.0		49.6		37.6		12.2		45.5	
Amana	22.6	+6.3	28.2	+8.1	34.2	+1.7	45.5	-3.1	58.4	-1.6	69.4	0.0	72.0	-1.7	75.2	+4.3	62.1	-0.4	48.9	-1.0	44.7	+14.1	17.0	-5.6	48.2	+1.8
Ames	23.6	+6.1	27.2	+6.0	31.8	-1.7	47.7	-1.4	59.4	-0.1	70.3	+0.9	72.3	-2.0	76.2	+4.0	61.8	-1.7	49.1	-1.9	42.8	+8.7	15.0	-7.6	48.1	+0.8
Atlantic	21.8	+1.4	27.6	+6.8	33.1	-1.6	45.0	-3.7	59.4	0.0	70.0	+0.9	74.2	+1.0	77.3	+6.0	64.2	-0.2	51.3	-0.3	42.9	+7.5	14.4	-10.5	48.4	+0.6
Audubon	20.4	+1.5	25.6	+6.5	30.5	-3.7	43.2	-5.5	56.1	-3.8	68.4	+0.8	71.5	-0.6	74.2	+2.4	60.4	-2.8	48.7	-2.2	42.1	+6.9	15.2	-8.7	46.4	-0.8
Baxter	21.0	+0.7	27.8	+9.7	32.0	-4.6	44.2	-4.6	57.8	-2.6	69.0	+1.4	71.2	-2.0	75.2	+3.3	62.3	-0.7	49.9	-3.3	43.4	+6.1	15.3	-8.9	47.4	-0.5
Bedford	24.8	+1.0	31.4	+10.6	36.4	-0.3	47.0	-2.3	58.8	-2.2	70.1	+1.8	74.6	+1.2	77.3	+3.4	65.0	+0.4	52.0	-2.3	45.0	+9.6	16.2	-9.5	49.9	+1.0
Belle Plaine	20.5	+2.3	27.6	+7.7	33.2	-0.2	44.4	-4.5	58.2	-1.3	68.8	-0.3	70.2	-2.6	74.6	+3.8	62.4	-1.2	49.0	-1.4	43.4	+8.5	15.9	-7.8	47.3	+0.2
Bonaparte	25.7	+2.5	31.1	+8.3	36.8	-1.2	48.4	-1.8	59.3	-3.0	70.2	-1.0	72.5	-3.0	78.4	+4.1	64.4	-3.0	51.0	-1.0	48.0	+9.5	17.7	-10.2	50.3	-0.2
Boone	20.0		24.7		30.8		42.2		57.2		69.4		71.9		76.2		61.8		49.6		41.4		14.1		46.0	
Burlington	26.1	-0.9	30.5	+6.8	37.4	-2.4	48.4	-3.1	60.4	-3.4	72.5	+2.0	73.0	-2.4	79.1	+5.0	64.4	-1.8	51.0	-4.7	47.5	+7.8	18.6	-8.5	50.7	-0.5
Carroll	20.2	+1.2	25.2	+6.3	30.4	-2.3	41.1	-7.0	56.0	-2.9	67.6	-1.0	70.6	-2.4	74.8	+3.7	60.6	-2.4	47.5	-3.5	38.0	+3.8	13.2	-10.2	45.4	-1.4
Cedar Rapids	21.4	+3.2	26.5	+6.4	32.8	-0.8	44.4	-5.3	58.2	-1.8	69.8	-0.5	72.4	-2.3	76.6	+3.9	62.6	-1.4	48.6	-2.8	44.1	+8.2	16.5	-8.5	47.8	-0.2
Chariton	24.8	+1.0	29.3	+7.1	35.2	-1.6	47.0	+0.5	58.4	-2.9	69.1	-0.1	71.0	-1.9	76.6	+3.5	63.6	-1.9	51.2	-3.0	46.0	+7.3	16.2	-10.1	49.1	-0.2
Charles City			21.5	+6.4	28.2	-0.2	40.2	-6.1	56.0	-3.5	67.0	-1.2	70.8	-2.7	73.6	+2.9	59.6	-2.1	47.0	-1.2	38.9	+6.9	13.2	-5.8		
Clarinda	22.4	-0.1	28.0	+5.4	34.4	-1.7	45.6	-5.3	59.0	-2.2	71.0	0.0	74.8	-0.7	77.8	+3.6	64.4	-1.8	51.6	-2.4	44.3	+6.5	15.0	-11.6	49.0	-0.9
Clear Lake	18.4	+1.8	22.2	+7.6	29.4	-2.3	40.4	-6.6	57.6	-2.1	69.4	+1.2	71.8	-1.4	75.4	+3.7	63.0	+0.8	49.0	-2.8	40.5	+6.4	14.6	-5.8	46.0	+0.1
Columbus Junction	25.0	+1.7	31.6	+10.4	36.4	-2.6	48.0	-1.7	60.2	-2.0	70.9	+2.2	72.8	-2.8	77.0	+4.6	63.8	-1.7	50.4	-4.0	47.4	+8.4	19.2	-7.4	50.2	+0.4
Corning	23.5	+1.6	28.5	+6.8	32.8	-3.6	45.8	-4.0	58.6	-1.8	69.8	+0.3	74.0	+0.4	75.9	+3.4	63.4	-1.4	50.1	-3.2	44.1	+6.9	14.4	-12.7	48.4	-0.6
Corydon	25.4	+2.1	30.8	+8.6	37.2	-0.1	47.6	-3.4	59.3	-2.0	70.3	+0.4	73.6	-1.2	78.0	+5.0	65.2	-1.3	52.9	-1.9	47.9	+9.2	17.4	-9.3	50.5	+0.5
Creston	21.4		27.7		33.3		43.6		57.7		69.2		72.3		77.0		63.2		51.6		43.2		16.4		48.0	
Davenport	24.9	+4.1	31.0	+7.2	35.8	+0.4	46.8	-3.4	59.2	-2.3	70.4	-0.5	72.6	-2.8	77.3	+4.3	63.6	-1.1	50.6	-2.0	46.8	+9.3	17.8	-9.4	49.7	+0.3
Delaware	19.3	+3.5	24.6	+8.3	30.4	-1.2	41.1	-4.7	56.0	-2.3	67.6	-0.2	70.7	-1.2	73.0	+3.4	60.4	-1.4	46.5	-2.5	41.7	+8.9	13.2	-8.2	45.4	+0.2
Denison	20.8	+0.5	26.0	+6.9	31.7	-2.0	43.2	-4.9	58.4	-0.9	68.0	+0.2	71.4	-1.3	75.8	+3.9	62.4	-1.3	50.6	-0.2	40.1	+4.5	14.4	-9.1	46.9	-0.3
Des Moines	22.8	+2.4	29.6	+5.5	33.6	-2.1	45.1	-5.5	59.2	-2.4	70.0	-0.4	72.9	-2.6	78.1	+5.1	63.8	-1.2	51.4	-1.1	44.8	+8.0	16.9	-8.8	49.0	-0.3
De Soto	23.4	+0.2	28.8	+8.4	33.9	-3.7	45.6	-1.1	58.8	-3.1	69.2	+0.2	73.0	+0.3	77.2	+4.2	64.8	+0.2	52.1	-2.0	44.8	+6.1	16.0	-10.5	49.0	-0.3
Dubuque	21.4	+3.1	26.9	+5.3	32.8	-0.4	43.4	-5.5	58.2	-2.6	68.7	-0.9	71.8	-2.9	75.0	+3.0	62.2	-1.4	48.4	-3.6	44.2	+8.2	16.6	-7.9	47.5	-0.4
Earlham	24.0	+4.6	29.9	+11.9	32.8	-1.4	45.1	-2.7	57.8	-2.2	68.8	+3.6	72.2	+2.2	76.4	+6.4	63.0	+0.9	52.8	+1.7	44.8	+7.0	16.2	-6.8	48.6	+2.0
Elkader	19.4	+4.6	24.8	+6.8	30.9	-0.9	43.0	-5.0	58.4	-2.1	71.6	+2.5	73.6	0.0	72.0	+1.0	59.8	-2.7	42.6	-6.8	39.4	+6.2	13.4	-8.2	45.7	-0.4
Elliott	23.4		29.4		34.8		46.2		59.0		69.8		74.0		77.0		64.0		50.8		43.2		15.3		48.9	
Estherville	16.0	+1.0	19.0	+3.9	28.6	-0.4	38.8	-7.5	54.9	-2.3	66.2	-0.6	69.6	-1.5	73.6	+3.4	58.4	-2.3	46.2	-2.6	36.2	+4.9	12.8	-5.4	43.4	-0.7
Fairfield	25.0	+7.4	31.1	+9.4	35.8	+2.0	47.0	-2.8	59.3	-0.9	71.0	+1.1	73.3	-1.4	79.8	+8.5	64.4	+0.4	50.8	-1.6	48.0	+11.1	17.8	-7.3	50.3	+2.2
Fayette	18.4	+2.3	23.3	+6.4	30.0	-1.2	40.8	-5.7	54.1	-3.3	67.2	-0.1	70.6	-2.7	73.8	+4.7	59.4	-2.9	46.7	0	41.1	+8.2	13.7	-7.9	44.9	-0.2
Forest City	16.8	+0.6	18.7	+4.1	28.7	-1.0	39.0	-7.5	55.6	-2.7	67.1	-0.1	70.4	-1.6	74.8	+4.5	60.8	-1.2	47.2	-2.5	37.6	+5.2	12.2	-7.6	44.1	-0.8
Fort Dodge	18.1	+1.0	22.0	+6.7	28.0	-5.4	40.6	-6.8	57.1	-2.9	69.2	+2.6	71.1	-1.7	77.2	+5.8	61.7	-0.9	49.1	-3.2	39.2	+4.0	13.0	-9.5	45.5	-0.9
Grand Meadow	18.6	+3.1	23.2	+6.5	29.3	-2.0	40.2	-6.6	55.6	-2.5	63.4		69.6	-0.9	72.2	+3.3	59.2	-2.7	46.6	-2.6	41.2	+8.3	13.4	-8.1	44.6	-0.4
Greene	19.7	+1.2	23.2	+7.2	30.1	-2.5	41.8	-6.3	57.6	-1.8	69.0	+0.9	72.7	-0.6	75.8	+4.3	61.4	-2.1	47.9	-4.2	40.6	+4.7	14.6	-4.4	46.2	-0.1
Grinnell	23.4	+3.2	29.0	+7.7	34.1	+1.0	45.4	-4.9	58.2	-1.5	69.6	+1.3	72.2	-1.0	77.4	+5.8	64.2	+0.4	51.2	+0.5	45.5	+9.5	17.2	-7.2	49.0	+1.3
Grundy Center	20.4	+3.5	25.6	+7.9	30.9	-1.7	43.6	-3.8	57.4	-1.1	68.6	+0.4	71.8	-0.4	75.6	+4.6	62.8	-0.3	48.2	-3.6	43.0	+9.0	15.0	-7.6	46.9	+0.6
Guthrie Center	22.0	-0.7	27.7	+7.5	32.2	-3.2	44.9	-4.4	59.0	-1.6	69.8	+0.8	72.9	-0.5	76.4	+4.2	63.0	-0.9	49.9	-2.5	43.5	+6.2	15.4	-8.4	48.1	-0.3
Hampton	18.8	+3.3	23.6	+6.7	30.0	-0.3	41.4	-5.9	57.4	-0.9	68.4	+0.6	72.2	-0.2	76.6	+6.0	62.6	-0.3	49.2	-1.6	40.1	+6.7	13.7	-7.8	46.2	+0.6
Hancock	22.2		28.8		33.0		45.0		59.7		70.6		74.8		78.2		64.4		51.0		43.0		14.0		48.7	
Harlan	20.8	-0.4	26.6	+8.5	32.2	-3.1	44.0	-4.3	57.6	-2.7	68.4	-0.1	72.3	-0.9	75.8	+3.6	62.2	-0.8	50.0	-2.8	41.4	+4.2	13.5	-10.5	47.1	-0.7
Hopeville	24.2	+2.8	29.6	+7.6	35.2	-0.5	46.4	-3.3	58.8	-1.4	70.0	+0.3	73.4	-0.7	76.5	+3.3	64.1	-2.3	51.8	-2.4	45.8	+9.1	16.4	-9.8	49.4	+0.3
Humboldt	20.2	+2.4	24.8	+7.1	30.6	-1.2	42.4	-5.9	56.0	-3.4			72.2	-0.7	75.4	+7.5	61.5	-1.0	49.8	-0.2	40.4	+6.4	14.8	-8.5		
Independence	21.3	+6.1	25.0	+5.4	31.0	+0.2	42.4	-7.0	56.3	-2.9	67.4	-1.0	71.0	-1.9	74.3	+4.2	61.3	-0.4	47.6	-1.6	43.8	+11.2	15.8	-6.3	46.4	+0.5
Indianola	24.0	+3.8	29.3	+7.0	34.4	-1.7	46.3	-4.4	59.0	-1.7	69.6	-0.1	72.7	-2.0	78.0	+5.2	64.2	-1.3	52.3	-1.4	46.0	+7.7	16.6	-9.2	49.4	+0.2
Inwood	16.8</																									

MONTHLY AND ANNUAL PRECIPITATION WITH DEPARTURES FROM THE NORMAL FOR 1909

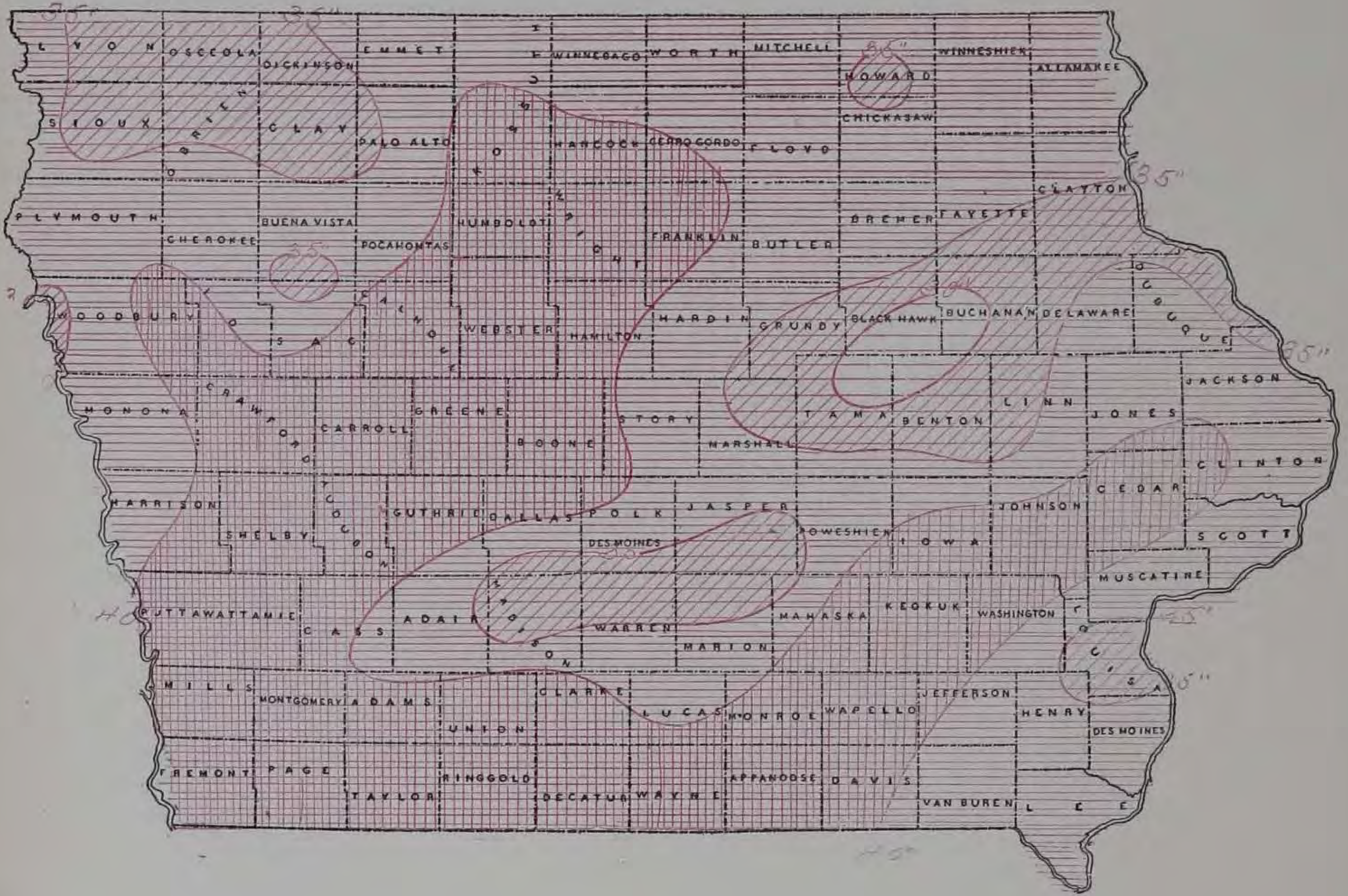
STATIONS	Jan.		Feb.		March		April		May		June		July		Aug.		Sept.		Oct.		Nov.		Dec.		Annual	
	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.
Afton	1.51	+0.62	0.80	-0.15	1.34	-0.76	5.24	+0.87	4.65	-0.24	13.30	+9.14	5.21	+0.86	1.36	-3.07	2.78	-0.87	3.50	+0.88	5.20	+3.97	2.59	+1.35	47.48	+12.60
Albia	2.35	+0.93	1.43	+0.11	1.82	-0.08	5.36	+2.53	5.38	+1.05	7.06	+2.20	6.49	+1.49	1.04	-3.11	3.63	+0.07	2.98	+0.41	4.51	+2.74	1.80	+0.66	43.78	+9.00
Algona	2.21	+1.42	1.90	+0.63	1.14	-0.42	3.48	+1.00	5.80	+2.12	6.03	+1.63	2.90	-0.20	2.36	-1.56	4.77	+1.57	2.21	+0.12	8.04	+6.76	1.29	+0.26	42.07	+13.33
Allerton	1.82	+0.40	1.90	+0.56	2.15	-0.30	4.40	+1.20	4.21	-0.30	10.24	+5.55	11.86	+7.29	0.34	-6.48	4.56	-0.15							2.28	+1.11
Alta	1.17	+0.53	1.77	+0.92	1.23	-0.43	2.77	-0.26	6.54	+1.76	5.67	+0.45	5.83	+1.18	2.37	-1.60	2.15	-1.03	1.15	-0.90	6.13	+4.90	1.33	+0.40	38.14	+5.83
Alta (near)	1.05	+0.46	1.50	+0.64	1.20	-0.31	2.38	-0.41	6.20	+1.37	6.23	+1.34	8.37	+3.49	2.96	-0.63	2.16	-1.57	2.01	-0.18	5.56	+4.07	1.39	+0.55	41.01	+8.82
Alton	0.95		1.65		0.92		2.80		4.91		5.96		6.61		0.99		4.42		1.43		3.94		1.00		36.48	
Amana	1.73	+0.26	1.90	+0.64	2.09	+0.09	6.81	+3.90	2.40	-2.00	5.51	+1.10	6.62	+2.37	1.00	-2.61	3.96	+0.71	1.81	-0.84	4.14	+2.41	2.37	+0.92	40.34	+6.95
Ames	1.36	+0.44	1.45	+0.65	1.71	+0.30	6.12	+3.45	4.17	-0.15	5.00	+0.47	3.00	-1.44	0.52	-3.15	2.82	-0.57	1.59	-3.51	4.16	+2.97	5.29	+4.27	37.19	+3.73
Atlantic	1.90	+1.14	1.40	+0.35	0.97	-0.78	3.83	+0.77	3.43	-0.95	9.08	+3.67	6.00	+1.67	0.44	-3.04	6.03	+2.54	2.90	+0.38	8.66	+7.68	1.94	+0.79	46.58	+14.22
Audubon	3.17	+2.52	2.08	+1.29	1.65	+0.03	2.72	-0.52	4.03	-0.21	6.58	+2.73	7.33	+3.41	0.41	-3.31	5.32	+2.19	2.38	+0.22	8.57	+7.23	2.01	+1.05	46.25	+16.63
Baxter	1.32	+0.44	1.31	+0.50	1.78	-0.43	6.49	+3.02	6.36	+1.16	5.48	+0.98	5.30	+0.26	0.71	-3.84	2.20	-1.22	2.42	-0.39	4.23	+2.90	2.04	+1.15	39.64	+5.13
Bedford	1.00	-0.10	0.93	-0.11	1.45	-0.87	3.41	+0.60	3.16	-2.09	5.76	+1.29	7.29	+1.05	1.37	-3.69	5.53	+2.09	3.04	+0.76	4.21	+2.92	2.30	+1.36	39.45	+4.11
Belle Plaine	2.89	+1.12	1.40	-0.06	2.43	-0.02	6.48	+3.17	2.81	-1.85	5.99	+1.82	4.94	+0.53	1.05	-3.10	1.84	-1.12	1.34	-1.01	3.68	+1.96	2.72	+1.19	37.63	+2.63
Bonaparte	1.11	-0.87	2.33	+1.13	1.96	-0.59	3.51	+0.16	4.13	+0.10	5.93	+1.25	7.35	+3.62	0.17	-4.48	3.26	-0.78	3.21	+1.45	3.84	+2.04	2.41	+0.38	39.24	+3.41
Boone	2.11		1.88		3.05		4.31		4.81		7.02		4.12		0.86		4.24		2.54		7.67		2.45		45.06	
Buckingham	1.77	+0.71	0.98	-0.02	0.98	-1.24	5.22	+3.15	3.72	-0.08	3.60	-1.34	1.66	-3.01	1.10	-3.98	2.06	-0.98	1.78	-0.32	2.83	+1.38	1.50	+0.53	27.20	-5.10
Burlington	1.02	-0.36	2.33	+0.55	2.52	-0.34	3.79	+0.63	3.83	-0.02	4.37	-0.71	5.46	+1.84	0.87	-4.57	4.47	+1.35	2.65	+0.43	4.53	+2.75	4.39	+2.84	40.83	+4.39
Carroll	1.77	+0.96	0.92	-0.63	1.50	-0.54	2.53	-0.67	6.28	+1.72	9.79	+5.12	4.51	+0.50	0.30	-3.41	5.23	+2.34	3.78	+1.54	7.26	+6.13	1.45	+0.46	44.92	+13.52
Cedar Rapids	2.27	+0.85	1.67	+0.29	1.47	-0.57	6.36	+3.62	3.05	-1.53	4.44	+0.57	4.21	+0.17	1.16	-2.34	3.91	+1.09	1.28	-1.18	2.82	+1.42	1.50	0.00	34.14	+2.39
Chariton	1.50	+0.18	0.85	-0.18	1.60	+0.52	5.01	+1.88	3.89	-0.48	6.33	+1.61	6.11	+0.65	0.82	-4.18	3.97	+0.53	2.14	-0.22	4.74	+3.44	2.45	+1.11	39.41	+4.86
Charles City			1.53	+0.56	2.18	+0.26	5.40	+2.57	3.42	-1.52	5.40	+0.39	1.77	-1.81	6.88	+3.46	3.12	+0.32	2.48	+0.45	6.06	+4.67	1.79	+0.51		
Charinda	1.27	+0.29	0.68	-0.32	1.75	-0.11	2.91	-0.28	4.78	-0.06	10.39	+5.49	7.55	+2.85	0.95	-3.98	5.59	+2.90	2.78	+0.28	5.74	+4.58	1.88	+0.76	46.27	+13.30
Clear Lake	1.35	+0.78	0.72	-0.13	1.25	-0.34			3.73	-1.70	5.12	+0.28	2.83	-1.91	3.39	-0.92	4.54	+1.58	2.75	+0.12	5.87	+4.80	1.80	+1.17		
Columbus Junction			2.20	+1.02	1.65	-0.86	5.16	+2.38	3.48	-0.40	2.95	-1.93	5.10	+1.09	0.50	-5.72	2.39	-0.76	2.16	-0.29	4.76	+3.25	2.72	+1.26		
Corning	1.00	+0.09	0.81	-0.07	2.27	+0.53	4.82	+1.69	4.99	+0.16	10.11	+6.06	6.87	+2.52	1.51	-2.70	5.12	+2.16	3.16	+0.83	5.62	+4.42	2.38	+1.24	48.66	+16.93
Corydon	1.89	+0.37	1.83	+0.54	1.88	-0.25	4.74	+1.58	3.97	-0.70	6.92	+2.27	7.34	+3.16	0.40	-3.83	4.99	+1.40	2.39	-0.10	3.46	+2.01	2.14	+0.72	42.04	+7.17
Creston	1.68		1.25		0.94		4.85		5.27		12.17		5.16		1.94		4.25		2.99		4.92		1.96		47.38	
Cumberland	2.12	+1.27	0.85	-0.05	1.10	-0.92	5.36	+3.27	3.59	-0.10	6.92	+2.24	4.73	-0.71	0.50	-3.48	4.14	+0.50	4.70	+2.09	3.36	+2.38	1.80	+0.78	37.17	+7.27
Davenport	1.72	+0.15	2.34	+0.78	1.60	-0.61	6.02	+3.14	3.33	-0.96	2.80	-1.31	4.68	+1.13	2.34	-1.30	1.50	-1.64	2.37	-0.02	3.92	+2.16	3.12	+1.43	35.64	+2.95
Delaware	1.22	+0.23	0.68	-0.13	1.10	-0.73	5.66	+2.88	3.51	-0.96	7.91	+3.73	2.22	-1.93	4.04	+0.50	2.85	-0.41	0.93	-1.27	3.54	+1.97	1.64	+0.26	35.31	+4.42
Denison	0.86	-0.38	1.92	+1.06	0.28	-1.23	2.20	-1.25	5.65	+1.54	7.75	+4.33	6.08	+2.02	0.71	-3.05	4.43	+1.43	1.71	-0.32	8.13	+7.12	1.90	+1.31	41.62	+12.58
Des Moines	1.61	+0.40	0.90	-0.18	1.56	-0.09	5.14	+2.16	4.24	-0.32	7.03	+2.07	4.41	+0.55	0.14	-3.47	2.06	-1.01	2.89	+0.21	3.71	+2.25	2.32	+1.01	36.03	+3.58
De Soto	1.29	+0.45	1.12	+0.21	1.73	+0.14	5.03	+2.25	4.29	+0.41	6.37	+2.00	2.88	-2.95	0.74	-4.23	3.39	+0.30	2.14	-0.19	4.27	+3.05	2.05	+0.79	35.30	+2.26
Dubuque	1.98	+0.49	1.32	-0.06	1.25	-0.96	7.46	+4.48	2.32	-2.00	6.61	+2.06	1.30	-3.00	1.50	-1.54	4.28	+0.69	2.03	-0.65	2.94	+1.13	2.08	+0.36	35.01	+1.00
Earlham	1.83	+0.75	1.60	+0.48	1.28	-0.48	7.20	+3.54	3.82	-0.95	6.82	+2.29	3.78	-1.06	0.88	-4.25	4.33	+0.54			5.87	+4.53	3.49	+2.19		
Elkader	1.79	+0.48	1.02	-0.07	1.27	-0.64	7.80	+5.11	3.14	-1.00	4.80	+0.77	1.60	-3.08	2.17	-0.73	2.15	-1.60	1.46	-1.18	4.51	+2.86	2.46	+0.63	34.17	+1.43
Elliott	1.28		0.88		0.95		4.05		3.79		6.55		8.44		0.54		5.03		3.07		7.78		1.80		44.16	
Estherville	1.05	+0.49	1.99	+1.31	0.65	-0.79	2.73	+0.52	6.47	+2.29	7.01	+3.66	4.75	+0.17	1.85	-1.75	4.69	+1.46	1.47	-0.70	3.46	+2.22	1.55	+0.93	37.67	+9.81
Fairfield	1.52	-0.18	3.44	+1.85	1.84	-0.73	4.84	+1.36	5.08	-0.20	5.92	+0.79	7.61	+3.62	T	-1.08	2.17	-1.30	3.32	+0.40	4.72	+2.44	2.39	+0.61	42.85	+4.58
Fayette	2.05	+0.77	2.76	+1.62	1.84	-0.42	8.02	+5.00			6.77	+1.42	1.65	-2.44	2.55	-0.72	2.77	-0.46	1.05	-1.60	4.36	+2.94	2.81	+1.35		
Forest City	2.25	+1.61	1.05	+0.12	1.55	-0.01	3.57	+1.20	4.60	+0.30	5.78	+1.15	3.13	-0.56	2.81	-0.99	3.60	-0.02	0.75	-1.55	7.21	+5.98	1.40	+0.55	37.79	+8.09
Fort Dodge	1.09	+0.45	0.70	-0.01	1.50	-0.76			5.78	+1.23	7.21	+3.40	5.29	+1.26	0.65	-4.69	3.60	-0.02	0.75	-1.55	7.21	+5.98	1.40	+0.55	37.79	+8.09
Fort Madison	1.94	-0.02	3.10	+1.21	2.25	-0.51	3.98	+0.80	4.36	-0.04	7.79	+3.41	5.99	+2.03	0.18	-3.61	4.24	+0.43	3.51	+0.89	4.28	+2.14	2.20	+0.27	43.82	+7.00
Gilman	2.29	+1.46	1.70	+0.70	0.50	-1.55	6.18	+3.82																		

MONTHLY REVIEW OF THE

DATES OF KILLING FROST, 1909.

Stations	Killing Frost		Stations	Killing Frost		Stations	Killing Frost		Stations	Killing Frost	
	Last in Spring	First in Autumn		Last in Spring	First in Autumn		Last in Spring	First in Autumn		Last in Spring	First in Autumn
Afton	May 10	Oct. 12	Decorah	May 10	Sep. 27	Iowa Falls	May 10	Oct. 12	Pocahontas	May 10	Oct. 11
Albia	May 10	Oct. 12	Delaware	May 10	Oct. 12	Jefferson	May 10	Oct. 11	Ridgeway	May 4	Oct. 12
Algona	May 10	Oct. 11	Denison	May 4	Oct. 11	Keokuk	May 2	Oct. 19	Rock Rapids	May 10	Oct. 12
Allerton	May 10	Oct. 12	Des Moines	May 3	Oct. 12	Keosauqua	May 2	Oct. 12	Rockwell City	May 3	Oct. 11
Alta	May 10	Oct. 12	De Soto	May 10	Oct. 12	Knoxville	May 10	Oct. 12	Sac City	May 10	Oct. 12
Afton	May 10	Oct. 11	Dows	May 11	Oct. 12	Lamoni	May 10	Oct. 12	St. Charles	May 24	Oct. 11
Amana	May 3	Oct. 12	Dubuque	May 3	Oct. 12	Larrabee	May 10	Oct. 12	Sheldon	May 10	Oct. 12
Ames	May 10	Oct. 13	Earlham	May 10	Sep. 27	Le Mars	May 10	Oct. 11	Sibley	May 11	Oct. 12
Atlantic	May 10	Oct. 11	Elkader	May 11	Sep. 26	Lenox	May 10	Oct. 12	Sigourney	May 3	Oct. 12
Audubon	May 10	Sep. 27	Elliott	May 10	Oct. 11	Leon	May 10	Oct. 12	Sioux Center	May 10	Oct. 11
Baxter	May 4	Oct. 12	Elma	May 10	Oct. 12	Little Sioux	May 10	Oct. 12	Sioux City	May 10	Oct. 12
Bedford	May 10	Oct. 11	Estherville	May 10	Oct. 12	Logan	May 10	Oct. 11	Stockport	May 3	Oct. 12
Belle Plaine	May 10	Oct. 12	Fairfield	May 3	Oct. 12	Marshalltown	May 10	Oct. 12	Storm Lake	May 3	Oct. 11
Bloomfield	May 3	Oct. 12	Fayette	May 11	Oct. 1	Mason City	May 10	Oct. 12	Thurman	May 10	Oct. 12
Bonepart	May 3	Oct. 12	Forest City	May 10	Oct. 12	Massena	May 10	Oct. 12	Tipton	May 3	Oct. 12
Boone	May 3	Oct. 12	Fort Dodge	May 10	Oct. 12	Mt. Ayr	May 10	Oct. 12	Toledo	May 10	Sep. 27
Britt	May 10	Oct. 11	Grand Meadow	May 10	Oct. 12	Mt. Pleasant	May 3	Oct. 12	Wapello	May 3	Oct. 12
Burlington	May 3	Oct. 12	Greene	May 10	Oct. 12	New Hampton	May 4	Oct. 12	Washington	May 3	Oct. 12
Carroll	May 10	Oct. 11	Grinnell	May 4	Oct. 12	Newton	May 3	Oct. 12	Washta	May 16	Sep. 23
Cedar Rapids	May 4	Oct. 12	Grundy Center	May 10	Sep. 30	Northwood	May 10	Oct. 12	Waterloo	May 10	Oct. 12
Chariton	May 10	Oct. 12	Guthrie Center	May 10	Oct. 12	Odebolt	May 10	Oct. 12	Waukee	May 10	Oct. 12
Charles City	May 3	Oct. 12	Hampton	May 4	Oct. 11	Olin	May 4	Sep. 26	Waverly	May 10	Oct. 11
Clarinda	May 10	Oct. 12	Hancock	May 3	Oct. 11	Omaha, Neb.	May 2	Oct. 12	Webster City	May 10	Oct. 12
Clear Lake	May 3	Oct. 11	Harlan	May 10	Oct. 11	Onawa	May 10	Oct. 12	West Bend	May 10	Oct. 11
Clinton	May 2	Sep. 30	Hopeville	May 2	Oct. 11	Osage	May 10	Oct. 12	Whitten	May 10	Oct. 12
Columbus Junction	May 3	Oct. 13	Humboldt	May 10	Sep. 27	Oskaloosa	May 10	Oct. 12	Wilton Junction	May 11	Oct. 12
Corning	May 10	Oct. 12	Independence	May 10	Oct. 13	Pacific Junction	May 10	Oct. 12	Winterset	May 10	Oct. 12
Corydon	May 1	Oct. 13	Indianola	May 3	Oct. 12	Pella	May 10	Sep. 27	Woodburn	May 10	Oct. 12
Creston	May 11	Oct. 12	Inwood	May 16	Oct. 12	Perry	May 10	Oct. 11	Zearing	May 10	Sep. 27
Davenport	May 3	Oct. 13	Iowa City	May 3	Oct. 12	Plover	May 10	Oct. 11			

TOTAL PRECIPITATION, 1909.

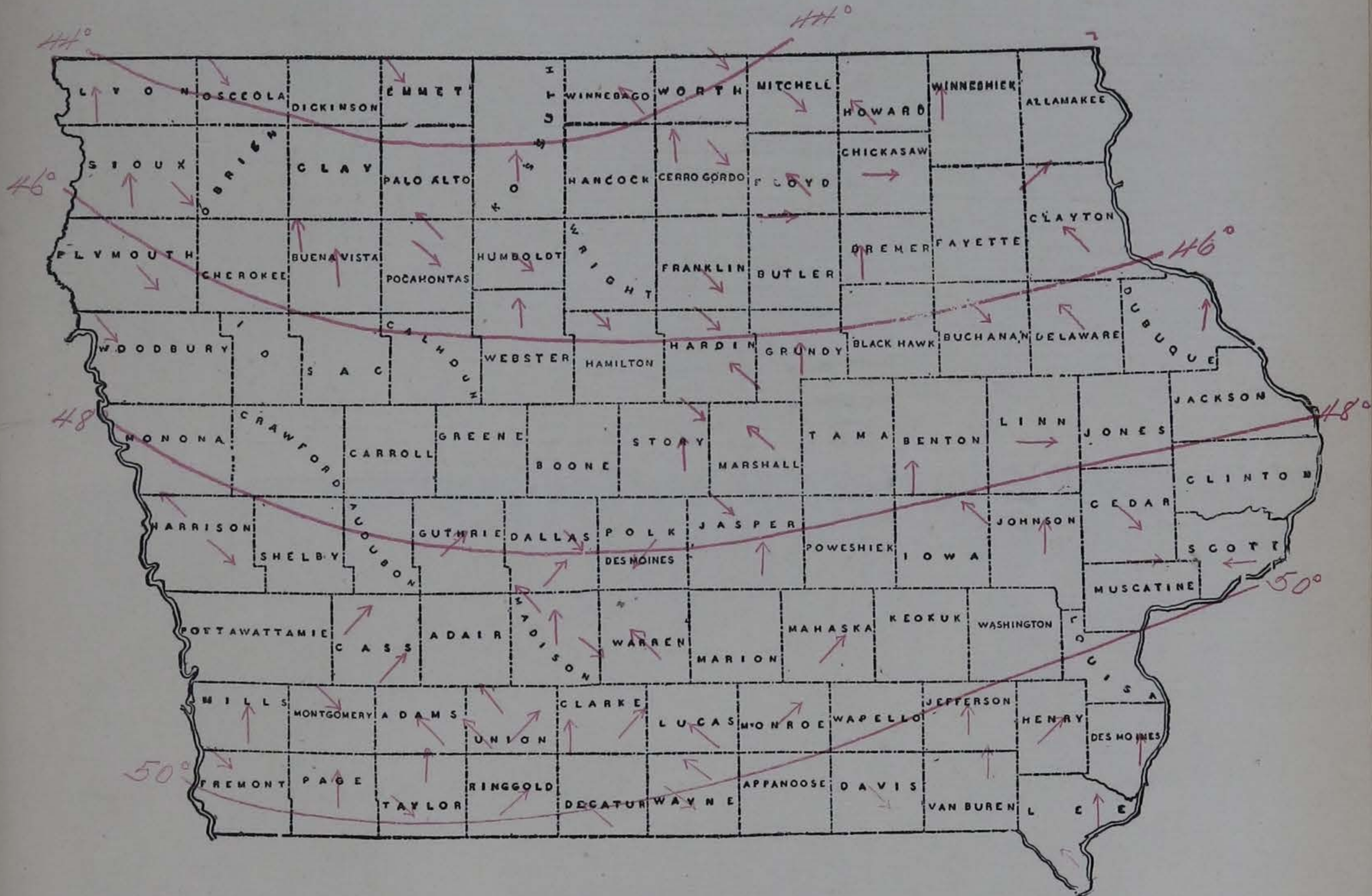


SCALE OF SHADES—IN INCHES



MEAN ISOTHERMS AND PREVAILING WINDS OF 1909.

Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR JANUARY, 1910

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



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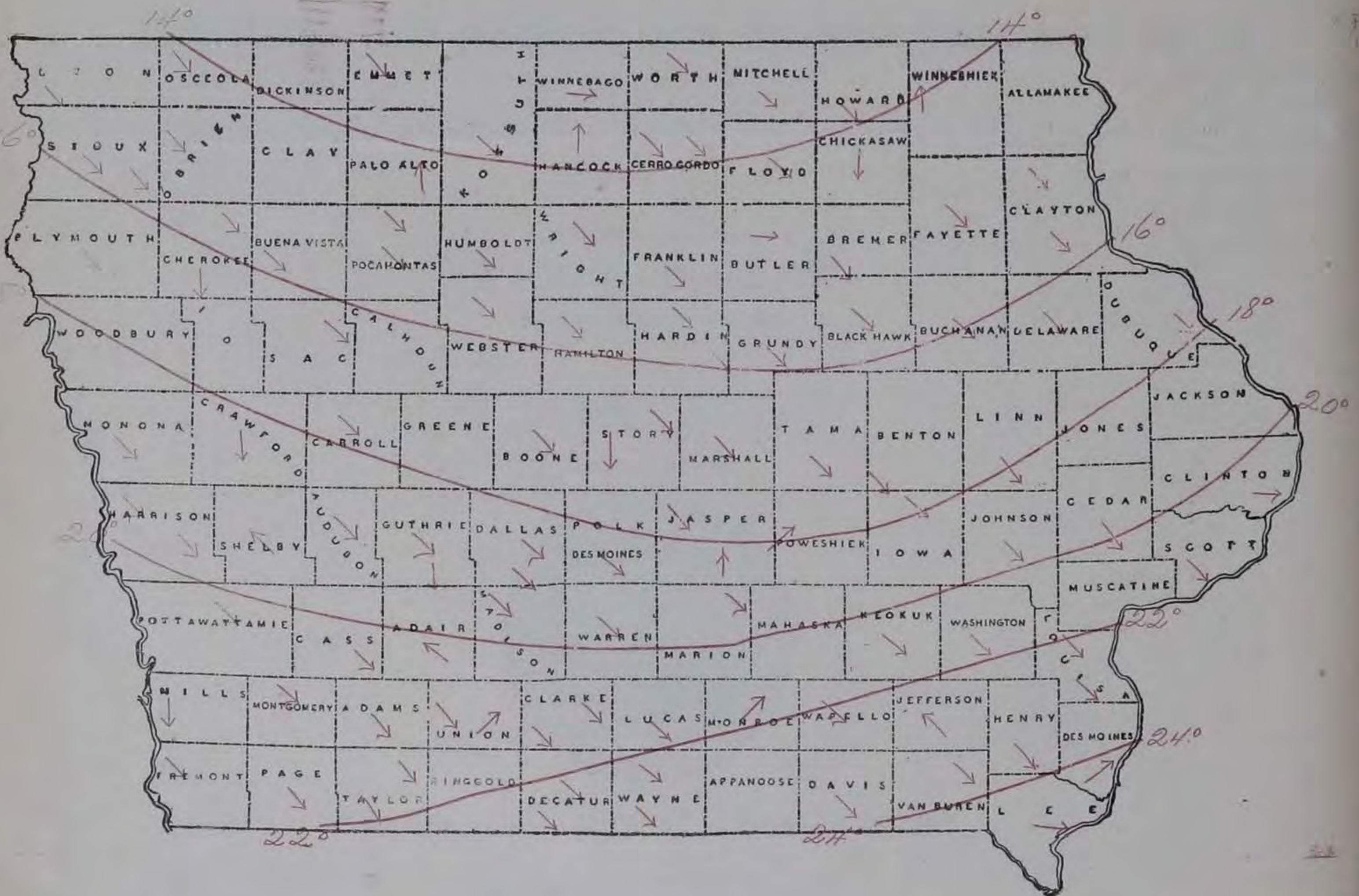
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MEAN ISOTHERMS AND PREVAILING WINDS OF JANUARY, 1910

Lines pass thru points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
GEO. M. CHAPPEL, Section Director.

VOL. XXI DES MOINES, IOWA, JAN., 1910 No. 1

GENERAL SUMMARY.

The first ten days of January were unseasonably cold, but the remainder of the month, with the exception of two or three days, was mild, so that the average temperature for the month, was only slightly below the normal. The 6th and 7th were the coldest days, the lowest temperature occurring generally on the 6th, when the minimum ranged from -8° to -33° over the southern counties, and, from -18° to -35° , over the northern counties. The lowest temperatures were recorded in the western portion of the southern, and in the eastern portion, of the northern districts. There have been six colder Januarys during the past 21 years, but the minimum for the State, for the past month, was lower than in any January since 1892. The 19th and 25th were generally the warmest days, but there were only two or three days in the month on which the minimum temperature was above the freezing point, even in the extreme southern portions of the State.

The precipitation was above the normal, except in the southeast, and west central districts, where there was a slight deficiency. Most of it fell in the form of snow during two storms; the first of which occurred on the 4th-5th, and the second on the 12th-13th. The fall of snow during these two storms was unusually heavy, and caused much delay in railroad traffic, which, together with the severe cold weather, during the early part of the month, came very near causing a fuel famine in this State. Only the energetic efforts of the railroad companies in clearing the snow from the tracks, and abandoning all freight trains, excepting those carrying coal, in order that fuel could be distributed as rapidly, and in as large quantities as possible, prevented serious suffering of the people in many localities. As it was, all coal had been exhausted in many towns, several days before a supply could be delivered to them. The accumulation of snow also did considerable damage to buildings, especially in the northern part of the State. The roofs of numerous structures collapsed as a result of the weight of the snow, causing damage estimated at about \$10,000, in the City of Dubuque. Snow flurries occurred at frequent intervals during the latter half of the month, but the amounts of snow were small, and only tended to prolong the good sleighing, which began on December 5th or 6th. The ground was thoroughly covered with snow during the entire month, in the northern, and, most of the month, in the southern districts and as a result, fall grains suffered no injury from the effects of the cold weather.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 117 stations, was 18.1° , which is 1.2° below the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 14.5° , which is 1.7° below the normal; Central section, 18.1° which is 1.1° below the normal; Southern section, 21.6° , which is 0.8° below the normal. The highest monthly mean was 27.0° , at Keokuk, Lee county, and the lowest monthly mean 11.8° , at Charles City, Floyd county. The highest temperature reported was 56° , at Perry, Dallas county, on the 10th; and at Stuart, Guthrie county, on the 26th; the lowest temperature reported was -35° , at

Elkader, Clayton county, on the 7th. The average monthly maximum was 43° , and the average monthly minimum was -22° . The greatest daily range was 56° , at Iowa Falls, Hardin county. The average of the greatest daily ranges was 37° .

PRECIPITATION.—The average precipitation for the State, as shown by the records of 121 stations, was 1.57 inches, which is 0.52 inch above the normal. By sections the averages were as follows: Northern section, 1.48 inches, which is 0.66 inch above the normal; Central section, 1.60 inches, which is 0.50 inch above the normal; Southern section, 1.64 inches, which is 0.40 inch above the normal. The greatest amount, 3.15 inches, occurred at Sheldon, O'Brien county, and the least, 0.55 inch, at Washta, Cherokee county. The greatest amount in twenty-four hours, 1.52 inches, occurred at Lacona, Warren county, on the 11th and 12th. Measurable precipitation occurred on an average of six days.

The average snowfall, unmelted, was 12.6 inches. By sections the average was as follows: Northern section, 16.3 inches; Central section, 13.0 inches; Southern section, 12.6 inches. The greatest monthly snowfall, 26.5 inches, occurred at Elkader, Clayton county, and at Humboldt, Humboldt county; and the greatest amount in 24 hours, 14.7 inches, occurred at Humboldt, Humboldt county, on the 20th.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 13; partly cloudy, 7; cloudy, 11. The duration of sunshine was below the normal, the percentage of the possible amount being 45 at Charles City; 44 at Davenport; 51 at Des Moines; 42 at Keokuk, and 43 at Sioux City.

WIND.—Northwest winds prevailed. The highest velocity reported was 55 miles per hour from the northwest, at Sioux City, Woodbury county, on the 20th.

COMPARATIVE DATA FOR THE STATE—JANUARY.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	19.7	61	-27	2.03	3.46	.35
1891.....	26.0	58	-4	1.75	8.99	.61
1892.....	15.3	78	-38	1.09	3.13	.10
1893.....	9.3	54	-34	.74	3.20	.13
1894.....	19.3	69	-37	1.09	2.24	.31
1895.....	13.6	68	-31	.85	2.65	.09
1896.....	23.4	68	-20	.48	2.10	T
1897.....	17.2	66	-30	2.01	6.16	.15
1898.....	23.4	52	-11	1.60	5.32	T
1899.....	19.8	68	-34	.28	1.15	T
1900.....	25.6	66	-20	.53	2.47	T
1901.....	23.7	60	-21	.74	2.34	.04
1902.....	22.4	63	-31	.88	2.83	.19
1903.....	23.0	60	-12	.28	1.46	T
1904.....	14.0	57	-32	1.18	3.68	.02
1905.....	11.2	56	-30	.91	1.82	.12
1906.....	24.6	69	-19	1.52	4.71	.28
1907.....	18.8	68	-22	1.52	5.30	.10
1908.....	24.9	60	-18	.44	1.50	.06
1909.....	21.2	72	-25	1.66	3.74	.41
1910.....	18.1	56	-35	1.57	3.15	.55

T indicates a Trace.
- indicates temperature below zero.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.13 inches.
Prevailing direction of Wind, Northwest.

STATIONS	Barometer, in Inches				Wind					
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum Velocity—miles	Direction	Date	Average Hourly Velocity
Charles City.....	30.12	30.75	3	29.14	26	5453	29	NW	20	7.3
Davenport.....	30.12	30.78	9	29.20	26	6025	31	W	26	8.1
Des Moines.....	30.11	30.70	3	29.21	26	6116	32	NW	20	8.2
Dubuque.....	30.14	30.79	9	29.17	26	4834	24	NW	20	6.5
Keokuk.....	30.15	30.77	9	29.30	26	6114	38	W	26	8.2
Omaha, Neb.....	30.15	30.69	3	29.31	25	6539	39	NW	26	8.8
Sioux City.....	30.15	30.70	3	29.34	25	8870	55	NW	20	11.9

OBSERVER'S REMARKS.

ALBIA.—*J. I. Chenoweth*. There was from one to nine inches of snow on the ground during the entire month.

ALLERTON.—*Mrs. George Shriver*. There is considerable corn still in the fields. Some corn has been shipped in and is selling for 65 cents per bushel. Hay is selling at \$15 per ton.

ALTON.—*W. S. Slagle*. There was snow on the ground every day of the month. About 15 per cent of the corn still remains unpicked. No stalk fodder has been used and hay is scarce and high.

AMANA.—*Conrad Schadt*. At the close of the month snow still covered the fields well and affords good protection to fall sown grains. There was also good sleighing throughout the month, which greatly lightened the burden of transportation on country roads.

BAXTER.—*W. R. Vandike*. The sleighing has been good since the 4th of December.

BELMOND.—*Geo. P. Hardwick*. The first half of the month was very cold and the total snowfall for the month was excessive. Stock feed is short on account of unhusked corn yet in the fields.

CHARLES CITY.—*E. W. McGann*. The minimum temperature on the 6th was 32° below zero and the mean for the day was 18° below. This is the lowest temperature on record for the month of January. The month was noted for its severe cold, frequent snows, great lack of sunshine and frequent light fogs.

CORNING.—*Jerome Smith*. The snow is all gone from the roads and exposed places in the pastures but in the corn fields the snow is still quite deep.

DAVENPORT.—*J. M. Sherier*. A period of decidedly cold weather extended from the 2d to the 10th with the greatest daily deficiency, 27° on the 6th when the minimum temperature was 13° below zero. Excepting the 21st and 22d, it was warmer than the average during the remainder of the month. The total snowfall was 7.2 inches, of which 5.0 inches fell in one storm, on the 4th-5th. The greatest depth of snow on the ground was 12.4 inches, on the 5th, and the least was 5.0 inches on the 28th.

DUBUQUE.—*J. H. Spencer*. The coldest period was from the 3d to the 10th inclusive, when all minimum temperatures were zero or below. The remainder of the month was mild. The minimum of the 7th, —25°, was the lowest in January in 22 years, or since January 16, 1888, when the lowest was —30°. The temperature has been lower than —25° only on six dates since the station was established 37 years ago. The snow storm that began at 7:23 a. m. of the 4th was the worst of the winter up to that date, and the total amount for the storm was 9.3 inches. The snow drifted during the night of the 4th-5th. Street car service was maintained with much difficulty and railroad trains were much delayed. Another heavy snow storm occurred on the 12th-14th. This storm gave over a foot of snow and by the night of the 13th there was over 20 inches on the level with drifts three or four feet in places. Several days were required to restore railroad traffic to a normal basis and for a period of ten or more days freight traffic was practically at a standstill. The roofs of several buildings collapsed as a result of the weight of snow, causing damage estimated at about \$10,000.

FAIRFIELD.—*Prof. R. Monroe McKenzie*. The first ten days were very cold but the remainder of the month was quite mild for January. There was an unusual amount of snow on the ground during the first half of the month.

FAYETTE.—*R. Z. Latimer*. The minimum temperature, 32.5° below zero, on the 7th was the lowest on record at this station for the past 21 years.

FOREST CITY.—*J. A. Peters*. Sleighing has been good since December 1st and the snow is 15 inches deep on the ground at the close of January. A number of farmers are out of corn on account of not being able to get into the fields to husk and gather the remainder of the crop of 1909.

GRAND MEADOW (POSTVILLE P. O.)—*F. L. Williams*. The month

was very cold; there being eleven days with the minimum temperature below zero and there is no record of the ground being so evenly covered with snow. There are no bare places.

INWOOD.—*F. B. Hanson*. January was a cold, bad month, especially the first half. The minimum temperature for the month, —30°, was the lowest for four years.

KEOKUK.—*F. Z. Gosewisch*. The first ten days of the month were cold with an average daily deficiency of temperature of 10°. Since the 11th the temperature has been mild for the season and the snow has almost entirely disappeared except in sheltered places. An excellent quality of ice, from 12 to 16 inches in thickness, has been cut and the ice harvest is practically completed. Streams are above the normal winter stage and the ground contains a large amount of water.

KEOSAUQUA.—*J. H. Landes*. There was some extremely cold weather during the first ten days of the month and the sleighing was fine during the greater part of the month.

LAMONI.—*Prof. T. J. Fitzpatrick*. January, as a whole, was a pleasant winter month. During the last two weeks a comet was observed in the evenings in the western sky.

NORTHWOOD.—*Chas. H. Dwelle*. A comet of much brilliancy was observed above the western horizon on the 23d and following days when the clouds did not interfere. It was brightest about 7 to 8 p. m., just before passing below the horizon.

PERRY.—*J. A. Harvey*. But little snow fell during the latter half of the month but there is now 6 to 8 inches of snow on the ground.

POCAHONTAS.—*F. E. Hronek*. The sleighing has been better than for many years. It is estimated that 25 per cent of the corn is still in the fields. The snow has settled considerably but is 8 inches deep on the ground and it is hard and icy.

SHELDON.—*Dr. A. W. Beach*. The sleighing is the best and continued longer than ever before known in this vicinity.

WAUKEE.—*Samuel F. Foft*. Some corn was gathered during the past week but about 30 per cent of the crop is still in the fields.

RELATED REPORTS.

ROCK RAPIDS.—December, 1909; mean temperature, 11.0°; maximum temperature and date, 48° on the 1st; minimum temperature and date, —16° on the 29th; greatest daily range of temperature, 22°; precipitation, total, 0.80 inch; greatest in 24 hours, .30 inch; number of days with, 5.

ERRATA.

DENISON.—August, 1909; lowest temperature and date, published 50° on the 30th, should be 37° on the 29th.

EARLHAM.—August, 1909; highest temperature and date, published 98° on the 15th, should be 99° on the 27th.

FAIRFIELD.—August, 1909; mean minimum temperature, published 70.7°, should be 70.3° mean temperature published 79.8°, should be 79.6°.

NEW HAMPTON.—August, 1909; lowest temperature and date, published 48° on the 30th, should be 39° on the 29th.

PERRY.—August, 1909; mean monthly temperature, published 76.1°, should be 76.6°; departure, published +3.6, should be +4.1.

STUART.—Highest temperature and date, published 95° on the 15th, should be 98° on the 15th; lowest temperature and date, published 46 on the 29th, should be 45° on the 28th.

CLEAR LAKE.—September, 1909; maximum precipitation in 24 hours, published 1.20 inches, should be 1.40 inches.

CLINTON.—September, 1909; mean temperature, published 61.8°, should be 62.0°; departure, published —1.5, should be —1.3; maximum temperature 26th, published 46°, should be 63; mean maximum temperature, published 73.2°, should be 73.8°.

NORTHWOOD.—September, 1909; mean minimum temperature, published 49.4°, should be 49.5°.

(Continued on page 8)

CLIMATOLOGICAL DATA FOR IOWA, JANUARY, 1910

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit					Precip., in Inches				Sky			Prevailing direction of wind	OBSERVERS			
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days			No. clear days	No. partly cloudy days	No. cloudy days
NORTHERN SECTION																				
Algona	Kossuth	1,213	35	14.4	+1.1	38	19	-22	6	34	1.33	+0.54	.60	16.0	7	18	3	10	nw	Dr. F. T. Seeley
Alta	Buena Vista	1,513	18	14.8	-1.6	40	19	-18	6	38	1.36	+0.72	.40	11.0	10	12	6	13	nw	D. E. Hadden
Alta [near]	Buena Vista	1,305	4	15.0		38	19	-29	6	39	1.45		.70	14.5	6					W. J. Minard
Alton	Sioux			13.7		37	19	-25	6	35	1.51		.45	14.2	16	1	18	12	nw	W. S. Slagle
Belmond	Wright	1,236	13	12.8	-3.2	36	19	-26	6	31	0.77	+0.09	.34	11.3	4	13	7	11	s	G. P. Hardwick
Britt	Hancock	1,015	21	11.8	+0.4	41	19	-32	6	36	1.75	+0.78	.88	26.2	7	5	7	19	nw	L. M. Goodman
Charles City	Floyd	1,241	10	13.7	-2.9	38	20	-26	6	36	0.65	+0.08	.40	7.5	4	12	6	13	nw	Weather Bureau
Clear Lake	Cerro Gordo	875	16	14.3	-1.2	41	20	-28	7	42	1.85	+0.70	.80	18.5	8					Oscar Stevens
Decorah	Winneshiek	727	28	13.4	-1.4	46	19	-35	7	49	1.60	+0.29	.80	26.5	3	21	8	2	nw	F. H. Baker
Elkader	Clayton			12.7		39	19	-34	7	42	0.73		.40	9.4	5	13	6	12	nw	Chas. Reinecke
Elma	Howard			13.8	-1.2	42	19	-21	9	37	1.17	+0.51	.50	15.5	5	12	0	19	nw	H. A. Moore
Estherville	Emmet	1,298	13	13.0	-3.1	42	19	-32	7	41	2.13	+0.85	1.00	23.0	5	17	3	11	nw	A. O. Peterson
Fayette	Fayette	1,003	19	13.0	-3.1	42	19	-32	7	41	2.13	+0.85	1.00	23.0	5	17	3	11	nw	R. Z. Latimer
Forest City	Winnebago	1,226	15	15.8	-0.4	39	19	-23	9	54	2.40	+1.76	1.40	24.0	4	11	8	12	w	J. A. Peters
Grand Meadow	Clayton	1,180	18	15.8	+0.3	40	19	-25	7	38	1.85	+0.68	.90	18.2	9	11	10	10	nw	F. L. Williams
Greene	Butler			14.6	-3.9	40	19	-25	6	38	1.02	+0.38	.40	14.5	6	5	12	14	w	J. L. Cole
Hampton	Franklin	1,155	19	16.6	+1.1	40	19	-20	6	40	1.85	+0.81	.85	20.0	3	6	12	13	nw	E. C. Grenelle
Humboldt	Humboldt	1,095	18	16.2	-0.6	40	19	-28	6	43	2.65	+2.10	1.47	26.5	5	18	0	13	nw	H. S. Wells
Inwood	Lyon	1,474	5	14.4		42	19	-30	6	45	1.06		.35	10.3	5	14	8	9	nw	F. B. Hanson
Larrabee	Cherokee	1,266	18	15.4	-2.0	39	19	-23	6	33	1.21	+0.67	.57	12.2	6	12	8	11	nw	H. B. Strever
Le Mars	Plymouth	1,224	13	17.1	-2.1	37	19	-19	6	35	0.73	-0.19	.26	18.0	3	4	16	11	nw	G. A. C. Clarke
Mason City	Cerro Gordo	1,133	12	13.1	-2.0	37	19	-26	7	37	1.35	+0.20	.85	13.5	5	11	8	12	nw	J. S. Mills
New Hampton	Chickasaw	1,169	12	13.1	-3.7	36	20	-26	6	33	2.10	+1.27	1.00	21.0	5	12	7	12	n	A. F. Kemman
Northwood	Worth	1,222	13	11.70	-4.6	36d	17	-24	6	33d	2.20	+1.55	.90	21.5	7	17	7	7	nw	Charles H. Dwelle
Osage	Mitchell	1,184	18	15.0	+1.0	38	19	-24	6	31	1.95	+1.03	1.00	24.0	3	12	5	14	nw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	13	14.7	-3.3	39	19	-22	6	33	1.10	+0.52	.65	11.0	3	19	4	8	nw	J. S. Smith
Pocahontas	Pocahontas	1,248	5	15.2		40	19	-20	6	34	1.04		.45	10.5	6	16	3	12	nw	F. E. Hronek
Ridgeway	Winneshiek	1,215	11	16.1	-3.1	42	19	-23	6	35	1.99	+0.01	1.05	12.5	8	14	6	11	s	Arthur Betts
Rock Rapids	Lyon	1,358	9	14.8	-0.9	38	1	-21	6	31	?		.60	?	4	?	?	?		Dr. A. W. Beach
Sheldon	O'Brien	1,422	9	14.7	-2.9	40	19	-23	6	36	3.15	+2.55	1.00	26.0	9	19	3	9	nw	W. C. Wyckoff
Sibley	Osceola	1,212	16	12.9a	-2.0	39a	19	-21a	6	38	1.05	+0.51	.50	10.5	4	16	1	14	nw	H. G. Doolittle
Stout Center	Sioux			14.8a	-3.1	38a	22	-20a	6	34a	1.55	+1.07	.80	15.5	5					J. de Ruyter
Storm Lake	Sioux	1,440	13	16.6b	-0.8	39b	19	-19b	6	29b	0.86	+0.15	.61	17.5	3	15	9	7		S. B. Fracker
Washta	Buena Vista	1,157	11	15.8		45	19	-34	6	42	0.55	+0.07	.30	6.0	2	12	6	13	n	H. L. Felter
Waverly	Cherokee	948	13	14.4	-3.5	40	19	-29	7	37	1.62	+0.63	.70	16.2	5	9	10	12	nw	H. S. Hoover
West Bend	Bremer	1,197	15	14.9	-1.9	38	19	-22	6	36	1.25	+0.55	.65	12.0	7	11	8	12	s	Phil Dorweiler
Average				14.5	-1.7	39		-25		37	1.48	+0.66		16.3	6	12	7	12	nw	
CENTRAL SECTION																				
Amana	Iowa	721	32	18.3	+2.0	42	19	-26	7	39	1.99	+0.52	.64	9.3	7	11	9	11	nw	Conrad Schadt
Ames	Story	926	34	17.2	-0.3	42	19	-23	6	45	1.30	+0.38	.60	8.0	4	15	2	14	n	Iowa State College
Audubon	Audubon	1,301	16	20.0	+1.1	39	15	-17	6	26	1.80	+1.15	1.30	17.0	3	16	2	13	nw	Geo. E. Kellogg
Baxter	Jasper	998	9	18.6	-1.7	49	19	-21	6	37	1.41	+0.53	.55	12.6	9	16	4	11	nw	W. R. Vandire
Belle Plaine	Benton	828	19	18.2	0	45	19	-21	6	37	2.45	+0.68	.60	21.0	9	9	6	16	nw	S. P. VanDike
Boone	Boone	1,134	4	17.0		45	19	-16	6	35	1.79		.92	3.0	4	15	3	13	nw	Carl Fritz Henning
Buckingham	Tama												.40	?	4	9	13	9		Dr. W. A. Daniel
Carroll	Carroll	1,265	19	17.9	-1.1	44	31	-19	5	36	0.75	-0.06	.45	5.0	2	10	6	15	nw	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	27	16.2	-2.0	45	19	-27	7	54	1.35	-0.07	.50	11.2	6	15	1	15	nw	W. J. Greene
Clinton	Clinton	593	41	20.5	+0.8	40	19	-20	7	39	2.51	+0.59	1.20	15.5	8	9	6	16	w	Luke Roberts
Davenport	Scott	580	37	21.2	+0.4	45	19	-13	6	34	1.69	+0.12	.77	7.5	9	10	4	17	nw	Weather Bureau
Delaware	Delaware	1,083	18	15.7	-0.1	36	20	-23	6	36	1.06	+0.07	.40	12.1	6	15	7	9	nw	Wm. Ball
Denison	Crawford	1,180	14	18.4	-1.9	43	19	-26	6	33	0.87	-0.37	.60	8.2	3	16	3	12	n	W. C. Van Ness
Des Moines	Polk	861	30	20.5	+0.1	48	19	-14	7	34	1.72	+0.51	.96	12.3	6	10	6	15	nw	Weather Bureau
De Soto	Dallas	866	9	19.5	-3.7	45	19	-21	6	41	2.17	-1.33	1.20	13.0	4	17	2	12	nw	R. D. Minard
Dubuque	Dubuque	639	36	18.4	+0.1	44	20	-25	7	41	2.45	+0.96	.93	22.1	9	9	6	16	nw	Weather Bureau
Fort Dodge	Webster	1,126	9	14.4a	-2.7	42	19	-22	9	53	1.80	+1.16	.60	18.0	6	15	0	16	nw	J. F. Monk
Gilman	Marshall	1,052	10										.85	14.2	7	13	6	12	sw	Jas. L. Wylie
Grinnell	Poweshiek	1,023	17	20.0	-0.2	45	19	-20	6	36	1.65	+0.39	.90	10.5	3	13	7	11	nw	D. W. Brainard
Grundy Center	Grundy	976	18	17.8	+0.9	42	18	-24	7	41	2.10	+1.28	1.00	21.0	4	14	6	11	nw	J. B. Calderwood
Guthrie Center	Guthrie	1,077	14	19.4	-3.3	41	19	-21	6	31	2.08	-1.49	1.23	8.8	7	17	3	11	nw	D. G. Beardsley
Harlan	Shelby	1,192		18.8	-2.4	44	19	-27	6	34	1.00	+0.34	.60	9.2	4	8	9	14	nw	C. A. Reynolds
Independence	Buchanan	921		15.1	-0.1	41	19	-30	7	38	2.25	+1.02	1.20	22.5	5	16	1	14	nw	George Donohoe
Iowa City	Johnson	683	50	16.4	-2.7	47	19	-26	6	50	1.79	+0.05	.58	10.0	8	11	5	15	nw	Arthur G. Smith
Iowa Falls	Hardin	1,170	16	12.2	-3.0	39	18	-30	6	56	1.77	+0.87	.70	17.7	7	15	2	14	nw	J. B. Parmelee
Jefferson	Greene												.73	9.7	11					Geo. W. Jackson
Le Claire	Scott	576											.90	10.5	3	13	7	11	nw	Margaret T. Disney
Little Sioux	Harrison			20.0		47	19	-28	6	44	1.20		.40	?	3	10	12	9	nw	Geo. H. Gibson
Logan	Harrison	928	43	20.4	+1.1	46	19	-24	6	34	0.67	-0.43	.40	?	3	10	12	9	nw	Glenn H. Stern
Marshalltown	Marshall	947	17	16.																

CLIMATOLOGICAL DATA FOR IOWA, JANUARY, 1910—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit					Precip., in inches				Sky				Prevailing direction of wind	OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	Number clear days			Number partly cloudy days	Number cloudy days
SOUTHERN SECTION																				
Afton	Union	1,212	15	22.0	-0.7	44	25	-13	6	29	1.40	+0.51	1.00	12.0	3	11	7	13	sw	N. W. Rowell
Albia	Monroe	959	11	20.4	-3.3	47	19	-19	6†	41	1.48	+0.06	.63	6.0	3	11	16	4	sw	J. I. Chenoweth
Allerton	Wayne		7	23.2	+1.3	48	25	-19	6	32	1.71	+0.29	.70	7.1	5	17	2	12	nw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	17	19.9	-0.5	44	19	-24	6	30	1.17	-0.41	.51	6.0	4	8	10	13	nw	Thos. H. Whitney
Bedford	Taylor		9	21.5	-2.3	48	19†	-26	6	35	2.46†	+1.36†	1.20	17.8†	9	15	4	12	nw	E. E. Healy
Bloomfield	Davis			24.6a		52a	19	-18a	6†	42a	1.29		.55	12.0	5	7	17	7	nw	C. R. Davis
Bonaparte	Van Buren		18	21.0	-0.2	46	19	-17	6	37	1.84	-0.14	.75	5.0	3					Hon. B. R. Vale
Burlington	Des Moines	544	13	22.4	-4.6	45	11†	-11	6	40	1.61	-0.37	.63	6.1	8	12	4	15	sw	M. E. Poppe, Jr.
Chariton	Lucas	1,042	14	21.4	-2.3	45	25	-22	6	34	0.70	-0.62	.45	4.0	2	14	0	17	nw	C. C. Burr
Clarinda	Page	1,009	19	20.4	-2.1	49	25	-22	7	45	1.73	+0.75	.77	10.2	6	15	5	11	nw	A. S. Van Sandt
Columbus Junction	Louisa	595	8	22.8	-0.5	43	19	-16	6	32	1.70	+0.27	.60	6.0	7	15	5	11	nw	J. B. Johnston
Corning	Adams	1,117	17	19.9	-2.0	44	26	-26	6	35	1.30	+0.39	.80	8.0	3	16	5	10	nw	Jerome Smith
Corydon	Wayne	1,101	16	22.7	-0.6	48	25	-19	6	33	1.69	-0.20	.71	6.0	8	13	6	12	nw	Clara Miller
Creston	Union	1,312	4	18.4		50	29	-25	6	33	1.40		.80		3	17	2	12	nw	E. S. Stovall
Cumberland	Cass		10																	J. H. Reppert
Earlham	Madison		7	19.4	0.0	44	19	-24	6	37	2.09	+1.01	1.00	16.0	7	11	6	14	nw	Geo. Phillips
Elliott	Montgomery		4	20.6		43	19†	-31	6	39	0.63		.50	5.0	2	12	13	6	nw	Henry Barnes
Fairfield	Jefferson		15	22.2	-4.6	50	19	-23	7	45	2.02	+0.32	.58	5.9	8	16	13	2	se	R. Monroe McKenzie
Fort Madison	Lee	516	60								2.06	+0.10	1.50	3.1	4	9	6	16	w	Miss L. A. McCreedy
Greenfield	Adair		18	19.2	-2.1	42	19	-19	6	28	1.44	+0.49	.80	?	3	17	3	11	nw	R. B. Oldham
Hancock	Pottawattamie	1,113	28	20.6		42	19†	-21	6	27	1.40		.60	6.0	3	18	4	9	nw	G. C. Rogers
Hopeville	Clarke		18	20.6	-0.8	44	19†	-20	6	33	1.66	+0.72	.83		7	8	11	12	nw	M. T. Ashley
Indianola	Warren	969	18	21.0	+0.8	44	19	-13	6	28	2.35	+1.08	1.00	12.0	6	9	7	15	nw	Prof. J. L. Tilton
Keokuk	Lee	574	38	27.0	+3.3	52	19	-8	6	28	1.61	-0.08	.78	3.0	7	9	11	11	nw	Weather Bureau
Keosauqua	Van Buren	644	17	21.4	-1.7	48	19	-22	6†	49	1.93	+0.56	.68	7.5	7	8	11	12		J. H. Landes
Knoxville	Marion	920	13																	Casey & Belville
Lacona	Warren		10								3.36	+1.69	1.52	14.0	9	7	19	5		J. B. Alter
Lamoni	Decatur		3	32.1		47	26	-16	6	32	1.20		.77	7.1	6	20	0	11	nw	T. J. Fitzpatrick
Lenox	Taylor	1,250	14	21.2	-2.1	43	25	-16	6	28	0.88	+0.12	.45	4.8	3	17	2	12	nw	J. L. Hurley
Leon	Decatur	1,120	7	22.0	-0.2	45	25	-19	6	30	2.92	+2.04	1.00	12.8	9	10	7	14	nw	Morris Gardner
Massena	Cass		4	19.6		43	19†	-26	6	31	1.93		1.00	11.0	3	18	2	11	nw	C. E. Smeltzer
Mt. Ayr	Ringgold	1,236	16	22.4	-0.9	45	19†	-15	6	32	1.39	+0.15	.55	8.5	6	14	4	13	nw	A. F. Beard
Mt. Pleasant	Henry	729	27	23.0	+2.0	44	19	-16	6	30	1.53	+0.07	.55	6.5	9	12	6	13	nw	J. W. Edwards
Omaha, Neb.	Douglas	1,040	39	22.4	+1.9	48	19	-10	5	25	0.94	+0.29	.50	6.9	7	7	11	13	nw	Weather Bureau
Oskaloosa	Mahaska	843	25	21.2	+2.0	45	19	-22	6	36	2.32	+1.40	.67	8.5	8	15	1	15		Jos. Boyd
Ottumwa	Wapello	649	15	24.3	-0.2	51	19	-16	6	36	1.92	+0.32	.82	6.7	5	4	10	17	nw	W. J. Mesmer
Pacific Junction	Mills	960	10	20.2	-3.1	44	25	-29	6	38	1.40	+0.86	.65	7.7	4	13	10	8	n	H. H. McCartney
Pella	Marion	877	7	20.3	-2.9	42	19†	-28	6	42	1.59	+0.47	.51	10.9	5	20	1	10	nw	John H. Ver Steeg
St. Charles	Madison	1,070	8	22.6	-0.2	49	19	-15	6	35	2.16	+1.01	.60	14.6	10	14	8	9	nw	R. D. Minard
Sigourney	Keokuk	877	13	21.2	-1.6	43	19	-19	6	35	1.44	-0.15	.53	10.0	7	3	19	9	nw	J. T. Parker
Stockport	Van Buren		7	21.7		49	19	-25	6	47	1.56	-0.08	.72	5.0	7	14	3	14	nw	C. L. Beswick
Thurman	Fremont		12	20.7	-3.5	48	25	-30	6	41	0.91	+0.27	.52	10.2	4	9	15	7	nw	C. R. Paul
Wapello	Louisa	538	11	23.0b	-2.1	43b	28	-14b	6	30b	1.39	+0.06	.51	18.0	6				nw	Geo. W. Schofield
Washington	Washington	769	28	21.0	+1.9	47	19	-19	6	34	1.73	+0.17	.66	6.7	7	9	11	11	nw	Wm. A. Cook
Winterset	Madison	1,129	18	20.9	-0.5	42	25	-19	6	31	1.72	+0.81	.90	12.5	7	12	5	14	n	Dr. Robert S. Cooper
Woodburn	Clarke	961	10	20.0		48	26	-33	6	50	1.96	+0.82	.80	9.0	5	15	3	13	nw	C. B. McDonough
Average				21.6	-0.8	47		-20		35	1.64	+0.40		8.5	6	13	7	11	nw	
State average				18.1	-1.2	43		-22		37	1.57	+0.52		12.6	6	13	7	11	nw	

†And other dates. a one day missing, b two days; c three days, etc. †Received too late to be included in average.
 ††Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

IOWA WEATHER AND CROP SERVICE.

DAILY PRECIPITATION FOR IOWA, JANUARY, 1910

STATIONS	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						
Afton				1.00	.20							.20	T	T																						1.40	
Albia				T	.50							.35	.63	T																						1.48	
Algona				.42	.06							.13	.60	T																						1.33	
Allerton	T			.70								.70	.25																							1.71	
Alta			.01	.20	.25							.20	.40																							1.36	
Alta (near)			T	.40								.10	.70																							1.45	
Alton			.10	.50								.10	.70																							1.99	
Amana			T	.64	.08							.44	.59	T																						1.30	
Ames				.60								.50	.10																							1.17	
Atlantic				.51								.51	.05																							1.80	
Audubon				1.30								.10	.40																							1.41	
Baxter				.30	.09							.34	.55																							2.46	
Bedford				1.20	.40							.55	T																							2.45	
Belle Plaine				.60								.20	.60																							1.51	
Belmond			.02	.45	.25							.12	.15	.04	.02																					1.29	
Bloomfield				.55								.55																								1.84	
Bonaparte				.75								.71	.38	T																						1.79	
Boone				T	.92							.01	.75	.11																						0.77	
Britt			T	.34	.12							T	.29																							0.86	
Buckingham				.28								.40	.16																							1.61	
Burlington				.38								.20	.63	.03																						0.75	
Carroll				.30								.45																								1.35	
Cedar Rapids				.50								.06	.21																							0.70	
Chariton				.45								.25	T																							1.75	
Charles City			.02	.84	.04							.20	.53																							1.73	
Clarinda				.10	.77							.30	.39																							0.65	
Clear Lake				.40	.15							.05																								2.51	
Clinton				1.20								.11																								1.70	
Columbus Jct.				.55								.60	.42	.01																						1.30	
Corning				.80								**	.50																							1.69	
Corydon				.71	.07							.57	.28	T																						1.40	
Creston				.10	.80							.77	.28																							1.69	
Davenport				.46	.02							.12	.39	.09																						1.85	
Decorah			.04	.80	.26							.30	.20																							1.06	
Delaware				.40								.02	.25																							0.87	
Denison				.60								.02	.25																							1.72	
Des Moines				.96	T							.37	.24																							2.17	
De Soto				1.20	.50							.18	.29	T																						2.45	
Dubuque			T	.90	.03							.37	.88	.01	T																					2.09	
Earlham				1.00	.30							.24	.40																							1.60	
Elkader				.80								.14	.66																							0.63	
Elliott				.50								.13																								0.73	
Elma			T	.08								.10	.40	T																						1.17	
Estherville				.30	.20							.62	.40																							2.02	
Fairfield				.58	.23							.33	.60																								2.15
Fayette				1.00	.15							.80	.60																							2.40	
Forest City			T	.50	.50							.80	.60																							1.80	
Fort Dodge			T	.10	.60							.40	.60																							2.06	
Ft. Madison				.21								1.50																								1.85	
Grand Meadow			T	.90	.05							.20	.60																							1.02	
Greene			T	.23								.40	.24																							1.44	
Greenfield				.80								.40	.24																							1.66	
Grinnell				.85	.10							.12	.40	.05																						2.10	
Grundy Center				1.00								T	.80	.20																						2.08	
Guthrie Center				1.23	.07							.24	.50	T																						1.85	
Hampton				.85								.80	.20																							1.40	
Hancock				.60								.60	.20																							1.00	
Harlan				.60								.26	.12																							1.66	
Hopeville				.51	.03							.83	.22																							2.65	
Humboldt				.48								1.47																								2.25	
Independence				.50								.40	1.20																							2.35	
Indianola				1.00	T							.48	.30	T																						1.06	
Inwood			.03	.30								.35	.30																							1.79	
Iowa City				.70	.58							.30	.49	.16																						1.77	
Iowa Falls			T	.58								T	.50																							1.61	
Keokuk				.58								.78	T																							1.93	
Keosauqua				.57								.40	.68	.10																						3.36	
Lacona				.60	.40							.40	.20																							1.20	
Lamoni				.77	.02							.21	.12																							1.21	
Larrabee			.06	.57			</																														

U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR FEBRUARY, 1910

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

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CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
GEO. M. CHAPPEL, Section Director.

VOL. XXI DES MOINES, IOWA, FEB., 1910 No. 2

GENERAL SUMMARY

The weather during February was exceptionally pleasant, notwithstanding the fact that the average temperature was below the normal. The month opened with moderate temperature which continued until the 5th, and was then followed by alternating periods of cold and warm weather, with the coldest spell between the 22d and 24th. The warmest day was generally on the 1st in the northern district, and on the 14th in the central and southern districts. There have been eight colder Februaries during the past twenty years. In 1905, the average temperature was 5° lower than the average for the past month. The coldest February during the past 20 years was in 1899 when the average temperature was 12.2°.

There was a marked deficiency of precipitation; the average for the State being only 0.46 inch, which is 0.60 below the normal. At several stations it was the driest February in over 30 years.

There were no severe storms and the 20th and 22d were the only days on which the precipitation was general. The ground was practically bare of snow over the southern counties, except from the 20th to 24th; but over the northern counties there was snow on the ground during the whole month.

The rivers remained closed with ice averaging from 10 to 22 inches at the close of the month.

Some progress was made in gathering last year's corn, but there is over 15 per cent of the crop yet in the fields.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 116 stations, was 17.8°, which is 1.4° below the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 13.2°, which is 3.0° below the normal; Central section, 18.0°, which is 1.6° below the normal; Southern section, 22.1°, which is 0.3° above the normal. The highest monthly mean was 26.1° at Keokuk, Lee county, and the lowest monthly mean 10.0°, at Sibley, Osceola county. The highest temperature reported was 58°, at Keokuk, Lee county, on the 15th; the lowest temperature reported was -21°, at Inwood, Lyon county, on the 17th. The average monthly maximum was 46°, and the average monthly minimum was -12°. The greatest daily range was 48°, at Clarinda, Page county. The average of the greatest daily ranges was 35°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 127 stations, was 0.46 inch, which is 0.60 inch below the normal. By sections the averages were as follows: Northern section, 0.35 inch, which is 0.59 inch below the normal; Central section, 0.44 inch, which is 0.64 inch below the normal; Southern section, 0.59 inch, which is 0.56 inch below the normal. The greatest amount, 2.09 inches, occurred at Burlington, Des Moines county, and the least, a trace, at Sibley, Osceola county. The greatest amount in twenty-four hours, 0.80 inch, occurred at Audubon, Audubon county, on the 22d, and at Fort Madison, Lee county, on the 26th. Measurable precipitation occurred on an average of 3 days.

The average snowfall, unmelted, was 4.0 inches. By sections the

averages were as follows: Northern section, 3.6 inches; Central section, 4.0 inches; Southern section, 4.4 inches. The greatest monthly snowfall, 11.3 inches, occurred at Fayette, Fayette county; and the greatest amount in twenty-four hours, 8.0 inches, occurred at Audubon, Audubon county, on the 22d.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 14; partly cloudy, 8; cloudy 6. The duration of sunshine was slightly above the normal, the percentage of the possible amount being 66 at Charles City; 62 at Davenport; 47 at Des Moines; 61 at Dubuque; 53 at Keokuk, and 59 at Sioux City.

WIND.—Northwest winds prevailed. The highest velocity reported was 60 miles per hour from the northwest, at Sioux City, Woodbury county, on the 15th.

