JANUARY, 1903. No. 1.

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LOCAL FORECAST OFFICIAL,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

DES MOINES:
BERNARD MURPHY, STATE PRINTER
1903.

THE IOWA WEATHER AND CROP SERVICE

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U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

VOLUME XIV. JANUARY, 1903. No. 1.

EDITORIAL NOTES.

Marconi has expressed the opinion that wireless messages sent across the Atlantic will cost ten cents per word at the outset, and will eventually be transmitted at a one cent rate.

* * *

The Rockford *Register* says: "Iowa furnishes more winter tourists for California than any other state. They go from this state because they are able to go, and they are able to go because they live in this state."

* * *

Marconi took advantage of a recent storm to test the effects of adverse weather conditions on his wireless telegraph system, and the messages were successfully transmitted while storms were raging at both ends of the line.

* * *

An inventive genius mounted two windmills on a wagon, the wind serving as power to haul the wagon to any place desired. A pulley on a shaft driven by the windmills can be belted and used for driving various kinds of farm machinery. Thus saith a newspaper item.

* * *

The meteorological station at Mason City has been re-established, with Mr. J. S. Mills serving as voluntary observer. Mr. Mills is highly recommended and takes a deep interest in the service. It is desirable that a permanent station shall be maintained at that important commercial center.

* * *

We have received a valuable table showing the monthly and annual rainfall at Clermont, Fayette county, Iowa, for the years 1877 to 1902, inclusive, the data being the records of observations by Augusta Larrabee and William Larrabee, Jr. The table will be published in the annual report for 1902.

* * *

It is not often that famine visits a country as a result of excessive rainfall, the periodical famines of central Russia and India being invariably caused by drought, but in the northern districts of Sweden and in Finland a famine involving the lives of over 100,000 people exists to-day as a result of the excessive rainfall of the year 1902.—*J. S. Trigg, in Rockford Register.*

* * *

We hear reports now and then of discoveries of oil in Iowa. Well, there's plenty of oil in the soil of this state—oil in paying quantities. But the best of it is not to be found in gushers, or by boring. It's the oil of corn, and it can be produced in great abundance by planting, cultivating and harvesting that great staple product. There may be traces of oleaginous matter in the lower rocks, but there is some uncertainty about striking paying quantities of patroleum in this section. As to corn-oil, however, there's no doubt whatever, and it's good for millions of revenue.

* * *

At the recent annual congress of the Swiss Society of Natural Science, held at Berne, a new and interesting theory as to the origin of the appearance of the higher atmosphere, which is popularly styled as the "blue sky," was advanced by M. Spring, a well known scientist of Liege. Hitherto the azure tint has been supposed to be due to the refraction of light upon minute corpuscles disseminated in the air M Spring, however, has conceived a new explanation of the phenomenon. He has carried on a number of experiments with luminous rays under almost all conceivable conditions, injecting them into agitated solutions, and into a glass tube containing pseudo solutions, such as chlorides of aluminum, of absolute limpidity; but although he could obtain red, yellow, violet, etc, under no circumstances could he obtain blue, until by the use of electricity he secured a perfectly pure atmosphere in which blue was clearly discernible. M. Spring therefore concludes that the blue of the sky is purely electrical in origin, and is an essential quality of the air.—*Scientific American.*

AUSTRALIAN DROUGHTS AND THE MOON.

Mr. H. C. Russell, Director of the Observatory at Sydney, New South Wales, has published in the Journal and Proceedings of the Royal Society of New South Wales, for the year 1901, a memoir on the relation of the moon's motion in declination and the quantity of rain in that colony, in which the author concludes "that rain is clearly shown to come in abundance when the moon is in certain degrees of her motion south; but when the moon begins to go north then droughty conditions prevail for seven or even eight years. This phenomenon repeated for three periods of nineteen years each constitutes a marvellous coincidence, such that there must be a law connecting the two phenomena."

The influence of the moon on the weather is a matter that will not be downed by the exercise of any amount of common sense. According to the most ancient notions, the moon ought to have and must have a controlling influence in excess of the sun's, and every one who seeks to demonstrate its power is liable to become infatuated with the study. The moon has so many variations north and south of the equator, north and south of the ecliptic, to and from the earth, from new moon to full moon, conspiring with the sun and opposing the sun, that it does seem as though one ought to be able to make its periodical oscillations agree with some of the many variations in the aspect of the weather. However, we know of but one relation between the moon and the earth's atmosphere that can be said to have been settled upon a rational basis, and that is the matter of atmospheric tides. Laplace stated that the semi-

diurnal lunar tide in the atmosphere ought to amount to about 0.003 inches of barometric pressure for equatorial stations, and this agrees with the results of observations carried on at Batavia, Java. His formu'æ also showed, although we believe he did not state the fact, that as the moon moves north and south of the equator monthly, there ought to be a fortnightly tide, or a general pull of the atmosphere southward for two weeks and northward for two weeks. This, we believe, was first demonstrated as an observable quantity by A.Poincare, a civil engineer of Paris, and a member of the Meteorological Society of France. From his articles published by that society in 1885–1888, we learn that the average barometric pressure on parallels of latitude around the whole globe, as measured on the International Maps published by the United States Weather Bureau, give the following results: The pressure on latitude 40° minus that on latitude 10° is plus 1 88 millimeters when the moon is in the extreme south and plus 4.82 millimeters when the moon is in the extreme north. The normal difference is plus 3.35. This indicates that when the moon is furthest north there is a slight accumulation of atmosphere in the Northern Hemisphere, amounting to an increase of 1.47 millimeter, or 0.06 inch of pressure on the parallel of 40°.

Now, all lunar phenomena go through rather rapid periodic changes. What happens in one part of a lunar month is offset by an opposite effect in the other half of that month, or what happens at the time when the sun and moon conspire is offset by an opposite effect a few months or years later when the sun and moon oppose each other. When the moon is far south and begins to go north, according to Mr. Russell, droughty conditions prevail and continue for seven or eight years. But the strange part is that the moon begins to go north from her extreme southern position every month without exception, not only just before the seven or eight year drought, but during the whole of that long period, and continues to do so during the whole of the succeeding rainy period. How can her beginning to go north be rationally supposed to be a basis for predicting droughts in one case and rains in another?

But if we lay aside all these vagaries about the moon, and recognize Mr. Russell's meteorological induction that droughty conditions do prevail for seven or eight years in Australia, followed by years of rain, and that this cycle of droughts and rains has been repeated about three times since 1840, then, we have a fair observational basis upon which to build a rational explanation. Now, this periodicity, or rather the irregular succession of good seasons and bad seasons is a fact recognized in every portion of the world We have also enough data to show that in most cases a drought in one portion of the globe is accompanied by rains in other portions, and that the regions of excess and deficiency of rain move over the surface of the globe month by month and year by year. They do not move in courses so nearly parallel as to justify long range predictions any more than do our storm centers, but the movements are certainly governed by laws, and we can begin to generalize as a first step in the process from induction to deduction. For instance floods in the upper Nile, due to rains in the highlands of central Africa, mean that an unusual proportion of moisture has been taken from the southeast trade wind current, and that, therefore, when that has turned northeastward over the Indian Ocean, and has become the southwest monsoon of India, it will bring droughts over the western portion of that country. A drought in New South Wales, or on the southeast side of Australia, means a deficiency in the easterly winds blowing on that coast, and especially so in the rainy season, or December, January, February and March. But this means that the great area of high pressure over the Indian Ocean at the latitude 30° south has been pushed farther west than usual, or in other words that the general circulation of the atmosphere in that region has been disturbed. Now, such a disturbance, continued over several months or even years, can hardly be produced by the rapidly changing moon; it might be due to secular changes in the quantity and quality of the solar heat, but is most of all likely to be simply the result of accumulations of pressure, temperature and moisture in various portions of the earth's atmosphere. Australia has about the same area as the United States, but lies on the average about 15° nearer the equator. This latter feature gives it soil temperatures and monsoon influences similiar to those that prevail in northern Africa, so that it may itself produce an appreciable disturbance of the general circulation in the southern half of our atmosphere. But the principal cause of the droughts in Australia and India is undoubtedly to be found in the changes going on periodically in the relation between the general atmospheric pressure and resultant circulation in the south and in the north, or between Cape Colony and Australia, China and eastern Siberia. In this large portion of the globe a system of circulation prevails that is affected but comparatively little by what goes on to the west of it and north of it. A large quantity of air enters into this region from the Anarctic Ocean and passes out of it as the southwest monsoon of southern Asia to eventually become the westerly winds of the North Pacific. We may, therefore, look for some connection by this roundabout way between the droughts and rains of Australia, or southeastern Asia, and those of northwestern America.—*Prof. Cleveland Abbe in U. S. Weather Review, Nov. 1902.*

WEATHERING ROCKS.

Rain, assisted by the dissolved gases and surrounding air, acts chemically on rock surfaces, producing changes known as weathering. Next to beds of rock-salt and gypsum (calcium sulphate) limestone is the rock which is dissolved most readily. The waste of the hard and massive surface is often shown only by the way in which it becomes studded with less soluble nodules or fossils originally hidden in its substance. Sir Archibald Geikie has calculated that by the acid-laden rain of towns one-third of an inch is removed from the surface of marble monuments in a century. Insoluble sulphides, such as that of iron, are rapidly oxidized by air in the presence of moisture to form soluble sulphates, and when this process goes on in the pores of a rock the expansion of the chrystalized salts splits the block into thin layers. This action is the basis of the common way of making alum. In the case of granite and most other rocks the process of weathering is more complicated. Some of the minerals are decomposed. In felspar, for instance, the silicates of potash, soda, and lime are changed to corbonates which are washed away, while the silica and the more resisting silicate of alumina remain as a soft crust of kaolin or china clay, valuable for making porcelain. Granite has been found weathered in this way in South America to the depth of 600 feet. Rocks containing iron usually become brown or reddish in color, although the freshly broken rock may be white or gray. The lines of stratification and joints of rocks are sometimes etched out by weathering, so that the face of the cliff assumes the appearance of a gigantic wall of masonry. The crumbling of rocks in rainy regions is assisted by the action of the sun in drying and warming the surface, which may then be splintered into flakes by a shower of cold rain. Rain soaking by capillary attraction through the weathered crust and into the pores of the solid rock is frozen in cold weather, and the ice, expanding as it forms, acts like a multitude of minute wedges driven simultaneously in all directions. When the thaw comes, the bases of the cliffs and banks are strewn with weather crusts and stones, often of a great size, broken off in this way.—*Mill, in "Realm of Nature."*

PRECIPITATION AT WATERLOO, IOWA.