COMPARATIVE DATA FOR THE STATE—FEBRUARY.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	26.0	67	-24	.83	2.18	.11
1891.....	19.4	70	-31	1.16	2.41	.55
1892.....	28.1	68	-20	1.20	2.18	.12
1893.....	16.4	60	-28	1.39	2.91	.06
1894.....	19.7	60	-19	.89	2.41	T
1895.....	16.4	73	-33	.49	1.34	.02
1896.....	27.4	78	-13	.71	2.40	.04
1897.....	24.7	61	-24	.89	1.81	.22
1898.....	24.2	62	-18	1.20	3.65	.10
1899.....	12.2	75	-40	.89	4.32	.12
1900.....	14.8	60	-27	1.30	4.57	.18
1901.....	17.5	49	-21	1.01	3.00	.12
1902.....	17.6	62	-21	.73	2.39	.02
1903.....	19.8	56	-21	1.18	3.25	.30
1904.....	14.8	70	-26	.41	1.99	T
1905.....	12.8	69	-41	1.57	2.97	.44
1906.....	23.6	66	-32	1.29	2.91	.20
1907.....	25.0	65	-31	.71	1.95	.06
1908.....	24.3	59	-16	1.69	3.95	.23
1909.....	26.2	62	-26	1.54	4.72	.30
1910.....	17.8	58	-21	.46	2.09	T

T indicates a Trace.
- indicates temperature below zero.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.19 inches.
Prevailing direction of Wind, Northwest.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum Velocity, miles	Direction	Date	Average Hourly Velocity
Charles City..	30.19	30.68	23	29.42	15	5042	28	SE	25	7.5
Davenport..	30.19	30.70	23	29.43	15	5740	30	W	15	8.5
Des Moines..	30.17	30.66	23	29.29	15	5858	31	W	15	8.7
Dubuque....	30.21	30.72	23	29.55	15	4772	29	NW	15	7.1
Keokuk.....	30.21	30.69	23	29.47	15	5740	36	W	15	8.5
Omaha, Neb.	30.19	30.67	23	29.44	15	7012	35	N	22	10.4
Sioux City..	30.20	30.66	23	29.50	15	9508	60	NW	15	14.1

OBSERVERS' REMARKS

ALGONA.—*Dr. F. T. Seeley.* February was a very cold month, there being 10 days on which the temperature was zero or below.

ALTA.—*David E. Hadden.* The first decade was warm but the remainder of the month was cold. The weather, however, was pleasant with but little snowfall.

ALTON.—*W. S. Slagle.* The month was quite cold but there was no high wind. There is very little frost in the ground and if no hard freezing weather comes after the snow goes off, the soil will be in better condition than usual for early farm work.

AMANA.—*C. Schadt.* There has been good sleighing from about the 5th of December to the close of February. The snow also afforded good protection to the fall sown grain.

ATLANTIC.—*Thos. H. Whitney.* February was a fairly favorable month but there was a sufficient depth of snow on the ground to

prevent general gathering of corn and a considerable acreage remains in the field.

BAXTER.—*W. R. Vandike*. The sleet and snow that fell on the 4th and 5th of December is still on the ground at the close of February.

BELMOND.—*Geo. P. Hardwick*. Sleighting has been good for the past three months and the snow has been deeper than usual. About one-fourth of last year's corn crop is still in the fields and the scarcity of available feed has prompted a liberal sale of farm stock. The germinating test of seed-corn has proven a serious shortage of such seed.

BONAPARTE.—*Hon. B. R. Vale*. Pleasant weather has prevailed; there being only two mornings with the temperature below zero. The roads are good and the conditions were favorable for feeding stock.

CHARITON.—*C. C. Burr*. Stock feed is not as plentiful as usual and is higher in price.

CHARLES CITY.—*E. W. McGann*. The total depth of snowfall for the winter up to the close of February is 63.9 inches.

DAVENPORT.—*J. M. Sherier*. The ground was generally covered with snow from the 1st to the 13th, and from the 20th to the 25th. From the 14th to the 19th there were only occasional patches of snow on the ground.

DUBUQUE.—*J. H. Spencer*. The month was uneventful, and there were no storms of importance. There were two cold waves. The first occurred on the 9th-10th, and the temperature fell about 22° in 24 hours to a temperature of -4°. The second occurred on the 22d-23d, and the temperature fell about 24° in 24 hours to a temperature of -11°. Neither of these cold waves was exceptionally severe, and resulted in no damage worthy of mention. Sleighting has been fairly good during the month, making nearly three months of continuous sleighting for the winter to date. The snowfall during January was too heavy to make good sleighting, and country roads have been very rough. All rivers in this district continue frozen at the end of the month, and the ice ranges from 16 to 22 inches in thickness at this station.

ELLIOTT.—*Henry Barnes*. The month closes with only a few patches of snow on the ground. From 25 to 30 per cent of the corn remains ungathered and is in very poor condition.

FAYETTE.—*R. Z. Latimer*. The total depth of the snowfall, for the winter, up to the end of February, is 64.0 inches, and there has been continuous sleighting for 84 days.

FOREST CITY.—*J. A. Peters*. There is 10 inches of snow on the ground at the close of the month and 35 per cent of the corn is yet in the fields. There were no bad storms during February.

GRAND MEADOW. (Postville P. O.)—*F. L. Williams*. There is no record of the county being so evenly covered with snow for such a long time. There was 15 days in February with the temperature zero or below.

GREENFIELD.—*R. B. Oldham*. There is still too much snow in the fields for corn husking.

KEOKUK.—*Fred Z. Gosewisch*. Streams remain above the average winter stage, and the ground is well saturated with moisture.

NORTHFIELD.—*Chas. H. Dwelle*. There has been 86 days of sleighting without an appreciable thaw.

PLOVER.—*J. S. Smith*. There is more snow on the ground at the

end of the month than there has been at the close of February since 1881.

POCAHONTAS.—*F. E. Hronek*. Corn husking was resumed on the 28th and about 15 to 20 per cent of the crop is yet in the fields. Wild geese were seen flying northward on February 26th.

SIGOURNEY.—*J. T. Parker*. The remnants of a few snowdrifts are visible at the close of the month.

STOCKPORT.—*C. L. Beswick*. Clover, winter wheat and rye are in good condition.

WAUKEE.—*Samuel F. Foft*. There is some snow in the fields and drifts but the roads and all high grounds are bare, but there is no frost in the ground. About 30 per cent of the corn is still in the fields.

THE WINTER OF 1909-1910

The mean temperature for the three winter months was 17.0°, which is 4.5° below the normal for the State. The highest temperature reported was 60° at Keosauqua, Van Buren county, on December 1st. The lowest temperature reported was 35° below zero at Elkader, Clayton county, on January 7th. The average monthly precipitation for the State was 1.40 inches and the average total precipitation was 4.21 inches, or .88 inches above the winter normal. The average total snowfall, unmelted, was 30.3 inches, or 11.0 inches more than for the winter of 1908-1909. The average number of days on which .01 inch or more of precipitation was reported was 20 or 6 more than the average for the winter of 1908-1909.

The average number of clear days was 37; partly cloudy, 20; cloudy, 33, as compared with 35 clear, 20 partly cloudy and 35 cloudy days during the winter of 1908-1909.

AVERAGE WINTER TEMPERATURE FOR IOWA.

In Degrees Fahrenheit

Years	December	January	February	Winter mean
1890-1	29.1	26.0	19.4	24.8
1891-2	32.3	15.3	28.1	25.2
1892-3	18.9	9.3	16.4	14.9
1893-4	22.0	19.3	19.7	20.3
1894-5	30.1	13.6	16.4	20.0
1895-6	25.4	23.4	27.4	25.4
1896-7	30.8	17.2	24.7	24.2
1897-8	18.0	23.4	24.2	21.9
1898-9	18.1	19.8	12.2	16.7
1899-0	22.6	25.6	14.8	21.0
1900-1	26.9	23.7	17.5	22.7
1901-2	20.5	22.4	17.6	20.2
1902-3	20.1	23.0	19.8	21.0
1903-4	19.6	14.0	14.8	16.1
1904-5	23.4	11.2	12.8	15.8
1905-6	27.0	24.6	23.6	25.1
1906-7	25.7	18.8	25.0	23.2
1907-8	28.8	24.9	24.3	26.0
1908-9	27.2	21.2	26.2	24.9
1909-0	15.1	18.1	17.8	17.0
Means	24.1	19.7	20.1	21.3

RELATED REPORT

KNOXVILLE.—January, 1910: Mean temperature, 22.0°; highest and date, 45°, on the 19th and 25th; lowest and date, -14°, on the 6th; greatest daily range, 33; precipitation, total, 1.90 inches; greatest in 24 hours, .70 inch; days with, 5; days clear, 17; partly cloudy, 4; cloudy, 10.

CLIMATOLOGICAL DATA FOR IOWA, FEBRUARY, 1910

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit					Precip., in Inches					Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days	No. partly cloudy days			No. cloudy days
NORTHERN SECTION																				
Algona	Kossuth	1,213	37	14.6a	-2.4	40a	1	-15a	23	28a	0.17	-1.10	0.13	.....	3	.....	.....	.....	.....	Dr. F. T. Seeley
Alta	Buena Vista	1,513	19	12.8	-4.8	43	1	-15	23	41	0.19	-0.66	0.13	2.0	.....	11	14	3	nw	D. E. Hadden
Alta (near)	Buena Vista	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	-0.64	0.10	.....	.....	.....	.....	.....	.....	W. J. Minard
Alton	Sioux	1,305	5	14.6	.....	42	1	-15	17	32	0.15	.....	0.10	1.5	2	19	5	4	nw	W. S. Slagle
Belmond	Wright	.....	.....	12.8	.....	47	1	-18	17	31	0.22	.....	0.18	1.7	5	17	6	nw	G. P. Hardwick	
Britt	Hancock	1,236	13	12.0	-4.5	38	1	-17	10+	34	0.10	-0.93	0.05	1.0	3	13	10	5	nw	L. M. Goodman
Charles City	Floyd	1,015	19	11.0	-4.1	37	1	-17	10	31	0.61	-0.36	0.27	7.7	6	8	9	11	nw	Weather Bureau
Clear Lake	Cerro Gordo	1,241	12	14.0	-0.6	40	1+	-19	10	47	0.10	-0.75	0.10	1.0	1	17	1	10	nw	Oscar Stevens
Decorah	Winneshiek	875	17	14.0	-1.3	42	1	-14	18+	39	0.91	0.0	0.65	8.0	3	.....	.....	.....	.....	F. H. Baker
Elkader	Clayton	727	31	13.3	-4.7	42	1+	-15	18	43	0.52	-0.57	0.30	10.0	5	17	8	3	n	Chas. Reinecke
Elma	Howard	.....	.....	11.0b	.....	37c	1	-20	17+	35	0.55	.....	0.30	.....	3	14	10	4	nw	H. A. Moore
Estherville	Emmet	1,298	15	12.1	-3.0	40	1	-15	23	35	0.24	-0.44	0.07	1.5	5	18	0	10	n	A. O. Peterson
Fayette	Fayette	1,008	20	12.9	-4.0	38	1+	-17	10	46	0.99	-0.15	0.45	11.3	5	15	2	11	nw	R. Z. Latimer
Forest City	Winnebago	1,226	16	11.2	-3.4	40	1	-17	10	34	0.30	-0.63	0.20	3.0	2	15	5	8	nw	J. A. Peters
Grand Meadow	Clayton	1,180	19	13.2	-3.5	40	1	-17	23	35	0.99	-0.11	0.45	9.2	5	7	14	7	nw	F. L. Williams
Greene	Butler	.....	.....	13.9	-2.1	38	1+	-16	10	33	0.47	-0.47	0.25	6.0	4	8	9	11	w	J. L. Cole
Hampton	Franklin	1,155	20	14.8	-2.1	42	1	-13	17+	33	0.56	-0.61	0.30	7.2	5	10	12	6	nw	E. C. Grenelle
Humboldt	Humboldt	1,095	22	15.2	-2.5	41	1	-14	17+	36	0.30	-0.36	0.30	3.0	1	18	5	5	nw	H. S. Wells
Inwood	Lyon	1,474	6	10.6a	.....	43	1	-21b	17	41b	0.02	.....	0.02	0.2	1	16	6	6	nw	F. B. Hanson
Larrabee	Cherokee	1,266	20	13.7c	-4.1	42c	1	-15c	17+	47c	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. B. Strever
Le Mars	Plymouth	1,224	14	15.9	-0.6	41	28	-13	23	30	0.13	-0.59	0.07	1.3	2	12	14	2	nw	G. A. C. Clarke
Mason City	Cerro Gordo	1,133	13	11.9	-4.3	39	1	-15	10+	32	0.23	-0.61	0.15	2.3	3	12	11	5	nw	J. S. Mills
New Hampton	Chickasaw	1,169	13	11.9	-2.7	35	14	-17	10	34	0.75	-0.15	0.30	7.5	2	16	4	8	nw	A. F. Kemman
Northwood	Worth	1,222	14	11.2	-4.3	36	1	-16	23	30	0.49	-0.60	0.30	4.8	4	19	2	7	nw	Charles H. Dwell
Osage	Mitchell	1,184	23	13.0	-1.9	38	1+	-17	23	34	0.35	-0.79	0.15	5.0	3	11	12	5	nw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	14	13.4	-2.9	40	1	-16	17	31	0.10	-0.56	0.05	1.0	2	14	12	2	nw	J. S. Smith
Pocahontas	Pocahontas	1,248	6	13.9	.....	42	1	-15	23	30	0.17	.....	0.09	1.7	2	17	7	4	nw	F. E. Hronek
Ridgeway	Winneshiek	1,215	12	14.8	-2.7	41	1	-17	23	34	0.61	-1.56	0.44	4.1	5	17	9	2	s	Arthur Betts
Rock Rapids	Lyon	1,358	11	12.6	-4.0	42	26+	-18	18	34	0.10	-0.26	0.05	1.0	2	.....	.....	.....	.....	W. C. Wyckoff
Sheldon	O'Brien	1,422	10	12.8	-2.9	42	1	-17	17	32	0.30	-0.63	0.20	1.0	2	17	6	5	nw	Dr. A. W. Beach
Sibley	Osceola	1,212	17	10.0	-5.0	42	1	-18	18	44	T	T	T	0	13	8	7	nw	H. G. Doolittle	
Sioux Center	Sioux	.....	.....	12.8	-3.6	39	28	-15	23+	37	0.20	-0.50	0.10	2.0	2	13	4	11	nw	J. de Ruyter
Storm Lake	Buena Vista	1,440	21	15.7a	+0.5	39a	1+	-15a	23	34a	0.11	-0.58	0.06	0.5	2	17	10	1	s	S. B. Fracker
Washta	Cherokee	1,157	12	16.4	.....	48	1	-16	21	38	0.25	-0.51	0.20	2.5	2	14	9	5	nw	H. L. Felter
Waverly	Bremer	948	14	14.3	-3.2	40	1	-12	10+	32	0.78	-0.36	0.40	7.8	4	9	11	8	nw	H. S. Hoover
West Bend	Palo Alto	1,197	17	13.8	-2.6	43	1	-15	17	35	0.10	-0.85	0.05	1.0	2	12	10	6	nw	Phil Dorweiler
Average	.....	.....	.....	13.2	-3.0	40	.....	-16	.....	35	0.35	-0.59	.....	3.6	3	14	8	6	nw	.....
CENTRAL SECTION																				
Amana	Iowa	721	34	19.4	-0.7	44	15	-9	23	31	0.25	-1.01	0.12	1.3	4	11	11	6	nw	Conrad Schadt
Ames	Story	926	34	16.1	-5.1	43	2	-10	23+	39	0.35	-0.45	0.20	3.5	2	15	4	9	n	Iowa State College
Audubon	Audubon	1,301	16	19.5	+0.4	43	14	-12	23	33	1.08	+0.29	0.80	10.8	3	15	4	9	nw	Geo. E. Kellogg
Baxter	Jasper	998	10	19.4	+1.3	48	1+	-11	23	44	0.19	-0.62	0.10	1.8	4	12	9	7	nw	W. R. Vandike
Belle Plaine	Benton	828	20	19.6	-0.3	45	14	-10	23	36	0.80	-0.66	0.35	6.0	3	14	7	7	nw	S. P. VanDike
Boone	Boone	1,134	5	15.4	.....	48	1	-11	23	38	0.39	.....	0.18	2.0	5	19	2	7	.....	Carl Fritz Henning
Buckingham	Tama	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.27	-0.73	0.13	.....	4	10	13	5	.....	Dr. W. A. Daniel
Carroll	Carroll	1,265	20	18.3	-0.6	52	28	-13	22	42	0.20	-0.95	0.10	2.0	2	10	6	12	nw	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	28	17.3	-2.8	48	15	-9	23	42	0.38	-1.00	0.17	1.2	3	17	4	7	w	W. J. Greene
Clinton	Clinton	593	43	20.3	-1.5	47	15	-9	23	43	0.67	-1.42	0.42	1.0	3	.....	.....	.....	.....	Luke Roberts
Davenport	Scott	580	39	21.0	-2.8	52	15	-8	23	32	0.59	-0.97	0.30	3.5	6	12	8	8	nw	Weather Bureau
Delaware	Delaware	1,083	19	15.5	-0.8	41	15	-14	10+	36	0.41	-0.40	0.14	6.0	4	17	6	5	nw	Wm. Ball
Denison	Crawford	1,180	16	18.2b	-0.9	45b	28	-14b	23	31b	0.32	-0.54	0.20	3.2	3	19	6	3	n	W. C. Van Ness
Des Moines	Polk	861	31	20.2	-3.9	49	14	-9	23	33	0.20	-0.88	0.11	1.8	3	7	8	13	nw	Weather Bureau
De Soto	Dallas	866	10	20.6	+0.2	51	14	-12	23	31	0.40	-0.48	0.20	4.0	2	15	8	5	nw	R. D. Minard
Dubuque	Dubuque	639	37	18.0	-3.6	45	15	-11	23	31	0.50	-0.88	0.20	4.6	6	8	13	7	nw	Weather Bureau
Fort Dodge	Webster	1,126	10	13.9	-1.4	44	1+	-12	23	40	0.20	-0.51	0.20	2.0	1	19	1	8	nw	J. F. Monk
Gilman	Marshall	1,052	11	.....	.....	.....	.....	.....	.....	.....	0.10	-0.90	0.05	0.5	2	.....	.....	.....	.....	Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	21.8	+0.5	47	14	-4	23	30	0.15	-0.77	0.10	1.5	2	10	13	5	n	D. W. Brainard
Grundy Center	Grundy	976	19	15.6	-2.1	40	1+	-12	23	31	0.30	-0.55	0.15	3.0	3	9	9	10	nw	J. B. Calderwood
Guthrie Center	Guthrie	1,077	15	19.7	-0.5	44	1	-13	23	28	0.42	-0.38	0.20	7.5	3	17	4	7	nw	D. G. Beardsley
Harlan	Shelby	1,192	11	18.4	+0.3	45	14	-14	23	29	0.29	-0.56	0.21	4.5	3	9	11	8	nw	C. A. Reynolds
Independence	Buchanan	921	46	14.6	-5.0	39	15	-13	23	32	0.12	-0.89	0.10	1.2	2	17	2	9	nw	George Donohoe
Iowa City	Johnson	683	50	17.4	-5.1	47	15	-9	23	43	0.39	-1.08	0.25	3.0	3	18	1	9	nw	Arthur G. Smith
Iowa Falls	Hardin	1,170	17	11.4	-4.1	40	1	-15	10+	38	0.70	-0.34	0.35	6.5	4	16	2	10	nw	J. B. Parmelee
Jefferson	Greene	.....	.....	18.7	.....	46	1	-10	23	37	0.40	-0.45	0.20	4.0	2	14	11	3	n	Geo. W. Jackson
Le Claire	Scott	576	10	.....	.....	.....	.....	.....	.....	.....	0.78	-0.47	0.35	3.8	6	.....	.....	.....	.....	Margaret T. Disney
Little Sioux	Harrison	.....	.....	21.4	.....	50	1	-17	23	35	0.30	.....	0.15	3.0	3	17	5	6	nw	

CLIMATOLOGICAL DATA FOR IOWA, FEBRUARY, 1910—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				No. rainy days	Sky			Prevailing direction of wind	OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours		Total snowfall (unmelted)	Number clear days	Number partly cloudy days			Number cloudy days	
SOUTHERN SECTION																					
Afton	Union	1,212	16	21.2	-0.8	57	14	-12	23	37	0.70	-0.25	0.50	7.0	2	10	10	8	nw	N. W. Rowell	
Albia	Monroe	959	12	20.4	+0.1	52	1†	-10	23	41	0.48	-0.84	0.23	2.0	3	13	8	7	nw	J. I. Chenoweth	
Allerton	Wayne		8	23.2	+1.5	56	14	-10	23	32	0.46	-0.88	0.25	3.6	3	18	4	6	nw	Mrs. Geo. Shriver	
Atlantic	Cass	1,164	19	20.5	-0.3	53	14	-12	23	32	0.28	-0.77	0.15	3.5	2	10	7	11	nw	Thos. H. Whitney	
Bedford	Taylor		10	23.4	+2.7	56	14	-11	23	35	0.36	-0.68	0.20	2.5	5	16	4	8	nw	E. E. Healy	
Bloomfield	Davis		3	24.4 c		57 d	14	-12 b	23	39 d	0.94		0.54	4.0	3				sw	C. R. Davis	
Bonaparte	Van Buren		19	23.1	+0.3	56	15	-12	23	33	0.74	-0.49	0.37	3.0	3					Hon. B. R. Vale	
Burlington	Des Moines	544	14	22.6	-1.1	56	15	-10	23	43	2.09	+0.31	0.60	6.4	7	12	7	9	sw	M. E. Poppe, Jr.	
Centerville	Appanoose										0.58		0.36	3.5	2	21	2	5	w	Gordon Peacock, Jr.	
Chariton	Lucas	1,042	15	22.0	-0.2	55	14	-12	23	34	0.67	-0.36	0.25	7.0	3	16	0	12	nw	C. C. Burr	
Clarinda	Page	1,009	20	21.5	-1.1	57	14	-10	23	48	0.27	-0.73	0.20	2.8	3	14	10	4	s	A. S. Van Sandt	
Columbus Junction	Louisa	595	9	22.8		53	15	-8	23	34	0.67	-0.51	0.36	3.5	3	16	6	6	w	J. B. Johnston	
Corning	Adams	1,117	18	20.0	-1.9	45	1	-12	23	31	0.50	-0.38	0.40	5.0	2	17	5	6	nw	Jerome Smith	
Corydon	Wayne	1,101	17	21.5 g	-0.7	53 g	14	-11 g	23	32 g	0.41	-0.91	0.24	3.0	3					Clara Miller	
Creston	Union	1,312	5	20.0 a		48 a	1	-12 a	23	37 a	0.60		0.45	6.0	3	17	3	8	nw	E. S. Stovall	
Cumberland	Cass		11								0.60	-0.30	0.40	6.0	2	20	3	5	nw	J. H. Reppert	
Earlham	Madison		8	20.2	+2.2	48	14	-10	23	35	0.40	-0.72	0.30	4.0	2	13	5	10	nw	Geo. Phillips	
Elliott	Montgomery		5	2.22		52	14	-11	23	31	0.55		0.35	5.5	2	11	14	3	nw	Henry Barnes	
Fairfield	Jefferson		26	22.9	+1.2	55	14†	-10	24	34	0.66	-0.93	0.39	2.8	4	18	5	5	nw	R. Monroe McKenzie	
Fort Madison	Lee	516	61								1.14	-0.75	0.80	2.0	3	8	9	11	sw	Miss L. A. McCready	
Greenfield	Adair		18	18.9	-1.7	46	14	-13	23	33	0.44	-0.57	0.25	3.8	2	12	14	2	nw	R. B. Oldham	
Hancock	Pottawattamie	1,113	5	19.7		45	14	-12	23	39	0.21		0.21	2.1	1	17	7	4	nw	G. C. Rogers	
Hopeville	Clarke		19	21.4	-0.6	54	14	-12	23	32	0.39	-0.40	0.25		3	10	10	8	nw	M. T. Ashley	
Indianola	Warren		969	19	21.6	-0.7	49	14	-10	23	31	0.65	-0.29	0.38	6.0	3	8	0	20	nw	Prof. J. L. Tilton
Keokuk	Lee	574	39	26.1	-0.5	58	15	-6	23	29	0.99	-0.63	0.58	1.3	4	14	8	6	nw	Weather Bureau	
Keosauqua	Van Buren	644	18	22.4	-0.7	56	15	-10	23†	45	0.57	-0.88	0.22	4.5	4	10	10	8		J. H. Landes	
Knoxville	Marion	920	15	22.8	+0.9	53	14	-9	23	32	0.65	-0.23	0.30	6.5	3	12	9	7	nw	Casey & Belville	
Lacona	Warren		11								0.70	-0.78	0.20	7.0	5	8	14	6		J. B. Alter	
Lamoni	Decatur		3	22.5		53	14	-10	23	32	0.29		0.16	2.0	3	18	0	10	nw	T. J. Fitzpatrick	
Lenox	Taylor	1,250	15	21.8	+0.1	49	14	-12	23	32	0.30	-0.54	0.20	3.0	2	18	3	7	nw	J. L. Hurley	
Leon	Decatur	1,120	8	22.4	+0.5	52	14	-12	23	30	0.80	-0.34	0.50	5.0	3	11	8	9	nw	Morris Gardner	
Massena	Cass		4	20.2		50	14	-13	23	39	0.70		0.50	7.0	2	16	3	9	nw	C. E. Smeltzer	
Mt. Ayr	Ringgold	1,236	17	22.9	+0.4	56	14	-10	23	33	0.62	-0.55	0.20	4.1	4	15	3	10	nw	A. F. Beard	
Mt. Pleasant	Henry	729	29	23.2	0.0	54	15	-9	23	32	1.17	+0.11	0.77	5.6	4	18	4	6	nw	J. W. Edwards	
Omaha, Neb.	Douglas	1,040	40	22.7	-1.0	51	14	-8	22	41	0.28	-0.48	0.18	3.0	2	12	9	7	s	Weather Bureau	
Oskaloosa	Mahaska	843	34	22.2	+1.0	52	14	-9	23	35	0.56	-0.45	0.37	6.8	3	13	1	14	nw	Jos. Boyd	
Ottumwa	Wapello	649	15	24.8	+1.8	56	14	-7	23	36	0.26	-1.10	0.13	4.2	3	10	8	10	w	W. J. Mesmer	
Pacific Junction	Mills	960	11	21.8	+2.2	51	14†	-9	21†	34	0.43	-0.17	0.33	4.3	2	8	18	2	n	H. H. McCartney	
Pella	Marion	877	7	21.3	+1.0	52	14	-10	24	32	0.49	-0.27	0.20	4.5	3	23	0	5	nw	John H. Ver Steeg	
St. Charles	Madison	1,070	9	22.8	+1.9	55	14	-11	23	38	0.33	-0.67	0.33	3.0	1	16	8	4	nw	R. D. Minard	
Sigourney	Keokuk	877	14	22.2	+0.5	49	14†	-8	23	35	0.50	-0.81	0.20	5.5	4	4	20	4	nw	J. T. Parker	
Stockport	Van Buren		8	22.2		55	15	-14	24	35	0.60	-0.55	0.24	3.0	4	13	5	10	n	C. L. Beswick	
Thurman	Fremont		13	22.7	+1.2	54	14	-8	21†	40	0.12	-1.21	0.10		2	9	11	8	nw	C. R. Paul	
Wapello	Louisa	588	12	23.0	+2.7	51	15	-7	23	33	0.59	-0.80	0.31	3.5	3	15	7	6	nw	Geo. W. Schofield	
Washington	Washington	769	28	21.6	-0.7	52	14	-9	23	33	0.46	-0.76	0.20		4	11	15	2	nw	Wm. A. Cook	
Winterset	Madison	1,129	19	21.5	-0.2	47	28	-10	23	28	0.40	-0.47	0.20	4.0	2	12	8	8	nw	Dr. Robert S. Cooper	
Woodburn	Clarke	961	11	21.8		55	14	-14	23	37	1.00	-0.24	0.55	9.5	3	12	5	11	nw	C. B. McDonough	
Average				22.1	+0.3	53		-10		35	0.59	-0.56		4.4	3	14	7	7	nw		
State average				17.8	-1.4	46		-12		35	0.46	-0.60		4.0	3	14	8	6	nw		

†And other dates. a one day missing, b two days; c three days, etc. †Received too late to be included in averages.
 ††Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR THE MONTH OF FEBRUARY, 1910—CONTINUED

STATIONS	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		Monthly Mean							
	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.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.												
Osage.....	38	13	36	17	29	8	33	12	25	9	20	-6	33	7	32	19	27	10	13	-14	14	-1	15	-9	26	-1	38	17	32	17	18	-9	8	-15	17	-10	25	-9	23	10	21	-11	10	-9	8	-17	21	-10	30	-2	33	21	22	-1	36	7	24.4	1.5						
Oskaloosa.....	42	22	39	27	33	20	36	22	32	19	30	-7	41	17	35	27	33	18	25	4	29	11	21	2	41	10	52	29	51	16	16	1	14	-1	34	4	38	14	36	18	20	-2	20	0	10	-9	23	-4	40	8	38	29	31	10	43	19	32.5	11.9						
Ottumwa.....	53	22	44	29	36	22	41	24	35	20	34	8	41	19	38	28	34	20	30	2	33	14	26	4	43	13	56	31	55	20	33	3	17	0	35	6	41	17	32	16	20	0	20	1	10	-7	33	-3	40	8	40	30	32	14	50	22	35.8	13.7						
Pacific Junction.....	48	20	35	25	29	12	38	15	32	20	33	9	45	14	35	25	34	10	34	10	27	11	22	2	41	9	51	26	40	8	10	0	20	-3	35	5	37	9	32	12	25	-9	17	-5	12	-9	28	3	40	20	37	24	38	10	51	24	33.1	10.6						
Pella.....	49	19	44	27	32	17	36	21	36	16	32	5	40	9	35	27	32	18	24	1	27	13	20	1	38	11	52	24	46	22	22	1	13	-2	34	2	37	8	33	18	20	-2	18	1	8	-9	19	-10	38	8	38	28	29	9	42	16	31.9	10.7						
Perry.....	44	19	39	24	28	10	33	15	33	15	27	1	38	17	34	22	28	13	19	-1	18	8	19	-2	35	7	39	23	36	9	10	-4	14	-5	25	7	33	12	18	-7	15	-6	6	-10	20	-1	38	10	37	24	29	6	42	18	28.1	8.2								
Plover.....	40	22	36	20	25	4	34	8	22	9	24	-4	34	12	33	15	29	6	14	-13	13	-4	14	-10	33	2	34	14	34	8	8	-8	10	-16	18	-5	22	-9	21	7	15	-11	10	-10	7	-15	19	-3	35	8	35	22	25	-1	36	14	24.3	2.5						
Pocahontas.....	42	22	36	20	25	6	32	10	24	9	25	10	37	14	32	16	25	6	14	-10	15	5	15	-7	33	3	37	16	31	5	7	-8	10	-12	19	-5	20	-6	17	5	12	-11	10	-12	7	-15	19	-3	35	8	36	18	25	1	37	16	24.2	3.6						
Ridgeway.....	41	16	35	19	34	12	27	11	24	8	25	-1	34	6	34	20	29	8	18	-14	23	0	20	-5	33	-1	36	20	32	16	16	-6	14	-15	18	-14	23	-6	27	12	22	-5	12	-10	13	-17	17	-7	33	0	87	20	28	0	40	6	27.0	2.6						
Rock Rapids.....	40	10	32	8	38	15	24	0	26	8	35	25	36	20	38	5	16	8	20	-13	12	2	10	-10	30	0	35	10	16	0	11	-11	10	-16	10	-18	22	-11	12	5	10	-10	-6	-10	10	-15	16	2	40	10	42	13	34	0	42	20	23.6	1.7						
Rockwell City.....	45	22	42	12	45	8	35	10	35	10	30	5	38	12	38	10	35	8	28	-5	18	9	18	-5	35	6	35	22	32	9	10	-5	15	-9	23	3	25	12	25	10	18	-10	13	-5	10	-12	23	0	38	10	36	21	30	5	40	18	29.1	6.1						
Sac City.....	31	17	32	17	26	7	31	14	32	13	27	1	36	17	33	19	25	12	20	7	18	5	17	-6	33	8	34	20	33	7	7	-7	12	-9	21	-2	23	3	22	11	14	-9	10	-8	8	-13	20	-1	36	10	36	17	29	11	40	17	25.2	6.4						
St. Charles.....	54	23	42	27	40	14	45	21	34	17	38	6	42	19	35	26	35	17	29	3	30	12	27	0	42	12	55	29	44	12	14	0	20	-2	33	5	32	9	32	13	33	-5	24	-2	12	-11	26	-5	35	16	37	27	35	8	49	15	34.8	10.9						
Sheldon.....	42	26	33	20	25	0	25	9	25	10	29	-2	39	16	31	15	21	6	16	-13	11	2	11	-10	32	0	35	12	25	0	5	-12	10	-17	20	-8	21	-8	12	-10	16	-10	8	-8	7	-15	21	-2	34	12	33	12	34	12	40	20	23.6	2.0						
Sibley.....	42	11	30	24	25	1	32	0	22	6	28	-2	36	2	30	16	17	7	15	-13	9	-14	13	-14	31	-13	33	1	28	22	7	-13	11	-16	18	-18	19	-10	14	-11	15	-10	-4	-9	6	-17	21	-14	34	1	25	18	29	-2	40	3	22.4	-2.3						
Sigourney.....	44	20	40	27	32	20	35	20	32	19	28	5	39	15	36	16	31	17	25	1	28	14	19	2	38	8	49	25	49	26	26	3	12	-2	36	1	38	14	40	25	26	2	22	5	13	-8	23	-3	38	5	39	31	32	10	41	12	32.5	11.8						
Sioux Center.....	38	22	33	18	23	0	28	11	23	10	27	3	35	15	29	15	18	7	18	-10	18	2	15	-10	32	3	33	17	29	2	3	-13	12	-14	16	-6	22	-10	17	4	13	-11	10	-12	9	-15	22	-15	35	13	33	12	30	2	39	20	23.6	2.1						
Sioux City.....	44	28	31	14	33	4	34	16	28	15	31	10	41	22	30	16	22	10	28	4	21	0	23	-5	38	12	36	22	31	-1	3	-7	16	-6	21	0	31	1	23	-5	16	-9	14	-11	9	-11	28	5	37	20	34	12	35	10	46	25	23.0	6.8						
Stockport.....	46	20	40	29	35	23	38	22	34	15	28	6	39	16	37	21	32	18	28	6	28	11	22	4	39	9	54	28	55	21	21	5	14	0	32	-2	37	12	33	24	25	5	22	0	8	-12	20	-14	37	2	38	30	32	10	41	16	32.7	11.6						
Storm Lake.....	39	25	39	19	26	5	29	12	26	13	26	1	36	15	33	17	29	10	19	-7	18	5	15	-8	32	6	33	21	31	5	19	-9	12	-12	15	-4	21	9	37	5	..	12	-11	5	-15	19	-1	34	0	34	21	28	1	39	19	26.1	5.3							
Stuart.....	40	26	26	15	28	12	37	18	30	17	23	7	39	18	35	24	30	13	27	4	25	19	22	-2	38	12	42	10	10	4	26	4	32	-4	36	12	31	13	20	-3	30	5	31	7	31	14	25	12	23	4	8	-7	16	-1	32	11	37	30	30	10	40	16	29.4	12.3
Thurman.....	49	20	42	28	29	13	38	17	33	19	33	10	40	19	35	25	35	13	38	12	35	14	23	2	42	12	54	22	48	8	10	0	20	-2	35	10	38	9	33	14	14	-8	15	-3	5	-8	31	2	39	24	39	25	35	11	50	26	33.5	11.9						
Tipton.....	40	17	37	19	34	23	35	19	32	16	21	3	35	13	35	27	29	15	20	-1	26	10	16	2	31	6	44	27	45	26	26	6	12	1	30	1	34	19	30	25	27	11	20	1	9	-7	16	-1	32	11	37	30	30	10	40	16	29.4	12.3						
Toledo.....	42	20	40	24	32	14	32	17	30	16	23	-2	38	12	35	23	28	14	22	-6	22	9	14	-3	31	6	40	23	42	23	23	-2	9	-7	27	-1	33	7	32	17	17	-4	17	-3	4	-11	16	-6	35	5	36	28	28	5	38	13	37	16	31.5	14.5				
Wapello.....	42	21	41	31	38	27	38	24	36	21	24	9	37	18	35	28	31	19	25	6	28	15	23	8	35																																							

MONTHLY REVIEW OF THE

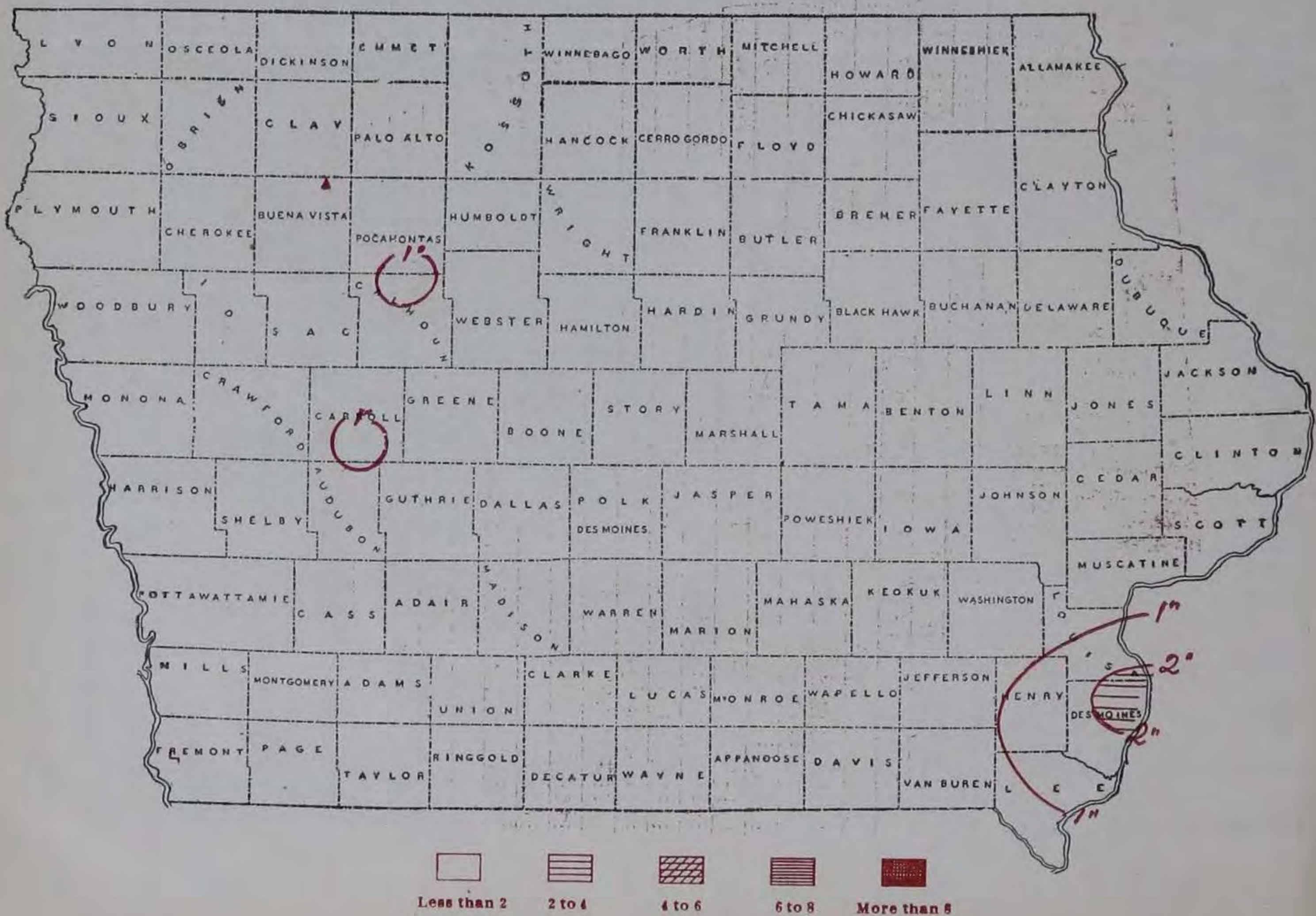
DAILY PRECIPITATION FOR IOWA, FEBRUARY, 1910—Continued

STATIONS	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									
Ridgeway									T		T										.15					.01										0.61	
Rock Rapids																					.05	.05	T													0.10	
Rockwell City																					.10	.50	.50													1.10	
Sac City																					.10	.20														0.30	
St. Charles									T		T										.33															0.33	
Sheldon		.20																																		0.30	
Sibley																																					0.30
Sigourney																																					0.50
Sioux Center									T												.18		.07										.20		.05	0.20	
Sioux City		T							T	T											.10		.10				T									0.22	
Stockport											T										.06	T	.15				T	T								0.60	
Storm Lake		.11																			.24	.02											.23			0.11	
Stuart																																					0.26
Thurman		T																			.01		.25													0.12	
Tipton																					.10		.02	T													0.12
Toledo																					.14		.10											.15			0.39
Wapello		.04																			.05	.15	.25														0.45
Washington																					.24																0.59
Washta																					.20	.02	.04											.20			0.46
Waterloo																					.05		.20														0.25
Wauke																					.09	.26		.03										.05		.07	0.50
Waverly																					T	.09	T	.20									.05		T		0.34
Webster City																					.03	.40	.05											.30			0.78
West Bend																					.10	.20	.20														0.50
Whitten																					.05		.05														0.10
Winterset																					.20	.20	.10											.10			0.60
Woodburn		T																			.20	T	.20														0.40
Zearing																					.40	T	.55														1.00
																					.20	.35		.35													0.90

** Precipitation included in that of the next measurement.
 || 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 melt.

TOTAL PRECIPITATION, FEBRUARY, 1910.

SCALE OF SHADES—IN INCHES



U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR MARCH, 1910

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

DES MOINES, IOWA
EMORY H. ENGLISH, STATE PRINTER
1910

MAY 9 1910

THE IOWA WEATHER AND CROP SERVICE

WAS ESTABLISHED BY ACT OF THE TWENTY-THIRD GENERAL ASSEMBLY, AND IS UNDER SUPERVISION
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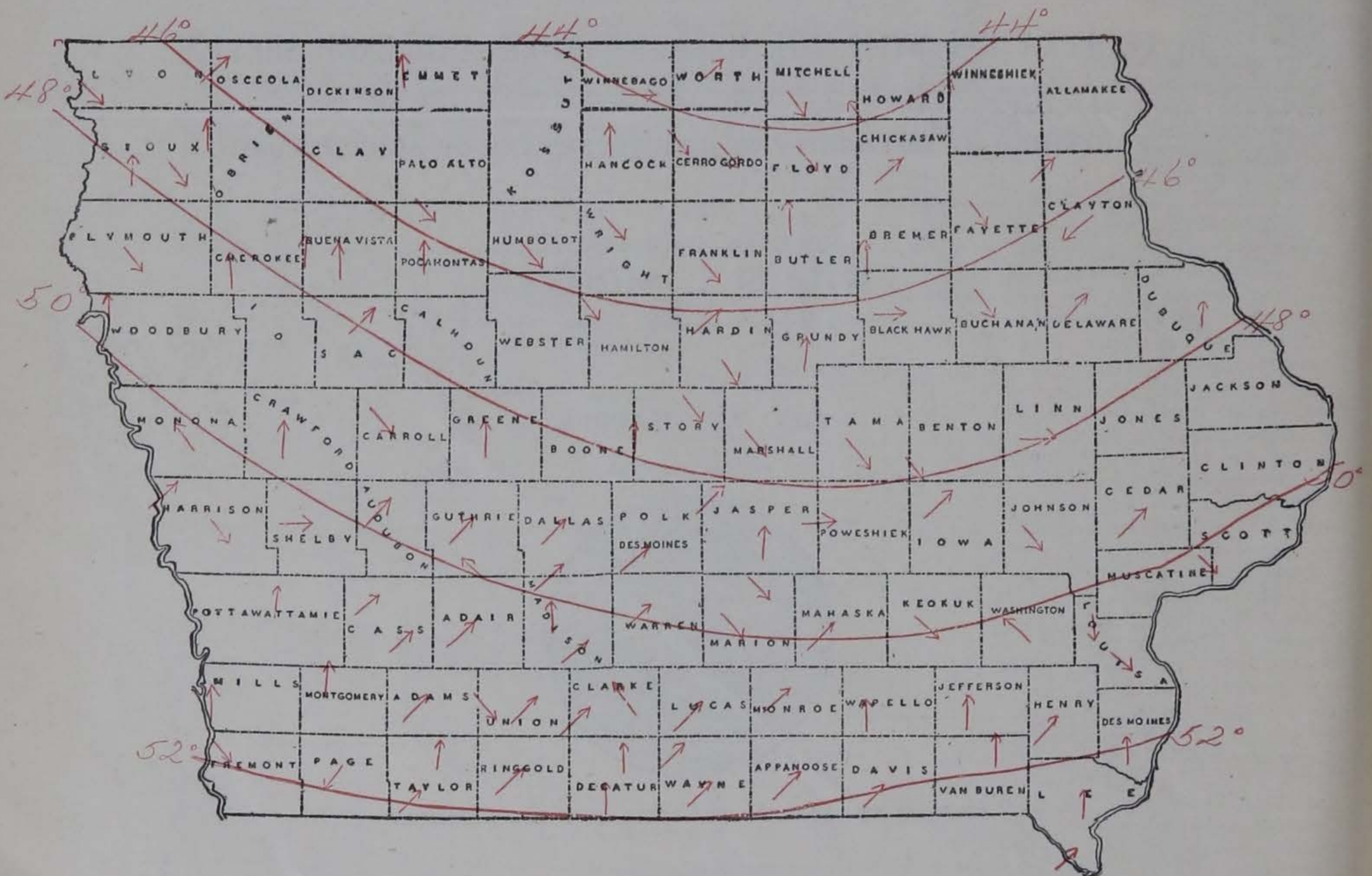
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MEAN ISOTHERMS AND PREVAILING WINDS OF MARCH, 1910.

Lines pass through points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.

CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,

GEO. M. CHAPPEL, Section Director.

VOL. XXI DES MOINES, IOWA, MARCH., 1910 No. 3

GENERAL SUMMARY

March, 1910, will long be remembered as having furnished more pleasant weather than any other March in the history of the State. It was the warmest and driest March on record. It gave the largest amount of sunshine; the least number of cloudy days; the least number of days with appreciable precipitation; the least number of days with freezing temperature; and less snowfall than any other March since State-wide observations began. The temperature was uniformly high and above the normal every day of the month, with the warmest period between the 22d and the 29th. The maximum occurred generally on the 23d, and ranged from 81° to 87° over the Northern, 81° to 90° over the Central, and from 82° to 92° over the Southern districts. The monthly minimum temperatures occurred on various dates between the 1st and 15th.

There was no snowfall in excess of a trace at any station and the rainfall was abnormally light in all sections of the State. There were 8 stations that had no precipitation, and 24 that had only a trace. Rainfall was practically nil until the 26th, and the only days on which showers were at all general were the 26th and 29th. On the 1st of March there was from 6 to 8 inches of snow on the ground in the northern part of the State, but it had all melted by the 9th, and as there was practically no frost in the ground, the soil dried rapidly, and farmers were in the field early in the month gathering the remainder of last year's corn crop, plowing and seeding small grain. The larger part of the corn had been gathered by the 15th, and by the end of the month nearly all of the wheat and nearly 50 per cent of the oats had been seeded, and considerable ground had been prepared for corn. The season at the close of the month was nearly a month in advance of the normal and from five to six weeks ahead of last year. Spring flowers were in bloom; elms, soft maples, and box elders were green or becoming so, even in the extreme northern part of the State. Plum, cherry and apple trees were in bloom in the southern, and plums in the central districts. Pastures and meadows were green, and some of the early sown grain was up before the end of the month. Fall grain, clover and alfalfa were generally in good condition, but reports indicate much damage by winter killing in the western and southern counties.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 118 stations, was 48.9°, which is 14.9° above the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 46.3°, which is 15.1° above the normal; Central section 49.2°, which is 13.1° above the normal; Southern section 51.2°, which is 14.5° above the normal. The highest monthly mean was 53.8°, at Ottumwa, Wapello County, and the lowest monthly mean 43.7°, at Elma, Howard County. The highest temperature reported was 92° at Clarinda, Page County, on the 22d; the lowest temperature reported was 10°, at Rock Rapids, Lyon County, on the 1st. The average monthly maximum was 85°, and the average monthly minimum was 20°. The greatest daily range was 61°, at Elkader, Clayton County. The average of the greatest daily ranges was 44°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 126 stations, was 0.17 inch, which is 1.75 inches below the normal. By sections the averages were as follows: Northern section, 0.09 inch, which is 1.64 inches below the normal; Central section, 0.17 inch, which is 1.81 inches below the normal; Southern section, 0.26 inch, which is 1.79 inches below the normal. The greatest amount, 1.32 inches, occurred at Ames, Story County, and the least, 0.00 at eight stations, principally in the western part of the State. The greatest amount in any twenty-four hours, 1.32 inches, occurred at Ames, Story County, on the 26th. Measurable precipitation occurred on an average of one day.

Snow fell at eight scattered stations during the month but at no station was there an appreciable amount.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 23; partly cloudy, 6; cloudy, 2. The duration of sunshine was much above the normal, the percentage of the possible amount being 86 at Charles City; 82 at Davenport; 78 at Des Moines; 84 at Dubuque; 78 at Keokuk, and 65 at Sioux City.

WIND.—Southwest winds prevailed. The highest velocity reported was 52 miles per hour from the Northwest at Sioux City, Woodbury County, on the 6th.

THUNDERSTORMS.—Twenty-five co-operative stations reported thunderstorms on the 26th; ten on the 18th; nine on the 25th; five on the 19th; two on the 29th; and one on the 4th, 20th, 23d and 28th.

Thunderstorms were quite general on the 18th and on the night of the 25th and 26th. Thunder was also heard at scattered stations on the 4th, 20th, 23d, 28th and 29th.

An aurora of unusual brilliancy was observed over the northern counties on the 27th.

COMPARATIVE DATA FOR THE STATE—MARCH.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	28.0	75	-24	1.57	3.67	.32
1891.....	26.8	66	-19	2.60	4.58	1.33
1892.....	31.9	48	-6	2.22	4.58	.57
1893.....	31.8	84	-8	2.14	4.40	.64
1894.....	41.0	84	-5	2.03	4.52	.26
1895.....	34.4	94	-11	0.83	2.60	.22
1896.....	30.9	81	-12	1.10	3.99	.16
1897.....	32.0	72	-22	2.39	6.16	.29
1898.....	37.5	72	-2	1.94	6.21	.33
1899.....	23.0	75	-16	1.62	5.90	.37
1900.....	30.7	81	-13	2.06	5.15	.45
1901.....	34.2	76	-8	2.64	5.25	.70
1902.....	39.1	79	-12	1.45	4.33	.13
1903.....	38.8	82	6	1.38	3.90	.15
1904.....	34.8	78	3	2.18	4.57	.50
1905.....	41.5	84	1	2.04	3.70	.39
1906.....	27.1	65	-14	2.34	4.55	.58
1907.....	40.6	92	-7	1.35	5.05	.23
1908.....	37.9	85	-8	1.58	3.74	.45
1909.....	32.5	71	-15	1.53	5.00	.28
1910.....	48.9	92	-10	0.17	1.32	.00

T indicates a Trace.
- indicates temperature below zero.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.05 inches.
Prevailing direction of Wind, South.

STATIONS	Barometer, in Inches				Wind					
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum Velocity, miles	Direction	Date	Average Hourly Velocity
Charles City.	30.05	30.40	14	29.71	23	5636	30	NW	6	7.6
Davenport..	30.06	30.36	14	29.78	6	5506	32	NW	6	7.4
Des Moines..	30.03	30.39	14	29.70	26	6426	44	SW	23	8.6
Dubuque....	30.08	30.42	14	29.82	23	5034	32	NW	7	6.8
Keokuk.....	30.08	30.38	14	29.82	6	5872	36	SW	30	7.9
Omaha, Neb.	30.04	30.45	14	29.58	26	6046	44	N	6	8.1
Sioux City..	30.03	30.49	14	29.53	26	9545	52	NW	6	12.8

CONDITION OF FRUIT TREES.

The following report issued by the Secretary Iowa State Horticultural Society, shows the average condition of fruit trees and plants on April 1, 1910:

"Apples, 85 per cent; pears, 80 per cent; American plums, 89 per cent; domestica plums, 70 per cent; Japanese plums, 69 per cent; cherries, 83 per cent; peaches, 3 per cent; grapes, 80 per cent; red raspberries, 52 per cent; black raspberries, 53 per cent; blackberries, 65 per cent; strawberries, 86 per cent.

"Peach trees are badly injured in many places; raspberry canes are killed to the ground in some localities; climbing roses are also damaged. The injury to trees and plants is attributed to the freeze in October which caused the leaves to fall before the wood was mature; followed by warm, wet weather which pushed bud development on the defoliated plants too far in the fall to withstand the winter.

"Bloom on plum and cherry trees is two weeks in advance of 1871, the earliest record we have since the Society was organized."

OBSERVERS' REMARKS

AFTON.—*A. W. Rowell*. A remarkable March. Almost continuous sunshine during the days. The grass is green; trees putting out leaves; some fruit in bloom; seeding being done; ground is dry and the roads are good.

ALBIA.—*J. I. Chenoweth*. March was a warm and pleasant month, with only three cloudy days. There was no rain until the 26th and only .35 inch during the entire month. Farm work is progressing rapidly with the soil in fine condition. Plums, pears and early apples are blooming six weeks ahead of last year. Pastures are good.

ALGONA.—*Dr. F. T. Seeley*. This has been the finest March ever seen in this section of the country. There were 27 clear days and the larger number were perfectly cloudless. On March 1st there was six inches of snow on the ground but it disappeared within a few days.

ALLERTON.—*Mrs. George Shriver*. Seeding of oats finished in good shape. Grass was well started and the ground was dry at the end of the month.

ALTA.—*David E. Hadden*. March was a remarkably fine month, more like May than March; the mean temperature was 17.5° above the 20-year normal. The only rainfall occurred on the 29th. The last snow left the ground on the 4th, and the roads were dry, smooth and dusty the rest of the month. Grass, trees and some weeds were in leaf and flower during the last decade. A fine aurora with streamers, colored effects and beams, was seen on the 27th.

ALTON.—*W. S. Slagle*. March was a very fine month. Farmers had excellent weather for finishing corn picking. Pastures are in condition to receive cattle. Plums are ready to blossom and maples and box elders are in bloom. Soil was in shape for plowing on the 8th.

AMANA.—*Conrad Schadt*. The weather was remarkably warm and dry, making the season about three weeks early. All of the spring wheat and the bulk of oats and barley have been sown. Early plums began to bloom on the 29th. A brilliant aurora observed on the 27th.

ATLANTIC.—*Thos. H. Whitney*. Ideal weather prevailed during the month for completing corn gathering and drying the roads and fields. Quality of corn was much improved by drying. Wheat seeding well completed and some oats and barley planted.

AUDUBON.—*Geo. E. Kellogg*. This has been the warmest and driest March in the history of this county. Seeding is nearly done and some corn has been planted.

BELMOND.—*Geo. P. Hardwick*. There was eight inches of snow on the ground on the 1st and only a trace from the 6th to the 9th inclusive. The month was comparatively dry and ideal for gathering and drying the corn that had been in the fields during the

winter. Trees and meadows are green at the end of the month. Pasturage nearly one month earlier than the average. Seed corn very scarce.

BOONE.—*Carl F. Henning*. The most wonderful weather for March that I have ever experienced. Most farmers have all of their small grain in and some are plowing for corn.

BLOOMFIELD.—*C. R. Davis*. Although the winter was extremely cold with much snow, the spring is far in advance of the normal.

BRITT.—*L. M. Goodman*. The country roads were dry and smooth on the 15th. The weather was remarkably clear, dry, warm and pleasant. Grass and the earlier varieties of trees were showing green the latter part of the month.

CHARLES CITY.—*Edward W. McGaun*. The mean temperature of the month, 44.4° is the highest on record for the past 21 years and is 16° above the normal for the month.

COLUMBUS JUNCTION.—*J. B. Johnston*. Robins and bluebirds appeared on the 4th. Ice broke in the Iowa river on the 5th. Early bulbs were in bloom on the 17th and early plums on the 29th.

DAVENPORT.—*J. M. Sherier*. This has been the warmest, and, with the single exception of the same month in 1885, the driest March on record at this station. There was not a cloudy day and only five partly cloudy days during the month. On account of the continued high temperature and the great amount of sunshine, vegetation is about a month in advance of the average.

DUBUQUE.—*J. H. Spencer*. Mean temperature, 47.8°, or 13.8° above the average of 37 years. The daily mean temperature was not below normal on a single date. From the 22d to the 29th the daily mean was 20° to 32° above the normal. No previous March since the record began in 1874 has recorded an average temperature above 41°, except March, 1878, when the average was 47°, or nearly as high as during the present month. But March, 1878, was not otherwise comparable with the present month, since it was a wet March, and there were only two days with a maximum of 70° or above. During the present month, the maximum has been above 70° on 10 dates, within one of being as many as during the previous 36 Marches considered as a whole. It has been the driest March on record, and with the exception of July, 1894, and November, 1904, the driest month on record.

ELKADER.—*Chas. Reinecke*. Ice went out of the Turkey river on the 12th.

ELLIOTT.—*Henry Barnes*. A remarkable month. Corn was all gathered but in somewhat damaged condition. Fall wheat, clover, alfalfa and peach trees badly damaged by being winter killed. Vegetation three to four weeks early. Plum trees in bloom.

ELMA.—*H. A. Moore*. Farmers have been working in the fields, plowing and sowing for the past two weeks.

FAYETTE.—*R. Z. Latimer*. Robins, bluebirds, meadow larks and other migratory birds were seen on the 12th; maple sap ran freely on the 15th; frogs were croaking on the 24th; plowing began on the 25th; most of the small grain sown at the end of the month. Blossoms are out on plum and apple trees and on strawberry vines. Lawns are about ready for the lawn mower and pastures are ready for stock. All vegetation four to six weeks earlier than usual.

FOREST CITY.—*J. A. Peters*. Wheat all sown and some pieces up. Some oats sown. Season about six weeks ahead of the normal. Trees in leaf and the ground is in good physical condition. No rain to speak of but nothing is suffering for moisture.

GRAND MEADOW (Postville P. O.)—*F. L. Williams*. The month was dry and very warm. Plowing began on the 16th and seeding on the 24th. Grass as green as in May at end of the month. Roads dry.

GREENFIELD.—*R. B. Oldham*. Favorable month for farm work; 75 per cent of small grain sown; early fruit trees in bloom and pastures are making a fine start.

INWOOD.—*F. H. Hanson*. March, 1910, has been a remarkable month, following a remarkable winter which continued steadily

(Continued on page 28)

CLIMATOLOGICAL DATA FOR IOWA, MARCH, 1910

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit					Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days			No. partly cloudy days	No. cloudy days
NORTHERN SECTION																				
Algona	Kossuth	1,213	37	47.0	+17.4	83	23	20	10	43	0.14	-1.42	0.06	0	3	27	2	2	.....	Dr. F. T. Seeley
Alta	Buena Vista	1,513	19	48.6	+18.0	85	23	23	8†	41	0.05	-1.61	0.04	0	2	20	10	1	s	D. E. Hadden
Alta [near]	Buena Vista										T	-1.51	T	0	0					W. J. Minard
Alton	Sioux	1,305	5	48.5	.....	86	23	22	6†	50	0.02	.....	0.02	0	1	24	3	4	nw	W. S. Slagle
Belmond	Wright			46.2	.....	84	23	21	10†	44	0.23	.....	0.09	0	4	10	21	0	nw	G. P. Hardwick
Britt	Hancock	1,236	13	45.1	+14.0	83	23	19	10	43	0.13	-1.37	0.11	0	2	26	4	1	s	L. M. Goodman
Charles City	Floyd	1,015	19	44.4	+16.0	83	23	18	8	40	0.18	-1.74	0.12	0	4	9	13	9	nw	Weather Bureau
Clear Lake	Cerro Gordo	1,241	12	45.1	+13.4	80	23†	20	8†	40	0.10	-1.49	0.10	0	1	.....	.....	.....	nw	Oscar Stevens
Decorah	Winneshiek	875	17	44.4	+12.8	83	23	15	8†	45	0.05	-2.00	0.05	0	1	.....	.....	.....	.....	F. H. Baker
Elkader	Clayton	727	31	45.8	+14.0	86	23	15	8†	61	0.02	-1.89	0.02	0	1	28	1	2	ne	Chas. Reinecke
Elma	Howard			43.7a	.....	81b	23	14	8†	45a	0.02	.....	0.02	T	1	21	7	3	se	H. A. Moore
Estherville	Emmet	1,298	15	44.7	+15.7	85	23	12	1	51	0.07	-1.37	0.07	0	1	30	0	1	s	A. O. Peterson
Fayette	Fayette	1,003	20	45.0	+13.8	84	23	13	10	47	0.10	-2.16	0.05	0	2	25	6	0	nw	R. Z. Latimer
Forest City	Winnebago	1,226	16	46.0	+16.3	84	23	20	1	40	0.24	-1.32	0.12	0	3	25	5	1	w	J. A. Peters
Grand Meadow	Clayton	1,180	19	44.6	+13.3	83	23	15	8	44	0.01	-2.13	0.01	T	1	14	15	2	sw	F. L. Williams
Greene	Butler			46.0	+13.4	84	23	19	8	46	0.22	-1.47	0.12	0	2	7	17	7	s	J. L. Cole
Hampton	Franklin	1,155	20	47.4	+17.1	85	23	21	10	41	0.36	-1.89	0.20	0	4	15	13	3	nw	E. C. Grenelle
Humboldt	Humboldt	1,095	22	48.6	+16.8	85	23	22	8	48	0.08	-1.52	0.08	0	1	30	0	1	nw	H. S. Wells
Inwood	Lyon	1,474	6	48.0b	.....	87	23	19d	14	50d	0.06	.....	0.03	0	3	27	0	4	nw	F. B. Hanson
Larrabee	Cherokee	1,266	20	48.2	+17.5	84	23	20	14†	50	0.02	-1.47	0.02	0	1	.....	.....	.....	.....	H. B. Strevor
Le Mars	Plymouth	1,224	14	48.8	+15.8	84	23	24	10†	45	0.06	-1.54	0.04	0	2	22	7	2	nw	G. A. C. Clarke
Mason City	Cerro Gordo	1,133	13	44.6	+13.0	82	23	19	10	44	0.26	-1.42	0.18	0	2	20	10	1	s	J. S. Mills
New Hampton	Chickasaw	1,169	13	44.2	+12.5	81	23	16	8	42	0.15	-1.86	0.15	0	1	26	5	0	sw	A. F. Kemman
Northwood	Worth	1,222	14	43.8	+12.7	80	23	19	10	41	0.08	-1.78	0.04	0	4	25	6	0	sw	Charles H. Dwelle
Osage	Mitchell	1,184	23	46.4	+17.3	84	23	19	8	42	T	-1.76	T	0	0	20	10	1	nw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	14	46.6	+14.5	82	23†	20	15	49	0.04	-1.17	0.04	0	1	28	3	0	nw	J. S. Smith
Pocahontas	Pocahontas	1,248	6	46.8	.....	83	23	21	15	45	0.03	.....	0.02	0	2	24	4	3	s	F. E. Hronek
Ridgeway	Winneshiek	1,215	12	46.5	+13.4	84	23	17	8	44	0.18	-3.03	0.10	0	4	27	4	0	s	Arthur Betts
Rock Rapids	Lyon	1,358	11	45.6	+14.0	85	23	10	1	50	0.00	-1.35	0.00	0	0	23	2	6	.....	W. C. Wyckoff
Sheldon	O'Brien	1,422	10	48.4	+17.0	86	23	21	10	49	0.04	-1.39	0.02	0	2	24	7	0	s	Dr. A. W. Beach
Sibley	Osceola	1,212	17	45.7	+15.8	85	23	22	8†	46	0.04	-1.42	0.04	0	1	18	12	1	sw	H. G. Doolittle
Sioux Center	Sioux			48.6	+15.4	84	23	23	14	41	0.02	-1.50	0.02	0	1	23	1	7	s	J. de Ruyter
Storm Lake	Buena Vista	1,440	21	48.9b	+18.7	81b	23†	23b	10†	41b	0.05	-1.27	0.05	0	1	27	3	1	s	S. B. Fracker
Washta	Cherokee	1,157	12	47.8	.....	86	23	17	15	55	T	-0.96	T	0	0	24	6	1	s	H. L. Felter
Waverly	Bremer	948	14	45.6	+12.8	84	23	19	8	42	0.14	-1.81	0.11	0	2	14	15	2	s	H. S. Hoover
West Bend	Palo Alto	1,197	17	46.3a	+15.3	82	23	20a	8	44a	0.14	-1.46	0.08	0	2	19	8	4	.....	Phil Dorweiler
Average				46.3	+15.1	84		19		45	0.09	-1.64	.....	T	2	22	7	2	s	
CENTRAL SECTION																				
Amana	Iowa	721	34	48.4	+15.9	84	23	21	10	41	0.25	-1.75	0.18	0	2	23	7	1	sw	Conrad Schadt
Ames	Story	926	34	48.9	+15.4	85	23	21	10	41	1.32	-0.09	1.32	0	1	25	5	1	s	Iowa State College
Audubon	Audubon	1,301	16	50.2	+16.0	83	23	24	10†	39	0.00	-1.62	0.00	0	0	24	4	3	sw	Geo. E. Kellogg
Baxter	Jasper	998	10	49.8	+13.2	87	23	19	10	41	0.24	-1.97	0.21	0	3	24	5	2	sw	W. R. Vandike
Belle Plaine	Benton	828	20	48.8	+15.4	86	23	19	15	44	0.46	-2.05	0.33	0	3	23	8	0	nw	S. P. VanDike
Boone	Boone	1,134	5	49.6	.....	85	23	20	1	37	0.32	.....	0.28	0	2	26	3	2	.....	Carl Fritz Henning
Buckingham	Tama				.....						T	-2.22	T	0	0	20	11	0	.....	Dr. W. A. Daniel
Carroll	Carroll	1,265	20	49.0	+16.3	85	22	21	9	39	0.04	-2.00	0.04	0	1	22	5	4	nw	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	28	47.0	+13.4	87	23	14	1	42	T	-2.04	T	0	0	20	5	6	w	W. J. Greene
Clinton	Clinton	593	43		.....						0.35	-2.67	0.17	0	3	.....	.....	.....	.....	Luke Roberts
Davenport	Scott	580	39	49.9	+14.5	84	23	24	15	42	0.39	-1.82	0.17	0	4	26	5	0	nw	Weather Bureau
Delaware	Delaware	1,083	19	45.6	+14.0	81	23†	17	8	43	0.21	-1.62	0.13	0	3	22	9	0	sw	Wm. Ball
Denison	Crawford	1,180	16	50.0	+16.3	86	23	20	10	46	T	-1.51	T	0	0	25	1	5	s	W. C. Van Ness
Des Moines	Polk	861	31	51.4	+15.7	86	23	24	15	35	0.33	-1.32	0.33	0	2	17	10	4	sw	Weather Bureau
De Soto	Dallas	866	10	52.0	+14.4	90	23	18	15	49	T	-1.59	T	0	0	27	0	4	sw	R. D. Minard
Dubuque	Dubuque	639	37	47.8	+14.6	84	23	20	10	41	0.14	-2.07	0.08	T	4	23	7	1	s	Weather Bureau
Fort Dodge	Webster	1,126	10		.....							.....	.....						.....	J. F. Monk
Gilman	Marshall	1,052	11		.....							.....	.....						.....	Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	53.0	+19.9	90	23	26	10†	40	0.80	-0.94	0.74	0	3	22	5	4	w	D. W. Brainard
Grundy Center	Grundy	976	19	47.6	+15.0	84	21	22	10†	45	0.02	-1.80	0.02	0	1	.....	.....	.....	.....	J. B. Calderwood
Guthrie Center	Guthrie	1,077	15	50.4	+15.0	85	23	20	10†	46	0.01	-1.39	0.01	0	1	24	5	2	sw	D. G. Beardsley
Harlan	Shelby	1,182	11	50.0	+14.7	86	23	20	15	45	T	-1.48	T	0	0	20	6	5	w	C. A. Reynolds
Independence	Buchanan	921	46	46.6	+15.8	84	23	19	8	44	0.00	-1.63	0.00	0	0	26	2	3	nw	George Donohoe
Iowa City	Johnson	683	50	47.0	+13.0	87	23	16	1	48	0.28	-2.16	0.18	0	2	25	3	3	nw	Arthur G. Smith
Iowa Falls	Hardin	1,170	17	44.8	+12.9	84	23	14	1	45	T	-1.73	T	0	0	26	3	2	sw	J. B. Parmelee
Jefferson	Greene			50.1	.....	85	23	22	10	45	T	.....	T	0	0	27	3	1	s	Geo. W. Jackson
Le Claire	Scott	576	10		.....						0.37	-2.27	0.15	0	5	.....	.....	.....	.....	Margaret T. Disney
Little Sioux	Harrison			52.3	.....	90	19	19	14	47	0.00	.....	0.00	0	0	24	4	3	sw	Geo. H. Gibson
Logan	Harrison	928	43	51.4	+16.8	87	25	21	5†	57	T	-1.81	T	0	0	21	10	0	nw	Glenn H. Stern
Marshalltown	Marshall	947	18	48.0	+14.6	88	23	19	1	45	0.34	-2.34								

CLIMATOLOGICAL DATA FOR IOWA, MARCH, 1910-Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit					Precip., in inches				No. rainy days	Sky			Prevailing direction of wind	OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal		Greatest in 24 hours	Total snowfall (unmelted)	Number clear days			Number partly cloudy days	Number cloudy days
SOUTHERN SECTION																				
Afton	Union	1,212	16	51.8	+15.3	84	23†	21	10†	38	T	-2.10	T	0	0	23	5	3	sw	N. W. Rowell
Albia	Monroe	959	12	50.5	+12.9	86	23	20	10†	42	0.35	-1.55	0.31	0	0	23	5	3	sw	J. I. Chenoweth
Allerton	Wayne		8	51.9	+13.7	85	23	21	15	38	0.16	-2.29	0.13	0	0	23	3	1	sw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	19	51.3	+16.6	87	26	21	15	43	T	-1.75	T	0	0	14	10	7	sw	Thos. H. Whitney
Bedford	Taylor		10	52.2	+15.5	90	22	17	10	47	0.05	-2.27	0.04	0	0	27	1	3	sw	E. E. Healy
Bloomfield	Davis		3	52.8		90	23	21	10†	49	0.45		0.43	0	0	25	3	3	sw	C. R. Davis
Bonaparte	Van Buren		19	51.2	+13.2	87	23	20	15	43	0.67	-1.88	0.42	0	0				sw	Hon. B. R. Vale
Burlington	Des Moines	544	14	51.2	+11.4	88	23	21	15	45	0.91	-1.95	0.41	0	0	25	2	4	s	M. E. Poppe, Jr.
Centerville	Appanoose										0.15		0.15	0	1	28	2	1	sw	Gordon Peacock, Jr.
Chariton	Lucas	1,042	15	50.9	+14.1	86	23	19	15	40	T	-1.08	T	T	0	30	0	1	sw	C. C. Burr
Clarinda	Page	1,009	20	50.8	+14.7	92	22	19	15	51	0.00	-1.86	0.00	0	0	23	5	3	ne	A. S. Van Sandt
Columbus Junction	Louisa	595	9	50.6	+11.6	85	23	22	15	40	0.30	-2.21	0.20	0	2	26	5	0	n	J. B. Johnston
Corning	Adams	1,117	18	49.4a	+13.0	84a	23	20a	11	40a	T	-1.74	T	0	0	26	3	2	sw	Jerome Smith
Corydon	Wayne	1,101	17	51.0c	+13.7	84b	23	22c	10	39c	0.34	-1.79	0.33	0	2				sw	Clara Miller
Creston	Union	1,312	5	49.6		85	23	19	15	43	0.04		0.04	0	1	28	1	2	nw	E. S. Stovall
Cumberland	Cass		11								T	-2.02	T	0	0	27	1	3	s	J. H. Reppert
Earlham	Madison		8	54.2i	+20.0	85i	23	26i	1	47i	T	-1.76	T	0	0					Geo. Phillips
Elliott	Montgomery		5	51.2		87	26	21	11	45	T		T	0	0	27	4	0	s	Henry Barnes
Fairfield	Jefferson		26	50.8a	+17.0	86a	23	20a	15	45a	0.53	-2.04	0.28	0	2	26	3	2	s	R. Monroe McKenzie
Fort Madison	Lee	516	61								0.75	-2.01	0.40	0	2	19	9	3	s	Miss L. A. McCready
Greenfield	Adair		18	51.0	+16.5	85	23	21	10	39	T	-2.08	T	0	0	27	4	0	sw	R. B. Oldham
Hancock	Pottawattamie	1,113	5	48.2		84	23†	20	10†	45	0.00		0.00	0	0	20	10	1	sw	G. C. Rogers
Hopeville	Clarke		19	51.5	+15.8	85	23†	22	10	39	T	-1.78	T	0	0	20	10	1	sw	M. T. Ashley
Indianola	Warren	969	19	52.0	+15.9	86	33	24	10†	37	0.32	-1.00	0.31	0	2	15	9	7	sw	Prof. J. L. Tilton
Keokuk	Lee	574	39	53.6	+15.7	86	23	24	15	38	0.53	-1.84	0.36	0	3	25	6	0	sw	Weather Bureau
Keosauqua	Van Buren	644	18	48.6	+10.4	86	23	13	15†	51	1.23	-1.31	0.45	0	3	12	16	3		J. H. Landes
Knoxville	Marion	920	15	51.8	+14.4	85	23	23	10†	37	0.50	-1.07	0.45	0	2	21	5	5	nw	Casey & Belville
Lacona	Warren		11								0.60		0.30	0	3	13	14	4		J. B. Alter
Lamoni	Decatur		3	51.3		84	23	21	†2	40	0.03		0.02	0	2	28	0	3	s	T. J. Fitzpatrick
Lenox	Taylor	1,250	15	51.6	+15.3	84	23†	21	10	39	0.05	-1.70	0.05	0	1	28	2	1	s	J. L. Hurley
Leon	Decatur	1,120	8	51.8	+13.8	84	23	22	10†	36	T	-2.76	T	0	0	24	5	2	s	Morris Gardner
Massena	Cass		4	48.6		84	23†	16	15	46	T		T	0	0	25	3	3	sw	C. E. Smeltzer
Mt. Ayr	Ringgold	1,236	17	53.6	+16.6	88	22	23	10	42	0.05	-2.01	0.05	0	1	24	3	4	sw	A. F. Beard
Mt. Pleasant	Henry	729	29	51.0	+14.3	87	26	22	15	46	0.73	-1.70	0.53	0	2	25	6	0	sw	J. W. Edwards
Omaha, Neb.	Douglas	1,040	40	54.5	+18.5	88	22	29	10	41	T	-1.39	T	T	0	20	7	4	s	Weather Bureau
Oskaloosa	Mahaska	843	34	50.8	+15.6	87	23	20	15	42	0.28	-1.58	0.25	0	2	27	1	3	sw	Jos. Boyd
Ottumwa	Wapello	649	15	53.8	+15.1	90	23	20	10	47	0.87	-1.27	0.77	0	3	14	6	11	s	W. J. Mesmer
Pacific Junction	Mills	960	11	50.4	+13.9	87	22	20	10	47	T	-1.35	T	T	0	20	11	0	s	H. H. McCartney
Pella	Marion	877	7	50.0	+17.0	87	23	17	15	47	0.20	-0.83	0.18	0	2	27	3	1	nw	John H. Ver Steeg
St. Charles	Madison	1,070	9	53.1	+14.9	87	26	23	10	39	0.03	-1.91	0.03	0	1	27	2	2	sw	R. D. Minard
Sigourney	Keokuk	877	14	49.8a	+12.9	84a	23	20a	15	47a	0.50	-1.56	0.35	T	3				nw	J. T. Parker
Stockport	Van Buren		8	49.8		88	23	15	15	46	1.06	-1.27	0.72	0	3	25	2	4	s	C. L. Beswick
Thurman	Fremont		13	51.4	+13.6	88	22	20	10	48	T	-1.66	T	T	0	22	9	0	nw	C. R. Paul
Wapello	Louisa	588	12	51.0	+13.6	85	23	23	14	42	0.44	-1.98	0.33	0	2	24	7	0	nw	Geo. W. Schofield
Washington	Washington	769	28	50.8	+16.6	88	23	19	15	46	0.62	-1.64	0.43	0	2	23	6	2	sw	Wm. A. Cook
Winterset	Madison	1,129	19	50.9	+15.2	82	26	19	10†	45	T	-1.93	T	0	0	23	3	5	s	Dr. Robert S. Cooper
Woodburn	Clarke	961	11	49.8		85	23	15	15	51	T	-2.17	T	0	0	25	4	2	sw	C. B. McDonough
Average				51.2	+14.5	86		21		43	0.26	-1.79		T	1	24	5	2	sw	
State average				48.9	+14.9	85		20		44	0.17	-1.75		T	1	23	6	2	sw	

†And other dates. a one day missing, b two days; c three days, etc. ‡Received too late to be included in averages.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR THE MONTH OF MARCH, 1910—CONTINUED

Table with columns for STATIONS, days 1-31, and Monthly Mean. Rows include Oskaloosa, Ottumwa, Pacific Junction, Pella, Perry, Pocahontas, Ridgeway, Rock Rapids, Rockwell City, Sac City, St. Charles, Sheldon, Sibley, Sigourney, Sioux Center, Sioux City, Stockport, Storm Lake, Stuart, Thurman, Tipton, Toledo, Wapello, Washington, Washta, Waterloo, Waukeo, Waverly, Webster City, West Bend, Whitten, Winterset, Woodburn, Zearing.

MONTHLY REVIEW OF THE

(Continued from page 24)

through the last day of February, when it changed suddenly to spring. By March 5th the farmers were again picking corn. Work began in the stalk fields on the 17th, and 35 to 40 per cent of seeding was done by the end of the month. Fruit buds nearly ready to open.

IOWA CURRY.—Prof. Arthur G. Smith. The ice went out of the Iowa river on the 8th.

IOWA FALLS.—J. B. Parmelee. Twelve weeks of sleighing ended on the 4th; snow practically off the fields on the 6th; frost out of the ground on the 15th and fruit buds were swelling on the 25th. KEOSAUQUA.—J. H. Landes. "The oldest inhabitant" cannot remember another March as fine as this. Sunshine and good roads marked the entire month. Oats crop practically all in; rain would help the wheat, meadows and pastures.

LARRABEE.—H. B. Strever. March has been a remarkable month. Almost continuous sunshine daily and practically no rainfall enabled farmers to gather the corn that was left in the fields last fall.

MASSENA.—C. E. Smeltzer. The freeze on the 31st did no damage to fruit or small grain. Winter wheat looks good. There is an increased acreage of spring wheat. Nearly all of the oats are in the ground.

MASON CITY.—J. S. Mills. Wild geese observed on the 3d; robins on the 10th and bluebirds on the 12th.

OTTUMWA.—W. J. Mesmer. Ice breaking up and going out of the Des Moines river on the 3d.

RIDGEWAY.—Arthur Betts. Warmest and driest on record. Typical April weather. No frost after St. Patrick's day. Eighteen days with 100 per cent sunshine. The longest period on record without rain was from the 4th to the 28th.

SHELDON.—Dr. A. W. Beach. A most remarkable month for this locality. Corn left in fields over winter was gathered early in month. Ground is in good condition and seeding is nearly completed.

STOUCX CURRY.—O. D. Reed. The month of March, 1910, was very remarkable in all its meteorological features. The mean temperature of 50.8° was higher by 8.8° than the previous high record; the highest temperature observed was 88°, exceeding by 5° the previous high record; and the record was also broken for mean daily range of temperature and for least number of days with freezing temperature. It was the driest March on record. From February 23d to March 28th, a period of 34 days, there was not an appreciable amount of precipitation. Not a flake of snow fell during the month, while heretofore there have never been less than three days in March with an appreciable amount of snow.

ERRATA

ALGONA.—January, 1910: Minimum temperature, 20th, should be 19° instead of 20°.

CLEAR LAKE.—January, 1910: Mean monthly temperature should be 14.0°, instead of 13.7°; departure should be -2.6°, instead of -2.9°. ERKADER.—January, 1910: Mean temperature should be 13.6°, instead of 13.4°; departure should be -1.2°, instead of -1.4°.

HUMBOLDT.—January, 1910: Mean temperature should be 16.6°, instead of 16.2°; departure should be -0.2°, instead of -0.6°.

LARRABEE.—January, 1910: Mean temperature should be 15.3°, instead of 15.4°; departure should be -2.1°, instead of -2.0°.

BETIE PRAIRIE.—February, 1910: Mean temperature, 19.6°, should be 19.9°; departure, -0.3, should be 0.0°.

JEFFERSON.—February, 1910: Mean temperature, 18.7°, should be 18.6°.

STUART.—February, 1910: Mean temperature, 18.8°, should be 18.6°; departure, -2.3°, should be -2.5°.

WAPELLO.—February, 1910: Mean temperature, 23.0°, should be 22.9°; departure, +2.7°, should be +2.6°.

ZEARING.—February, 1910: Greatest precipitation in 24 hours, .55, should be .35.

U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR APRIL, 1910

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

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1910

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1910

THE IOWA WEATHER AND CROP SERVICE

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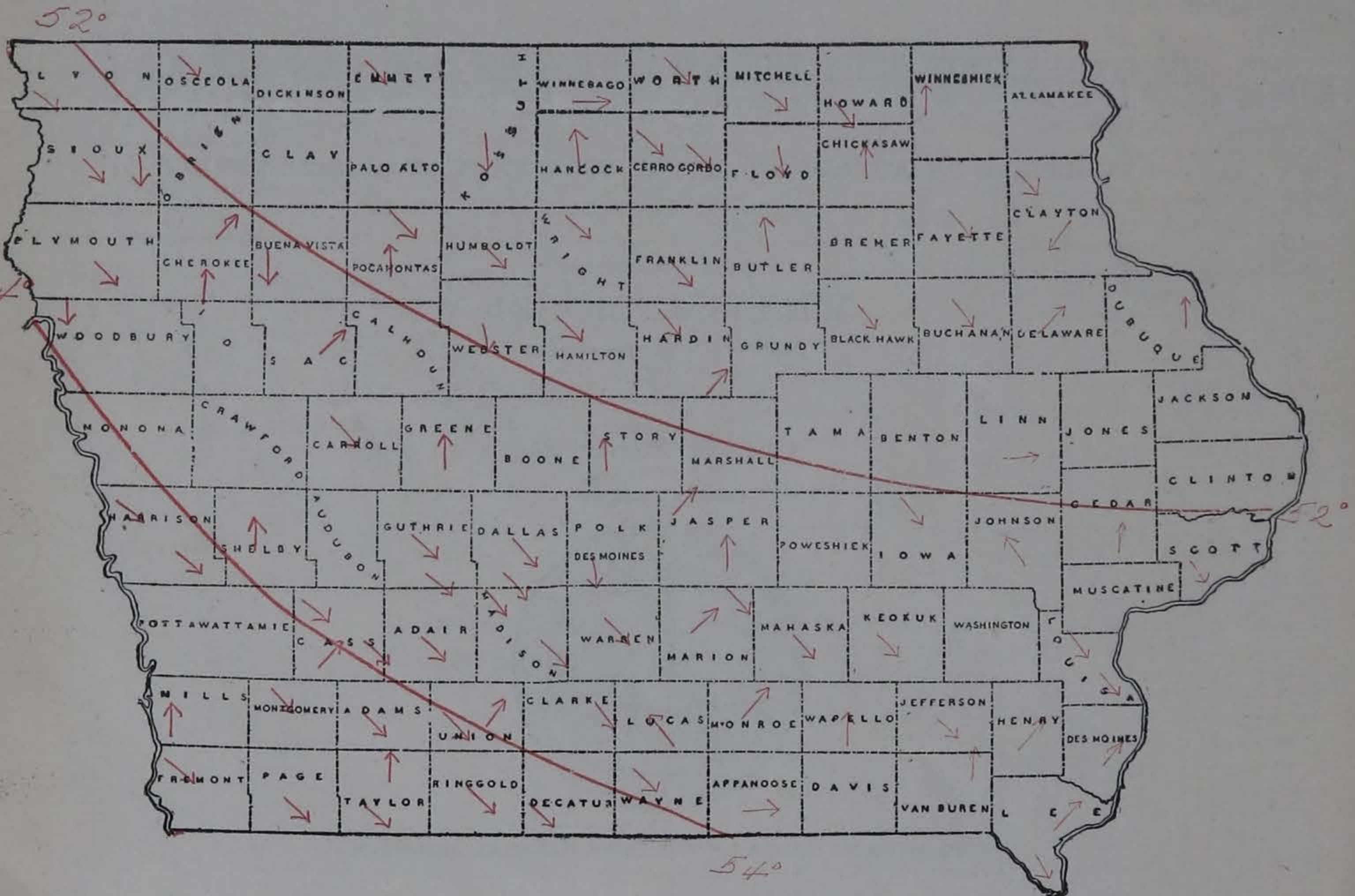
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MEAN ISOTHERMS AND PREVAILING WINDS OF APRIL, 1910.

Lines pass through points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.

CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,

GEO. M. CHAPPEL, Section Director.

VOL. XXI DES MOINES, IOWA, APRIL, 1910 No. 4

GENERAL SUMMARY.

The first half of the month, like the whole of March, was dry and generally warm, but the latter half was very changeable and erratic; the temperature fluctuating from one extreme to another and the precipitation from rain to snow.

The average mean temperature was 4.0° above the normal for April; the excess occurring the first fifteen and the last three days. A cold spell set in on the evening of the 14th, attended by moderate showers which changed to snow on the 15th and continued over the larger part of the State until the 18th; the minimum temperatures on the 16th, 17th and 18th being from 3° to 12° below the freezing point in all districts and the amounts of snowfall ranged from a trace in the southern to over five inches at some of the stations in the northeastern counties. The freezing temperatures seriously damaged the prospects of a fruit crop as apple, cherry and other fruit trees were in full bloom in the northern part of the State by the 10th of the month. The damage done, however, was small as compared with the damage resulting from the freeze of the 23d and 24th, when the minimum temperatures were 10° to 12° below the freezing point in the southern counties. The maximum temperature on the 23d was below the freezing point in the northeastern counties and the minimum on that date at many stations was lower than ever before recorded during the last decade of April. Great damage resulted to such fruit, garden truck, etc., as was not killed during the previous week. The ground froze hard on the morning of the 23d and the 24th and ice formed from one-half to one inch thick in tubs of standing water. Few trees or shrubs escaped injury and the foliage and new growth on some varieties, such as soft maples, box elders, wistaria, Virginia creeper, etc., were frozen and at the close of the month the dead leaves were falling off. Following this last cold period the temperature rose rapidly and the 28th and 29th were excessively warm; the maximum temperatures on those dates being 90° or higher over the western and central districts, the highest being 99° on the 28th in the extreme northwestern county. The maximum temperature on the 28th was higher than ever before recorded during April, over the western half of the State.

The average precipitation was 1.35 inches below the normal and was unevenly distributed; the eastern third of the State and the south central counties receiving the largest amounts while the extreme southwestern and a few localities in the north central counties received less than one-fourth of an inch. Much of the precipitation was in the form of snow or snow mixed with rain during the storms on the 15-18 and 22-24.

Owing to the warm, dry and pleasant weather during March, farming operations were further advanced than usual on April 1st. Practically all small grain was seeded before the middle of the month and nearly all of the corn ground was ready for the planter

by the close of the month. Considerable corn was planted during the second week but that work was suspended generally after the 15th on account of cold weather.

The growth of grass and small grain was checked by the freezing temperature and in the western part of the State small grain, especially oats, was damaged by dry weather and high winds, but for the State at large small grain is reported to be in fairly good condition.

All rivers and creeks are below the normal stage for the season of the year.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 119 stations, was 52.5°, which is 4.0° above the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 51.7°, which is 4.9° above the normal; Central section, 52.7°, which is 4.2° above the normal; Southern section, 53.2°, which is 2.9° above the normal. The highest monthly mean was 56.0°, at Grinnell, Poweshiek county, and the lowest monthly mean 49.0°, at Sibley, Osceola county. The highest temperature reported was 99°, at Inwood, Lyon county, on the 28th; the lowest temperature reported was 15°, at Rock Rapids, Lyon county, on the 5th. The average monthly maximum was 92°, and the average monthly minimum was 22°. The greatest daily range was 57°, at Pacific Junction, Mills county. The average of the greatest daily ranges was 44°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 125 stations, was 1.48 inches, which is 1.35 inches below the normal. By sections the averages were as follows: Northern section, 1.18 inches, which is 1.29 inches below the normal; Central section, 1.48 inches, which is 1.39 inches below the normal; Southern section, 1.78 inches, which is 1.36 inches below the normal. The greatest amount, 4.86 inches, occurred at Burlington, Des Moines county, and the least, 0.10 inch, at Webster City, Hamilton county. The greatest amount in twenty-four hours, 1.83 inches, occurred at Keosauqua, Van Buren county, on the 6th. The average amount of unmelted snowfall was 3.0 inches, averaging as follows: Northern section, 4.3 inches; Central section, 2.3 inches; Southern section, 2.3 inches; the greatest amount was 11.3 inches at Ridgeway, Winneshiek county, while at eight stations only a trace occurred. Measurable precipitation occurred on an average of seven days.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 14; partly cloudy, 7; cloudy, 9. The duration of sunshine was slightly below the normal, the percentage of the possible amount being 71 at Charles City; 61 at Davenport; 50 at Des Moines; 46 at Keokuk, and 61 at Sioux City.

WIND.—Northwest winds prevailed. The highest velocity reported was 65 miles per hour from the north, at Sioux City, Woodbury county, on the 23d.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 29.90 inches.
 Prevailing direction of Wind, North.

STATIONS	Barometer, in Inches				Wind					
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum Velocity—miles	Direction	Date	Average Hourly Velocity
Charles City.	29.90	30.22	9	29.48	29	7070	36	NW	23	9.8
Davenport..	29.88	30.27	1	29.42	29	5926	31	SE	14	8.2
Des Moines..	29.88	30.22	9	29.51	14	7705	37	SW	28	10.7
Dubuque....	29.90	30.25	1	29.39	29	5034	25	N	5	7.0
Keokuk.....	29.90	30.29	1	29.52	29	6199	37	SW	4	8.6
Omaha, Neb.	29.91	30.28	19	29.37	3	8790	48	N	23	12.2
Sioux City..	29.92	30.32	19	29.32	3	12343	65	N	23	17.1

COMPARATIVE DATA FOR THE STATE—APRIL.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890	51.8	88	2	1.80	4.46	.38
1891	50.6	93	13	2.15	5.06	.59
1892	45.4	88	14	4.75	8.38	2.43
1893	45.5	96	15	4.21	8.51	1.24
1894	51.7	93	12	3.07	6.91	.55
1895	54.2	98	8	2.62	5.88	.28
1896	51.5	94	10	5.02	9.67	2.35
1897	47.9	89	19	5.35	9.86	2.22
1898	48.1	91	14	2.56	4.82	.27
1899	48.9	89	1	2.40	5.76	.56
1900	52.2	89	19	2.67	6.62	.43
1901	49.9	92	15	1.79	3.47	.66
1902	48.2	96	9	1.71	4.15	.40
1903	49.8	86	17	2.98	6.00	.74
1904	44.1	86	13	3.63	8.97	1.52
1905	47.5	90	10	3.03	5.49	.63
1906	52.5	94	22	2.42	5.55	.53
1907	41.5	80	10	1.32	3.22	.24
1908	50.5	91	8	2.24	4.59	.67
1909	43.8	86	14	4.58	9.43	.83
1910	52.5	99	15	1.48	4.86	.10

CONDITION OF FRUIT TREES.

The secretary of the State Horticultural Society reports the condition of fruit, on May 1st, as follows: "Apples, 8 per cent; pears, less than 1 per cent; American plums, 1 per cent; domestica plums, Japanese plums, and peaches, less than 1 per cent; cherries, 6 per cent; grapes, 20 per cent; red raspberries, 10 per cent; black raspberries, 12 per cent; blackberries, 21 per cent; currants, 5 per cent; gooseberries, 4 per cent; strawberries, 38 per cent of a full crop.

"The average for May is only 9 per cent of a full crop. This is the lowest percentage ever estimated for May on the condition of the crop in this State. The bloom on tree fruits was three weeks in advance of normal; two weeks earlier than any record we have since the society was organized.

"When new growth starts we believe conditions will improve, and as the season advances we may be able to harvest at least a third to a half crop, especially of small fruits."

WIND STORM IN DES MOINES.

A small tornado passed over the northern part of the city of Des Moines shortly after 11 o'clock on the night of the 3d, which did considerable damage to several dwellings and small outbuildings. The storm struck and unroofed the residence of E. A. Paul, No. 4106 Kingman avenue, then passed diagonally across the street north of east, striking and blowing the roof off the residence of Charles Barchaus, No. 4003 Kingman avenue. The storm track was very narrow as buildings on the adjacent lots at either side of Mr. Paul's house were not injured, and the path of destructive violence was only about 400 feet long. There was, however, some slight damage done to trees and small outbuildings on the north side of the main track of the storm. Some thunder and lightning accompanied the storm and it was preceded by the typical roar of a tornado. No one was injured and the damage done was estimated to be less than \$5,000.00.

OBSERVERS' REMARKS.

ALBIA—*J. C. Chenoweth*. The temperature was down to 25° on the 17th, killing all the fruit which was in full bloom. On the 29th the temperature was up to 89°. Trees are shedding their leaves as in the fall. No damage to small grain. Farm work is farther advanced than usual. Soaking rains needed.

ALGONA—*Dr. F. T. Seeley*. Driest April in many years; only .29 inch of precipitation. Early plum and cherry trees in blossom were killed and leaves on elm and maple trees were killed.

ALLERTON.—*Mrs. Geo. Shriver*. Practically all fruit killed and garden stuff badly damaged. Some corn planted and all ground ready for planting. Ground very dry.

ALTON.—*W. S. Slagle*. Frost hurt trees and garden truck and also small grain. Leaves are falling from trees.

AMANA.—*C. Schadt*. On account of the continuous warm weather in March all fruit trees were in full bloom early in April and were severely damaged by the freeze of the 17th and 18th, and all that escaped were killed by the freeze on the 23d and 24th. The whole fruit crop is practically destroyed.

ATLANTIC.—*Thos. H. Whitney*. Freeze of 16th destroyed all fruit, and lack of moisture has much retarded growth of grain and grass. In general, however, the month was exceptionally favorable for all outdoor work.

BONAPARTE.—*Hon. B. R. Vale*. The temperature was below the freezing point on seven nights.

BRITT.—*L. M. Goodman*. The month was very dry with extreme varieties of temperature. On the 28th the maximum temperature was 92°, which broke all former records for April.

CHARLES CITY.—*Ed. W. McGaun*. The mean temperature, 50.3°, is 4.0° above the normal and the maximum, 92°, on the 29th, is the highest on record at this station. The minimum, 22°, on the 23d, is the lowest recorded during the last decade of the month. The severe freezing temperature on the 17th, 20th, 22d, 23d, 24th and 25th, destroyed the bloom on all varieties of fruit trees, the leaves being frozen black. The first chimney swallows arrived on the morning of the 20th, eight days earlier than last year. At the close of the month all vegetation was suffering from the great lack of moisture, especially meadows and pastures.

CHARITON.—*C. C. Burr*. The season was very favorable until the 16th, when low temperatures did much damage to all vegetation. Some corn planted and a large area is ready to plant but the soil is too cold. Pasturage is fair but rain is needed badly.

CLINTON.—*Dr. Luke Roberts*. Freezing temperature on the 17th, 18th, 23d and 29th killed much of the vegetable crops and all kinds of fruit blossoms. The first decade was abnormally warm and the mean temperature for the month, 52.6°, was above the normal. Fifty-two per cent of cloudiness. Streams low, but rising slowly. Ground in good condition.

DAVENPORT.—*J. M. Sherier*. Two notable cold periods occurred during the month, the first extending from the 16th to the 20th, and the second from the 22d to the 26th. Both cold spells were attended by snow that generally melted as it fell.

DENISON.—*W. C. Van Ness*. Leaves were out and of good size on box elders and maples and lilacs were in blossom when the hard freeze came on the 16th and 17th.

DUBUQUE.—*J. H. Spencer*. With only one exception the maximum temperature, 87° on the 29th, was the highest ever recorded at this station during April. The first fifteen days were very warm, but the following ten days were exceptionally cold for the season, with the minimum below freezing on seven days. Apple, cherry, and other fruit trees were in full bloom by the 10th of the month, and the freeze on the 16th, 17th and 18th did great damage. It was small, however, compared to the damage resulting from the freeze of the 23d and 24th. On the 23d the temperature was below the freezing point all day, with a maximum of 30° and a minimum of 22°. It was the coldest day, by several degrees, ever recorded so late in the spring. Great damage resulted to such fruit, garden truck, etc., as was not killed during the previous week. By the morning of the 24th ice had formed one-half of an inch thick in tubs of standing water. The ground froze hard on the morning of the 23d and the 24th. The damage to ornamentals was great. Few

trees or shrubs escaped injury, and the foliage on some varieties, such as soft maples, box elders, wistaria, Virginia creepers, etc., was entirely frozen.

ELLIOTT.—*Henry Barnes*. Killing frosts and unseasonable weather during the latter part of the month proved fatal to fruit prospects. Corn land nearly all prepared for planting and some planting done during the latter part of the month.

ELMA.—*H. A. Moore*. Snow fell all day on the 23d with high northwest wind, which drifted the snow and made regular blizzard conditions. Ice formed one inch thick.

FAIRFIELD.—*Prof. R. Monroe McKenzie*. The season was very early at the first of the month; fruit trees were in full bloom in March. Much fruit was killed by the freezing temperature on the 17th and 18th. The blossoms and leaves were frosted black in the storm of the 23d. The rain was needed, however, for grass.

FOREST CITY.—*J. A. Peters*. The 29th was the warmest April day on record here. The freeze of the 17th and 24th practically killed all fruit and leaves are falling off the trees, but small grain was not injured. The month was very dry and crops and grass need rain. Some corn planted.

GRAND MEADOW (Postville P. O.)—*F. L. Williams*. The temperature ranged from 20° to 89°. Grass is very forward and small grain is looking well. Leaves came early but were nearly all killed by the freeze on the 17th and 23d, but are appearing for the second time.

GREENFIELD.—*R. B. Oldham*. All of the corn ground has been plowed and a good start has been made in planting.

GRINNELL.—*D. W. Brainard*. The month was remarkable for the extremes of temperature from winter cold to midsummer heat.

HAMPTON.—*E. C. Grenelle*. Plums and cherries, being in full bloom, were about all killed by the hard freeze on the 17th and apples were killed on the 23d.

INWOOD.—*T. B. Hanson*. All vegetation has been checked by the severe freeze and lack of rain. Preparation of corn ground has progressed nicely.

JEFFERSON.—*G. W. Jackson*. Snow fell all day on the 17th, but melted as fast as it fell.

KEOKUK.—*U. S. Weather Bureau*. Owing to high temperature of March and the first half of April all vegetation was a month in advance of the season. The cold spell, with snow from the 16th to 18th, did great damage to fruit and gardens, and the more severe cold spell from the 22d to 24th, when the temperature fell to 23°, 6° colder than any previous record during the last decade of the month of April, increased the damage. Forest trees, which were in full leaf, are wilted and the leaves are falling. Wheat, oats and grass seem to have suffered no damage, and in a few fields where corn had already been planted, and was above the ground, plants frozen down, are again sprouting.

LAMONI.—*T. J. Fitzpatrick*. The month was remarkable for drouth and bad freezes.

LARRABEE.—*H. B. Strever*. Clear, dry weather prevailed during most of the month with extremes of heat and cold during the last

decade. Fruit trees were in bloom very early and were greatly damaged by freezing weather.

LEON.—*J. Morris Gardner*. Ice formed 1 inch thick on the 17th.

MT. Ayr.—*A. F. Beard*. Up to the 16th, prospects for fruit were never better. Severe freeze on 17-18 and 23-24 killed most of the fruit.

NORTHWOOD.—*Chas. H. Dwelle*. Ground is in fine condition for corn planting but rain is needed for small grain and pastures.

POCAHONTAS.—*L. E. Hronek*. April was unfavorable for crops and fruits. Heavy frost killed all blossoms. Oats at a standstill on account of dry, cold and windy weather. Corn planting just begun.

RIDGEWAY.—*Arthur Betts*. Warmest April in 12 years of record. Eleven inches of snow fell between the 15th and 25th.

ROCK RAPIDS.—*W. C. Wyckoff*. Snow flurries occurred on the 15th and 16th and 6 inches of snow fell on the 17th, with a regular blizzard.

SHELDON.—*A. W. Beach*. Not enough rain to make crops do well. Frosts of the 16th, 17th and 23d killed most of the fruit and garden truck and damaged oats badly. Some reseeding is being done.

STIOUX CITY.—*U. S. Weather Bureau*. The first decade of April, like the whole of March, was dry and warm, thus giving vegetation a much better start than usual. A cold spell set in on the evening of the 14th attended by moderate showers which turned to snow on the 15th and continued until the 18th, doing much damage to fruit trees, at that time in blossom, and vegetation generally. As a result of the low temperatures that obtained during this period, nearly all of the trees lost their leaves and the fruit crop will be nearly a failure. This wet and cold spell was followed by dry weather until the close of the month with frequent high winds, reaching a velocity of 65 miles an hour from the north on the 23d. On the 28th the maximum temperature of 98° was the highest ever recorded at this station during the twenty-one years of its existence.

STOCKPORT.—*C. L. Beswick*. First half of month gave ideal May weather but the latter half was more like March than April. Considerable corn planted. Stock in pasture but cold has retarded growth of grass as well as small grain.

WAPELLO.—*G. W. Schofield*. The month was favorable for farm work but it gave the highest as well as the lowest temperature recorded in April for many years. Plowing mostly done and some corn planted.

WASHITA.—*H. L. Felter*. The Temperature was down to freezing or below on 14 mornings, doing great damage to fruit.

WAUKEE.—*Samuel F. Foft*. The freeze on the 17th, 23d and 24th killed about all the fruit and most of the new growth on the trees but did but slight damage to small grain. Corn planting in progress.

WAVERLY.—*H. S. Hoover*. Lilac leaves were 1.5 inches long and 1 inch wide on April 1st. Plum blossoms out on the 6th and in full bloom on the 9th. After the severe freezes, the plums, cherries and apples were all frozen. During the last four days apple and cherry blossoms show some life and vigor.

CLIMATOLOGICAL DATA FOR IOWA, APRIL, 1910

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days	No. partly cloudy days			No. cloudy days
NORTHERN SECTION																				
Algona	Kossuth	1,213	37	52.2	+6.0	95	28	21	17	45	0.29	-2.19	0.09	5.0	4	15	8	7	n	Dr. F. T. Seeley
Alta	Buena Vista	1,513	19	51.2	+4.5	95	28	19	17	47	1.05	-1.98	0.35	4.5	6	14	11	5	n	D. E. Hadden
Alta [near]	Buena Vista																			W. J. Minard
Alton	Sioux	1,305	5	52.5		95	28	20	17	50	1.25	-1.94	0.25	4.5	7	7				W. S. Slagle
Belmond	Wright			51.6		93	28†	21	17	44	1.04		0.61	3.0	8	5	18	7	nw	G. P. Hardwick
Britt	Hancock	1,236	13	51.3	+5.6	92	28	20	17	45	0.91	-1.80	0.75	1.7	5	15	6	9	s	L. M. Goodman
Charles City	Floyd	1,015	19	50.2	+3.9	92	29	22	17	42	0.88	-1.95	0.23	1.6	9	8	9	13	n	Weather Bureau
Clear Lake	Cerro Gordo	1,241	12	52.3	+5.3	84	27†	22	17	41	0.20	-1.44	0.10	2.0	2	19	3	8	nw	Oscar Stevens
Decorah	Winneshiek	875	17	51.3	+3.6	93	29	20	17†	42	2.56	+0.06	0.70	4.5	8					F. H. Baker
Elkader	Clayton	727	31	51.5	+3.5	92	29	21	23	46	3.16	+0.47	1.20	7.0	9	17	4	9	ne	Chas. Reinecke
Elma	Howard			50.2		91	29	20	17	43	1.61		0.42		12	14	7	9	nw	H. A. Moore
Estherville	Emmet	1,298	15	51.0	+4.7	93	28	20	17	45	0.95	-1.26	0.33	4.5	4	17	0	13	nw	A. O. Peterson
Fayette	Fayette	1,003	20	50.7	+4.2	93	29	20	17†	43	3.03	+0.01		8.3	10	15	5	10	nw	R. Z. Latimer
Forest City	Winnebago	1,226	16	51.5	+5.0	94	28	19	17	50	0.15	-2.22	0.15	1.0	1	15	8	7	w	J. A. Peters
Grand Meadow	Clayton	1,180	19	51.3	+4.5	89	29	20	17†	37	2.91	-0.06	1.00	8.2	11	12	8	10	nw	F. L. Williams
Greene	Butler		12	53.1	+5.0	95	29	22	17	44	0.84	-1.39	0.37	3.5	5	5	13	12	s	J. L. Cole
Hampton	Franklin	1,155	20	52.6	+5.3	93	28†	20	17	41	0.93	-2.35	0.38	3.2	5	12	7	11	nw	E. C. Grenelle
Humboldt	Humboldt	1,095	22	53.4	+5.1	96	28	22	17	48	0.38	-2.23	0.12	2.0	5	17	7	6	nw	H. S. Wells
Inwood	Lyon	1,474	6	51.9		89	28	20	6†	50	1.40		0.60	4.3	7	19	5	6	nw	F. B. Hanson
Larrabee	Cherokee	1,266	20	51.6	+4.1	96	28	20	17	45	1.12	-1.60	0.54	5.6	5	18	9	3	sw	H. B. Strever
Le Mars	Plymouth	1,224	14	52.2	+4.2	94	28	20	17	44	0.98	-2.21	0.36	T	5	14	11	5	nw	G. A. C. Clarke
Mason City	Cerro Gordo	1,133	13	51.0	+3.3	91	28	20	17	43	0.31	-2.34	0.14	1.4	5	16	5	9	nw	J. S. Mills
New Hampton	Chickasaw	1,169	13	51.4	+4.5	90	29	19	17	40	1.64	-0.31	0.51	5.0	7	16	5	9	s	A. F. Kemman
Northwood	Worth	1,222	14	50.9	+4.4	89	28	21	17	43	0.98	-1.18	0.50	8.5	7	15	8	7	nw	Charles H. Dwelle
Osage	Mitchell	1,184	23	54.4	+9.0	91	28†	20	17	40	0.35	-2.10	0.25	4.5	2	14	8	8	nw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	14	51.6	+5.0	96	28	20	17	51	0.22	-1.28	0.10	2.0	4	20	8	2	nw	J. S. Smith
Pocahontas	Pocahontas	1,248	6	51.6		94	28	22	17	44	0.23		0.11	1.6	3	15	8	7	s	F. E. Hronek
Ridgeway	Winneshiek	1,215	12	52.2	+4.6	92	29	20	17†	41	3.52	+1.18	0.71	11.0	11	15	8	7	s	Arthur Betts
Rock Rapids	Lyon	1,358	11	52.1	+5.9	85	27†	15	5	42	0.86	-1.81	0.60	6.0	2	15	8	7		W. C. Wyckoff
Sheldon	O'Brien	1,422	10	52.4	+5.3	98	28	19	17	51	2.45	+0.72	0.85	9.5	6	20	5	5	nw	Dr. A. W. Beach
Sibley	Osceola	1,212	17	49.0	+2.9	94	28	20	17	56	1.26	-1.07	0.67	5.2	6	19	5	6	nw	H. G. Doolittle
Sioux Center	Sioux		11	51.6	+5.6	94	28	20	17	47	0.85	-1.35	0.34	4.0	4	15	6	9	nw	J. de Ruyter
Storm Lake	Buena Vista	1,440	21	50.6	+5.2	89	28	20	24	e45	0.55	-1.79	0.34	5.0	5	16	9	5		S. B. Fracker
Washta	Cherokee	1,157	12	51.1		96	28	21	6†	46	0.55	-1.55	0.30	2.0	5	19	5	6	s	H. L. Felter
Waverly	Bremer	948	14	52.2	+5.2	92	29	23	17†	38	2.00	-0.69	0.92	2.8	10	10	12	8		H. S. Hoover
West Bend	Palo Alto	1,197	17	53.3	+7.0	93	28	24	16†	36	0.35	-2.37	0.18	3.0	4	11	10	9		Phil Dorweiler
Average				51.7	+4.9	93		20		45	1.18	-1.29		4.3	6	15	7	8	nw	
CENTRAL SECTION																				
Amana	Iowa	721	34	52.3	+3.7	88	29	23	24	36	2.62	-0.29	1.15	3.4	13	14	7	9	nw	Conrad Schadt
Ames	Story	926	34	53.6	+4.5	95	29	20	17	50	0.50	-2.17	0.20	1.0	4	11	10	9	s	Iowa State College
Audubon	Audubon	1,301	16																	Geo. E. Kellogg
Baxter	Jasper	998	10	52.8	+4.0	92	29	19	17	39	2.25	-0.62	1.49	2.5	13	13	9	8	sw	W. R. Vandike
Belle Plaine	Benton	828	20	52.2	+3.3	90	29	22	24	43	1.69	-1.62	0.60	8.0	8	15	5	10	w	S. P. VanDike
Boone	Boone	1,134	5	52.2		93	29	20	17	42	0.84		0.43	1.0	7	14	6	10		Carl Fritz Henning
Buckingham	Tama		10								1.75	-0.32	1.05	T	4	14	8	8		Dr. W. A. Daniel
Carroll	Carroll	1,265	20	50.2	+2.1	94	27	20	16†	49	0.20	-3.00	0.10	1.0	2	12	9	9	nw	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	28	51.4	+1.7	90	29	24	24	38	2.51	-0.23	1.40	2.0	9	17	2	11	w	W. J. Greene
Clinton	Clinton	593	43	52.6	+4.0	90	29	22	24	40	3.55	+0.54	0.75	2.5	11	12	5	13	nw	Luke Roberts
Davenport	Scott	580	39	52.0	+1.8	87	29	22	23	34	3.69	+0.81	1.28	0.6	16	13	6	11	nw	Weather Bureau
Delaware	Delaware	1,083	19	52.0	+6.2	86	29	21	24	40	2.96	+0.18	0.90	4.4	11	15	4	11	sw	Wm. Ball
Denison	Crawford	1,180	16	52.6	+4.5	a95	28	b21	18	b55	0.21	-3.24	0.09	1.0	4	17	7	6	s	W. C. Van Ness
Des Moines	Polk	861	31	53.2	+2.6	92	29	22	17	38	1.13	-1.85	0.30	0.7	10	8	8	14	n	Weather Bureau
De Soto	Dallas	866	10	53.6	+3.9	94	29	21	17	48	1.62	-1.16	1.32	0.5	5	13	5	12	nw	R. D. Minard
Dubuque	Dubuque	639	37	51.4	+2.5	87	29	22	23	35	3.40	+0.48	1.40	7.6	14	11	6	13	s	Weather Bureau
Fort Dodge	Webster	1,126	10	52.0	+4.6	95	28	21	24	49	0.35	-2.82	0.10	2.0	4	17	0	13	n	J. F. Monk
Gilman	Marshall	1,052	11																	Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	56.0	+5.7	92	29	28	17	36	2.75	-0.63	0.90	1.2	9	13	10	7	w	D. W. Brainard
Grundy Center	Grundy	976	19	53.0	+5.6	95	29	20	17	50										J. B. Calderwood
Guthrie Center	Guthrie	1,077	15	53.7	+4.4	93	28	22	17	49	0.81	-1.93	0.30	1.5	6	15	10	5	nw	D. G. Beardsley
Harlan	Shelby	1,182	11	52.7	+4.4	94	28	22	17	55	0.17	-2.29	0.06	1.2	3	9	14	7	nw	C. A. Reynolds
Independence	Buchanan	921	46	51.9	+2.5	88	29	20	17	41	1.47	-0.91	0.69	3.0	5	16	2	12	nw	George Donohoe
Iowa City	Johnson	683	50	50.0	+1.5	88	29	22	18	39	2.56	-0.58	1.16		11	15	3	12	se	Arthur G. Smith
Iowa Falls	Hardin	1,170	17	50.0	+3.3	93	29	19	17	48	1.72	-1.16	0.62	2.0	7	15	3	12	nw	J. B. Parmelee
Jefferson	Greene		11	53.8		95	28†	26	23	48	0.37	-2.23	0.25	1.2	4	15	6	9	s	Geo. W. Jackson
Le Claire	Scott	576	10								2.51	+0.14	0.50	4.7	11					Margaret T. Disney
Little Sioux	Harrison		5	a54.8		a98	28	a21	17	a52	0.59		0.26	2.5	5					Geo. H. Gibson
Logan	Harrison	928	43	54.2	+4.3	95	28	22	17	56	0.25	-2.56	0.20	2.5	2	16	6	8	nw	Glenn H. Stern
Marshalltown	Marshall	947																		

CLIMATOLOGICAL DATA FOR IOWA, APRIL, 1910—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				No. rainy days	Sky			Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours		Total snowfall (unmelted)	Number clear days	Number partly cloudy days			Number cloudy days
SOUTHERN SECTION																				
Afton	Union	1,212	16	53.5	+3.1	91	29	24	17	40	1.16	-3.21	0.48	.....	7	12	13	5	sw	N. W. Rowell
Albia	Monroe	959	12	50.8	+1.2	89	29	21	24	37	2.02	-0.81	0.90	2.0	11	14	5	11	sw	J. I. Chenoweth
Allerton	Wayne	.....	8	53.2	+2.9	90	29	23	24	38	2.26	-0.94	0.88	1.4	9	14	6	10	nw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	19	53.9	+5.2	94	28	23	17	52	0.30	-2.76	0.11	1.0	4	8	7	15	nw	Thos. H. Whitney
Bedford	Taylor	.....	10	53.6	+4.3	92	29	22	23	48	1.01	-1.80	0.32	0.8	9	11	11	8	nw	E. E. Healy
Bloomfield	Davis	.....	3	53.3	.....	b91	29	b20	23	b41	2.69	.....	1.12	.....	8	11	10	9	.....	C. R. Davis
Bonaparte	Van Buren	.....	19	52.5	+2.3	89	29	23	24	37	3.09	-0.26	1.32	4.1	14	.....	.....	.....	.....	Hon. B. R. Vale
Burlington	Des Moines	544	14	52.4	+0.9	90	29	22	24	37	4.86	+1.70	1.28	10.5	10	17	0	13	sw	M. E. Poppe, Jr.
Centerville	Appanoose	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.96	.....	1.24	T	10	15	4	11	w	Gordon Peacock, Jr.
Chariton	Lucas	1,042	15	52.8	+6.3	89	29	23	17	45	0.42	-2.71	0.12	2.0	4	15	0	15	se	C. C. Burr
Clarinda	Page	1,009	20	52.2	+1.3	94	28	24	17	48	1.94	-1.25	0.98	1.3	7	15	1	14	nw	A. S. Van Sandt
Columbus Junction	Louisa	595	9	53.8	+4.1	88	29	23	23†	36	3.04	+0.26	1.00	4.5	10	16	5	9	nw	J. B. Johnston
Corning	Adams	1,117	18	52.6	+2.8	93	28	23	17	50	0.21	-2.92	0.15	T	2	18	2	10	nw	Jerome Smith
Corydon	Wayne	1,101	17	53.1	+2.1	89	29	24	24	42	2.53	-0.63	1.50	0.9	9	11	7	12	nw	Clara Miller
Creston	Union	1,312	5	52.1	.....	91	29†	24	17†	48	0.79	.....	0.46	.....	7	15	2	13	nw	E. S. Stovall
Cumberland	Cass	.....	11	.....	.....	.....	.....	.....	.....	.....	0.20	-1.89	0.11	T	3	19	3	8	sw	J. H. Reppert
Earlham	Madison	.....	8	53.0	+5.2	91	29	24	17	44	2.23	-1.43	1.68	3.0	8	14	7	9	nw	Geo. Phillips
Elliott	Montgomery	.....	5	53.6	.....	93	28	26	23	46	0.32	.....	0.16	T	3	13	14	3	nw	Henry Barnes
Fairfield	Jefferson	.....	26	a52.2	+2.4	86	29	a19	23	a35	3.18	-0.30	1.07	2.1	16	14	7	9	nw	R. Monroe McKenzie
Fort Madison	Lee	516	61	.....	.....	.....	.....	.....	.....	.....	3.19	+0.01	0.98	6.0	7	7	5	18	sw	Miss L. A. McCready
Greenfield	Adair	.....	18	53.2	+3.4	92	28	22	17	42	1.93	-1.25	1.45	T	6	16	10	4	nw	R. B. Oldham
Hancock	Pottawattamie	1,113	5	52.2	.....	94	28	22	17	54	0.10†	.....	0.10	1.0	1	15	8	7	nw	G. C. Rogers
Hopeville	Clarke	.....	19	53.8	+4.1	90	29	24	17	40	1.14	-2.09	0.39	.....	9	10	11	9	.....	M. T. Ashley
Indianola	Warren	969	19	a51.1	+3.4	a91	29	a23	17	a37	0.56	-2.84	0.28	0.6	8	3	12	15	nw	Prof. J. L. Tilton
Keokuk	Lee	574	39	54.4	+2.4	90	29	23	24	34	2.91	-0.43	1.25	T	12	10	10	10	nw	Weather Bureau
Keosauqua	Van Buren	644	18	51.4	-0.2	89	29	24	24	42	3.25	-0.44	1.83	7.8	10	6	11	13	.....	J. H. Landes
Knoxville	Marion	920	15	54.7	+3.5	90	29	24	17	39	0.85	-2.40	0.24	1.8	9	12	6	12	sw	Casey & Belville
Lacona	Warren	.....	11	.....	.....	.....	.....	.....	.....	.....	1.95	-1.01	0.54	4.0	10	7	19	4	.....	J. B. Alter
Lamoni	Decatur	.....	3	52.9	.....	90	29	24	17†	38	2.15	.....	0.98	1.2	9	13	5	12	nw	T. J. Fitzpatrick
Lenox	Taylor	1,250	15	53.9	+3.9	90	28†	23	17	44	0.66	-2.37	0.25	0.6	7	15	10	5	s	J. L. Hurley
Leon	Decatur	1,120	8	53.0	+1.7	90	29	25	17†	41	1.33	-2.09	0.25	3.0	10	10	9	11	s	Morris Gardner
Massena	Cass	.....	4	52.2	.....	91	28†	22	17	51	1.19	.....	0.41	.....	6	12	11	7	nw	C. E. Smeltzer
Mt. Ayr	Ringgold	1,236	17	54.2	+3.4	92	29	24	17	43	1.42	-1.86	0.37	0.5	12	9	10	11	nw	A. F. Beard
Mt. Pleasant	Henry	729	29	53.0	+1.9	88	29	23	24	31	3.03	-0.18	1.42	5.6	14	12	7	11	sw	J. W. Edwards
Omaha, Neb.	Douglas	1,040	40	55.0	+4.5	94	28	22	17	46	0.26	-2.75	0.20	2.1	4	12	10	8	n	Weather Bureau
Oskaloosa	Mahaska	843	34	53.2	+3.2	89	29	23	24	39	2.49	-0.24	0.90	4.5	13	15	1	14	nw	Jos. Boyd
Ottumwa	Wapello	649	15	55.0	+3.0	92	29	24	24	40	2.52	-0.63	1.16	1.2	12	7	8	15	s	W. J. Mesmer
Pacific Junction	Mills	960	11	53.6	+3.6	94	28	22	23	57	0.11	-2.44	0.06	1.1	2	11	16	3	s	H. H. McCartney
Pella	Marion	877	7	53.2	+3.4	93	29	24	24	44	1.27	-1.25	0.80	2.8	9	18	4	8	nw	John H. Ver Steeg
St. Charles	Madison	1,070	9	55.0	+4.4	92	29	22	17	40	0.60	-2.92	0.20	1.6	7	15	8	7	nw	R. D. Minard
Sigourney	Keokuk	877	14	53.4	+2.2	88	29	22	24	38	3.30	+0.13	1.00	0.5	12	3	21	6	nw	J. T. Parker
Stockport	Van Buren	.....	8	51.8	.....	90	29	22	24	38	3.05	-0.07	1.19	8.0	11	11	5	14	s	C. L. Beswick
Thurman	Fremont	.....	13	55.0	+4.5	95	28	25	17	49	0.13	-3.28	0.08	.....	4	11	13	6	nw	C. R. Paul
Wapello	Louisa	588	12	53.2	+1.8	89	29	25	24	34	2.07	-0.52	0.78	1.5	9	13	7	10	nw	Geo. W. Schofield
Washington	Washington	769	28	52.5	+2.0	89	29	22	24	36	3.11	+0.45	0.93	.....	13	12	6	12	sw	Wm. A. Cook
Winterset	Madison	1,129	19	53.8	+3.4	93	28	23	17	42	0.79	-2.93	0.21	1.5	6	7	11	12	n	Dr. Robert S. Cooper
Woodburn	Clarke	961	11	52.0	.....	95	29	22	20	50	0.57	-2.29	0.34	1.5	8	12	12	6	nw	C. B. McDonough
Average	.....	.....	.....	53.2	+2.9	91	.....	23	.....	42	1.78	-1.86	.....	2.3	8	12	8	10	nw	.....
State average	.....	.....	.....	52.5	+4.0	92	.....	22	.....	44	1.48	-1.35	.....	3.0	7	14	7	9	nw	.....

†And other dates. a one day missing, b two days; c three days, etc. ‡Received too late to be included in averages.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR THE MONTH OF APRIL, 1910—CONTINUED

STATIONS	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		Monthly Mean.					
	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.	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.										
Olin.....	70	45	74	48	80	56	68	43	55	36	67	37	79	50	72	48	79	52	79	57	74	53	66	50	70	46	74	58	59	34	36	27	30	22	36	28	56	30	85	33	76	51	54	37	45	30	48	26	60	32	68	31	58	34	73	43	83	52	94	61	87	60	62	50	66.3	43.6
Omaha, Neb.....	74	36	79	37	80	55	76	45	58	34	72	30	75	45	78	40	84	41	82	48	82	53	77	51	72	45	74	56	66	36	36	25	32	23	37	28	63	31	83	33	79	53	62	42	48	26	60	32	68	29	77	36	86	42	97	54	93	65	74	47	70.8	40.7				
Onawa.....	68	38	74	37	75	49	75	50	66	35	65	32	69	33	72	42	81	43	81	45	75	48	65	33	72	37	74	45	69	42	46	30	46	20	42	28	53	32	69	29	72	44	65	35	36	21	47	25	60	34	72	57	84	67	91	78	91	70	70	54	67.5	41.2				
Osage.....	74	40	76	44	77	51	81	60	60	40	58	34	70	32	70	39	77	38	81	43	73	54	61	40	72	39	74	52	63	46	46	32	34	25	42	29	49	37	66	30	71	44	62	38	38	28	46	23	47	31	67	40	80	45	87	54	89	66	81	47	65.7	40.7				
Oskaloosa.....	76	45	79	48	78	40	82	58	60	40	61	35	70	36	75	51	84	46	86	48	76	51	63	41	80	40	77	55	63	47	48	32	34	27	40	30	47	37	70	32	72	45	64	40	42	28	43	24	45	32	67	42	83	48	88	57	92	68	82	48	67.6	42.4				
Ottumwa.....	72	34	78	36	81	53	70	46	58	37	65	29	80	44	72	42	78	34	82	45	78	46	65	51	72	41	77	56	63	38	38	30	31	24	35	30	56	31	82	25	80	52	60	37	47	22	47	31	60	28	74	33	84	37	94	49	90	58	70	59	68.0	39.3				
Pacific Junction.....	75	36	75	35	76	50	78	61	62	41	61	35	70	31	72	44	81	38	81	44	75	54	64	42	74	40	77	50	68	38	39	31	33	21	44	29	57	33	69	29	76	46	65	36	38	26	49	30	58	37	72	42	85	49	93	52	93	68	73	47	67.3	40.2				
Pella.....	69	37	77	38	76	50	70	50	55	37	62	32	74	36	71	44	81	38	80	40	77	46	68	41	76	37	75	50	67	35	35	25	37	20	40	28	57	29	76	25	77	47	56	35	38	25	44	29	59	29	73	39	85	42	96	50	90	62	63	43	66.5	36.7				
Perry.....	64	30	76	33	76	48	69	45	55	34	62	25	75	35	70	37	80	38	80	40	77	46	68	41	76	37	75	50	67	35	35	25	37	20	40	28	57	29	76	25	77	47	56	35	38	25	44	29	59	29	73	39	85	42	96	50	90	62	63	43	66.5	36.7				
Plover.....	65	33	76	32	74	48	69	43	64	33	63	28	75	39	70	39	82	40	79	46	77	47	68	40	75	40	70	50	58	35	35	24	34	22	36	27	55	30	74	31	78	43	55	32	36	24	44	30	57	30	71	39	84	44	94	55	88	60	60	44	65.5	37.6				
Pocahontas.....	70	36	75	37	76	50	80	56	60	40	60	31	66	36	71	44	81	43	78	48	77	44	59	33	70	37	73	40	63	43	44	26	37	20	42	27	52	34	68	33	71	40	56	31	32	20	50	24	61	33	69	44	86	45	90	51	92	65	66	45	65.8	38.5				
Ridgeway.....	80	38	78	36	72	28	51	20	48	15	63	29	74	38	80	41	78	41	80	41	78	38	81	50	78	50	77	49	49	38	50	25	34	21	38	27	48	29	70	40	68	48	48	38	44	28	58	41	60	48	72	54	85	64	64	44	85	64	68	44	65.3	38.9				
Rock Rapids.....	72	32	76	36	70	40	70	48	50	30	52	29	60	33	75	35	86	48	86	48	78	48	75	45	75	40	65	38	58	30	40	27	38	21	38	29	56	30	58	30	50	28	45	25	35	21	45	28	60	38	70	42	86	45	96	42	95	42	72	42	64.4	35.7				
Rockwell City.....	72	32	76	36	70	40	70	48	50	30	52	29	60	33	75	35	86	48	86	48	78	48	75	45	75	40	65	38	58	30	40	27	38	21	38	29	56	30	58	30	50	28	45	25	35	21	45	28	60	38	70	42	86	45	96	42	95	42	72	42	64.4	35.7				
Sac City.....	76	40	79	43	77	51	78	54	56	36	66	34	71	38	74	47	82	45	84	50	74	55	62	42	75	40	79	53	63	39	48	30	34	22	43	31	55	33	75	35	77	55	65	31	43	26	50	27	53	32	70	43	84	48	91	56	92	68	73	48	68.3	41.7				
St. Charles.....	60	25	76	40	80	50	74	40	57	27	69	25	76	40	82	32	85	40	82	43	81	48	72	42	74	40	70	42	60	30	35	21	35	19	36	29	65	29	78	32	74	47	50	36	44	21	65	30	70	27	78	34	87	36	98	55	82	58	65	42	64.6	33.5				
Sheldon.....	62	23	76	37	79	38	59	43	52	31	68	26	75	27	74	33	83	33	81	39	81	47	72	41	74	41	71	41	40	40	30	24	33	20	34	21	55	28	76	31	70	34	43	36	42	21	52	22	62	26	74	30	86	38	94	38	80	55	61	42	64.6	33.5				
Sibley.....	72	37	74	40	77	50	81	59	69	40	59	33	70	34	71	42	77	39	80	46	78	51	63	40	71	37	74	47	64	50	50	30	55	25	38	27	44	36	65	30	68	42	68	42	42	26	43	22	45	31	66	41	80	47	85	53	88	65	80	42	66.6	40.1				
Sigourney.....	60	37	75	37	80	50	69	39	53	30	67	30	74	40	73	38	81	43	79	45	78	48	67	45	69	40	69	52	56	30	30	22	32	20	34	28	54	30	78	31	69	47	50	36	48	22	52	30	61	28	73	36	84	50	94	54	83	58	62	45	65.1	38.0				
Sioux Center.....	64	41	75	43	77	54	65	40	56	33	66	32	76	47	74	39	80	48	78	52	79	54	65	49	67	46	71	53	53	29	33	23	31	21	35	28	57	31	82	38	70	48	49	33	45	25	53	32	62	35	75	37	84	44	98	62	79	52	60	45	65.3	40.5				
Sioux City.....	71	34	74	39	75	51	78	56	58	38	58	35	67	29	71	49	77	39	78	41	74	51	63	42	70	35	71	47	67	50	50	30	33	25	39	27	44	36	65	27	70	40	58	40	40	25	38	22	43	30	63	39	77	44	83	53	90	65	74	46	64.0	39.5				
Stockport.....	62	31	71	39	74	52	74	44	51	34	64	29	72	41	81	40	78	52	76	52	76	52	76	76	40	72	42	58	32	32	21	30	21	35	21	53	30	76	32	56	39	44	20	57	30	70	38	90	45	82	61	63	44	63.9	37.2											
Storm Lake.....	75	38	71	36	72	55	70	50	55	35	63	33	71	40	72	44	79	41	80	46	71	45	65	45	71	48	72	44	60	39	39	32	42	29	55	31	51	32	74	31	78	33	66	36	41	26	48	35	58	34	72	46	83	48	91	55	91	65	76	46	67.1	40.6				
Stuart.....	74	38	75	31	82	57	76	47	58	38	64	30	78	52	72	46	78	32	80	42	73	46	68	51	72	38	75	58	66	39	41	31	34	25	38	28	58	31	83	34	81	51	65	45	47	29	50	32	59	34	75	32	84	36	95	55	90	66	81	50	69.2	40.8				
Thurman.....	72	39	73	45	75	55	78	60	70	43	68	40	66	38	72	51	76	47	79	52	76	53	64	40	71	37	73	47	68	53	53	33	34	28	39	30	44	37	66	33	71	44	59	41	41	25	41	25	45	32	64	41	73	47	83	52	87	63	80	51	65.4	42.7				
Tipton.....	69	40	73	34	74	51	78	57	64	40	57	33	68	31	68	47	76	37	77	43	73	54	62	37	69	36	73	48	70	45	45	30	33	21	39	29	46																													

IOWA WEATHER AND CROP SERVICE.

DAILY PRECIPITATION FOR IOWA, APRIL, 1910—Continued

STATIONS	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				
St. Charles			T	T	.20							.16		.03		T	.16	.01					.01	.03									0.60	
Sheldon				T							.05			.25	.85	.25	.75	.30				T	T										2.45	
Sibley												.03			.67	.11	.20	.22					.03										1.26	
Sigourney					1.00	.30					T	.40			.25	.15	.12	.12	.02				.50	.02	T	.09						.33	3.30	
Sioux Center				T							T	T		.21	.34	.10	.20																0.85	
Sioux City				T							T	T		.20	.50	.04	.08	T														T	0.82	
Stockport		T		T	1.19	.88					T			T	.15	.15	.20	.07	.01				T	T	.05	.05	.11					.19	3.05	
Storm Lake														.15	.11	*	.34															.05	0.55	
Stuart			.28	T								.50		.48	.10	.05								T									1.41	
Thurman		T					T				T	T		.02		.01	.08	T							.02							T	0.13	
Tipton				*	1.28		.03								*	*	.32						.45	.12		.09						.22	2.51	
Toledo				.45	T	.50	T				.08			.45	.03	.08	.03	T					.40	.03		.07							2.12	
Wapello			.16	.78	.23									T	.20	.14	.10					T	T	.01	T	.20						.25	2.07	
Washington				.86	*	.93								.12		.14	.12	.06					.22	.01	.02	.10	.11					.42	3.11	
Washta											.05			.30		.10	.05								.05									0.55
Waterloo				.73	.34			.04			.05			.36	.26	.05	T					.11	.14	.07	.02								2.17	
Waukee			T	.91	.11		T				.05	.10		.02	.02	.01	.02	.01				T	.02	.02	.02								1.31	
Waverly				.92	.12									.40	.10	.13	.04					.10	.05	.03	.11								2.00	
Webster City											T			T	T	.10						T	T									T	0.10	
West Bend			T								.03			.04			.18						.10										T	0.35
Whitten				1.00	.12						T				T	.10	T						.10											1.32
Winterset			T	.12	.21							.14		T	.13	T	.10	T					T	.09	T							T	0.79	
Woodburn		T	T	T	.01						.01			.31	.03	T	.05	.05					.06	T	.05	T						T	0.57	
Zearing				.28										.04	.02	.03	.01						.04	.05										0.47

* Precipitation included in that of the next measurement.
 | 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.

TOTAL PRECIPITATION, APRIL, 1910.
 SCALE OF SHADES—IN INCHES



U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR MAY, 1910

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

DES MOINES, IOWA
EMORY H. ENGLISH, STATE PRINTER
1910

JUL 2 1910

THE IOWA WEATHER AND CROP SERVICE

WAS ESTABLISHED BY ACT OF THE TWENTY-THIRD GENERAL ASSEMBLY, AND IS UNDER SUPERVISION
OF THE
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CONSTITUTED AS FOLLOWS:

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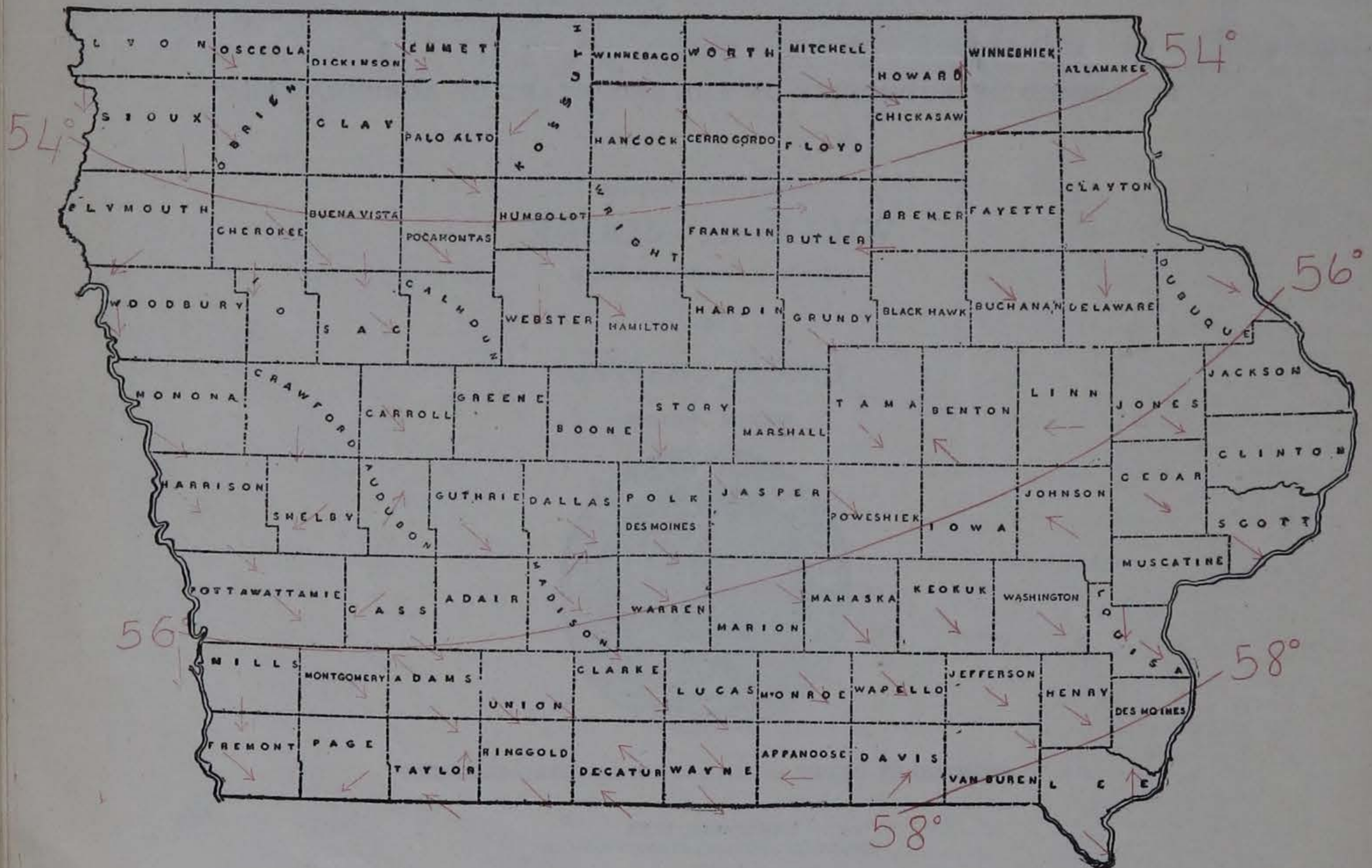
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MEAN ISOTHERMS AND PREVAILING WINDS OF MAY, 1910.

Lines pass through points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
 CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
 GEO. M. CHAPPEL, Section Director.

VOL. XXI DES MOINES, IOWA, MAY, 1910 No. 5

JUNE CROP REPORT.

The crop season of 1910 opened much earlier than usual. March and the first half of April was warm, dry and abnormally pleasant, affording an unusual opportunity for field work and favorable conditions for the growth of vegetation. At the end of March nearly all of the wheat and about 50 per cent of the oats had been seeded and a large acreage of ground had been prepared for corn. By the middle of April all small grain had been sown and considerable corn had been planted. The latter half of April and all of May was exceptionally cold and generally dry so that by the end of May the season, so far as the growth of vegetation was concerned, was 10 days to 2 weeks behind the average.

CORN.—Owing to the fact that much of the meadows, pastures and fall grains were winter killed and to the favorable conditions for preparing the ground, the acreage of corn has been increased about 2 per cent. The stand is, however, from 25 to 30 per cent below the average on account of poor seed, activity of cut and wire worms, and the continued cold weather which prevented germination, and the growth of the plants so that the condition on June 1st was 79 per cent. Last year at corresponding date the condition was rated at 94 per cent. The soil is in exceptionally fine physical condition and with favorable weather during June the condition of corn will improve rapidly.

WINTER WHEAT.—There has been a decrease of about 9 per cent in the acreage of winter wheat owing to winter killing, so the estimated acreage on June 1st was 91 per cent and the condition 88 per cent. Last year the condition was 92 per cent.

SPRING WHEAT.—Acreage decreased 1 per cent, making present acreage 99 and the average condition, 96 per cent. Last year the condition on June 1st was 94 per cent.

OATS.—The acreage of oats is placed at 100 per cent and the condition at 94, as compared with a condition of 90 per cent last year.

BARLEY.—Acreage seeded, compared with last year, 93 per cent, and the average condition, 93 per cent. Last year the condition was 94 per cent.

RYE.—Acreage, 94; estimated condition, 90 per cent as compared with 94 per cent last year.

FLAX.—Area seeded, 97 per cent; condition, 90 per cent.

POTATOES.—Acreage planted, 100 per cent; condition, 97 per cent. Last year condition 96 per cent.

MEADOWS.—There has been a reduction of about 3 per cent in the area of meadows, the acreage being 97 per cent. The condition 79 per cent as compared with 97 per cent last year. Grass started early this spring but the condition has been reduced by drouth and much freezing weather during April and continued subnormal temperature during May.

Pastures are about 99 per cent in acreage and 81 per cent in condition as compared with a condition of 97 per cent last year.

POP CORN.—The acreage is 100, and the condition is 85 per cent.

SWEET CORN FOR CAN.—Acreage, 102; condition, 82 per cent.

CONDITION OF FRUIT—As Compared With an Average Crop.—Apples, 12 per cent; plums, 7; peaches, 2; grapes, 31; cherries, 8; strawberries, 46; raspberries, 32; blackberries, 48 per cent.

CONDITION OF LIVE STOCK.—Cattle, 97 per cent; hogs, 97; horses, 99; sheep, 98; foals, 93; spring pigs, 91 per cent.

The acreage of crops cannot be tabulated until the returns of the township assessors are received from all the counties. The complete report of acreage will be published in July.

GENERAL SUMMARY

The weather was abnormally cold, and except over the extreme southern counties was unusually dry. The temperature was uniformly low, there being only four or five days during the month when the daily mean was above the normal and on those days the excess was very slight. There are very few, if any cases on record in the State where the monthly maximum temperatures for May were as low as during the past month. Freezing temperature occurred on one or more days in nearly all parts of the State but as practically all the fruit was killed during the April freeze, there was little damage done.

The rainfall was well distributed throughout the month but the monthly, weekly and daily amounts were small and below the normal for May except in the southern counties where there was an excess during the week from the 15th to the 21st inclusive, which brought the monthly amounts for that district, slightly above the normal. There were less than the usual number of thunderstorms and wind-squalls.

Owing to poor seed and continuous cold weather much of the corn failed to germinate and over 50 per cent of the corn acreage was planted the second and in many fields the third time, but with all the extra work there will not be over 65 to 75 per cent of an average stand; cut and wire worms were very active, especially on sod ground and the damage wrought by these insects has aided in cutting down the stand. The cold weather also prevented the normal growth of all vegetation and the drouthy conditions over the larger part of the State has seriously reduced the prospects of an average hay crop. Pasturage is short but the grass is of better quality than usual at the end of May. Small grains have made steady but slow improvement and are generally in good condition.

The shade and fruit trees that lost their foliage by the severe freeze in April have put forth new leaves and at the end of the month are about as far advanced as they were on April 15th.

The near approach of Halley's Comet to the earth on the 18th caused no unusual meteorological phenomena.

TEMPERATURE.—The monthly mean temperature for the State, as shown by records of 115 stations, was 55.4°, which is 4.7° below the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 54.1°, which is 4.4° below the normal; Central section 55.8°, which is 4.4° below the normal; Southern section 56.4°, which is 5.2° below the normal. The highest monthly mean was 59.0°, at Keokuk, Lee county, Ottumwa, Wappelo county, and Grinnell, Poweshiek county, and the lowest monthly mean 52.0°, at Sibley, Osceola county. The highest temperature reported was 89°, at Mt. Pleasant, Henry county, on the 21st; the lowest temperature reported was 18°, at Washta, Cherokee county, on the 3d. The average monthly maximum was 81°, and the average monthly minimum was 30°. The greatest daily range was 50°, at Sheldon, O'Brien county. The average of the greatest daily ranges was 39°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 122 stations, was 3.41 inches, which is 1.09 inches below the normal. By sections the averages were as follows: Northern section, 2.59 inches, which is 1.96 inches below the normal; Central section, 3.05 inches, which is 1.42 inches below the normal; Southern section, 4.58 inches, which is 0.11 inch above the normal.

The greatest amount, 6.91 inches occurred at Lamoni, Decatur county, and the least, 1.29 inches, at Plover, Pocahontas county. The greatest amount in twenty-four hours, 2.99 inches, occurred at Keokuk, Lee county, on the 1st and 2d. Measurable precipitation occurred on an average of 10 days.

Traces of snowfall occurred at four widely scattered stations.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 15; partly cloudy, 7; cloudy, 9. The duration of sunshine was about the normal, the percentage of the possible amount being 77 at Charles City; 68 at Davenport; 55 at Des Moines; 64 at Dubuque; 60 at Keokuk, and 51 at Sioux City.

WIND.—Northwest winds prevailed. The highest velocity reported was 38 miles per hour from the east, at Sioux City, Woodbury county, on the 1st.

COMPARATIVE DATA FOR THE STATE—MAY.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	57.7	90	26	3.56	6.44	1.61
1891.....	58.3	94	21	3.18	7.10	1.46
1892.....	54.0	88	29	8.77	12.64	4.87
1893.....	56.6	96	26	3.45	5.82	1.65
1894.....	61.1	96	22	1.87	4.77	0.33
1895.....	61.7	104	24	3.19	5.79	0.84
1896.....	65.5	100	34	6.69	11.79	3.40
1897.....	58.5	96	20	1.92	3.59	0.21
1898.....	59.6	92	26	4.67	7.82	2.22
1899.....	60.2	90	27	6.23	11.47	3.09
1900.....	63.2	98	22	3.31	6.98	0.96
1901.....	60.7	95	28	2.35	4.57	0.72
1902.....	63.8	97	25	5.39	18.04	0.87
1903.....	61.6	91	24	8.55	15.45	2.88
1904.....	59.6	93	27	3.78	8.15	1.50
1905.....	58.3	88	28	5.95	10.83	2.57
1906.....	60.8	95	24	3.54	10.72	0.89
1907.....	53.5	96	14	3.48	7.68	0.71
1908.....	59.4	93	13	8.34	14.33	4.33
1909.....	57.9	97	18	4.34	7.85	1.86
1910.....	55.4	89	18	3.41	6.91	1.29

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.03 inches.
Prevailing direction of Wind, Northwest.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum Velocity—miles	Direction	Date	Average Hourly Velocity
Charles City..	30.04	30.55	4	29.67	20	5644	28	NW	17	7.6
Davenport..	30.02	30.54	4	29.69	23	6068	29	W	29	8.2
Des Moines..	30.01	30.51	4	29.67	20	6485	27	NW	28	8.7
Dubuque....	30.04	30.58	4	29.71	20	4660	26	NW	29	6.3
Keokuk.....	30.02	30.52	4	29.70	20	5810	28	SW	17	7.8
Omaha, Neb.	30.03	30.49	3	29.61	20	7101	36	NE	2	9.5
Sioux City..	30.05	30.53	3	29.60	20	10178	38	E	1	13.7

OBSERVERS' REMARKS.

ALBIA.—*J. I. Chenoweth.* May, 1910 was a cold month with 14 rainy days. Foliage on trees not yet up to where it was in April, when it was killed by the freeze. Farmers have replanted most of their corn—some the third time—on account of poor seed and cold ground. Small grain is doing well.

ALGONA.—*Dr. F. T. Seeley.* This has been a very cold and dry May.

ALLERTON.—*Mrs. George Shriver.* May was a very unfavorable month for crops, much corn having to be replanted. Oats and grass making fair growth.

ALTA.—*David E. Hadden.* May was quite cool and rather dry. Frost was observed on a number of days, the last light frost being on the 25th. Corn is backward.

ATLANTIC.—*Thos. H. Whitney.* The ground is in fine condition but crops of all kinds are much behind the usual growth. At least 50 per cent of the first planting of corn failed to come up. The month has been cool and cloudy.

AUDUBON.—*Geo. E. Kellogg.* This has been the coldest May since observations have been taken at this station. Much of the corn rotted in the ground and wire and cut worms are doing considerable damage.

BELMOND.—*Geo. P. Hardwick.* The freeze in April and the fore part of May killed nearly all fruits—only a few cherries and strawberries survived. Ground so dry until the middle of May that corn did not germinate and some of the early planting is not up at end of month. Hay crop will be very light.

CHARITON.—*C. C. Burr.* More than the usual amount of corn has been planted the second time. All vegetation making slow growth and the general prospect is not flattering.

CHARLES CITY.—*E. W. McGann.* The mean daily temperature was below the normal on every day except the 9th, 10th, 19th, and 20th, when it was only 1 to 3 degrees above. The total precipitation, 2.67 inches is 2.27 inches below the normal for the month. It came in the form of light showers upon 9 days; the heaviest occurring on the 16th and 17th. There were only two thunderstorms, 21st and 31st. That on the 21st being the most severe and during the storm a large barn, two miles northwest of the station was struck by lightning and it and contents totally destroyed by fire. Killing frosts occurred on the mornings of the 3d and 4th, and the last light frost on the morning of the 26th, but did no injury.

DUBUQUE.—*J. H. Spencer.* This has been the coldest May in 18 years, with one exception. The maximum, 76° occurred on the 20th. A lower maximum for the month has not been recorded in May in 37 years, except once. The temperature was quite uniformly cool throughout the month, and there were only six days when the average for the day was above normal, and it was not much above on those dates. The rivers were low for May throughout the district. The Mississippi at Prairie du Chien was below a 4.0 foot stage from the 15th to the 25th inclusive, while at Dubuque it reached a 4.0 foot stage on the 20th and 21st, or the lowest during May in eight years. It has been lower at Dubuque only four times during May in 37 years. Vegetation had not fully recovered from the April freeze at the close of the month. The growth of all vegetation was very slow during the month, owing to the abnormally cold weather.

ELLIOTT.—*Henry Barnes.* The month closes with vegetation in fairly good condition. Fifty per cent of the corn shows an average stand and much of the replanted is just coming up and showing a good stand. With favorable weather conditions a fairly good crop may be expected.

FOREST CITY.—*J. A. Peters.* May was a cold and dry month. Corn is not all planted yet but much replanting is being done. Pastures are poor on account of dry weather. Small grain has good color but the stand is thin.

INWOOD.—*F. B. Hanson.* May has been a month of low average temperature with very little rain. Crops of all kinds and especially pastures need rain badly.

KEOKUK.—*Fred Z. Gosewisch.* The month has been cool and wet; the fields being too wet to work until within the past ten days, which has delayed corn planting, and the weather is still too cool for the growth of corn. Cut worms are abundant and will necessitate much replanting. Oats, grass and potatoes are doing well, but the Hessian fly is working much damage in the winter wheat. Tree

fruit will not make one-tenth of a crop although the crop of berries promises well. Shade trees, which lost all their foliage and new growth during the April freeze, have put forth new leaves. Notwithstanding the abundant rains, the Mississippi river is much below the average stage for the season.

KEOSAUQUA.—*J. H. Landes.* This has been a cold cloudy month. Corn planting is nearly completed, but much of it has been or will be replanted, on account of cold, damp weather. Oats and winter wheat look well and meadows are fairly good.

SIoux CITY.—*Harry O. Geren.* The temperature was below normal nearly every day during the month, the mean for the month being 6° below the normal. It is the third coldest May on record. The precipitation was less than half of the normal amount and was confined to the first two decades. Rain is now needed badly.

STOCKPORT.—*C. L. Beswick.* Month closes cold. Oats above average and corn decidedly below. Fifty per cent of corn ground planted twice and many fields three times. Hay will be only a fair crop. Pasturage is good but growing slowly.

WASHTA.—*H. L. Fetter.* The freeze on the 3d finished the last of the fruit blossoms.

OBSERVATIONS ON HALLEY'S COMET

Following is a report of observations made by Mr. J. H. Spencer, Local Forecaster, U. S. Weather Bureau, Dubuque, Iowa, on May 17, 18 and 19, 1910, as to the meteorological conditions preceding, during and succeeding the passage of the earth through the tail of Halley's Comet. While the observer does not show that any unusual atmospheric phenomena occurred at that time, the report is given for future reference and with the hope that it may aid in dispelling the superstitious fears of the ignorant people at the time of the next approach of the celestial visitor.

SIR: I have the honor to report that practically continuous day and night observations were made at this station on May 17, 18 and 19, 1910. These observations were taken under exceptionally favorable weather conditions from sunset of the 17th until about noon of the 19th, when the weather changed from clear to cloudy, and later to rain.

Assisting in these observations were Principal J. A. Anderson, of the High school, S. J. McFarland, and the weather bureau force consisting of W. W. Christman, Karl C. Rupert and myself.

During the ten days preceding these observations the weather was cloudy or hazy most of the time, and the comet itself could not be seen, except very briefly and dimly once or twice. On the 13th and 14th dense haze prevailed as the result of forest fires in Wisconsin and Minnesota, and the color of the sun at sunrise and sunset was a vivid, deep red. The moderately heavy rains of the 15th, 16th and 17th cleared the atmosphere, and from shortly after sunset of the 17th until dawn of the 19th there was not a cloud in the sky.

DAY OF THE 17TH.

On the 17th the weather was cloudy all day until 6:40 p. m., but the bright sun shone through the clouds at intervals. All the reddish, murky color of the previous ten days had disappeared. Patches of deep blue sky appeared at intervals through the clouds.

Sunset—There were a few clouds above the sun, but the sun set clear and white, with a faint reddish yellow glow surrounding it. There were no sunset colors worthy of mention.

NIGHT OF 17TH-18TH.

At 2:45 a. m. a remarkably bright and distinct shaft or band of light, now known to have been the comet's tail, appeared, and was

visible for three-quarters of an hour. Beginning in the east at about the point where the sun rises, it extended southwestwardly nearly half way across the heavens to the Constellation Aquila. It was narrow, and looked a good deal like the rays from a powerful searchlight, and was brighter than the milky way, which also was very bright at that hour.

Meteors—There were a few stray meteors during the night, but no more than would be expected on any clear night, and they did not radiate from any particular part of the heavens.

No other phenomena were observed.

DAY OF THE 18TH.

Sunrise—The sun rose clear, and was only slightly reddish.

There were no clouds during the day, and the sky was light blue and the sun white.

Sunset—The sun set clear and white, but the sky near it was a dirty, reddish-yellow.

NIGHT OF 18TH-19TH.

Corona—A faint but distinct and complete ring was observed around the moon, beginning about 8:00 p. m., and lasting for about three-quarters of an hour. Its color was blue, with a faint band of red around the outside. Its radius is unknown, but was much greater than that of an ordinary corona, and possibly may have been 16 degrees. The planet Jupiter was inside the ring, but nearer the ring than the moon. The moon was very bright and there were no clouds visible.

Aurora Borealis—A rosy glow was observed in the north from dusk to 11:45 p. m., and again for a few minutes about 1:00 a. m. This glow extended from due northeast to about 20 degrees west of north, and upwards a few degrees only. Beginning at 9:22 p. m. faint but distinct whitish streamers shot up 20 or 30 degrees high into the Constellation Cassiopea, and they continued at irregular intervals until 10:32 p. m. They were visible at 9:22 p. m., 9:27 p. m., 9:57 p. m., 10:15 p. m., and 10:32 p. m. In each case they lasted a few minutes only, and they extended about 20 degrees on either side of north. No colors were visible in these streamers.

Comet's Tail—The comet's tail appeared in the heavens at the identical hour and in the same location as on the previous night, but it was very much less distinct, and the bottom half seemed much broader than on the previous night. It appeared at 2:45 a. m. and disappeared at 3:30 a. m. As on the previous night this band of light began at about the point in the east where the sun rose and extended southwestwardly across the heavens, through the southern stars in the Square of Pegasus, to the Constellation Aquila.

Meteors—Meteors were no more numerous than on the previous night, nor did they appear to radiate from any particular portion of the heavens.

No other phenomena were observed.

DAY OF THE 19TH.

Sunrise—Cirrus clouds appeared in the east at dawn, and the sun rose slightly red, but presented no unusual features. Increasing cloudiness prevailed during the morning and by noon the sky was seven-tenths obscured and soon after entirely obscured. Observations were made as often as possible through the clouds, but nothing of interest was noted.

Sunset—Cloudy.

The night was cloudy and rainy and no observations could be made.

Very respectfully,

J. H. SPENCER, Local Forecaster

CLIMATOLOGICAL DATA FOR IOWA, MAY, 1910

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days	No. partly cloudy days			No. cloudy days
Northern Section																				
Algona	Kossuth	1,213	37	54.5	-5.0	79	18	24	3	40	2.00	-1.68	0.70		7	18	5	8	ne	Dr. F. T. Seeley
Alta	Buena Vista	1,513	19	53.8	-4.2	79	18	29	3	39	2.97	-1.81	0.90		9	11	15	6	nw	David E. Hadden
Alta (near)	Buena Vista										3.01	-1.82	0.84		8					W. J. Minard
Alton	Sioux	1,305	5	54.4		84	18	23	3	40	1.88		0.61		7	21	3	7	n	W. S. Slagle
Belmond	Wright			54.4		79	10	25	3	41	3.52		2.40		9	13	12	6	nw	Geo. P. Hardwick
Britt	Hancock	1,236	13	53.2	-4.8	78	18	25	3	41	2.13	-2.13	1.05		7	18	5	8	n	L. M. Goodman
Charles City	Floyd	1,015	19	53.9	-5.6	76	18	28	4	38	2.67	-2.27	1.37		9	10	6	15	nw	Weather Bureau
Clear Lake	Cerro Gordo	1,241	12	55.2	-4.5	78	18	28	3	38	3.22	-2.21	1.60		4	15	0	16	nw	Oscar Stevens
Decorah	Winneshiek	875	17	56.3	-2.9	83	18	28	4	46	3.82	-0.85	2.10		5					F. H. Baker
Elkader	Clayton	727	31	56.6	-3.9	81	20	28	4	42	3.93	-0.21	1.75		9	19	5	7	ne	Chas. Reinecke
Elma	Howard			52.2		77	18	24	4	43	3.33		1.00		9	14	7	10	nw	H. A. Moore
Estherville	Emmet	1,298	15	56.0	-4.2	80	18	24	3	38	1.52	-2.66	0.51		9	17	0	14	nw	A. O. Peterson
Fayette	Fayette	1,003	20	54.0	-3.4	77	20	27	4	36	2.81	-1.98	0.77		7	17	7	7	nw	R. Z. Latimer
Forest City	Winnebago	1,226	16	53.4	-4.9	80	18	26	3	40	2.14	-2.25	1.00		6	18	3	10	w	J. A. Peters
Grand Meadow	Clayton	1,180	19	53.8	-1.3	75	18	29	4	35	3.94	-0.92	2.12		10	15	6	10	nw	F. L. Williams
Greene	Butler		12	55.4	-4.0	83	27	27	3	49	3.09	-1.55	0.89		9	11	9	11	w	J. L. Cole
Hampton	Franklin	1,155	20	54.8	-3.5	81	18	28	3	41	1.97	-2.61	0.75		7	13	9	9	nw	E. C. Grenelle
Humboldt	Humboldt	1,095	22	54.8	-1.6	81	18	23	3	44	2.64	-1.72	1.65		8	22	2	7	nw	H. S. Wells
Inwood	Lyon	1,474	6	54.0		85	18	20	3	46	1.43		0.55		13	18	4	9	n	F. B. Hanson
Larrabee	Cherokee	1,266	20	53.6	-4.7	82	18	26	3	40	2.45	-2.07	0.73		11				nw	H. B. Strever
Le Mars	Plymouth	1,224	14	54.5	-4.8	78	18	23	3	38	2.70	-2.09	0.76		10	10	15	6	ne	G. A. C. Clarke
Mason City	Cerro Gordo	1,133	13	52.6	-5.8	77	18	24	3	43	2.32	-2.34	1.10		6	14	8	9	nw	J. S. Mills
New Hampton	Chickasaw	1,169	13	54.5	-3.4	79	8	32	4	37	2.91	-1.73	0.85		5	20	3	8	w	A. F. Kemman
Northwood	Worth	1,222	14	53.5	-4.4	77	19	27	3	38	2.66	-2.32	1.03		6	17	6	8	nw	Chas. H. Dwelle
Osage	Mitchell	1,184	23	55.2	-1.9	77	8	25	3	41	3.49	-1.27	1.11		5	16	6	9	nw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	14	53.9	-5.2	82	18	22	3	44	1.29	-2.98	0.55		5	19	8	4	nw	J. S. Smith
Pocahontas	Pocahontas	1,248	6	53.5		80	18	24	3	40	1.97		0.90		8	17	6	8	nw	F. E. Hronok
Ridgeway	Winneshiek	1,215	12	55.4	-4.2	79	31	28	3	36	4.12	-1.25	2.10		10	20	5	6	s	Arthur Betts
Rock Rapids	Lyon	1,358	11																	W. C. Wyckoff
Sheldon	O'Brien	1,422	10	53.9	-4.0	87	18	25	3	50	2.65	-2.45	0.80	T	11	16	9	6	nw	Dr. A. W. Beach
Sibley	Osceola	1,212	17	52.0	-5.3	80	18	28	3	39	1.83	-2.13	0.42		9	12	11	8	nw	H. G. Doolittle
Sioux Center	Sioux		11	54.0	-4.3	79	18	30	3	36	1.53	-3.32	0.69	T	8	17	8	6	ne	J. De Ruyter
Storm Lake	Buena Vista	1,440	21	53.9	-3.7	77	18	26	3	37	2.77	-1.11	1.03		7	18	7	6	n	S. B. Fracker
Washta	Cherokee	1,157	12	53.0		80	18	18	3	47	2.68	-2.17	0.85		7	15	10	6	n	H. L. Felter
Waverly	Bremer	948	14	54.8	-5.2	79	20	30	3	38	1.97	-2.73	0.63		8	9	18	9	e	H. S. Hoover
West Bend	Palo Alto	1,197	17	54.0	-4.6	80	18	28	13	41	1.59	-2.04	0.58		6	12	10	9	nw	Phil Dorweiler
Average				54.1	-4.4	80		28		41	2.59	-1.96		T	8	16	7	8	nw	
Central Section																				
Amana	Iowa	721	34	56.4	-3.6	80	20	30	4	36	3.17	-1.23	0.85		10	14	10	7	ne	Conrad Schadt
Ames	Story	926	34	55.6	-3.9	80	10	30	7	44	1.79	-2.53	0.50		7	12	12	7	n	Iowa State College
Audubon	Audubon	1,301	16	55.5	-4.4	83	20	30	4	38	2.75	-1.49	0.90		10	13	5	13	sw	Geo. E. Kellogg
Baxter	I Jasper	998	10	56.0	-4.4	82	10	30	4	38	3.38	-1.82	0.76		15	16	9	6	nw	W. R. Vandike
Belle Plaine	Benton	828	20	55.4	-4.1	80	20	31	4	37	3.02	-1.64	0.85		8	12	9	10	se	S. P. Van Dike
Boone	Boone	1,134	5	55.5		81	10	32	3	34	1.82		0.47		12	17	2	12		Carl Fritz Henning
Buckingham	Tama		10																	Dr. W. A. Daniel
Carroll	Carroll	1,265	20	53.2	-5.7	81	9	27	3	38	2.86	-1.70	0.65		8	16	5	10	nw	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	28	57.0	-3.0	81	28	35	4	34	2.51	-2.07	1.05		8	17	2	12	e	W. J. Greene
Clinton	Clinton	593	43	56.8	-3.4	80	19	31	5	37	3.19	-0.87	1.31		11	10	12	9		Luke Roberts
Davenport	Scott	580	39	57.2	-4.3	79	20	38	5	30	3.42	-0.77	1.14		15	13	8	10	nw	Weather Bureau
Delaware	Delaware	1,083	19	54.4	-3.9	80	20	31	3	34	5.30	+1.11	1.20		10	15	10	6	n	Wm. Ball
Denison	Crawford	1,180	16	54.3	-5.0	79	10	27	13	41	2.42	-1.69	0.77		9	14	9	8	n	W. C. VanNess
Des Moines	Polk	861	31	56.7	-4.9	78	10	36	13	32	3.26	-1.30	1.44		12	8	9	14	nw	Weather Bureau
De Soto	Dallas	866	10	56.7	-5.2	81	10	28	4	46	2.96	-0.92	0.61		10	17	0	14	sw	R. D. Minard
Dubuque	Dubuque	639	37	56.2	-4.6	76	20	35	4	30	3.42	-0.90	0.92		13	16	3	12	nw	Weather Bureau
Fort Dodge	Webster	1,126	10	54.6	-5.4	82	10	29	4	42	2.49	-2.06	1.03		10	20	0	11	n	J. F. Monk
Gilman	Marshall	1,052	11								4.13	+0.31	1.62		7					Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	59.0	-0.7	82	10	38	3	34	3.89	-0.70	0.97		11	15	10	6	nw	D. W. Brainard
Grundy Center	Grundy	976	19	56.0	-2.5	81	10	28	4	37	2.83	-2.31	0.81		7	12	11	8	nw	J. B. Calderwood
Guthrie Center	Guthrie	1,077	15	55.3	-5.3	80	20	28	4	41	3.37	-1.59	0.78		14	15	7	9	nw	D. G. Beardsley
Harlan	Shelby	1,182	11	54.5	-5.8	81	20	29	3	45	3.14	-1.11	1.09		13	10	11	10	ne	C. A. Reynolds
Independence	Buchanan	921	46	54.8	-4.4	76	20	29	4	37	2.63	-1.53	0.90		7	19	6	6	nw	Geo. Donohoe
Iowa City	Johnson	683	50	55.6	-4.7	78	20	33	4	36	3.57	-0.80	0.73		13	16	3	12	se	Prof. A. G. Smith
Iowa Falls	Hardin	1,170	17	53.9	-4.8	80	27	28	4	43	1.81	-2.39	0.87		4	18	0	13	nw	J. B. Parmelee
Jefferson	Greene		11																	G. W. Jackson
Le Claire	Scott	576	10								4.11	-0.32	0.89		15					Margaret T. Disney
Little Sioux	Harrison		5	56.0		82	10	26	3	46	2.12		0.55		9	15	5	11	nw	Geo. H. Gibson
Logan	Harrison	928	43	56.4	-4.6	85	20	29	3	46	2.93	-1.20	0.80		9	14	8	9	nw	Glenn H. Stern
Marshalltown	Marshall	947	18	54.8	-4.9	81	10	30	4	40	3.31	-1.42	1.07		10	19	3	9	nw	R. B. Reasoner
Muscatine	Muscatine		50								4.39	+0.01	1.25		13					

CLIMATOLOGICAL DATA FOR IOWA, MAY, 1910—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	Number clear days	Number partly cloudy days			Number cloudy days
Southern Section																				
Afton	Union	1,212	16	56.4	-5.9	84	20	34	3†	40	4.61	-0.28	1.20		10	9	13	9	nw	Hon. N. W. Rowell
Albia§§	Monroe	959	12	55.4	-5.6	79	20	34	13	34	3.99	-0.34	0.91		14	15	6	10	nw	J. I. Chenoweth
Allerton	Wayne		8	56.2	-4.8	80	28	36	4†	35	6.00	+1.49	1.16		16	17	3	11	nw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	19	56.3	-3.1	83	20	31	3†	41	3.37	-1.01	1.11		12	8	6	17	ne	Thos. H. Whitney
Bedford	Taylor		10	54.6	-6.4	78	10†	29	13	42	4.17	-1.08	0.85		16	11	7	13	se	E. E. Healy
Bloomfield	Davis		3	57.6 ^a		85 ^a	20†	35 ^a	4†	39 ^a	4.09		1.46		10				sw	C. R. Davis
Bonaparte	Van Buren		19	56.7	-5.6	81	21	35	4†	33	4.52	+0.49	1.75		11				w	Hon. B. R. Vale
Burlington§§	Des Moines	544	14	57.8	-6.0	84	21	35	5	36	4.73	+0.88	1.48		14	17	10	4	w	M. E. Poppe, jr.
Centerville	Appanoose										5.87		1.49		9	19	8	4	e	Gordon Peacock, jr.
Chariton	Lucas	1,042	15	55.6	-5.7	80	20	32	13	36	5.07	+0.70	1.30		10	20	0	11	nw	C. C. Burr
Clarinda§§	Page	1,009	20	55.3	-4.9	80	28	33	13	41	6.20	+1.36	1.10		13	14	2	15	ne	A. S. Van Sandt
Columbus Junction	Louisa		595	57.6	-4.6	80	20	34	5	33	5.26	+1.38	1.65		11	18	9	4	n	J. B. Johnston
Corning	Adams	1,117	18	55.4	-5.0	81	28	31	13	38	4.90	+0.07	0.97		12	12	8	11	nw	Jerome Smith
Corydon	Wayne	1,101	17	56.8 ^b	-4.5	81 ^b	20	34 ^a	13	35 ^b	4.73	+0.06	1.00		12	12	6	13	nw	Clara Miller
Creston§§	Union	1,312	5	54.6 ^b		78 ^c	27	31	13	37 ^c	4.82		0.86		13	16	2	13	nw	O. J. Colby
Cumberland	Cass		11								2.73	-0.96	0.91		8	20	2	9	se	J. H. Reppert
Earlham	Madison		8	55.0	-5.0	80	20	29	4	40	3.93	-0.84	0.91		10	14	5	12	nw	Geo. Phillips
Elliott	Montgomery		5	56.2		79	20†	31	13	36	5.60		1.36		12	10	14	7	nw	Henry Barnes
Fairfield	Jefferson		26	56.9	-3.3	81	21	33	4	31	3.75	-1.53	1.12		14	19	5	7	nw	R. Monroe McKenzie
Fort Madison	Lee	516	61								6.32	+1.92	1.37		9	6	10	15	s	Miss L. McCready
Greenfield	Adair		18	54.8	-5.6	79	20	31	4	35	4.12	-0.90	1.04		10	12	12	7	nw	R. B. Oldham
Hancock	Pottawattamie	1,113	5	55.2		83	20	28	4†	38	3.72		1.05		9	16	6	9	nw	G. C. Rogers
Hopeville	Clarke		19	55.8	-4.4	80	20	35	4†	36	4.99	+0.30	1.29		15	8	13	10	nw	M. T. Ashley
Indianola	Warren	969	19	56.5	-4.2	80	20	34	3	33	3.57	-1.07	0.72		13	10	7	14	nw	Prof. J. L. Tilton
Keokuk	Lee	574	39	59.0	-4.2	82	21	37	5	28	6.87	+2.52	2.99		15	16	8	7	nw	Weather Bureau
Keosauqua§§	Van Buren	644	18	57.2	-5.4	85	21	34	4	39	4.81	+0.44	1.82		15	8	11	12		J. H. Landes
Knoxville	Marion	920	15																	Casey & Belville
Lacona	Warren		11								3.68	-1.54	1.00		12	7	19	5		J. B. Alter
Lamoni	Decatur		3	57.4		82	19†	35	4	34	6.91		1.27		16	20	2	9	se	T. J. Fitzpatrick
Lenox	Taylor	1,250	15	56.1	-5.1	80	20	35	3†	35	4.47	-0.25	0.75		14	16	8	7	s	J. L. Hurley
Leon	Decatur	1,120	8	55.6	-7.3	81	20	35	4	35	6.68	+2.23	1.10		12	11	8	12	se	Morris Gardner
Massena	Cass		4	54.6		85	20	27	13	44	6.79		1.20		14	12	8	11	nw	C. E. Smeltzer
Mount Ayr	Ringgold	1,236	17	57.2	-4.5	82	20	36	3†	32	6.75	+0.99	1.51		14	9	14	8	nw	A. F. Beard
Mount Pleasant	Henry	729	29	57.6	-4.6	89	21	34	4†	41	4.25	+0.07	1.76		11	14	8	9	nw	J. W. Edwards
Omaha, Nebr.	Douglas	1,040	40	57.4	-5.1	79	10	37	3	30	2.23	-2.27	0.93		12	9	10	12	n	Weather Bureau
Oskaloosa	Mahaska	843	34	57.1	-3.3	82	20	34	13	39	3.55	-0.13	0.81		10	16	2	13	nw	Jos. Boyd
Ottumwa	Wapello	649	15	59.0	-4.0	83	20	39	4†	37	2.57	-2.07	0.56		11	5	3	23	nw	W. J. Mesmer
Pacific Junction	Mills	960	11	56.1	-5.5	82	20	29	13	42	5.08	+1.07	1.60		10	11	11	9	n	H. H. McCartney
Pella	Marion	877	7	56.2	-5.1	81	9†	29	4	41	2.94	-1.38	0.74	T	14	23	1	7	nw	John H. Ver Steeg
St. Charles	Madison	1,070	9	56.6	-5.3	81	20	34	3	34	3.45	-1.47	0.80		12	15	9	7	nw	R. D. Minard
Sigourney	Keokuk	877	14	56.6	-6.4	79	10†	34	4	36	2.98	-1.15	0.71		9	5	22	4	nw	J. T. Parker
Stockport	Van Buren		8	56.0		82	21	30	4	38	4.03	+0.27	1.57		13	14	8	9	nw	C. L. Beswick
Thurman	Fremont		13	56.6	-5.7	80	10	32	13	45	4.65	-0.55	1.84		12	9	12	10	nw	C. R. Paul
Wapello	Louisa	588	12	57.6	-5.0	79	20†	36	5	30	3.41	-0.48	1.13		8	14	12	5	nw	Geo. W. Schofield
Washington	Washington	769	28	56.6	-4.4	79	20†	35	4†	36	3.57	+0.06	1.01		10	12	11	8	nw	Wm. A. Cook
Winterset	Madison	1,129	19	56.9	-4.3	81	10	34	3†	40	4.68	+0.22	0.95		13	10	9	12	n	Dr. Robt. S. Cooper
Woodburn	Clarke	961	11	54.4		80	20	28	4†	40	5.29	+0.40	1.50		16	8	14	9	nw	C. B. McDonough
Average				56.4	-5.2	81		33		37	4.58	+0.11		T	12	13	8	10	nw	
State average				55.4	-4.7	81		30		39	3.41	-1.09		T	10	15	7	9	nw	

†And other dates; a one day missing; b two days missing; c three days, etc.