MONTHS.	1902—inches.	20-year averages—inches.	Maximum amounts—inches.	Years.
January	0.93	1.19	2.20	1893
February	1.47	1.10	2 55	1893
March	2.29	1.92	3.54	1893
April	1.28	3.20	5.30	1889
May	8.54	5.16	11 20	1892
June	6.81	5.64	14.00	1890
July	10.61	4.61	10.61	1902
August	7.70	3.68	11 00	1885
September	4.86	4.70	12.00	1887
October	1.50	3.18	7.20	1889
November	1.83	1.75	4.00	1884
December	1.94	1.16	1.94	1902
Total	49.76	37.29		

CLIMATOLOGY OF THE MONTH.

BAROMETER.—Mean pressure, 30.02 inches; highest observed, 30.44 inches, at Dubuque, on the 8th; lowest observed, 29.29 inches, at Dubuque, on the 6th; range for state, 1 15 inches.

TEMPERATURE.—The monthly mean temperature for the state, as shown by records of 105 stations, 23.0 degrees, which is 3.5 above normal. By sections the mean temperatures were as follows: Northern section, 19.8 degrees; central section, 23 8 degrees; southern section, 25.8 degrees. The highest monthly mean was 27.8, at Red Oak; lowest monthly mean, 17 5, at New Hampton. The highest temperature reported was 60°, at Belknap, on the 1st; lowest temperature reported, -12°, at Clear Lake, on the 11th. The average monthly maximum was 46 7; average monthly minimum, -6.2. Greatest daily range, 45°, at Carroll; average of greatest daily ranges, 32.1.

PRECIPITATION.—Average precipitation for the state, as shown by records of 120 stations, was 0.28 inch, which is .74 of an inch below normal. The averages by sections were as follows: Northern section, .21; central section, .29; southern section, .28. The largest amount reported was 1 46 inches, at Fort Madison; least amount reported, a trace, at Charles City, Carroll, Cumberland, Afton, Atlantic, Thurman and Winterset. The greatest daily rainfall reported was .70 inches at Danville on the 2nd. Average number of days on which .01 of an inch or more was reported, 4.

WIND AND WEATHER.—Prevailing direction of wind, northwest; highest velocity reported, 72 miles per hour, from the northwest, at Sioux City, on the 6th. Average number of clear days, 13; partly cloudy, 7; cloudy, 11.

The month was unusually favorable for feeding stock, and or gathering the unharvested portion of the corn crop. Fall wheat and rye, of which a small acreage was sown, were not materially injured by freezing weather.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced	EXTREMES. Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	29.98	30 41	18	29 32	7
Des Moines	30 04	30 43	18	29 47	6
Dubuque	29 99	30.44	8	29.29	6
Keokuk	30 02	30 42	12	29 44	29
Omaha, Neb	30 04	30 44	12	29 51	28
Sioux City	30.04	30.40	8	29 68	31
Means	30 02	30.44	8	29.29	6

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity	Direction.	Date.
Davenport	6252	34	W	7
Des Moines	6511	48	NW	7
Dubuque	5711	33	NW	7
Keokuk	6476	40	NW	7
La Crosse, Wis	5681	38	NW	7
Omaha, Neb	7316	52	NW	7
Sioux City	9295	72	NW	6

OBSERVERS' NOTES.

AFTON—*N. W. Rowell.* On the 7th the wind was 40 to 50 miles an hour, the high wind prevailing 24 hours

ALTA—*David E Hadden.* Gale with blinding snowstorm raged from 8 P. M of the 6th to sunset on the 7th; some slight damage done Last week of the month was warm, and December's legacy of snow was nearly all gone.

AMANA—*C. Schadt.* Excepting a few days January was mild; cattle still finding green grass in protected places.

ATLANTIC—*J. W. Love.* The mildest January in 12 years. No rain, and only a trace of snow three times; zero temperature only on two days.

BONAPARTE—*B. R Vale* A mild month, too soft at times; stock did well on blue grass meadows and pastures all the month.

BRITT—*Geo P. Hardwick.* Mild weather excepting severe wind on 7th and 8th; ground nearly bare at close of month; stock healthy; some corn yet in fields; hay scarce.

CLINTON—*Dr. Luke Roberts.* Cloudiness 59 per cent. or 8 per cent above normal. Precipitation 1.03 less than normal; country roads better than usual; two weeks of sleighing; ice crop excellent and abundance secured Mean temperature for January 22.7° being 4.1° above normal. Maximum velocity of wind twenty-seven miles an hour on the 7th, and again on 29th; total wind movement for the month 4000 miles,—nearly 1000 miles less than normal.

DENISON—*W. C Van Ness.* A very mild and pleasant January, easy on stock and feed.

EARLHAM—*Geo. Phillips.* A fine January; farmers finished picking corn; some young cattle dying.

GRAND MEADOW—*F L. Williams.* On the 6th the mercury in barometer was down to 27 80 inches; month as a whole a pleasant one; stock wintering well.

GRINNELL—*A. O. Price.* Little snow and generally fair weather; fine for stock.

GRUNDY CENTER—*E. S King.* A good month for gathering corn, but not all picked yet.

OLIN—*Nathan Potter.* A pleasant winter month, with no extremes; much corn gathered; stock in fine condition

RIDGEWAY—*Arthur Betts.* Mild January; no excessive cold; distant lightning after sunset on 6 h and 26th; 142 hours of sunshine; forest ground has remained unfrozen; farmers grubbing every day; crows and other birds numerous.

ERRATA IN DECEMBER REVIEW.

CHESTER.—Total precipitation recorded, 3.35 inches, on page 7, should have been 4 37 inches. Total snowfall, recorded 6.2 inches, on page 7, should have been 10.3 inches.

DE SOTO.—Mean temperature, recorded 23 2 degrees, on page 7, should have been 22.5 degrees. Mean maximum temperature, recorded 29.4 degrees, on page 9 should have been 29.7 degrees. Mean minimum temperature, recorded 15.1 degrees, on page 9, should have been 15.3 degrees.

HAMPTON.—Total snowfall, recorded 15.4 inches, on page 7, should have been 16 4 inches

LACONA.—Total precipitation, recorded 3.80, on pages 8 and 11, should have been 3.60 inches.

OVID.—Maximum temperature, recorded 41 degrees, on page 8, should have been 47.

CLIMATOLOGICAL DATA FOR JANUARY, 1903.

NORTHERN SECTION

STATIONS	COUNTIES	Elevation, feet	Length of record, years	TEMPERATURE, IN DEGREES FAHRENHEIT							PRECIP., IN INCHES				Number rainy days	SKY			Prevailing direction of wind	DATES OF THUNDERSTORMS.
				Mean	Departure from the normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from the normal	Greatest in 24 hours	Total snowfall (unmelted)		Number clear days	Number partly cloudy days	Number cloudy days		
Algona	Kossuth	1,213	28	20.8	† 8.2	42	31	- 8	11	34	.30	- .49	.15	3.0	3	7	13	11	NW	
Alta	Buena Vista	1,513	11	23.6	† 7.1	45	6	- 9	11	29	.16	- .46	.10	1.5	6	11	15	5	NW	
Alta (near)	Buena Vista										.20		.15	1.5	2					
Britt	Hancock	1,236	5	18.7	† 1.2	42	6	-10	11	34	.39	- .21	.13	1.5	10	8	11	12	NW	
Charles City	Floyd	1,022	11	20.8	† 5.3	49	31	- 5	12	36	T	- 1.16	T	T	0	11	9	11	N, NW	
Clear Lake	Cerro Gordo	984		17.8		40	31	-12	11	33	.25		.10	2.1	3	14	10	7	NW	
Decorah	Winneshiek	875	8	17.8	† 3.4	41	31	- 8	13	31	.31	- .77	.09	3.0	5					
Dows	Wright	1,142		20.3		44	31	- 9	11	32	.20		.10	1.0	2	13	2	16	NW	
Elkader	Clayton	600	21	20.4	† 6.3	47	31	- 6	12	37	.16	- 1.22	.08	2.5	2	12	8	11	NW	
Estherville (a)	Emmet	1,298	7	18.2	† 2.4	42	31	-10	11	31	.09	- .32	.05	1.0	3				NW	
Forest City	Winnebago	1,220	8	17.9	- 0.3	40	1, 7	-10	11	40	.10	- .51	.05	1.0	2	7	5	19	W	
Grand Meadow	Clayton	1,182	11	18.4	† 2.8	41	31	-10	12	34	.40	- .82	.15	3.3	5	10	8	13	NW	
Greene	Butler	943	5	20.0	- 0.3	41	31	- 7	11	29	.12	- .46	.07	1.0	2	6	9	16	W	
Hampton	Franklin	1,000	12	20.6	† 5.7	48	31	- 9	11	32	.18	- .88	.12	1.4	3	8	15	8	NW	
Hanlontown‡	Franklin			17.8		41	31	-10	11	34						11	5	15	NW	
Humboldt	Humboldt	1,095	10	21.6	† 5.4	44	31	- 7	11	34	.07	- .50	.04	.7	3	13	7	11	NW	
Larrabee‡	Cherokee			21.4	† 8.8	47	6, 15	-10	11	33	.11	- .43	.05	1.0	4	10	13	8	NW	
Le Mars	Plymouth	1,224	6	22.1	† 1.2	45	15	- 8	11, 12	32	.01	- .62	.01	T	1	15	9	7	S	
New Hampton	Chickasaw	1,166		17.5		40	31	-10	11, 12	29	.06		.05	T	2	12	3	16	NW	
Northwood	Worth	1,222	6	18.8	† 2.2	41	6, 31	-10	11	36	.40	- .22	.20	4.0	4	11	11	9	NW	
Osage	Mitchell	1,184	11	18.0	† 4.4	40	31	-10	11	29	.31	- .60	.10	3.1	9	9	6	16	NW	
Plover	Pocahontas	1,426	5	18.9	- 2.1	43	6	-10	11	28	.11	- .38	.06	.5	2	14	1	16	NW	
Ridgeway	Winneshiek	1,215		20.6		46	31	- 9	12	32	1.14		.40	5.6	16	10	8	13	NW	
Rockford	Floyd										T		T	T	0	14	12	5	NW	
Sheldon (a)	O'Brien	1,406		19.9		47	6	-10	11, 12, 13	42	05		.05	.5	1	17	2	12	S, NW	
Sibley (a)	Osceola	1,506	8	18.8	† 2.7	43	6	-10	11	36	.27	- .30	.10	2.7	5	10	17	4	NW	
Sioux Center	Sioux			20.5		45	6	-10	12	34	.05		.05	.5	1	16	4	11	S	
Spirit Lake	Dickinson	1,458	8	19.2	† 3.6	42	1	-11	11	31	.40		.30	4.0	2	14	2	15	NW	
Storm Lake	Buena Vista	1,440	7	2.2	† 2.0	47	6	-10	11	37	.06	- .64	.06	T	1	19	1	11	NW	
Washta	Cherokee	1,157									.05		.05	.5	1	18	8	5	N	
Waverly	Bremer	942	6	20.6	† 1.0	45	31	- 6	11	30	.19	- .75	.05	1.5	9	6	8	17	NW	
West Bend	Palo Alto	1,197	8	20.4	† 3.2	43	6	- 8	11	35	.38	- .23	.20	3.3	4	8	10	13	NW	
Average				19.8	† 3.1	43.6		-9.0		33.3	0.21	- .58		2.1	4	12	8	11	NW	