‡Received too late to be included in averages.

§§Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR THE MONTH OF MAY 1910

STATIONS	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		Monthly Mean			
	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.	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.	Max.	Min.								
Afton	72	41	63	42	58	34	62	34	52	41	48	44	47	41	69	39	78	40	80	40	63	45	60	38	65	36	75	40	62	48	64	49	63	44	76	41	75	50	84	56	76	53	61	47	71	45	70	45	70	41	76	42	71	53	80	56	73	54	75	53	75	48	68	2	44	5
Albia	55	41	53	48	56	37	59	36	59	36	53	41	55	42	68	41	70	49	76	42	61	47	60	36	63	34	68	43	55	50	65	47	61	46	74	42	71	46	79	57	76	55	60	51	71	48	67	43	66	39	68	42	71	48	78	53	70	56	72	50	72	43	65	9	44	9
Algona	71	38	61	39	60	24	64	32	62	38	54	45	55	43	74	38	75	48	76	49	59	40	60	34	65	32	76	36	66	46	55	48	60	44	79	44	78	51	68	55	70	40	67	42	64	39	70	36	76	45	70	55	71	45	72	45	74	44	67	0	42	0				
Allerton	63	45	58	43	57	38	60	36	57	38	49	45	47	42	67	42	75	48	76	48	72	47	59	39	63	36	69	40	59	48	64	49	62	46	76	41	70	49	79	57	77	56	69	50	72	47	67	42	70	44	71	48	72	44	71	48	74	50	71	45	66	7	45	7		
Alta	72	41	47	35	62	29	65	31	55	42	48	42	47	42	73	35	73	45	75	47	57	41	60	34	69	29	74	41	60	42	58	47	63	44	84	38	78	51	71	53	74	45	66	41	70	40	69	44	70	33	73	40	71	43	75	45	73	50	76	50	76	43	67	3	41	4
Alton	69	39	49	36	63	23	66	31	61	46	47	44	47	44	73	35	73	45	75	47	57	41	60	34	69	29	74	41	60	42	58	47	63	44	84	38	78	51	71	53	74	45	66	41	70	40	69	44	70	33	73	40	71	43	75	45	73	50	76	50	76	43	67	3	41	4
Amana	70	43	65	41	55	35	60	30	59	32	59	45	56	45	70	45	76	46	78	48	68	49	62	42	62	34	69	33	61	48	65	49	62	45	76	40	77	47	80	57	77	57	69	53	71	53	67	44	66	42	70	38	73	42	79	53	72	56	69	49	72	44	68	2	44	7
Ames	74	37	62	35	58	31	63	32	56	44	48	44	51	44	70	39	74	47	82	43	69	45	61	37	67	33	74	38	62	48	57	50	63	44	78	37	74	53	83	58	63	48	62	47	71	42	70	42	68	39	75	41	72	54	78	56	73	53	75	52	72	47	68	4	44	2
Atlantic	77	42	66	39	60	31	65	31	55	46	48	44	51	44	70	39	74	47	82	43	69	45	61	37	67	33	74	38	62	48	57	50	63	44	78	37	74	53	83	58	63	48	62	47	71	42	70	42	68	39	75	41	72	54	78	56	73	53	75	52	72	47	68	4	44	2
Audubon	71	42	64	38	59	32	63	30	56	45	46	43	53	44	69	38	74	46	79	44	69	45	62	37	66	32	73	38	59	47	60	47	61	45	77	39	75	48	80	56	77	53	60	48	72	46	69	41	70	39	72	38	73	43	77	56	72	52	73	42	68	6	43	3		
Baxter	74	40	59	42	58	32	63	30	56	44	48	44	51	44	70	39	74	47	82	43	69	45	61	37	67	33	74	38	62	48	57	50	63	44	78	37	74	53	83	58	63	48	62	47	71	42	70	42	68	39	75	41	72	54	78	56	73	53	75	52	72	47	68	4	44	2
Bedford	73	41	64	42	60	36	61	32	55	45	48	43	47	41	68	38	75	45	78	46	73	47	62	36	66	29	70	35	61	48	63	44	64	43	75	33	69	49	68	57	66	45	59	45	65	41	68	37	67	39	71	40	67	53	78	55	73	53	74	44	72	42	66	5	42	7
Belle Plaine	72	42	61	48	58	32	61	31	54	34	51	44	52	45	75	44	77	47	82	47	64	37	65	38	64	33	71	34	60	46	65	47	62	46	76	39	75	48	80	56	75	56	60	50	73	50	70	41	69	40	70	38	74	46	78	52	73	54	70	43	73	45	67	1	43	6
Belmond	71	36	68	39	60	25	62	28	62	35	54	41	64	45	76	37	75	46	79	48	61	41	62	33	65	30	73	32	62	42	63	47	60	44	78	39	75	50	73	57	60	46	65	45	70	40	66	40	65	37	69	36	73	47	75	53	71	47	71	43	73	41	67	8	41	0
Bloomfield	67	40	52	40	60	39	65	35	62	35	58	42	52	40	72	41	82	48	80	45	74	49	62	35	68	35	72	40	64	47	66	42	80	41	76	50	85	60	83	58	78	53	70	41	72	43	72	41	70	40	85	47	82	50	77	50	76	50	75	45	71	2	44	1		
Bonaparte	66	40	61	41	56	39	68	35	59	35	57	45	52	42	67	44	75	48	75	44	68	51	59	39	64	35	67	39	56	46	67	49	62	48	74	42	74	48	78	59	81	61	68	55	73	54	68	43	67	41	69	40	70	46	77	50	71	57	70	56	71	48	67	4	46	0
Boone	73	40	48	42	57	32	62	35	56	44	59	34	57	30	74	43	77	52	80	45	62	45	62	42	65	35	75	31	60	48	68	48	61	47	78	47	76	48	78	58	65	51	57	48	71	44	68	43	64	52	72	45	79	46	74	38	74	35	73	47	68	3	42	9		
Britt	69	36	61	39	60	25	63	30	63	37	54	45	64	43	74	37	70	45	71	50	59	38	60	32	62	30	74	35	62	47	60	45	78	37	76	48	70	55	56	46	55	44	68	38	64	39	63	37	74	45	72	55	70	45	69	41	71	40	65	6	40	9				
Burlington	68	45	57	47	58	39	61	36	63	35	61	43	48	42	68	43	78	46	78	46	78	46	61	42	64	39	69	38	59	46	67	49	62	48	74	42	74	48	78	59	81	61	68	55	73	54	68	43	67	41	69	40	70	46	77	50	71	48	67	4	46	7				
Carroll	44	39	60	29	64	27	55	35	47	41	57	41	70	35	74	39	81	48	60	42	61	35	65	29	72	38	55	48	57	48	68	43	68	39	73	48	76	55	57	45	58	43	70	38	65	37	66	35	71	38	71	43	74	51	71	47	75	48	73	43	73	44	65	6	40	8
Cedar Rapids	72	42	54	46	56	37	60	35	62	35	61	38	54	45	73	46	77	49	79	51	62	50	61	41	63	38	70	36	64	39	65	49	60	50	79	45	76	47	79	57	77	59	62	54	62	54	67	48	66	45	71	42	76	45	81	52	73	52	71	49	72	47	68	2	45	9
Chariton	65	41	64	41	67	35	60	34	58	34	55	44	50	40	68	41	75	44	76	42	69	45	60	36	63	32	69	45	62	47	65	47	68	44	75	39	70	46	80	52	77	53	68	48	70	42	68	43	67	41	69	40	70	46	77	50	71	48	67	4	46	7				
Charles City	70	38	55	35	59	28	62	28	61	32	57	46	61	47	74	43	71	48	70	45	59	41	60	37	62	34	71	39	66	47	58	44	58	45	76	42	73	50	74	54	62	49	57	46	69	46	63	42	62	43	69	36	73	41	73	52	69	51	68	42	70	44	65	5	42	3
Clarinda	72	43	49	48	60	36	62	36	49	40	46	44	49	42	70	38	76	43	79	46	61	46	64	39	65	33	72	35	51	49	61	49	65	43	78	37	71	42	71	57	72	59	63	47	70	44	66	42	72	45	72	57	64	52	80	53	74	54	68	48	62	47	65	6	45	0
Clear Lake	70	39	64	34	62	23	65	30	65	32	65	44	57	42	75	42	78	48	70	50	62	38	61	35	67	34	74	36	65	43	57	46	60	47	63	48	75	52	75	50</																										

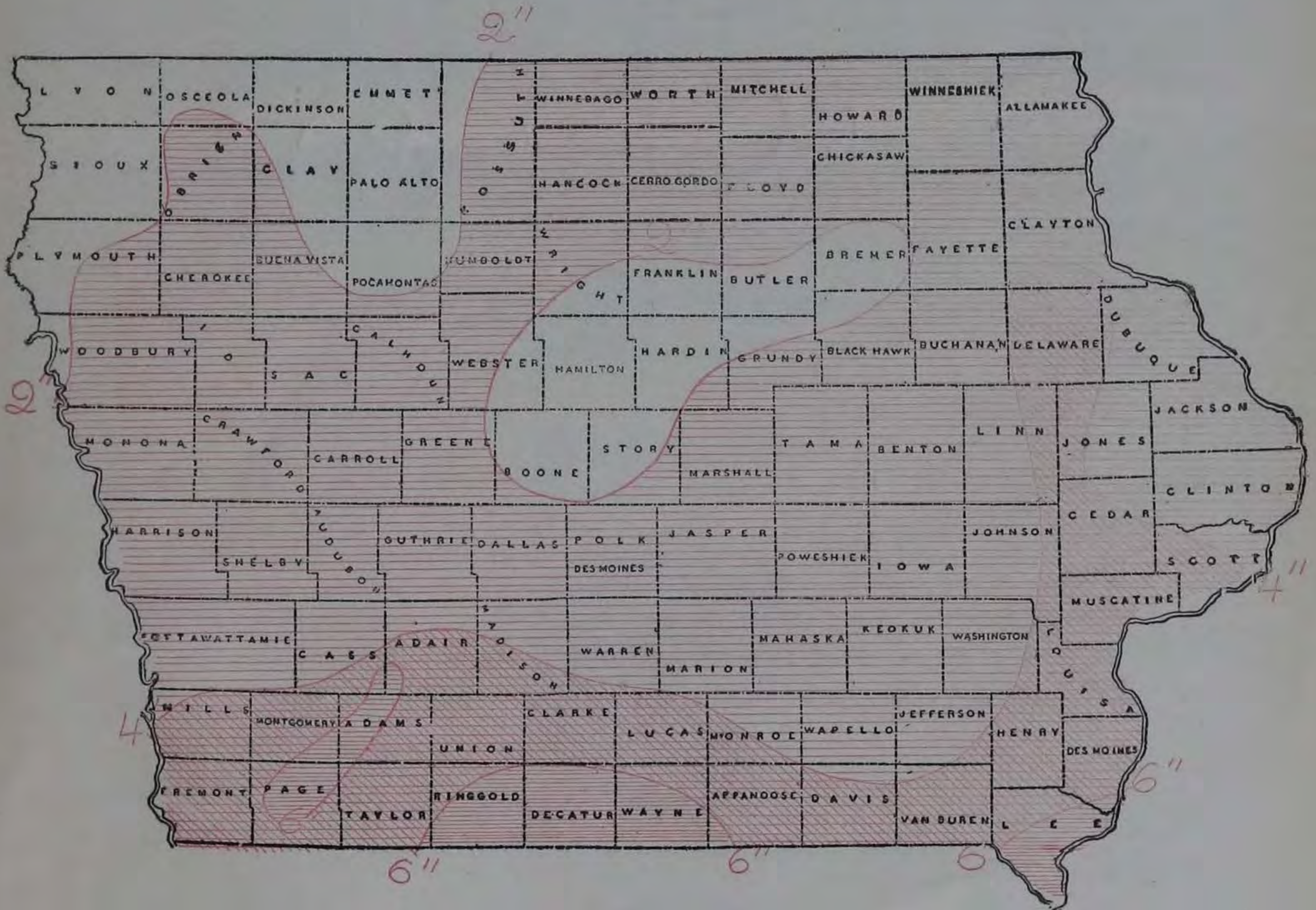
DAILY PRECIPITATION FOR IOWA, MAY, 1910—Continued

STATIONS	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		
Sibley		.12				.38	.42				.20				T	.40	.01		.01		.28								.01			1.83	
Sigourney		.71					.60				.17				.23	.11		.04		.60									.12	.40		2.98	
Sioux Center		.03	T			.05	.69				.05	.07		T	.34	.11			.19									T		T	1.53		
Sioux City		.02	.09			.52	.56			T	.02	.13			.03	.12	.03		T	.45								.02		T	1.99		
Stockport		.02	1.55			T	.62	.04	T		.15				.12	T	.16		.04	.12	T	.11	.02				.48	.60		4.03			
Storm Lake		T				.80				T	.29				.08	.44		.01		1.03							.12	.08		T	2.77		
Thurman		.45			.22	1.84	.74			T	.02				.05	.52	.03		.26		.32						T	.12	.08		T	4.65	
Tipton		.58					.31								.10	.29			.03	.11	1.92							.71	.30		4.35		
Toledo		.50						.02		T					.25	.80	.60		.15	.82	.20							.10	.15		3.59		
Wapello		.13	1.13				.28								.16	.16			T	T	.20	.08						.63	.80		3.41		
Washington		.02	1.01				.34					.12			.16		.26		.05		.57							.33	.71		3.57		
Washta				.40	.58					.20					.02	.60				.85								T		.03	2.68		
Waterloo		.19								.10					.11	.81			.03	.45	.24	T						.02	.06		.04	2.05	
Waukeo		T	.25	T		.04	.54	.03		.02	T				.17	.57	.13		T	.01	.38	.01						.68	.24		.01	3.08	
Waverly		.18						.03		T					.08	.46	.40		.02	.63								.17				1.97	
Webster City		.46				T				T	.07				T	.17	.43			.57			T					.13			T	1.83	
West Bend		T	T			.20					.27				.29	.14				.58								.11				1.59	
Whitten		T	T				T	T		T					.36	.52	.35			.76								1.00				T	2.19
Winterset		.65			T	.63	.25		T	.03					.23	.63	.33		T	.02	.75	.13						.05	.95	T	T	4.68	
Woodburn		T	1.50			T	.46	.44	.01	T					.29	.02	.25	.01	.01	.08	.41	.40						T	.08	1.06	.02	T	5.29

* Precipitation included in that of the next measurement.
 | 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.

TOTAL PRECIPITATION, MAY, 1910.

SCALE OF SHADES—IN INCHES



U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR JUNE, 1910

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

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AUG 1 1910

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MEAN ISOTHERMS AND PREVAILING WINDS OF JUNE, 1910.
Lines pass through points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.

CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,

GEO. M. CHAPPEL, Section Director.

VOL. XXI DES MOINES, IOWA, JUNE, 1910 No. 6

IOWA CROP REPORT, JULY 1, 1910.

Following is a summary of reports received from crop correspondents of the Iowa Weather and Crop Service, showing the estimated conditions of staple crops July 1, 1910, as compared with the average condition on that date in past years: Corn, 89 per cent; winter wheat, 87; spring wheat, 92; oats, 92; rye, 92; barley, 90; flax, 85; hay, 68; pastures, 70; potatoes, 86; popcorn, 92; sweet corn for can, 89; apples, 6; plums, 4; grapes, 30.

Condition July 1, 1909, corn, 92 per cent; winter wheat, 96; spring wheat, 95; oats, 91; rye, 96; barley, 94; flax, 94; hay, 100; pastures, 103; potatoes, 100; apples, 76; plums, 68; grapes, 85.

July 1st average of the past ten years; corn, 90 per cent; winter wheat, 94; spring wheat, 93; oats, 90; rye, 95; barley, 93; flax, 92; hay, 90; pastures, 88; potatoes, 98.

NOTE.—Table of crop acreage by counties will be found on page 65.

GENERAL SUMMARY.

The most notable climatic features of June were the unusually cool weather during the first half of the month, and the continuously high temperatures during the latter half; the excessive amount of sunshine; the low percentage of humidity; the great deficiency of rainfall, the light wind velocities, and the small number of thunderstorms. The temperature was abnormally low during the first 14 days, and then changed within three days to excessively warm and continued so during the remainder of the month. The deficiency of temperature during the first half of the month, however, nearly equalled the excess during the latter half as the monthly mean was only 0.7° above the normal. At many stations the record for the number of days with a maximum temperature of 90°, or higher, was broken; there being from 9 to 11 days with temperature up to or above 90°, and the average of the maximum temperatures for the last 15 days of the month was above 90°.

The past month was the driest June on record since statewide observations began in 1890. The average rainfall was only 1.99 inches which is 2.53 inches below the normal, and .68 inch less than the average for June, 1894, which was the driest June on record prior to the past month. Showers were frequent during the first 10 days, over the western and central sections of the State but after the 10th the rainfall was light and unevenly distributed; the western counties receiving the larger amounts. In the eastern part of the State the rainfall was light during the entire month.

Corn made very slow growth during the first half of the month and owing to poor seed, cold weather and the activity of moles, and cut and wire worms, much more replanting was done than usual. During the latter half of the month, however, corn made very rapid growth and was nearly up to the normal stage of growth at the end of the month. The dry weather and intense sunshine were exceptionally favorable for killing weeds and the

fields were never cleaner at the end of June than they were this year. The soil was in the very best of condition to withstand the effects of dry weather. Small grains made considerable advancement and at the close of the month were in good condition and filling and ripening nicely. On the whole June was a favorable month, though the condition of all crops at its close was somewhat below the average of the past 10 years; hay, pasturage and early potatoes receiving the greatest damage from the drouthy conditions.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 115 stations, was 69.5°, which is 0.7° above the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 68.8°, which is 1.4° above the normal; Central section, 69.8°, which is 0.8° above the normal; Southern section, 69.9°, which is 0.1° below the normal. The highest monthly mean was 73.8°, at Tipton, Cedar county, and the lowest monthly mean, 66.6°, at Sibley, Osceola county. The highest temperature reported was 105°, at Decorah, Winneshiek county, on the 29th; the lowest temperature reported was 33°, at Northwood, Worth county, and at Sibley, Osceola county, on the 5th. The average monthly maximum was 96°, and the average monthly minimum was 41°. The greatest daily range was 46° at Elkader, Clayton county; Greene, Butler county, and at Mount Pleasant, Henry county. The average of the greatest daily ranges was 37°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 125 stations, was 1.99 inches, which is 2.53 inches below the normal. By sections the averages were as follows: Northern section, 2.11 inches, which is 2.46 inches below the normal; Central section, 2.12 inches, which is 2.25 inches below the normal; Southern section, 1.74 inches, which is 2.88 inches below the normal. The greatest amount, 5.51 inches, occurred at Estherville, Emmet county, and the least, 0.05 inch, at Decorah, Winneshiek county. The greatest amount in twenty-four hours, 2.23 inches, occurred at Rockwell City, Calhoun county, on the 26th. Measurable precipitation occurred on an average of seven days. No snow fell at any station in the State during the month.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 18; partly cloudy, 7; cloudy, 5. The duration of sunshine was above the normal, the percentage of the possible amount being 84 at Charles City; 81 at Davenport; 66 at Des Moines; 82 at Dubuque; 75 at Keokuk, and 68 at Sioux City.

WIND.—Southeast winds prevailed. The highest velocity reported was 46 miles per hour from the south, at Sioux City, Woodbury county, on the 15th.

COMPARATIVE DATA FOR THE STATE—JUNE.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890	72.7	106	44	7.76	16.53	1.57
1891	69.1	99	37	5.39	19.88	1.68
1892	69.2	102	42	5.19	14.16	.67
1893	71.2	100	40	3.91	7.56	1.36
1894	73.2	104	34	2.67	6.20	.57
1895	69.7	102	34	4.32	9.26	.98
1896	69.1	100	40	3.11	7.89	.81
1897	69.1	103	29	3.81	9.38	1.03
1898	71.4	99	42	4.72	12.48	1.90
1899	70.7	100	42	5.04	11.99	1.10
1900	69.7	102	38	3.98	12.35	.67
1901	72.3	106	30	3.71	7.84	1.05
1902	65.2	97	32	7.16	16.04	1.46
1903	64.6	96	30	2.86	6.04	.75
1904	67.1	94	35	3.45	8.35	.41
1905	69.9	100	36	5.53	14.89	1.80
1906	67.9	99	37	3.92	8.27	1.48
1907	66.5	98	36	5.35	9.33	2.07
1908	67.1	94	35	5.66	11.88	1.77
1909	69.1	96	40	6.41	13.30	2.80
1910	69.5	105	33	1.99	5.51	.05

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 29.99 inches.
Prevailing direction of Wind, Southeast.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum Velocity, miles	Direction	Date	Average Hourly Velocity
Charles City.	30.01	30.26	7	29.82	5	3621	22	S	17	5.0
Davenport ..	29.99	30.26	7	29.72	1	4177	25	E	10	5.8
Des Moines ..	29.97	30.22	14	29.72	1	4627	34	NW	19	6.4
Dubuque....	30.02	30.27	7	29.73	1	2865	18	NW	1	4.0
Keokuk	29.99	30.23	14	29.73	2	3654	22	W	18	5.1
Omaha, Neb..	29.97	30.21	14	29.74	1	5160	33	SW	19	7.2
Sioux City..	29.98	30.21	13	29.80	17	8273	46	S	15	11.5

OBSERVERS' REMARKS.

AFTON.—*N. W. Rowell.* This has been the warmest June in many years, although the first ten days were cool. The amount of precipitation has been less than usual, but it has been a splendid month for the growth of crops. Corn is up to the average height for July 4th.

ALBIA.—*J. I. Chenoweth.* June ended hot and dry with only 1.72 inches of rainfall for the month. The temperature was excessive during the latter half of the month and only .25 inch of rain fell after the 10th. Corn is doing extraordinarily well but spring wheat, oats, pastures and potatoes are suffering for rain.

ALLERTON.—*Mrs. George Shriver.* Rain was needed badly during the greater part of the month, but corn has made rapid growth.

ALTA.—*David E. Hadden.* June, 1910, was warm and very dry; the temperature was about half of a degree above the normal and the rainfall was about 3.25 inches below the 20 years' average.

AMANA.—*Conrad Schadt.* The first half of the month was rather cool with a normal amount of rainfall, but the latter half was hot and very dry.

ATLANTIC.—*Thos. H. Whitney.* After the 21st the days were quite hazy or smoky, especially the 30th. The sun being almost obscured. The hot weather of the closing days was of great benefit to corn, which rapidly regained normal growth.

AUDUBON.—*Geo. E. Kellogg.* A hot and dry month. Crops, however, have done well except hay, which will be short.

BELMOND.—*Geo. P. Hardwick.* The high temperature during the latter half of the month advanced corn and seems to have developed an excess of smut in grain. Insect life has been very active, especially the potato beetle.

BONAPARTE.—*B. R. Vale.* Only 1.32 inches of rain during the month, which is the least for June in the past twenty years. The month was very dry but no serious harm was done to crops until the close of the month, when rain was badly needed.

CHARITON.—*C. C. Burr.* Corn is nearly "knee high" and making a wonderful growth. Oats will make a fair crop, but grass is short. All vegetation is in need of rain. Hay making is in progress.

CHARLES CITY.—*U. S. Weather Bureau.* The marked features of the month were the very cool temperature that prevailed during the first fourteen days, and the very warm weather during the remaining sixteen; the maximum temperature being 90° or above for fourteen consecutive days; the low percentage of humidity, 63; the excessive sunshine and small number of thunderstorms, only two occurring and they were feeble and distant.

CLINTON.—*Luke Roberts.* The stage of the Mississippi River is 2.1 feet, which is the lowest since 1864.

DAVENPORT.—*U. S. Weather Bureau.* The temperature was continuously below the normal from the 1st to the 12th, and has been above the average on every day since the latter date. With the exception of June, 1866, when the rainfall was only .49 inch, the present month is the driest June on record at this station.

DUBUQUE.—*U. S. Weather Bureau.* The temperature was below normal from the 1st to the 13th and above the normal every day after the 13th. There were eleven days with a maximum of 90° or higher, breaking the record for hot days in June. The maximum temperature averaged 93° during the last fifteen days of the month. The weather was excessively dry from the 5th to the 25th, but the heavy rainfall of the 26th came just in time to prevent serious damage to crops.

ELLIOTT.—*Henry Barnes.* June was a fine growing month, in spite of the light rainfall. Corn is doing finely and the fields are very clean. Potatoes, pastures and meadows need rain, but no other vegetation is suffering.

ELMA.—*H. A. Moore.* Lawns, hay and small grain are drying up and corn needs rain. The atmosphere is very hazy.

FOREST CITY.—*J. A. Peters.* Some fields of corn "knee high." Pastures very poor on account of drouth. Small grain has headed out. The season has been very dry.

GRAND MEADOW (Postville P. O.)—*F. L. Williams.* The month was dry with a great amount of sunshine. Pastures are short but the small grain crop is good and corn is coming on finely, although the stand is rather poor.

INWOOD.—*L. B. Hanson.* The driest June on record at this station but crops are showing up remarkably well. Corn and small grain prospects, except possibly late oats, fully up to the normal. Pastures are nearly dead. Haying begun.

IOWA CITY.—*Prof. A. G. Smith.* The drouth during the month has damaged crops, especially the hay. The heat has been severe, as the air has been very humid.

KEOKUK.—*U. S. Weather Bureau.* The first half of the month was cool, with showers. A warm spell began on the 18th and still continues. Rains since the 9th have been confined to badly distributed local thundershowers. Corn has made good growth, and the weather has been excellent for cultivation of this crop. Fields are clean and the plants are good color. Hay harvest is in progress with yield below the average. Potatoes are suffering for rain.

KEOSAUQUA.—*J. H. Landes.* A dry month, with the first half cool and the latter half hot. Corn looks fine; the fields are clean and the ground is in excellent condition.

OLIN.—*M. H. Crissman.* Haying begun. Clover is a good crop, but timothy is short. Corn is making excellent growth, but rain is needed.

POCAHONTAS.—*F. E. Hronek.* The weather was ideal for field work. Corn fields are cleaner than for years, and the plants are up to the normal height.

RIDGEWAY.—*Arthur Betts.* This has been the hottest June since 1901, and breaks all records for the amount of sunshine and dry weather. Only .28 inch of rainfall since May 21st. The drouth has been very damaging and vegetation is not doing well. There were eighteen days with 100 per cent of sunshine and on sixteen days the temperature was up to or above 90°.

SHELDON.—*Dr. A. W. Beach.* All crops are better than the average for the past five years, except hay and pasturage, which need rain badly.

SIoux CITY.—*U. S. Weather Bureau.* The mean temperature was slightly above the normal, the first half being 6° below normal, and the second half 8° above. Notwithstanding the decided coolness of the first half of the month the record for June for the number of days with a maximum of 90° or higher was broken; there being nine such days, while the previous record was seven, in 1897. The precipitation was confined almost entirely to the first decade, and the total of 1.41 inches was the smallest on record for June.

STOCKPORT.—*C. L. Beswick.* The maximum temperature of 100° on the 30th was the highest ever recorded at this station. The month has been very dry and the ground in oats, wheat and hay is badly cracked. Clover is mostly cut and oats are ready for harvest.

CLIMATOLOGICAL DATA FOR IOWA, JUNE, 1910

STATION#	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days	No. partly cloudy days			No. cloudy days
Northern Section																				
Algona	Kossuth	1,213	37	69.2	+0.7	94	†19	41	8	40	3.56	-0.84	1.73	0	9	23	3	5	se	Dr. F. T. Seeley
Alta	Buena Vista	1,513	19	68.8	+1.2	95	20	39	5	34	2.27	-2.95	1.08	0	7	16	11	3	se	David E. Hadden
Alta (near)	Buena Vista										2.95	-1.94	0.88	0	11					W. J. Minard
Alton	Sioux	1,305	5	68.8		97	19	38	†5	38	1.26		1.01	0	6	17	11	2	se	W. S. Slagle
Belmond	Wright			68.4		95	†20	41	7	36	3.05		1.63	0	9	11	14	5	se	Geo. P. Hardwick
Britt	Hancock	1,236	13	67.8	+0.7	94	20	39	7	38	4.02	-0.06	1.68	0	8	19	7	4	s	L. M. Goodman
Charles City	Floyd	1,015	19	68.9	+0.1	96	23	38	7	39	0.61	-4.49	0.29	0	6	13	10	7	se	Weather Bureau
Clear Lake	Cerro Gordo	1,241	12	69.8	+1.6	99	20	39	7	41	1.01	-3.83	0.95	0	2	25	2	3	s	Oscar Stevens
Decorah	Winneshiek	875	17	71.4	+4.0	105	29	38	7	45	0.05	-3.95	0.05	0	1					F. H. Baker
Elkader	Clayton	727	31	69.0	+2.7	100	30	37	6	46	2.01	-2.02	1.10	0	5	23	5	2	se	Chas. Reinecke
Elma	Howard			68.5		97	30	34	7	42	0.33		0.18	0	5	20	6	4	se	H. A. Moore
Estherville	Emmet	1,298	15	67.0	+0.2	94	21	38	7	35	5.51	+2.16	1.77	0	11	22	0	8	s	A. O. Peterson
Fayette	Fayette	1,003	20	68.4	+1.1	98	30	36	7	45	1.27	-4.08	0.50	0	4	25	1	4	se	R. Z. Latimer
Forest City	Winnebago	1,226	16	68.8	+1.6	95	†19	41	2	35	2.48	-2.15	1.00	0	7	25	2	3	s	J. A. Peters
Grand Meadow	Clayton	1,180	19	67.4	+1.0	90	†24	40	†3	31	2.56	-2.24	2.10	0	6	22	3	5	nw	F. L. Williams
Greene	Butler		12	71.2	+3.1	103	†19	38	7	46	1.08	-3.04	0.31	0	8	13	12	5	w	J. L. Cole
Hampton	Franklin	1,155	20	70.4	+2.6	100	20	40	7	39	1.83	-3.08	0.65	0	8	16	8	6	nw	E. C. Grenelle
Humboldt	Humboldt	1,095	22	68.5	-0.3	95	18	38	7	37	3.92	-0.79	1.83	0	9	24	1	5	se	H. S. Wells
Inwood	Lyon	1,474	6	68.8	+3.0	96	18	36	6	41	1.33	-5.69	0.60	0	6	22	4	4	s	F. B. Hanson
Larrabee	Cherokee	1,266	20	68.3	-0.2	94	18	36	6	42	2.53	-2.95	1.01	0	6	20	5	5	sw	H. B. Strever
Le Mars	Plymouth	1,224	14	68.3	0.0	92	†19	38	5	34	1.76	-2.40	0.62	0	10	14	14	2	se	G. A. C. Clarke
Mason City	Cerro Gordo	1,133	13	67.4	+0.2	94	†24	36	7	39	1.20	-4.69	0.48	0	5	20	7	3	se	J. S. Mills
New Hampton	Chickasaw	1,109	13	69.1	+2.8	97	†29	40	†7	39	0.87	-3.38	0.37	0	5	22	5	3	s	A. F. Kemman
Northwood	Worth	1,222	14	67.0	+4.6	94	24	33	5	37	0.87	-4.01	0.38	0	5	21	5	4	nw	Chas. H. Dwelle
Osage	Mitchell	1,184	23	69.8	+3.7	99	†20	39	7	40	0.68	-3.85	0.37	0	3	21	4	5	nw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	14	68.6	+1.0	99	24	38	5	40	5.24	+0.89	1.27	0	9	25	3	2	s	J. S. Smith
Pocahontas	Pocahontas	1,248	6	67.1	+0.7	95	20	39	5	41	3.67	-2.15	0.99	0	9	19	6	5	se	F. E. Hronek
Ridgeway	Winneshiek	1,215	12	70.8	+2.5	100	†28	40	†3	38	0.19	-3.96	0.15	0	3	22	5	3	s	Arthur Betts
Rock Rapids	Lyon	1,358	11			96	†18	47	1	35	1.90	-2.81	1.25	0	2					W. C. Wyckoff
Sheldon	O'Brien	1,422	10	69.1	+2.7	100	†18	35	5	40	2.81	-1.71	1.15	0	9	22	5	3	se	Dr. A. W. Beach
Sibley	Osceola	1,212	17	66.6	+0.6	94	†20	33	5	35	2.20	-2.32	1.20	0	7	20	6	4	se	H. G. Doolittle
Sioux Center	Sioux		11	68.6	+1.8	93	†19	40	2	34	1.74	-2.99	1.26	0	5	23	3	4	s	J. de Ruyter
Storm Lake	Buena Vista	1,440	21	68.6	+1.6	92	18	39	5	33	2.00	-2.79	0.73	0	9	18	8	4	s	S. B. Fracker
Washta	Cherokee	1,157	12	68.0	+1.4	97	†18	35	6	43	2.39	-1.93	0.92	0	8	20	6	4	se	H. L. Felter
Waverly	Bremer	948	14	68.6	+1.1	95	24	40	7	35	1.67	-2.58	0.68	0	9	16	10	4	s	H. S. Hoover
West Bend	Palo Alto	1,197	17	69.0	+1.6	97	24	38	2	37	3.25	-0.97	1.86	0	9	15	11	4	se	Phil Dorweiler
Average				68.8	+1.4	96		38		39	2.11	-2.46		0	7	20	6	4	se	
Central Section																				
Amana	Iowa	721	34	69.1	-0.3	97	30	39	7	38	1.72	-2.69	0.75	0	7	22	4	4	ne	Conrad Schadt
Ames	Story	926	34	68.8	-0.6	95	18	40	7	33	2.88	-1.65	1.04	0	7	15	12	3	s	Iowa State College
Audubon	Audubon	1,301	16	69.2	+1.1	97	19	40	4	36	1.64	-2.21	1.10	0	7	18	6	6	se	Geo. E. Kellogg
Baxter	Jasper	998	10	69.5	+1.9	98	†19	40	7	37	2.52	-1.98	0.93	0	10	18	9	3	ne	W. R. Vandike
Belle Plaine	Benton	828	20	69.0	-0.1	96	20	40	7	39	1.68	-2.49	0.65	0	7	17	7	6	se	S. P. Van Dike
Boone	Boone	1,134	5	70.2		98	†18	42	4	31	3.21		1.57	0	5	21	2	7		Carl Fritz Henning
Buckingham	Tama		10																	Dr. W. A. Daniel
Carroll	Carroll	1,265	20	68.6	0.0	97	17	39	5	36	3.61	-1.06	1.32	0	8	18	6	6	e	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	28	71.3	+1.0	100	30	43	7	38	0.63	-3.24	0.46	0	3	19	3	8	ne	W. J. Greene
Clinton	Clinton	593	43	69.8	+0.1	102	30	38	1	42	0.55	-3.88	0.17	0	4	18	9	4	ne	Luke Roberts
Davenport	Scott	580	39	71.5	+0.6	99	30	43	2	29	0.91	-3.20	0.36	0	5	20	6	4	e	Weather Bureau
Delaware	Delaware	1,083	19	69.2	+1.4	97	30	40	3	33	1.25	-2.93	0.47	0	5	18	8	4	se	Wm. Ball
Denison	Crawford	1,180	16	68.6	+0.8	95	†20	39	6	36	2.75	-0.67	0.76	0	9	19	7	4	s	W. C. Van Ness
Des Moines	Polk	861	31	70.6	+0.2	95	18	46	2	30	3.11	-1.85	1.29	0	10	11	13	6	se	Weather Bureau
De Soto	Dallas	866	10	69.4	+0.4	96	19	44	5	34	1.20	-3.17	0.85	0	3	24	2	4	sw	R. D. Minard
Dubuque	Dubuque	639	37	70.0	+0.4	98	30	43	7	32	2.43	-2.12	1.83	0	7	19	8	3	nw	Weather Bureau
Fort Dodge	Webster	1,126	10	69.6	+3.0	98	20	43	†2	35	4.38	+0.57	2.05	0	8	20	1	9		J. F. Monk
Gilman	Marshall	1,052	11								4.01	-0.73	1.77	0	6					Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	71.4	+3.1	98	†18	45	7	37	1.29	-3.29	0.91	0	5	18	7	5	n	D. W. Brainard
Grundy Center	Grundy	976	19	68.8	+0.6	97	†20	39	7	43	3.02	-2.28	1.70	0	6	19	1	10	n	J. B. Calderwood
Guthrie Center	Guthrie	1,077	15	69.8	+0.8	98	18	42	5	38	2.55	-1.86	1.51	0	10	23	2	5	se	D. G. Beardsley
Harlan	Shelby	1,182	11	68.7	+0.2	97	†18	38	5	40	0.81	-3.81	0.48	0	7	13	12	5	se	C. A. Reynolds
Independence	Buchanan	921	46	68.4	0.0	98	24	39	7	38	1.49	-3.29	1.03	0	3	22	4	4	se	Geo. Donohoe
Iowa City	Johnson	683	50	68.4	-0.9	97	30	37	7	38	0.98	-3.60	0.70	0	5	25	0	5	nw	Prof. A. G. Smith
Iowa Falls	Hardin	1,170	17	68.1	+0.6	97	20	38	7	41	2.84	-1.68	0.93	0	7	26	0	4	nw	J. B. Parmelee
Jefferson	Greene		11																	G. W. Jackson
Le Claire	Scott	576	10								0.65	-3.44	0.19	0	5					Margaret T. Disney
Little Sioux	Harrison		5	71.0	+1.6	99	†18	38	†1	42	0.54	-4.86	0.23	0	8	18	7	5	sw	Geo. H. Gibson
Logan	Harrison	928	43	70.7	+0.8	99	19	41	5	41	0.80	-4.63	0.35	0	4	12	17	1	se	Glenn H. Stern
Marshalltown	Marshall	947	18	68.8	+0.1	96	†20	40	†7	39	2.57	-1.79</								

CLIMATOLOGICAL DATA FOR IOWA, JUNE, 1910—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				Sky			Prevailing direction of wind	OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (in mel)	No. rainy days	Number clear days			Number partly cloudy days	Number cloudy days
Southern Section																				
Afton	Union	1,212	16	70.1	-0.7	99	†18	46	†1	34	4.29	+0.13	2.00	0	6	17	9	4	sw	Hon. N. W. Rowell
Albia	Monroe	959	12	68.7	-0.9	94	†18	44	5	31	1.72	-3.14	0.95	0	8	20	4	6	sw	J. I. Chenoweth
Allerton	Wayne		8	69.4	+1.3	93	†18	45	5	31	1.91	-2.78	1.40	0	6	25	1	4	nw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	19	70.4	+1.3	98	†18	44	5	36	2.71	-2.70	1.57	0	10	11	10	9	ne	Thos. H. Whitney
Bedford	Taylor		10	69.3	+1.0	97		20	43	5	1.19	-3.28	0.44	0	5	20	5	5	se	E. E. Healy
Bloomfield	Davis		3																	C. R. Davis
Bonaparte	Van Buren		13	69.4	-1.8	95	†26	43	3	33	1.33	-3.35	0.86	0	6					Hon. B. R. Vale
Burlington	Des Moines	544	14	71.2	+0.7	98		30	44	†3	3.07	-2.01	1.96	0	9	22	5	3	se	M. E. Poppe, Jr.
Centerville	Appanoose										0.21		0.15	0	2	27	3	0	e	Gordon Peacock, Jr.
Chariton	Lucas	1,042	15	68.4	-0.8	94		20	44	†2	1.53	-3.19	0.55	0	3	22	0	8	se	C. C. Burr
Clarinda	Page	1,009	20	68.4	-2.6	97		21	44	5	1.98	-2.92	0.48	0	8	17	7	6	ne	A. S. Van Sandt
Columbus Junction	Louisa	595	9	70.2	+1.5	95	†18	40	7	32	2.87	-2.01	1.22	0	8	23	5	2	ne	J. B. Johnston
Corning	Adams	1,117	18	69.0	-0.5	96		18	39	5	1.65	-2.40	0.50	0	7	15	12	3	se	Jerome Smith
Corydon	Wayne	1,101	17	70.8	+0.9	97		18	45	†1	1.34	-3.31	0.54	0	5	23	2	5	ne	Clara Miller
Creston	Union	1,312	5	69.2		95	†18	44	5	34	1.36		0.46	0	4	17	4	9	ne	E. S. Stovall
Cumberland	Cass		11								1.39	-3.29	-1.10	0	3	25	3	2	s	J. H. Reppert
Earlham	Madison		8	68.0	+2.8	95		19	41	†1	1.11	-3.42	0.54	0	4	21	4	5	se	Geo. Phillips
Elliott	Montgomery		5	69.4	-0.6	93	†18	42	5	36	0.78	-4.43	0.30	0	5	21	8	1	se	Henry Barnes
Fairfield	Jefferson		26	b 70.2	+0.3	a 95	†19	b 44	†3	b 35	0.75	-4.38	0.36	0	6	22	3	5	n	R. Monroe McKenzie
Fort Madison	Lee	516	61								2.31	-2.07	0.82	0	6	8	12	10	s	Miss L. A. McCready
Greenfield	Adair		18	69.0	-0.9	94	†18	43	5	33	3.37	-1.85	1.94	0	5	18	10	2	s	R. B. Oldham
Hancock	Pottawattamie	1,113	5	70.3		98		18	38	5	0.40		0.30	0	2	16	13	1	se	G. C. Rogers
Hopeville	Clarke		19	69.2	-0.5	94	†18	45	5	36	1.76	-2.29	0.65	0	7	11	12	7	s	M. T. Ashley
Indianola	Warren	969	19	70.3	+0.6	94	†15	46	5	35	1.56	-2.62	0.72	0	9	14	12	4	ne	Prof. J. L. Tilton
Keokuk	Lee	574	39	71.8	-0.7	97		30	45	3	1.34	-3.01	0.60	0	7	20	8	2	ne	Weather Bureau
Keosauqua	Van Buren	644	18	69.7	-2.0	98		30	40	3	0.90	-3.65	0.41	0	5	7	16	7		J. H. Landes
Knoxville	Marion	920	15	71.0	-0.6	96		22	45	3	3.71	-0.61	1.75	0	7	8	16	6	ne	Casey & Belville
Lacona	Warren		11								2.06	-2.95	0.94	0	7	13	15	2		J. B. Alter
Lamoni	Decatur		3	70.2		95	†18	45	5	32	2.63		0.98	0	7	22	4	4	se	T. J. Fitzpatrick
Lenox	Taylor	1,250	15	69.5	+0.2	94	†18	43	5	32	0.82	-3.45	0.32	0	5	19	7	4	s	J. L. Hurley
Leon	Decatur	1,120	8	70.3	+1.5	95	†23	44	3	32	1.75	-3.03	0.75	0	6	19	5	6	s	Morris Gardner
Massena	Cass		4																	C. E. Smeltzer
Mount Ayr	Ringgold	1,236	17	71.1	+1.1	97	†18	46	5	32	3.32	-1.40	1.66	0	8	16	9	5	ne	A. F. Beard
Mount Pleasant	Henry	729	29	a 71.0	-0.4	101		a 39	3	a 46	1.16	-3.32	0.65	0	6	19	8	3	sw	J. W. Edwards
Omaha, Nebr.	Douglas	1,040	40	73.0	+1.4	95		20	49	4	0.43	-4.62	0.27	0	4	17	6	7	se	Weather Bureau
Oskaloosa	Mahaska	843	34	70.0	+0.5	94	†18	45	7	34	1.99	-2.12	1.05	0	5	24	1	5	e	Jos. Boyd
Ottumwa	Wapello	649	15	72.2	+1.0	99		30	47	5	1.01	-3.07	0.56	0	4	4	8	18	se	W. J. Mesmer
Pacific Junction	Mills	960	11	70.1	+0.4	97		25	40	5	0.88	-3.58	0.42	0	5	11	18	1	s	H. H. McCartney
Pella	Marion	877	7	68.8	-2.5	97	†18	41	7	39	2.77	-1.01	0.99	0	9	25	0	5	nw	John H. Ver Steeg
Saint Charles	Madison	1,070	9	70.3	+1.7	94	†18	45	2	28	1.26	-3.08	0.41	0	6	22	6	2	s	R. D. Minard
Sigourney	Keokuk	877	14	69.6	-1.2	97		30	44	†7	1.55	-2.43	0.53	0	8	4	24	2	se	J. T. Parker
Stockport	Van Buren		8	69.0		100		30	40	7	1.04		0.70	0	7	21	5	4	e	C. L. Beswick
Thurman	Fremont		13	70.4	-0.6	97		18	40	5	1.32	-4.93	0.72	0	4	12	16	2	sw	C. R. Paul
Wapello	Louisa	588	12	68.7	-0.9	90	†19	41	3	38	2.91	-0.65	1.57	0	8	19	10	1	se	Geo. W. Schofield
Washington	Washington	769	28	70.0	-1.7	95		30	43	1	1.40	-2.11	0.60	0	5	16	12	2	se	Wm. A. Cook
Winterset	Madison	1,129	19	70.0	-0.1	96		20	45	†4	1.33	-4.50	0.45	0	5	14	9	7	se	Dr. Robt. S. Cooper
Woodburn	Clarke	961	11	67.0		95		19	39	3	1.94	-2.38	0.59	0	7	10	6	4	se	C. B. McDonough
Average				69.9	-0.1	96		43		35	1.74	-2.88		0	6	17	8	5	se	
State average				69.5	+0.7	96		41		37	1.99	-2.53		0	7	18	7	5	se	

†And other dates. a, one day missing; b, two days missing; c, three days, etc.
Received too late to be included in averages.

THUNDERSTORMS—STATIONS AND DATES

NORTHERN SECTION.		CENTRAL SECTION		SOUTHERN SECTION	
Alta	8, 16, 18, 25, 26	Amana	4, 9, 23, 24	Afton	25, 27
Alton	13, 17	Audubon	18, 25, 36	Albia	10, 24, 26, 27
Belmond	12, 24	Baxter	24, 25, 26	Allerton	8, 27
Britt	24, 25, 26	Davenport	4, 18, 26	Atlantic	8, 11, 25, 26
Charles City	12, 26	Dalaware	4, 27	Burlington	7, 9, 26
Elkader	4, 18, 26	Des Moines	5, 8, 9, 10, 19, 24, 25, 26	Centerville	30
Elma	4, 12	Dubuque	18, 26	Columbus Junction	4, 10, 23, 24, 26
Fayette	26	Grinnell	24, 26	Corning	25, 26, 27
Grand Meadow	27	Guthrie Center	5, 8, 11, 19, 25	Corydon	27
Greene	12	Harlan	9, 11, 18, 25, 26, 27	Creston	8, 9, 26
Humboldt	2	Iowa Falls	5, 24, 26	Earlham	19, 26
Inwood	8, 9, 16	Olin	26	Elliott	8, 24, 26
Larrabee	5, 8, 12, 17, 19, 25, 26	Onawa	5, 8, 17, 19	Fairfield	24, 26
Le Mars	8, 16	Perry	19, 25	Fort Madison	8, 9, 13, 18, 23, 24, 26
Mason City	26	Sioux City	5, 8, 9, 16, 18, 25	Greenfield	25
Northwood	26	Waterloo	12, 18, 26	Hopeville	8, 9, 25, 26, 27
Osage	12	Waukeee	19, 25	Indianola	5, 8, 9, 24, 25
Plover	2, 3, 5, 8, 9, 12, 24, 25, 26	Whitten	9, 24, 25, 27	Keokuk	8, 9, 13, 23, 24, 26
Pocahontas	5, 12, 24, 25			Lenox	25, 26
Ridgeway	4, 12, 26			Leon	8, 9, 26
Rock Rapids	25			Mount Ayr	25
Sheldon	8, 10, 25, 26			Mount Pleasant	8, 9, 24, 26
Sioux Center	5, 8, 16			Omaha, Nebr.	6, 8, 9, 11, 12, 18, 19, 25
Washta	5, 8			Oskaloosa	26
Waverly	3, 12, 24, 26			Ottumwa	9, 24, 26
West Bend	5, 24, 25			Pacific Junction	16
				Pella	8, 9, 18, 19, 24, 26
				Saint Charles	10, 26
				Sigourney	10, 24, 26
				Thurman	8, 11, 12, 17, 19, 24, 25
				Woodburn	27

MONTHLY REVIEW OF THE

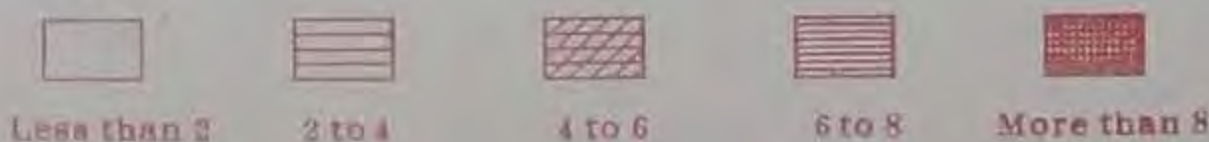
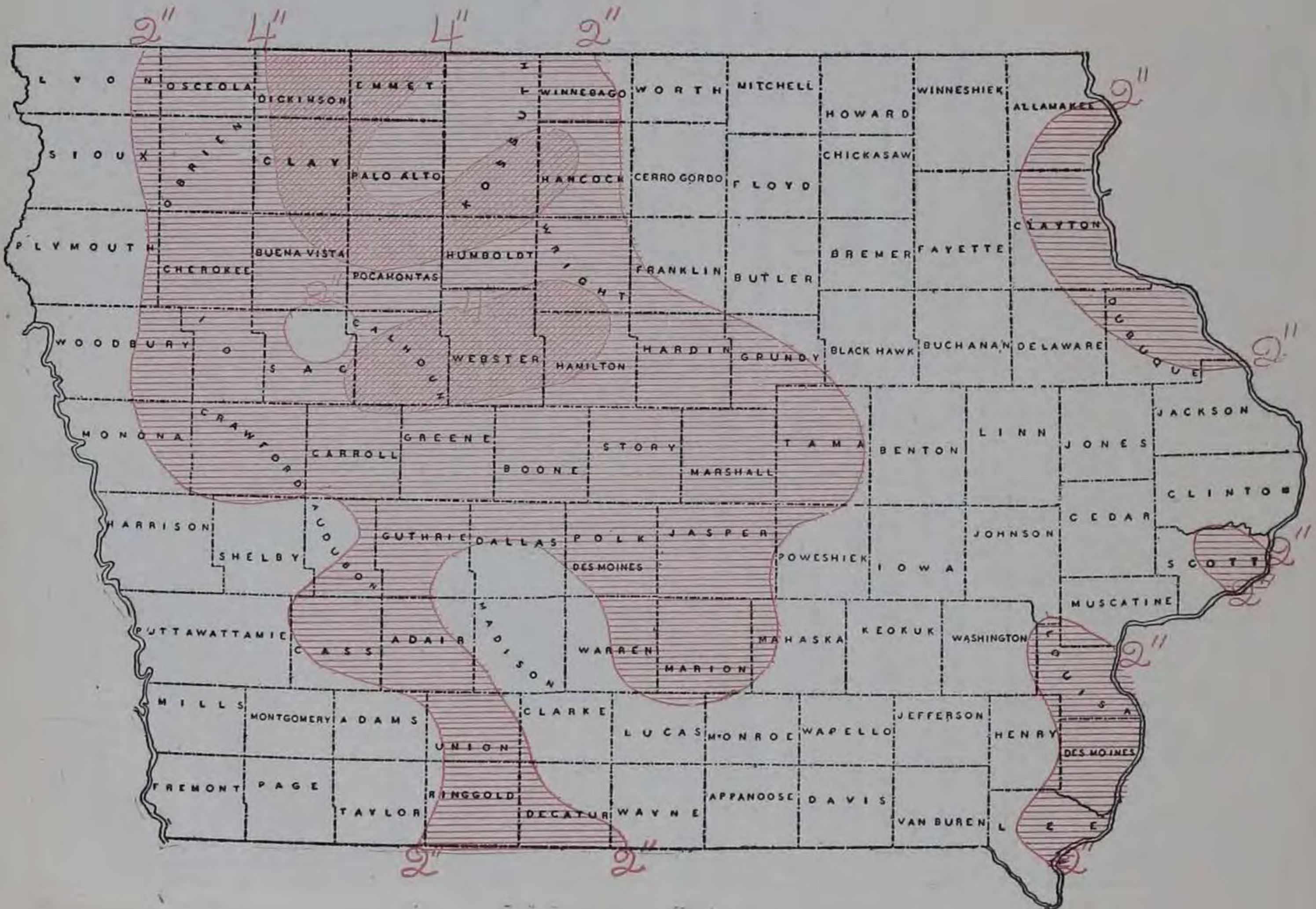
DAILY PRECIPITATION FOR IOWA, JUNE, 1910-Continued

STATIONS	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						
Sheldon		T	.15		T			.75	1.15	.05		.15				.03			.03																	2.81
Sibley		T	.02	.12			.25		1.20	.17		T				.03			.04		.03					.10	.40								2.20	
Sigourney		T	.05	.02	T			.09	.50	.53																.14	.09	.18							1.55	
Sioux Center		T	.11		.10			1.26	.18							.09																			1.74	
Sioux City		T	.02	.08	.12	.02	.15	.70	.17	.01	.01																								1.41	
Stockport			.03	.04	.01	.04		.36	.34	.22																									1.04	
Storm Lake			.06	.05		.08		.73	.29	.34			.13																						2.00	
Stuart			.20	T				.56	.04			T																							1.85	
Thurman			.10		T		.22	.72	T	.28	T	T																							1.32	
Tipton			.10		.03	.05	T	T	.28																										0.46	
Toledo				.25	T	.15	*	.90	.38																										2.43	
Wapello			.03	.23	.03			.10	.41	.43																									2.91	
Washington			.01	.12				.60	.34																										1.40	
Washta			.40	.08	.08	.12		.92	.56			T																							2.39	
Waterloo			.07	.22	.06			.58	.02			.11																							1.84	
Waukeo			.02		.04			.58	.06	.43	.01				.01					.02															1.46	
Waverly			.07	.08	.29	.04		.25	.18			.08									.12														1.67	
Webster City				T	.10	.08		.10	1.22	1.48	T																								4.95	
West Bend			.01	.03	.03	.19		.67	1.48	.38			T													.57	.07	1.33							3.25	
Whitten				.12	.15			.72	.19	.15																									2.43	
Winterset			.15	T	T	T	T	.45	.25	.44																									1.33	
Woodburn			T	.12	.01		.01	.55	.44	.22																									1.94	

* Precipitation included in that of the next measurement.
 || 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.

TOTAL PRECIPITATION, JUNE, 1910.

SCALE OF SHADES-IN INCHES



IOWA CROPS, 1910—NUMBER OF ACRES BY COUNTIES

COUNTIES	Corn Acres	Oats Acres	Spring Wheat Acres	Winter Wheat Acres	Barley Acres	Rye Acres	Flax Acres	Potatoes Acres	Hay Acres	Pastures Acres	Alfalfa Acres	Pop Corn Acres	Sweet Corn for Cans Acres
Adair	107,000	27,340	3,350	95	5,810	30		1,020	50,400	114,350	30	45	
Adams	68,000	20,860	1,240	2,250	2,070	90		550	30,450	90,820	75		
Allamakee	47,400	33,950	900	250	15,000	400	45	1,620	49,260	139,980	30		60
Appanoose	48,500	12,680	360	2,660	35	310		400	46,820	90,950		5	
Audubon	93,000	32,070	5,250	115	8,970	35		890	32,480	81,070	45		
Benton	125,000	68,420	990	90	15,380	1,010		1,600	56,400	115,600	20		2,490
Black Hawk	89,600	51,920	130	60	5,780	2,360	70	2,280	49,000	100,200		110	1,500
Boone	112,700	54,920	1,610	130	1,310	250		1,230	49,550	77,540	55	10	
Bremer	60,000	53,500	120	180	4,500	560	10	1,380	46,300	68,000		130	1,140
Buchanan	85,300	50,600	270	110	4,060	870	12	1,200	55,500	102,390		2	800
Buena Vista	98,500	74,300	400	60	1,870	10	90	1,520	43,700	73,200	70	120	140
Butler	97,500	70,920	220	60	2,720	1,750	50	1,900	43,000	80,400		270	30
Calhoun	114,000	81,000	230	110	2,000	20	100	1,100	35,100	67,200	25	10	310
Carroll	106,000	55,000	6,000	170	6,500	60	15	2,000	39,700	72,700	40		
Cass	111,400	33,570	10,710	3,050	5,720	180	50	1,290	42,220	100,800	65	180	460
Cedar	102,500	31,500	1,300	1,500	15,700	620		1,350	47,800	98,400			290
Cerro Gordo	91,500	70,500	400	220	3,000	150	240	1,370	59,000	77,200			
Cherokee	110,000	69,000	930	40	6,700	10	20	1,740	41,800	81,300	90		
Chickasaw	65,300	56,800	860	30	6,200	300	890	1,230	42,600	76,100			
Clarke	52,300	14,860	80	2,470	980	40		290	40,400	95,760			
Clay	79,000	72,000	460	90	1,740	100	160	830	50,000	83,500	20	100	
Clayton	108,000	52,380	1,070	660	15,750	990		1,750	61,300	153,100	20		250
Clinton	114,000	38,810	1,440	1,130	9,390	1,150		1,220	63,000	152,600			
Crawford	143,000	54,540	17,220	510	10,400	140		2,300	53,500	123,300	240	110	
Dallas	115,500	47,440	1,570	1,490	1,450	260		770	31,220	95,600	150	10	40
Davis	55,800	16,600	40	3,000	40	710		720	43,800	189,800	20		
Decatur	63,500	19,000	90	2,800	30	260		300	39,200	113,820		80	
Delaware	79,800	38,400	210	50	13,900	1,300		1,140	52,100	106,400			170
Des Moines	63,000	24,040	270	7,640	800	645		1,200	25,490	87,020	15	20	35
Dickinson	44,000	30,900	870	80	3,100	160	610	570	33,000	50,000	10	40	15
Dubuque	65,500	46,250	660	190	6,300	220		1,970	58,670	141,500			150
Emmet	45,000	35,400	450		2,430	10	420	760	36,530	49,000			
Fayette	86,500	56,500	700	180	13,100	450		1,600	69,000	144,500	30	110	540
Floyd	75,000	66,900	400	55	2,540	640	1,880	2,160	37,450	64,440		50	15
Franklin	95,500	82,700	610	140	4,300	260	70	2,100	48,700	81,100	20		
Fremont	127,000	12,400	3,600	5,800	240	220		720	22,000	74,200	1,910	50	70
Greene	118,000	54,200	400	110	2,400	30	100	1,000	41,300	87,000	30		
Grundy	96,400	65,310	220	110	7,430	25		7,380	35,620	71,700			35
Guthrie	81,000	32,480	2,440	200	2,660	60		810	35,600	115,340		23	
Hamilton	109,800	69,130	1,110	660	670	45	85	1,020	47,400	88,700	30	15	25
Hancock	75,300	63,120	1,340	40	4,290	150	160	1,030	44,780	62,970	10		85
Hardin	99,000	61,440	1,370	480	2,250	70		2,650	41,600	80,900	20	20	
Harrison	138,500	22,500	17,000	5,800	3,130	220		1,440	26,000	82,540	5,000		
Henry	72,200	29,260	240	3,200	340	680		570	28,000	85,300	20	20	600
Howard	45,500	46,000	530	50	9,370	40	2,900	920	43,740	64,000			
Humboldt	73,500	53,800	1,730	25	540	10	90	700	35,800	55,100	20	5	
Ida	88,800	41,630	2,340	210	13,450		20	1,010	31,220	57,700	70	1,300	
Iowa	91,200	39,050	2,710	365	2,030	400		1,390	44,150	115,000	6	8	190
Jackson	62,000	25,520	1,120	400	6,640	620		1,150	63,050	115,470	10	10	180
Jasper	132,100	47,600	7,900	1,350	2,250	360		1,620	53,500	142,600			20
Jefferson	63,200	23,840	820	4,000	760	680		490	31,500	103,100	15		
Johnson	77,000	33,660	1,460	1,080	3,800	1,270		1,180	37,200	101,460			
Jones	80,000	26,000	320	90	10,000	600		780	52,400	121,200			200
Keokuk	97,000	34,100	3,750	1,800	2,770	820		650	42,600	109,000	20	80	
Kossuth	123,000	130,000	2,500	50	3,000	50	1,400	1,700	98,000	120,000	10	10	
Lee	55,600	18,300		15,700	170	2,800		1,280	36,000	102,000	30	10	20
Linn	101,000	50,680	1,580	140	4,420	1,140		2,100	55,850	119,900	15	20	700
Louisia	67,900	19,400	1,500	10,200	570	1,800		480	18,300	63,400	30		440
Lucas	52,600	15,600	470	2,950	35	265		380	36,500	105,400	6	2	
Lyon	101,000	66,700	1,160	80	24,900	20	160	1,890	33,230	58,300	50		
Madison	85,000	18,600	1,700	950	5,100	110		700	41,900	126,000	20		25
Mahaska	101,000	31,600	3,700	1,600	2,500	380	40	780	38,000	103,600	20	10	15
Marion	86,000	22,600	6,000	2,330	3,800	370		570	35,500	126,500	80		140
Marshall	110,400	59,040	2,100	1,440	1,670	220	19	2,400	40,000	89,600	15	16	105
Mills	91,600	12,440	5,910	2,860	960	65		800	22,400	66,250	2,530	7	10
Mitchell	72,600	74,600	680	45	7,320	75	1,800	1,520	31,270	62,900			40
Monona	125,500	23,200	11,330	16,000	4,500	120		1,380	31,000	90,260	3,350	80	
Monroe	36,000	6,580	2,250	2,620	170	80		260	36,160	109,840			
Montgomery	93,000	15,280	12,340	8,700	1,280	65		700	27,600	71,200	400	20	
Muscatine	65,200	15,800	1,550	4,100	8,700	3,200		3,130	28,000	80,860	30	20	
O'Brien	94,600	64,740	440	110	14,760	70	40	1,580	41,970	69,200	8	30	7
Osceola	55,000	52,000	170	25	7,800	20	260	900	25,900	40,800		20	
Page	118,000	17,700	7,100	7,500	1,600	230		700	35,500	93,500	130	30	100
Palo Alto	71,200	53,400	350	60	1,130		420	1,020	61,200	81,200	6	300	
Plymouth	174,800	67,000	21,430	1,230	13,790	30	30	2,030	47,000	80,450	600	20	48
Pocahontas	99,500	84,650	440	50	560	70	430	3,250	45,550	70,100	20	1,300	5
Polk	106,500	34,200	6,200	2,600	1,450	200		2,850	34,000	74,800	100	250	700
Pottwattamie	195,000	38,100	22,850	3,730	6,450	200		2,800	50,600	119,760	3,800	10	200
Poweshiek	99,100	39,000	2,600	300	5,450	140		970	41,730	105,000			
Ringgold	61,500	23,700	130	2,700	80	100		200	46,000	114,000	15		
Sac	113,400	63,500	690	250	3,700		20	1,120	43,840	81,000	170	3,230	750
Scott	76,000	21,560	2,270	4,570	23,870	1,590		8,500	37,000	75,420	30	20	
Shelby	130,000	36,100	10,500	500	14,000	90		1,300	44,000	81,800	125		75
Sloux	156,000	84,600	12,320	580	32,000	20	35	1,750	50,400	87,200	320	5	
Story	119,300	55,500	1,020	1,230	1,300	180	15	970	42,100	79,700	30	15	
Tama	128,000	65,500	3,700	190	10,500	370		3,200	55,000	123,000			330
Taylor	74,900	20,200	395	4,680	1,110	130		490	39,900	118,800	45		
Union	57,500	18,800	510	620	1,190	80		890	35,600	92,600	30		30
Van Buren	57,700	18,080	80	6,250	150	720		310	35,000	126,300	120	50	12
Wapello	50,200	15,000	400	3,700	550	500		850	31,000	86,000	10	10	
Warren	76,500	17,230	3,360	3,350	1,240	300		850	41,800	106,500	20		
Washington	99,000	41,360	1,750	2,400	1,260	420		720	39,000	109,330	10		
Wayne	76,100	27,000	55	1,650	250	100		220	58,000	117,000	10		6
Webster	113,700	85,890	2,880	170	780	70	125	1,310	55,410	94,200	10	6	
Winnebago	46,500	33,250	6,880		6,090		580	870	41,450	51,850			520
Winneshiek	72,900	62,000	5,170	130	18,800	180	1,760	1,310	59,680	134,430		25	
Woodbury	157,000	53,840	8,680	9,450	12,390	40</							

U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR JULY, 1910

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



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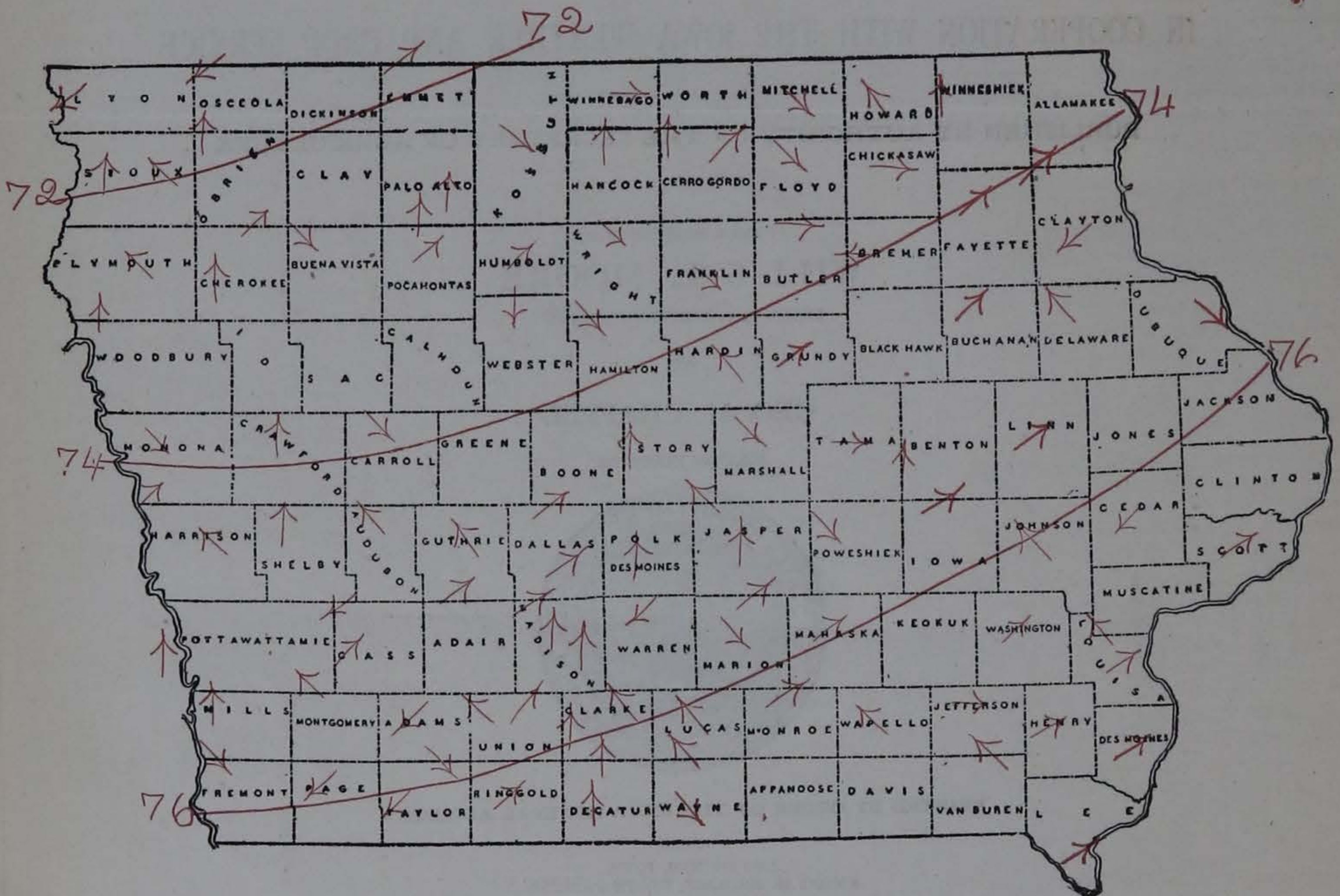
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MEAN ISOTHERMS AND PREVAILING WINDS OF JULY, 1910.
Lines pass through points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
 CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
 GEO. M. CHAPPEL, Section Director.

VOL. XXI DES MOINES, IOWA, JULY, 1910 No. 6

IOWA CROP REPORT, AUGUST 1, 1910.

Following is a summary of reports from crop correspondents of the Iowa Weather and Crop Service, showing the estimated condition of staple crops August 1, 1910, as compared with the average condition on that date in past years. There has been a decided improvement in the condition of corn during the past month, over the larger part of the State and especially over the northwestern, southeastern and many of the southern counties where showers have been timely and rainfall sufficient to keep the plants growing rapidly. On the other hand the condition has declined over the northeastern and some of the southwestern counties, due to a deficiency of moisture. The average condition of corn for the four quarters of the State are as follows: Northwest quarter, 97 per cent; northeast, 80 per cent; southeast, 96 per cent, and southwest, 89 per cent, which makes an average for the State of 90.5 per cent. The average condition for the western half of the State, which has 57 per cent of the corn acreage, is 93 per cent as compared with 88 per cent for the eastern half.

The average condition of spring wheat was 102 per cent; oats, 101; barley, 99; flax, 88; hay, 70; pastures, 59; potatoes, 63; apples, 4; grapes, 28; pop corn, 87; sweet corn for can, 85 per cent.

The condition on August 1, 1909 was: Corn, 91 per cent; spring wheat, 92; oats, 92; barley, 87; flax, 93; hay, 101.5; pastures, 102; potatoes, 92; apples, 65; grapes, 80 per cent.

August 1st average of the past 10 years: Corn, 86.5 per cent; oats, 85; spring wheat, 87; barley, 88; flax, 88; hay, 93; pastures, 92; potatoes, 97; apples, 57; and grapes, 82 per cent.

GENERAL SUMMARY.

The droughty conditions that prevailed over the latter half of June, continued over the larger part of the State during the entire month of July. The average rainfall for the State was only 1.87 inches, or 2.59 inches below the normal. July 1894 was drier than the past month, but the total precipitation for the first seven months of 1894 was 12.25 inches as compared with 10.94 inches for the same months this year. The total deficiency of precipitation from January 1, to July 31, 1910 was 9.38 inches, which is the greatest on record in the State for a like period. Showers, although quite frequent, were badly distributed as to time and locality, except over the northwestern counties where they came at frequent intervals and the amount of rainfall was sufficient to keep the crop conditions above the normal for that season of the year. In the northeastern and some localities in the central and southwestern counties, showers were few and widely scattered and the rainfall light.

The average temperature was only 1.1° above the normal, but July, 1910, will be remembered as a hot month. The day temperatures were higher than usual, but the night temperatures were, with a few exceptions, low. Temperatures in excess of 100° were recorded in

the northeastern counties on the 15th and 16th; in the southeastern counties on the 24th, and in the southwestern counties on the 27th. The month, as a whole, was in many respects ideal for agricultural pursuits. There were very few if any wind storms, and while it was excessively dry over the larger part of the State, the clear weather was very beneficial for haying, harvesting and threshing. Hay and all small grain was secured in excellent condition and, although the hay crop was lighter than usual, it was of the very best quality. The yield of small grain was above the average and the quality is also excellent. Corn made rapid growth and at the end of the month was strong and vigorous and earing nicely except in the northeastern and some localities in the central and southwestern counties, where the drought has been the most severe. Pastures and potatoes were, however, severely damaged by lack of moisture. Pastures were practically bare and early potatoes were nearly a failure. Small streams and shallow wells were dry and the stage of the rivers was lower than for many years.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 112 stations, was 74.5°, which is 1.1° above the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 73.1°, which is 1.0° above the normal; Central section, 74.8°, which is 1.1° above the normal; Southern section, 75.6°, which is 1.1° above the normal. The highest monthly mean was 79.2°, at Tipton, Cedar County, and the lowest monthly mean, 69.8°, at Sibley, Osceola County. The highest temperature reported was 108°, at Ridgeway, Winnishiek County, on the 16th; the lowest temperature reported was 43°, at Woodburn, Clarke County, on the 19th. The average of the monthly maxima was 97°, and the average of the monthly minima was 50°. The greatest daily range was 47°, at Woodburn, Clarke County. The average of the greatest daily ranges was 37°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 120 stations, was 1.86 inches, which is 2.58 inches below the normal. By sections the averages were as follows: Northern section, 1.85 inches, which is 2.43 inches below the normal; Central section, 1.57 inches, which is 2.94 inches below the normal; Southern section, 2.16 inches, which is 2.38 inches below the normal. The greatest amount, 5.69 inches, occurred at Keosauqua, Van Buren County, and the least, 0.12 inches, at New Hampton, Chichasaw County. The greatest amount in twenty-four hours, 3.52 inches, occurred at Keosauqua, Van Buren County, on the 29th. Measurable precipitation occurred on an average of seven days.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 19; partly cloudy, 8; cloudy, 4. The duration of sunshine was slightly above the normal, the percentage of the possible amount being 88 at Charles City; 80 at Davenport; 62 at Des Moines; — at Dubuque; 69 at Keokuk, and 71 at Sioux City.

WIND.—Southwest winds prevailed. The highest velocity reported was 54 miles per hour from the south, at Sioux City, Woodbury County, on the 7th.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 29.92 inches.
 Prevailing direction of Wind, South.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum Velocity—miles	Direction	Date	Average Hourly Velocity
Charles City.	29.92	30.26	19	29.64	23	4081	24	SW	23	5.5
Davenport . .	29.92	30.28	19	29.72	8	4515	39	NW	9	6.1
Des Moines . .	29.90	30.25	19	29.62	23	4671	33	S	25	6.3
Dubuque	29.94	30.31	19	29.69	23	3950	22	N	17	5.3
Keokuk	29.93	30.26	19	29.76	8	4039	32	W	9	5.4
Omaha, Neb. . .	29.91	30.22	19	29.62	23	4907	28	E	2	6.6
Sioux City . . .	29.91	30.22	19	29.64	23	7399	54	S	7	9.9

COMPARATIVE DATA FOR THE STATE—JUNE.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	75.6	110	45	1.98	5.00	0.37
1891.....	68.5	99	41	4.22	8.20	1.67
1892.....	73.0	104	38	5.29	12.86	1.71
1893.....	75.0	102	47	3.33	8.84	1.49
1894.....	76.4	109	39	0.63	3.50	T
1895.....	72.1	104	55	3.40	10.10	0.45
1896.....	73.6	104	42	6.90	12.67	1.61
1897.....	75.6	106	42	3.26	7.60	1.01
1898.....	73.4	102	42	2.98	12.88	0.55
1899.....	73.1	101	38	3.07	8.66	0.42
1900.....	73.4	102	37	6.15	18.45	1.80
1901.....	82.4	113	46	2.34	5.97	0.27
1902.....	73.1	99	41	8.67	13.57	4.82
1903.....	72.9	100	40	4.83	12.72	0.94
1904.....	70.6	100	38	4.41	11.97	1.28
1905.....	70.6	102	40	2.91	7.08	0.69
1906.....	70.9	102	42	3.01	7.05	0.26
1907.....	73.7	102	41	7.27	13.66	3.97
1908.....	73.0	100	42	3.66	9.21	0.70
1909.....	72.3	102	46	4.77	12.20	1.20
1910.....	74.5	108	43	1.86	5.69	0.12

OBSERVER'S REMARKS.