CENTRAL SECTION.

Amana	Iowa	721	25	23.5	† 8.0	46	26, 31	- 3	11, 12	26	.28	- 1.18	.07	1.8	6	10	9	12	NW	
Ames	Story	926	20	24.0	† 7.1	48	31	- 4	12	36	.14	- .82	.0*	1.0	3	13	6	12	SE	
Baxter	Jasper	998		23.2		47	31	- 6	11, 12	32	.10		.10	1.0	1	16	2	13	NW	
Belle Plaine	Benton	828	12	21.9	† 3.6	45	31	- 6	12	28	.70	- .85	.20	5.6	8	4	21	6	NW	
Buckingham	Iowa										.08		.05	0.3	3	9	11	11		
Carroll	Carroll	1,265	12	23.4	† 4.0	48	6, 31	- 9	11	45	T	- .82	T	T	0	12	10	9		
Cedar Rapids	Linn	733	19	23.9	† 5.8	45	26, 31	- 2	11, 12	25	.11	- 1.36	.04	1.0	5	7	12	12	NW	
Clinton	Clinton	609	34	22.6	† 3.2	46	31	- 6	12	31	.83	- 1.06	.41	5.0	6	10	5	16	W	
Davenport	Scott	529	31	24.9	† 4.9	49	1	- 2	12	28	.79	- .88	.46	5.1	6	9	5	17	W	
Delaware	Delaware	1,083	11	19.4	† 4.0	41	26, 31	- 8	12	30	.07	- .93	.04	1.0	3	10	9	12	NW	
Denison	Crawford	1,180	8	23.8	† 2.7	50	15, 31	- 6	11, 12	36	.10	- .46	.05	1.0	2	21	4	6	N	
Des Moines	Polk	861	24	25.4	† 7.9	49	31	- 3	12	33	.20	- 1.14	.06	1.4	5	12	6	13	NW	
Dubuque	Dubuque	655	29	22.4	† 5.1	45	31	- 5	12	27	.17	- 1.51	.04	1.5	7	9	5	17	NW	
Galva	Ida	1,190	8	21.0	† 2.8	45	6	- 9	11	31	.30	- .03	.15	3.0	3	12	0	19	NW	
Gilman	Marshall	1,052									.10		.10	1.0	1	13	9	9	S	
Grinnell	Poweshiek	1,022	9	22.9	† 3.1	45	2, 31	- 4	11, 12	27	.34	- .82	.14	3.8	3	15	8	8	SW, NW	
Grinnell (near)	Poweshiek			21.6		45	2	- 5	11, 12	31	.22		.10	2.5	5	13	5	13	SW	
Grundy Center	Grundy	976	11	21.4	† 4.9	45	31	-10	12	30	.12	- .54	.09	1.2	3	12	5	14	NW	
Guthrie Center	Guthrie	1,077	6	24.9	† 0.4	47	6	- 6	14	33	T	- .38	T	T	0	11	14	6	NW	
Harlan	Shelby	1,192		23.6		47	31	- 6	12	36	05		.02	.2	3	7	16	8	NW	
Independence	Buchanan	921	38	20.2	† 5.1	43	31	- 5	11, 12	26	.27	- .97	.10	2.8	7	14	6	11	NW	
Ida Grove	Ida			23.4		47	7	- 8	11, 12	34	.10	- .72	.10		1	14	11	6	NW	
Iowa City	Johnson	644	43	23.8	† 4.7	47	31	- 3	12	28	.67	- 1.09	.30	3.0	6	4	11	16	NW	
Iowa Falls	Hardin	1,107	9	19.7	† 4.6	45	31	- 8	11	30	.20	- .56	.13	.7	3	10	6	15	NW	
Jefferson	Greene	1,052									.27		.10	2.0	5				NW	
LeClaire	Scott	576									.73		.50		7					
Logan	Harrison	928	35	24.2	† 5.2	48	31	- 4	12	30	.70	- .62	.50	5.0	2	17	0	14	SW	
Magnoketa	Jackson	688	9	21.6	† 1.7	45	31	- 5	12	22	.30	- 1.09	.10		5	14	5	12	NW	
Marshalltown	Marshall	947	9	21.6	† 3.1	47	31	- 5	11, 12	29	.29	- .63	.09		6	10	10	11	W, NW	
Monticello	Jones		48	18.8	† 2.9	45	26, 31	- 6	13	34	.20	- 1.36	.20	T	1	8	9	14	NW	
Mt. Vernon	Linn	847	35	21.9	† 4.4	45	15	- 5	11, 12	26	.29	- 1.16	.10	2.7	7	13	2	16	NW	
Newton	Jasper	592	14	22.6	† 5.3	45	31	- 8	12	32	.65	- .24	.15	8.0	5	12	8	11	W	
Odebolt	Sac	1,356	5	22.9	† 0.3	45	31	- 7	11	32	.28	- .04	.20	2.8	2	18	5	8		
Ogden	Boone	1,211	8	23.0	† 1.7	50	31	-12	13	39	16	- .35	.10	1.1	4	20	1	10	NW	
Olin	Jones	760		22.2		48	27	- 3	11, 12	28	.31		.10	3.5	5	10	8	13	NW	
Onawa	Monona	1,053		21.8		49	31	- 4	12	35	.06		.05	.5	2	20	4	7	NW	
Perry	Dallas	975		24.2		48	31	- 6	11	32	.65		.50	1.5	3					
Rockwell City	Calhoun		5	23.6	† 4.7	45	31	- 6	11	30	.40	- .11	.30	4.0	2	16	1	14		
Sac City	Sac	900	22	22.1	† 6.9	44	6, 31	- 8	11	36	.20	- .82	.10	2.0	2	12	4	15	NW	
Scranton	Greene	1,172		24.3		44	6	- 6	11	32	.12		.08	1.2	2	9	7	15		
Sioux City	Woodbury	1,122	13	22.8	† 6.5	51	6	- 6	12	37	.06	- .57	.04	0.7	4	11	7	13	NW	
Tipton (a)	Cedar	807		24.2		45	31	- 3	12	24	.35		.15	2.5	3				NW	
Toledo	Tama	856	8	22.6	† 2.9	46	31	- 5	12	29	.46	- .35	.18	2.8	5	14	4	13	NW	
Vinton§	Benton	800	12	22.8	† 4.0	42	16	- 1	12		.12	- .95	.05	1.2	3	16	1	14	NW	
Waterloo	Black Hawk	862	15	21.5	† 3.7	44	31	- 5	11	30	.17	- .93	.06	1.3	3	11	7	13	NW	
Wilton Junct'n	Muscatine	683	7	23.9	† 1.1	48	25	- 4	12	23	1.02	- .44	.67	5.5	5	20	0	11	NW	
Whitten	Hardin	1,035		21.4		45	31	- 8	11	29	.15		.05	1.5	3	11	6	14	SE	
West Branch	Cedar										.18		.08	1.8	3	4	13	14	NW	
Waukee	Dallas										.35		.10	3.5	4	16	3	12	NW	
Average				22.8	† 3.8	46.1		- 5.8		30.8	.29	- .77		2.2	4	12	7	12	NW	

CLIMATOLOGICAL DATA FOR JANUARY, 1903—CONTINUED.

SOUTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PREC., IN INCHES.				Number rainy days.	SKY.			Prevailing direction of wind.	DATES OF THUNDER-STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Afton	Union	1,212	7	26.0	† 2.7	47	15,31	- 4	12	33	T	- .74	T	T	0	12	5	14	SW, NW	
Albia	Monroe	945	..	25 8		51	1	- 5	12	33	.40	....	.30	....	3	12	8	11	SW, NW	
Atlantic	Cass	1,164	11	25.3	† 5.2	49	15	- 3	12	34	T	- .67	T	T	0	10	9	12	NW	
Allerton	Wayne	.....		23.0	.....	52	15	- 8	12	38	.48	.....	.15	2.0	5	10	13	8	NW	
Bedford	Taylor	..	....	26.5	.....	50	31	- 5	11	38	.05	.....	.05	.5	1	13	7	11	SE, NW	
Belknap	Davis	877	7	26.7	† 1 3	60	1	- 6	12	34	1.00	- 1.10	.50	.5	7	13	13	5	NW	
Bonaparte	Van Buren	.....	10	24.9	† 1.4	50	1	- 7	12	33	.43	- 1.24	.20	4.5	3		....	..	...	...
Burlington	Des Moines	544	....	26 5		53	1	- 5	12	29	.58	- 1.04	.14	....	6	15	3	13	S	
Chariton	Lucas	1,042	7	25.4	- 0.2	51	15	- 5	12	41	.25	- 92	.05	.6	8	9	10	12	N	
Clarinda	Page	1,069	12	27.2	† 4.7	51	15,23	- 4	12	34	.14	- .81	.11	1.2	4	12	10	9	NW	
College Springs	Page	..	10	27.4	† 3.4	50	31	- 6	12	34	.20	- .30	.10	2.0	2	18	8	5	NW	
Columbus Jct.	Louisa	595	..	24 4	....	49	2,26	- 4	12	30	.28	.....	.07	2.7	7	11	10	10	NW	
Corning	Adams	1,127	10	25.7	.....	48	15	- 5	12,13	43	.07	....	.07	.8	1	10	12	9	NW	
Council Bluffs	Pot'wat'mie	990	5	23.8	- 0.4	57	30	- 4	12	42	.03	- .64	.02	.1	2	7	15	9	NW	
Cumberland	Cass	.....	....	.....	.....		.....	...	.....	.....	T	.....	T	T	0	13	3	15	NE	
Danville	Des Moines	715	....	.....	...	...	.....	.....	....	..	1.20	.....	.70	..	6	5	0	26	.....	.....
Earlham	Madison	.....	...	24.6	.....	49	15,31	- 5	11,12	36	.03	.....	.03	0.2	1	15	5	11	NW	
Fort Madison	Lee	516	51	.....	.....		.....		.....	.....	1.46	...	.30	9.5	7	10	4	17	NW	
Greenfield	Adair	.....	11	24.8	† 3 4	46	31	- 6	12	33	.09	- .81	.02	0.6	6	15	8	8	SW	
Hopeville	Clarke	.....	11	.....	.....		.....	...	.....	.....	.12	.....	.04	....	4	....	...	....	.....	.....
Indianola (*e*)	Warren	969	11	25.8	.....	48	16,31	- 4	12	30	.09	- 1.21	.03	0.5	4	....	...		SW	
Keokuk	Lee	619	31	26.5	† 3.3	51	26	- 5	12	27	.77	- .95	.21	8.0	10	12	5	14	SW	
Keosauqua	Van Buren	644	10	25.4	† 1.7	50	1,31	- 5	12	25	.84	- .12	.29	....	6	....	...		.....	
Lacona	Warren	.....	....	.....	.....	.....	.....	...	.....		.85	....	.13	6.4	9	10	14	7	.....	
Lenox	Taylor	1,250	7	25.3	† 0.2	47	15	- 7	12	29	.03	- .58	.03	.3	1	13	4	8	NW	
Leon	Decatur	.....	....	26.6		48	15,31	- 5	12	31	.31	.....	.12	2.4	5	21	4	6	NW	
Mt Ayr	Ringgold	1,236	8	25.6	† 1.8	50	15	-10	12	33	.24	- .73	.10	1.5	7	11	9	11	NW	
Omaha, Neb	Douglas	1,113	32	27.1	† 7.9	51	15	- 3	12	23	.07	- .62	.03	.4	5	9	12	10	NW	
Osceola	Clarke	1,130	6	25.0	† 2.9	50	15,31	- 5	12	32	.57	- .69	.50	T	4		....		NW	
Oskaloosa	Mahaska	843	18	21 3	† 5.6	49	1	- 5	13	31	.22	- .69	.04	2 7	7	16	2	13	NW	
Ottumwa	Wapello	630	8	27.0	† 2.3	50	26,31	- 1	12	24	.47	- 1.24	.23	3.8	5	15	8	8	N	
Ovid	Wayne	992	9	26.2	† 2.4	53	15	- 9	12	35	.32	- 1.20	.13	T	4	12	6	13	NW	
Pacific Junction	Mills	960	....	25 6	.....	48	30	- 4	12	32	.05	.....	.01	.5	2	13	12	6	S	
Red Oak	Montgom'ry	1,033	....	27.8	. ...	45	25	1	12	24	.03	.... ..	.05	.5	1	7	20	4	NW	
St. Charles	Madison	1,070	....	26 0	...	52	1,15	- 4	11	33	.17	.....	.05	1.5	6	17	7	7	NW	
Sigourney	Keokuk	768	6	24.4	† 0.3	48	26,31	- 5	12	32	.56	- .82	.36	1.5	4	15	10	6	NW	
Thurman	Fremont	..	....	26 4	.....	47	6,25 31	- 4	12	36	T	.....	T	T	0	19	1	11	NW	
Wapello(*d*)	Louisa	578	....	25.6		45	15,26	- 1	11,12	23	.65	.....	.20	4.5	5		.	....	SE	
Washington	Washington	769	20	22.3	† 4.0	49	1	- 7	12	32	.38	- 1.22	.18	3.5	5	....	....	....	NW	
Winterset	Madison	1,129	11	26.0	† 4.8	50	31	- 6	12	32	T	- .86	T	T	0	19	1	11	W	
Woodburn	Clarke	961	..	.....	.....	....	.....	.....	.....	.....	.05	....	.05	.5	1	21	1	9	NW	
Average	.....	....	....	25.8	† 2.8	49.8	....	- 4.9	....	32 6	.33	- .82	.....	1.8	4	13	8	10	NW	
Av. for the state	.....	....	....	23.0	† 3.5	45.7	... ..	- 6.2	.....	32. 1	.28	- .74		2.0	4	13	7	11	NW	

*Means determined from 7 A. M., 2 P M, and 9 P. M observations, and maximum and minimum are taken from eye readings. ‡Received too late to be computed with means. *a*, One day missing; *b*, two days, etc. §Not supplied with self registering instruments. † Above normal.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR JANUARY, 1903.