AFTON.—*N. W. Rowell.* This has been the driest July in Afton for sixteen years. Corn is suffering for rain.

ALBIA.—*J. I. Chenoweth.* Precipitation deficient and sunshine excessive and hot. Small grain harvested in good shape and threshing returns show extra good. Some oats making by weight 56 bushels per acre. Wheat plump and heavy, making 25 bushels per acre. Corn damaged and pastures burned up. Feeding has to be resorted to. Hay crops short and no timothy seed.

ALLERTON.—*Mrs. George Shriver.* Corn doing well but beginning to need rain. Harvest about completed and threshing begun. Quality of hay good but light yield.

ALTA.—*David E. Hadden.* Compared with the normal of 20 years observations the month was only three-tenths of a degree warmer, but the rainfall was 2.25 inches below the average. Showers were light but sufficiently frequent for all growing vegetation. There was an excess of sunshine.

ALTON.—*W. S. Slagle.* Began cutting oats July 11th; barley, 14th; finished cutting July 30th.

AMANA.—*Conrad Schadt.* July was hot and dry. Meadows, pastures, corn and potatoes suffered much from drouth. There was a remarkable absence of storms and high winds; there being only two thunderstorms.

ATLANTIC.—*Thos. H. Whitney.* Prevailing drouth was severe on pastures and meadows, but permitted harvest to be made under exceptionally favorable conditions. Yield and quality of grain fully equal, if not better, than average. Corn on good land was in fully average condition at close of month.

AUDUBON.—*Geo. E. Kellogg.* July was a hot, dry month, but all crops are doing well except potatoes and pastures. Rain is needed to mature the corn crop.

BAXTER.—*W. R. Vandike.* July was a very warm month and was very dry up to the 26th. Pastures getting short and potatoes and vegetables are suffering for rain.

BELMOND.—*Geo. P. Hardwick.* High average temperature but only one extremely hot day. The deficiency of moisture is severe on crops on dry lands. The quality of wheat, barley and oats is the best of many years.

BRITT.—*L. M. Goodman.* The month was very pleasant and favorable to growing crops, except that a little more moisture was needed. There were no bad storms.

BURLINGTON.—*Max E. Poppe, Jr.* The Mississippi river is only 3 inches above the low water mark of 1864. Several parties have waded across the river at this point, where it is from five-eighths to seven-eighths of a mile wide.

CHARITON.—*C. C. Burr.* Harvest is finished in fine shape, and some threshing done; showing yields above the average. All vegetation is suffering for rain and pastures are very short. Early corn looks fairly well, but wilts every day.

CHARLES CITY.—*E. W. McGann.* The days were warm and bright and the nights, with a few exceptions, cool. The marked features were the remarkably long drouth which continued during the month; the low humidity; the large number of fair or partly cloudy days, and the high percentage of sunshine. There were 7 feeble thunderstorms and the greatest precipitation accompanying these was only 0.14 inch. The deficiency of rainfall for the month was 3.15 inches, and for the reason, March 1st, to close of the month, 13.95 inches.

CLINTON.—*Luke Roberts.* The streams are low and the ground dry. Much injury has been done to plant life by high temperatures and dry weather. The Mississippi river is only 0.5 foot above the low water mark and the lowest since 1864.

DAVENPORT.—*J. M. Sherier.* Although the total precipitation of 2.86 inches was not decidedly below the average, most of the rain fell in one storm on the 14th, when 2.01 inches were recorded between 11:13 a. m. and 12:55 p. m. During the same storm 1.59 inches were registered in the 22 minutes ended at 11:59 a. m., which is the heaviest rainfall for such a short period of time on record at the Davenport station. The lightning that attended the storm was sharp and close, instantly killing Alonzo Twiggs of Davenport, who had sought shelter under a pile of lumber, and David Gerhardt, a tinner, working on the roof of a building on the farm of Colonel George W. French, about three miles east of Bettendorf, Iowa. As a rule, the month was dry and warm, with more than the normal amount of sunshine.

DUBUQUE.—*J. H. Spencer.* The past month was the driest July during the past 37 years, except July 1894. At the close of the month gardens and pastures were drying up for lack of rain, and it was feared that corn might be injured if the drouth continued.

ELLIOTT.—*Henry Barnes.* Vegetation, except meadows, pastures and potatoes made good progress in spite of lack of rain. Splendid weather for grain and hay harvest. Small grain is in excess of average and of prime quality.

FAIRFIELD.—*Prof. R. Monroe McKenzie.* The month has been very hot and dry, but the soil has been in good condition to withstand the drouth. The nights have been cool and there has been much dew so that corn is in good condition at the end of the month.

FOREST CITY.—*J. A. Peters.* Only one cloudy day during the month. Corn is tasseling. Haying and harvesting about finished and no rain to interfere with work.

GRAND MEADOW (Postville P. O.)—*F. L. Williams.* The month was very dry with hot days and cool nights. Pasturage is short and all growing crops need rain. Small grain is all cut and is of excellent quality. Corn is clean and has a good color.

GRINNELL.—*D. W. Brainard.* Complaint of the dry, hot weather was general throughout the month, but taken as a whole the month was quite favorable for crops generally in Poweshiek County.

INWOOD.—*L. B. Hanson.* A good month but showers were a little too frequent for haying and harvest. Harvest and shock threshing finished and half of stacking done. The condition of corn is above normal.

Continued on Page 74

CLIMATOLOGICAL DATA FOR IOWA, JULY, 1910

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days	No. partly cloudy days			No. cloudy days
Northern Section																				
Algona	Kossuth	1,213	37	74.0	+0.6	96	16	50	13	33	0.77	-2.33	0.38	0	4	26	3	2	nw	Dr. F. T. Seeley
Alta	Buena Vista	1,513	19	72.2	+0.3	92	16	52	13	34	2.58	-2.10	0.95	0	10	17	13	1	nw	David E. Hadden
Alta (near)	Buena Vista										2.88	-2.00	1.10	0	8					W. J. Minard
Alton	Sioux	1,305	5	72.4		97	17	50	13	37	3.84		1.02	0	8	13	15	3	se	W. S. Slagle
Belmond	Wright			72.3		95	16	50	13	34	3.13		1.10	0	7	5	24	2	nw	Geo. P. Hardwick
Britt	Hancock	1,236	13	71.4	-0.4	94	16	49	13	35	1.60	-2.83	0.58	0	6	23	8	0	s	L. M. Goodman
Charles City	Floyd	1,015	19	73.2	-0.3	98	16	48	13	33	0.43	-3.15	0.14	0	6	10	15	6	nw	Weather Bureau
Clear Lake	Cerro Gordo	1,241	12	74.6	+1.4	96	16	52	18	33	1.22	-3.52	0.80	0	3	29	0	2	s	Oscar Stevens
Decorah	Winnishiek	875	17	76.6	+4.6	105	15	43	11+	45	0.73	-2.99	0.45	0	3					F. H. Baker
Elkader	Clayton	727	31	75.0	+1.4	103	16	45	19	46	0.41	-4.27	0.27	0	3	19	11	1	ne	Chas. Reinecke
Elma	Howard			74.6		99	16	51	13	37	0.33		0.12	0	5	24	6	1	se	H. A. Moore
Estherville	Emmet	1,298	15	71.4	+0.3	93	16+	50	13+	37	2.00	-2.58	0.53	0	7	18	0	13	sw	A. O. Peterson
Fayette	Fayette	1,003	20	74.4	+1.3	101	16	46	13	43	1.04	-3.05	0.50	0	4	28	3	0	sw	R. Z. Latimer
Forest City	Winnebago	1,226	16	72.4	+0.4	96	16	51	13+	36	1.80	-1.88	0.85	0	6	23	7	1	w	J. A. Peters
Grand Meadow	Clayton	1,180	19	72.2	+1.7	92	16	50	18	30	0.76	-3.98	0.19	0	4	11	16	4	sw	F. L. Williams
Greene	Butler			76.6	+3.3	106	16	49	13	45	0.68	-4.02	0.20	0	6	11	16	4	w	J. L. Cole
Hampton	Franklin	1,155	20	75.0	+2.6	98	15	54	11+	35	0.95	-3.88	0.24	0	7	13	13	5	nw	E. C. Grenelle
Humboldt	Humboldt	1,095	22	72.5	-0.4	95	16	48	13	37	1.82	-2.12	0.68	0	7	30	0	1	sw	H. S. Wells
Inwood	Lyon	1,474	6	73.3	+3.1	96	1	48	12	39	3.53	+0.27	1.53	0	10	20	9	2	ne	F. B. Hanson
Larrabee	Cherokee	1,266	20	71.0	-1.8	92	16	50	13	32	3.47	-0.90	1.30	0	6	17	13	1	sw	H. B. Strever
LeMars	Plymouth	1,224	14	71.4	-1.0	89	21	52	12	31	5.18	+0.71	1.20	0	9	14	16	1	se	G. A. C. Clarke
Mason City	Cerro Gordo	1,133	13	72.0	-0.5	95	16	46	13	37	0.71	-3.35	0.36	0	4	21	9	1	sw	J. S. Mills
New Hampton	Chickasaw	1,169	13	75.4	+4.0	99	16	49	13	40	0.12	-4.07	0.09	0	2	22	5	4	w	A. F. Kemman
Northwood	Worth	1,222	14	73.0 f	+1.8	95 f	16	52 f	19	34 f	1.78	-2.14	0.83	0	4	25	4	2		Chas. H. Dwelle
Osage	Mitchell	1,184	23	75.8	+5.3	102	16	48	13	39	0.50	-3.16	0.33	0	2	27	2	2	nw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	14	72.1	-0.5	96	16	47	13	42	2.30	-2.07	0.70	0	6	28	2	1	s	J. S. Smith
Pocahontas	Pocahontas	1,248	6	71.0	0	93	16	50	18	33	1.87	-1.85	0.48	0	7	23	6	2	sw	F. E. Hronek
Ridgeway	Winnishiek	1,215	12	76.4	+3.0	108	16	50	18	43	0.57	-4.09	0.39	0	5	23	7	1	s	Arthur Betts
Rock Rapids	Lyon	1,358	11																	W. C. Wyckoff
Sheldon	O'Brien	1,422	10	73.0	+0.9	98	15	49	12+	41	3.37	-1.77	1.60	0	7	21	6	4	s	Dr. A. W. Beach
Sibley	Osceola	1,212	17	69.8	-0.4	91	16	49	12	32	3.10	-0.87	0.82	0	10	16	15	0	ne	H. G. Doolittle
Sioux Center	Sioux			71.8	+0.6	93	16	50	12	32	4.06	-0.65	1.37	0	7	21	6	4	s	J. de Ruyter
Storm Lake	Buena Vista	1,440	21	73.4 d	+1.5	90 e	26	53 f	5+	34 f	2.61	-1.69	0.62	0	7					S. B. Fracker
Washta	Cherokee	1,157	12	71.6	+1.0	95	16	44	13	41	2.27	-2.18	0.60	0	7	19	10	2	s	H. L. Felter
Waverly	Bremer	948	14	73.8	+1.4	97	16	50	13	34	0.82	-3.72	0.23	0	5	17	12	2	e	H. S. Hoover
West Bend	Palo Alto	1,197	17	7.20	-0.1	96	16	50	13+	37	1.32	-2.46	0.49	0	6	16	11	4	s	Phil. Dorweiler
Average				73.1	+1.0	96		49		37	1.85	-2.43		0	6	20	9	2	s	
Central Section																				
Amana	Iowa	721	34	76.0	+2.3	99	16	48	19	38	1.08	-3.17	0.69	0	5	15	11	5	sw	Conrad Schadt
Ames	Story	926	34	73.6 a	-0.7	96	1+	49 b	13	39 b	1.69	-2.75	0.65	0	5	16	11	4	s	Iowa State College
Audubon	Audubon	1,301	16	72.8	+0.7	93	16	46	13	39	1.47	-2.45	0.57	0	10	18	6	7	se	Geo. E. Kellogg
Baxter	Jasper	998	10	74.1	+0.9	99	1	49	13	38	2.07	-2.97	1.44	0	5	16	11	4	se	W. R. Vandike
Belle Plaine	Benton	828	20	75.1	+2.3	99	16	48	13	39	0.86	-3.55	0.55	0	4	19	9	3	s	S. P. Van Dike
Boone	Boone	1,134	5	74.8		97	1	54	13	33	1.86		0.75	0	7	20	5	6		Carl Fritz Henning
Buckingham	Tama																			Dr. W. A. Daniel
Carroll	Carroll	1,265	20	72.5	-0.5	93	7+	48	12	36	1.14	-2.87	0.60	0	4	16	10	5	nw	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	28	76.8	+2.1	100	1+	53	19	35	0.44	-3.60	0.19	0	3	18	5	8	sw	W. J. Greene
Clinton	Clinton	593	43	76.9	+3.1	101	1	47	19	38	1.68	-2.52	0.43	0	6	12	12	7		Luke Roberts
Davenport	Scott	580	39	77.0	+1.6	97	24	56	18	29	2.86	-0.69	2.01	0	5	19	7	5	sw	Weather Bureau
Delaware	Delaware	1,033	19	76.0	+4.1	98	16	52	18+	36	0.65	-3.50	0.41	0	4	20	16	1	se	Wm. Ball
Denison	Crawford	1,180	16	72.8	+0.1	94	1	45	13	41	1.92	-2.14	0.74	0	9	23	6	2	s	W. C. VanNess
Des Moines	Polk	861	31	75.6	+0.1	97	16	54	13	35	0.86	-3.00	0.56	0	5	9	11	11	s	Weather Bureau
De Soto	Dallas	866	10	75.0	+2.3	100	16	46	13	41	0.63	-5.20	0.30	0	5	23	4	4	sw	R. D. Minard
Dubuque	Dubuque	639	37	76.0	+1.3	98	1	54	19	30	0.47	-3.83	0.23	0	5	14	13	4	nw	Weather Bureau
Fort Dodge	Webster	1,126	10	73.9	+1.4	97	1	50	13	37	2.82	-2.21	1.25	0	9	24	0	7	n	J. F. Monk
Gilman	Marshall	1,052	11								0.95	-3.64	0.72	0	3					Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	75.7	+2.5	100	24	52	13+	40	1.92	-3.03	0.85	0	4	18	11	2	nw	D. W. Brainard
Grundy Center	Grundy	876	19	73.8	+1.6	98	16	47	13+	42	0.92	-3.63	0.52	0	3	22	0	9	sw	J. B. Calderwood
Guthrie Center	Guthrie	1,077	15	74.6	+1.2	96	25	46	13	43	0.85	-3.97	0.28	0	9	18	9	4	se	D. G. Beardsley
Harlan	Shelby	1,182	11	73.3	+0.1	95	16	47	13	41	1.25	-4.06	0.42	0	8	12	12	7	s	C. A. Reynolds
Independence	Buchanan	921	46	74.4	+1.5	98	16	49	19	39	0.51	-4.08	0.27	0	5	24	3	4	sw	Geo. Donohoe
Iowa City	Johnson	683	50	74.8	+0.6	98 a	1+	48	19	40 a	2.22	-2.26	1.20	0	7	21	4	6	se	Prof. A. G. Smith
Iowa Falls	Hardin	1,170	17	71.6	-0.4	95	1+	46	13	40	2.19	-1.91	1.33	0	5	26	2	3	sw	J. B. Parmelee
Jefferson	Greene																			G. W. Jackson
LeClaire	Scott	576	10								1.86	-2.76	1.14	0	4					Margaret T. Disney
Little Sioux	Harrison			75.2	+2.2	97	16+	50	7	42	1.62	-3.38	0.54	0	8	19	9	3	sw	Geo. H. Gibson
Logan	Harrison	928	43	74.2	-0.5	99	27	48	13	42	2.78	-2.41	1.13	0	9	14	16	1	se	Glenn H. Stern
Marshalltown	Marshall	947	18	73.9	+0.7	98	16													

CLIMATOLOGICAL DATA FOR IOWA, JULY, 1910—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	Number clear days	Number partly cloudy days			Number cloudy days
Southern Section																				
Afton	Union	1,212	16	74.9	-0.3	94	16†	54	13	29	0.96	-3.39	0.67	0	6	16	13	2	sw	Hon. N. W. Rowell
Albia	Monroe	959	12	75.0	+0.8	99	25	51	13	37	1.57	-3.36	1.22	0	5	18	9	4	sw	J. I. Chenoweth.
Allerton	Wayne			74.9	+2.3	97	24	54	13†	32	2.49	-2.08	0.61	0	7	22	5	4	nw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	19	75.4	+2.2	98	27	48	13	39	0.82	-3.51	0.31	0	6	12	7	12	ne	Thos. H. Whitney
Bedford	Taylor	10		76.2	+2.8	106	27	48	7†	42	1.35	-3.99	0.96	0	4	18	10	3	ne	E. E. Healy
Bloomfield	Davis	3																		C. R. Davis
Bonaparte	Van Buren	19		75.4	-0.1	100	24	52	19	38	2.89	-0.84	1.33	0	5					Hon. B. R. Vale
Burlington	Des Moines	544	14	76.4	+1.0	101	24	55	13†	31	4.15	+0.53	2.07	0	7	21	5	5	sw	M. E. Poppe, Jr.
Centerville	Appanoose										2.74		1.83	0	4	25	3	3	e	Gordon Peacock, Jr.
Chariton	Lucas	1,042	15	74.2	+0.4	99	24	50	12	36	1.59	-3.87	0.70	0	4	27	0	4	se	C. C. Burr
Clarinda	Page	1,009	20	73.4	-2.1	101	27	49	13	39	2.17	-2.53	1.47	0	7	21	1	9	ne	A. S. Van Sandt
Columbus Junction	Louisa	595	9	75.8	+0.2	96	24	53	19	33	3.05	-0.96	1.02	0	7	22	7	2	se	J. B. Johnston
Corning	Adams	1,117	18	74.2	+0.6	96	17†	47	13	45	1.98	-2.37	0.72	0	6	14	13	4	ne	Jerome Smith
Corydon	Wayne	1,101	17	75.8a	+1.0	99a	25	54a	13†	37a	1.89	-2.29	0.85	0	6	16	10	5	se	Clara Miller
Council Bluffs	Pottawattamie																			B. W. Crossley
Creston	Union	1,312	5	74.8		98	27	50	13	36	1.55		0.86	0	8	14	7	10	sw	E. S. Stovall
Cumberland	Cass		11								2.50	-2.94	1.32	0	6	25	3	3	sw	J. H. Reppert
Earlham	Madison		8	74.2	+4.2	97	16†	46	13	45	1.11	-3.73	0.47	0	6	19	7	5	sw	Geo. Phillips
Elliott	Montgomery		5	74.8	+1.0	97	27	50	13	35	1.42	-4.53	0.53	0	7	19	12	0	se	Henry Barnes
Fairfield	Jefferson		26	76.1a	+1.4	100a	24	49	19	39a	3.08	-0.91	1.53	0	7	21	6	4	w	R. Monroe McKenzie
Fort Madison	Lee	516	61								2.72	-1.24	1.27	0	5	9	13	9	s	Miss L. A. McCready
Greenfield	Adair		18	74.6	+0.7	96	16	52	10	36	1.30	-3.40	0.32	0	7	20	10	1	sw	R. B. Oldham
Hopeville	Clarke		19	75.4	+1.3	98	24	54	13†	34	1.70	-3.15	0.78	0	6	10	20	1	s	M. T. Ashley
Indianola	Warren	969	19	76.2	+1.5	98	25	54	13†	34	0.70	-3.56	0.55	0	5	12	11	0	ne	Prof. J. L. Tilton
Keokuk	Lee	574	39	76.4	-0.6	99	24	57	19	30	2.74	-1.29	1.22	0	9	16	11	4	sw	Weather Bureau
Keosauqua	Van Buren	644	18	75.6	-0.3	101	24	48	19	39	5.69	+1.56	3.52	0	7	9	16	6		J. H. Landes
Knoxville	Marion	920	15	76.3	+0.8	97	24†	52	19	37	1.62	-2.84	1.00	0	4	16	11	4	nw	Casey & Belville
Lacona	Warren		11								0.96	-3.52	0.68	0	7					J. B. Alter
Lamoni	Decatur		3	76.1		97	26†	53	19	36	3.49		0.98	0	7	21	7	3	s	T. J. Fitzpatrick
Lenox	Taylor	1,250	15	76.0	+2.2	97	27	54	7†	34	1.70	-3.24	0.71	0	6	21	8	2	nw	J. L. Hurley
Leon	Decatur	1,120	8	77.8	+4.6	97	22	56	14	33	3.27	-1.15	1.51	0	6	22	8	1	s	Morris Gardner
Massena	Cass		4																	C. E. Smeltzer
Mount Ayr	Ringgold	1,236	17	76.8	+1.8	99	24†	56	10†	35	3.46	-1.85	1.50	0	8	18	11	2	sw	A. F. Beard
Mount Pleasant	Henry	729	29	76.0	+0.4	101	1	48	19	40	3.49	-0.34	1.50	0	8	13	11	7	sw	J. W. Edwards
Omaha, Neb.	Douglas	1,040	40	77.8	+1.3	104	27	59	10	30	1.99	-2.43	0.76	0	8	15	12	4	s	Weather Bureau
Oskaloosa	Mahaska	843	34	75.0	+0.6	99	25	48	13	43	3.00	-0.97	1.56	0	4	19	4	8	sw	Jos. Boyd
Ottumwa	Wapello	649	15	78.5	+2.5	103	24	53	13†	40	3.21	-0.92	2.47	0	5	6	6	19	se	W. J. Mesmer
Pacific Junction	Mills	960	11	74.6	+0.4	103	27	45	13	44	0.96	-4.17	0.52	0	4	17	14	0	s	H. H. McCartney
Pella	Marion	877	7	74.6	-1.4	101	24	46	13†	44	1.09	-3.27	0.52	0	6	26	3	2	sw	John H. Ver Steeg
St. Charles	Madison	1,070	9	76.4	+2.3	99	25	55	13	33	0.86	-4.93	0.55	0	5	20	10	1	s	R. D. Minard
Sigourney	Keokuk	877	14	76.8e	+1.0	98e	25	52e	13	37e	2.11	-2.19	0.70	0	6					J. T. Parker
Stockport	Van Buren		8	75.3		101	24	47	13	41	3.20	-1.89	1.34	0	7	22	3	6	sw	C. L. Beswick
Thurman	Fremont		13	75.8	+0.4	104	27	46	13	41	1.08	-4.83	0.48	0	5	14	15	2	nw	C. R. Paul
Wapello	Louisa	588	12	74.2	-1.0	93	24	56	19	23	3.47	+0.25	1.37	0	4	22	6	3	sw	Geo. W. Schofield
Washington	Washington	769	28	75.2	-0.3	98	24	53	13†	34	2.24	-1.38	0.80	0	6	13	15	3	sw	Wm. A. Cook
Winterset	Madison	1,129	19	76.4	+2.4	100	25	51	13	39	0.72	-1.96	0.35	0	6	10	13	8	s	Dr. Robt. S. Cooper
Woodburn	Clarke	961	11	73.1		99	16†	43	19	47	1.07	-4.09	0.39	0	8	14	16	1	se	C. B. McDonough
Average				75.6	+1.1	99		51		37	2.16	-2.88		0	6	17	9	5	sw	
State average				74.5	+1.1	97		50		37	1.86	-2.58		0	7	19	8	4	sw	

†And other dates; a, one day missing; b, two days missing; c, three days, etc.
‡Received too late to be included in averages.

THUNDERSTORMS, STATIONS AND DATES.

NORTHERN SECTION.			CENTRAL SECTION.			SOUTHERN SECTION.		
Albion	25, 26, 28		Amana	9, 14, 27, 28		Afton	25, 26	
Alta	5, 9, 14, 20, 21, 23, 25, 27		Audubon	2, 7, 9, 14, 25, 26, 27		Albia	2, 9, 25, 28	
Alton	5, 6, 9, 14, 26, 28		Baxter	12, 26, 28		Allerton	2, 9, 14, 15, 25, 26, 29	
Charles City	9, 11, 14, 17, 23, 25, 27		Boone	27		Atlantic	7, 9, 14, 25, 26	
Belmont	6, 26		Clinton	9, 11, 14, 17		Chariton	26	
Britt	6, 9, 14, 25		Davenport	9, 11, 14, 17, 27, 28		Columbus Junction	9, 14, 26, 28, 29	
Elma	5, 8, 27		Delaware	10, 22		Corning	2, 7, 9, 14, 25	
Fayette	24		Des Moines	2, 9, 14, 25, 26, 27, 28		Corydon	9, 14, 26	
Grand Meadow	17, 22, 23		Dubuque	9, 17		Creston	8, 14, 19, 25	
Inwood	6, 9, 14, 20, 22, 23, 25, 27, 28		Grinnell	9, 11, 14, 25, 26, 27, 28		Earlham	2, 9, 14, 25, 26	
Larrabee	5, 9, 14, 20, 22, 23, 25, 27		Guthrie Center	2, 7, 9, 14, 25		Elliott	2, 9, 14, 17, 22, 26	
Le Mars	5, 6, 9, 14, 22, 23, 25, 28		Harlan	2, 6, 9, 14, 23, 25		Fairfield	9, 11, 14, 26	
Mason City	6, 9, 26		Iowa City	9, 14, 25, 27		Fort Madison	5, 9, 14, 26, 28, 29	
Northwood	9, 17, 24, 25		Little Sioux	6, 9, 14, 17, 23, 25		Hopeville	2, 9, 14, 15, 25	
Osage	16		Onawa	3, 6, 7, 9, 14, 22, 23, 26		Indianola	2, 9, 13, 14, 25, 26	
Plover	5, 9, 11, 23, 25, 26, 27, 28		Sioux City	5, 7, 9, 13, 14, 21, 22, 23, 27		Keokuk	2, 6, 9, 14, 15, 24, 25, 26, 28, 29	
Pocahontas	6, 9, 14, 22, 25, 28		Waukeee	26		Keosauqua	14, 28	
Ridgeway	9, 17, 22, 23		Whitten	9, 14, 22, 25, 26, 28		Leon	9, 14, 15, 25, 26	
Sheldon	6, 9, 14, 27, 28					Mount Pleasant	9, 15, 27	
Sioux Center	9, 11, 14					Omaha, Neb.	2, 5, 7, 9, 14, 25, 26	
Storm Lake	6, 9, 14, 19, 22, 23, 25					Ottumwa	9, 14, 25, 28	
Washta	14, 22, 27					Pella	2, 9, 11, 14, 25, 26, 28	
Waverly	3, 26, 27					Sigourney	23	
West Bend	6, 9, 14, 25, 27					Stockport	9, 14, 15, 26, 28, 29	
						Thurman	2, 6, 7, 9, 11, 14, 23, 25	
						Wapello	9, 15, 28, 29	
						Woodburn	9, 26	

U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR AUGUST, 1910

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

DES MOINES, IOWA
EMORY H. ENGLISH, STATE PRINTER
1910

OCT 1 1910
OCT 1 1910

THE IOWA WEATHER AND CROP SERVICE

WAS ESTABLISHED BY ACT OF THE TWENTY-THIRD GENERAL ASSEMBLY, AND IS UNDER SUPERVISION

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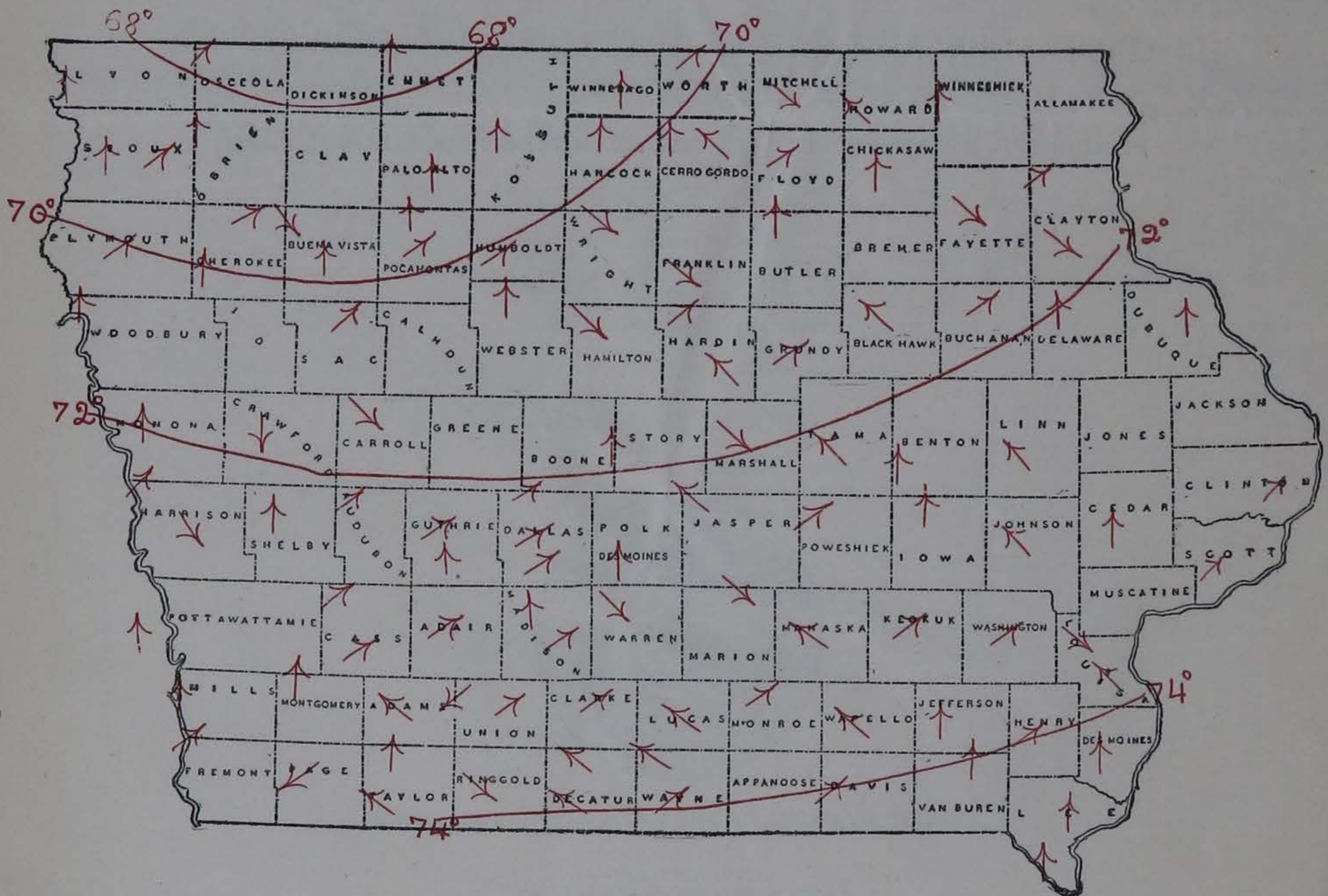
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August

MEAN ISOTHERMS AND PREVAILING WINDS OF JUNE, 1910.
 Lines pass through points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE
 OF THE
WEATHER BUREAU.

CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,

GEO. M. CHAPPEL, Section Director.

VOL. XXI DES MOINES, IOWA, AUGUST, 1910 No. 8

IOWA CROP REPORT, AUGUST 25, 1910.

Following is a summary of the August 25th reports received from crop correspondents of the Iowa Weather and Crop Service. The average condition of the corn crop was estimated as 89 per cent, which is 1.5 per cent lower than on August 1st.

It was estimated that with normal weather, about one-third of the corn would be safe from frost by September 15th; 60 per cent on the 25th; 75 per cent on the 30th, and 95 per cent on October 10th.

The average condition of late potatoes was 53 per cent or 10 per cent less than on August 1st.

About two-thirds of the threshing has been completed and preliminary reports indicate average yields as follows: Winter wheat, 23 bushels per acre; spring wheat, 21; oats, 39; barley, 30; rye, 21, and timothy seed, 3.6 bushels. The average yield of grain is subject to change after the receipt of final and more complete reports at the end of the season.

GENERAL SUMMARY.

The droughty conditions which had prevailed since May, continued until the middle of August, when copious and fairly well distributed showers occurred; and during the latter half of the month the rainfall was generally above the normal which gave an excess for the month over the northern and central districts. There was a deficiency in the southern district, notwithstanding the fact that the heaviest rainfall in the State was reported from the southwestern counties. At Atlantic, 4.97 inches of rain fell between 2 a. m. and 10 a. m. of the 13th, and 4.03 inches fell between 3 p. m. of the 28th and 7:30 a. m. of the 29th. At Pacific Junction, 7.98 inches fell between 6 p. m. of the 28th and 7 a. m. of the 29th. At several stations in the central portion of the southern district the total rainfall for the month was less than half an inch.

The temperature was very nearly normal; there being a positive departure of only 0.1°. The month as a whole was considered cool although on the 1st, 2d, 11th, 12th, 21st and 22d the day temperatures were generally above 90°, and at several stations were up to 100° on the 1st or the 22d. The night temperatures were moderately low during most of the month; the lowest being on the 26th when minimum temperatures below 40° were recorded at several stations. The lowest temperature reported was 36° at Plover, Washta and Woodburn. A trace of frost was observed on the morning of the 26th on low ground in some localities, but no damage was done to vegetation.

The dry weather during the first half of the month was favorable for threshing, but was injurious to pastures, meadows and late potatoes, and in some sections, to corn. Over the northeastern and some of the central and southwestern counties, where the showers

did not come at the proper time, corn was injured to some extent, but for the State at large, the crop held its own remarkably well and was in fine condition at the close of the month. The rains during the latter half of the month were very beneficial to pastures, meadows, potatoes and late corn, and at the close of the month the indications were favorable for more than an average yield of corn, in spite of the long continued drought.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 114 stations, was 71.9°, which is 0.1° above the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 70.3°, which is the normal; Central section, 72.3°, which is 0.4° above the normal; Southern section, 73.1°, which is 0.2° below the normal. The highest monthly mean was 75.2°, at Ottumwa, Wapello County, and the lowest monthly mean, 66.8°, at Sibley, Osceola County. The highest temperature reported was 104°, at Bedford, Taylor County, on the 22d; the lowest temperature reported was 36°, at Plover, Pocahontas County, Washta, Cherokee County, and Woodburn, Clarke County, on the 26th. The average monthly maximum was 96°, and the average monthly minimum was 43°. The greatest daily range was 47°, at Decorah, Winneshiek County, and at Elkader, Clayton County. The average of the greatest daily ranges was 36°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 124 stations, was 3.88 inches, which is 0.11 inch below the normal. By sections the averages were as follows: Northern section, 3.80 inches, which is 0.28 inch above the normal; Central section, 4.51 inches, which is 0.46 inch above the normal; Southern section, 3.32 inches, which is 1.08 inches below the normal. The greatest amount, 11.22 inches, occurred at Atlantic, Cass County, and the least, 0.37 inches, at Chariton, Lucas County. The greatest amount in twenty-four hours, 7.98 inches, occurred at Pacific Junction, Mills County, on the 28th and 29th. Measurable precipitation occurred on an average of eight days.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 15; partly cloudy, 10; cloudy, 6. The duration of sunshine was slightly below the normal, the percentage of the possible amount being 75 at Charles City; 70 at Davenport; 60 at Des Moines; 54 at Dubuque; 63 at Keokuk, and 74 at Sioux City.

WIND.—South winds prevailed. The highest velocity reported was 65 miles per hour from the north, at Sioux City, Woodbury County, on the 2d.

COMPARATIVE DATA FOR THE STATE—AUGUST

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	68.4	102	36	3.41	6.44	1.02
1891.....	69.1	106	34	4.24	13.02	1.23
1892.....	71.4	102	40	2.24	4.69	0.65
1893.....	69.4	101	39	2.32	6.22	0.40
1894.....	74.6	108	38	1.58	4.53	T
1895.....	71.9	103	37	4.43	10.63	0.67
1896.....	71.7	104	34	3.52	12.25	0.86
1897.....	68.9	104	35	1.86	4.98	0.47
1898.....	71.2	103	40	3.44	10.55	0.58
1899.....	74.4	100	41	3.68	10.45	1.12
1900.....	77.4	103	44	4.65	10.43	1.26
1901.....	73.8	105	40	1.29	4.46	T
1902.....	69.1	98	37	6.58	15.47	1.57
1903.....	69.1	101	41	6.64	17.74	2.55
1904.....	69.1	97	35	3.43	6.75	0.66
1905.....	74.3	104	44	4.05	8.47	1.04
1906.....	74.1	101	33	3.95	10.51	0.92
1907.....	71.1	99	37	4.33	9.67	1.05
1908.....	70.0	101	38	4.77	10.55	1.35
1909.....	76.1	103	33	1.81	8.21	T
1910.....	71.9	104	36	3.88	11.22	0.37

"T" indicates a trace.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 29.97 inches.
Prevailing direction of Wind, South.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum Velocity	Direction	Date	Average Hourly Velocity
Charles City.	29.97	30.29	26	29.64	24	4122	36	N	20	5.5
Davenport..	29.98	30.31	26	29.71	24	4365	29	W	25	5.9
Des Moines..	29.95	30.31	26	29.62	24	4755	27	N	3	6.4
Dubuque....	30.00	30.31	26	29.69	24	4065	20	NW	25	5.5
Keokuk.....	30.00	30.31	26	29.74	24	4192	32	NW	25	5.6
Omaha, Neb.	29.96	30.31	26	29.65	22	5095	32	N	25	6.8
Sioux City..	29.96	30.32	18	29.67	23	7246	65	N	2	9.7

BELATED REPORTS.

BUCKINGHAM; May, 1910.—Precipitation: total, 2.97; greatest in 24 hours, .68; days with, 10.

BUCKINGHAM; June, 1910.—Precipitation: total, 2.25; greatest in 24 hours, 1.33; days with, 4.

BUCKINGHAM; July, 1910.—Precipitation: total, 0.76; greatest in 24 hours, .41; days with, 3.

OBSERVERS' REMARKS.

AFTON.—*N. W. Rowell.* Both temperature and rainfall was a little below the normal, yet it has been quite favorable weather for corn.

ALBIA.—*J. I. Chenoweth.* The immediate vicinity had only .55 inch of rain during the month, although the surrounding country had several good rains that did not reach the town. Corn is doing a great deal better than was reported a month ago, and the yield will be equal to that of last year.

ALGONA.—*Dr. F. T. Seeley.* On the whole August was a very good month. Shock threshing about completed and fall plowing is well advanced.

ALTA.—*David E. Hadden.* August was an ideal summer month. The rainfall was a little below the normal but sufficient for corn.

ATLANTIC.—*Thos. H. Whitney.* On the 13th a rainfall of 4.98 inches was registered and on the 29th, 4.03 inches. These rains were the heaviest for some years, but fortunately were not accompanied by winds or severe lightning.

BONAPARTE.—*Hon. B. R. Vale.* August was a cool, pleasant month with no storms. It was, however, a little dry.

CHARITON.—*C. C. Burr.* Almost continuous sunshine during the month. No surface water and pastures are dry and meadows are brown. Cattle are being sold at reduced prices and many farmers are now feeding stock.

CLINTON.—*Luke Roberts.* Streams and springs are unusually low, and corn and other unripe products of the soil were injured by the drouth, but the late rains have materially bettered the conditions.

CORYDON.—*Clara Miller.* The month has been extremely dry and pastures are bare, but the corn prospect is good in spite of the drouth.

CRESTON.—*O. J. Colby.* The rains came in time to help make a good corn crop, and the rain on the 28th is making plenty of fall feed in pastures.

DAVENPORT.—*J. M. Sherier.* The first two weeks of August were marked by an abnormal amount of sunshine and by a decided deficiency in rainfall, only 0.13 inch of precipitation being recorded during that period. These drouthy conditions which had prevailed,

with but few interruptions, since the last of May, were broken by copious showers on the 15th, and the latter half of the month showed a considerable excess in precipitation. Growing crops, especially corn and late potatoes, and pastures, all of which had suffered from lack of moisture, were greatly benefited, though neither corn nor potatoes is expected to make a full crop. On the 9th, and from the 11th to the 15th, the river was at a stage of 0.2 foot, the lowest during any August since 1894. River traffic between Davenport and points to the northward remains suspended.

DUBUQUE.—*W. W. Christman.* The severe drouth which lasted from the latter part of June until the middle of August was much less serious in its results than had been feared. The rainfall of the 17th, 18th and 20th soaked deep into the ground, and late potatoes and corn were greatly benefited. Lawns which had turned brown during the drouth, were green again a few days after the first rain. There were several electrical storms, but none of a serious nature. The month as a whole was very favorable and at the close the soil is in fine condition for fall plowing and the prospect for a good corn crop is excellent. River conditions were very much the same as during July. None of the packets were able to run owing to low water. The Mississippi at Prairie du Chein and Dubuque rose slowly during the month, chiefly as the result of heavy rains in Wisconsin, but it did not reach a one foot stage on any date. The lowest stage of the Mississippi from Dubuque to La Crosse was one or two tenths above the lowest stage of 1864.

ELLIOTT.—*Henry Barnes.* The drouth was broken by 5.70 inches of rain on the 13th, after which all kinds of vegetation improved, especially pasturage. The rain was, however, too late for potatoes.

FOREST CITY.—*J. A. Peters.* A light frost occurred on very low land on the morning of the 26th, but no damage was done. It will require 30 days of good weather to mature the corn.

GRAND MEADOW (Postville P. O.)—*F. L. Williams.* The month was favorable for corn and pastures. Threshing is nearly done and large yields of grains are reported.

HUMBOLDT.—*Henry S. Wells.* The frequent light showers have sustained the corn crop.

INWOOD.—*F. B. Hanson.* August was a very good month generally. Rain has been sufficient for corn potatoes and plowing. All crops have held their own and pastures are now in normal condition. Grain yields are above the normal.

KEOKUK.—*Fred Z Gosemisch.* The month of August has been dry with temperature slightly below the normal. The rainfall, with the exception of the storm of the 20th, was in light showers. The storm of the 20th was accompanied by unusually large hail; some measuring over 9 inches in circumference, however, the damage was not great as the storm covered only a small area and the quantity was small. The weather was ideal for threshing, which has been completed, and wheat and oats have yielded well both in quantity and quality of the grain. The prospect for corn is excellent, although the crop is about 10 days behind the season, and will require the whole of September to be beyond the danger from frost. Pastures are dry, necessitating the feeding of stock in many places; streams have been low and there has been a scarcity of water for stock in some localities. The ground being dry and hard but little plowing has been done during the month.

KEOSAUQUA.—*J. H. Landes.* With the exception of a rainfall of 2.57 inches on the evening and night of the 20th it was a dry month, with rather cool nights. Pasturage is short, but corn has done fairly well.

NORTHWOOD.—*Chas. H. Dwelle.* The worst electrical and wind storm of the season occurred on the 20th.

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CLIMATOLOGICAL DATA FOR IOWA, AUGUST, 1910

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days	No. partly cloudy days			No. cloudy days
Northern Section																				
Algona	Kossuth	1,213	37	70.6	-0.3	94	1	42	26	33	2.60	-1.32	0.97	0	8	23	3	5	s	Dr. F. T. Seeley
Alta	Buena Vista	1,513	19	69.8	-0.7	96	1	45	26	34	3.08	-0.89	0.90	0	11	12	15	4	nw	David E. Hadden
Alta (near)	Buena Vista										3.67	+0.08	0.81	0	10					W. J. Minard
Alton	Sioux	1,305	5	70.3		98	1	39	26	40	4.43		1.28	0	8	13	12	6	sw	W. S. Slagle
Belmond	Wright			70.2		95	24	40	26	35	3.58		0.95	0	8	4	24	3	nw	Geo. P. Hardwick
Britt	Hancock	1,236	13	69.6	-0.4	93	1	40	26	36	2.40	-1.65	1.09	0	12	16	11	4	s	L. M. Goodman
Charles City	Floyd	1,015	19	69.8	-0.9	94	24	43	26	38	5.54	+2.42	1.46	0	13	7	9	15	sw	Weather Bureau
Clear Lake	Cerro Gordo	1,241	12	72.0	+0.3	95	1	50	26+	30	3.23	-1.08	1.80	0	4	21	0	10	s	Oscar Stevens
Decorah	Winneschiek	875	17	72.9	+2.7	100	2	45	6	47	4.08	+1.04	1.60	0	7					F. H. Baker
Elkader	Clayton	727	31	73.3	+2.3	98	24	41	26	47	3.47	+0.57	1.25	0	11	17	12	2	nw	Chas. Reinecke
Elma	Howard			70.6		93	2	42	5	39	4.40		1.62	0	15	10	16	5	se	H. A. Moore
Estherville	Emmet	1,298	15	67.4	-2.8	95	21	42	26+	39	1.60	-2.00	0.40	0	9	20	0	11	s	A. O. Peterson
Fayette	Fayette	1,003	20	71.1	+2.0	95	1+	40	26	44	4.38	+1.11	1.10	0	10				nw	R. Z. Latimer
Forest City	Winnebago	1,226	16	69.4	-0.9	94	1	41	26	35	2.75	-0.75	0.80	0	9	18	6	7	s	J. A. Peters
Grand Meadow	Clayton	1,180	19	70.0	+1.1	91	24	45	26	32	3.03	-0.30	1.42	0	11	9	15	7	sw	F. L. Williams
Greene	Butler		12	72.3	+0.8	100	1	43	26	41	5.78	+1.91	1.41	0	10	4	17	10	s	J. L. Cole
Hampton	Franklin	1,155	20	72.4	+1.8	99	1	44	26	34	5.40	+2.03	2.15	0	11	7	16	8	nw	E. C. Grenelle
Humboldt	Humboldt	1,095	22	71.0	+3.1	96	1	40	26	36	3.86	+0.42	1.08	0	9	26	5	0	sw	H. S. Wells
Inwood	Lyon	1,474	6	69.0	-2.4	94	2	42	31	40	4.46	+1.45	2.15	0	7	18	9	4	s	F. B. Hanson
Larrabee	Cherokee	1,266	20	69.0	-2.2	94	1	41	26	36	3.00	-0.48	0.97	0	7	19	10	2	sw	H. B. Strever
LeMars	Plymouth	1,224	14	68.8	-2.7	90	1	42	26	31	3.63	+0.75	1.36	0	7	4	27	0	sw	G. A. C. Clarke
Mason City	Cerro Gordo	1,133	13	69.7	-0.3	92	1	40	26	34	4.84	+1.24	2.48	0	10	15	13	3	se	J. S. Mills
New Hampton	Chickasaw	1,169	13	71.6	+2.1	97	2	43	26	38	4.81	+1.78	1.35	0	11	17	4	10	s	A. F. Kemman
Northwood	Worth	1,222	14	69.6	+0.1	91	1+	42	26	36	3.75	-0.29	1.15	0	13	18	5	8	sw	Chas. H. Dwelle
Osage	Mitchell	1,184	23	72.2	+4.2	97	1	44	26	42	5.05	+2.02	1.78	0	6	11	12	8	nw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	14	69.6	-1.3	95	1	36	26	38	3.12	-1.41	1.72	0	6	24	3	4	s	J. S. Smith
Pocahontas	Pocahontas	1,248	6	69.4	-2.2	94	1	41	26	33	3.10	-0.87	1.13	0	9	20	7	4	sw	F. E. Hronek
Ridgeway	Winneschiek	1,215	12	72.8	+0.8	100	1	47	26	40	5.63	+1.91	2.41	0	15	14	14	3	s	Arthur Betts
Rock Rapids	Lyon	1,358	11	71.4	+1.1	96	1+	40	26	36	1.48	-0.95	0.68	0	3					W. C. Wyckoff
Sheldon	O'Brien	1,422	10	68.5	-2.8	98	2	40	26	42	4.87	+1.19	2.00	0	6	17	10	4	s	Dr. A. W. Beach
Sibley	Osceola	1,212	17	66.8	-2.1	92	1	39	26+	40	2.07	-1.59	0.82	0	8	9	16	6	sw	H. G. Doolittle
Sioux Center	Sioux		11	69.0	-2.1	94	1	40	26	32	2.83	-0.80	1.22	0	6	15	11	5	s	J. de Ruyter
Storm Lake	Buena Vista	1,440	21	71.4	+0.7	96	1	42	26	32	2.66	-0.66	0.84	0	10	18	7	6	s	S. B. Fracker
Washta	Cherokee	1,157	12	70.8	-1.8	98	1	36	26	40	4.36	+1.58	2.45	0	8	21	6	4	s	H. L. Felter
Waverly	Bremer	948	14	71.2	+0.4	94	24	43	26	34	4.51	+1.55	1.42	0	10	12	13	6	s	H. S. Hoover
West Bend	Palo Alto	1,197	17	69.7	+0.1	96	1	40	26	35	2.61	-1.33	1.32	0	8	11	14	6	s	Phil Dorweiler
Average				70.3	0.0	95		42		37	3.80	+0.28		0	9	15	11	5	s	
Central Section																				
Amama	Iowa	721	34	72.0	+1.1	96	1	45	26	37	7.50	+3.89	3.11	0	8	13	10	8	s	Conrad Schadt
Ames	Story	928	34	72.4	+0.2	98	24	40	26	40	2.75	-0.92	1.00	0	9	16	10	5	s	Iowa State College
Audubon	Audubon	1,301	16	70.8	-1.0	95	1	45	26	35	7.85	+4.13	1.75	0	9	11	5	15	sw	Geo. E. Kellogg
Baxter	Jasper	998	10	72.3	+0.4	97	22	42	26	35	3.13	-1.42	1.30	0	8	18	11	2	se	W. R. Vandike
Belle Plaine	Benton	828	20	71.5	+0.7	96	1	42	26	36	3.26	-0.89	1.40	0	9	13	10	8	s	S. P. Van Dike
Boone	Boone	1,134	5	72.8		98	1	46	26	31	2.97		0.89	0	9	16	4	11		Carl Fritz Henning
Buckingham	Tama		10								4.33	-0.70	1.66	0	7					Dr. W. A. Daniel
Carrroll	Carrroll	1,265	20	69.5	-1.6	94	21	42	25	36	7.92	+4.21	2.36	0	10	12	10	9	nw	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	28	73.0	+0.3	99	16	48	26+	38	6.10	+2.60	2.36	0	7	18	4	9	se	W. J. Greene
Clinton	Clinton	593	43	72.5	+1.2	95	22	43	26	41	2.41	-1.24	0.75	0	7	9	13	9	sw	Luke Roberts
Davenport	Scott	580	39	74.0	+1.0	94	22	50	26	28	4.31	+0.67	1.79	0	8	14	10	7	sw	Weather Bureau
Delaware	Delaware	1,083	19	72.6	+3.0	95	2	45	26	37	2.10	-1.44	0.50	0	9	13	15	3	s	Wm. Ball
Denison	Crawford	1,180	16	71.6	-0.3	97	1	42	26	39	9.75	+5.99	2.33	0	10	19	9	3	n	W. C. VanNess
Des Moines	Polk	861	31	73.4	+0.4	97	22	45	26	31	2.40	-1.21	0.79	0	9	9	10	12	s	Weather Bureau
De Soto	Dallas	866	10	73.4	+0.4	98	1+	41	26	46	3.40	-1.57	1.53	0	7	21	4	6	sw	R. D. Minard
Dubuque	Dubuque	639	37	72.8	+0.8	93	24	48	26	35	3.96	+0.92	1.51	0	10	11	9	11	s	Weather Bureau
Fort Dodge	Webster	1,126	10	71.2	-0.2	96	1+	43	26	35	5.21	-0.43	1.64	0	10	14	3	14	s	J. F. Monk
Gilman	Marshall	1,052	11								1.94	-1.84	0.60	0	7					Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	73.8	+2.2	100	22	42	26	39	2.05	-2.57	1.00	0	8	14	13	4	sw	D. W. Brainard
Grundy Center	Grundy	976	19	72.6	+1.6	97	24	43	26	37	4.92	+1.35	2.10	0	7	18	0	13	sw	J. B. Calderwood
Guthrie Center	Guthrie	1,077	15	72.5	+0.3	96	1	44	26	36	6.11	+1.79	1.24	0	10	16	8	7	sw	D. G. Beardsley
Harlan	Shelby	1,182	11	71.6	-0.6	97	1	43	26	41	9.58	+5.36	4.42	0	8	8	16	7	s	C. A. Reynolds
Independence	Buchanan	921	46	72.4	+2.3	96	2+	42	26	38	2.36	-0.83	0.79	0	10	18	8	5	sw	Geo. Donohoe
Iowa City	Johnson	683	50	71.5	-0.2	93	1+	44	26	38	4.98	+0.74	1.18	0	6	16	0	15	se	Prof. A. G. Smith
Iowa Falls	Hardin	1,170	17	68.9	-1.0	93	24	40	26	35	6.01	+2.63	1.55	0	9	24	1	6	sw	J. B. Parmelee
Jefferson	Greene		11																	G. W. Jackson
LeClaire	Scott	576	10								3.62	+0.03	1.74	0	10					Margaret T. Disney
Little Sioux	Harrison		5	72.7	-1.7	100	1	44	26	44	6.99	+4.52	3.60	0	11	12	11	8	sw	Geo. H. Gibson
Logan	Harrison	928	43	72.4	-0.3	99	1	42	26	41	6.00	+2.26	2.65	0	8	9	16	6	nw	Glenn H. Stern
Marshalltown	Marshall	947	18	72.4	+0.6	100														

CLIMATOLOGICAL DATA FOR IOWA, AUGUST, 1910—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	Number clear days	Number partly cloudy days			Number cloudy days
Afton	Union	1,212	16	72.5	-1.1	93	22	48	27	30	2.45	-1.98	0.88	0	7	13	13	5	sw	Hon. N. W. Rowell
Albia	Monroe	959	12	72.6	-0.8	97	16	42	26	33	0.55	-3.60	0.28	0	7	17	7	7	sw	J. I. Chenoweth
Allerton	Wayne	8	8	73.0	+0.1	98	23	44	26	33	0.82	-6.00	0.50	0	8	20	4	7	sw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	19	73.2	+1.9	97	14	44	26	36	11.22	+7.74	4.98	0	12	8	5	18	sw	Thos. H. Whitney
Bedford	Taylor	10	10	74.2	+0.3	104	22	37	26	43	1.76	-3.30	0.85	0	7	19	3	9	se	E. E. Healy
Bloomfield	Davis	3	3	73.4	-----	100	16	42	26	38	3.72	-----	2.87	0	2	8	16	7	sw	C. R. Davis
Bonaparte	Van Buren	19	19	73.0	-1.3	97	16	42	26	34	1.76	-2.89	0.80	0	5	-----	-----	-----	-----	Hon. B. R. Vale
Burlington	Des Moines	544	14	74.2	+0.1	97	16	46	26	33	0.43	-5.01	0.40	0	3	18	6	7	s	M. E. Poppe, jr.
Centerville	Appanoose	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.69	-----	1.60	0	3	22	8	1	s	Gordon Peacock, jr.
Chariton	Lucas	1,042	15	73.2	+0.1	98	22	40	26	41	0.37	-4.63	0.25	0	2	25	0	6	se	C. C. Burr
Clarinda	Page	1,009	20	69.6	-4.6	96	24	41	26	42	2.03	-2.00	0.69	0	10	15	2	14	ne	A. S. Van Sandt
Columbus Junction	Louisa	565	9	73.1	+0.7	93	2	47	26	29	4.82	-1.40	2.48	0	8	19	11	1	nw	J. B. Johnston
Corning	Adams	1,117	18	71.8	-0.7	96	22	39	26	39	4.87	+0.66	1.35	0	7	-----	-----	-----	se	Jerome Smith
Corydon	Wayne	1,101	17	74.0	+0.4	97	23	43	26	33	0.45	-3.87	0.20	0	4	13	12	6	se	Clara Miller
Council Bluffs	Pottawattamie	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	B. W. Crosley
Creston	Union	1,312	5	71.2	-----	96	14	41	26	43	5.15	-----	1.55	0	8	12	4	15	ne	O. J. Colby
Cumberland	Cass	11	11	-----	-----	-----	-----	-----	-----	-----	7.10	+3.12	3.13	0	8	21	1	9	sw	J. H. Reppert
Earlham	Madison	8	8	-----	-----	-----	-----	-----	-----	-----	4.08	-----	1.63	0	4	-----	-----	-----	-----	Geo. Phillips
Elliott	Montgomery	5	5	72.8	-2.0	94	1	46	26	34	8.70	+6.58	5.70	0	11	16	14	1	s	Henry Barnes
Fairfield	Jefferson	26	26	73.1	+1.8	95	16	45	27	34	3.47	-0.61	2.88	0	6	19	6	6	s	R. Monroe McKenzie
Fort Madison	Lee	516	61	-----	-----	-----	-----	-----	-----	-----	2.65	-----	2.27	0	4	9	6	16	s	Miss L. A. McCready
Greenfield	Adair	18	18	72.0	-0.4	96	1	44	26	35	5.90	+2.36	2.50	0	8	13	18	0	sw	R. B. Oldham
Hopeville	Clarke	19	19	73.0	-0.2	96	22	44	26	34	1.57	-2.24	0.59	0	6	10	12	9	-----	M. T. Ashley
Indianola	Warren	969	19	73.5	+0.7	98	22	46	26	35	2.28	-2.49	0.90	0	10	13	5	13	nw	Prof. J. L. Tilton
Keokuk	Lee	574	39	74.4	-0.2	95	16	48	26	27	0.92	-2.32	0.67	0	5	14	15	2	s	Weather Bureau
Keosauqua	Van Buren	614	18	72.2	-2.3	96	16	44	26	32	3.50	-0.32	2.57	0	6	7	14	10	-----	J. H. Landes
Knoxville	Marion	920	15	74.2	+0.5	98	22	44	26	34	2.73	-1.94	1.45	0	4	15	7	9	-----	Casey & Belville
Lacona	Warren	11	11	-----	-----	-----	-----	-----	-----	-----	2.10	-2.72	0.54	0	9	13	12	6	-----	J. B. Alter
Lamoni	Decatur	3	3	73.4	-----	95	22+	44	26+	35	1.43	-----	0.37	0	8	18	11	2	se	T. J. Fitzpatrick
Lenox	Taylor	1,250	15	73.0	+0.1	95	22	43	26	33	2.92	-1.20	0.98	0	7	18	8	5	s	J. L. Hurley
Leon	Decatur	1,120	8	73.4	+0.3	96	22	45	26	32	1.33	-4.56	0.70	0	4	19	6	6	se	Morris Gardner
Massena	Cass	4	4	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	C. E. Smeltzer
Mount Ayr	Ringgold	1,236	17	74.0	0.0	99	22	47	26+	36	2.52	-1.23	1.45	0	9	13	10	8	nw	A. F. Beard
Mount Pleasant	Henry	729	29	73.6	+0.3	95	24	42	26	33	2.67	-1.40	1.30	0	8	14	8	9	sw	J. W. Edwards
Omaha, Neb.	Douglas	1,040	40	74.0	-0.4	96	22	53	26	32	4.76	+1.14	2.40	0	12	12	9	10	s	Weather Bureau
Oskaloosa	Mahaska	843	34	73.0	+1.1	97	22	41	26	35	1.42	-1.80	0.53	0	6	20	2	9	se	Jos. Boyd
Ottumwa	Wapello	649	15	75.2	+0.2	100	16	47	26	34	3.65	-0.44	2.46	0	6	5	9	17	se	W. J. Mesmer
Pacific Junction	Mills	960	11	71.8	-1.7	96	14	39	26	42	10.18	+6.35	7.98	0	12	8	23	0	s	H. H. McCartney
Pella	Marion	877	7	73.0	-1.4	99	22	38	26	40	1.43	-2.75	0.63	0	7	23	6	2	nw	John H. Ver Steeg
St. Charles	Madison	1,070	9	74.7	+1.5	99	14	46	26	32	2.44	-1.89	1.37	0	5	18	8	5	sw	R. D. Minard
Sigourney	Keokuk	877	14	73.6	-0.2	96	16	43	26	35	1.40	-2.45	0.63	0	7	2	28	1	nw	J. T. Parker
Stockport	Van Buren	8	8	72.5	-----	97	16	41	26+	37	2.43	-2.63	1.54	0	8	20	4	7	s	C. L. Beswick
Thurman	Fremont	13	13	72.9	-0.9	95	1	40	26	42	7.37	+2.98	3.35	0	11	11	11	9	sw	C. R. Paul
Wapello	Louisa	588	12	71.6	-1.9	90	22	49	26	33	3.33	-1.67	2.33	0	4	18	11	2	se	Geo. W. Schofield
Washington	Washington	769	28	73.0	-0.1	93	22	45	26	33	8.49	+4.78	4.22	0	7	12	14	5	sw	Wm. A. Cook
Winterset	Madison	1,129	19	74.4	+1.8	98	14	45	26	34	3.24	-0.49	1.36	0	7	9	7	15	s	Dr. Robt. S. Cooper
Woodburn	Clarke	961	11	71.6	-----	98	16+	36	26	43	1.32	-4.26	0.85	0	5	18	8	5	sw	C. B. McDonough
Average	-----	-----	-----	73.1	-0.2	97	-----	44	-----	35	3.32	-1.08	-----	0	7	15	9	7	sw	-----
State average	-----	-----	-----	71.9	+0.1	96	-----	43	-----	36	3.88	-0.11	-----	0	8	15	10	6	s	-----

+And other dates; a one day missing; b two days missing; c three days, etc.
 ++Received too late to be included in averages.

THUNDERSTORMS—STATIONS AND DATES

NORTHERN SECTION		CENTRAL SECTION		SOUTHERN SECTION	
Algona	3, 17, 30	Amana	3, 15, 17, 20, 25, 30	Albia	16, 20
Alta	2, 15, 16, 22, 30	Audubon	3, 12, 13, 15, 16, 24, 28, 29	Allerton	3
Alton	3, 16, 22	Baxter	3, 15	Atlantic	3, 13, 15, 22, 25, 28, 30
Belmond	30	Clinton	3, 15, 20, 24, 30	Bloomfield	2
Charles City	1, 2, 8, 15, 17, 20, 29, 30	Davenport	3, 15, 17, 20, 25, 30	Burlington	18, 19
Elkader	1, 8, 14, 20, 25, 30	Delaware	1, 3, 13, 14, 15, 20, 25, 30	Centerville	16
Elma	12, 17, 20, 29, 30	Des Moines	1, 3, 15, 16, 28, 29, 30	Columbus Junction	15, 17, 20, 25
Fayette	1, 3, 14, 17, 20, 25, 29, 30	Dubuque	1, 14, 15, 20, 25, 30	Corning	3, 8, 24, 29
Grand Meadow	14, 15, 17, 18, 25, 30	Grinnell	1, 3, 15, 17, 20, 25, 30	Creston	2, 7, 12, 13, 15, 24, 28
Inwood	15, 16, 17, 30	Guthrie Center	13, 16, 24, 28	Elliott	2, 3, 13, 14, 15, 17, 24
Larrabee	2, 13, 15, 16, 22	Harlan	2, 13, 15, 16, 20, 21, 25, 28, 29, 30	Fairfield	3, 17, 20
Le Mars	3, 13, 15	Iowa City	15, 17, 20, 25	Fort Madison	16, 17
Mason City	2, 3, 17, 20, 30	Iowa Falls	3, 11, 13, 15, 17, 20, 25, 29, 30	Hopeville	3
Northwood	3, 8, 11, 17, 20, 28, 30	Little Sioux	3, 8, 13, 14, 17, 28, 29	Indianola	3, 15, 16, 17, 25, 28
Osage	3, 20	Olin	20	Keokuk	15, 17, 20
Plover	3, 15, 16, 17, 28, 29	Onawa	3, 13, 15, 17, 21, 25, 28, 29, 30	Keosauqua	20
Pocahontas	2, 3, 13, 14, 15, 17, 25, 30	Sioux City	2, 8, 12, 14, 15, 16, 28, 29, 30	Lenox	3
Ridgeway	1, 2, 7, 8, 11, 15, 17, 20, 24, 29, 30	Waterloo	3, 17, 20, 25, 30	Leon	15, 17, 25
Sheldon	3, 15, 28, 30	Waukeee	28	Mt. Pleasant	2, 15, 17, 20
Sibley	13, 14, 15, 29	Whitten	15, 17, 20, 29, 30	Omaha	2, 3, 8, 13, 16, 17, 24, 28, 29, 30
Sioux Center	2, 14, 15, 16, 28	-----	-----	Oskaloosa	3
Storm Lake	3, 16, 17, 28	-----	-----	Ottumwa	3, 17, 20
Washta	2, 15, 16, 28, 30	-----	-----	Pacific Junction	28, 29
Waverly	15, 17	-----	-----	Pella	1, 3, 15, 17, 20, 25, 28
West Bend	2, 3, 13, 15, 16, 17, 30	-----	-----	Sigourney	15, 17, 20
-----	-----	-----	-----	Stockport	2, 15, 17, 20, 30
-----	-----	-----	-----	Thurman	2, 3, 8, 14, 15, 17, 21, 24, 29, 30
-----	-----	-----	-----	Woodburn	17, 25

U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR SEPTEMBER, 1910

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

DES MOINES, IOWA
EMORY H. ENGLISH, STATE PRINTER
1910

OCT 26 1910

THE IOWA WEATHER AND CROP SERVICE

WAS ESTABLISHED BY ACT OF THE TWENTY-THIRD GENERAL ASSEMBLY, AND IS UNDER SUPERVISION
OF THE

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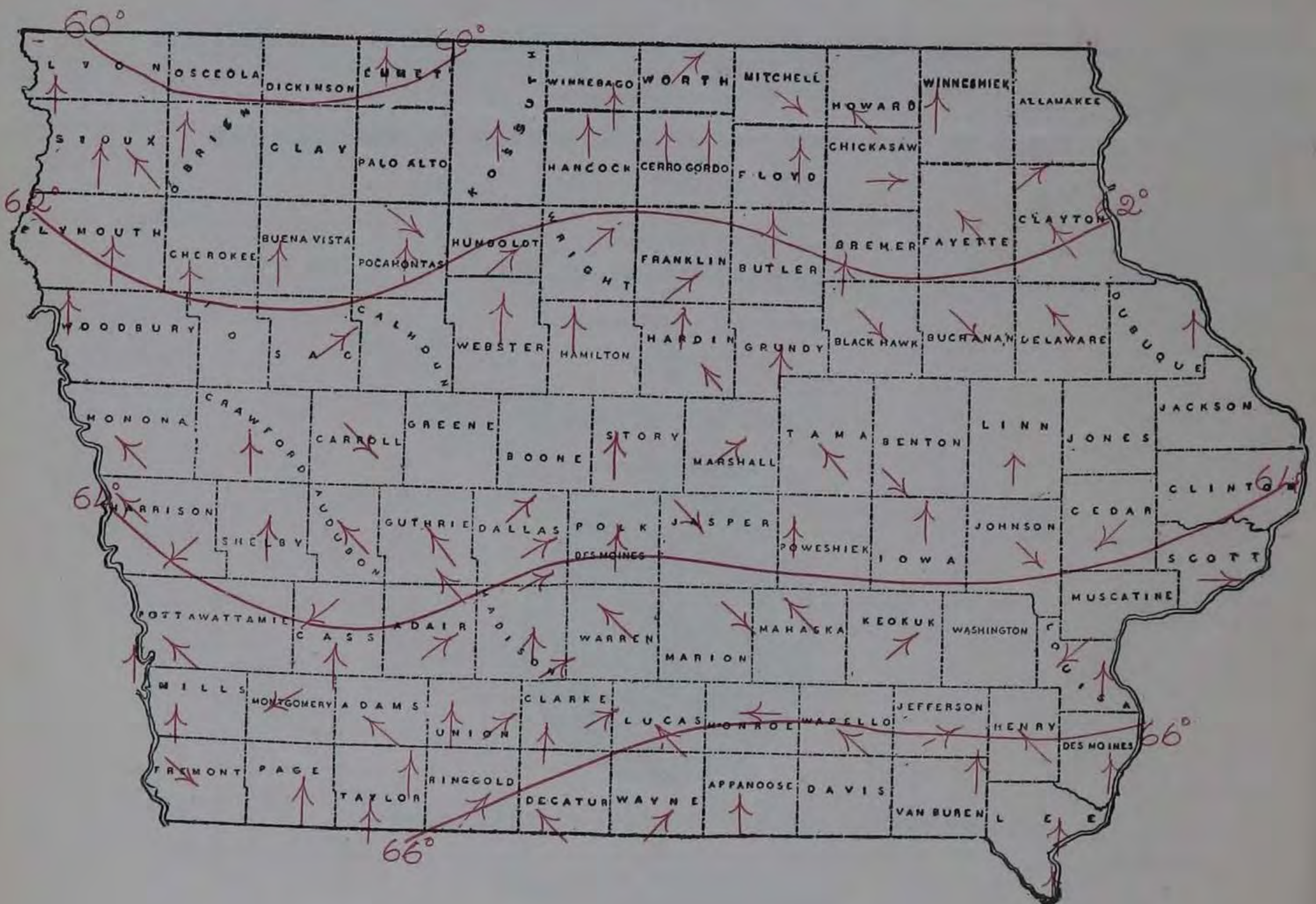
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MEAN ISOTHERMS AND PREVAILING WINDS OF SEPTEMBER, 1910.
Lines pass through points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
GEO. M. CHAPPEL, Section Director.

VOL. XXI DES MOINES, IOWA, SEPTEMBER, 1910 NO. 9

Although the mean temperature was below and the average rainfall was above the normal, the month was very favorable for farm operations and other outdoor pursuits and for maturing the late crops.

The average temperature was only 0.5° below the normal, and the deficiency was quite uniform over the State. The 17th was generally the warmest day, when maximum temperatures of 90° or above were recorded at most stations over the southern half of the State. The highest temperature recorded during the month, 99°, occurred, however, at Creston on the 15th. The 2, 5, 7, 11, 18, and 30th were also warm days. The coolest days of the month were the 9, 10, and 27th. Light frost occurred at several stations, on low ground, on the 9th and 10th and heavy to killing frost on the 27th. Freezing temperatures occurred at several stations in the extreme western counties on the latter date, but no material damage was done except to tender vines and garden truck as the low temperature was of short duration and the corn was generally far enough advanced toward maturity to escape injury.

The precipitation was well distributed throughout the month and fairly well distributed geographically although the largest amounts were recorded in the western, central and south central counties, and the heaviest showers occurred on the 15, 22, 23, or 26th, when excessive amounts were recorded at several stations. The rains have revived pasturage and aftermath in meadows, replenished the water supply for stock, put the soil in fine condition for plowing and started the growth of fall sown grain. Threshing was practically finished and more seed corn was gathered than ever before during the month of September. There has been a decided increase in the acreage sown to winter grains, especially fall wheat. Fall pasturage is in excellent condition and much more than the usual amount of corn has been cut for fodder and ensilage on account of the shortage in the hay crop. Late potatoes were materially benefited by the August and early September rains, but the crop will be short.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 113 stations, was 63.2°, which is 0.5° below the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 61.4°, which is 0.7° below the normal; Central section, 63.3°, which is 0.3° below the normal; Southern section, 64.8°, which is 0.7° below the normal. The highest monthly mean was 67.4°, at Ottumwa, Wapello County, and the lowest monthly mean, 58.6°, at Estherville, Emmet County. The highest temperature reported was 99°, at Creston, Union County, on the 15; the lowest temperature reported was 30°, at Sheldon, O'Brien County, on the 27th; and at Woodburn, Clarke County, on the 10th. The average monthly maximum was 88°, and the average monthly minimum was 36°. The greatest daily range was 49°, at Creston, Union County; and at Corning, Adams County. The average of the greatest daily ranges was 38°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 122 stations, was 3.59 inches, which is 0.18 inch above the normal. By sections the averages were as follows: Northern section, 2.90 inches, which is 0.51 inch below the normal; Central section, 4.04 inches, which is 0.80 inch above the normal; Southern section, 3.84 inches, which is 0.27 inch above the normal. The greatest amount, 7.43 inches, occurred at Afton, Union County, and the least, 1.18 inches, at Elma, Howard County. The greatest amount in twenty-four hours, 3.76 inches, occurred at Afton, Union County, on the 16th. Measurable precipitation occurred on an average of 9 days.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 14; partly cloudy, 7; cloudy, 9. The duration of sunshine was slightly below the normal, the percentage of the possible amount being 67 at Charles City; 63 at Davenport; 53 at Des Moines; 54 at Dubuque; 50 at Keokuk; and, 60 at Sioux City.

WIND.—South winds prevailed. The highest velocity reported was 39 miles per hour from the northwest, at Sioux City, Boodbury County, on the 4th.

OBSERVERS' REMARKS.

AFTON.—*N. W. Rowell.* Light frost on low land on the 27th and 28th. Corn is ripening slowly and irregularly which is probably due to the poor seed imported last spring.

ALBIA.—*J. I. Chenoweth.* Light frost occurred on low land on the 27th. 3.02 inches of rain during the month has started fall pasturage. Corn is out of danger from frost. A great quantity of corn is being cut up.

ALTA.—*David E. Hadden.* September, 1910, was an ideal month. Corn is entirely out of danger of frost at the close of the month. Light frost occurred on the 27th but there was no damage, even to tender vines.

AMANA.—*C. Schadt.* The weather was generally fine. Corn had ample time for ripening as there was no frost.

ATLANTIC.—*Thos. H. Whitney.* The frost of the 27th did not particularly affect upland vegetation but checked the growth of corn. Pastures are in fine condition at the close of the month and the ground is in excellent shape for cultivation.

AUDUBON.—*Geo. E. Kellogg.* Most too such rain for drying out late corn but the light frost on the 27th retarded its growth and 75 per cent is now out of danger of freezing weather.

COMPARATIVE DATA FOR THE STATE—SEPTEMBER

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890	59.3	96	23	2.97	4.85	1.36
1891	67.3	104	28	1.33	3.60	.13
1892	64.7	99	29	1.53	4.15	.16
1893	64.7	102	18	2.34	5.49	.74
1894	65.1	100	26	3.57	7.43	.67
1895	66.8	103	22	3.03	7.43	.85
1896	58.5	95	22	4.09	9.96	1.82
1897	70.9	106	26	2.04	5.88	0.00
1898	65.3	99	29	2.69	8.45	.41
1899	62.5	104	15	.93	4.32	T
1900	64.4	99	26	4.98	8.82	2.48
1901	63.3	102	26	4.77	13.62	1.71
1902	59.1	88	23	4.35	10.41	1.65
1903	60.8	94	28	3.81	8.79	1.42
1904	64.0	94	30	2.78	8.33	.09
1905	65.8	96	36	3.81	13.18	.50
1906	67.2	100	27	4.16	11.10	.64
1907	62.8	98	25	2.75	6.06	1.38
1908	67.9	98	20	1.20	3.46	.25
1909	62.4	94	30	3.58	7.34	1.39
1910	63.2	99	30	3.59	7.43	1.18

"T" indicates a trace.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.05 inches.
Prevailing direction of Wind, South.

STATIONS	Barometer, in Inches					Wind				Average Hourly Velocity
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum Velocity	Direction	Date	
Charles City.	30.06	30.49	14	29.63	4	4398	20	S	16 & 22	6.1
Davenport ..	30.06	30.46	14	29.64	4	4336	23	SS	11	6.0
Des Moines ..	30.02	30.48	14	29.56	4	4681	24	SS	11	6.5
Dubuque....	30.08	30.50	14	29.69	4	3961	18	S	17	5.5
Keokuk	30.06	30.43	14	29.67	4	4219	30	SS	11	5.9
Omaha, Neb.	30.03	30.49	9	29.59	4	5197	38	N	7	7.2
Sioux City ..	30.04	30.54	9	29.60	4	8093	39	NW	4	11.2

BAXTER.—*W. R. Vandike*. A fine month for ripening corn. Copious showers during second and third decades broke the drouth, relieved wells that were getting low and revived pastures.

BEDFORD.—*E. E. Healy*. Light frost occurred on the 10th, 27th and 28th but no damage was done.

BELLE PLAINE.—*S. P. Vandike*. Light frost occurred on the 10th.

BELMOND.—*Geo. P. Hardwick*. Moderate temperature and rainfall with no serious storms made ideal weather for farm operations. Corn ripening naturally without frost. Much corn fodder secured in good condition in lieu of hay which like potatoes is a short crop.

BONAPARTE.—*B. R. Vale*. September was a nice month for work but was too dry for plowing.

BRITT.—*L. M. Goodman*. The month was favorable for late potatoes and pastures. Corn is maturing nicely with no killing frost.

CHARITON.—*C. C. Burr*. The silos have been filled, and a large acreage of corn is in shock, ready for the shredder. The meadows are now getting green, for the first time since harvest. A large area of wheat has been sown.

DAVENPORT.—*J. M. Sherier*. While the rainfall was somewhat below the average, it occurred in well distributed showers that greatly improved pasturage. Owing to the nearly normal amount of sunshine and the absence of frost, the conditions were also favorable for the maturing of the late crops. Although the Mississippi was higher than during August, the average stages in the Davenport river district were lower than in any September since 1898. Through traffic over the Le Claire Rapids remains suspended.

DUBUQUE.—*James H. Spencer*. The month was exceptionally favorable for farming operations. At the close nearly all the corn was beyond danger from frost, and the soil is in splendid condition for fall plowing. The rainfall was abundant but not excessive. The month was characterized by an absence of frosts, severe local storms, and warm weather. The rivers of this district averaged about 0.6 of a foot higher than during August, except in the Mississippi from LaCrosse to St. Paul, where it was less. At Dubuque the maximum stage was 2.0 feet on the 13th, and the minimum, 0.8 on the 5, 6, and 7th. Navigation remained practically suspended during the month, owing to low water, making three months continuously that steamboats have been unable to run between St. Louis and St. Paul.

ELLIOTT.—*Henry Barnes*. The month ends with most of the corn out of the way of frost. Pastures are in good condition. Increased acreage of fall plowing, seeding and cutting of corn fodder.

FOREST CITY.—*J. A. Peters*. Light frost on 9, 10 and 27th but no damage done. Corn is maturing nicely.

GRAND MEADOW (Postville P. O.)—*F. L. Williams*. The month was favorable for finishing the corn crop which is very large. Pasturage

is growing finely and plowing is well advanced. There has been no killing frost and forest trees are coloring gloriously.

POPEVILLE (Murray P. O.)—*M. T. Ashley*. All corn practically safe from frost, but would be injured by severe freeze. Prospects are fine for good quality this year.

INWOOD.—*F. B. Hanson*. The first killing frost in September since 1902 occurred this year on the 27th but no damage was done to corn as the frost was only sufficient to hasten the drying process. Vines of all kinds and garden truck were, however, killed. Threshing is nearly done and silos filled.

KEOKUK.—*Fred Z. Gosewisch*. The precipitation, although 1.96 inches below the normal, came in well distributed showers throughout the month, and was sufficient for the growth of vegetation. Wheat is coming up well, and grass is making good growth, affording excellent fall pasturage. The corn crop is perfectly safe and is the largest for many years. Tomatoes, grown for large packing houses, are abundant, and on account of the low stage of the river throughout the season, a large yield is being gathered from lands which are usually overflowed. On the morning of the 27th a very light trace of frost could be detected in some exposed places with a minimum temperature of 43 degrees.

NORTHWOOD.—*Chas. H. Dwelle*. A severe electrical storm occurred on the 26th.

PELLA.—*John H. Ver Steeg*. The drouthy conditions that prevailed during the summer were broken on the 23d and 24th when 2.86 inches of rain fell. Corn was practically safe from frost at the end of the month.

POCAHONTAS.—*F. E. Hronek*. The month was very fine for all kinds of farm work and for maturing corn, 95 per cent of which is now safe from frost. Much fall plowing has been done. Fall pastures are good. No damage done by frost.

SHELDON.—*Dr. A. W. Beach*. No killing frost and corn is all ripe. Fall plowing is well advanced and ground is in splendid condition. Potatoes being dug and yield about 65 per cent of a crop.

SIoux CITY.—*G. K. Greening, Jr.* Temperatures slightly below normal prevailed and more than the average amount of precipitation occurred during September. More than two-thirds of the entire rainfall for the month occurred in two thunder-storms on the 4th and 22d, when excessive amounts were recorded. In all 8 thunder-storms occurred, which is unusual for the month of September. Light frost was observed the morning of the 9th and heavy on the 27th. Sunshine was about normal. Crops of all kinds are far enough advanced to stand a killing frost, unless it be some very late corn.

STOCKPORT.—*C. L. Beswick*. A fine month for pastures, fall grain seeding and aftermath in meadows. 90 per cent of corn is safe from a reasonable frost. Almost twice as many farmers sowing wheat as usually sow.

WAPELLO.—*G. W. Schofield*. There has been only one light frost and no damage done. Corn is ripening nicely and most of it is out of the way of frost. Fall seeding is mostly done.

WEST BEND.—*Phil Dorweiler*. September was a pleasant month and favorable for farm work and corn. There has been no killing frost.

ERRATA.

GRAND MEADOW.—July, 1910: Page 71. Greatest precipitation in 24 hours, published .19, should be .21.

WHITTEN.—July, 1910: Page 71. Mean temperature, published 74.4, should be 74.6; departure from normal, published +1.1, should be +1.3.

IOWA WEATHER AND CROP SERVICE.