STATIONS.		DATE.																														Mean.
		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	Max.	44	38	35	32	31	40	44	24	22	22	18	11	37	36	47	42	37	28	40	34	31	31	27	35	42	45	38	43	40	39	47	34.8
	Min.	24	33	22	17	14	13	16	9	4	2	-3	-4	4	21	27	27	24	12	7	20	3	19	12	22	28	34	27	33	20	15	29	17.1
Albia	Max.	51	41	34	28	26	41	41	22	19	17	16	14	36	37	50	48	36	25	40	33	31	32	35	35	36	47	36	44	43	41	40	35.2
	Min.	28	32	18	11	7	12	14	8	5	1	-3	-5	3	17	27	35	21	12	18	19	2	13	10	22	28	32	27	32	20	13	28	16.4
Algona	Max.	35	35	30	24	22	40	40	38	17	20	18	9	27	30	42	39	29	20	35	26	28	23	27	36	37	32	35	35	35	22	42	29.9
	Min	24	17	13	12	9	10	8	4	-5	0	-8	-5	4	13	28	22	18	7	7	-1	6	1	19	26	31	20	30	17	10	-1	26	11.7
Allerton	Max.	50	40	35	30	30	40	43	25	19	16	15	14	38	39	52	50	39	30	41	32	31	31	26	35	40	49	36	45	45	43	49	35.7
	Min.	21	32	18	19	10	11	10	8	5	-1	-3	-8	0	18	25	27	24	11	15	22	1	22	13	22	27	35	24	33	21	11	29	16.4
Alta	Max	38	28	24	25	25	45	26	21	13	20	3	6	30	32	42	38	29	22	35	23	29	29	19	31	38	37	33	34	33	34	43	31.7
	Min.	17	17	9	13	10	9	8	3	-4	-1	-9	-7	3	18	24	25	18	12	11	6	0	8	4	19	22	29	22	30	8	4	28	15.5
Amana	Max.	42	38	34	28	26	32	40	20	18	18	16	10	28	31	40	40	33	24	33	32	22	30	27	31	33	40	37	41	40	29	46	31.1
	Min.	24	32	21	16	10	13	17	7	4	2	-3	-3	2	16	23	25	20	10	15	18	2	19	9	22	27	33	27	34	9	10	22	15.9
Ames	Max.	45	37	34	33	31	45	45	32	23	21	21	14	32	36	47	41	32	30	40	34	27	32	26	30	35	40	35	39	38	39	48	34.3
	Min.	20	27	2	21	6	9	11	11	0	1	0	-4	1	21	22	23	22	12	9	14	1	13	9	20	27	30	24	31	13	10	23	13.8
Atlantic	Max.	42	39	29	30	32	46	39	25	21	21	21	11	37	37	49	42	32	30	42	27	32	30	25	37	43	42	33	38	35	42	48	34.1
	Min.	21	25	17	19	19	12	16	10	5	1	-2	-3	9	18	25	27	22	9	21	18	3	20	13	15	28	30	24	32	8	10	31	16 5
Baxter	Max.	41	38	38	27	25	40	46	20	28	18	16	10	31	34	45	42	40	25	37	33	25	29	24	27	33	40	36	38	38	33	47	32 4
	Min.	25	32	18	15	5	7	11	5	0	-2	-6	-6	-1	18	24	26	20	10	18	15	0	15	8	18	25	30	23	31	15	8	24	13.9
Bedford	Max.	48	41	35	33	35	45	45	27	18	18	11	37	36	48	45	33	31	32	42	34	33	34	27	37	47	45	36	43	43	42	50	36.5
	Min.	22	33	13	20	18	10	18	10	0	-4	-5	-1	14	23	22	21	9	12	17	20	0	20	15	22	30	32	26	33	17	14	30	16.5
Belknap	Max.	60	45	32	32	34	35	20	25	25	15	10	8	20	30	40	50	35	32	35	32	35	35	36	27	40	50	50	50	36	40	50	34.3
	Min	26	33	30	17	12	20	15	9	7	5	0	-6	7	20	29	28	27	16	16	26	6	20	22	22	29	29	30	36	21	11	29	19.1
BellePlain'	Max.	43	37	24	27	25	38	25	20	10	14	2	10	28	31	37	40	29	24	34	32	20	30	24	32	37	42	33	40	13	30	45	29.0
	Min.	24	25	20	16	10	10	13	6	2	0	-5	-6	0	18	23	24	25	12	12	26	0	20	8	14	25	27	25	32	16	9	28	14.8
Bonaparte	Max.	50	37	35	29	27	31	39	20	17	16	15	12	31	36	45	46	34	27	37	34	27	34	29	31	33	47	39	45	41	41	48	33.3
	Min.	21	32	19	14	8	19	17	9	6	0	-3	-7	-2	16	27	27	22	13	14	21	3	8	13	20	22	32	32	32	23	17	27	16 5
Britt	Max.	36	38	18	24	27	42	38	20	15	20	15	10	26	28	38	33	29	21	34	32	24	27	25	30	33	37	37	37	34	22	41	28.7
	Min.	13	18	11	11	0	8	8	2	-6	-4	-10	-7	1	1	22	20	18	4	4	8	-5	10	1	17	26	30	17	30	9	-4	17	8.7
Burlington	Max.	53	38	33	29	28	30	39	28	18	15	14	14	29	36	46	49	37	28	35	38	27	35	30	35	34	47	41	56	44	38	47	34.5
	Min.	26	33	22	17	16	22	17	8	7	1	-2	-5	0	18	27	30	24	14	16	24	5	17	19	20	23	33	32	37	24	17	30	8.5
Carroll	Max.	44	37	32	28	29	48	42	25	24	20	16	10	36	35	47	43	30	26	40	32	31	32	35	40	39	36	38	40	41	44	48	34.5
	Min.	19	25	12	15	11	10	-3	-5	-2	-2	-9	-6	4	16	21	22	24	12	19	15	0	7	18	25	30	23	12	6	18	21	22	12.3
Cedar Rap	Max.	42	39	36	28	27	39	42	19	19	18	18	9	25	31	41	41	35	23	33	34	22	31	24	29	33	45	40	41	42	29	45	31.6
	Min.	23	30	21	17	10	14	18	7	4	3	-2	-2	4	16	28	28	22	10	15	19	3	18	9	21	27	32	27	33	17	8	22	16.2
Chariton	Max.	48	42	34	28	30	43	43	23	17	16	16	13	37	36	51	48	35	29	39	33	29	30	30	33	40	45	35	44	44	41	50	34.9
	Min.	26	34	17	18	10	17	15	9	4	0	-3	-5	3	18	10	13	21	13	17	19	0	18	12	22	27	34	27	33	19	12	29	15 8
Charles Cy	Max.	35	38	25	23	23	38	37	28	21	17	17	15	23	25	38	40	31	30	31	25	20	18	20	31	30	36	38	36	14	17	49	28 1
	Min.	17	20	20	13	10	12	13	6	7	2	-4	-5	5	19	20	23	22	20	17	8	8	9	10	25	28	25	19	31	10	-4	13	13 5
Clarinda	Max.	48	40	33	34	45	45	44	30	22	20	17	14	40	37	51	46	33	32	43	32	35	33	28	39	51	45	34	42	39	46	50	37.0
	Min.	23	23	17	25	16	25	16	11	7	4	-2	-4	6	17	22	23	20	13	18	17	5	22	15	24	29	29	28	33	16	16	0	17.5
Clear Lake	Max	34	26	21	28	24	39	36	18	15	17	15	4	24	28	36	35	28	20	34	27	22	27	24	30	30	36	34	37	34	20	40	27.5
	Min.	16	18	14	8	5	6	10	-1	-8	-5	-12	-8	0	12	12	20	17	3	12	6	-8	8	-1	13	23	27	15	29	6	-6	12	8.1
Clinton	Max.	45	35	34	31	25	36	37	20	18	18	5	10	24	31	39	41	31	21	30	35	21	37	28	31	33	45	39	44	42	26	46	30.9
	Min.	18	24	21	21	13	15	20	5	2	-3	-3	-6	0	12	21	18	17	7	12	17	3	13	11	21	24	32	33	34	18	9	15	14.4
College Spr	Max.	46	45	32	32	35	46	41	28	20	19	17	12	39	37	46	45	33	31	41	33	35	34	28	39	49	43	35	43	41	43	50	36.1
	Min	23	32	17	24	22	15	18	10	8	5	-3	-6	5	20	25	25	23	14	18	22	5	22	15	25	29	32	28	31	17	17	31	18.7
Colum. Jct.	Max.	48	49	42	33	25	30	24	23	18	19	14	9	25	32	43	42	32	25	34	34	28	34	29	33	33	49	38	45	42	34	45	32.3
	Min.	21	27	31	20	16	19	12	8	0	2	-2	-4	3	19	21	27	22	12	18	22	3	18	13	18	25	31	30	34	21	13	15	16 4
Corning	Max.	44	38	33	32	33	42	38	26	17	20	18	10	38	36	48	42	34	29	40	34	32	33	27	37	41	43	35	42	41	40	47	34.6
	Min.	13	32	12	22	18	26	17	9	4	2	-3	-5	-5	7	17	26	23	11	13	20	3	22	13	22	28	34	27	32	16	15	30	16.8
Co Bluffs	Max.	42	36	31	35	45	49	31	30	18	24	12	19	40	40	50	42	31	34	42	31	43	34	30	40	40	42	34	41	34	57	50	36 4
	Min.	24	18	10	25	26	15	9	10	9	5	0	-3	11	25	23	25	12	14	20	15	8	16	19	24	25	29	27	33	13	15	31	17.2
Davenport	Max.	49	37	34	28	26	39	39	19	19	16	14	8	24	33	41	48	35	22	33	33	22	34	27	29	35	47	38	46	46	29	45	32.1
	Min.	30	33	22	19	14	18	18	8	5	2	-2	-2	4	19	30	30	19	12	15	16	4	16	14	21	24	35	33	35	18	12	28	17 7
Decorah	Max.	38	33	32	27	23	37	33	23	18	17	16	-2	3	22	28	37	31	32	18	28	30	22	25	22	31	30	38	36	17	15	41	26.7
	Min.	18	17	19	16	4	11	13	11	3	-4	-5	-7	-8	0	11	23	16	14	2	13	8	-6	8	-2	17	16	31	21	15	-5	10	9.0