CLIMATOLOGICAL DATA FOR IOWA, SEPTEMBER, 1910

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in Inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	No. clear days	No. partly cloudy days			No. cloudy days
Northern Section																				
Algona	Kossuth	1,213	37	61.8	-0.1	86	17	35	27	34	2.83	-0.31	0.75	0	7	16	5	9	s	Dr. F. T. Seeley
Alta	Buena Vista	1,513	10	61.0	-1.9	87	7†	33	27	40	2.69	-0.49	1.05	0	9	13	10	7	s	David E. Hadden
Alta (near)	Buena Vista										2.64	-1.09	0.86	0	11				se	W. J. Minard
Alton	Sioux	1,305	5	61.2		89	17	31	27	41	2.16		1.09	0	9	12	9	9	se	W. S. Slagle
Belmond	Wright			61.7		86	17	36	27	37	2.14		1.09	0	7	7	17	6	sw	Geo. P. Hardwick
Britt	Hancock	1,236	13	62.0	+0.3	89	17	34	27	36	1.37	-2.37	0.50	0	9	13	9	8	s	L. M. Goodman
Charles City	Floyd	1,015	19	61.0	-0.7	86	17	39	28	35	1.74	-1.06	1.00	0	8	11	5	14	s	Weather Bureau
Clear Lake	Cerro Gordo	1,241	12	62.0	-0.2	97	7	38	8†	47	1.63	-1.33	1.08	0	5	13	0	17	s	Oscar Stevens
Decorah	Winneshiek	875	17	62.1	0.0	86	7†	35	10	37	2.72	-1.01	1.90	0	6				se	F. H. Baker
Elkader	Clayton	727	31	63.0	+0.5	87	7	35	10	42	5.11	+1.30	2.28	0	7	17	7	6	se	Chas. Reinecke
Elma	Howard			59.2		85	17	34	10†	36	1.18		0.25	0	10	12	13	5	se	H. A. Moore
Estherville	Emmet	1,298	15	58.6	-2.1	88	17	35	10	40	4.23	+1.00	1.55	0	8	13	0	17	s	A. O. Peterson
Fayette	Fayette	1,003	20	61.0	-1.3	85	7†	34	10	33	4.81	+1.58	2.58	0	10	17	7	6	se	R. Z. Latimer
Forest City	Winnebago	1,226	16	60.9	-1.1	89	17	36	9†	36	2.28	-1.34	1.03	0	5	14	1	15	s	J. A. Peters
Grand Meadow	Clayton	1,180	19	60.2	-1.7	81	7†	39	10	29	4.81	+1.18	2.32	0	11	11	9	10	sw	F. L. Williams
Greene	Butler		12	62.6	-0.9	89	17	37	10	37	2.06	-1.08	0.48	0	9	11	10	9	s	J. L. Cole
Hampton	Franklin	1,155	20	63.0	+0.1	89	17	38	27	35	2.36	-1.20	0.92	0	6	12	10	8	sw	E. C. Grenelle
Humboldt	Humboldt	1,095	22	61.6	-0.9	87	17	34	25	45	4.08	+0.91	2.00	0	9	17	5	8	sw	H. S. Wells
Inwood	Lyon	1,474	6	62.1	-1.2	93	17	31	27	41	3.56	+0.18	1.91	0	11	18	8	4	s	F. B. Hanson
Larrabee	Cherokee	1,266	20	61.3	-1.5	85	17	33	27	34	2.75	-0.67	0.90	0	6				se	H. B. Strever
LeMars	Plymouth	1,224	14	61.6	-0.9	83	7	35	27	32	2.07	-1.71	0.71	0	7	11	12	7	s	G. A. C. Clarke
Mason City	Cerro Gordo	1,133	13	60.7	-1.3	89	17	35	10	36	2.61	+0.25	1.57	0	7	13	11	6	s	I. S. Mills
New Hampton	Chickasaw	1,169	13	61.2	-0.5	87	17	38	9†	35	2.18	-1.33	0.99	0	7	15	8	7	w	A. F. Kemman
Northwood	Worth	1,222	14	60.4	-0.4	87	17	36	9	33	5.19	+1.84	1.85	0	9	14	7	9	sw	Chas. H. Dwell
Osage	Mitchell	1,184	23	63.8	+3.8	89	17	38	27	38	3.27	-0.29	1.50	0	5	14	6	10	nw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	14	62.0	-0.8	88	17	35	10†	36	1.85	-2.54	0.65	0	5	21	5	4	nw	I. S. Smith
Pocahontas	Pocahontas	1,248	6	61.5	-2.1	86	17	35	27	34	2.91	+0.22	0.93	0	6	13	10	7	s	F. E. Hronck
Ridgeway	Winneshiek	1,215	12	62.2	-1.0	90	30	40	9†	34	3.41	+0.92	1.80	0	12	15	9	6	s	Arthur Betts
Rock Rapids	Lyon	1,358	11	60.1	-2.9	92	17	32	27	37	2.79	+0.28	1.79	0	3				se	W. C. Wyckoff
Sheldon	O'Brien	1,422	10	62.2	+0.7	92	17	30	27	45	3.95	+0.26	2.50	0	12	14	7	9	s	Dr. A. W. Beach
Sibley	Osceola	1,212	17	58.8	-1.9	87	7†	31	27	46	3.38	+0.01	1.30	0	9				se	H. G. Doolittle
Sioux Center	Sioux		11	61.1	+0.1	87	17	32	27	34	1.71	-1.97	0.44	0	6	13	8	9	s	J. de Ruyter
Storm Lake	Buena Vista	1,440	21																se	S. B. Fracker
Washta	Cherokee	1,157	12	63.0	-1.1	88	17	31	27	44	4.09	+0.31	2.10	0	6	15	7	8	s	H. L. Felter
Waverly	Bremner	948	14	61.9	-0.6	85	7†	37	10	36	3.28	+0.34	1.45	0	9	13	11	6	s	Earl C. Moore
West Bend	Palo Alto	1,197	17	61.8	+0.7	87	17	33	27	36	1.68	-1.75	0.65	0	8				se	Phil Dorweiler
Average				61.4	-0.7	88		35		38	2.90	-0.51		0	8	14	8	8	s	
Central Section																				
Amana	Iowa	721	34	63.4	+0.9	89	11	39	10	38	4.62	+1.37	0.88	0	10	12	9	9	s	Conrad Schadt
Ames	Story	926	34	63.5	0.0	90	11	36	10	45	4.63	+1.24	2.20	0	8	15	8	7	s	Iowa State College
Audubon	Audubon	1,301	16	62.1	-0.8	89	21	36	27	38	4.02	+0.89	0.90	0	9	17	3	10	se	Geo. E. Kellogg
Baxter	Jasper	908	10	64.2	+1.2	90	18	35	27	35	3.89	+0.47	1.59	0	13	14	9	7	nw	W. R. Yandike
Belle Plaine	Benton	828	20	62.8	-0.8	87	18	36	10	37	3.47	+0.51	0.90	0	8	12	9	9	nw	S. P. Van Dike
Boone	Boone	1,134	5	63.0		89	30	37	27	37	4.95		1.64	0	8	16	2	12		Carl Fritz Henning
Buckingham	Tama		10								3.80	+0.81	1.15	0	9					I. S. Gynn
Carroll	Carroll	1,265	20	60.8	-2.2	86	29	34	26	40	4.74	+1.85	1.62	0	6	11	9	10	nw	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	28	63.2	-0.8	87	11	42	10†	45	3.21	+0.39	1.02	0	9	14	6	10	s	W. J. Greene
Clinton	Clinton	593	43								4.83	+1.52	3.40	0	8					E. T. Carew
Davenport	Scott	580	39	65.4	+0.7	84	18	45	27	30	2.40	-0.74	0.81	0	9	12	8	10	w	Weather Bureau
Delaware	Delaware	1,083	19	62.2	+0.4	85	11	40	10†	36	3.79	+0.52	1.60	0	12	12	13	5	se	Wm. Ball
Denison	Crawford	1,180	16	62.6	-1.1	86	17†	33	27	35	3.37	+0.37	1.21	0	7	21	4	5	s	W. C. VanNess
Des Moines	Polk	861	31	64.4	-0.6	88	30	38	27	31	3.82	+0.75	1.32	0	9	11	3	16	s	Weather Bureau
De Soto	Dallas	866	10	65.2	+0.6	93	30	36	10†	40	3.96	+0.87	1.45	0	9	15	4	11	sw	R. D. Minard
Dubuque	Dubuque	639	37	62.8	-0.8	84	5	41	10	29	3.10	-0.49	1.44	0	8	11	7	12	s	Weather Bureau
Fort Dodge	Webster	1,126	10	62.2	-0.4	89	18	36	10	43	3.82	-0.75	1.30	0	9	15	1	14	s	I. F. Monk
Gilman	Marshall	1,052	11								5.41	+2.51	2.15	0	8					Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	65.0	+1.2	93	18	37	27	42	4.50	+2.15	1.59	0	11	15	8	7	s	D. W. Brainard
Grundy Center	Grundy	976	19	63.3	+0.2	86	17	35	10	37	3.77	+0.52	1.77	0	6	17	0	13	s	J. B. Calderwood
Guthrie Center	Guthrie	1,077	15	63.4	-0.5	84	11	34	27	33	5.65	+2.56	2.09	0	12	17	5	8	se	D. G. Beardsley
Harlan	Shelby	1,182	11	63.2	+0.2	89	30	32	27	35	3.23	-0.48	1.06	0	10	11	9	10	s	C. A. Reynolds
Independence	Buchanan	921	46	63.5	+1.8	91	2	39	10†	35	3.19	-0.76	0.90	0	7	22	3	5	nw	Geo. Donohoe
Iowa City	Johnson	683	50	62.2	-1.4	86	18	36	10	47	3.87	+0.12	0.80	0	11	15	1	14	nw	Prof. A. G. Smith
Iowa Falls	Hardin	1,170	17	60.0	-1.6	85	7	34	10	46	3.58	+0.61	1.33	0	3	16	3	11	s	I. B. Parmelee
Jefferson	Greene		11																	G. W. Jackson
LeClaire	Scott	576	10								3.63	-0.15	1.10	0	12					Margaret T. Disney
Little Sioux	Harrison		5	64.6	-2.4	90	17†	33	27	40	3.38	+0.48	0.87	0	8	16	2	12	se	Geo. H. Gibson
Logan	Harrison	928	43	64.2	+0.1	89	17	32	27	37	4.06	+0.81	1.10	0	9	11	13	6	ne	Glenn H. Stern
Marshalltown	Marshall	947	18	63.6	-0.5	90	11†	35	10	48	3.51	+0.56	1.53	0	6</					

CLIMATOLOGICAL DATA FOR IOWA, SEPTEMBER, 1910—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit							Precip., in inches				Sky				Prevailing direction of wind	OBSERVERS
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	Number clear days	Number partly cloudy days	Number cloudy days		
Southern Section																				
Afton	Union	1,212	16	64.0	-1.1	85	11†	39	27	28	7.43	+3.78	3.76	0	7	13	5	12	sw	Hon. N. W. Rowell
Albia	Monroe	959	12	65.6	+0.8	96	18	39	10†	41	3.02	-0.54	1.10	0	13	15	5	10	e	J. I. Chenoweth
Allerton	Wayne		8	65.8	+0.5	92	18	36	27	33	3.51	-1.20	0.98	0	10	15	3	12	sw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	19	64.4	0.0	88	17†	34	27	38	2.95	-0.54	1.78	0	8	10	6	14	ne	Thos. H. Whitney
Bedford	Taylor		10	66.3	+1.7	93	18	31	27	46	4.09	+0.65	2.57	0	8	12	9	9	s	E. E. Healy
Bloomfield	Davis		3	64.7		92	17	35	21	42	3.01		0.84	0	6					C. R. Davis
Bonaparte	Van Buren		19	65.5	-1.9	93	18	38	10	36	2.34	-1.70	1.13	0	6					Hon. B. R. Vale
Burlington	Des Moines	544	14	65.6	-0.6	94	18	42	27†	38	2.77	-0.35	0.78	0	14	15	3	12	s	M. E. Poppe, jr.
Centerville	Appanoose										2.45		0.75	0	8	18	1	11	s	Gordon Peacock, Jr.
Chariton	Lucas	1,042	15	65.6	+0.1	93	18	37	27	37	3.02	-0.42	0.90	0	6	16	0	14	se	C. C. Burr
Clarinda	Page	1,009	20	60.3	-5.9	95	18	34	27	40	4.11	+1.42	1.75	0	8	12	2	16	s	A. S. Van Sandt
Columbus Junction	Louisa	595	9	65.2	-0.3	86	18	41	27	32	3.09	-0.06	0.56	0	10	20	2	8	ne	J. B. Johnston
Corning	Adams	1,117	18	63.2	-1.6	87	11†	33	27	49	3.71	+0.75	2.40	0	6	16	3	11	se	Jerome Smith
Corydon	Wayne	1,101	17	65.6	-0.9	90	18	37	27	34	2.76	-0.83	1.12	0	8	14	4	12		Clara Miller
Council Bluffs	Pottawattamie			64.4		91	2	32	27	40	3.78		1.34	0	8	16	3	11	se	B. W. Crossley
Creston	Union	1,312	5	63.8		99	15	34	27	49	6.23		1.98	0	10	11	5	14	s	J. J. Colby
Cumberland	Cass		11								5.00	+1.36	2.24	0	9	14	7	9	s	J. H. Reppert
Earlham	Madison		8	65.0	+2.9	90	18	34	10†	39	5.02	+1.23	1.56	0	9	14	3	13	se	Geo. Phillips
Elliott	Montgomery		5	64.4	-2.2	87	7	36	27	42	2.81	-1.01	0.88	0	7	17	8	5	ne	Henry Barnes
Fairfield	Jefferson		26	64.0	0.0	86	18	37	10	33	1.73	-1.74	0.76	0	13	16	5	9	sw	R. Monroe McKenzie
Fort Madison	Lee	516	61								2.39	-1.42	0.47	0	7	8	7	15	s	Miss L. A. McCready
Greenfield	Adair		18	62.8	-2.1	85	17†	34	27	31	5.08	+1.67	2.13	0	8	12	9	9	sw	R. B. Oldham
Hopeville	Clarke		19	65.0	-1.4	90	11†	36	27	34	5.67	+2.18	2.95	0	8	9	11	10	s	M. T. Ashley
Indianola	Warren	969	19	65.0	-0.5	88	11	38	27	31	4.42	+1.32	1.30	0	9	10	4	16	se	Prof. J. L. Tilton
Keokuk	Lee	574	39	66.7	+0.3	91	18	43	27	31	2.08	-1.89	0.49	0	9	12	7	11	s	Weather Bureau
Keosauqua	Van Buren	644	18	61.0	-2.9	91	18	37	10	47	2.43	-1.97	0.45	0	11	8	10	12		J. H. Landes
Knoxville	Marion	920	15																	Casey & Belville
Lacona	Warren		11								4.97	+1.14	1.68	0	12	11	14	5		I. B. Alter
Lamoni	Decatur		3	65.2		90	11	36	22	96	4.77		1.79	0	7	16	1	13	se	F. J. Fitzpatrick
Lenox	Taylor	1,250	15	65.0	-0.3	87	17†	34	27	31	4.04	+0.71	2.65	0	7	15	5	10	s	J. L. Hurley
Leon	Decatur	1,120	8	64.0	-0.8	90	20	36	27	36	4.25	-0.55	1.70	0	5					Morris Gardner
Massena	Cass		4																	C. E. Smeltzer
Mount Ayr	Ringgold	1,236	17	66.0	-0.7	94	18	37	27	33	6.74	+3.21	2.70	0	12	14	5	11	sw	A. F. Beard
Mount Pleasant	Henry	729	29	64.6	-0.4	88	5	37	10†	35	3.78	+0.10	1.12	0	12	13	9	8	se	J. W. Edwards
Omaha, Neb.	Douglass	1,040	40	66.2	+0.4	91	17	42	27	27	3.43	+0.40	1.76	0	8	14	8	8	s	Weather Bureau
Oskaloosa	Mahaska	843	34	65.0	+0.5	88	11†	36	10	37	4.47	+1.44	1.90	0	10	18	0	12	se	Jos. Boyd
Ottumwa	Wapello	649	15	67.4	+0.2	96	18	40	10	37	1.67	-2.36	0.54	0	12	4	7	19	se	W. J. Mesmer
Pacific Junction	Mills	960	11	64.0	-0.5	87	11†	33	27	35	3.07	-0.39	1.75	0	5	11	18	1	s	H. H. McCartney
Pella	Marion	877	7	65.4	-1.0	91	11	33	10	41	5.92	+3.42	2.02	0	12	20	1	9	nw	John H. Ver Steeg
St. Charles	Madison	1,070	9	65.3	-0.1	90	11	38	27	45	5.73	+2.09	2.25	0	11	15	6	9	sw	R. D. Minard
Sigourney	Keokuk	877	14	65.3	-0.3	88	18	39	10	32	4.60	+1.58	0.98	0	12	7	18	5	sw	J. T. Parker
Stockport	Van Buren		8	64.6		93	18	35	10	39	2.58	-1.66	0.79	0	12	14	6	10	s	C. L. Beswick
Thurman	Fremont		13	65.1	-0.7	88	17	32	27	35	2.91	-1.88	2.06	0	8	13	6	11	nw	C. R. Paul
Wapello	Louisa	588	12	64.1	-1.6	84	11	43	10	30	2.37	-1.07	0.87	0	10	16	8	6	s	Geo. W. Schofield
Washington	Washington	769	28	65.8	+1.2	87	18	42	10	32	3.66	+0.98	1.50	0	9					Wm. A. Cook
Winterset	Madison	1,129	19	64.9	-0.7	87	11	37	27	33	5.33	+1.97	1.69	0	10	12	3	15	s	Dr. Robt. S. Cooper
Woodburn	Clarke	961	11	64.2		92	11†	30	10	47	4.53	+0.53	2.12	0	12	13	9	8	sw	C. B. McDonough
Average				64.8	-0.7	90		37		37	3.84	+0.27		0	9	13	6	11	s	
State average				63.2	-0.5	88		36		38	3.59	+0.18		0	9	14	7	9	s	

†And other dates; a, one day missing; b, two days missing; c, three days, etc.
‡Received too late to be included in averages.

THUNDERSTORMS—STATIONS AND DATES

NORTHERN SECTION.

CENTRAL SECTION.

SOUTHERN SECTION.

Algona	26	Amana	4, 11, 12, 19, 22	Albia	11, 24
Alta	16, 22	Audubon	2, 22, 26	Allerton	23
Alton	8	Baxter	12, 26	Atlantic	8, 26
Belmond	22, 23	Davenport	3, 4, 5, 11, 12, 19, 26	Bloomfield	7
Britt	5	Delaware	5, 12, 22, 23	Chariton	19
Charles City	11, 22	Des Moines	4, 11, 12, 16	Clarinda	12, 13
Elkader	4, 12	Dubuque	11, 12, 24, 26	Columbus Junction	4, 11, 22
Elma	2, 11, 18	Grinnell	4, 11, 15, 22, 23, 24, 26	Corning	8, 15, 23
Estherville	25, 26	Guthrie Center	2, 16, 22, 23	Corydon	23
Fayette	4, 5, 11, 23	Harlan	2, 15, 22, 26	Creston	16, 17, 23, 24, 26
Grand Meadow	5, 11, 22	Iowa City	2, 11, 23	Earlham	2, 11, 15, 16, 22, 30
Inwood	11, 12, 13, 14, 22, 25	Iowa Falls	4, 11, 15, 16	Elliott	8, 30
Larrabee	14, 22, 25	Little Sioux	15	Fort Madison	4, 12, 26
LeMars	4, 22, 26, 30	Olin	3	Hopeville	16
Mason City	2, 11, 22, 26	Onawa	2, 8, 15, 26	Indianola	4, 5
Northwood	4, 26	Sioux City	4, 7, 8, 11, 22, 25, 26, 29	Keokuk	3, 4, 5, 7, 12, 19, 26
Pocahontas	15, 16, 23, 26	Waterloo	5, 22, 23	Lenox	23
Ridgeway	4, 5, 11, 17, 25	Waukee	12, 10	Leon	3, 15, 16, 23
Sheldon	2, 26	Whitten	16, 22, 23, 24	Mt. Pleasant	4, 12, 23
Sibley	5, 14, 26			Omaha	2, 8, 15, 22
Sioux Center	4, 11, 22, 25			Oskaloosa	11, 23
Washta	4, 15, 16, 25, 29			Ottumwa	4, 11, 22, 23, 24
West Bend	26			Pella	4, 8, 11, 16, 22, 24
				Sigourney	4, 12
				Stockport	4, 12
				Thurman	2, 26, 30

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR THE MONTH OF SEPTEMBER, 1910—CONTINUED

STATIONS	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		Monthly Mean					
	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.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.														
Pella	73	53	79	53	76	60	76	63	81	69	89	53	87	58	83	65	69	46	74	33	91	53	84	54	65	55	71	50	64	52	74	54	87	57	89	62	86	62	84	54	84	48	78	53	65	59	74	51	71	43	67	53	68	40	76	40	76	44	86	57	77.6	53.1				
Perry	70	52	78	58	75	65	74	58	78	64	84	51	81	59	78	60	65	40	73	38	85	57	80	51	70	50	73	50	69	53	80	54	88	60	77	61	82	61	80	45	81	49	70	55	65	50	63	47	70	43	60	47	69	35	75	45	75	43	85	50	74.3	49.6				
Plover	74	44	82	55	81	54	78	60	78	60	83	47	82	60	75	54	64	36	70	35	74	54	67	44	67	43	72	44	63	53	80	54	86	53	75	60	80	56	79	55	83	50	66	55	60	48	65	46	68	46	60	46	69	35	75	43	75	46	84	55	73.0	50.0				
Pocahontas	74	46	78	57	75	54	76	57	80	65	74	47	85	61	74	54	63	37	70	39	71	53	65	44	65	43	72	46	64	50	78	52	86	53	75	60	80	56	79	55	83	50	66	55	60	48	65	46	68	46	60	46	69	35	75	43	75	46	84	55	73.0	50.0				
Ridgeway	75	52	73	50	71	59	69	54	81	58	82	53	85	58	76	57	70	40	72	40	84	53	65	50	62	51	75	46	70	49	70	52	87	59	76	59	75	55	84	51	80	50	74	50	62	50	57	45	70	42	60	48	71	40	76	43	76	46	90	56	73.9	50.5				
Rock Rapids	76	53	82	53	76	55	75	53	71	49	69	40	62	38	58	34	70	41	76	42	68	59	62	48	68	43	64	48	68	55	80	57	92	56	86	53	88	58	82	47	86	60	80	53	79	46	70	38	70	40	56	45	58	32	76	39	74	40	72	39	73.1	47.1				
Rockwell City	76	52	78	53	78	58	79	58	78	52	78	52	80	55	68	50	60	40	75	38	72	57	70	50	68	43	72	50	68	50	78	54	68	61	83	56	79	59	78	52	82	54	75	56	67	51	62	47	69	46	65	49	68	36	74	45	74	46	84	56	73.5	50.9				
Sac City	71	50	76	65	70	57	72	66	75	66	81	52	83	58	76	57	62	39	70	40	76	47	66	46	66	48	69	51	64	53	77	54	84	64	78	62	78	58	77	55	80	53	72	55	63	51	61	48	68	51	58	48	67	37	72	46	75	49	82	45	72.3	52.4				
St. Charles	71	55	80	58	73	63	76	65	81	65	83	57	85	63	75	57	67	49	76	44	90	45	80	53	64	54	70	51	62	53	73	53	87	60	89	64	78	62	81	60	87	55	75	56	65	55	60	48	73	48	63	48	72	38	79	47	77	48	87	62	76.1	54.5				
Sheldon	80	43	82	60	77	52	72	60	70	60	85	45	88	58	75	50	70	34	75	39	65	49	68	42	68	44	65	49	60	52	80	52	92	66	82	52	89	50	88	50	85	46	75	57	65	50	69	40	72	47	62	44	75	30	79	42	77	45	86	46	75.9	48.5				
Sibley	76	42	81	47	74	52	69	52	73	59	83	43	87	49	64	50	64	33	73	34	63	41	60	41	63	41	71	42	58	42	76	52	87	55	75	59	84	52	82	47	83	47	71	53	54	51	65	41	69	40	47	45	68	31	78	32	76	42	85	47	72.0	45.6				
St. Gourney	77	55	83	53	79	62	78	66	82	69	87	66	86	58	79	62	69	46	73	39	87	55	80	55	66	53	74	60	68	62	73	51	65	56	88	56	80	60	79	56	80	51	80	51	70	62	65	50	72	44	65	53	65	40	73	44	75	45	82	57	76.0	54.6				
St. Louis Center	73	49	81	62	73	52	73	60	75	61	81	48	85	60	77	50	62	36	73	40	67	53	62	41	63	47	73	47	61	48	77	48	87	64	79	60	82	53	79	61	84	58	82	54	81	49	66	58	60	50	60	43	72	48	50	42	73	39	76	46	76	50	86	56	72.9	52.4
Sioux City	70	54	80	63	73	56	74	62	76	59	82	53	85	63	67	50	64	41	71	46	70	49	62	46	65	46	69	52	63	54	80	58	92	67	79	61	84	58	82	54	81	49	66	58	60	50	60	43	72	48	50	42	73	39	76	46	76	50	86	56	72.9	52.4				
Stockport	75	55	76	53	78	58	83	68	80	66	84	56	80	59	83	56	67	49	70	35	85	52	76	55	60	51	68	50	65	47	74	53	83	57	93	68	76	60	82	53	85	46	82	58	68	61	69	52	71	50	66	54	67	39	75	39	85	57	76.0	53.2						
Stuart	72	62	79	65	76	63	75	65	81	61	83	62	81	60	75	48	71	42	70	41	82	62	70	51	71	50	70	50	64	50	78	50	86	60	86	65	85	60	77	57	82	52	68	55	61	49	65	42	74	46	62	41	68	46	75	46	94	49	76	53	74.9	52.4				
Thurman	68	55	78	63	72	62	77	67	76	64	80	50	85	68	80	62	65	48	71	39	86	62	74	52	64	56	70	54	74	53	83	60	88	68	85	65	82	65	80	58	80	45	70	62	68	57	62	52	74	48	69	48	55	32	72	40	77	42	83	61	74.9	55.3				
Tipton	76	59	77	53	76	61	73	66	82	66	82	60	84	61	80	68	71	51	71	48	84	54	76	57	70	53	70	53	70	55	70	52	82	58	84	65	76	59	81	59	80	58	80	53	80	53	65	56	71	46	61	52	65	44	73	46	72	52	82	57	75.3	55.9				
Toledo	74	50	78	50	76	65	74	57	81	63	82	64	85	63	76	60	66	42	71	35	86	54	81	54	68	51	69	50	67	50	72	52	84	59	85	59	73	60	76	54	79	50	78	51	63	58	59	50	68	40	60	52	63	39	70	43	71	44	81	58	73.9	52.6				
Wapello	70	68	76	54	75	62	75	68	78	61	80	61	78	62	80	66	81	60	80	60	66	46	70	42	85	53	75	56	64	52	68	50	67	53	72	52	83	58	87	64	73	60	79	57	76	53	68	52	67	62	69	57	68	49	68	54	61	45	59	45	72	50	76	59	72.1	56.1
Washington	73	56	78	52	74	61	77	66	78	70	82	56	81	60	80	60	66	46	70	42	85	53	75	56	64	52	68	50	67	53	72	52	83	58	87	64	73	60	79	57	78	52	81	50	70	62	69	57	68	49	68	54	61	45	59	45	72	50	76	59	72.1	56.1				
Washta	74	45	80	53	77	57	75	57	77	60	84	44	86	64	78	54	78	34	74	34	70	50	68	46	70	88	74	46	64	55	80	55	88	66	80	60	86	66	85	45	87	45	74	55	65	50	66	50	72	56	68	48	72	31	77	36	78	46	86	46	76.4	49.7				
Waterloo	75	54	78	53	71	59	75	57	84	64	83	57	86	56	77																																																			

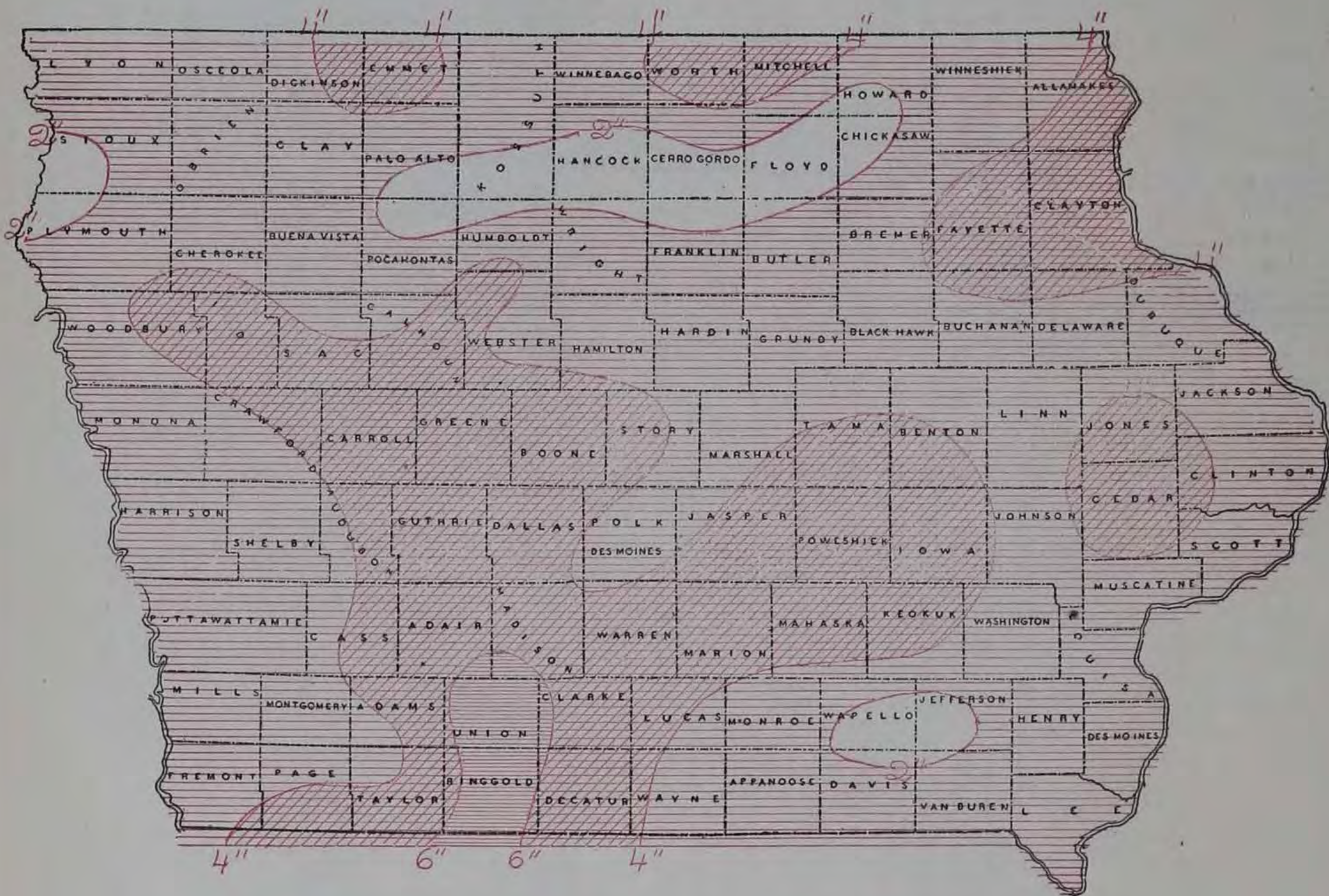
DAILY PRECIPITATION FOR IOWA, SEPTEMBER, 1910—Continued

STATIONS	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		
Sioux Center				.11							T	.02			.42				T				.40	.32		T	.44					1.71
Sioux City		.03	T	.99	T		.14	.11			T	T	T	T	.17								1.80	.03		.50	.16			T		3.93
Stockport		.20		.01	.02	.54		.15				.38			.03	.34				T			.08	.71	.02		.10					2.58
Stuart		T	.10	.20	.10								T		1.80	2.10							.35	1.20								5.85
Thurman		.03	T	.02	.03	.15		.15												T			.03	2.06			.44					2.91
Tipton				.26	2.14								.65			.62					.15		.17	.63			.38					5.00
Toledo			T	.13	.02							1.72	.03	.04	.50					T			.40	.83	3.00		.23					6.90
Wapello		.18		T	.20	.08	.05					.15	.02	T		.22				T			.24	.87			.36					2.37
Washington		.08			.30						1.50			.02	.50						.02			.71	.50		.03					3.66
Washta					.10				T			T			2.00	.10							.82	.32		.75				T		4.09
Waterloo			T		.18							.26		.03	.21									.48	1.71		.03	.08				2.98
Waukeo		.03	.02	.16	.06	.01						.43		.01	1.46	.88							.32	.89	.03	T	.07					4.37
Waverly			T	.02		.03						.44	.02		.14								.38	1.45	.58		.22					3.28
Webster City			T		T	T								.02	.42	.45							.22	1.32	.37		.54					3.34
West Bend			T		.10						.02	.02	T		.40	.06							.33	.10			.65					1.68
Whitten				T	T	T						T	T	T	T	.42							.88	1.14	.54		.22					3.20
Winterset		T	.03	.12	.01				T			.16		T	1.69	1.06							.50	1.58	.05		.13					5.33
Woodburn		.07	.02	.11	.01	.05		.01				.22		T	1.18	.42					.03		.29	2.12								4.53

* Precipitation included in that of the next measurement.
 † 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.

TOTAL PRECIPITATION, SEPTEMBER, 1910.

SCALE OF SHADES—IN INCHES



Less than 2
 2 to 4
 4 to 6
 6 to 8
 More than 8

U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR OCTOBER, 1910

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

DES MOINES, IOWA
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1910

DEC 1 1910

THE IOWA WEATHER AND CROP SERVICE

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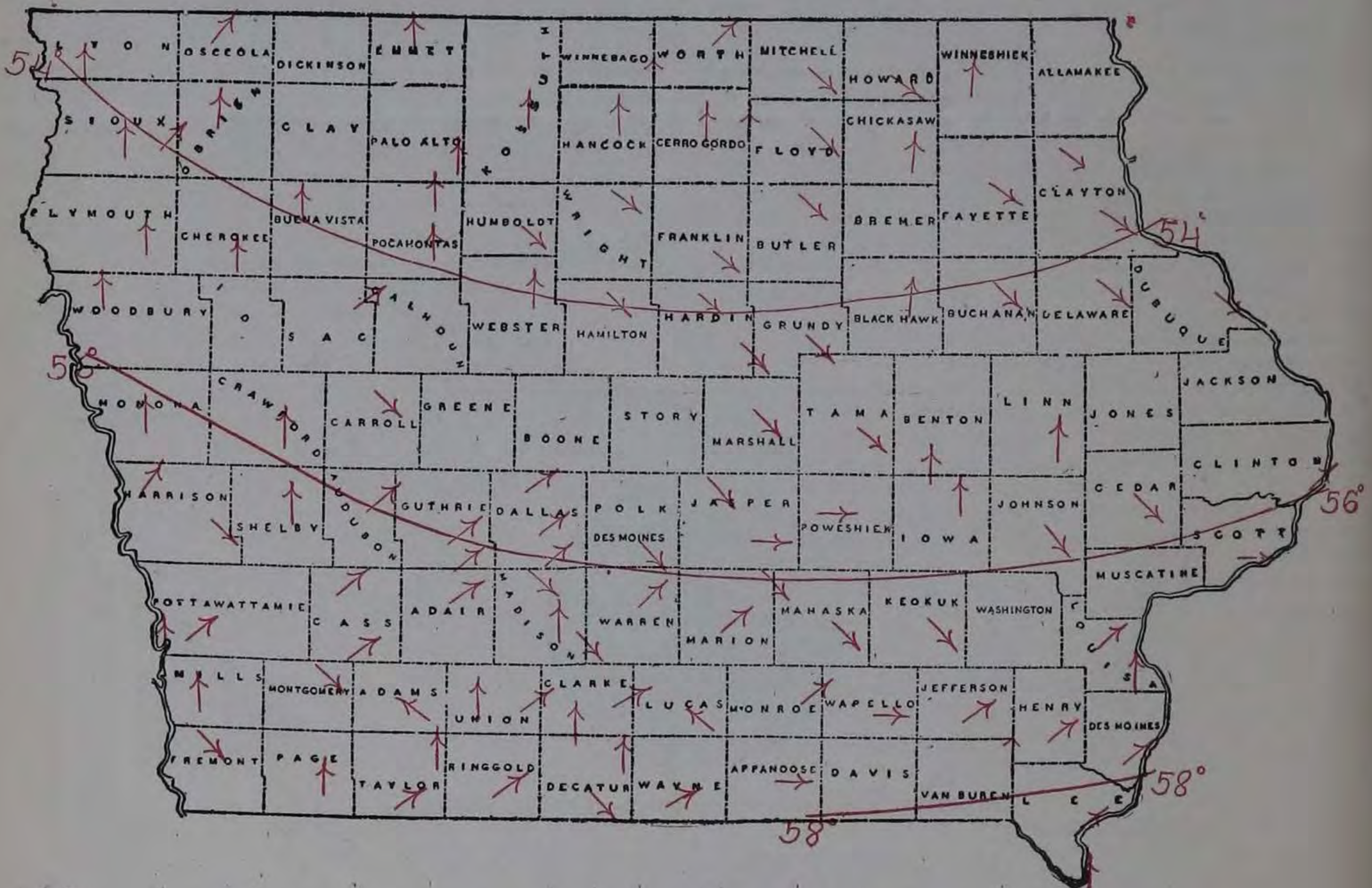
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MEAN ISOTHERMS AND PREVAILING WINDS OF OCTOBER, 1910.
Lines pass through points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.
CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,
GEO. M. CHAPPEL, Section Director.

VOL. XXI DES MOINES, IOWA, OCTOBER, 1910 No. 10

GENERAL SUMMARY.

October 1910, was unusually warm and pleasant even for Iowa where Indian Summer weather generally prevails at that time of the year. It was the warmest October since 1900 and the driest since 1895, and there have been only three warmer months of that name during the past 21 years. With the exception of light showers between the 3d and 5th, clear and generally warm weather prevailed until the 18th with 4 partly cloudy and only 6 cloudy days during the month. The 2d was generally the warmest day, but at a few stations the highest temperature for the month was recorded on the 10, 11, 15 or 16th. A cool wave passed over the State on the 6th and 7th that caused light frost in all sections and freezing temperatures at some stations in the extreme northern counties, but no damage resulted to crops. The temperature was abnormally high between the 11th and 18th, during which time the daily maximum temperatures were very near or above 80° in all parts of the State and the weather was clear and balmy. Light rain began in the western counties during the late afternoon of the 18th, spreading over the State on the 19th, 20th and 21st, with a decided drop in temperature which resulted in freezing temperatures and killing frosts in northern and western counties on the 22d and heavy frost over the southeastern counties, but the coldest period of the month was on the 28th and the 29th when the minimum temperatures were below the freezing point and killing frost occurred at all stations. The first snow of the season fell in the form of light flurries on the 27th and 28th.

The warm, dry weather was very favorable for ripening the corn crop, finishing threshing, digging potatoes and for all outdoor operations, except that the soil was too dry for satisfactory plowing and in many places the surface water supply was scarce and the water in shallow wells was low. Corn-husking began during the third week and became general during the fourth week of the month. The large acreage of fall wheat was in excellent condition at the close of the month. Home-grown strawberries were on the market at Dubuque until the closing week of October and a few boxes were picked at some time during the month at many places in the eastern and southern counties.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 113 stations, was 55.2°, which is 3.3° above the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 53.7°, which is 3.6° above the normal; Central section, 55.3°, which is 3.5° above normal. Southern section, 56.6°, which is 2.8° above the normal. The highest monthly mean was 60.1°, at Ottumwa, Wapello County, and the lowest monthly mean was 51.7°, at Northwood, Worth County. The highest temperature reported was 93°, at Inwood, Lyon County, on the 10th, and at Ottumwa, Wapello County, on the 16th; the lowest temperature reported was 10°, at Woodburn, Clarke County, on the 29th. The average monthly maximum was 86°, and the average monthly

minimum was 18°. The greatest daily range was 56°, at Keosauqua, Van Buren County, on the 30th. The average of the greatest daily ranges was 40°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 122 stations, was 0.77 inch, which is 1.58 inches below the normal. By sections the averages were as follows: Northern section, 0.81 inch, which is 1.46 inches below the normal; Central section, 0.77 inch, which is 1.67 inches below the normal; Southern section, 0.74 inch, which is 1.61 inches below the normal. The greatest amount, 1.73 inches, occurred at Fort Dodge, Webster County, and the least, a trace, at Chariton, Lucas County. The greatest amount in twenty-four hours, 1.32 inches, occurred at Fort Dodge, Webster County, on the 19th. Measurable precipitation occurred on an average of 4 days.

SNOW.—The average depth of unmelted snowfall was 0.1 inch; nearly all stations reported at least a trace; the greatest depth was 2.0 inches, at Algona, Kossuth County.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 21; partly cloudy, 4; cloudy, 6. The duration of sunshine was about 10 per cent above the normal, the percentage of the possible amount being 71 at Charles City; 72 at Davenport; 73 at Des Moines; 66 at Dubuque; 72 at Keokuk, and 77 at Sioux City.

WIND.—South winds prevailed. The highest velocity reported was 46 miles per hour from the North, at Sioux City, Woodbury County, on the 27th.

OBSERVER'S REMARKS.

ALBIA.—*J. I. Cheoweth.* October was a remarkably fine month with only two rainy days. The first killing frost occurred on the 22d.

ALLERTON.—*Mrs. George Shriver.* The ground is too dry for fall plowing.

ALTA.—*David E. Hadden.* October, 1910, was ideal in every particular; generally clear skies and Indian Summer weather prevailed during the greater portion of the month. Rain would, however, be beneficial as the ground is getting dry and water in wells is low.

ATLANTIC.—*Thos. H. Whitney.* October was a fine month with many beautiful days. Frost held off till corn and other fall crops were safe; corn considered fully matured at close of month and general preparation made for gathering. Fall pastures in fine condition.

COMPARATIVE DATA FOR THE STATE—OCTOBER.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	49.2	86	16	3.48	6.82	1.59
1891.....	50.0	92	19	2.77	6.53	.85
1892.....	51.5	96	14	1.55	2.58	.00
1893.....	52.4	94	10	1.28	4.56	.02
1894.....	51.7	90	20	2.67	5.25	.03
1895.....	46.0	88	4	.47	1.38	.00
1896.....	47.9	89	12	3.13	5.05	1.51
1897.....	56.8	97	12	1.14	3.80	.03
1898.....	47.5	88	17	3.56	5.75	1.27
1899.....	56.7	95	17	1.73	4.64	.15
1900.....	59.3	90	21	3.91	8.00	1.20
1901.....	54.2	88	20	1.98	4.23	.45
1902.....	53.5	83	20	2.54	6.66	.28
1903.....	52.2	90	16	1.95	4.50	.32
1904.....	53.1	96	16	1.67	4.43	.14
1905.....	49.2	95	16	3.40	5.36	1.20
1906.....	50.5	87	7	1.96	4.25	.50
1907.....	50.4	85	10	1.50	3.71	.30
1908.....	51.1	89	17	3.38	8.83	.58
1909.....	49.7	97	10	2.22	4.70	.48
1910.....	55.2	93	10	.77	1.73	T

T. indicates an amount too small to measure.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.01 inches.
Prevailing direction of Wind, Northwest.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum Velocity	Direction	Date	Average Hourly Velocity
Charles City..	30.01	30.41	28	29.62	26	5104	26	N	27	6.9
Davenport..	30.01	30.43	29	29.42	26	4841	28	W	27	6.5
Des Moines..	30.00	30.42	28	29.56	26	5487	28	SW	23	7.4
Dubuque....	30.03	30.46	29	29.64	26	4372	30	NW	26	5.9
Keokuk.....	30.04	30.45	29	29.58	26	5056	30	W	27	6.8
Omaha, Neb.	30.01	30.46	28	29.53	26	6131	38	N	26	8.2
Sioux City..	30.00	30.46	28	29.51	2	9586	46	N	27	12.9

BAXTER.—*W. R. Vandike.* October was a beautiful month and flowers were blooming in the open until late in the month.

BEDFORD.—*E. E. Healy.* The first killing frost occurred on the 22d and the first snow of the season fell on the 27th.

BELMOND.—*Geo. P. Hardwick.* The weather was fine until the 27th and the corn leaves were green until nearly to end of month.

BUCKINGHAM, (Traer P. O.)—*J. S. Guynn.* On the night of the 28th ice three-eighths of an inch thick formed on the watering trough.

CHARITON.—*C. C. Burr.* The month has been unseasonably warm and grass is still growing. There is no surface water and the soil is very dry. Fall wheat looks fine. Farmers are cribbing corn.

CHARLES CITY.—*E. W. McGann.* The principal features of the month were its unusually high temperature, the large number of clear and fair days and the great deficiency of precipitation, the total being 0.36 inch which is 1.67 inches below the normal for the month. The first heavy frost occurred on the morning of the 6th, but did no injury whatever. The first killing frost occurred on the morning of the 22d, 12 days later than last year and is the latest on record for this vicinity. The first flurry of snow came on the 27th. The last few days of the month were cool.

DAVENPORT.—*J. M. Sherier.* The month of October just passed was one of the driest and warmest in the history of the local station. While a light frost formed at some places in the open country on the morning of the 7th, the tenderest vegetation escaped damage until the 22d, when light frost was more general. The temperature was below the freezing point on the 27th, 28th and 29th, with a killing frost on the last named date, or about a week later than usual. At the close of October, the Mississippi was slightly lower at all stations in the Davenport river district than at the end of the preceding month.

DUBUQUE.—*J. H. Spencer.* The tenderest vegetation was unharmed up to the 22d, and a freeze did not occur until the 29th, or about 2 weeks later than the usual date. The late fall was exceptionally favorable for the ripening of potatoes, pumpkins, squash, grapes, etc., and for all fall work. Home grown strawberries were on the market until the closing week of October.

The growing season this year was of remarkable length. Vegetation started into growth early in March, and at the close of March, spring flowers were in bloom, and elms, soft maples, box elders, larches, and some other varieties of trees were green or rapidly becoming so. Apple, cherry, and other fruit trees were in bloom on April 10th, and were caught by the freeze later in the month, which gave all vegetation a severe setback. With the exception of one week in April, there were nearly eight months of good growing weather this year.

The Mississippi River changed very little during the month from Dubuque to St. Paul, and it was the fourth month of extremely low water. The maximum stage at Dubuque was 1.4 feet on the 2d and the minimum stage, 0.9 of a foot from the 10th to the 15th

inclusive. At the close of the month the Mississippi was falling slowly from Dubuque to St. Paul. Navigation on the Upper Mississippi remained practically closed, owing to the low water, making four months continuously that steamboats have been unable to run between St. Louis and St. Paul. The Wisconsin River was slightly higher during October than for several months previous.

ELKADER.—*Chas. Reinecke.* This was the warmest October since 1900.

ELLIOTT.—*Henry Barnes.* October was a grand month for cribbing of corn and general farm work. The many clear days were enjoyed by every one.

FAIRFIELD.—*Prof. R. Monroe McKenzie.* The month was above the average in temperature, below in precipitation and unusual in the amount of sunshine. Frost did not come until late so it has been very favorable for the corn harvesting and for winter plowing.

FOREST CITY.—*J. A. Peters.* The first killing frost of the season occurred on the 6th but there was no damage done to corn. There has been much corn cribbed. The weather has been too dry for fall plowing and pastures are not as green as usual at this season of the year.

GRAND MEADOW (Postville P. O.)—*F. L. Williams.* The month was very favorable for ripening corn and all crops were out of the way before the hard freeze on the 29th. Fall work is well advanced.

GREENFIELD.—*R. B. Oldham.* October was a month of very clear, fine weather. A good start was made in corn picking.

GRINNELL.—*D. W. Brainard.* October was a remarkable month, without any unpleasant weather.

HUMBOLDT.—*Henry S. Wells.* Corn husking begun and the crop is in good condition. Potatoes are all harvested and are keeping well.

INWOOD.—*L. B. Hanson.* October was a fine month. The first 17 days were clear with a total of 24 clear days during the month. Threshing was finished and potatoes dug with yields varying from 20 to 245 bushels per acre. Corn husking began on the 20th and became general about the 26th or 27th.

KEOKUK.—*Fred Z. Gosewisch.* The first killing frost was on the morning of the 22d and the first snow fell in light flurries on the 28th, the amount falling being unappreciable. Wheat is looking well but pastures are getting dry and in some sections water is becoming scarce. The lateness of the first killing frost, and the low water of the Mississippi River allowing the cultivation of the rich bottom lands, which are usually overflowed, has resulted in the largest crop of tomatoes for several years and canning works have been taxed to their utmost to put up the crop.

KEOSAUQUA.—*J. H. Landes.* A beautiful month for maturing and drying corn, which is now about ready for being cribbed. Pasturage is fine and fall grain looks well.

PELLA.—*John H. Ver Steeg.*—It was warm and dry during the month and favorable for farm work. The first killing frost occurred on the 22d and snow flurries on the 19th, 27th and 28th.

POCAHONTAS.—*F. E. Hronek.* October was a very dry month. Shallow wells are going dry. The weather was fine for husking corn which is in progress. The first killing frost occurred on the 22d which is the latest date for many years.

RIDGEWAY.—*Arthur Betts.* The past month was the warmest October since 1900 and the driest in 13 years. The first killing frost since May 5th occurred on the 22d.

ROCK RAPIDS.—*W. C. Wyckoff.* Corn picking began on the 24th.

SHELDON.—*A. W. Beach.* October was a splendid fall month. Corn was all matured and seasoned and husking was begun. Late potatoes were better than expected and the soil was in good condition to get them free from mud.

Continued on page 104

MONTHLY REVIEW OF THE

CLIMATOLOGICAL DATA FOR IOWA, OCTOBER, 1910—Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit					Precip., in inches				No. rainy days	Sky			Prevailing direction of wind	OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal		Greatest in 24 hours	Total snow fall (unmelted)	No. clear days			No. partly cloudy days	No. cloudy days
Southern Section																				
Afton	Union	1212	16	55.5	+2.2	81	2	22	29	29	1.18	-1.40	0.90	T	3	23	3	5	sw	Hon. N. W. Rowell
Albia	Monroe	959	12	57.7	+4.5	91	2	18	29	49	0.30	-2.27	0.21	T	2	23	2	6	sw	J. I. Chenoweth
Allerton	Wayne	8	8	57.4	+3.2	83	16	16	29	41	0.12	-1.90	0.08	T	2	25	0	6	sw	Mrs. Geo. Shriver
Atlantic	Cass	1164	19	55.8	+4.2	85	2	19	29	37	1.15	-1.37	0.61	T	4	15	3	8	sw	Thos. H. Whitney
Bedford	Taylor	10	10	56.8	+2.5	87	2	14	29	42	1.37	-0.91	1.13	T	3	23	4	4	sw	E. E. Healy
Bloomfield	Davis	3	3																	C. R. Davis
Bonaparte	Van Buren	19	19	57.9	+2.9	90	16	15	29	43	0.65	-1.11	0.29	T	3					Hon. B. R. Vale
Burlington	Des Moines	544	14	58.7	+3.0	91	16	22	30	46	1.01	-1.21	0.39	T	5	24	2	5	sw	M. E. Poppe, Jr.
Centerville	Appanoose										0.15		0.10	T	2	25	3	3	w	Gordon Peacock, Jr.
Chariton	Lucas	1042	15	56.7	+2.5	83	2	13	29	44	T	-2.36	T	T	0	25	0	6	se	C. C. Burr
Clarinda	Page	1009	20	54.0	0.0	88	2	21	29	39	1.55	-0.95	0.79	T	4	23	7	1	s	A. S. Van Sandt
Columbus Junction	Louisa	595	9	57.0	+2.6	86	16	21	29	35	0.76	-1.69	0.32	T	4	23	4	4	sw	J. B. Johnston
Corning	Adams	1117	18	55.4	+2.1	88	2	18	29	34	1.71	-0.62	0.82	T	3	25	0	6	se	Jerome Smith
Corydon	Wayne	1101	17	56.8	+2.0	86	2	18	29	33	0.14	-2.35	0.07	T	3	24	2	5	sw	Clara Miller
Council Bluffs	Pottawattamie			56.0		87	2	18	29	46	0.97		0.73	T	3	20	4	7	sw	B. W. Crosley
Creston	Union	1312	5	55.7		86	2	20	29	43	1.41		0.96	T	4	22	2	7	s	O. J. Colby
Cumberland	Cass	11	11								1.56	-1.05	1.18	T	4	25	2	4	sw	J. H. Reppert
Earlham	Madison	8	8	56.0	+4.9	88	16	15	29	40	1.00	-1.35	0.52	T	4	21	1	9	nw	Geo. Phillips
Elliott	Montgomery	5	5	57.1	+6.2	87	2	21	29	40	0.83	-1.49	0.75	T	2	22	6	3	nw	Henry Barnes
Fairfield	Jefferson	26	26	55.6 c	+3.2	84 c	15	16 c	29	41 c	0.63	-2.29	0.22	T	5	25	2	4	sw	R. Monroe McKenzie
Fort Madison	Lee	516	61								0.87	-1.75	0.51	0	3	20	4	7	sw	Miss L. A. McCready
Greenfield	Adair	18	18	54.6	+1.5	83	2	20	29	31	1.41	-0.86	0.70	T	3	23	6	3	sw	R. B. Oldham
Hopeville	Clarke	19	19	56.5	+2.3	86	2	18	29	38	0.37	-1.87	0.31	T	2	17	7	7	s	M. T. Ashley
Indianola	Warren	969	19	57.2	+3.5	85	2	19	29	35	0.42	-1.68	0.23	T	4	21	2	8	sw	Prof. J. L. Tilton
Keokuk	Lee	574	39	59.2	+4.7	86	2	22	29	38	0.81	-1.68	0.40	T	5	22	2	7	s	Weather Bureau
Keosauqua	Van Buren	644	18	56.0	+1.2	90	16	16	29	56	0.59	-1.25	0.26	T	4	13	11	7		J. H. Landes
Knoxville	Marion	920	15	57.2	+3.5	85	2	20	29	39	0.28	-2.14	0.20	T	2	20	4	7	sw	Casey & Belville
Lacona	Warren	11	11								0.97	-1.74	0.56	0	3	7	21	3		J. B. Alter
Lamoni	Decatur	3	3	55.6		83	2	16	29	35	0.27		0.15	T	5	21	0	10	nw	T. J. Fitzpatrick
Lenox	Taylor	1250	15	56.2	+2.6	83	2	19	29	33	1.35	-1.18	1.00	T	4	23	4	4	s	J. L. Hurley
Leon	Decatur	1120	8	56.8	+3.2	84	2	18	29	38	0.15	-1.93	0.15	T	1	20	4	7	s	Morris Gardner
Mount Ayr	Ringgold	1236	17	57.5	+2.6	85	2	23	29	35	0.59	-1.67	0.35	T	5	23	1	7	sw	A. F. Beard
Mount Pleasant	Henry	729	29	55.1	+2.6	84	16	18	29	38	0.81	-1.07	0.37	T	5	22	3	6	sw	J. W. Edwards
Omaha, Nebr.	Douglas	1040	40	58.9	+4.7	83	2	27	28	32	0.72	-1.63	0.64	0.1	4	18	8	5	s	Weather Bureau
Oskaloosa	Mahaska	843	34	56.2	+4.1	87	16	15	29	40	0.31	-1.89	0.24	T	3	24	3	4	nw	Jos. Boyd
Ottumwa	Wapello	649	15	60.1	+5.1	93	16	20	29	43	0.19	-2.76	0.14	T	2	7	8	16	w	W. J. Mesmer
Pacific Junction	Mills	960	11	55.1	+0.7	86	11	20	29	42	1.04	-1.26	0.63	T	3	23	7	1	s	H. H. McCartney
Pella	Marion	877	7	56.2	+2.6	89	15	14	29	44	0.29	-2.30	0.20	T	3	27	0	4	nw	John H. Ver Steeg
St. Charles	Madison	1070	9	58.2	+2.7	89	16	18	29	46	0.77	-1.64	0.52	T	5	22	4	5	nw	R. D. Minard
Sigourney	Keokuk	877	14	56.4	+2.1	86	2	16	29	40	0.29	-2.27	0.24	T	3	13	13	5	nw	J. T. Parker
Stockport	Van Buren	8	8	56.0		89	16	13	28	47	0.65	-1.31	0.31	T	4	23	3	5	s	C. L. Beswick
Thurman	Fremont	13	13	56.6	+1.8	86	2	19	29	40	0.92	-2.25	0.42	T	3	20	7	4	nw	C. R. Paul
Wapello	Louisa	588	12	57.2	+2.8	83	2	28	29	44	0.78	-1.09	0.29	0	4	22	5	4	s	Geo. W. Schofield
Washington	Washington	769	28	55.7 c	+3.5	88	16	18	29	40	0.54	-1.50	0.34	0	3					Wm. A. Cook
Winterset	Madison	1129	19	56.8	+3.5	85	2	22	29	32	1.04	-1.20	0.71	T	4	19	5	7	s	Dr. Robt. S. Cooper
Woodburn	Clarke	961	11	54.6		87	2	10	29	50	0.56	-1.46	0.50	T	3	23	2	6	sw	C. B. McDonough
Average				56.6	+2.8	87		18		40	0.74	-1.61		T	3	21	4	6	sw	
State average				55.2	+3.3	86		18		40	0.77	-1.58		0.1	4	21	4	6	s	

†And other dates; a, one day missing; b, two days missing; c, three days, etc.
‡Received too late to be included in averages.

THUNDERSTORMS—STATIONS AND DATES

NORTHERN SECTION.	CENTRAL SECTION.	SOUTHERN SECTION.
Algona	Amana	Atlantic
Alta	Audubon	Clarinda
Alton	Delaware	Corning
Estherville	Fort Dodge	Creston
Forest City	Guthrie Center	Earlham
Larrabee	Harlan	Keokuk
LeMars	Iowa Falls	Keosauqua
Mason City	Jefferson	Mt. Pleasant
Northwood	Wankee	Omaha, Nebr.
Plover		Pacific Junction
Pocahontas		Thurman
Sheldon		
Sibley		
Washta		
West Bend		

U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR NOVEMBER, 1910

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



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DEC 31 1910

THE IOWA WEATHER AND CROP SERVICE

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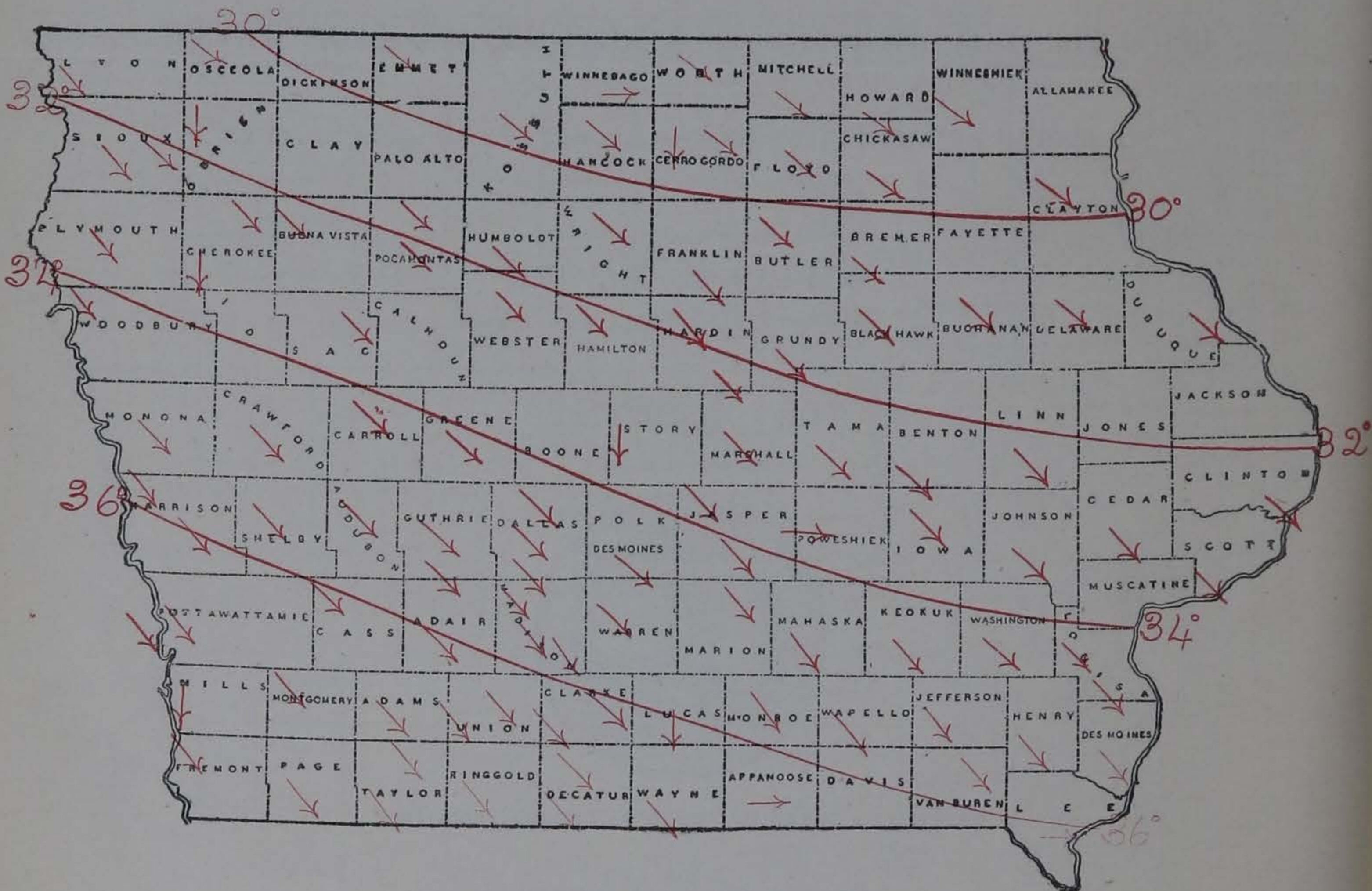
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MEAN ISOTHERMS AND PREVAILING WINDS OF NOVEMBER, 1910.
Lines pass through points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE

OF THE
WEATHER BUREAU.

CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,

GEO. M. CHAPPEL, Section Director.

VOL. XXI DES MOINES, IOWA, NOVEMBER, 1910 No. 11

GENERAL SUMMARY

There was a great contrast between the weather in November, 1909, and November, 1910. Last year both the temperature and precipitation were decidedly above the normal which was unprecedented; the average temperature being 6.5° above and the average precipitation, 4.00 inches above the normal. The snowfall was also much above the normal, the monthly amounts ranged from 8 to 29.5 inches. The heavy rains caused high stages in all streams and rivers and much of the bottom lands were flooded and the heavy snow prevented the harvesting of about 35 per cent of the corn crop.

The weather during November, 1910, was, on the whole, very pleasant and exceptionally favorable for outdoor work, the temperature and the precipitation both being below the normal. The deficiency of temperature was, however, due to uniformly low maxima rather than to abnormally low minimum temperatures. In fact, the minimum temperatures were above the normal and while there were several days on which moderately low temperature prevailed in some parts of the State, the first general cold wave of the season did not occur until the last day of the month.

The precipitation was much below the normal at all stations except at Cumberland, Cass County, where there was a slight excess due to a heavy shower of rain on the 4th when 1.02 inches fell. The average snowfall was also much below the normal and 18 of the 121 reporting stations did not have even a trace of snow during the month.

Owing to the dry weather, rapid progress was made in gathering the corn crop and at the end of the month about 90 per cent of the crop had been harvested and the corn was in unusually good condition. Dry weather has not been favorable for pasturage and fall grain and the latter is not in as good condition as it was at the close of November, 1909.

All streams and shallow wells are abnormally low and the scarcity of water is becoming serious in many sections. Press dispatches indicate that several railroads are experiencing considerable trouble in supplying their engines with water. Some of the reservoirs along the line of the Burlington road are dry or nearly so, and many trains have been carrying two tenders with which to supply the water, one being entirely inadequate where such a great distance has to be covered between the water stations. The Iowa Central railroad has also experienced considerable trouble, engines are barely able to make terminals for water, the supply in the smaller towns along the line having become exhausted. This is especially true over the southeastern divisions of the road.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 113 stations, was 33.4°, which is 2.5° below the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 30.9°, which is 2.8° below the normal; Central section, 33.5°, which is 2.2° below the normal; Southern sec-

tion, 35.9° which is 2.3° below the normal. The highest monthly mean was 38.4°, at Council Bluffs, Pottawattamie County, and the lowest monthly mean, 28.0°, at Estherville, Emmet County. The highest temperature reported was 76°, at Council Bluffs, Pottawattamie County, on the 8th; the lowest temperature reported was 5°, at Jefferson, Greene county, on the 3d. The average monthly maximum was 61°, and the average monthly minimum was 12°. The greatest daily range was 54°, at Council Bluffs, Pottawattamie County. The average of the greatest daily ranges was 35°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 121 sections, was 0.34 inch, which is 1.05 inch below the normal. By sections the averages were as follows: Northern section, 0.22 inch, which is 1.09 inch below the normal; Central section, 0.35 inch, which is 1.08 inch below the normal; Southern section, 0.45 inch, which is 0.99 inch below the normal. The greatest amount, 1.03 inches, occurred at Cumberland, Cass County, and the least, a trace at Carroll, Carroll County, Chariton, Lucas County, Denison, Crawford County, Forest City, Winnebago County, Sac City, Sac County, Stuart, Guthrie County, and at Whitten, Hardin County. The greatest amount in twenty-four hours, 1.02 inches, occurred at Cumberland, Cass County, on the 4th. Measurable precipitation occurred on an average of 3 days.

SNOW.—The average depth of unmelted snowfall was 0.7 inch. The greatest depth was 3.8 inches, at Ridgeway, Winneshiek County; 18 of the 121 reporting stations had no snow during the month.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 13; partly cloudy, 9; cloudy, 8. The duration of sunshine was slightly below the normal, the percentage of the possible amount being 47 at Charles City; 45 at Davenport; 56 at Des Moines; 50 at Dubuque; 44 at Keokuk; and, 56 at Sioux City.

WIND.—Northwest winds prevailed. The highest velocity reported was 49 miles per hour from the southeast, at Sioux City, Woodbury County, on the 3d.

Thunderstorms occurred as follows: At Pacific Junction on the 20th; at Clinton, Fort Madison, and at Ridgeway on the 26th; at Amana, Delaware, Elkader, Grand Meadow, and at Independence on the 27th; and, at Dubuque on the 26th and 27th.

OBSERVERS' REMARKS.

AFTON.—*N. W. Rowell.* This has been a fine month for harvesting corn, and at the close of the month the cribs are generally full and the fields empty, allowing cattle to get in the stalks before any snow.

ALBIA.—*J. I. Chenowith.* Another fine month but only .47 inch of precipitation. Water supply is failing and the ground is too dry to freeze.

ALGONA.—*Dr. F. T. Seeley.* This has been a dry and rather cool month. Corn husked in good shape. Many wells have given out and the scarcity of water is becoming serious especially to farmers who have a large number of cattle.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.07 inches.
Prevailing direction of Wind, Northwest.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum Velocity	Direction	Date	Average Hourly Velocity
Charles City.	30.07	30.40	3	29.56	9	5317	25	NW	30	7.4
Davenport ..	30.05	30.41	3	29.57	9	5652	26	NW	30	7.8
Des Moines ..	30.05	30.40	30	29.53	9	5181	29	NW	30	7.2
Dubuque	30.07	30.45	3	29.58	9	4810	22	N	30	6.7
Keokuk	30.08	30.40	3	29.65	27	5441	25	W	1	7.4
Omaha, Neb.	30.08	30.55	30	29.56	26	6401	36	NW	9	8.9
Sioux City ..	30.09	30.59	30	29.58	8	8811	49	SE	3	12.2

COMPARATIVE DATA FOR THE STATE—NOVEMBER.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	38.6	78	-2	1.46	3.55	.71
1891.....	30.5	84	-24	1.70	3.64	.06
1892.....	33.3	70	-3	1.10	3.16	.05
1893.....	34.0	86	-13	1.17	2.56	.05
1894.....	32.7	72	-5	.92	2.42	T
1895.....	34.3	86	-12	1.51	3.01	.45
1896.....	29.6	82	-15	1.83	4.51	.16
1897.....	34.3	81	-19	.66	2.24	T
1898.....	32.2	78	-17	1.50	3.61	.33
1899.....	43.9	86	8	1.20	2.97	.13
1900.....	33.5	79	-6	1.06	3.35	T
1901.....	35.8	77	2	.86	2.30	.20
1902.....	41.2	79	4	2.13	4.19	.16
1903.....	34.2	76	-5	.52	1.74	T
1904.....	41.0	80	4	.15	.50	.00
1905.....	38.4	70	-12	2.84	5.30	.90
1906.....	35.4	76	-5	2.03	3.86	.35
1907.....	36.7	68	-4	1.03	2.27	.05
1908.....	39.3	80	5	1.56	3.31	.21
1909.....	42.4	84	-3	5.39	11.48	2.07
1910.....	33.4	76	5	.34	1.03	T

T. indicates an amount too small to measure.

ALLERTON.—*Mrs. George Shriver.* The weather has been extremely dry. Corn about all husked, quality and yield good.

ALTA.—*David E. Hadden.* November, 1910, was very dry and with one exception, viz., 1892, was the driest November in 20 years, but the month was ideal for farm work and at its close almost all of the corn crop was picked.

ALTON.—*W. S. Stagle.* The roads are hard and smooth and in fine condition. New corn is being shelled and marketed freely. The river is frozen over and the skating is fine.

AMANA.—*C. Schadt.* The weather was favorable for all kinds of farm work as well as for conveying farm produce to the market.

ATLANTIC.—*Thos. H. Whitney.* November was a favorable month. The days were generally more or less cloudy but little precipitate was recorded. The roads were fine throughout the month. Corn was practically all in crib at close of the month and is fully up to average in yield and quality.

BELMOND.—*Geo. P. Hardwick.* Although there was much cloudiness, only .33 inch of precipitation was recorded. It was an ideal month for harvesting corn, all of which is secured. Corn stalks, like grain straw, is in the best condition for feed.

CHARITON.—*C. C. Burr.* The month has been ideal for farm operations, except that the soil has been too dry to plow. There is no surface water.

CHARLES CITY.—*E. W. McGann.* The mean temperature for the month, 29.2°, is 3.8° below the normal and 10° lower than November of last year. The total precipitation, 0.29 inch, is 1.10 inches below the normal for the month and came in measurable quantity on only 2 days. Light flurries of snow occurred on the 14th, 20th, 26th and 30th, but were all too small to measure. Cloudy weather predominated; the percentage of sunshine being 47.

DAVENPORT.—*J. M. Sherier.* Nearly the entire month was cooler than the average although no notably low temperatures were recorded. The 7th, 9th, 20th and the 23d to the 27th, were the only days that were warmer than the normal. While there were 11 days with a trace, or more, of precipitation, there were only 4 days with .01 inch or more, and the total precipitation of .22 inch was the lowest for any November since the establishment of the Davenport station, with the single exception of the same month in 1904, when the total was but 0.18 inch.

DECORAH.—*F. H. Baker.* This has been the driest November and the driest year since this station was established, 19 years ago.

DUBUQUE.—*J. H. Spencer.* The temperature was below the normal every day from the 1st to the 22d, inclusive, with two exceptions. It was above the normal from the 23d to the 27th, inclusive. It was the coldest November at this station in 18 years, and one of the coldest on record. It was colder by about 12° daily than during November of last year. The month, however, was characterized by continuous cold and not by extremely cold weather for any period or date. The rivers of this district changed very little during the month, and continued at a low stage. The highest stage at Dubuque was 1.0 foot on the first 20 days of the month; the lowest was 0.8 of a foot on the 24th. The Mississippi at Prairie du Chein froze over on the 30th. At Dubuque there was shore or floating ice after the 20th.

EARLHAM.—*Geo. Phillips.* A fine November. Corn is all gathered. Stock water is getting scarce.

FOREST CITY.—*J. A. Peters.* Very pleasant weather prevailed during the month. Corn is practically all cribbed. Ground frozen up at end of month but is very dry.

INWOOD.—*F. B. Hanson.* November was the finest month for corn husking on record, no halt on account of bad weather from start to finish, and with a few exceptions the crop is all picked. Yields reported vary from 22 to 64 bushels per acre. Water in wells is getting scarce.

KEOKUK.—*Fred Z. Gosewisch.* Winter wheat is looking fairly well considering the lack of moisture. All streams are very low, many cisterns empty, and the scarcity of water for stock is being felt in localities distant from running streams.

KEOSAUQUA.—*J. H. Landes.* Splendid weather for husking the big crop of corn, which is now nearly all in the crib. Too dry for pasture and fall grain and a scarcity of water is being felt.

LARRABEE.—*H. B. Strever.* The month has been an ideal one for gathering the corn crop. There was very little frost in the ground during the entire month.

STOCKPORT.—*C. L. Beswick.* There has been 14.18 inches less of precipitation during the past 11 months than there was during the same period of 1909 and not quite the amount of June, 1905. The supply of surface water is very short for winter to set in. Corn nearly all in crib.

IOWA CROPS--FINAL REPORT 1910.

FINAL REPORT FOR THE STATE—TOTAL YIELD OF SOIL PRODUCTS—VALUE AT FARM PRICES, DECEMBER 1, 1910.

Following is a summary of reports from crop correspondents of the Iowa Weather and Crop Service and Threshermen, showing the average yield per acre and total yields of staple soil products, and the average prices at the farms or nearest stations, December 1, 1910. The value gained by feeding farm crops for production of live stock, poultry and dairy products, is not taken into consideration in this report.

CORN.—The estimated acreage of the corn crop is 8,940,300 acres and, notwithstanding the fact that the average precipitation for the State for the 9 months, January to September, inclusive, was only 18.41 inches, which is 8.72 inches below the normal and the least amount for a like period in the past 21 years except in 1894, when the total for the same months was 17.40 inches, the average yield is 39.7 bushels per acre, and the total output for the State appears to be 354,506,500 bushels. This is the largest yield with one exception ever credited to the State. In 1906 the total yield was 388.

Continued on page 115.

FINAL CROP REPORT—1910.

AVERAGE YIELD PER ACRE AND TOTAL PRODUCT—BY COUNTIES.