Delaware	Max.	39	37	35	30	25	25	35	18	16	16	15	3	22	25	36	37	30	17	30	30	20	30	22	30	29	41	36	38	37	20	41	27.9
	Min.	21	24	18	17	6	9	9	4	-2	-4	-4	-8	-1	15	22	21	14	4	10	10	-2	11	5	17	23	26	22	30	14	0	11	11.0
Denison	Max.	40	35	29	29	30	45	22	30	20	21	19	10	36	35	50	42	34	29	41	35	33	32	24	36	43	40	33	35	35	43	50	33 4
	Min.	20	22	12	9	16	11	15	5	0	-2	-6	-6	5	23	23	24	23	12	21	16	2	15	8	15	20	31	23	31	10	7	28	14.3
Des Moines	Max.	46	41	28	29	30	47	32	24	20	20	14	13	36	37	49	45	31	26	41	32	30	32	26	34	39	43	35	40	39	42	49	33.9
	Min.	28	22	19	20	12	14	12	9	3	3	-3	-2	4	22	28	29	23	16	21	13	4	17	12	21	28	32	27	32	16	14	30	17 0
Dows	Max.	39	36	21	23	23	41	40	19	15	17	17	5	27	32	39	39	29	20	33	32	23	28	22	26	31	36	33	35	35	23	44	28.6
	Min	22	20	15	13	2	9	10	3	-5	-2	-9	-6	0	15	22	23	18	5	17	10	-3	11	4	18	25	30	20	30	11	1	22	11.3
Dubuque	Max.	43	38	33	29	25	35	35	19	19	15	14	7	23	33	40	42	29	18	29	32	21	29	22	29	29	44	36	40	38	24	45	29.5
	Min.	28	28	20	23	15	20	18	8	3	0	-4	-5	4	18	26	25	16	9	13	12	2	16	6	21	25	32	26	34	14	3	18	15.3
Earlham	Max.	45	36	34	33	29	42	40	24	20	20	15	12	37	37	49	44	34	28	41	34	31	33	33	34	40	44	37	39	41	44	49	34.8
	Min.	21	30	15	15	9	9	15	6	3	-2	-5	-5	1	17	16	26	19	8	18	19	-2	18	15	20	26	31	30	17	10	19	27	14.5
Elkader	Max.	46	38	34	28	24	28	25	18	18	18	16	10	23	25	41	44	25	21	32	28	-3	16	0	19	26	28	20	32	15	-1	10	11.8
	Min.	23	18	20	20	2	12	21	5	0	-4	-5	-6	0	10	24	15	17	4	13	14	28	29	29	27	30	38	32	33	32	19	42	28 1
Estherville	Max.	34	31	23	23	22	38	33	31	15	20	7	7	30	29	30	34	32	..	33	33	-6	3	-1	18	21	24	19	29	5	-5	11	8 2
	Min.	15	17	8	9	6	6	7	2	-7	-5	-10	-7	1	11	25	22	17	..	7	5	22	26	21	25	30	36	30	34	31	21	36	26 7
Forest C'ty	Max	40	35	28	25	24	39	40	20	15	17	10	4	21	26	36	32	20	20	32	32	-6	9	0	17	24	30	17	29	6	-5	16	9.1
	Min.	15	15	15	12	1	-1	10	1	-7	-5	-10	-6	1	12	23	25	18	5	14	6	30	20	20	32	39	31	34	35	33	34	43	29 8
Galva	Max.	35	31	24	26	26	45	36	21	19	22	19	6	30	29	41	39	32	23	36	33	1	10	7	19	20	30	21	30	9	3	23	12.3
	Min.	11	22	11	15	14	9	11	4	-2	-1	-9	-7	1	20	20	20	23	13	18	14	18	28	20	30	30	40	35	35	35	20	41	26 4
G. Meadow	Max.	37	38	34	27	22	31	32	16	10	15	6	5	21	24	36	37	24	15	27	29	-5	15	10	14	25	25	19	30	12	-4	7	10.3
	Min.	23	21	18	15	5	10	15	3	-4	-6	-8	-10	-2	12	22	18	16	1	11	11	23	22	23	29	30	37	34	36	34	22	44	28.2
Greene	Max.	38	36	33	25	24	32	38	18	16	18	16	7	26	25	38	37	32	21	32	29	-3	16	3	16	25	29	20	31	12	-2	15	11.9
	Min.	19	25	19	14	5	7	15	3	-3	-1	-7	-5	1	16	21	19	21	7	16	14	32	30	35	42	41	42	33	42	38	37	46	33.9
Greenfield	Max.	42	38	33	32	30	43	31	25	20	21	15	10	33	35	44	45	35	29	39	33	32	30	35	42	41	42	33	42	38	37	46	33.9
	Min.	21	30	22	19	14	10	15	7	1	0	-5	-6	3	17	22	20	20	12	18	0	17	11	19	27	29	21	25	31	16	14	28	15.6
Grinnell	Max.	43	45	33	25	24	38	39	17	16	16	15	9	28	32	41	41	31	22	34	31	22	29	22	27	32	42	35	40	39	31	45	30.5
	Min.	27	32	19	12	2	12	12	12	1	1	-4	-4	1	20	26	26	21	10	12	15	0	16	7	19	25	30	25	32	19	10	20	15.3
Grinnell(n)	Max.	43	45	33	25	24	36	39	18	13	18	15	8	30	32	41	40	35	24	35	31	24	28	24	30	33	42	34	39	37	30	43	30.6
	Min.	27	32	16	15	6	10	15	5	1	-2	-5	-5	-1	18	25	25	23	10	17	17	0	16	8	19	25	29	25	32	17	10	23	14.6
Grundy C'r	Max	43	37	34	25	24	36	36	18	16	16	16	8	30	31	41	41	32	22	32	32	24	28	24	27	31	39	35	36	35	30	45	29 8
	Min.	22	28	18	14	5	8	15	4	-2	-3	-6	-10	0	18	21	24	22	7	13	16	-2	18	6	19	25	30	22	32	16	6	21	13.1
Guthrie Cr	Max.	44	38	33	30	29	47	42	23	22	22	20	10	34	36	46	41	33	28	40	39	31	33	25	34	39	42	36	38	37	39	43	34.0
	Min.	24	29	15	17	11	12	15	7	1	0	-6	-5	3	22	24	29	21	11	20	19	0	18	10	19	28	34	24	31	17	10	31	15.8
Hampton	Max.	42	37	24	26	25	42	20	20	7	18	16	7	28	32	42	39	28	21	34	31	26	22	26	30	32	39	32	37	35	29	48	29.1
	Min.	22	21	16	15	5	10	11	3	-3	-2	-9	-6	2	16	25	28	20	8	15	11	-2	11	2	21	23	32	20	32	10	0	20	12.2
Harlan	Max.	38	37	27	30	30	46	38	24	17	22	16	10	34	36	44	39	32	29	39	33	34	33	27	37	41	39	33	37	36	40	47	33.0
	Min.	16	21	12	18	17	10	14	6	1	0	-5	-6	4	21	22	19	23	13	18	16	4	17	10	16	24	31	21	30	10	9	27	14.3
Humboldt	Max.	38	34	25	25	28	43	40	20	19	20	20	7	30	32	40	38	30	24	36	36	26	30	24	28	35	40	34	37	36	30	44	30 6
	Min.	14	25	15	15	6	9	10	4	3	0	-7	-5	2	16	22	20	20	8	20	14	-2	10	4	20	27	32	22	31	12	4	22	12.7
Ida Grove	Max.	37	34	25	28	28	..	47	26	22	22	23	8	36	34	43	39	37	28	38	36	31	31	22	35	40	40	35	37	36	37	45	32.7
	Min.	14	23	11	12	16	11	15	5	0	0	-8	-8	2	20	22	24	25	15	20	15	3	13	17	20	23	32	24	31	9	5	27	14.1
In'pen'nce	Max.	37	36	35	24	22	34	35	16	15	14	14	6	23	25	37	38	33	18	29	27	19	27	21	27	28	40	35	36	36	22	43	27.5
	Min.	28	26	19	13	6	8	14	4	0	-1	-5	-5	2	17	23	21	18	6	13	20	-1	17	6	18	25	28	22	32	13	1	16	13.0
Indianola	Max.	..	..	..	39	29	44	45	23	23	20	18	13	33	..	..	48	38	35	40	38	30	33	37	33	41	45	40	40	40	40	48	35.1
	Min.	..	..	..	18	10	19	17	8	2	1	-3	-4	4	..	..	28	24	14	26	18	0	20	21	21	24	32	25	32	19	10	34	16.5
Iowa City	Max.	45	37	34	28	25	39	41	21	18	18	14	9	28	30	40	42	35	35	35	31	25	30	28	32	33	45	38	43	42	35	47	32.4
	Min.	21	30	21	14	9	13	18	8	4	1	-2	-3	0	11	22	23	23	11	13	21	1	13	10	22	21	32	26	33	19	11	21	15.1
Iowa Falls	Max.	39	36	23	25	24	40	33	18	15	18	11	6	26	28	38	36	29	21	33	30	25	29	24	27	32	38	33	36	35	27	45	28.4
	Min.	19	18	13	9	4	10	8	3	-3	-2	-8	-6	1	14	24	21	16	7	16	5	-2	10	5	17	25	30	21	30	10	3	21	11.0
Keokuk	Max.	46	35	24	29	25	35	42	19	16	16	6	11	32	35	45	43	34	26	34	37	26	35	30	29	35	51	43	47	46	41	51	33.0
	Min.	32	32	21	20	14	21	18	9	10	4	0	-5	5	16	28	32	26	16	16	28	6	19	22	22	23	34	33	38	25	31	34	20.0
Keosauqua	Max.	50	39	33	31	26	36	30	20	19	18	17	11	24	36	45	46	37	28	37	34	26	33	29	31	33	49	39	45	44	41	50	33.5
	Min.	25	32	17	12	10	20	17	9	7	0	-2	-5	0	13	28	30	24	13	16	23	3	20	15	21	22	33	32	34	23	17	29	17 3
LeMars	Max.	34	28	25	28	26	47	34	25	15	14	12	8	34	34	45	38	34	26	37	34	33	31	25	30	40	40	35	38	25	35	43	30.7
	Min.	10	17	7	19	17	12	15	5	-2	3	-8	-8	20	23	23	22	21	16	19	13	5	6	7	24	23	30	25	25	6	3	19	13.6
Lenox	Max.	44	39	35	32	31	43	43	26	20	20	17	11	36	35	47	42	35	29

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR JANUARY, 1903—CONTINUED.

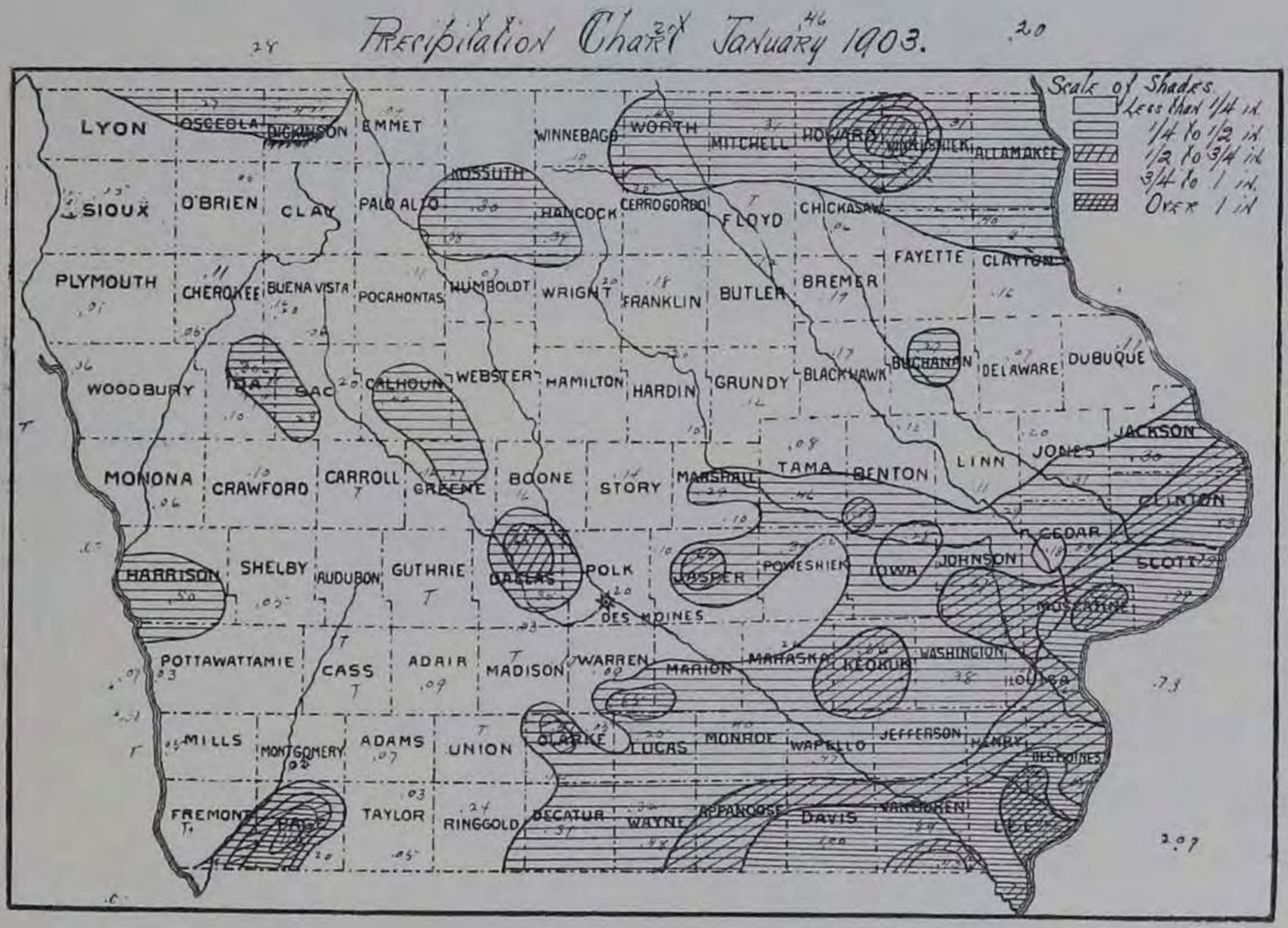
STATIONS.		DATE.																													Mean.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Logan.	Max...	38	35	28	35	32	27	21	25	21	17	24	13	37	38	45	37	33	30	40	35	34	35	32	35	44	41	34	37	36	43	48	33.2
	Min..	20	20	12	11	11	8	11	8	4	3	-3	-4	7	27	22	23	21	14	18	10	6	16	12	21	23	32	24	32	12	12	31	15.0
Maquoketa	Max...	43	38	35	28	29	25	37	21	18	15	14	8	19	23	41	42	31	24	30	35	21	31	26	31	30	43	39	41	42	26	45	30.0
	Min...	18	19	20	18	12	11	19	5	3	-3	-3	-5	0	10	25	18	19	8	12	20	1	11	0	20	24	30	27	32	19	6	13	13.2
Marsh'lt'n.	Max..	44	40	39	27	26	33	41	20	20	19	22	9	29	34	43	42	33	26	35	35	25	30	25	28	32	43	39	39	38	31	47	32.0
	Min...	26	28	19	16	8	11	16	5	0	1	-5	-5	0	21	26	27	23	9	18	19	0	21	7	20	25	31	24	32	18	8	23	15.2
Monticello.	Max...	20	24	22	18	14	20	42	18	15	10	8	12	25	32	28	27	25	29	38	40	35	22	28	32	38	45	40	40	38	28	45	27.7
	Min...	-1	2	7	6	7	10	8	5	4	0	-2	-5	-6	18	6	10	7	5	12	12	0	..	15	18	22	28	33	32	17	5	20	9.8
Mt. Ayr	Max..	48	39	32	31	32	44	41	27	15	18	15	10	38	36	50	46	33	32	41	33	32	31	28	35	45	45	35	43	43	42	49	35.1
	Min...	24	32	16	21	13	10	15	9	5	2	-4	-10	-1	19	23	22	21	12	14	18	1	20	13	22	27	33	28	32	17	15	28	16.0
Mt.Vernon	Max..	42	37	34	26	23	37	33	18	11	16	10	10	22	31	45	43	32	27	32	31	25	31	24	32	29	43	34	42	41	32	44	30.2
	Min...	23	32	22	14	8	11	12	6	3	-2	5	-5	1	18	22	23	18	7	12	12	0	15	7	18	24	25	24	33	17	6	21	13.6
NewH'pton	Max...	36	35	34	25	22	27	27	15	15	14	14	2	19	23	36	37	33	19	28	..	19	25	20	27	27	37	34	35	35	16	40	25.9
	Min...	19	25	17	11	4	5	14	0	-6	-6	-10	-10	-2	13	21	20	17	3	12	10	-5	14	3	3	23	26	19	30	10	-6	11	9.2
Newton ...	Max...	43	41	36	27	26	36	40	19	21	18	8	9	30	34	42	41	38	28	37	32	24	29	24	29	33	42	38	38	38	32	45	31.9
	Min.	21	31	15	15	4	9	13	4	-1	-2	-7	-8	-2	19	20	25	22	10	17	19	-1	18	9	19	25	29	24	31	18	9	24	13.2
Northwood	Max..	6	35	24	28	24	41	35	19	17	19	17	8	25	29	37	36	30	20	31	32	21	25	24	29	30	36	33	35	35	19	41	28.1
	Min.	14	18	14	11	11	5	10	1	-6	-3	-10	-6	2	13	23	18	16	5	13	5	-5	10	2	17	25	29	17	30	6	-6	12	9.4
Odebolt ...	Max...	38	35	26	27	26	42	38	22	20	21	20	8	32	34	43	39	35	26	37	35	30	32	23	34	40	39	38	35	34	38	45	32.0
	Min..	16	23	12	15	15	10	14	5	-1	-1	-7	-6	2	22	24	23	24	14	20	15	3	14	8	20	22	32	23	31	10	6	20	13.8
Ogden.....	Max...	46	40	35	27	30	45	..	25	..	20	20	22	36	35	49	41	35	28	42	35	28	34	25	29	36	41	37	37	39	41	50	34.8
	Min...	21	30	14	15	4	5	10	3	-3	-2	-9	-7	-2	17	18	22	20	10	17	15	-3	15	6	18	25	28	31	28	15	4	25	11.2
Olin..	Max...	37	39	35	28	26	28	25	20	17	18	16	9	23	28	38	38	35	23	30	31	23	34	25	31	31	43	48	42	40	25	43	30.0
	Min..	17	22	22	16	9	15	17	6	4	-1	-3	-3	0	13	25	19	22	8	12	21	1	13	9	20	26	30	35	33	20	6	15	14.5
Omaha, N.	Max...	42	37	31	35	32	49	34	28	22	24	7	17	38	38	51	41	31	30	41	35	37	37	28	37	48	41	33	40	34	47	50	35.3
	Min...	25	17	9	24	22	20	14	10	6	7	-1	-3	16	28	31	29	23	19	22	16	11	17	15	24	27	30	27	33	13	19	33	18.9
Onawa.....	Max..	40	32	25	41	33	46	37	29	23	24	16	16	37	38	47	40	33	27	39	35	34	32	25	35	43	42	35	38	35	44	49	34.3
	Min .	16	18	8	21	17	14	14	9	3	4	-2	-4	9	24	20	24	24	6	19	16	7	12	11	21	23	31	23	30	9	9	27	15.3
Osage.....	Max...	35	34	29	24	22	30	37	17	16	16	15	2	21	24	35	35	31	19	29	28	18	25	21	28	28	36	33	35	34	15	40	26.2
	Min...	17	22	17	11	7	5	14	2	-5	-5	10	-7	0	13	24	17	19	4	13	11	-7	12	1	15	25	28	18	31	9	-6	11	9.9
Osceola....	Max..	48	41	34	30	30	44	43	39	19	30	15	20	32	35	50	46	45	30	40	33	33	29	30	29	46	44	36	41	42	44	50	36.4
	Min...	25	33	18	19	12	14	13	9	-2	-1	-4	-5	1	20	21	34	22	12	18	13	1	9	12	13	22	21	17	16	12	12	18	13.7
Oskaloosa..	Max...	49	39	33	28	24	38	38	20	14	18	16	11	32	35	46	45	34	27	37	32	26	31	27	33	34	47	35	40	40	38	48	32.7
	Min...	23	33	18	15	7	17	14	6	3	-1	-2	-5	1	13	26	28	22	11	17	19	0	16	9	22	27	31	27	32	22	12	28	15.9
Ottumwa ..	Max...	49	42	35	29	28	44	42	20	18	18	18	14	29	36	45	47	33	27	38	34	28	34	28	32	35	50	39	45	43	41	50	34.5
	Min..	29	34	21	18	15	15	15	11	9	4	0	-1	5	24	30	29	25	18	19	19	7	21	20	23	28	34	31	35	22	18	31	19.6
Ovid.....	Max..	50	43	34	31	28	41	41	28	23	17	15	14	36	39	53	50	37	31	41	37	31	31	28	35	43	46	39	44	44	44	50	36.3
	Min...	24	31	17	18	9	15	15	5	4	-2	-5	-9	-1	16	23	26	24	10	15	23	0	23	12	19	26	32	34	32	20	15	28	16.1
Pacific Jct.	Max...	33	33	30	34	34	46	25	27	20	22	20	10	38	40	47	40	32	29	40	32	38	34	26	38	47	43	34	41	37	43	48	34.3
	Min...	20	20	11	24	20	15	17	10	6	4	-1	-4	7	20	20	21	23	13	13	23	6	20	20	22	24	31	24	33	15	14	29	16.8
Perry.....	Max ..	45	39	28	29	29	44	39	24	18	22	19	10	33	37	43	43	31	29	41	31	31	33	26	33	39	40	37	38	37	40	48	33.4
	Min ..	24	27	17	20	11	12	13	7	1	1	-6	-5	7	..	..	..	..	.	..	..	..	..	16	19	28	30	24	31	16	8	28	15.0
Plover.....	Max. .	35	30	25	26	24	43	..	23	21	18	5	21	29	31	40	36	29	20	36	33	22	22	23	29	37	38	35	37	33	30	42	28.2
	Min...	14	4	8	15	5	16	10	2	-4	-2	-10	-7	2	16	23	24	5	9	16	6	0	5	-1	18	19	20	21	32	9	4	19	9.6
Red Oak..	Max...	40	39	30	33	32	41	40	26	25	23	22	14	34	36	44	40	33	37	39	35	34	31	..	..	45	42	35	41	40	40	44	35.0