Counties	Corn		Oats		Spring Wheat		Winter Wheat		Barley		Rye		Flax Seed		Potatoes		Hay	
	Bushels per acre	Total Bushels	Bushels per acre	Total Bushels	Bushels per acre	Total Bushels	Bushels per acre	Total Bushels	Bushels per acre	Total Bushels	Bushels per acre	Total Bushels	Bushels per acre	Total Bushels	Bushels per acre	Total Bushels	Tons per acre	Total Tons
Adair	43	4,689,700	39	1,066,300	21	70,400	30	2,900	32	185,900	13	500		58	49,200	1.3	65,500	
Adams	44	2,992,000	40	834,400	19	23,500	24	54,000	33	68,300	26	2,300		55	39,300	1.1	33,500	
Allamakee	32	1,516,800	36	1,222,200	26	23,400	20	5,000	28	420,000	18	7,200	14.0	630	89	144,200	0.8	39,400
Appanoose	39	1,891,500	37	469,100	17	6,100	23	61,100	30	1,050	15	4,600		60	24,000	1.3	60,800	
Audubon	40	3,720,000	37	1,181,500	22	115,500	23	2,600	28	251,100	16	600		128	113,900	0.8	26,000	
Benton	40	5,000,000	39	2,668,400	20	19,800	20	1,800	28	430,600	20	20,200		110	176,000	1.2	67,700	
Black Hawk	41	3,673,600	34	1,765,300	22	2,900	23	1,400	35	202,300	25	69,000	11.7	840	80	182,400	1.4	68,600
Boone	41	4,620,700	37	2,022,000	17	27,400	20	2,600	33	43,200	20	5,000		58	71,300	1.1	54,500	
Bremer	34	2,040,000	35	1,872,500	21	2,500	23	4,100	31	139,500	16	8,900	12.0	120	56	77,300	1.0	46,300
Buchanan	38	3,241,400	45	2,277,000	22	5,800	26	2,900	28	113,700	18	15,600	12.0	140	72	86,400	1.3	72,100
Buena Vista	42	4,137,000	43	3,194,900	18	7,200	21	1,300	35	65,400	20	200	13.0	1,170	111	168,700	1.1	48,100
Butler	36	3,510,000	32	2,269,400	19	4,200	19	1,100	30	81,600	17	29,800	12.5	630	112	212,800	1.0	43,000
Calhoun	42	4,788,000	43	3,483,000	23	5,300	26	2,800	35	70,000	20	400	13.0	1,300	75	82,500	1.0	35,000
Carroll	41	4,349,000	46	2,530,000	20	120,000	25	4,200	33	214,500	16	1,000	11.0	160	118	236,000	1.3	51,600
Cass	38	4,453,000	33	1,208,500	17	134,100	22	67,100	25	143,000	17	4,000	12.5	620	100	129,000	1.2	50,700
Cedar	40	4,100,000	42	1,323,000	22	28,600	28	42,000	30	471,000	22	13,600		119	160,000	1.4	63,900	
Cerro Gordo	35	3,232,500	33	2,326,500	18	7,200	14	3,100	26	78,000	15	2,300	8.2	1,200	71	97,300	1.2	70,800
Cherokee	42	4,620,000	47	3,243,000	21	19,500	25	1,000	35	241,200	17	170	10.0	200	104	181,000	1.1	46,000
Chickasaw	28	1,828,400	37	2,101,600	23	19,800	24	700	30	186,000	18	5,400	10.5	9,340	50	61,500	1.3	55,400
Clarke	32	1,674,600	31	460,700	15	1,200	15	35,000	26	25,500	15	600		35	10,100	0.8	32,300	
Clay	46	3,634,000	43	3,096,000	21	9,700	27	2,400	33	57,400	20	2,000	10.0	1,600	98	77,200	1.2	60,000
Clayton	40	4,320,000	40	2,095,200	24	25,700	20	13,200	34	535,500	21	20,800		50	87,500	1.4	85,800	
Clinton	36	4,104,000	43	1,668,800	23	33,100	29	32,800	31	291,100	23	26,400		59	72,000	1.2	75,600	
Crawford	41	5,833,000	43	2,345,200	19	327,200	25	12,800	30	312,000	18	2,500		95	218,500	1.3	69,500	
Dallas	39	4,501,500	40	1,897,600	21	33,000	25	37,200	34	70,300	30	7,800		47	33,200	1.1	34,300	
Davis	43	2,397,400	34	564,400	25	1,000	19	57,000	30	1,200	16	11,400		64	46,100	1.2	52,600	
Decatur	38	2,413,000	28	537,000	18	1,600	19	53,200	30	900	18	3,900		60	18,000	1.1	43,100	
Delaware	32	2,553,600	29	1,113,600	28	5,900	26	1,300	28	389,200	20	26,000		40	45,600	1.1	57,300	
Des Moines	45	2,835,000	33	793,320	20	5,400	20	152,830	31	21,800	16	10,300		71	85,200	1.2	39,600	
Dickinson	39	1,716,000	26	1,112,400	23	20,000	23	1,800	35	108,500	22	3,500	10.0	6,100	84	47,900	1.2	39,600
Dubuque	32	2,096,000	36	1,665,000	22	14,500	26	4,900	30	189,000	20	4,400		58	114,300	1.0	58,700	
Emmet	43	1,623,000	44	1,557,600	21	9,400			32	77,800	20	200	11.0	4,620	55	41,800	1.0	36,500
Fayette	31	2,681,500	36	2,034,000	23	16,100	23	4,100	34	445,400	20	9,000	10.0	2,700	64	102,400	1.0	69,000
Floyd	29	2,175,000	28	1,873,200	21	8,400	22	1,200	28	71,100	16	10,200	10.0	18,800	90	194,400	1.1	41,200
Franklin	44	4,202,000	39	3,225,300	21	16,800	24	3,400	26	111,800	19	4,900	7.5	535	85	178,500	1.0	48,700
Fremont	44	5,588,000	38	471,200	19	68,400	32	185,600	25	7,000	18	4,000		75	51,900	1.2	26,400	
Greene	41	4,838,000	38	2,659,600	18	7,200	19	2,100	29	69,600	22	700	11.5	1,150	59	59,000	1.0	41,300
Grundy	43	4,145,200	39	2,547,100	24	5,300	26	2,900	34	252,600	15	400		88	649,400	1.2	42,700	
Guthrie	43	2,673,000	35	1,136,800	19	46,400	22	4,400	27	71,800	17	1,000		98	79,400	1.1	39,200	
Hamilton	44	4,831,200	30	2,596,100	22	24,400	25	16,500	29	17,400	25	1,100	12.5	1,060	51	52,000	1.4	66,400
Hancock	35	2,635,500	38	2,398,500	22	29,500	23	900	32	137,300	26	3,900	9.4	1,500	59	60,800	1.1	49,200
Hardin	42	4,158,000	41	2,519,000	21	23,800	22	10,600	30	67,500	21	1,500		78	206,700	1.2	49,900	
Harrison	36	4,985,000	36	810,000	18	306,000	24	139,200	29	90,800	20	4,400		65	93,600	1.0	26,000	
Henry	45	324,900	35	1,024,100	18	4,300	22	70,400	31	10,500	18	12,200		76	43,300	1.5	42,000	
Howard	29	1,319,500	27	1,242,000	20	10,600	24	1,200	23	215,500	19	800	7.6	22,000	68	63,500	1.3	53,900
Humboldt	43	3,169,500	40	2,152,000	23	41,000	26	650	34	18,400	20	200	15.0	1,350	81	56,700	1.1	39,400
Ida	44	3,907,200	46	1,915,000	21	49,100	26	5,500	34	457,300		13.0	290	95	96,000	1.3	49,600	
Iowa	42	3,830,400	39	1,522,900	24	65,000	30	10,900	28	56,800	20	8,000		69	95,900	1.2	53,000	
Jackson	34	2,108,000	36	918,700	22	24,600	22	8,800	26	172,600	24	14,900		115	132,200	0.9	53,700	
Jasper	47	6,208,700	45	2,142,000	23	181,700	23	31,000	34	76,500	20	7,200		45	72,900	1.3	69,500	
Jefferson	46	2,907,200	36	858,200	21	17,200	21	84,000	33	25,100	18	12,200		76	37,200	1.2	66,000	
Johnson	39	3,003,000	40	1,346,400	23	33,600	26	23,100	31	117,800	15	19,000		90	103,200	1.3	48,400	
Jones	36	2,889,000	44	1,144,000	25	8,000	26	2,300	31	310,000	17	10,200		75	58,500	1.3	68,500	
Keokuk	42	4,074,000	40	1,364,000	22	82,500	24	43,200	30	83,100	22	18,000		110	71,500	1.1	46,900	
Kossuth	43	5,289,000	42	5,460,000	22	55,000	24	1,200	35	105,000	16	800	11.5	16,100	50	85,000	1.0	98,000
Lee	41	2,279,600	32	585,600		15		235,500	30	5,100	14	39,200		62	79,400	1.4	50,400	
Linn	35	3,535,000	38	1,925,840	24	37,900	26	3,600	52	141,400	19	21,700		50	105,000	0.9	50,300	
Louis	44	3,987,600	35	679,000	20	30,000	21	214,200	30	17,100	16	28,800		86	41,300	1.3	23,800	
Lucas	42	1,683,200	35	546,000	17	8,000	17	50,100	31	1,100	15	4,000		50	19,000	0.9	32,800	
Lyon	42	4,242,000	45	3,001,500	25	29,000	26	2,100	36	894,400	18	360	11.0	1,760	50	94,500	1.0	33,200
Madison	40	3,400,000	39	725,400	20	34,000	25	23,700	31	158,100	25	2,800		96	67,200	1.0	41,000	
Mahaska	43	4,343,000	40	1,264,000	22	81,400	23	35,800	36	60,000	18	6,800	10.0	400	63	49,100	1.3	49,400
Marion	37	3,182,000	37	836,200	22	132,000	25	58,200	36	136,800	23	8,500		71	40,500	1.2	42,000	
Marshall	48	5,299,200	40	2,361,600	23	48,300	27	38,900	32	53,400	25	5,500	12.0	230	88	211,200	1.3	52,000
Mills	37	3,389,200	38	472,720	19	112,300	23	65,800	34	32,600	19	1,200		59	47,200	1.2	26,900	
Mitchell	30	2,178,000	36	2,685,600	25	17,000	20	900	30	219,600	16	1,200	9.5	17,100	105	158,600	0.9	28,100
Monona	40	5,020,000	41	951,200	19	215,300	26	416,000	31	139,500	20	2,400		70	96,600	1.1	34,100	
Monroe	36	1,296,000	33	217,100	18	40,500	20	52,400	35	6,000	20	1,600		53	13,800	0.8	28,500	
Montgomery	39	3,627,000	38	579,600	18	222,100	24	208,800	34	43,500	17	1,100		68	47,600	1.0	27,600	
Muscatine	46	2,999,200	36	568,800	22	34,100	23	94,300	27									

CLIMATOLOGICAL DATA FOR IOWA, NOVEMBER, 1910

STATIONS	COUNTIES	Elevation feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				Sky				OBSERVERS		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	Number clear days	Number partly cloudy days		Number cloudy days	Prevailing direction of wind
Northern Section																				
Algona	Kossuth	1,213	37	30.6	-2.2	53	7	10	30	32	0.29	-0.99	0.17	1.5	2	16	10	4	nw	Dr. F. T. Seeley
Alta	Buena Vista	1,513	19	31.6	-0.9	60	7	9	30	31	0.23	-1.00	0.15	0.5	5	8	17	5	nw	David E. Hadden
Alta (near)	Buena Vista										0.18	-1.31	0.11	0.5	4				nw	W. J. Minard
Alton	Sioux	1,305	5	32.2		57	8	9	30	37	0.15		1.0	3	14	11	5	nw	W. S. Slagle	
Belmond	Wright			30.1		54	7	9	30	30	0.33		0.16	1.9	3	1	23	6	nw	Geo. P. Hardwick
Britt	Hancock	1,236	13	29.8	-3.8	52	7	9	20	33	0.15	-0.96	0.09	0.9	2	11	15	4	nw	L. M. Goodman
Charles City	Floyd	1,015	19	29.2	-3.8	52	7	10	30	26	0.29	-1.10	0.19	1.8	2	5	9	16	nw	Weather Bureau
Clear Lake	Cerro Gordo	1,211	12	31.4	-2.7	55	7	8	30	35	0.20	-0.87	0.20	2.0	1	11	1	18	n	Oscar Stevens
Decorah	Winnebago	875	17	29.4	-4.1	51	7	9	3	31	0.26	-1.29	0.24	0	2				n	F. H. Baker
Elkader	Clayton	727	31	37.2	+4.0	64	25	20	30	35	0.66	-0.99	0.27	1.0	3	14	8	8	nw	Chas. Reinecke
Elma	Howard			28.8		50	1	9	29	27	0.22		0.10	2.5	3	6	15	9	nw	H. A. Moore
Estherville	Emmet	1,298	15	28.0	-3.3	53	8	9	30	31	0.10	-1.14	0.08	1.0	2	23	0	7	nw	A. O. Peterson
Fayette	Fayette	1,003	20	29.4	-3.5	54	7	11	3	29	0.28	-1.34	0.18	1.8	2	17	4	9	nw	R. Z. Latimer
Forest City	Winnebago	1,226	16	28.4	-4.0	50	7	12	12	31	T	-1.23	T	0	6	11	13	w	J. A. Peters	
Grand Meadow	Clayton	1,180	19	29.3	-3.7	55	7	10	30	30	0.35	-1.21	0.12	2.0	5	9	9	12	nw	F. L. Williams
Greene	Butler		12	30.6	-5.3	56	1	10	30	30	0.17	-0.98	0.11	1.5	2	3	13	14	nw	J. L. Cole
Hampton	Franklin	1,155	20	31.6	-1.8	55	7	10	30	33	0.31	-1.25	0.18	0.5	2	6	13	11	nw	E. C. Grenelle
Humboldt	Humboldt	1,005	22	32.6	-1.4	56	1	10	29	35	0.29	-1.08	0.13	T	3	15	13	2	nw	H. S. Wells
Inwood	Lyon	1,474	6	31.3	-4.3	58	7	6	28	40	0.09	-1.03	0.05	0.5	2	17	6	7	nw	F. B. Hanson
Larrabee	Cherokee	1,266	20	31.8	-1.1	57	1	8	11	34	0.19	-0.83	0.15	0.4	3	15	11	4	nw	H. B. Strever
LeMars	Plymouth	1,224	14	33.4	-1.1	67	1	10	29	33	0.16	-1.07	0.16	T	1	6	22	2	nw	G. A. C. Clarke
Mason City	Cerro Gordo	1,133	13	29.3	-3.5	50	1	10	16	26	0.25	-1.39	0.15	T	2	9	14	7	nw	J. S. Mills
New Hampton	Chickasaw	1,109	13	29.6	-5.1	50	1	9	30	27	0.22	-1.18	0.12	1.0	2	9	12	9	nw	A. F. Kemman
Northwood	Worth	1,222	14	29.2	-4.0	51	9	8	30	29	0.33	-1.15	0.20	3.3	3	10	12	8	nw	Chas. H. Dwell
Osage	Mitchell	1,181	23	30.1	-0.8	52	7	10	30	30	0.29	-1.14	0.17	3.0	2	9	8	13	nw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	14	31.8	-2.5	67	1	8	29	35	0.20	-1.42	0.20	T	1	17	11	2	nw	J. S. Smith
Pocahontas	Pocahontas	1,248	6	31.8	-4.1	55	7	10	30	32	0.11	-3.02	0.05	0.5	3	15	9	6	nw	F. E. Hronek
Ridgeway	Winnebago	1,215	12	31.0	-6.2	57	7	10	30	33	0.63	-1.19	0.54	3.8	6	10	12	8	nw	Arthur Betts
Rock Rapids	Lyon	1,358	11	31.0	-3.9	56	8	12	30	35	0.05	-1.01	0.05	0.5	1				n	W. C. Wyckoff
Sheldon	O'Brien	1,422	10	31.3	-4.8	55	2	8	30	40	0.20	-0.88	0.15	T	2	14	13	3	n	Dr. A. W. Beach
Sibley	Osceola	1,212	17	29.6	-2.4	54	6	8	30	38	0.13	-0.83	0.10	0.5	2				nw	H. G. Doolittle
Sioux Center	Sioux		11	31.5	-3.8	54	7	8	30	31	0.97	-0.64	0.05	0.5	2	14	9	7	nwe	J. de Ruyter
Storm Lake	Buena Vista	1,440	21																nw	S. B. Fracker
Washta	Cherokee	1,157	12	33.6	-2.9	62	7	7	29	42	0.15	-0.82	0.10	T	2	19	8	3	n	H. L. Felter
Waverly	Bremer	948	14	31.6	-3.5	59	1	10	30	30	0.13	-1.27	0.13	0	1	19	4	7	nw	H. S. Hoover
West Bend	Palo Alto	1,197	17	30.6	-1.9	54	7	9	29	33	0.19	-1.15	0.12	0.6	3	10	13	7		Phil. Dorweiler
Average				30.9	-2.8	55		10		33	0.22	-1.09		1.0	2	11	11	8	nw	
Central Section																				
Amana	Iowa	721	34	32.1	-1.7	58	9	13	30	31	0.59	-1.14	0.34	0.5	6	13	10	7	nw	Conrad Schadt
Ames	Story	926	34	33.6	-0.5	60	7	12	17	34	0.12	-1.07	0.12	T	1	10	14	6	n	Iowa State College
Audubon	Audubon	1,301	16	34.9	-0.3	63	7	13	30	33	0.41	-0.93	0.21	1.0	3	15	8	7	nw	Geo. E. Kellogg
Baxter	Jasper	998	10	33.5	-3.8	61	7	11	29	36	0.68	-0.65	0.45	T	4	12	10	8	nw	W. R. Vandike
Belle Plaine	Benton	828	20	31.9	-3.0	60	7	12	3	34	0.67	-1.05	0.42	3.5	4	12	8	10	nw	S. P. Van Dike
Boone	Boone	1,134	5	33.0		62	7	12	30	37	0.38		0.38	T	1				nw	Carl Fritz Henning
Buckingham	Tama		10								0.39		0.17	1.8	4				nw	Dr. W. A. Daniel
Carroll	Carroll	1,265	20	31.0	-1.2	62	6	6	30	39	T	-1.13	T	0	0	12	10	8	nw	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	28	31.4	-4.5	59	9	16	30	37	0.49	-0.91	0.28	0.8	3	18	0	12	nw	W. J. Greene
Clinton	Clinton	593	43	33.2	-2.5	65	9	15	22	32	0.58	-1.26	0.11	T	7	5	11	14	nw	Luke Roberts
Davenport	Scott	580	39	33.8	-3.7	63	9	14	30	29	0.22	-1.54	0.07	T	4	14	4	12	nw	Weather Bureau
Delaware	Delaware	1,083	19	30.4	-2.4	57	9	12	30	26	0.65	-0.92	0.23	1.8	6	12	11	7	nw	Wm. Ball
Denison	Crawford	1,180	16	34.3	-1.3	62	7	11	29	37	T	-1.01	T	0	0	19	9	2	n	W. C. VanNess
Des Moines	Polk	861	31	35.4	-1.4	62	7	15	30	36	0.53	-0.95	0.42	0.4	5	7	14	9	nw	Weather Bureau
De Soto	Dallas	866	10	35.6	-3.1	65	7	13	3	41	0.56	-0.66	0.56	T	1				nw	R. D. Minard
Dubuque	Dubuque	639	37	32.4	-3.6	59	9	16	30	29	0.53	-1.28	0.22	1.7	7	11	7	12	nw	Weather Bureau
Fort Dodge	Webster	1,126	10	31.6	-3.6	59	7	11	30	33	0.16	-1.06	0.16	T	1	17	1	12	nw	J. F. Monk
Gilman	Marshall	1,052	11								0.48	-0.99	0.16	T	9				nw	Jas. L. Wylle
Grinnell	Poweshiek	1,023	16	34.6	-1.4	61	7	13	30	31	0.98	-0.65	0.45	2.0	6	13	11	6	w	D. W. Brainard
Grundy Center	Grundy	976	19	32.4	-1.6	57	7	12	30	28	0.07	-1.15	0.05	0	2	17	0	13	nw	J. B. Calderwood
Guthrie Center	Guthrie	1,077	15	34.9	-2.4	63	7	11	3	37	0.35	-0.80	0.24	T	3	16	6	8	nw	D. G. Beardsley
Harlan	Shelby	1,182	11	34.7	-2.5	64	7	12	16	37	0.17	-0.87	0.07	T	3	8	15	7	nw	C. A. Reynolds
Independence	Buchanan	921	46	31.2	-1.4	57	1	11	22	37	0.05	-1.27	0.05	0.5	1	15	8	7	nw	Geo. Donohoe
Iowa City	Johnson	683	50	31.5	-4.2	58	7	9	30	37	0.69	-0.57	0.20	T	6	14	4	12	nw	Prof. A. G. Smith
Iowa Falls	Hardin	1,170	17	29.8	-3.3	56	7	10	29	34	0.31	-0.94	0.20	3.1	3	16	1	13	nw	J. B. Parmelee
Jefferson	Greene		11	34.2		62	7	5	3	43	0.05	-1.26	0.05	0	1	9	14	7	nw	G. W. Jackson
LeClaire	Scott	676	10								0.48	-0.99	0.16	T	9				nw	Margaret T. Disney
Little Sioux	Harrison		5	36.4	-2.8	67	7	9	30	38	0.32	-1.93	0.11	0	4	12	10	8	nw	Geo. H. Gibson
Logan	Harrison	928	43	36.8	+0.9	74	27	15	16	48	0.06	-1.19	0.04	T	2	5	21	4	nw	Glean H. Stern
Marshalltown	Marshall	917	18	32.4	-3.6	63	7	10	17	41	0.70	-0.59	0.28	T						

CLIMATOLOGICAL DATA FOR IOWA, NOVEMBER, 1910-Continued

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (inches)	No. rainy day	No. clear days	No. partly cloudy days			No. cloudy days
Southern Section																				
Afton	Union	1,212	16	36.8	0.0	63	7	15	30	32	0.63	-0.60	0.43	T	3				nw	Hon. N. W. Rowell
Albia	Monroe	959	12	34.3	-4.4	66	7	13	30	41	0.52	-1.25	0.47	0.5	2	13	6	11	nw	J. I. Chenoweth
Allerton	Wayne	8	8	37.0 ^c	-3.6	67 ^e	8	14 ^e	17	43 ^e				T					nw	Mrs. Geo. Shriver
Atlantic	Cass	1,164	19	35.4	0.0	64	7†	15	16†	37	0.39	-0.59	0.17	T	3	5	6	19	nw	Thos. H. Whitney
Bedford	Taylor	10	10	37.0	+1.6	68	7	11	9	40	0.35	-0.94	0.25	T	2	16	9	5	nw	E. E. Healy
Bloomfield	Davis	3	3																	C. R. Davis
Bonaparte	Van Buren	19	19	35.6	-2.9	68	7	11	3	34	0.53	-1.27	0.30	1.0	2					Hon. B. R. Vale
Burlington	Des Moines	544	14	35.0	-4.7	70	7	12	30	47	0.97	-0.81	0.50	0.5	4	19	0	11	nw	M. E. Poppe, Jr.
Centerville	Appanoose										0.25		0.25	T	1	24	3	3	w	Gordon Peacock, Jr.
Chariton	Lucas	1,042	15	36.0	-2.7	66	7	12	17	38	T	-1.30	T	T	0	16	0	14	n	C. C. Burr
Clarinda	Page	1,009	20	33.8	-4.0	66	8	11	19	41	0.36	-0.80	0.26	T	3	15	6	9	nw	A. S. Van Sandt
Columbus Junction	Louisa	595	9	34.6	-4.4	62	9	11	3	32	0.43	-1.05	0.20	0.2	4	18	6	6	nw	J. B. Johnston
Corning	Adams	1,117	18	36.1	-1.1	65	7	10	16	36	0.39	-0.81	0.37	T	2				nw	Jerome Smith
Corydon	Wayne	1,101	17	35.4	-3.3	67	7	14	30	37	0.31	-1.14	0.16	T	2	15	9	6	nw	Clara Miller
Council Bluffs	Pottawattamie			38.4		76	8	11	29	54	0.11		0.11	0	1	15	6	9	nw	B. W. Crossley
Creston	Union	1,312	5	34.6		65	7	13	30	35	0.61		0.41	T	4	8	9	13	nw	O. J. Colby
Cumberland	Cass	11	11								1.03	+0.05	1.02	0	2	20	9	1	s	J. H. Reppert
Earlham	Madison	8	8	35.1	-2.7	65	7†	12	16†	37	0.52	-0.82	0.44	T	2	13	4	13	nw	Geo. Phillips
Elliott	Montgomery	5	5	36.8	-2.7	67	7†	13	16	40	0.42	-1.94	0.42	0	1	15	12	3	nw	Henry Barnes
Fairfield	Jefferson	26	26	34.9	-2.0	63	9	14	3†	32	0.48	-1.80	0.23	0.2	5				nw	R. Monroe McKenzie
Fort Madison	Lee	516	61								0.70	-1.44	0.30	0	3	12	9	9	w	Miss L. A. McCready
Greenfield	Adair	18	18	34.1	-2.5	62	7	13	16†	33	0.70	-0.47	0.52	0	3	13	14	3	nw	R. B. Oldham
Hopeville	Clarke	19	19	36.0	-0.7	67	7	13	16	36	0.58	-0.51	0.38	T	3	4	20	6	nw	M. T. Ashley
Indianola	Warren	969	19	36.4	-1.9	67	9	15	30	36	0.47	-0.95	0.35	0.6	3	18	5	7	nw	Prof. J. L. Tilton
Keokuk	Lee	574	39	37.6	-1.8	68	7	18	30	34	0.23	-1.62	0.19	0	3	9	12	9	nw	Weather Bureau
Keosauqua	Van Buren	644	18	35.2	-3.7	69	7	12	3†	48	0.60	-0.90	0.27	T	4	6	12	12	nw	J. H. Landes
Knoxville	Marion	920	15																	Casey & Belville
Lacona	Warren	11	11								0.81	-0.66	0.56	3.0	3	7	18	5		J. B. Alter
Lamoni	Decatur	3	3	37.0		63	8	15	30	37	0.31		0.22	0	2	15	0	15	nw	T. J. Fitzpatrick
Lenox	Taylor	1,250	15	36.4	-1.5	65	7	14	16†	31	0.13	-1.09	0.10	0.3	2	21	5	4	nw	J. L. Hurley
Leon	Decatur	1,120	8	36.5	-4.1	68	2	14	18	45	0.10	-1.82	0.10	T	1	15	4	11	nw	Morris Gardner
Mount Ayr	Ringgold	1,236	17	37.8	-1.1	69	7	15	30	37	0.47	-0.89	0.17	T	3	11	6	13	nw	A. F. Beard
Mount Pleasant	Henry	729	29	35.0	-2.4	64	9	15	30	38	0.59	-0.97	0.23	1.0	6	13	7	10	nw	J. W. Edwards
Omaha, Neb.	Douglas	1,040	40	38.2	+0.5	69	8	18	30	35	0.17	-0.89	0.11	0	2	8	13	9	nw	Weather Bureau
Oskaloosa	Mahaska	843	34	34.8	-2.2	62	7	11	3	35	0.43	-1.06	0.15	0.5	4	16	3	11	nw	Jos. Boyd
Ottumwa	Wapello	649	15	38.0	-1.5	68	7	12	28	33	0.18	-1.42	0.18	T	1	17	4	9	nw	W. J. Mesmer
Pacific Junction	Mills	960	11	36.4	-2.7	67	7	14	16	40	0.32	-0.62	0.24	T	2	14	13	3	n	H. H. McCartney
Pella	Marion	877	7	34.8	-2.5	63	7	11	3	36	0.49	-0.94	0.38	0.8	5	21	0	9	nw	John H. Ver Steeg
St. Charles	Madison	1,070	9	37.1	-4.0	69	7	14	30	38	0.60	-0.83	0.42	3.0	4	16	7	7	nw	R. D. Minard
Sigourney	Keokuk	877	14	34.8	-4.1	60	1†	12	11	33	0.52	-1.03	0.29	0.5	5	3	18	9	nw	J. T. Parker
Stockport	Van Buren	8	8	34.6		66	7	8	3	38	0.54	-0.97	0.26	0.5	5	16	5	9	nw	C. L. Beswick
Thurman	Fremont	13	13	38.0	-0.6	70	8	14	19	38	0.38	-0.92	0.30	T	2	7	16	7	nw	C. R. Paul
Wapello	Louisa	588	12	35.4	-5.8	62	9	17	30	29	0.38	-1.02	0.16	T	4	17	5	8	nw	Geo. W. Schofield
Washington	Washington	769	28	34.2	-2.0	62	9	14	30	31	0.41	-1.00	0.23	0	4	11	12	7	nw	Wm. A. Cook
Winterset	Madison	1,129	19	35.3	-1.5	64	7	14	30	34	0.26	-1.03	0.26	0.5	1	5	17	8	nw	Dr. Robt. S. Cooper
Woodburn	Clarke	961	11	34.6		69	7	9	3†	46	0.69	-0.55	0.37	2.6	3	11	11	8	nw	C. B. McDonough
Average				35.9	-2.3	66		13		38	0.45	-0.99		0.4	3	13	8	9	nw	
State average				33.4	-2.5	61		12		35	0.34	-1.05		0.7	3	13	9	8	nw	

†And other dates; a, one day missing; b, two days missing; c, three days, etc.
†Received too late to be included in averages.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR THE MONTH OF NOVEMBER, 1910

STATIONS	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		Monthly Mean			
	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.	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.										
Afton	55	37	43	26	49	22	44	34	39	24	57	28	63	35	61	29	56	39	41	25	36	19	43	22	47	26	41	31	32	24	30	16	48	18	42	25	47	24	45	33	41	32	56	30	53	33	55	43	56	30	57	37	52	29	35	19	34	15	28	15	46.2	27.4		
Albia	48	43	43	26	50	19	44	25	38	19	54	22	66	25	62	26	61	28	43	19	36	17	47	17	52	25	36	26	29	26	26	23	51	15	35	17	46	22	45	22	42	21	55	21	51	27	60	...	52	32	38	35	35	19	35	14	29	13	45.4	23.2				
Algona	49	31	35	20	41	13	41	33	38	19	44	16	53	31	52	20	49	29	38	22	28	13	39	15	44	21	36	26	28	21	26	14	38	12	28	21	35	21	42	29	37	21	45	23	51	26	51	33	49	24	43	31	40	23	32	13	30	12	22	10	39.6	21.5		
Allerton	56	38	45	25	67	24	63	46	49	24	37	17	45	20	50	27	46	27	34	27	29	22	51	14	40	26	49	18	47	28	42	23	57	27	58	32	58	39	59	28	55	37	56	32	36	20	35	16	31	16	41.7	21.5		
Alta	44	33	40	18	47	17	52	25	40	17	52	19	60	34	58	24	50	30	39	20	31	10	41	12	44	19	32	28	28	23	33	18	43	19	23	20	44	19	35	23	40	17	51	18	47	25	51	26	54	30	50	30	30	30	32	13	32	20	28	9	42.6	21.8		
Alton	52	33	41	21	50	18	51	34	40	15	53	16	56	27	57	25	45	29	32	26	38	12	41	18	43	18	38	28	30	24	35	20	43	15	48	17	40	25	47	17	44	31	44	19	56	27	52	31	55	42	61	24	58	37	49	25	33	18	34	16	26	15	45.8	25.0
Amana	50	31	38	24	40	14	40	28	34	25	40	17	57	26	58	40	43	25	31	19	38	16	44	22	36	21	31	21	29	23	39	23	34	24	33	25	38	25	35	24	42	18	50	30	55	37	49	24	45	41	46	29	32	20	31	15	26	13	40.4	23.8				
Ames	48	32	38	25	43	14	40	33	40	18	49	30	60	32	52	32	51	31	49	15	32	18	41	25	46	23	36	30	31	24	31	21	44	12	35	23	40	22	44	27	45	26	52	24	50	33	53	35	54	22	47	35	38	30	33	18	34	14	25	12	42.7	24.5		
Atlantic	50	34	43	23	53	21	42	36	41	22	52	21	64	31	64	29	55	33	48	25	35	19	44	20	48	25	35	29	32	23	30	15	48	17	40	25	47	17	44	31	44	19	56	27	52	31	55	42	61	24	58	37	49	25	33	18	34	16	26	15	45.8	25.0		
Audubon	51	33	44	21	50	22	44	35	42	21	52	24	63	34	61	28	51	33	40	23	35	17	40	20	44	25	35	28	33	25	33	14	50	20	41	25	47	20	42	32	42	18	55	28	51	29	54	38	55	24	54	34	48	26	34	17	34	15	28	13	45.1	24.7		
Baxter	56	28	44	25	50	14	41	32	42	16	48	15	61	29	54	23	58	33	43	23	34	15	44	16	49	23	34	28	28	21	28	21	46	13	39	22	49	21	48	24	49	24	48	24	54	29	56	39	54	24	46	31	37	25	37	16	34	11	27	12	44.4	22.6		
Bedford	58	34	45	20	64	20	45	34	40	21	49	28	68	25	67	30	60	11	43	25	40	23	45	20	54	21	44	28	34	27	60	28	48	13	43	23	49	13	48	33	49	20	48	27	54	29	56	39	61	21	63	38	59	19	38	17	38	15	28	13	45.1	24.7		
Belle Plaine	46	39	39	25	42	12	40	30	36	16	41	14	60	26	50	23	59	28	42	24	33	12	42	15	45	25	35	27	30	26	26	21	44	20	28	23	36	21	38	24	35	22	43	18	50	29	55	38	52	23	47	29	36	30	35	18	34	13	21	12	41.0	22.5		
Belmond	41	25	36	22	42	14	42	28	37	19	46	17	54	29	50	20	51	31	39	21	28	16	40	13	42	28	36	26	28	22	23	17	42	13	32	21	37	21	44	27	38	26	45	20	41	27	40	32	50	21	42	29	40	24	32	13	32	11	20	9	39.0	21.2		
Bonaparte	57	34	42	25	45	11	43	32	39	27	52	20	68	36	56	26	65	45	49	27	32	18	44	15	49	26	44	33	33	28	28	25	46	21	37	24	39	21	37	23	46	22	47	22	55	38	60	41	56	25	51	35	51	30	34	19	35	15	29	16	45.3	26.0		
Boone	43	38	40	24	44	19	39	25	42	22	52	21	62	25	54	25	51	27	42	24	42	20	43	15	46	23	33	31	27	24	26	20	45	16	42	21	40	22	46	22	42	28	43	24	54	25	55	25	53	27	46	29	36	31	36	18	35	14	26	12	42.8	23.2		
Britt	51	28	29	19	41	14	42	31	36	18	46	17	52	25	51	18	49	22	36	20	28	15	41	12	42	24	35	27	28	22	23	15	44	12	30	21	38	21	43	31	36	22	45	20	50	27	51	30	49	19	40	28	40	23	31	12	30	9	20	9	39.2	20.4		
Burlington	63	40	44	26	45	18	42	18	41	28	50	22	70	23	54	30	64	28	44	27	41	20	44	17	50	19	38	27	36	28	30	26	42	22	34	21	36	22	42	20	34	24	45	21	54	22	61	36	56	35	52	30	61	32	38	20	34	15	30	12	45.8	24.3		
Carroll	42	20	47	17	42	25	47	20	52	19	62	25	59	21	53	25	43	23	33	14	43	14	43	14	47	18	35	22	32	25	25	18	40	19	37	23	43	18	40	20	43	12	55	16	49	25	53	27	45	24	49	24	38	25	37	14	33	13	26	12	27	6	42.6	19.5
Cedar Rapids	46	33	36	29	40	19	40	19	34	23	39	18	55	18	47	25	59	26	39	28	31	21	38	18	43	19	35	28	33	30	26	24	38	23	28	23	33	23	36	24	32	26	44	20	49	21	53	35	45	29	46	27	40	29	33	22	32	18	23	16	39.1	23.8		
Chariton	59	36	43	23	49	16	45	32	40	22	52	19	66	28	63	25	60	26	40	19	44	15	50	22	51	25	50	24	34	25	29	21	50	12	47	23	48	20	47	27	46	21	56	32	50	33	57	37	59	24	57	35	52	30	33	18	35	15	30	13	38	1	41.8	23.9
Charles City	42	29	34	21	38	16	37	29	34	20	40	16	52	26	44	21	50	29	36	21	30	16	39	14	40	23	33	29	26	22	22	19	39	19	26	23	32	21	40	26	29	18	40	17	50	28	49	29	41	21	45	28	38	21	32	16	30	13	21	10	37.0	21.4		
Clarinda	50	32	47	25	54	21	42	26	47	23	57	23	67	31	60	34	45	26	39	24	45	21	49	23	43	19	35	28	27	27	25	15	53	16	20	20	52	11	50	20	36	22	52	32	53	22	52	23	34	29	36	20	40	20	30	18	29	16	44.1	23.2				
Clear Lake	52	30	38	22	40	14	38	31	43	22	45	16	55	30	44	22	50	30	43	20	32	16	40	15	50	15	40	28	30	22	36	22	41	18	35	21	38	20	34	30	36	26	43	26	50	30	53	25	47	23	43	25	40	23	35	14	34	11	24	8	41.4	21.8		
Clinton	58	30	39	23	42	17	42	27	36	25	55	23	55	23	48	20	65	37	43	27	32	20	41	17	45	21	38	30	34	28	29	25	35	23	32	24	30	21	46	19	34	20	41	15	48	32	56	31	51	24	46	28	45	34	35	25	35	17	35	16	42.4	24.1		
Columbus Jct.	57	36	40	26	43	11	43	29	37	26	44	21	60	28	51	25	62	43	49	31	32	19	40	17	49	25	42	28	34	29	32	24	42	23	38	23	42	20	35	2																								

U. S. DEPARTMENT OF AGRICULTURE

REPORT FOR DECEMBER, 1910

Annual Summary for 1910

IOWA SECTION

OF THE

CLIMATOLOGICAL SERVICE

OF THE

WEATHER BUREAU

IN COOPERATION WITH THE IOWA WEATHER AND CROP SERVICE

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

UNDER DIRECTION OF

WILLIS L. MOORE

CHIEF U. S. WEATHER BUREAU

BY

GEO. M. CHAPPEL

SECTION DIRECTOR



PRINTED BY ORDER OF THE IOWA GENERAL ASSEMBLY

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THE IOWA WEATHER AND CROP SERVICE

WAS ESTABLISHED BY ACT OF THE TWENTY-THIRD GENERAL ASSEMBLY, AND IS UNDER SUPERVISION
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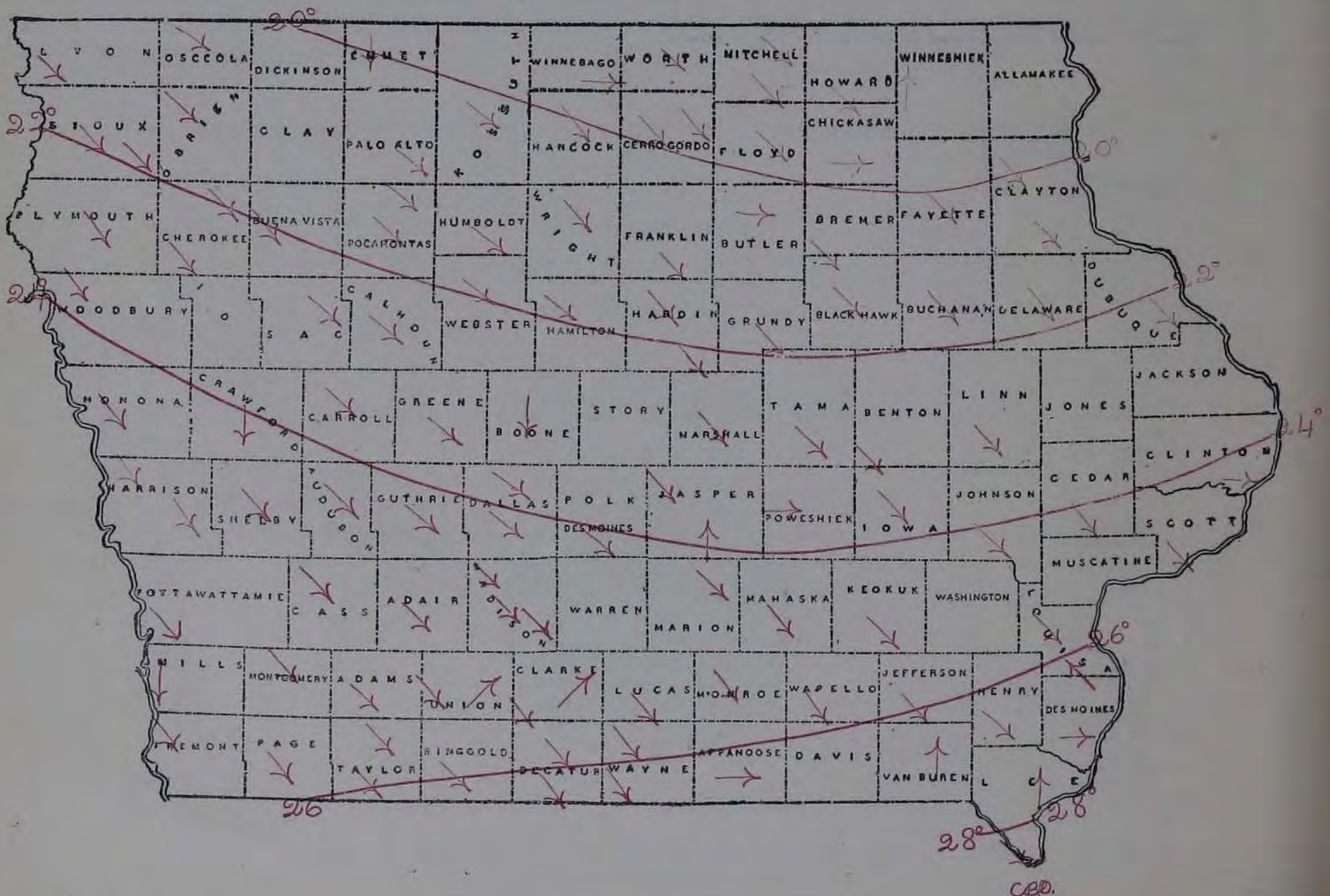
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MEAN ISOTHERMS AND PREVAILING WINDS OF DECEMBER, 1910.

Lines pass through points of equal temperature. Arrows fly with the wind.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATOLOGICAL SERVICE
 OF THE
WEATHER BUREAU.

CENTRAL OFFICE: WASHINGTON, D. C.

IOWA SECTION,

GEO. M. CHAPPEL, Section Director.

VOL. XXI DES MOINES, IOWA, DECEMBER, 1910 No. 12

GENERAL SUMMARY.

December, 1910, will go on record as the driest month of that name on record since state-wide observations began in 1890. The average precipitation was only 0.37 inch, which is 0.82 inch below the normal and 1.81 inches less than the average amount in December, 1909. Except over the southeastern counties where rain fell on the 28th or 29th, nearly all of the precipitation was in the form of snow and most of it fell on the 5th, 6th, 9th, 10th, 18th, and 22d, but the amounts were too small to afford any relief from the effects of the long continued drouth and at the close of the month the ground was bare except over the northern counties where the snow was about 2 inches in depth.

The mean temperature was very nearly normal, there being a deficiency of only 0.2 of a degree. The month was characterized by the uniformly moderately low temperatures and the absence of severe storms, and to the fact that there was only one or two cold waves. The 8th and 24th were the coldest days but the temperature on those dates was only 2 or 3 degrees below zero in the southern and from 5 to 14 degrees below in the northern counties.

The weather was ideal for finishing the corn harvest and all of the crop was secured in excellent condition. Cattle lived in the pastures and stalk fields nearly all of the month, thereby, allowing a great saving of hay and grain. The dry weather has not, however, been favorable for fall wheat or young August sown alfalfa, and the drouth has caused many shallow wells and small streams to go dry. The scarcity of water has been serious in many localities, and in some instances farmers have been obliged to sell their stock on account of lack of facilities for watering it.

TEMPERATURE.—The monthly mean temperature for the State, as shown by the records of 117 stations, was 23.4°, which is 0.2° below the normal for Iowa. By sections the mean temperatures were as follows: Northern section, 20.9°, which is normal; Central section, 23.5°, which is 0.3° below normal; Southern section, 25.7°, which is 0.5° below the normal. The highest monthly mean was 28.8°, at Keokuk, Lee County, and the lowest monthly mean, 18.2°, at Elma, Howard County, and Forest City, Winnebago County. The highest temperature reported was 57°, at Baxter, Jasper County, on the 26th; the lowest temperature reported was -14°, at Britt, Hancock County, on the 24th. The average monthly maximum was 50°, and the average monthly minimum was -5°. The greatest daily range was 54°, at Iowa City, Johnson County, and at Keosauqua, Van Buren County. The average of the greatest daily ranges was 36°.

PRECIPITATION.—The average precipitation for the State, as shown by the records of 123 stations, was 0.37 inch, which is 0.82 inch below the normal. By sections the averages were as follows: Northern section, 0.32 inch, which is 0.71 inch below the normal; Central section, 0.38 inch, which is 0.32 inch below the normal; Southern section, 0.41 inch, which is 0.92 inch below the normal. The

greatest amount, 1.39 inches, occurred at Burlington, Des Moines County, and the least, 0.01 inch, at Le Mars, Plymouth County. The greatest amount in twenty-four hours, 1.12 inches, occurred at Burlington, Des Moines County, on the 28th. Measurable precipitation occurred on an average of 3 days.

SNOW.—The average depth of unmelted snowfall was 3.0 inches. By sections the averages were as follows: Northern section, 3.5 inches; Central section, 3.2 inches; Southern section, 2.2 inches. The greatest depth was 8.0 inches at Elkader, Clayton County; and the least, 0.1 inch, at Le Mars, Plymouth County.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 15; partly cloudy, 7; cloudy, 9. The duration of sunshine was about the normal, the percentage of the possible amount being 55 at Charles City; 58 at Davenport; 54 at Des Moines; 50 at Dubuque; 64 at Keokuk; and 47 at Sioux City.

WIND.—Northwest winds prevailed. The highest velocity reported was 44 miles per hour from the south, at Sioux City, Woodbury County, on the 30th.

ERRATA.

STOCKPORT.—October, 1910; page 102, date of lowest temperature, published 28th, should be 29th.

COMPARATIVE DATA FOR THE STATE—DECEMBER.

Year	Temperature			Precipitation		
	Mean	Highest	Lowest	Average	Greatest	Least
1890.....	29.1	72	-18	.45	1.40	.00
1891.....	32.3	72	-14	2.41	4.50	1.21
1892.....	18.9	68	-29	1.65	3.04	.20
1893.....	22.0	70	-21	1.31	2.80	.46
1894.....	30.1	73	-17	.95	1.75	.25
1895.....	25.4	63	-16	1.63	5.74	.00
1896.....	30.8	70	-10	.65	1.79	T
1897.....	18.0	60	-25	1.65	3.22	.61
1898.....	18.1	60	-25	.48	1.70	T
1899.....	22.6	75	-19	1.61	4.28	.10
1900.....	26.9	63	-10	.45	2.70	T
1901.....	20.5	64	-31	.93	2.75	.05
1902.....	20.1	59	-20	2.23	5.51	.67
1903.....	19.6	58	-27	.41	1.96	T
1904.....	23.4	67	-19	1.44	3.68	.06
1905.....	27.0	62	-11	.52	1.69	T
1906.....	25.7	65	-9	1.43	2.81	.37
1907.....	28.8	62	-9	1.00	2.28	.05
1908.....	27.2	67	-17	.57	2.07	.05
1909.....	15.1	60	-26	2.18	6.10	.89
1910.....	23.4	57	-14	.37	1.39	.01

T. indicates a Trace.

- indicates temperature below zero.

ATMOSPHERIC PRESSURE AND WIND.

Mean Barometer for the month reduced to sea level, 30.15 inches.
 Prevailing direction of Wind, Northwest.

STATIONS	Barometer, in Inches					Wind				
	Mean	Maximum	Date	Minimum	Date	Movement, miles	Maximum Velocity	Direction	Date	Average Hourly Velocity
Charles City.	30.13	30.76	12	29.72	19	5432	20	NW	18-19	7.3
Davenport..	30.15	30.81	13	29.69	19	6033	22	NW	1	8.1
Des Moines..	30.13	30.76	13	29.78	19	6155	31	W	31	8.3
Dubuque....	30.15	30.80	13	29.67	19	4682	18	NW	19	8.3
Keokuk.....	30.18	30.83	13	29.76	19	5906	28	NW	18-19	7.9
Omaha, Neb.	30.16	30.73	13	29.78	31	6525	30	N	3	8.8
Sioux City..	30.16	30.72	12	29.78	22	9328	44	S	30	12.5

DECEMBER NORMALS FOR IOWA—1890-1910.

Normal temperature for December, 24.0 degrees.
 Warmest December, 1891, with mean temperature of 32.3 degrees.
 Coldest December, 1909, with mean temperature of 15.1 degrees.
 Normal precipitation for December, 1.16 inches.
 Wettest December, 1891, with total precipitation of 2.41 inches.
 Driest December, 1910, with total precipitation of 0.37 inches.
 Average number of days with 0.01 inch or more of precipitation, 5.
 Prevailing wind direction, northwest.
 Average number of clear days, 12; partly cloudy, 8; cloudy, 11.

OBSERVERS' REMARKS.

ALBIA—*J. I. Chenoweth*. Another dry month. Very little surface water and wells are going dry.

ALGONA—*Dr. F. T. Seeley*. This month ends the driest year on record at this station.

ALTA—*David E. Hadden*. The month was warm and very dry. Snow that fell soon melted and the roads were excellent. The year 1910 was the driest ever recorded at this station. The precipitation of 17.49 inches being about 1.00 inch below the dry year of 1894.

ALTON—*W. S. Slagle*. The ice harvest began December 19, with ice 13 inches thick.

AMANA—*C. Schadt*. December was dry, with the precipitation 1.21 inches below and the temperature 1.9° above the normal. The Iowa river is lower than ever before known at this season of the year. The roads are in very good condition and afford excellent transportation facilities.

ATLANTIC—*Thos. H. Whitney*. A fine month. Stock well maintained by dry fall pasturage, allowing great economy of hay and grain. Moisture is needed for spring as ground water is getting low.

BAXTER—*W. R. Vandike*. The drought continued through the month, there being only .27 inch of precipitation. The weather, however, was very pleasant.

BELMOND—*Geo. C. Hardwick*. At the end of the month the ice was 15 inches thick in rivers and ponds. There were no serious storms and stock lived in stalk fields about all of the month. Water is getting low and many of the shallow wells are dry.

BONAPARTE—*Hon. B. R. Vale*. Total precipitation for the year, 21.13 inches, which is the next lowest to 1901, with 16.34 inches, which is the lowest in southeastern Iowa during the last 40 years. During the four crop months—April to July inclusive—there was 11.82 inches as compared with 5.84 inches for the same period in 1901.

BRITT—*L. M. Goodman*. The ground is very dry and many shallow wells are dry or nearly so.

BURLINGTON—*Max E. Poppe, Jr.* The stage of the river is very low. A new low water mark set. Ice cutting progressing.

CHARITON—*C. C. Burr*. There were no severe storms during the month. Wells are failing and in some cases stock is suffering for water. Feed is plentiful, but the price is high.

CLINTON—*Luke Roberts*. The Chicago & Northwestern Ry. is harvesting ice 14 inches thick.

COUNCIL BLUFFS—*B. W. Crossley*. December was favorable for outdoor work and we have been busy digging post holes, making fence, cleaning the feed lots and building concrete foundations under buildings. Stock cattle have run on the cured grass and have been fed hay only on 4 days. Winter wheat does not look very promising and does not stand the dry cold as well as does the rye. The dry weather has also been hard on the young August sown alfalfa. The wells and streams in our Missouri Loess type of soil have shown no tendency to lessen in flow and are still drawing on the copious rainfall of a year ago.

CRESTON—*O. J. Colby*. The month of December was ideal for finishing the corn harvest and also for all outdoor mechanical work, and many buildings were rushed to completion.

DAVENPORT—*J. M. Shriver*. Although the month was colder than the normal, there was a notable absence of marked falls in temperature, until the 23rd-24th, when the first cold wave of the season occurred, during which the temperature fell 25° and to the minimum of the month,—1°. Another cold wave occurred on the 29th-30th, the temperature falling 22° and to a minimum of 10° on the morning of the 30th.

Owing to the formation of ice gorges on the Le Claire Rapids, a further fall in the Mississippi River began on the 2d, a stage of—1.2 feet, the lowest on record at the Davenport station, being observed on the morning of the 5th. The stream became closed on the night of the 11-12th and at the end of the month the average thickness of the ice was about 11 inches.

DUBUQUE—*J. H. Spencer*. There were no severe storms during the month and only one cold wave occurred (that of the 24th), and it was not severe. The month in general was very pleasant for December and the precipitation was the lightest at this station during December in 10 years, and all that fell was snow. The Mississippi froze over at Dubuque on the night of the 7th-8th, or several days earlier than the average date. The water fell from 0.9 of a foot on the 1st to —0.6 of a foot on the 6th, or the lowest stage ever reached at this station. This low stage was not caused by natural conditions, however, but was due to ice gorges above Prairie du Chien, Wis. The low water at Dubuque partially cut off the water supply of the Union Electric Company for several days, and it was only with difficulty that their plant could be kept running. The water cut through the gorges on the 6th and by the morning of the 7th the water at Dubuque had risen to 0.7 of a foot. At the close of the month the ice in the Mississippi River was 10 inches thick and dealers were beginning to put up their annual supply.

EARLHAM—*Geo. Phillips*. The month closed with the ground bare and dry. Stock water is scarce.

ELLIOTT—*Henry Barnes*. December, 1910, was a very pleasant month for business or pleasure; there being no violent storms and but few windy days.

ELMA—*H. A. Moore*. This has been a splendid month. There were no bad storms and the roads were good. The ice harvest began with ice 18 inches thick and clear.

FOREST CITY—*J. A. Peters*. An exceptionally pleasant December. Very little snow. Fine weather for cattle to run in stalks and there has been a big saving of hay on this account. Water is getting low in some wells.

FORT MADISON—*Miss L. A. McCready*. The past month was very dry; water was getting scarce and the ground was extremely dry and dusty prior to the 27th.

GRAND MEADOW (Postville P. O.)—*F. L. Williams*. The month was dry with moderate temperature and the roads were perfect during the entire month. The weather was fine for all kinds of stock.

GREENFIELD—*R. B. Oldham*. A very pleasant winter month with roads dry and dusty most of the time.

GRINNELL—*D. W. Brainard*. December was a delightful winter month and very favorable for the care of live stock and the closing of the season's farm work.

HAMPTON—*E. C. Grenelle*. The total precipitation for 1910 was less than for any year during the past 22 years. The ground is very dry, and many streams, wells and cisterns are low or dry. The weather, during the fall and winter thus far has, however, been ideal. All rough feed in fields has been available for stock, which will help a great deal in the hay shortage.

Continued on Page 126.

CLIMATOLOGICAL DATA FOR IOWA, DECEMBER, 1910

STATIONS	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit					Precip., in Inches				Sky			Prevailing direction of wind	OBSERVERS			
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy day			No. clear days	No. partly cloudy days	No. cloudy days
NORTHERN SECTION																				
Algona	Kossuth	1,213	37	21.4	+1.3	51	14	-10	24	34	0.27	-0.76	0.25	5.2	2	14	8	9	nw	Dr. F. T. Seeley
Alta	Buena Vista	1,513	19	21.0	-0.4	44	14†	-5	24	41	0.18	-0.75	0.13	1.9	2	13	8	10	nw	D. E. Hadden
Alta (near)	Buena Vista																			W. J. Minard
Alton	Sioux	1,305	5	22.0		48	14	-8	24	35	0.05	-0.62	0.20	2.2	2	12	10	9	nw	W. S. Slagle
Belmond	Wright			21.3		51	14	-11	24	37	0.38		0.05	0.5	1	12	10	9	nw	G. P. Hardwick
Britt	Hancock	1,236	13	20.8	+1.7	52	14	-14	24	36	0.25	-0.51	0.20	4.1	6	10	13	8	nw	L. M. Goodman
Charles City	Floyd	1,015	19	19.4	+0.4	50	14	-12	24	33	0.53	-0.75	0.20	7.3	6	12	5	14	nw	Weather Bureau
Clear Lake	Cerro Gordo	1,241	12	21.4	+1.0	44	14†	-10	24	32	0.35	-0.28	0.20	3.5	3	14	0	17	nw	Oscar Stevens
Decorah	Winneshiek	875	17	20.1	-0.9	44	14	-3	30	31	0.63	-0.73	0.35	7.0	4					F. H. Baker
Elkader	Clayton	727	31	21.6	0.0	49	14	-9	24	36	0.49	-1.34	0.17	8.0	5	17	5	9	nw	Chas. Reinecke
Elma	Howard			18.2		48	14	-13	24	31	0.53		0.27	7.3	4	17	8	6	nw	H. A. Moore
Estherville	Emmet	1,298	15	19.6	+1.4	50	14	-10	24	47	0.10	-0.52	0.10	1.0	1	20	0	11	n	A. O. Peterson
Fayette	Fayette	1,003	20	19.4	-2.2	45	14	-11	24	35	0.71	-0.75	0.28	7.6	5	20	5	6	nw	R. Z. Latimer
Forest City	Winneshiek	1,226	16	18.2	-1.6	49	14	-11	24	44	0.45	-0.40	0.40	5.0	2	17	6	8	w	J. A. Peters
Grand Meadow	Clayton	1,180	19	19.2	-2.3	43	14	-9	24	27	0.70	-0.76	0.20	7.0	7	12	11	8	nw	F. L. Williams
Greene	Butler			20.6	+1.6	49	14	-9	24	34	0.38	-0.65	0.12	4.5	6	7	11	13	w	J. L. Cole
Hampton	Franklin	1,155	20	22.0	+0.5	50	14	-9	24	35	0.41	-0.84	0.15	4.2	5	12	13	6	nw	E. C. Grenelle
Humboldt	Humboldt	1,095	22	23.8	+0.5	51	14	-11	24	39	0.26	-0.43	0.16	2.0	2	15	7	9	nw	H. S. Wells
Inwood	Lyon	1,474	6	21.2	+0.4	51	14	-10	24	39	0.12	-0.86	0.09	1.3	2	15	7	9	nw	F. B. Hanson
Larrabee	Cherokee	1,266	20	22.0	-0.3	47	14	-9	24	33	0.12	-0.81	0.11	1.4	2	14	8	9	nw	H. B. Strever
Le Mars	Plymouth	1,224	14	23.1	-0.6	46	14	-5	24	32	0.01	-0.81	0.01	0.1	1	11	14	6	nw	G. A. C. Clarke
Mason City	Cerro Gordo	1,133	13	19.9	-1.8	48	14	-11	24	32	0.22	-0.59	0.10	2.2	4	18	7	6	nw	J. S. Mills
New Hampton	Chickasaw	1,169	13	18.5	-1.0	46	14	-11	24	29	0.40	-0.53	0.20	3.5	3	21	2	8	w	A. F. Kemman
Northwood	Worth	1,222	14	20.0	0.0	50	14	-10	24	36	0.75	-0.35	0.40	7.5	4	19	5	7	nw	Charles H. Dwelle
Osage	Mitchell	1,184	23	20.1	+0.5	49	14	-11	24	32	0.50	-0.85	0.25	4.7	2	18	2	11	nw	Dr. A. D. Bundy
Plover	Pocahontas	1,426	14	20.8	-0.5	49	14	-12	24	43	0.15	-0.61	0.15	1.5	1	19	5	7	nw	J. S. Smith
Pocahontas	Pocahontas	1,248	6	21.7	-1.2	50	14	-9	24	40	0.22	-0.66	0.18	2.4	2	12	8	11	nw	F. E. Hronek
Ridgeway	Winneshiek	1,215	12	21.2	-1.1	49	14	-9	24	31	0.71	-1.53	0.40	4.7	7	16	8	7	s	Arthur Betts
Rock Rapids	Lyon	1,358	11	22.4	+1.3	50	14	-7	24	36	0.10	-0.49	0.05	1.0	2					W. C. Wyckoff
Sheldon	O'Brien	1,422	10	22.6	+0.4	50	14	-5	12	36	0.12	-0.69	0.10	0.7	2	11	8	12	nw	Dr. A. W. Beach
Sibley	Osceola	1,212	17	19.5	-0.1	51	14	-12	24†	44	0.10	-0.68	0.06	1.0	2	12	6	13	nw	H. G. Doolittle
Sioux Center	Sioux			21.5	-0.2	47	14	-6	24	31	0.07	-0.94	0.05	0.8	2	12	4	15	nw	J. de Ruyter
Storm Lake	Buena Vista	1,440	21	21.7	-0.3	42	26	-5	24	32	0.20	-0.63	0.20	3.5	1					W. Dugold
Washta	Cherokee	1,157	12	23.5	-0.4	55	14	-12	24	41	0.10	-0.75	0.10	1.0	1	16	7	8	nw	H. L. Felter
Waverly	Bremer	948	14	20.7	-0.9	52	14	-10	24	40	0.34	-0.84	0.14	5.5	3	19	2	10	nw	Earl C. Moore
West Bend	Palo Alto	1,197	17	21.4	+0.8	49	14	-12	24	32	0.36	-0.53	0.30	3.6	4	13	7	11	nw	Phil Dorweiler
Average				20.9	0	49		-10		36	0.32	-0.71		3.5	3	15	7	9	nw	
CENTRAL SECTION																				
Amana	Iowa	721	34	23.6	+1.0	50	14	-4	24	33	0.21	-1.24	0.09	2.1	7	15	9	7	nw	Conrad Schadt
Ames	Story	926	34	24.4	+1.8	54	14	-8	24	38	0.27	-0.75	0.25	2.7	2					Iowa State College
Audubon	Audubon	1,301	16	24.7	+0.8	46	14	-2	12	30	0.22	-0.74	0.15	2.1	4	11	10	10	nw	Geo. E. Kellogg
Baxter	Jasper	998	10	24.2	0.0	57	26	-9	24	47	0.27	-0.62	0.15	4.8	5	16	5	10	nw	W. R. Vandike
Belle Plaine	Benton	828	20	22.5	-1.2	54	14	-7	23	35	0.07	-1.46	0.03	0.7	4	17	6	8	nw	S. P. VanDike
Boone	Boone	1,134	5	23.3		52	14	-4	24†	43	0.21		0.16	3.0	2	16	3	12	n	Carl Fritz Henning
Buckingham	Tama																			J. S. Guynn
Carroll	Carroll	1,265	20	23.6	+0.2	50	13	-6	23	38	0.10	-0.89	0.10	1.0	1	10	9	12	nw	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	733	28	21.9	-3.1	50	14	-5	25	48	0.33	-1.17	0.22	2.5	2	21	2	8	w	W. J. Greene
Clinton	Clinton	593	43	23.5	-1.8	45	14	-3	12†	31	1.24	-0.61	0.45	7.2	6	9	11	11	w	Luke Roberts
Davenport	Scott	580	39	25.1	-2.1	48	14	-1	24	28	0.85	-0.84	0.46	3.0	5	13	7	11	nw	Weather Bureau
Delaware	Delaware	1,083	19	20.8	-0.6	42	14	-10	24	28	0.45	-0.93	0.17	6.2	7	18	7	6	nw	Wm. Ball
Denison	Crawford	1,180	16	24.3	+0.8	48	14	-7	24	35	0.15	-0.44	0.10	1.5	2					W. C. Van Ness
Des Moines	Polk	861	31	26.0	+0.3	53	14	0	24	32	0.20	-1.11	0.16	2.6	5	11	6	15	nw	Weather Bureau
De Soto	Dallas	866	10																	R. D. Minard
Dubuque	Dubuque	639	37	23.2	-1.3	46	14	-2	24	28	0.57	-1.15	0.24	5.1	6	12	6	13	nw	Weather Bureau
Fort Dodge	Webster	1,126	10	22.2	-0.3	52	14	-8	25	48	0.25	-0.21	0.10	2.5	3	18	1	12	nw	J. F. Monk
Gilman	Marshall	1,052	11																	Jas. L. Wylie
Grinnell	Poweshiek	1,023	16	25.2	+0.8	53	14	-6	24	35	0.24	-0.93	0.20	2.4	3	16	9	6	w	D. W. Brainard
Grundy Center	Grundy	976	19	22.0	-0.6	53	14	-9	24	39	0.56	-0.62	0.20	5.6	5	18	0	13	nw	J. B. Calderwood
Guthrie Center	Guthrie	1,077	15	25.5	+1.7	49	14†	-4	24	34	0.13	-0.97	0.13	2.0	1	19	2	10	nw	D. G. Beardsley
Harlan	Shelby	1,182	11	23.8	-0.2	46	14	-5	24	31	0.33	-0.57	0.20	3.5	2	8	14	9	nw	C. A. Reynolds
Independence	Buchanan	921	46	21.2	-0.4	48	14	-9	24	34	0.30	-1.06	0.20	3.0	3	20	4	7	nw	R. E. Dudley
Iowa City	Johnson	683	50	21.7	-2.5	53	14	-7	24	54	0.46	-1.19	0.20	3.0	4	19	0	12	nw	Arthur G. Smith
Iowa Falls	Hardin	1,170	17	19.7	-1.4	51	14	-11	24	46	0.66	-0.45	0.35	6.6	8	20	0	11	nw	J. B. Parmelee
Jefferson	Greene			21.8		54	14	-1	12	37	0.22	-0.53	0.22	2.7	1					M. E. Hall
Le Claire	Scott	576	10																	Margaret T. Disney
Little Sioux	Harrison			24.6	-1.6	48	14†	-6	24	36	0.42	-0.24	0.25	4.2	3	13	7	11	nw	Geo. H. Gibson
Logan	Harrison	928	43	24.8	-0.4	47	16	-6	24	31	0.25	-1.02	0.20	2.5	2	7	17	7	nw	Glenn H. Stern
Marshalltown	Marshall	947	18	22.6	-0.9	55	1													

CLIMATOLOGICAL DATA FOR IOWA, DECEMBER, 1910-Continued

STATIONS	[COUNTIES	Elevation feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precip., in inches				Sky				Prevailing direction of wind	OBSERVERS	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	No. rainy days	Number clear days	Number partly cloudy days			Number cloudy days
SOUTHERN SECTION																				
Afton	Union	1,212	16	27.0	+1.3	47	14	2	24	31	0.22	-1.02	0.15	2.3	3	15	9	7	s w	N. W. Rowell
Albia	Monroe	959	12	24.2	-0.8	53	14	0	24†	48	0.30	-0.84	0.15	2.0	2	12	6	13	n w	J. I. Chenoweth
Allerton	Wayne	8	8	26.8	+0.3	52	14	-1	24	36	0.28	-0.89	0.22	0.2	3	18	5	8	n w	Mrs. Geo. Shriver
Atlantic	Cass	1,164	19	25.2	+0.3	46	26	-1	24	30	0.16	-0.99	0.10	1.5	2	8	7	15	n w	Thos. H. Whitney
Bedford	Taylor	10	10	25.8	+0.1	47	26	-3	8	38	0.32	-0.62	0.30	2.7	2	16	5	10	n w	E. E. Healy
Bloomfield	Davis	3	3	26.1	.....	50	14	1	24	38	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. R. Davis
Bonaparte	Van Buren	19	19	26.2	-1.7	51	14	0	13†	36	0.78	-1.25	0.60	1.0	4	.....	.....	.....	.....	Hon. B. R. Vale
Burlington	Des Moines	544	14	25.5	-1.6	51	3†	1	24	43	1.39	-0.16	1.12	1.5	5	21	0	10	w	M. E. Poppe, Jr.
Centerville	Appanoose	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.07	.....	0.05	0.5	2	20	6	5	w	Gordon Peacock, Jr.
Chariton	Lucas	1,042	15	25.8	-0.5	52	14	-1	24	39	0.40	-0.94	0.10	4.0	4	21	0	10	n w	C. C. Burr
Clarinda	Page	1,009	20	23.4	-3.2	48	26†	2	8	34	0.37	-0.75	0.30	3.2	3	11	6	14	n w	A. S. Van Sandt
Columbus Junction	Louisa	595	9	24.2	-1.8	45	17	0	24	32	0.56	-0.90	0.45	1.2	3	20	3	8	n w	J. B. Johnston
Corning	Adams	1,117	18	24.3	-2.8	46	27	-4	8	34	0.30	-0.84	0.30	3.0	1	.....	.....	.....	.....	Jerome Smith
Corydon	Wayne	1,101	17	25.8	-0.9	50	14	-3	12	30	0.19	-1.23	0.17	T	2	16	5	10	n w	Clara Miller
Council Bluffs	Pottawattamie	.....	.....	25.0	.....	48	26	1	24	36	0.67	.....	0.25	6.8	3	8	9	14	n w	B. W. Crosley
Creston	Union	1,312	5	24.2	.....	48	14†	1	24†	43	0.20	.....	0.10	1.0	4	13	3	15	n w	O. J. Colby
Cumberland	Cass	11	.....	.....	.....	.....	.....	.....	.....	.....	0.20	-0.82	0.10	2.0	2	16	7	8	n	J. H. Reppert
Earlham	Madison	8	8	26.8	+3.8	51	14	-2	24	39	0.20	-1.10	0.20	2.0	1	14	7	10	n w	Geo. Phillips
Elliott	Montgomery	5	5	25.4	-1.3	49	26	-1	8	36	0.40	-0.25	0.30	4.0	3	18	9	4	n w	Henry Barnes
Fairfield	Jefferson	26	26	25.2	+0.1	50	14	-1	13	32	0.55	-1.23	0.37	0.9	5	18	2	11	n w	R. Monroe McKenzie
Fort Madison	Lee	516	61	.....	.....	.....	.....	.....	.....	.....	1.04	-0.89	0.94	T	2	15	2	14	s	Miss L. A. McCready
Greenfield	Adair	18	18	23.8	-1.2	46	14†	-2	24	31	0.10	-1.15	0.10	1.0	1	12	13	6	n w	R. B. Oldham
Hopeville	Clarke	19	19	25.8	-0.4	49	14†	0	24	36	0.15	-0.91	0.05	.....	5	9	12	10	n w	M. T. Ashley
Indianola	Warren	969	19	26.4	+0.6	51	14	-1	24	30	0.36	-0.97	0.15	2.0	4	.....	.....	.....	.....	Prof. J. L. Tilton
Keokuk	Lee	574	39	28.8	-0.6	49	14†	4	24	29	0.79	-1.08	0.66	0.1	5	19	6	6	n w	Weather Bureau
Keosauqua	Van Buren	644	18	24.4	-3.0	52	14	-2	13†	54	0.70	-0.80	0.67	0.3	2	8	16	7	.....	J. H. Landes
Knoxville	Marion	920	15	27.0	+0.5	52	14	0	24	31	0.40	-0.98	0.15	4.0	5	16	5	10	.....	Casey & Belville
Lacona	Warren	11	.....	.....	.....	.....	.....	.....	.....	.....	0.49	-1.18	0.20	6.6	7	4	21	6	.....	J. B. Alter
Lamoni	Decatur	3	3	26.5	.....	47	14†	2	24	33	0.18	.....	0.09	1.6	3	20	0	11	n w	T. J. Fitzpatrick
Lenox	Taylor	1,250	15	25.5	+0.2	46	26	1	8	33	0.15	-0.92	0.12	1.5	3	16	9	6	n w	J. L. Hurley
Leon	Decatur	1,120	8	26.2	-0.4	49	14	0	24	35	0.16	-1.11	0.10	0.5	2	14	4	13	n w	Morris Gardner
Massena	Cass	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. E. Smeltzer
Mt. Ayr	Ringgold	1,236	17	26.8	+0.9	48	14†	3	24	34	0.44	-0.85	0.21	1.9	3	9	13	9	n w	A. F. Beard
Mt. Pleasant	Henry	729	29	26.3	-0.5	49	14	1	24	29	1.06	-0.31	0.80	1.0	4	17	9	5	n w	J. W. Edwards
Omaha, Neb.	Douglas	1,040	40	27.1	0.0	48	26	6	24	25	0.37	-0.54	0.27	5.8	4	10	7	14	n	Weather Bureau
Ossaloosa	Mahaska	843	34	25.6	-0.3	52	14	-1	24	34	0.20	-1.06	0.07	2.0	4	18	0	13	n w	Jos. Boyd
Ottumwa	Wapello	649	15	26.2	-1.6	50	14	0	24	34	0.47	-0.84	0.31	1.0	5	12	10	9	n w	Chester Potter
Pacific Junction	Mills	960	11	25.8	-0.5	49	26	-3	8	35	0.18	-0.34	0.27	4.8	3	9	15	7	n	H. H. McCartney
Pella	Marion	877	7	26.0	+0.1	54	14	-1	13†	37	0.16	-0.67	0.08	4.5	4	22	0	9	n w	John H. Ver Steeg
St. Charles	Madison	1,070	9	27.1	+0.8	53	14	-1	24	37	0.27	-1.35	0.12	2.8	5	14	10	7	n w	R. D. Minard
Sigourney	Keokuk	877	14	25.5	-0.8	52	14	-2	24	33	0.27	-1.14	0.10	2.5	4	6	20	5	n w	J. T. Parker
Stockport	Van Buren	8	8	25.4	.....	52	14	-3	13	37	0.82	-0.57	0.64	1.0	5	18	6	7	s	C. L. Beswick
Thurman	Fremont	13	13	24.4	-1.1	49	26	-5	8	37	0.40	-0.99	0.30	4.5	3	7	10	14	n w	C. R. Paul
Wapello	Louisa	588	12	27.4	-0.5	49	13	3	12†	32	0.52	-0.79	0.52	T	1	19	8	4	s e	Geo. W. Schofield
Washington	Washington	769	28	24.8	+0.2	52	14	-2	24	32	.....	.....	.....	.....	.....	.....	.....	.....	.....	Wm. A. Cook
Winterset	Madison	1,129	19	25.6	-0.4	49	14	-2	24	32	0.20	-1.19	0.20	2.0	1	10	9	12	n w	Dr. Robert S. Cooper
Woodburn	Clarke	961	11	24.6	.....	48	14†	-4	13	40	0.20	-1.05	0.20	2.0	1	11	11	9	s w	C. B. McDonough
Average	.....	.....	.....	25.7	-0.5	50	.....	0	.....	35	0.41	-0.92	.....	2.2	3	14	8	9	n w	.....
State average	.....	.....	.....	23.4	-0.2	50	.....	-5	.....	36	0.37	-0.82	.....	3.0	3	15	7	9	n w	.....

†And other dates; a, one day missing; b, two days missing; c, three days, etc.
‡Received too late to be included in averages.

MONTHLY REVIEW OF THE

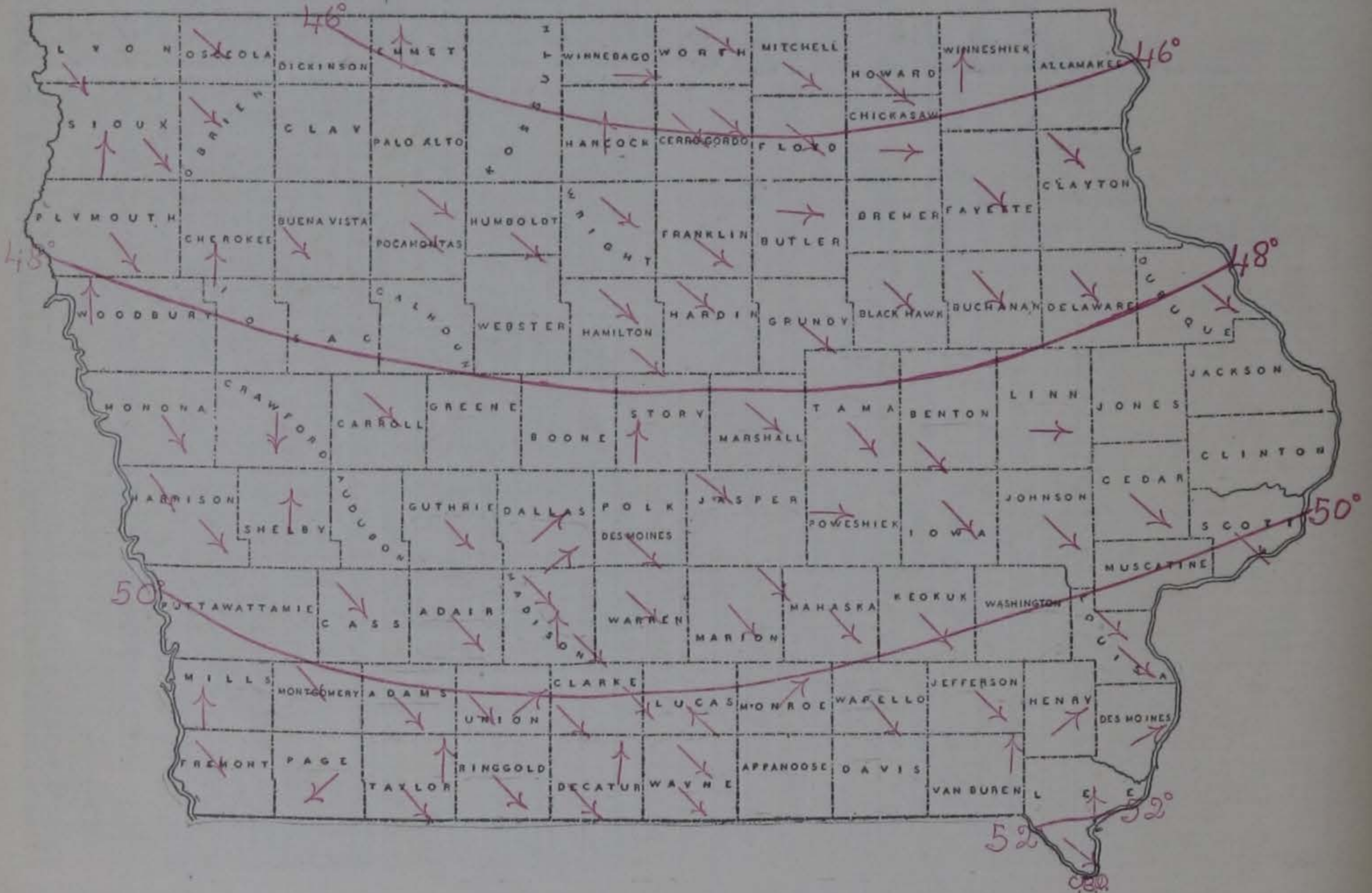
DAILY PRECIPITATION FOR IOWA, DECEMBER, 1910—Continued

STATIONS	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		
Ridgeway			T		.07	.03	T		.03									.04				.10	.04		.40								0.71
Rock Rapids																			.05				.05		T								0.10
Rockwell City																			T				.30										0.30
Sac City																			.20						T								0.20
St. Charles					T	T			.05	.02								.03	.05			.12	T								.05	0.27	
Sheldon					T	T	T	T	T									.02		T		.10	T							T		0.12	
Sibley						T			T									T		T		.04	.08		T							0.10	
Sigourney					T					.04								.06				.07	T						.10	T		0.27	
Sioux Center			T															.02		T		.05										0.27	
Sioux City				.02	.08	T		T									T	T		T		.10	.12									0.32	
Stockport					T	T				.03								.05					.08	T					.64	.02		0.82	
Storm Lake																							T	.20								0.20	
Stuart																																	
Thurman				.10	.20			T														T	.10	T						T		0.40	
Tipton									T	.22								.19				.16			T				.21			0.78	
Toledo						T	T			*	.10							.05				.30								.05		0.50	
Wapello			T							T								T				T	T									0.52	
Washington																																	
Washita							T															.10											0.10
Waterloo			T	T	T	T				.17								.03			T	.15			.12				T			0.47	
Waukeo					T	T			T	T						T	T		.02		T	.25	T		T				T			0.27	
Waverly					T	T				.13								.07			T	T		.14	T							0.34	
Webster City			T			T	T			T								T				.20			T							0.20	
West Bend					.01	T			T									.03			.02		.30										0.36
Whitten						T	T			T								T			T		.10			T							0.10
Winterset						T	T			T								T			T		.20	T									0.20
Woodburn						T	T			T								T			T		.20	T									0.20

* Precipitation included in that of the next measurement.
 † 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.

MEAN ISOTHERMS AND PREVAILING WINDS OF 1910.

Lines pass thru points of equal temperature. Arrows fly with the wind.



APPENDIX.

ANNUAL SUMMARY, 1910.

INDEX TO SPECIAL ARTICLES.

Published in Monthly and Annual Reports of the Iowa Section during 1908, 1909 and 1910.

Subjects	Reports	
Apparatus for protection from frost and hail.....	July,	1908
Climate and crops for decade.....	December	1910
Comet, observations on Halley's.....	May,	1910
Crop statistics.....	November and annual	1910
Drouths in Iowa.....	1908, 1909 and	1910
Fruit trees in full bloom, date of.....	October,	1908
Snowfall, monthly and annual, 1892 to 1910.....	May,	1909
Tornadoes.....	December,	1910
	July,	1909

GENERAL SUMMARY.

The year, 1910, was in some respects extremely abnormal. It was the driest year on record since state-wide observations began in 1890, and the early spring and fall months were warm and pleasant; the average temperature for the latter half of March being higher than the mean for the latter half of April. The precipitation was below the normal every month of the year except January and September, and the excess in those months was small. There were not as many severe wind storms as usual and the average amount of snowfall was less than 50 per cent of the amount for 1909.

BAROMETER (Reduced to sea level).—The mean pressure of the atmosphere for the year 1910, was 30.04 inches. The highest observed pressure was 30.83 inches, at Keokuk, Lee County, on December 13th. The lowest pressure observed was 29.14 inches, at Charles City, Floyd County, on January 26th. The range for the State was 1.69 inches.

TEMPERATURE.—The mean temperature for the State was 48.7° which is 1.2° above the normal for the State. The highest annual mean was 52.9° at Keokuk, Lee County; and at Ottumwa, Wapello County. The lowest annual mean was 44.5° at Sibley, Osceola County. The highest temperature reported was 108° at Ridgeway, Winneshiek County, on July 16th. The lowest temperature reported was -35 at Elkader, Clayton County, on January 7th. The range for the State was 143°.

PRECIPITATION.—The average amount of rain and melted snow for the year as shown by the complete records of 111 stations was 20.03 inches, which is 12.62 inches below the normal, and 19.98 inches below the average amount in 1909. The greatest amount recorded at any station during the year was 27.99 inches at Burlington, Des Moines County. The least amount recorded was 12.11 inches at Clear Lake, Cerro Gordo County. The greatest monthly rainfall was 11.22 inches at Atlantic, Cass County, in August. The least monthly precipitation was 0.00 at Audubon, Audubon County; Little Sioux, Harrison County; Odebolt, Sac County; Rock Rapids, Lyon County, and at Zearing, Story County, in March. The greatest amount in any 24 consecutive hours was 7.98 inches, at Pacific Junction, Mills County, on the 28th and 29th of August.

The average amount of snowfall was 22.8 inches. The greatest amount of snowfall unmelted, at any station during the year was 52.5 inches at Elkader, Clayton County. The least amount was 4.4 inches at Keokuk, Lee County. The greatest monthly snowfall was 26.5 inches at Elkader, Clayton County, and at Humboldt, Humboldt County, in January; and the greatest twenty-four hour snowfall was

14.7 inches at Humboldt, Humboldt County, on January 20th. Measurable precipitation occurred on an average of 67 days.

WIND.—The prevailing direction of the wind was northwest. The highest velocity reported was 65 miles an hour from the north at Sioux City, Woodbury County, on April 23d, and on August 2d.

SUNSHINE AND CLOUDINESS.—The average number of clear days was 188; partly cloudy, 92; and cloudy, 85; as against 152 clear days; 92 partly cloudy; and 121 cloudy days in 1909. The duration of sunshine was as a whole, slightly above the normal.

THE WEATHER BY MONTHS.

Extremely low temperatures prevailed during the first decade of January, with two notably heavy snowstorms during the first half of the month. The first being on the 4th-5th and the second on the 12th-13th. The snowfall was unusually heavy and caused a great deal of delay in railroad traffic, and the accumulation of snow caused considerable damage to buildings, especially in the northern part of the State. The roofs of numerous structures collapsed as a result of the weight of snow; the damage to property in Dubuque being estimated at about \$10,000. Snow flurries occurred at frequent intervals during the latter half of the month but the amounts of snow were small and only tended to prolong the good sleighing which began on December 5th or 6th, 1909. The ground was thoroughly covered with snow during the entire month in the northern, and most of the time in the southern districts, and as a result fall grains suffered no injury from the effects of the cold weather. The 6th and 7th were the coldest days, the lowest temperature occurring generally on the 6th, when the minimum ranged from -8° to -33° over the southern, and -18° to -35° over the northern counties.

The weather during February was exceptionally pleasant; there being no severe storms and a very small amount of precipitation. The average precipitation being only 0.46 inch which is 0.60 inch below the normal. At many stations it was the driest February in over 30 years. The temperature was, however, below the normal although the weather was moderate during most of the month. The ground was practically bare of snow over the southern counties, except from the 20th to 24th, but over the northern counties the ground was covered with snow during the whole month. Some progress was made in gathering last year's corn, but there was over 15 per cent of the crop left in the fields at the close of the month.

March, 1910, will long be remembered as having furnished more pleasant weather than any other March in the history of the State. It was the warmest and driest March on record. It gave the largest amount of sunshine; the least number of cloudy days; the least number of days with appreciable precipitation; the least number of days with freezing temperature; and less snowfall than any other March since state-wide observations began. The temperature was uniformly high and above the normal every day of the month. The highest temperature occurred generally on the 23d, and ranged from 81° to 87° over the northern, 81° to 90° over the central, and from 82° to 92° over the southern counties. There was no snowfall in excess of a trace and the rainfall was abnormally light. On the 1st of the month there was 6 to 8 inches of snow on the ground in the northern part of the State, but it had all melted by the 9th, and as there was practically no frost in the ground, the soil dried rapidly, and farmers were in the field early in the month gathering the remainder of last year's corn crop, plowing and seeding small grain. The greater portion of the corn was gathered by the 15th, and by the end of the month nearly all of the wheat and 50 per cent of the oats had been seeded and considerable ground had

been prepared for corn. The season at the close of the month was about 4 weeks in advance of the normal and from 5 to 6 weeks ahead of last year. Spring flowers were in bloom; elms, soft maples and box elders were green or becoming so, even in the extreme northern part of the State. Plum, cherry and apple trees were in bloom in the southern counties. Pastures and meadows were green, and some of the early sown grain was up before the end of the month. Fall grain, clover and alfalfa were generally in good condition, but there had been considerable damage by winter killing in western and southern districts.

The first half of April, like the whole of March, was dry and generally warm, but the latter half was very changeable and erratic; the temperatures fluctuating from one extreme to another, and the precipitation from rain to snow. A cold spell set in on the evening of the 14th, attended by moderate showers which changed to snow on the 15th and continued until the 18th, over the larger part of the State; the minimum temperatures on the 16th, 17th and 18th being from 3° to 12° below the freezing point in all districts, and the amounts of snowfall ranged from a trace in the southern to over 5 inches at some stations in the northeastern counties. The freezing temperatures severely damaged fruit, as apple, cherry and plum trees were in full bloom in the northern part of the State by the 10th of the month. The damage done, however, was small as compared with the damage resulting from the freeze of the 23d and 24th, when the minimum temperatures were 10° to 12° below the freezing point in the southern counties. The ground froze hard on the morning of the 23d and 24th, and ice one inch thick formed in tubs of water. Few trees or shrubs escaped injury, and the foliage and new growth on some varieties, such as soft maples, box elders, wistaria, Virginia creeper, etc., were frozen and at the close of the month the dead leaves were falling off. After the 24th the temperature rose rapidly and the highest temperature ever recorded in the State during April was noted on the 28th, when the maximum temperatures ranged from 90° to 99° in the western counties. Practically all small grain was seeded and some corn planted before the middle of the month.

May was abnormally cold, and except over the extreme southern counties was unusually dry. Freezing temperatures occurred on one or more days in nearly all parts of the State, but as practically all the fruit was killed during April, there was little damage done. The rainfall was light and below the normal. Owing to poor seed (account of severe freezing weather on October 12th and 13th, 1909) and continuous cold weather, much of the corn failed to germinate and, notwithstanding the fact that many fields were replanted the second and some the third time, the stand of corn was poor. The cold weather retarded the growth of vegetation and the drouthy conditions reduced the prospects of a hay crop. At the end of the month the foliage on shade and fruit trees was about as far advanced as on April 15th.

The most notable climatic features of June were the unusually cool weather during the first half, and the high temperatures during the latter half of the month; the excessive amount of sunshine; the low percentage of humidity; the great deficiency of rainfall; the high wind velocities, and the small number of thunderstorms. It was the driest June on record. Corn made slow growth during the first half of the month, and owing to poor seed, cold weather and the activity of moles, cut and wire worms, much more replanting was done than usual. During the latter half of the month corn made rapid growth as the fields were clean and the soil was in the best of condition to withstand the effects of dry weather. On the whole June was a favorable month, although the condition of all crops at its close was somewhat below the average of the past 10 years; hay, pastures and early potatoes showed the greatest damage from the drouthy conditions.

The drouthy conditions that prevailed during the latter half of June continued over the larger part of the State during the entire month of July, but the month as a whole, was in many respects ideal for agricultural pursuits. There were very few wind storms, and while it was excessively dry over the larger part of the State, the clear weather was very beneficial for haying, harvesting and threshing. Hay and all small grain was secured in excellent condition, and although the hay crop was lighter than usual, it was of the very best quality. The yield of small grain was above the average and the quality was also excellent. Corn made rapid growth and at the end of the month was strong and vigorous and earing nicely, except in the northeastern and some localities in the central and southwestern counties where the drouth had been the most severe. Pastures and potatoes were, however, severely damaged by lack of moisture. Pastures were practically bare and early potatoes were nearly a failure. Small streams and shallow wells were dry and the stage of the rivers was lower than for many years.

The drouthy conditions which had prevailed since May, continued until the middle of August, when copious and fairly well distributed showers occurred. During the latter half of the month the rainfall was generally above the normal. The temperature was normal although temperatures of 90° or above were recorded on several days between the 1st and 22d. A trace of frost was observed in some localities on the 26th, but no damage was done. The dry weather during the first half of the month was favorable for threshing, but was injurious to pastures, meadows and late potatoes, and in some sections, to corn.

Although the mean temperature was below and the average rainfall was above normal, the month of September was favorable for farm operations and other outdoor pursuits and for maturing the late crops. Light frost occurred on low ground at several stations on the 9th and 10th and heavy frost on the 27th. Freezing temperatures occurred at several stations in the extreme western counties on the latter date, but no material damage was done except to tender vines and garden truck as the low temperature was of short duration and the corn was generally far enough advanced toward maturity to escape injury. The precipitation was slightly above the normal and fairly well distributed. The rains stimulated the growth of grass, replenished the water supply, put the soil in fine condition for plowing and started the growth of fall sown grain. Threshing was practically finished and more seed corn was gathered than ever before during the month of September.

October was unusually warm, dry and pleasant. Corn husking began during the third week and became general during the fourth week of the month. The temperature was sufficiently high to ripen strawberries in many localities. The first general killing frost with freezing temperatures did not occur until the 28th-29th.

November and December were pleasant and dry with the temperature slightly below the normal. The corn harvest was finished early in December and all of the crop was secured in excellent condition.

Notwithstanding the fact that 1910 was the driest year on record and the spring months were abnormal, the year as a whole was a profitable one to the farmers in the State. The yields of corn and small grain were considerably above the average but the yield of hay and potatoes were materially reduced by the drouthy conditions and practically all fruit was killed by the severe freezing temperatures in April.

COMPARATIVE DATA FOR THE STATE ANNUAL.

	Temperature					Precipitation in inches			
	Mean annual	Highest	Date	Lowest	Date	Annual	Greatest annual	Least annual	Ave. snowfall
1890	48.0	110	July 13	-27	January 22	31.30	45.74	16.00	----
1891	47.3	106	August 9	-31	February 4	32.90	49.05	23.48	----
1892	46.6	104	July 11	-38	January 19	36.58	48.77	24.78	31.2
1893	45.7	102	July* 13	-36	January 14	27.50	33.27	19.19	37.2
1894	49.7	109	July 26	-37	January 25	21.91	29.31	15.65	19.2
1895	47.2	104	May 28	-33	February 1	26.77	35.25	18.57	26.0
1896	48.6	104	July 3	-20	January 4	37.23	51.60	28.68	22.6
1897	47.8	103	July* 23	-30	January 25	26.98	36.18	20.21	38.8
1898	47.7	103	August 20	-25	December 31	31.34	55.47	19.51	40.3
1899	47.3	104	September 6	-43	February 11	28.68	42.06	21.79	23.4
1900	49.3	103	August 3	-27	February 15	35.05	47.33	25.05	25.8
1901	49.0	113	July 22	-31	December 15	24.41	37.69	16.35	38.5
1902	47.7	98	July 30	-31	January 27	43.32	58.80	20.11	28.0
1903	47.2	101	August 24	-27	December 13	35.39	50.53	26.41	19.4
1904	46.3	100	July 17	-32	January 27	28.51	38.93	19.34	29.2
1905	47.2	104	August 11	-41	February 2	30.53	52.26	24.66	35.3
1906	48.4	102	July 21	-32	February 10	31.60	44.34	20.63	32.8
1907	47.4	102	July 5	-31	February 5	31.61	43.90	19.93	24.0
1908	49.5	101	August 3	-13	January 29	35.26	49.98	24.11	22.7
1909	47.4	103	August* 15	-26	February* 15	40.01	53.48	27.20	40.0
1910	48.6	108	July 16	-35	January 7	19.87	27.99	12.11	23.4

* And other dates.

ANNUAL NORMALS FOR IOWA.
1891-1910.

Normal annual temperature, 47.8 degrees.
Warmest year, 1894, with mean temperature of 49.7 degrees.
Coldest year, 1893, with mean temperature of 45.7 degrees.
Normal annual precipitation, 31.58 inches.

IOWA'S CLIMATE AND CROPS FOR THE DECADE—1890-1900

Reprint from this report for June, 1900.

Temperature Data.	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900
Annual mean temperature—degrees	47.7	47.4	47.5	45.7	49.7	45.5	48.5	46.7	47.6	47.6	47.4
Highest temperature and date—degrees	July 13:110	Aug.7-9:106	July 11:124	July 13:104	July 26:109	July 16:104	July 3: 104	July 23:106	Aug.20:103	Sept. 6:104	105.2
Lowest temperature and date—degrees	Jan. 27:-27	Feb. 4:-31	Jan. 19:-38	Feb. 4:-28	Jan. 25:-37	Feb. 1:-33	Jan. 4:-20	Jan. 25:-30	Dec. 25:-25	Feb. 4:-40	-30.9
Mean temperature—April—degrees	51.8	50.6	45.4	45.5	51.7	54.2	54.5	47.9	48.1	48.9	49.8
Mean temperature—May—degrees	57.7	58.8	54.0	56.6	61.1	61.7	65.5	59.6	59.6	60.2	59.4
Mean temperature—June—degrees	72.7	69.1	69.2	71.2	73.2	69.7	69.1	69.1	71.4	70.7	70.5
Mean temperature—July—degrees	75.6	68.6	73.0	75.0	76.4	72.1	73.6	75.6	73.4	73.1	73.6
Mean temperature—August—degrees	68.4	69.1	71.4	69.4	74.6	71.9	71.7	68.9	71.2	74.4	71.1
Mean temperature—September—degrees	59.3	67.3	64.7	64.7	65.1	66.8	58.5	70.9	65.3	62.5	64.5
Average temperature for six crop months—degrees	62.2	63.8	62.9	63.7	67.0	66.0	65.4	65.3	64.8	64.9	64.6
Av. temperature for three summer months—degrees	72.2	68.9	71.2	71.8	74.7	71.2	71.4	71.2	72.0	72.7	71.7
RAINFALL DATA.											
Average percipitation per year—inches	31.12	33.13	35.74	27.31	21.95	26.63	37.45	26.90	31.69	29.10	30.11
Rainfall in April—inches	1.78	2.15	4.75	4.21	3.07	2.63	5.02	5.35	2.56	2.40	3.39
Rainfall in May—inches	3.56	3.18	8.77	3.45	1.87	3.19	6.69	1.92	4.67	6.23	4.35
Rainfall in June—inches	7.76	5.39	5.19	3.91	2.67	4.32	3.11	3.81	4.72	5.04	4.59
Rainfall in July—inches	1.98	4.22	5.29	3.33	0.63	3.40	6.90	3.26	2.98	3.07	3.50
Rainfall in August—inches	3.41	4.24	2.24	2.32	1.58	4.43	3.52	1.86	3.44	3.68	3.07
Rainfall in September—inches	2.97	1.33	1.53	2.34	3.57	3.03	4.09	2.04	2.69	0.93	2.45
Rainfall for six crop months—inches	21.40	20.51	27.77	19.56	13.39	20.99	29.33	18.24	21.06	21.35	21.36
Rainfall for three summer months—inches	13.15	13.85	12.72	9.56	4.88	12.15	13.53	8.93	11.14	11.79	11.16
STAPLE FARM CROPS FOR DECADE.											
Spring wheat yield per acre—bushels	12	16	14	12.4	12.8	19	13	13.4	14.8	12.7	14
Wheat, total yield—bushels	19,041,000	27,583,000	7,534,952	11,385,899	9,470,306	14,346,000	10,398,785	14,613,054	22,321,268	19,900,830	15,660,000
Corn, yield per acre—bushels	28	38	29	35.7	14.8	38	39	29	34.5	36.3	32.3
Corn, total product—bushels	239,675,156	335,031,598	173,867,354	214,804,753	129,104,930	285,000,000	313,692,210	239,452,150	289,214,850	306,852,710	252,664,170
Oas, yield per acre—bushels	29	40	25	28	24	48	26	30	32.5	34.5	31.7
Oats, total product—bushels	80,002,735	115,810,800	83,485,150	100,742,852	107,691,460	201,600,000	73,450,000	132,571,155	139,915,346	140,647,309	117,591,714
Barley, total product—bushels	3,664,368	4,528,669	14,019,072	11,437,666	8,635,604	18,678,000	15,881,618	14,076,850	14,138,346	14,719,311	11,781,680
Rye, total product—bushels	1,608,960	2,051,400	1,536,270	1,785,202	1,624,073	2,014,000	1,891,716	3,490,344	3,852,561	2,061,169	2,148,868
Flax, total product—bushels	2,979,081	3,154,016	5,188,104	2,263,861	1,371,165	2,310,000	1,946,720	2,498,000	2,376,604	1,597,797	2,563,113
Potatoes, total product—bushels	8,332,332	25,620,350	8,729,160	6,172,257	7,869,321	21,200,000	14,814,795	10,051,919	12,233,411	15,252,934	13,058,149
Hay (tame) total product—tons	4,991,335	5,582,890	6,288,200	4,569,341	1,901,038	2,610,000	3,376,440	3,362,287	3,852,560	3,852,940	4,038,033
Corn and small grain—bushels	343,992,190	485,008,467	280,472,798	340,472,798	256,526,373	521,638,000	415,314,231	404,203,553	469,172,371	483,717,957	400,051,870
Total value of farm products	\$204,375,000	\$207,841,000	\$175,727,940	\$161,207,464	\$137,804,000	\$168,235,426	\$133,664,628	\$151,084,069	\$187,455,376	\$194,605,706	\$172,350,250

—Below zero.

IOWA'S CLIMATE AND CROPS FOR THE DECADE 1900-1910

	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	Average for Decade	Average for Preceding Decade
Annual mean temperature—degrees.....	49.3	49.1	47.7	47.2	46.3	47.2	48.4	47.4	49.5	47.4	48.0	47.4
Highest temperature and date—degrees.....	Aug. 3, 103	July 22, 113	July 30, 98	Aug. 24, 101	July 17, 100	Aug. 11, 104	July 21, 102	July 5, 102	Aug. 3, 101	Aug. 15, 103	102.7	105.2
Lowest temperature and date—degrees.....	Feb. 15, -27	Dec. 15, -31	Jan. 27, -31	Dec. 13, -27	Jan. 27, -32	Feb. 2, -41	Feb. 10, -32	Feb. 5, -31	Jan. 29, -18	Feb. 15 & 27, -26	-29.6	-30.9
Mean temperature—April.....	52.2	49.9	48.2	49.8	44.1	47.5	52.5	41.5	50.5	43.8	48.0	49.8
Mean temperature—May.....	63.2	60.7	63.8	61.6	59.6	58.3	60.8	53.5	59.4	57.9	60.0	59.4
Mean temperature—June.....	69.7	72.3	65.2	64.6	67.1	69.9	67.9	66.5	67.1	69.1	67.9	70.5
Mean temperature—July.....	73.4	82.4	73.1	72.9	70.6	70.6	70.9	73.7	73.0	72.3	73.3	73.6
Mean temperature—Aug.....	77.4	73.8	69.1	69.1	69.1	74.3	74.1	71.1	70.0	76.1	72.4	71.1
Mean temperature—Sept.....	64.4	63.3	59.1	60.8	64.0	65.8	67.2	62.8	67.9	62.4	63.8	64.5
Average temperature for six crop months.....	66.7	67.1	63.1	63.1	62.4	64.4	65.6	61.5	64.6	63.6	64.2	64.6
Average temperature for three summer months.....	73.5	76.2	69.2	68.9	68.9	71.6	71.0	70.4	70.0	72.5	71.2	71.7
Precipitation Data—												
Average annual precipitation—inches.....	35.05	24.41	43.82	35.39	28.51	36.56	31.60	31.61	35.26	39.99	34.22	30.11
Rainfall in April.....	2.67	1.79	1.71	2.98	3.63	3.03	2.42	1.32	2.24	4.58	2.64	3.39
Rainfall in May.....	3.31	2.35	5.39	8.55	3.78	5.95	3.54	3.48	8.34	4.34	4.90	4.35
Rainfall in June.....	3.98	3.71	7.16	2.86	3.45	5.53	3.92	5.35	5.66	6.41	5.09	4.59
Rainfall in July.....	6.15	2.34	8.67	4.83	4.41	2.91	3.04	7.27	3.66	4.75	4.80	3.50
Rainfall in August.....	4.65	1.29	6.58	6.64	3.43	4.05	3.95	4.33	4.77	1.81	4.15	3.07
Rainfall in September.....	4.98	4.77	4.35	3.81	2.78	3.81	4.16	2.75	1.20	3.58	3.62	2.45
Rainfall for six crop months.....	25.74	16.25	33.86	29.67	21.48	25.28	21.03	24.50	25.87	25.47	24.92	21.36
Rainfall for three summer months.....	14.78	7.34	22.41	14.33	11.29	12.49	10.91	16.95	14.09	12.97	13.76	11.16
Staple farm crops for decade—												
Spring wheat, yield per acre—bushels.....	14.3	15.3	13.0	12.6	9.1	14.4	14.0	13.0	15.4	12.5	13.4	*14.0
Spring wheat, total yield—bushels.....	20,280,280	17,429,230	12,680,800	9,481,350	7,080,430	5,155,760	5,603,880	4,402,320	4,968,250	3,809,460	9,089,176	*15,660,000
Winter wheat, yield per acre—bushels.....	13.3	17.6	18.0	16.9	14.3	20.2	23.0	19.8	19.7	18.2	18.1	.....
Winter wheat, total yield—bushels.....	1,018,070	865,770	852,045	1,435,380	1,017,000	1,253,020	1,566,050	1,698,101	1,678,540	3,621,953	1,500,593	.....
Corn, yield per acre—bushels.....	40.3	26.2	34.0	31.0	36.0	37.2	41.0	29.6	35.9	34.0	34.5	32.2
Corn, total product—bushels.....	345,055,040	227,905,850	296,950,230	230,511,310	323,853,330	345,871,840	388,348,920	246,898,460	301,873,150	308,036,868	301,530,800	252,664,170
Oats, yield per acre—bushels.....	34.7	32.1	31.0	25.9	29.4	37.2	34.0	24.5	25.5	27.0	30.1	31.7
Oats, total product—bushels.....	138,832,330	114,883,530	92,937,960	99,012,660	118,435,570	146,439,240	142,036,550	111,190,400	112,830,490	117,083,850	119,368,261	117,591,714
Barley, total product—bushels.....	12,695,200	*4,654,410	15,380,900	12,179,790	12,317,710	15,566,770	14,858,830	9,893,330	10,629,660	10,352,040	12,852,864	11,781,680
Rye, total product—bushels.....	1,621,630	859,630	832,830	1,923,060	1,517,090	1,283,500	1,093,160	900,060	869,072	556,846	1,135,688	2,148,868
Flax, total product—bushels.....	1,222,980	916,890	755,350	855,160	591,140	173,770	205,280	461,960	461,580	173,650	531,776	2,563,112
Potatoes, total product—bushels.....	10,850,900	5,098,460	12,051,670	6,082,694	14,255,680	9,352,190	11,697,500	9,847,430	10,658,290	12,427,595	10,232,241	13,058,149
Hay (tame and wild), total product—tons.....	4,762,060	4,980,380	5,642,800	6,407,749	5,190,680	7,790,610	6,003,640	6,290,468	7,284,620	6,311,874	6,066,488	4,038,033
Corn and small grain—bushels.....	519,502,550	376,601,420	419,634,765	351,543,550	464,221,130	515,570,130	553,507,420	374,982,671	432,849,162	443,461,017	445,487,382	400,051,870
Total value of farm products.....	\$229,805,058	\$274,080,934	\$215,722,339	\$256,413,704	\$291,207,258	\$302,286,212	\$330,495,421	\$322,715,905	\$376,076,646	\$357,419,615	\$295,622,309	\$172,350,250

*Both spring and winter wheat.

CLIMATOLOGICAL DATA FOR THE YEAR 1910.

STATIONS	COUNTIES	Elevation, feet	Length of record, years	TEMPERATURE, IN DEGREES, FAHR.					PRECIPITATION, IN INCHES					SKY				Prevailing direction of wind		
				Mean	Highest	Date	Lowest	Date	Length of record, years	Totals for the year	Greatest monthly	Month	Least monthly	Month	Total snowfall (unmelted)	Number rainy days	Number clear days		Number partly cloudy days	Number cloudy days
Afton	Union	1,212	17	50.5	99	June 18*	-13	Jan. 6	17	24.98	7.43	Sept.	T	Mar.	21.3	56				sw
Albia	Monroe	959	13	49.5	99	July 25	-19	Jan. 6*	13	16.30	3.99	May	0.30	Oct. and Dec.	12.5	72	196	77	92	sw
Algona	Kossuth	1,213	37	47.0	96	July 16	-22	Jan. 6	8	25.2	3.55	June	0.21	Mar.	12.3	54				
Allerton	Wayne	9	9	51.0	98	Aug. 23	-19	Jan. 6	9		6.00	May								nw
Alta	Buena Vista	1,513	20	46.6	93	Aug. 1	-18	Jan. 6	20	17.53	3.08	Aug.	0.05	Mar.	24.2	80	166	139	60	nw
Alta (near)	Buena Vista							Jan. 6	16	18.65	3.67	Aug.	T	Mar.	21.4	74				nw
Alton	Sioux	1,305	6	47.2	98	Aug. 1	-29	Jan. 6	6	17.42	4.43	Aug.	0.02	Mar.	20.5	58	204	91	70	nw
Amana	Iowa	721	33	48.7	99	July 16	-26	Jan. 7	35	24.75	7.50	Aug.	0.21	Dec.	16.6	83	183	103	79	nw
Ames	Story	926	31	48.6	98	Aug. 24	-23	Jan. 6*	35	18.65	4.63	Sept.	0.12	Nov.	15.2	53				s
Atlantic	Cass	1,164	20	50.1	98	July 27	-24	Jan. 6	19	24.52	11.22	Aug.	T	Mar.	12.0	67	117	89	159	nw
Audubon	Audubon	1,301	17		97	June 19	-17	Jan. 6	17		7.85	Aug.	0.00	Mar.						
Baxter	Jasper	998	11	49.3	99	July 1	-21	Jan. 6	11	20.49	3.89	Sept.	0.19	Feb.	21.7	94	197	95	73	nw
Bedford	Taylor	11	50.9	106	July 27	-26	Jan. 6	11	18.48	4.17	May	0.05	Mar.	23.8	72	204	72	89	nw	
Belle Plaine	Benton	828	21	48.5	99	July 16	-21	Jan. 6*	21	18.77	3.47	Sept.	0.07	Dec.	39.2	71	184	88	93	nw
Belmond	Wright			46.4	95	July 16	-25	Jan. 6		20.38	3.58	Aug.	0.22	Feb.	24.9	84	88	212	65	nw
Bloomfield	Davis		4					Jan. 6*	4											
Bonaparte	Van Buren	20	50.8	100	July 24	-17	Jan. 6	20	21.14	4.52	May	0.53	Nov.	14.1	61					
Boone	Boone	1,134	6	48.5	98	June 18*		Jan. 6*	6	19.62	4.95	Sept.	0.21	Dec.	9.0	66				
Brit	Hancock	1,236	14	45.8	94	June 20		Jan. 6	14	15.12	4.02	June	0.10	Feb.	17.4	64	207	95	63	s
Buckingham	Tama								11	18.00	4.33	Aug.	T	Mar.		55				
Burlington	Des Moines	544	13	51.1	101	June 24	-11	Jan. 6	15	27.99	4.86	April	0.43	Aug.	25.0	89	223	44	98	sw
Carroll	Carroll	1,265	21	47.4	97	June 17	-19	Jan. 5	21	22.21	7.92	Aug.	T	Nov.	9.0	47	172	86	107	nw
Cedar Rapids	Linn	733	29	48.4	100	June 30*		Jan. 7	29	18.74	6.10	Aug.	T	Mar.	17.7	55	216	37	112	w
Centerville	Appanoose								1		5.87	May	0.07	Dec.						
Chariton	Lucas	1,042	16	50.2	99	July 24	-22	Jan. 6	16	13.77	5.07	May	T	Mar.						
Charles City	Floyd	1,015	20	45.4	98	July 16	-32	Jan. 6	20	15.89	5.84	Aug.	0.18	Nov.	17.0	38				se
Clarinda	Page	1,009	21	48.6	101	July 27	-22	Jan. 7	21	22.71	6.20	May	0.00	Mar.	44.6	80	112	107	146	nw
Clear Lake	Cerro Gordo	1,241	13	47.2	99	June 20	-26	Jan. 6	13	12.11	3.23	Aug.	0.10	Feb. and Mar.	17.5	72	195	54	116	ne
Clinton	Clinton	593	43		102	June 30	-20	Jan. 7	44	22.92	5.46	Sept.	0.35	Mar.	16.0	31				nw
Columbus Jct.	Louisa	595	10	50.7	96	July 24	-16	Jan. 6	10	26.55	5.26	May	0.30	Mar.	26.2	83				nw
Corning	Adams	1,117	19	49.3	96	July 17*	-26	Jan. 6	19	21.52	4.90	May	T	Mar.	15.4	77	236	68	61	nw
Corydon	Wayne	1,101	18	50.8	99	Aug. 22														nw
Creston	Union	1,312	6	49.0	99	July 25	-19	Jan. 6	18	16.78	4.73	May	0.14	Oct.	9.9	64				nw
Cumberland	Cass							Jan. 6	6	24.17	6.23	Sept.	0.04	Mar.		69	190	44	131	nw
Davenport	Scott	606	39	50.4	99	June 30	-13	Jan. 6	40	21.94	4.31	Aug.	T	Mar.						
Decorah	Winneshiek	875	13	47.1	105	June 29		Jan. 7	18	18.51	4.08	Aug.	0.05	Nov.	14.6	93	186	79	100	nw
Delaware	Delaware		20	47.3	98	July 15	-23							Mar. and June	38.0	50				
Denison	Crawford	1,180	17	48.6	97	July 16	-23	Jan. 6*	20	19.98	5.30	May	0.21	Mar.	31.5	81	197	106	62	nw
Des Moines	Polk	861	32	50.3	97	Aug. 22	-14	Jan. 7	32	18.24	3.82	Aug.	T	Mar.						n&s
De Soto	Dallas	866	11		100	July 16	-21	Jan. 6*	11		3.96	Sept.	T	Mar.	17.8	80	126	101	138	nw
Dubuque	Dubuque	639	38	48.7	98	June 30		Jan. 7	38	21.86	3.96	Aug.	0.14	Mar.	41.2	94	164	89	112	nw
Earlham	Madison		9					Jan. 6	9	21.69	5.02	Sept.	T	Mar.	25.0	57				nw
Elkader	Clayton	727	30	48.1	103	July 16	-35	Jan. 7	32	22.28	5.14	Sept.	0.02	Mar.	52.5	63	231	76	58	
Elliott	Montgomery		6	50.4	97	July 27	-31	Jan. 6	6	22.44	8.70	Aug.	T	Mar.	14.5	55	201	128	36	nw
Elma	Howard		2	45.2	99	July 16	-34	Jan. 7	2	13.65	4.40	Aug.	0.02	Mar.		76	183	111	71	se&nw
Estherville	Emmet	1,298	16	44.9	95	Aug. 21	-21	Jan. 9	16	18.16	5.51	June	0.07	Mar.	23.5	66				s
Fairfield	Jefferson	780	19	50.3	100	July 24	-23	Jan. 7	27	20.83	3.75	May	0.48	Nov.	11.9	91				nw
Fayette	Fayette		21	46.0	101	July 16	-32	Jan. 7	21	22.42	4.81	Sept.	0.10	Mar.	52.0	67				nw
Forest City	Winnebago	1,226	17	45.7	96	July 16	-23	Jan. 9	17	16.27	2.75	Aug.	T	Nov.	11.1	55	209	65	91	w
Fort Dodge	Webster	1,126	11		98	June 20	-22	Jan. 9	11		5.21	Aug.								
Fort Madison	Lee		52						62	26.14	6.32	May	0.70	Nov.	33.0	48	130	92	143	s
Gilman	Marshall								18		5.41	Sept.								
Grand Meadow	Clayton	1,180	20	45.8	92	July 16	-25	Jan. 7	20	22.87	4.81	Sept.	0.01	Mar.	44.6	68	149	126	90	nw
Greene	Butler		13	47.5	106	July 16	-23	Jan. 6*	13	16.35	5.78	Aug.	0.17	Nov.	30.0	71	92	156	117	w
Greenfield	Adair			49.0	96	July 16		Jan. 6		25.79	5.90	Aug.	T	Mar.		56	194	123	48	nw
Grinnell	Poweshiek	1,023	19	51.1	100	July 24	-19	Jan. 6	19	20.65	4.50	Sept.	0.15	Feb.	21.3	72	187	108	70	w
Grundy Center	Grundy	976	20	48.2	98	July 16	-24	Jan. 7*	20	20.77	4.92	Aug.	0.02	Mar.	31.1	50				nw
Guthrie Center	Guthrie	1,077	16	49.5	98	June 18	-21	Jan. 6	16	23.68	6.11	Aug.	0.01	Mar.	19.8	80	218	67	80	nw
Hampton	Franklin	1,155	21	48.0	100	June 20	-20	Jan. 6	21	17.71	5.40	Aug.	0.31	Nov.	35.1	66	137	137	91	nw
Hancock	Pottawatomie	1,113	6					Jan. 6	6											
Harlan	Shelby	1,192	12	48.7	97	June 18*		Jan. 6	12	20.96	9.58	Aug.	T	Mar.	18.4	65	134	137	94	s
Hopeville	Clarke		19	50.3	98	July 24	-20	Jan. 6	20	19.98	5.67	Sept.	T	Mar.		71	126	149	90	nw
Humboldt	Humboldt	1,095	20		96	April 28		Jan. 6	23	21.66	4.08	Sept.	0.08	Mar.	33.5	64	256	50	59	nw
Independence	Buchanan	921	47	47.3	98	June 24		Jan. 7	44	15.02	3.19	Sept.	0.00	Mar.	30.2	51	238	45	82	nw
Indianola	Warren	969	20	50.8	98	July 16	-30	Jan. 6	20	17.66	4.42	Sept.	0.32	Mar.	21.2	75				nw
Inwood	Lyon	1,474	7	46.7	99	Aug. 22	-13	Jan. 6	7	13.52	4.46	Aug.	0.02	Feb.	17.1	71	228	69	68	nw
Iowa City	Johnson	683	51	47.6	98	July 1*	-20	Jan. 6	48	22.96	4.93	Aug.	0.28	Mar.	16.0	79	216	23	123	nw

MONTHLY MAXIMUM TEMPERATURE FOR 1910, WITH DATES

Stations	January		February		March		April		May		June		July		August		September		October		November		December	
	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date	Max.	Date
Afton	44	25	57	14	84	23*	91	29	84	20	99	18*	94	16*	93	22	85	11*	81	2	63	7	47	14
Albia	47	19	52	1*	86	23	89	29	79	29	94	30	99	25	97	19	96	18	91	2	63	7	53	14
Algona	38	19	40	1	83	23	95	28	79	18	94	19*	96	16	94	1	96	17	87	11	53	7	51	14
Allerton	48	25	59	14	85	23	90	29	89	28	93	18*	97	24	98	23	92	18	88	16	67	8	52	14
Alta	40	19	43	1	85	23	95	28	79	18	95	20	92	16	94	1	87	7*	88	16	60	7	44	14*
Alton	38	19	42	1	86	23	95	28	84	18	97	19	97	17	98	1	87	17	86	2*	57	8	48	14
Amama	42	19	44	15	84	23	88	29	80	20	97	30	99	16	96	1	89	11	84	16	58	9	50	14
Ames	42	19	43	2	85	23	95	29	80	10	95	18	96	1*	98	24	90	11	87	2	60	7	54	14
Atlantic	44	19	53	14	87	23	94	28	83	20	98	18*	98	27	97	1*	88	17*	85	2	64	7*	46	26
Baxter	49	19	48	1	87	23	92	29	82	10	98	19	99	1	97	22	90	18	90	16	61	7	57	26
Bedford	48	19*	56	14	90	22	92	29	78	10*	97	20	103	27	104	22	98	18	87	2*	68	7	47	26
Belle Plaine	45	19	45	14	85	23	90	29	89	20	96	20	99	16	93	1	87	18	90	16	60	7	54	14
Belmond	37	19*	47	1	81	23	93	28	79	10	95	20*	95	16	95	24	86	17	85	2*	54	7	51	14
Bonaparte	46	19	56	15	87	23	89	29	81	21	95	26*	100	21	97	16	92	18	90	16	68	7	51	14
Boone	45	19	48	1	85	23	93	29	81	10	98	18*	97	1	98	1	89	30	89	16	62	7	52	14
Britt	36	19*	38	1	83	23	92	28	78	18	94	20	94	16	93	1	89	17	89	11	52	7	52	14
Burlington	45	11*	56	15	83	23	90	29	84	21	101	24	98	30	97	16	94	18	91	16	70	7	51	3*
Carroll	44	31	52	28	85	22	94	27	81	9	97	17	93	7*	94	21	86	20	85	1*	62	6	50	13
Cedar Rapids	45	19	48	15	87	23	90	29	81	28	100	30	100	1*	99	16	87	11	87	16	59	9	50	14
Chariton	45	25	55	14	83	23	89	29	80	20	94	20	99	21	98	23	93	18	88	2*	66	7	52	14
Charles City	41	19	37	1	83	23	92	29	76	18	96	28	98	16	94	24	86	17	85	11	52	7	50	14
Clarinda	40	25	57	14	92	22	94	28	80	28	97	21	101	27	96	24	95	18	88	2	63	7	48	26*
Clear Lake	38	20	40	1*	80	23*	84	27*	78	9*	99	20	96	16	95	1	97	7	88	16	55	7	44	14*
Columbus Junction	43	19	53	15	85	23	88	29	89	20	95	18*	96	24	93	2	89	18	89	16	62	9	45	17
Corning	44	26	45	1	84	23	93	28	81	28	96	18	96	17*	93	22	87	11*	88	2	65	7	46	27
Corydon	48	25	53	14	84	23	89	29	81	20	97	18	99	25	97	23	90	18	86	2	67	7	50	14
Creston	50	29	48	1	85	23	91	28*	80	21	95	18*	98	27	95	1*	99	15	86	2	65	7	48	14*
Davenport	45	19	52	15	84	23	87	29	79	29	99	30	97	24	94	22	81	18	88	16	63	9	48	11
Decorah	41	20	42	1	83	23	93	29	83	18*	105	29	105	15*	100	2	86	7*	83	18	51	7	44	14
Delaware	36	20	41	15	81	23*	83	29	80	20	97	30	98	16	95	2	85	11	80	16*	57	9*	42	14
Denison	43	19	45	28	86	23	95	28	79	10*	95	20*	94	1	97	1	85	17*	85	2*	62	7	48	14
Des Moines	48	19	49	14	83	23	92	29	78	10	95	18	97	16*	97	22	83	30	86	2	62	7	53	14
Dubuque	44	20	45	15	81	23	87	29	76	20	98	30	98	1	93	24	81	5	82	16	59	9	46	14
Elkader	46	19	42	1*	83	23	92	29	81	20	100	30	103	16	98	24	87	7	85	11*	64	25	49	13
Elliott	43	19*	52	14	87	26	93	28	79	20*	93	18*	97	27	94	1	87	7	87	2	67	7*	49	23
Elma	39	19	37	1	81	23	91	29	77	18	97	30	99	16	93	2	85	17	83	11	50	1*	48	14
Estherville	42	19	40	1	85	23	93	28	80	18	94	21	93	16*	95	21	88	17	88	11	53	8	50	14
Fairfield	50	19	55	14*	86	23	89	29	81	21	95	19*	100	24	95	16	86	18	84	15	63	9	50	11
Fayette	42	19	38	1*	84	23	93	29	77	20*	98	30	101	16	95	1*	85	7*	82	11*	54	7	45	14
Forest City	39	19	40	1	84	23	94	28	80	18	95	19*	96	16	94	1	89	17	89	11	50	7*	49	14
Grand Meadow	40	19	40	1	83	23	89	29	75	18	90	24*	92	16	91	24	81	7*	81	18	55	7	43	14
Greene	40	19	38	1*	81	23	95	29	83	27	103	19*	106	16	100	1	89	17	85	11	56	1	49	14
Greenfield	42	19	46	14	85	23	92	28	79	20	94	18*	96	16	93	1	87	17*	83	2	62	7	46	14*
Grippell	45	19	47	14	90	23	92	29	82	10	98	18*	100	24	100	22	96	18	92	16	61	7	53	14
Grundy Center	42	18	40	1*	84	21	95	29	81	10	97	20*	98	16	97	24	82	17	87	16	57	7	53	14
Guthrie Center	41	19	44	1	85	23	93	28	80	20	98	18	96	25	96	1	84	11	84	2	63	7	49	14*
Hampton	40	19	42	1	85	23	93	28	81	18	100	20	98	15	99	1	89	17	91	16	55	7	50	14
Harlan	44	19	45	14	83	23	94	28	81	20	97	18*	95	16	97	1	80	30	85	2	64	7	46	14
Hopeville	44	19*	54	14	85	23*	90	29	80	20	94	18*	98	24	96	22	99	11*	86	2	67	7	49	14*
Humboldt	40	19	41	1	85	23	96	28	81	18	95	18	95	16	96	1	87	17	88	11*	56	1	51	14
Independence	41	19	39	15	84	23	83	29	76	20*	98	24	98	16	93	2*	91	2	84	11*	57	1	48	14
Indianola	44	19	49	14	83	23	91	29	80	20	94	15*	98	25	98	22	88	11	85	2*	67	9	51	14
Inwood	42	19	43	1	87	23	99	28	85	18	93	18	95	1	94	2	93	17	93	10	58	7	51	14
Iowa City	47	19	47	15	87	23	83	29	78	20*	97	30	98	1*	93	1*	86	18	87	16	58	7	53	14
Iowa Falls	59	18	40	1	84	23	93	29	89	27	97	20	95	1*	93	24	85	7	83	2*	56	7	51	14
Keokuk	52	19	58	15	86	23	90	29	82	21	97	30	99	21	95	16	91	18	86	2	68	7	49	14*
Keosauqua	48	19	56	15	83	23	89	29	85	21	98	30	101	24	96	16	91	18	90	16	69	7	52	14
Knoxville	45	19*	53	14	85	23	90	29	83	20	96	22	97	24*	98	22	89	11*	85	2*	63	7	52	14
Lamoni	47	26	53	14	84	23	90	29	82	19*	95	18*	97	26*	95	22*	90	11	83	2	62	8	47	14*
Larrabee	39	19	42	1	84	23	96	28	82	18	94	18	92	16	94	1	85	17	84	2*	57	1*	47	14
Le Mars	37	19*	41	28	84	23	94	23	78	18	92	19*	89	21	90	1	83	7	83	2*	67	1	46	14
Lenox	43	25	49	14	84	23*	97	28*	80	20	94	18*	97	27	95	22	87	17*	83	2	65	7	46	26
Leon	45	25	52	14	84	23	90	29	81	20	95	23*	97	22	96	22	90	20	84	2	68	2	49	14
Little Sioux	47	19	50	1	90	19	93	28	82	10*	99	15*	97	16*	100	1	90	17*	87	2*	67	7	48	14*
Logan	46	19	48	28	87	25	95	28	85	20	99	19	99	27	99	1	89	17	84	16	74	27	47	16
Marshalltown	46	19	47	7	88	23	94	29	81	19	93	20*	98	16*	100	24	90	11*	91	16	63	7	55	14
Mason City	37	19*	39	1	82	23	91	28	77	18	94	24*	95	16	92	1	89	17	85	11	50	1*	48	14

IOWA WEATHER AND CROP SERVICE

MONTHLY MINIMUM TEMPERATURE FOR 1910, WITH DATES

STATIONS	January		February		March		April		May		June		July		August		September		October		November		December	
	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date	Min.	Date
Afton	-13	6	-12	23	21	10*	24	17	34	3*	46	1*	54	13	48	27	39	27	22	29	15	30	2	24
Albia	-19	6*	-10	23	20	10*	21	24	34	13	44	5	51	13	42	26	39	27	18	29	13	30	0	24*
Algona	-22	6	-15	23	20	10	21	24	34	13	44	5	51	13	42	26	39	27	15	29	10	30	-10	24
Allerton	-19	6	-10	23	21	15	23	24	36	4*	45	5	54	13*	44	26	38	27	16	29	14	17	-1	24
Alta	-18	6	-15	23	23	8*	19	17	29	3	39	5	52	13	45	26	33	27	20	29	9	30	-5	24
Alton	-29	6	-15	17	22	6*	20	17	23	3	38	5*	50	13	39	26	31	27	18	29	9	30	-5	24
Amana	-26	7	-9	23	21	10	23	24	37	4	39	7	48	19	45	26	39	10	18	29	13	30	-4	24
Ames	-23	6*	-10	23*	21	10	20	17	30	7	40	7	49	13	40	26	34	10	15	29	12	17*	-8	24
Atlantic	-24	6	-12	23	21	15	23	17	31	3*	44	5	48	13	44	23	34	27	10	29	15	16*	-1	24
Baxter	-21	6	-11	23	19	10	19	17	30	4	40	7	49	13	42	23	35	27	15	29	11	9	-3	8
Redford	-26	6	-11	23	17	10	22	23	29	13	43	5	48	7*	37	26	31	27	14	29	11	9	-3	8
Belle Plaine	-21	6*	-10	23	19	15	22	24	31	4	40	7	48	13	42	26	36	10	15	29	12	3*	-7	23
Belmond	-25	6	-18	17	21	10*	21	17	25	3	41	7	50	13	40	26	36	27	15	29	9	30	-11	24
Bonaparte	-17	6	-12	23	20	15	23	24	35	4*	43	3	52	19	42	26	38	10	15	29	11	3	0	13*
Boone	-16	6*	-11	23	20	1	20	17	32	3	42	4	54	13	46	26	38	10	15	29	11	3	0	13*
Britt	-26	6	-17	10*	19	10	20	17	25	3	32	7	49	13	40	26	37	27	20	29	12	30	-4	24*
Burlington	-11	6	-10	23	21	15	22	24	35	5	55	13*	44	3*	45	29	42	27*	22	30	12	30	-14	24
Carroll	-19	5	-13	22	21	9	20	16*	27	3	39	5	48	12	42	25	31	23	20	28	6	30	-6	23
Cedar Rapids	-27	7	-9	23	14	1	24	21	35	4*	43	7	53	19	48	26*	42	10*	20	30	16	30	-5	25
Chariton	-22	6	-12	23	19	15	23	17	32	13	44	2*	50	12	40	26	37	27	13	29	12	17	-1	24
Charles City	-32	6	-17	10	18	8	22	17	28	14	38	7	48	13	43	23	39	28	16	29	10	30	-12	24
Clarinda	-22	7	-10	23	19	15	24	17	33	13	44	5	49	13	41	26	34	27	21	29	11	19	2	8
Clear Lake	-26	6	-19	10	20	8*	22	17	28	3	39	7	52	18	50	26*	38	8*	22	29	8	30	-10	24
Columbus Junction	-16	6	-9	23	22	15	23	23*	34	5	40	7	53	19	47	26	41	27	21	29	11	3	0	24
Corning	-26	6	-12	23	20	11	23	17*	31	13	39	5	47	13	39	26	33	27	18	29	10	16	-4	8
Corydon	-19	6	-11	23	22	10	24	24	34	12	45	1*	54	13*	47	26	37	27	18	29	14	30	-3	12
Creston	-25	6	-12	23	19	15	24	17*	31	13	44	5	50	13	41	26	31	27	29	13	30	1	24*	
Davenport	-13	6	-8	23	24	15	22	23	38	5	43	2	56	18	50	26	45	27	24	29	14	30	-1	24
Decorah	-28	7	-14	18*	15	8*	20	17*	28	4	38	7	48	11*	45	6	35	10	18	29	9	3	-8	30
Delaware	-23	6*	-14	10*	17	8	21	24	31	3	40	3	52	18*	45	26	40	10*	18	29	12	30	-10	24
Denison	-26	6	-14	23	23	10	21	18	27	13	39	6	45	13	42	26	33	27	19	29	11	29	-7	24
Des Moines	-14	7	-9	23	24	15	22	17	35	13	46	2	54	13	45	26	38	27	20	29	15	30	0	24
Dubuque	-25	7	-11	23	20	10	22	23	36	4	43	7	54	19	48	33	41	10	24	23	16	30	-2	24
Elkader	-35	7	-15	18	15	8*	21	23	28	4*	37	6	45	19	41	23	35	19	31	20	20	30	-9	24
Elliott	-31	6	-11	23	21	11	26	23	31	13	42	5	50	13	45	23	33	27	21	29	13	16	-1	8
Elma	-34	7	-20	17*	14	8*	20	17	24	4	34	7	51	13	42	5	34	10*	21	29	9	29*	-13	24
Estherville	-21	9	-15	23	12	1	20	17	24	3	38	7	50	13	42	26*	35	10	15	29	9	30	-10	24
Fairfield	-23	7	-10	24	20	15	10	23	33	4	41	3*	49	19	45	27	37	10	16	29	14	3*	-1	13
Fayette	-32	7	-17	10	18	10	20	17*	27	4	33	7	46	13	40	26	34	10	11	29	11	3*	-11	24
Forest City	-23	9	-17	10	20	1	19	17	26	3	41	2	51	13*	41	23	36	9*	16	29	12	12*	-11	24
Grand Meadow	-25	7	-17	23	15	8	20	17*	27	4	40	3*	50	10	45	26	39	10	19	29	10	30	-9	24
Greene	-26	6*	-16	10	19	8	22	17	27	3	38	7	49	13	43	23	37	10	15	29	10	30	-9	24
Greenfield	-19	6	-13	23	21	10	22	17	31	4	43	5	52	10	44	25	34	27	20	29	13	16*	-2	24
Grinnell	-20	6	-4	23	26	10*	28	17	38	2	45	7	52	13*	42	26	37	27	18	29	13	30	-6	24
Grundy Center	-24	7*	-12	23	22	10*	20	17	28	4	39	7	47	13*	43	26	35	10	19	29	12	30	-9	24
Guthrie Center	-21	6	-13	23	20	10*	22	17	28	4	42	5	46	13	44	26	34	27	20	29	11	3*	-4	24
Hampton	-20	6	-13	17*	21	10	20	17	28	3	40	7	51	11*	44	26	38	27	21	29	10	30	-9	24
Harlan	-27	6	-14	23	20	15	22	17	29	3*	38	5	47	13	43	26	32	27	18	29	12	16	-5	24
Hopeville	-20	6	-12	23	22	10	24	17	35	4*	45	5	51	13*	44	26	36	27	18	29	13	16	0	24
Humboldt	-28	6	-14	17*	22	8	22	17	33	3	38	7	48	13	40	26	34	25	17	29	10	29	-11	24
Independence	-30	7	-13	23	19	8	20	17	29	4	39	7	49	19	42	26	39	10*	15	29	11	22	-9	24
Indianola	-13	6	-10	23	24	10*	23	17	34	3	46	5	54	13*	46	23	38	27	19	29	15	30	-1	24
Inwood	-30	6	-21	17	19	14	20	6*	20	3	30	6	48	12	42	31	31	27	17	29	6	28*	-10	24
Iowa City	-26	6	-9	23	16	1	22	18	33	4*	37	7	48	19	44	26	36	10	16	29	9	30	-7	24
Iowa Falls	-30	6	-15	10*	14	1	19	17	28	4	38	7	46	13	40	26	34	10	15	29	10	29	-11	24
Keokuk	-8	6	-6	23	24	15	23	24	37	5	45	3	57	19	48	26	43	27	22	29	18	30	4	24
Keosauqua	-22	6*	-10	23*	13	15*	24	24	34	4	40	3	48	19	44	26	37	10	16	29	12	3*	-2	13*
Knoxville	-14	6	-9	23	23	10*	24	17	35	4	45	3	52	19	44	26	39	27	20	29	15	30	0	24
Lamoni	-16	6	-10	23	21	2*	24	17*	35	4	45	5	53	19	44	26*	33	27	16	29	15	30	2	24
Larrabee	-23	6	-15	17*	20	14*	20	17	26	3	36	6	50	13	41	26	33	27	29	28	8	11*	-9	24
Le Mars	-19	6	-13	23	24	10*	20	17	23	3	33	5	52	12	42	26	35	27	23	28*	10	29*	-5	24
Lenox	-16	6	-12	23	21	10	23	17	35	3*	43	5	54	7*	43	26	34	27	19	29	14	16*	1	8
Leon	-19	6	-12	23	22	10*	25	17*	35	4	44	3	56	14	45	26	36	27	18	29	14	18	0	24
Little Sioux	-28	6	-17	23	19	14	21	17	26	3	38	1*	50	7	44	26	33	27	10	29	9	30	-6	24
Logan	-24	6	-12	23	21	5*	22	17	29	3*	41	5	48	13	42	26	37	27	22	29	15	16*	-6	24
Marshalltown	-22	7*	-10	23	19	1	20	17	30	4*	40	7*	48	13	43	23	35	10	16	29	10	17	-6	24*
Mason City	-26	7	-15	10*	19	10	20	17	24	3*	36	7	46	13	40	26	35	10	16	29	10	17	-6	24*
Mt. Ayr	-15	6	-10	23	23	10	24	17	36	3*	46	5	56	10*	47	26*	37	27	23	29	15			

MONTHLY REVIEW OF THE

MEAN MONTHLY AND ANNUAL TEMPERATURES WITH DEPARTURES FROM THE NORMAL FOR 1910

STATIONS	Jan.		Feb.		March		April		May		June		July		Aug.		Sept.		Oct.		Nov.		Dec.		Annual	
	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.	Temp.	Dept.
Afton	22.0	-0.7	21.2	-0.8	51.8	+15.3	53.5	+3.1	53.4	-5.0	70.1	-0.7	74.9	-0.3	72.5	-1.1	64.0	-1.1	55.5	+2.2	36.8	0.0	27.0	+1.3	50.5	+1.0
Albia	20.4	-3.3	20.4	+0.1	50.5	+12.9	50.8	+1.2	55.4	-5.6	68.7	-0.9	75.0	+0.8	72.6	-0.8	65.6	+0.8	57.7	+4.5	33.2	-5.5	24.2	-0.8	49.5	+0.2
Algona	14.4	+1.1	14.6	-2.4	47.0	+17.4	52.2	+6.0	51.5	-5.0	69.2	+0.7	74.0	+0.6	70.6	-0.3	61.8	-0.1	53.2	+4.5	30.6	-2.2	21.4	+1.3	47.0	+1.8
Allerton	23.2	+1.3	23.2	+1.5	51.9	+13.7	53.2	+2.9	59.2	-1.8	69.4	+1.3	74.9	+2.3	73.0	+0.1	65.8	+0.5	57.4	+3.2	37.0	-3.6	26.8	+0.3	51.0	+1.5
Alta	14.8	-1.6	12.8	-4.8	48.6	+18.0	51.2	+4.5	53.8	-4.2	68.8	+1.2	72.2	+0.3	69.8	-0.7	61.0	-1.9	54.0	+3.7	31.6	-0.9	21.0	-0.4	46.6	+1.1
Amana	18.3	+2.0	19.4	-0.7	48.4	+15.9	52.3	+3.7	50.4	-3.6	69.1	-0.3	76.0	+2.3	72.0	+1.1	63.4	+0.9	53.9	+4.0	32.1	-1.7	23.6	+1.0	48.7	+2.0
Ames	17.2	-0.3	16.1	-5.1	48.9	+15.4	53.6	+4.5	55.6	-3.9	68.8	-0.6	73.6	-0.7	72.4	+0.2	63.5	0.0	55.0	+4.0	33.6	-0.5	24.4	+1.8	48.6	+1.3
Atlantic	19.9	-0.5	20.5	-0.3	51.3	+16.0	53.9	+5.2	56.3	-3.1	70.4	+1.3	75.4	+2.2	73.2	+1.9	64.4	0.0	55.8	+4.2	35.4	0.0	25.2	+0.3	50.1	+2.3
Audubon	20.0	+1.1	19.5	+0.4	50.2	+16.0	52.8	+4.0	55.0	-1.4	69.2	+1.1	72.8	+0.7	70.8	-1.0	62.4	-0.8	54.8	+3.9	34.9	-0.3	24.7	+0.8	49.3	+1.4
Baxter	18.6	-1.7	19.4	+1.3	49.8	+13.2	52.8	+4.0	56.0	-1.4	69.5	+1.9	74.1	+0.9	72.3	+0.4	64.2	+1.2	57.2	+4.0	33.5	-3.8	24.2	0.0	49.3	+1.4
Bedford	21.5	-2.3	23.4	+2.7	52.2	+15.5	53.6	+4.3	51.6	-6.4	69.3	+1.0	76.2	+2.8	74.2	+0.3	65.3	+1.7	56.8	+2.5	37.0	+1.6	25.8	+0.1	50.9	+2.0
Belle Plaine	18.2	0.0	19.9	-0.3	48.8	+15.4	52.2	+3.3	55.4	-1.1	69.0	-0.1	75.1	+2.3	71.5	+0.7	62.8	-0.8	54.8	+4.4	31.9	-3.0	22.5	-1.2	48.5	+1.1
Bonaparte	23.0	-0.2	23.1	+0.3	51.2	+13.2	52.5	+2.3	56.7	-5.6	69.4	-1.8	75.4	-0.1	73.0	-1.3	65.5	-1.9	57.9	+2.9	35.6	-2.9	26.2	-1.7	50.8	+0.3
Britt	12.8	-3.2	12.0	-4.5	45.1	+14.0	51.3	+5.6	53.2	-1.8	67.8	+0.7	71.4	-0.4	69.6	-0.4	62.0	+0.3	53.4	+3.1	29.8	-3.8	20.8	+1.7	45.8	+0.7
Burlington	22.4	-4.6	22.6	-1.1	51.2	+11.4	52.4	+0.9	57.8	-6.0	76.4	+0.7	71.2	+1.0	74.2	+0.1	65.6	-0.6	58.7	+3.0	35.0	-4.7	25.5	-1.6	51.1	-0.1
Carroll	17.9	-1.1	18.3	-0.6	49.0	+10.3	50.2	+2.1	53.2	-5.7	68.6	0.0	72.5	-0.5	69.5	-1.6	60.8	-2.2	54.3	+3.3	31.0	-1.2	23.6	-0.2	47.4	+0.6
Cedar Rapids	16.2	-2.0	17.3	-2.8	47.0	+13.4	51.4	+1.7	57.0	-3.0	71.3	+1.0	76.8	+2.1	73.0	+0.3	63.2	-0.8	54.6	+3.2	31.4	-4.5	21.9	-3.1	48.4	+0.4
Chariton	21.4	-2.3	22.0	-0.2	50.9	+14.1	52.8	+6.3	55.6	-5.7	68.4	-0.8	74.2	+0.4	73.2	+0.1	65.6	+0.1	56.7	+2.5	36.0	-2.7	25.8	-0.5	50.2	+0.9
Charles City	11.8	+0.4	11.0	-4.1	44.4	+16.0	50.2	+3.9	53.9	-5.6	68.9	+0.1	73.2	-0.3	69.8	-0.9	61.0	-0.7	52.4	+4.2	29.2	-3.8	19.4	+0.4	45.4	+0.8
Clarinda	20.4	-2.1	21.5	-1.1	50.8	+14.7	52.2	+1.3	55.3	-4.9	68.4	-2.6	73.4	-2.1	69.6	-1.6	60.3	-5.9	54.0	0.0	33.8	-4.0	23.4	-3.2	48.6	-1.3
Clear Lake	14.0	-2.9	14.0	-0.6	45.1	+13.4	52.3	+5.3	55.2	-4.5	69.8	+1.6	74.6	+1.4	72.0	+0.3	62.0	-0.2	55.0	+3.2	31.4	-2.7	21.4	+1.0	47.2	+1.3
Clinton	20.5	+0.8	20.3	-1.5	52.6	+11.6	53.8	+4.1	57.6	-4.6	70.2	+1.5	75.8	+0.2	73.1	+0.7	65.2	-0.3	57.0	+2.6	34.6	-4.4	24.8	-1.8	50.7	+0.9
Columbus Junction	22.8	-0.5	22.8	+1.4	50.6	+11.6	53.8	+4.1	57.6	-4.6	70.2	+1.5	75.8	+0.2	73.1	+0.7	65.2	-0.3	57.0	+2.6	34.6	-4.4	24.8	-1.8	50.7	+0.9
Corning	19.9	-2.0	23.0	-1.9	49.4	+13.0	52.6	+2.8	55.4	-5.0	69.0	-0.5	74.2	+0.6	71.8	-0.7	63.2	-1.6	55.4	+2.1	36.1	-1.1	24.3	-2.8	49.3	+0.3
Corydon	22.7	-0.6	21.5	-0.7	51.0	+13.7	53.1	+2.1	56.8	-4.5	70.8	+0.9	75.8	+1.0	74.8	+0.4	65.6	-0.7	53.8	+2.0	35.4	-3.3	25.8	-0.9	50.8	+0.8
Davenport	21.2	+0.4	21.0	-2.8	49.9	+14.5	52.0	+1.8	57.2	-4.3	71.5	+0.6	77.0	+1.6	74.0	+1.0	65.4	+0.7	57.1	+4.5	33.8	-3.7	25.1	-2.1	50.4	+1.0
Decorah	14.3	-1.2	14.0	-1.3	44.4	+12.8	51.3	+3.6	56.3	-2.9	71.4	+4.0	76.6	+4.6	72.0	+2.7	62.1	0.0	52.0	+1.8	29.4	-4.1	20.1	-0.9	47.1	+1.6
Delaware	15.7	-0.1	15.5	-0.8	45.6	+14.0	52.0	+6.2	54.4	-3.9	69.2	+1.4	76.0	+4.1	72.6	+3.0	62.2	+0.4	52.8	+3.8	30.4	-2.4	20.8	-0.6	47.3	+2.1
Denison	18.4	-1.9	18.2	-0.9	50.0	+16.3	52.6	+4.5	54.3	-5.0	68.6	+0.8	72.8	+0.1	71.6	-0.3	62.6	-1.1	55.1	+4.3	34.3	-1.3	24.3	-0.8	48.6	+1.4
Des Moines	20.5	+0.1	20.2	-3.9	51.4	+15.7	53.2	+2.6	56.7	-4.9	70.6	+0.2	75.6	+0.1	73.4	+0.4	64.4	-0.6	56.4	+3.9	35.4	-1.4	26.0	+0.3	50.3	+1.0
De Soto	19.5	-3.7	20.6	+0.2	52.0	+14.4	53.6	+3.9	58.7	-5.2	69.4	+0.4	75.0	+2.1	73.4	+0.4	64.4	-0.6	56.4	+3.9	35.4	-1.4	26.0	+0.3	50.3	+1.0
Dubuque	18.4	+0.1	18.0	-3.6	47.8	+14.6	51.4	+2.5	56.2	-4.6	70.0	+0.4	76.0	+1.3	72.8	+0.8	62.8	-0.8	55.0	+3.0	32.4	-3.6	23.2	-1.3	48.7	+0.8
Earlham	19.4	0.0	20.2	+2.2	54.2	+20.0	53.0	+5.2	55.0	-5.0	68.0	+2.8	74.2	+4.2	72.2	+0.2	65.0	+2.9	56.0	+4.9	35.1	-2.7	26.8	+3.8	48.1	+2.0
Elkader	13.6	-1.2	13.3	-4.7	45.0	+13.2	51.5	+3.5	56.6	-3.9	69.0	-0.1	75.0	+1.4	73.3	+2.3	63.0	+0.5	57.7	+8.3	37.2	+4.0	21.6	0.0	48.1	+2.0
Elliott	20.6	-1.0	22.2	-4.3	51.2	+10.5	53.6	+3.4	56.2	-3.1	69.4	-0.6	74.8	+1.0	72.8	-2.0	64.4	-2.2	57.1	+6.2	36.8	-2.7	25.4	-1.3	50.4	+0.1
Estherville	13.8	-1.2	12.1	-3.0	44.7	+15.7	51.0	+4.7	53.0	-4.2	67.0	+0.2	71.4	+0.3	67.4	-2.8	58.6	-2.1	52.4	+3.6	28.0	-3.3	19.6	+1.4	44.9	+0.8
Fairfield	22.2	+4.6	22.9	+1.2	50.8	+17.0	52.2	+2.4	56.9	-3.3	70.2	+0.3	76.1	+1.4	73.1	+1.8	64.0	0.0	55.6	+3.2	34.9	-2.0	25.2	+0.1	50.3	+2.2
Fayette	13.0	-3.1	12.9	-4.0	45.0	+13.8	50.7	+4.2	54.0	-3.4	68.4	+1.1	74.4	+1.3	71.1	+2.0	61.0	-1.3	52.1	+5.4	29.4	-3.5	19.1	-0.2	46.0	+0.9
Forest City	15.8	-0.4	11.2	-3.4	46.0	+16.3	51.5	+5.0	53.4	-4.9	68.8	+1.6	72.4	+0.4	69.4	-0.9	60.0	-1.1	52.0	+2.3	28.4	-4.0	18.2	-1.6	45.7	+0.8
Fort Dodge	14.4	-2.7	13.9	-1.4	46.0	+16.3	51.5	+5.0	53.4	-4.9	68.8	+1.6	72.4	+0.4	69.4	-0.9	60.0	-1.1	52.0	+2.3	28.4	-4.0	18.2	-1.6	45.7	+0.8
Grand Meadow	15.8	+0.3	13.2	-3.5	44.0	+13.3	51.3	+4.5	53.8	-4.3	67.4	+1.0	72.2	+1.7	70.0	+1.1	62.2	-0.4	54.2	+1.9	31.6	-3.6	22.2	-0.3	47.1	+1.6
Greene	14.6	-3.9	13.9	-2.1	46.0	+13.4	53.1	+5.0	55.4	-4.0	71.2	+3.1	76.6	+3.3	72.3	+0.8	62.6	-0.9	53.4	+1.3	30.6	-5.3	20.6	+1.6	47.5	+1.0
Greenfield	19.2	-2.1	18.9	-1.7	51.0	+16.5	53.2	+2.4	54.8	-5.6	69.0	-0.9	74.6	+0.7	72.0	-4.4	62.8	-2.1	54.6	+1.5	34.1	-2.5	23.8	-1.2	49.0	+0.5
Grinnell	20.0	-0.2	21.8	+0.5	53.0	+19.9	55.0	+5.7	59.0	-0.7	71.4	+3.1	75.7	+2.5	73.8	-0.2	65.0	+1.2	57.2	+6.5	34.6	-1.4	25.2	+0.8	51.1	+3.4
Grundy Center	17.8	+0.9	15.6	+2.1	47.6	+15.0	53.0	+5.6	56.0	-2.5	68.8	+0.6	73.8	+1.6	72.6	+1.6	63.3	+0.2	55.5	+3.7	32.4	-1.6	22.0	-0.6	48.2	+1.9
Guthrie Center	19.4	-3.9	19.7	-0.5	50.4	+15.0	53.7	+4.4	55.3	-3.3	69.8	+0.8	74.6	+1.2	72.5	+0.3	63.4	-0.5	55.0	+2.6	34.9	-2.4	25.5	+1.7	49.5	+1.1
Hampton	16.6	+1.1	14.8	-2.1	47.4	+17.1	52.6	+5.3	54.8	-5.3	70.4	+2.6	75.0	+2.6	72.4	+1.8	63.0	+0.1	55.6	+4.8	31.6	-1.8	22.0	+0.5	48.0	+2.4
Harlan	18.8	-2.4	18.4	+0.3	50.0	+14.7	52.7	+4.4	54.5	-5.8	68.7	+0.2	73.3	+0.1	71.6	-0.6	63.2	+0.2	54.2	+1.4	34.7	-2.5	23.8	-0.2	48.7	+0.9
Hopeville	20.6	-0.8	21.4	-0.6	51.5	+15.8	53.8	+4.1	55.8	-4.4	69.2	-0.5	75.4	+1.3	73.0	-0.2	65.0	-1.4	56.5	+2.3	36.0	-0.7	25.8	-0.4	50.3	+1.2
Humboldt	16.6	-0.6	15.2	-2.5	48.6	+16.8	53.4	+5.1	54.8	-4.6	68.5	-0.3	72.5	-0.4	71.0	+3.1	61.6	-0.9	53.6	+2.3	32.6	-1.4	23.8	+0.5	47.1	+1.6

MONTHLY AND ANNUAL PRECIPITATION WITH DEPARTURES FROM THE NORMAL FOR 1910

Station	Jan.		Feb.		March		April		May		June		July		Aug.		Sept.		Oct.		Nov.		Dec.		Annual	
	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.
Afton	1.40	+0.51	0.70	-0.25	T	-2.10	1.16	-3.21	4.61	-0.28	4.29	+0.13	0.06	-3.39	2.45	-1.98	7.43	+3.78	1.13	-1.40	0.63	-0.60	0.22	-1.02	24.98	-9.90
Albia	1.48	+0.05	0.48	-0.81	0.35	-1.55	2.02	-0.81	3.90	-0.34	1.72	-3.14	1.57	-3.32	0.55	-3.60	3.02	-0.54	0.30	-2.27	0.52	-1.25	0.30	-0.84	16.30	-18.48
Algona	1.33	+0.54	0.17	-1.10	0.14	-1.42	0.29	-2.19	2.00	-1.08	3.56	-0.84	0.77	-2.32	2.60	-1.32	3.02	-0.31	1.18	-0.91	0.29	-0.99	0.27	-0.76	15.43	-13.31
Alta	1.36	+0.72	0.19	-0.66	0.05	-1.61	1.05	-1.98	2.97	-1.81	2.27	-2.95	2.58	-2.10	3.08	-0.80	2.69	-0.49	0.88	-1.26	0.23	-1.00	0.18	-0.75	17.53	-14.78
Alta (near)	1.13	+0.51	0.22	-0.64	T	-1.51	0.85	-1.94	3.01	-1.82	2.95	-1.94	2.88	-2.00	3.07	+0.08	2.64	-1.09	0.90	-1.29	0.18	-1.31	0.22	-0.62	18.65	-13.54
Amana	1.99	+0.52	0.25	-1.01	0.25	-1.75	2.62	-0.29	3.17	-1.23	1.72	-2.60	1.08	-3.17	7.50	+3.89	4.62	+1.37	0.75	-1.90	0.50	-1.14	0.21	-1.24	24.75	-8.64
Ames	1.30	+0.88	0.35	-0.45	1.32	-0.09	0.50	-2.17	1.79	-2.53	2.88	-1.65	1.69	-2.75	2.75	-0.92	4.63	+1.24	1.05	-1.42	0.12	-1.07	0.27	-0.75	18.65	-12.18
Atlantic	1.17	+0.41	0.28	-0.77	T	-1.75	0.30	-2.76	3.37	-1.01	2.71	-2.70	0.82	-3.51	11.22	+7.74	2.95	-0.54	1.15	-1.37	0.39	-0.59	0.16	-0.99	24.52	-7.84
Baxter	1.41	+0.53	0.19	-0.62	0.24	-1.97	2.25	-0.62	3.38	-1.82	2.52	-1.98	2.07	-2.97	3.13	-1.42	3.89	+0.47	0.46	-2.35	0.68	-0.65	0.27	-0.62	20.49	-14.02
Bedford	2.46	+1.36	0.36	-0.68	0.05	-2.27	1.01	-1.80	4.17	-1.08	1.19	-3.28	1.35	-3.90	1.76	-3.30	4.00	+0.65	1.37	-0.91	0.35	-0.94	0.32	-0.62	18.48	-16.86
Belle Plaine	2.45	+0.68	0.80	-0.66	0.46	-2.05	1.69	-1.62	3.02	-1.64	1.68	-2.49	0.86	-3.55	3.30	-0.89	3.47	+0.51	0.34	-2.01	0.67	-1.05	0.07	-1.46	18.77	-16.23
Bonaparte	18.4	-0.14	0.74	-0.49	0.67	-1.88	3.09	-3.36	4.52	+0.49	1.33	-3.35	2.89	-0.84	1.76	-2.89	2.34	-1.70	0.65	-1.11	0.53	-1.27	0.78	-1.25	21.14	-14.69
Britt	0.77	+0.02	0.10	-0.93	0.13	-1.37	0.91	-1.30	2.12	-2.12	4.02	-0.06	1.60	-2.83	2.40	-1.65	1.37	-2.37	1.29	-0.87	0.15	-0.96	0.25	-0.51	15.12	-14.89
Buckingham	0.86	-0.20	0.27	-0.73	T	-2.22	1.75	-0.32	2.97	-0.83	2.25	-2.69	0.76	-3.91	4.33	-0.70	3.80	+0.81	0.40	-1.70	0.39	-1.06	0.22	-0.75	18.00	-14.30
Burlington	1.61	-0.37	2.09	+0.31	0.91	-1.95	4.80	+1.70	4.77	+0.88	4.15	-2.01	3.07	+0.53	0.43	-5.01	2.77	-0.35	1.01	-1.21	0.97	-0.81	1.39	-0.16	27.90	-8.45
Carroll	0.75	-0.06	0.20	-0.95	0.01	-2.00	0.20	-3.00	2.28	-1.70	3.61	-1.06	1.14	-2.87	7.92	+4.21	4.74	+1.85	0.65	-1.59	T	-1.13	0.10	-0.89	22.21	-9.19
Cedar Rapids	1.35	-0.07	0.38	-1.00	T	-2.01	2.61	-0.23	2.51	-2.07	0.63	-3.24	0.44	-3.60	6.10	+2.60	3.21	+0.39	0.70	-1.67	0.49	-0.91	0.33	-1.17	18.74	-13.01
Chariton	0.79	-0.62	0.67	-0.36	T	-1.08	0.42	-2.71	5.07	+0.70	1.63	-3.19	1.59	-3.87	0.37	-4.63	3.02	-0.42	T	-2.36	T	-1.30	0.40	-0.94	13.77	-20.78
Charles City	1.75	+0.78	0.61	-0.36	0.18	-1.74	0.88	-1.95	2.67	-2.27	0.61	-4.49	0.43	-3.15	5.84	+2.42	1.74	-1.06	0.30	-1.67	0.29	-1.10	0.53	-0.75	15.89	-15.34
Clarinda	1.73	+0.75	0.27	-0.73	0.00	-1.86	1.94	-1.25	6.20	+1.36	1.98	-2.92	2.17	-2.53	2.63	-2.00	4.11	+1.42	1.55	-0.95	0.36	-0.80	0.37	-0.75	22.71	-10.26
Clear Lake	0.65	+0.08	0.10	-0.75	0.10	-1.49	0.20	-1.44	3.22	-2.21	1.91	-3.83	1.22	-3.52	3.23	-1.08	1.63	-1.33	0.20	-2.43	0.20	-0.87	0.35	-0.28	12.11	-19.15
Columbus Junction	1.79	+0.23	0.67	-0.51	0.30	-2.27	3.01	+0.26	5.26	+1.88	2.87	-2.01	3.05	-0.96	4.82	-1.40	3.00	-0.05	0.76	-1.69	0.43	-1.08	0.56	-0.90	26.55	-8.95
Corning	1.30	+0.39	0.50	-0.88	T	-1.74	0.21	-2.92	4.90	+0.07	1.65	-2.40	1.98	-2.37	4.87	+0.66	3.71	+0.75	1.71	-0.62	0.39	-0.81	0.30	-0.84	21.52	-10.21
Corydon	1.69	+0.20	0.41	-0.91	0.34	-1.79	2.53	-0.63	4.73	+0.05	1.34	-3.31	1.89	-2.29	0.45	-3.87	2.76	-0.73	0.14	-2.35	0.31	-1.14	0.19	-1.23	16.78	-18.09
Davenport	1.69	+0.12	0.59	-0.97	0.39	-1.82	3.69	+0.81	3.42	-0.77	0.91	-3.20	2.86	-0.69	4.31	+0.67	2.40	-0.74	0.61	-1.78	0.22	-1.54	0.85	-0.84	21.94	-10.75
Decorah	1.85	+0.70	0.91	-0.00	0.05	-2.00	2.56	+0.06	3.82	-0.85	0.65	-3.95	0.73	-2.90	4.08	+1.04	2.72	-1.01	0.85	-1.57	0.26	-1.29	0.63	-0.73	18.51	-12.59
Delaware	1.06	+0.07	0.41	-0.40	0.21	-1.62	2.96	+0.18	5.30	+1.11	1.25	-2.93	0.65	-3.50	2.10	-1.44	3.79	+0.52	1.15	-1.05	0.65	-0.92	0.45	-0.93	19.98	-10.91
Denison	0.87	-0.37	0.32	-0.54	T	-1.51	0.21	-3.24	2.42	-1.69	2.75	-0.67	1.92	-3.14	9.75	+5.99	3.37	+0.87	1.34	-0.69	T	-1.01	0.15	-0.44	23.10	-5.94
Des Moines	1.72	+0.51	0.20	-0.88	0.33	-1.32	1.13	-1.85	3.26	-1.30	3.11	-1.85	0.86	-3.00	2.40	-1.21	3.82	+0.75	0.68	-2.00	0.53	-0.95	0.20	-1.11	18.24	-14.21
Dubuque	2.45	+0.96	0.50	-0.88	0.14	-2.07	3.40	+0.48	3.42	-0.90	2.43	-2.12	0.47	-3.83	3.96	+0.92	3.10	-0.49	0.89	-1.79	0.53	-1.28	0.57	-1.15	21.86	-12.15
Earlham	2.00	+1.01	0.40	-0.72	T	-1.76	2.23	-1.43	3.36	-0.84	1.11	-3.42	1.11	-3.73	4.08	-1.05	5.02	+1.23	1.00	-1.35	0.52	-0.82	0.20	-1.10	21.69	-13.98
Elkader	1.60	+0.29	0.52	-0.57	0.02	-1.80	3.16	+0.47	3.98	-0.21	2.01	-2.02	0.41	-4.27	3.47	+0.57	5.14	+1.30	0.87	-1.77	0.66	-0.99	0.49	-1.34	22.28	-10.43
Elliott	0.63	-0.06	0.55	-0.53	T	-0.94	0.32	-1.79	5.60	+0.99	0.76	-4.43	1.42	-4.53	8.70	+6.58	2.81	-1.01	0.83	-1.49	0.42	-1.94	0.40	-0.25	22.44	-9.49
Estherville	1.17	+0.61	0.24	-0.44	0.07	-1.37	0.95	-1.26	1.52	-2.66	5.51	+2.16	2.00	-2.58	1.60	-2.00	4.23	+1.00	0.67	-1.60	0.10	-1.14	0.10	-0.52	18.16	-9.70
Fairfield	2.02	+0.32	0.66	-0.92	0.58	-2.04	3.18	-0.30	3.75	-1.53	0.75	-4.38	3.08	-0.91	3.47	-0.61	1.73	-1.74	0.63	-2.29	0.48	-1.80	0.55	-1.23	20.83	-17.44
Fayette	2.13	+0.85	0.99	-0.15	0.10	-2.16	3.03	+0.01	2.81	-1.98	1.27	-4.08	1.04	-3.05	4.38	+1.11	4.81	+1.58	0.87	-1.78	0.28	-1.34	0.71	-0.78	22.42	-11.77
Forest City	2.40	+1.76	0.30	-0.63	0.24	-1.32	0.15	-2.22	2.14	-2.25	2.48	-2.15	1.80	-1.88	2.75	-0.75	2.28	-1.34	1.28	-1.02	T	-1.23	0.45	-0.40	16.27	-13.43
Fort Madison	2.03	+0.10	1.14	-0.75	0.75	-2.01	3.19	+0.01	6.32	+1.92	2.31	-2.07	2.72	-1.24	2.65	-1.14	2.39	-1.42	0.87	-1.75	0.70	-1.44	1.04	-0.80	26.14	-10.68
Grand Meadow	1.85	+0.68	0.99	-0.11	0.01	-2.13	2.91	-0.06	3.94	-0.92	2.56	-2.24	0.76	-3.98	3.03	-0.30	4.81	+1.18	0.90	-1.51	0.35	-1.21	0.70	-0.76	22.87	-11.36
Greene	1.02	+0.38	0.47	-0.47	0.22	-1.47	0.84	-1.39	3.09	-1.55	1.08	-3.04	0.68	-4.02	5.78	+1.91	2.06	-1.08	0.50	-1.60	0.17	-0.98	0.38	-0.65	16.35	-13.96
Greenfield	1.44	+0.49	0.44	-0.57	T	-2.08	1.93	-1.25	4.12	-0.90	3.37	-1.85	1.30	-3.40	5.90	+2.36	5.08	+1.67	1.41	-0.86	0.70	-0.47	0.10	-1.15	25.79	-8.01
Grinnell	1.66	+0.39	0.15	-0.77	0.80	-0.94	2.75	-0.63	3.89	-0.70	1.29	-3.29	1.92	-3.03	2.05	-2.57	4.50	+2.15	0.42	-2.05	0.98	-0.65	0.24	-0.93	20.65	-13.62
Grundy Center	2.10	+1.28	0.30	-0.55	0.92	-1.80	1.85	-1.20	2.83	-2.33	3.02	-2.28	0.92	-3.63	4.92	+1.35	3.77	+0.52	0.41	-2.06	0.07	-1.15	0.56	-0.62	20.77	-12.47

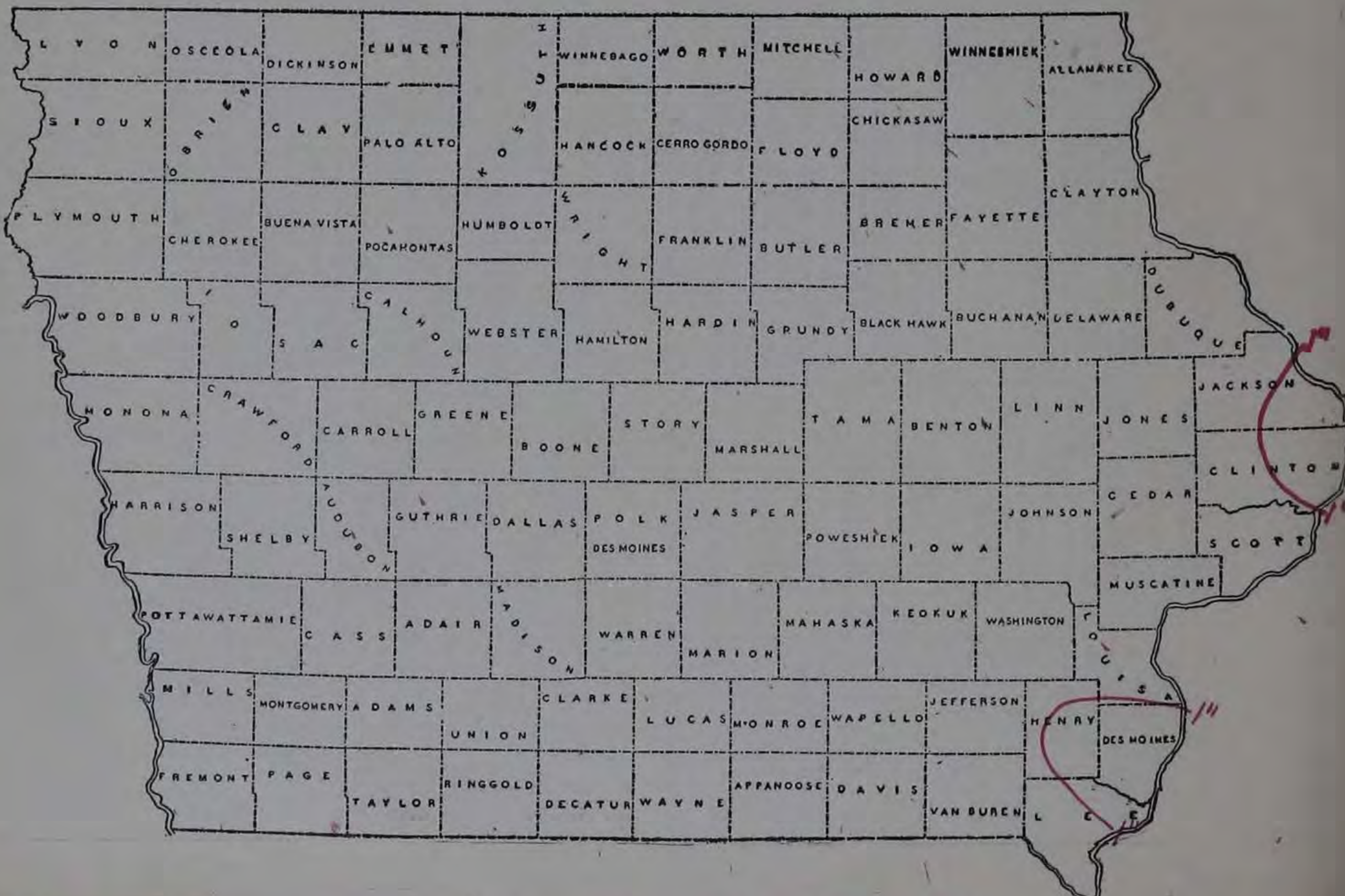
MONTHLY REVIEW OF THE

DATES OF KILLING FROSTS, 1910.

STATIONS	Killing Frosts		STATIONS	Killing Frosts		STATIONS	Killing Frosts	
	Last in Spring	First in Autumn		Last in Spring	First in Autumn		Last in Spring	First in Autumn
Afton	April 25	Oct. 22	Elma	May 14	Oct. 6	Northwood	May 5	Oct. 22
Albia	April 26	Oct. 22	Estherville	May 26	Oct. 6	Odebolt	May 13	Oct. 22
Algona	May 13	Oct. 6	Fairfield	April 25	Oct. 21	Olin	May 14	Oct. 22
Allerton	April 25	Oct. 22	Fayette	May 26	Oct. 6	Omaha, Neb.	April 24	Oct. 28
Alta	May 4	Oct. 21	Forest City	May 4	Oct. 6	Onawa	May 4	Oct. 22
Alton	May 13	Sept. 27	Fort Dodge	May 4	Oct. 6	Osage	May 5	Oct. 22
Amana	May 5	Oct. 22	Grand Meadow	May 5	Oct. 22	Oskaloosa	May 14	Oct. 22
Ames	May 14	Oct. 22	Greene	May 14	Oct. 22	Ottumwa	April 25	Oct. 22
Atlantic	May 4	Sept. 27	Greenfield	May 13	Oct. 22	Pacific Junction	May 13	Oct. 22
Audubon	May 4	Oct. 22	Grinnell	April 24	Oct. 22	Pella	May 13	Oct. 22
Baxter	May 13	Oct. 22	Grundy Center	May 4	Oct. 22	Perry	May 13	Oct. 22
Bedford	May 13	Oct. 22	Guthrie Center	May 4	Oct. 22	Plover	May 13	Oct. 6
Belle Plaine	May 4	Oct. 22	Hampton	May 4	Oct. 22	Pocahontas	May 13	Oct. 22
Belmond	May 13	Oct. 22	Hancock	May 13	Oct. 22	Ridgeway	May 5	Oct. 22
Bonaparte	April 25	Oct. 22	Harlan	May 13	Oct. 22	Rock Rapids	May 13	Sept. 27
Boone	May 3	Oct. 22	Hopeville	April 25	Oct. 22	Rockwell City	May 13	Oct. 22
Britt	May 13	Oct. 6	Humboldt	May 26	Oct. 21	Sac City	May 4	Oct. 21
Burlington	April 26	Oct. 28	Independence	May 14	Oct. 22	Saint Charles	April 25	Oct. 22
Carroll	May 12	Oct. 21	Indianola	May 13	Oct. 22	Sheldon	May 16	Oct. 21
Cedar Rapids	April 25	Oct. 22	Inwood	May 25	Sept. 27	Sibley	May 13	Sept. 27
Chariton	May 13	Oct. 22	Iowa City	April 25	Oct. 22	Sigourney	May 13	Oct. 22
Charles City	May 4	Oct. 22	Iowa Falls	May 14	Oct. 6	Sioux Center	May 13	Sept. 27
Clarinda	April 26	Oct. 22	Jefferson	May 14	Oct. 6	Sioux City	May 3	Oct. 22
Clear Lake	May 5	Oct. 26	Keokuk	April 25	Oct. 22	Stockport	May 5	Oct. 22
Clinton	May 5	Oct. 22	Keosauqua	May 5	Oct. 22	Storm Lake	May 4	Oct. 22
Columbus Junction	April 25	Oct. 22	Knoxville	April 25	Oct. 22	Stuart	May 13	Oct. 22
Corning	May 13	Oct. 22	Lamoni	April 25	Oct. 22	Thurman	April 25	Oct. 28
Corydon	April 25	Oct. 22	Larrabee	May 13	Oct. 21	Tipton	April 25	Oct. 22
Council Bluffs	May 13	Oct. 6	Le Mars	May 13	Oct. 22	Toledo	April 25	Oct. 22
Creston	April 25	Oct. 22	Lenox	May 13	Oct. 22	Wapello	April 25	Oct. 28
Davenport	May 14	Oct. 6	Leon	April 25	Oct. 22	Washington	May 13	Oct. 22
Decorah	May 5	Oct. 22	Little Sioux	May 13	Oct. 22	Washita	May 25	Oct. 22
Delaware	May 13	Oct. 6	Logan	May 29	Sept. 27	Waterloo	May 4	Oct. 28
Denison	April 24	Oct. 22	Marshalltown	May 5	Oct. 22	Waukee	May 3	Oct. 22
Des Moines	May 26	Oct. 22	Mason City	May 14	Oct. 6	Waverly	May 5	Oct. 22
De Soto	May 1	Oct. 29	Massena	April 25	Oct. 22	Webster City	May 14	Oct. 6
Dubuque	May 14	Oct. 22	Mount Ayr	April 25	Oct. 22	West Bend	May 13	Oct. 6
Earlham	May 13	Oct. 29	Mount Pleasant	May 4	Oct. 22	Whitten	April 24	Oct. 22
Elkader	May 13	Oct. 22	New Hampton	May 4	Oct. 22	Winterset	May 14	Oct. 22
Elliott	May 13	Oct. 22	Newton	May 4	Oct. 22	Woodburn	May 14	Oct. 22

TOTAL PRECIPITATION, DECEMBER, 1910.

SCALE OF SHADES—IN INCHES



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