	Min...	25	26	20	25	24	20	19	13	8	11	3	1	11	20	25	28	25	12	26	23	10	23	18	22	34	34	29	34	19	20	33	20.7
Ridgeway..	Max ..	44	39	30	28	23	39	37	21	19	17	20	6	22	31	38	41	36	24	29	29	25	32	24	34	32	39	35	37	39	21	46	30.4
	Min ..	23	25	20	12	7	7	15	3	-4	-6	-7	-9	0	15	23	22	15	3	11	9	-5	12	1	15	26	32	18	30	12	-5	18	10.9
Rockwell C	Max...	40	40	25	25	30	40	38	21	17	21	23	10	30	38	42	43	42	35	40	25	30	28	21	33	36	40	37	37	35	40	45	32.5
	Min...	18	2.	15	21	15	10	14	5	-2	5	-6	-5	4	15	20	2.	25	20	20	10	2	10	10	19	25	30	22	31	15	10	30	14.6
Sac City....	Max.	36	34	35	28	26	44	40	20	18	21	28	8	32	33	40	38	35	25	37	33	31	28	22	33	38	36	30	39	33	35	44	31.6
	Min.	12	22	18	1.	14	11	11	4	-1	0	-8	-2	0	20	22	24	25	12	23	12	1	10	10	19	21	30	..	..	10	5	27	12.6
St. Charles.	Max...	52	39	33	30	30	44	39	27	19	19	10	14	36	38	52	46	36	28	42	30	34	32	26	34	42	45	35	39	33	43	49	34.9
	Min ..	26	33	18	18	12	13	15	8	2	2	-4	-3	4	22	28	30	24	14	20	20	1	18	11	22	28	33	25	32	18	12	30	17.2
Scranton ..	Max...	40	39	28	31	38	44	40	23	20	20	20	8	33	35	40	38	30	34	40	35	30	34	25	34	38	39	34	36	36	37	41	33.0
	Min...	23	28	15	16	12	12	15	6	0	1	-6	-5	2	23	25	27	21	20	20	17	1	16	9	19	28	30	23	30	15	9	28	15.6
Sheldon ...	Max..	36	28	25	25	..	47	33	25	15	21	9	10	32	30	43	39	33	23	36	35	30	30	21	31	37	37	33	34	33	32	42	30.2
	Min .	..	18	8	13		10	10	2	-5	0	-10	-10	-10	15	23	21	21	11	17	5	0	3	2	18	20	20	21	29	5	0	21	9.6
Sibley	Max..	36	..	25	23	24	43	10	20	18	20	5	6	32	29	40	40	32	20	35	32	30	29	20	29	36	37	35	33	32	32	41	28.2
	Min..	10	..	12	15	13	10	10	2	-6	-2	-10	-9	2	1	20	20	18	10	16	10	0	1	1	18	20	29	23	29	5	-4	19	9.4
Sigourney .	Max.	47	38	31	29	25	37	39	19	16	16	15	10	32	34	45	45	37	24	36	32	26	30	31	36	33	48	38	44	42	34	48	32.8
	Min...	23	31	20	13	7	12	16	7	4	-1	-2	-5	0	15	25	28	24	11	15	22	1	20	10	21	26	31	26	33	2	12	27	15.9
SiouxC'nt'r	Max ..	34	22	23	24	25	45	32	24	25	21	6	6	32	32	41	38	21	21	35	34	30	30	21	32	37	37	34	35	33	32	44	29.5
	Min ..	12	14	7	15	14	11	3	11	-4	-1	-9	-10	0	19	26	23	21	14	16	10	2	4	4	19	23	29	25	31	5	0	22	11.5
Sioux City.	Max...	33	29	24	29	27	51	29	25	16	23	4	12	35	36	46	39	28	25	38	37	39	38	22	34	41	39	33	37	19	39	47	31.4
	Min..	12	10	5	23	17	14	12	7	-1	4	-4	-6	12	25	28	22	20	18	21	11	8	7	10	22	25	30	26	19	7	9	28	14.2
Spirit Lake	Max...	42	30	32	23	42	32	22	22	13	22	5	6	22	32	39	39	30	19	35	32	27	28	28	32	34	36	34	34	32	29	32	28.5
	Min...	13	18	9	5	17	7	6	1	-7	-3	-11	-7	7	11	22	25	17	9	15	7	-4	1	0	26	21	28	25	29	5	-5	20	9.9
Storm L...	Max...	35	32	23	25	24	47	40	20	20	21	20	6	29	32	41	39	35	25	35	34	29	30	19	31	37	38	33	34	34	34	42	30.5
	Min...	15	20	9	11	3	10	12	2	-4	0	-10	-8	2	17	24	23	22	11	18	12	0	18	4	13	22	30	22	29	8	3	25	12.0
Thurman ..	Max,..	42	38	29	34	34	47	43	28	20	21	18	14	38	37	46	40	35	28,	40	32	36	35	28	35	47	44	35	40	38	43	47	35.3
	Min .	21	21	10	23	21	15	15	10	8	10	-1	-4	2	22	21	26	25	14	22	21	7	20	15	22	27	30	28	32	15	14	33	17.6
Tipton	Max .	42	40	..	42	27	28	37	21	18	15	15	10	23	29	41	42	36	26	32	34	23	32	27	32	31	44	38	42	44	28	45	31.5
	Min...	23	28	..	26	14	18	18	8	6	1	-2	-3	4	16	26	26	22	12	15	21	5	16	13	20	25	30	29	32	20	10	23	16.8
Toledo	Max ..	45	37	33	25	21	40	39	20	18	17	16	9	28	33	42	40	30	23	34	30	25	24	23	28	32	43	35	38	37	32	46	30.6
	Min ..	25	29	19	15	8	11	14	6	1	-1	-4	-5	2	20	26	28	20	8	16	15	-1	15	7	20	25	30	24	32	17	8	20	14.5
Wapello...	Max .	40	38	31	27	31	38	35	21	2	19	13	11	25	31	45	..	36	30	34	32	..	..	33	34	.	45	40	44	43	33	43	32.4
	Min ..	29	33	24	18	17	22	20	10	4	1	-1	-1	2	20	27	..	21	15	16	25	.	..	17	20	23	33	33	31	22	8	28	18.9
Washin't'n	Max .	49	35	21	28	25	40	25	23	15	18	5	5	30	33	43	46	33	25	35	33	25	33	2	32	33	44	48	44	36	35	47	31.4
	Min .	21	29	16	13	6	14	10	5	2	-2	-2	-7	-2	15	21	24	16	9	12	12	-1	11	8	18	23	28	21	31	16	11	25	13.2
Waterloo..	Max .	42	39	33	25	23	39	31	20	17	16	11	10	26	33	41	41	30	20	32	29	24	30	29	29	32	41	33	38	35	24	44	29.6
	Min..	19	27	19	15	8	9	16	5	0	0	-5	-4	5	9	24	21	20	8	12	14	0	12	7	19	24	30	23	31	17	1	20	13.4
Waverly ...	Max .	38	36	32	27	22	38	38	20	15	16	15	8	25	29	39	37	30	19	31	29	21	28	25	28	29	38	34	36	35	25	45	28.6
	Min.	18	26	19	13	8	8	13	4	-2	-1	-6	-5	1	18	24	29	19	7	7	11	-2	15	5	18	25	29	23	32	11	-1	17	12.7
West Bend	Max .	35	35	32	25	25	43	38	20	15	20	19	8	27	30	40	34	30	22	35	33	25	29	24	29	34	39	35	38	34	27	42	29.7
	Min..	14	20	14	13	5	8	10	3	-4	5	-8	-4	0	15	21	18	20	6	19	10	-4	8	3	18	22	31	21	31	11	-1	16	11.0
Whitten...	Max..	40	39	35	25	26	35	43	19	17	7	15	8	29	32	40	40	33	23	34	32	24	21	26	29	33	40	38	39	37	29	45	30.4
	Min..	21	29	17	14	5	8	15	3	-3	-2	-8	-7	0	18	23	23	20	7	16	15	-3	4	5	19	25	30	21	30	14	4	21	12.3
Wilton Jc..	Max..	44	30	36	29	28	28	38	26	16	19	15	8	28	32	39	42	35	23	32	35	23	36	30	32	48	38	40	45	42	29	45	32.2
	Min..	22	32	22	13	12	15	18	6	5	0	-3	-4	2	12	23	24	22	7	13	21	0	12	12	20	32	30	28	33	23	10	21	15.6
Winterset..	Max ..	49	39	36	30	30	42	40	25	25	20	16	10	36	36	50	45	42	31	41	40	33	33	35	40	43	43	39	38	36	42	50	36.0
	Min .	25	33	16	20	10	10	16	7	3	0	-5	-6	4	21	26	28	24	14	19	19	1	20	10	12	26	32	25	30	12	13	32	16.0

DAILY AND MONTHLY PRECIPITATION FOR JANUARY, 1903.

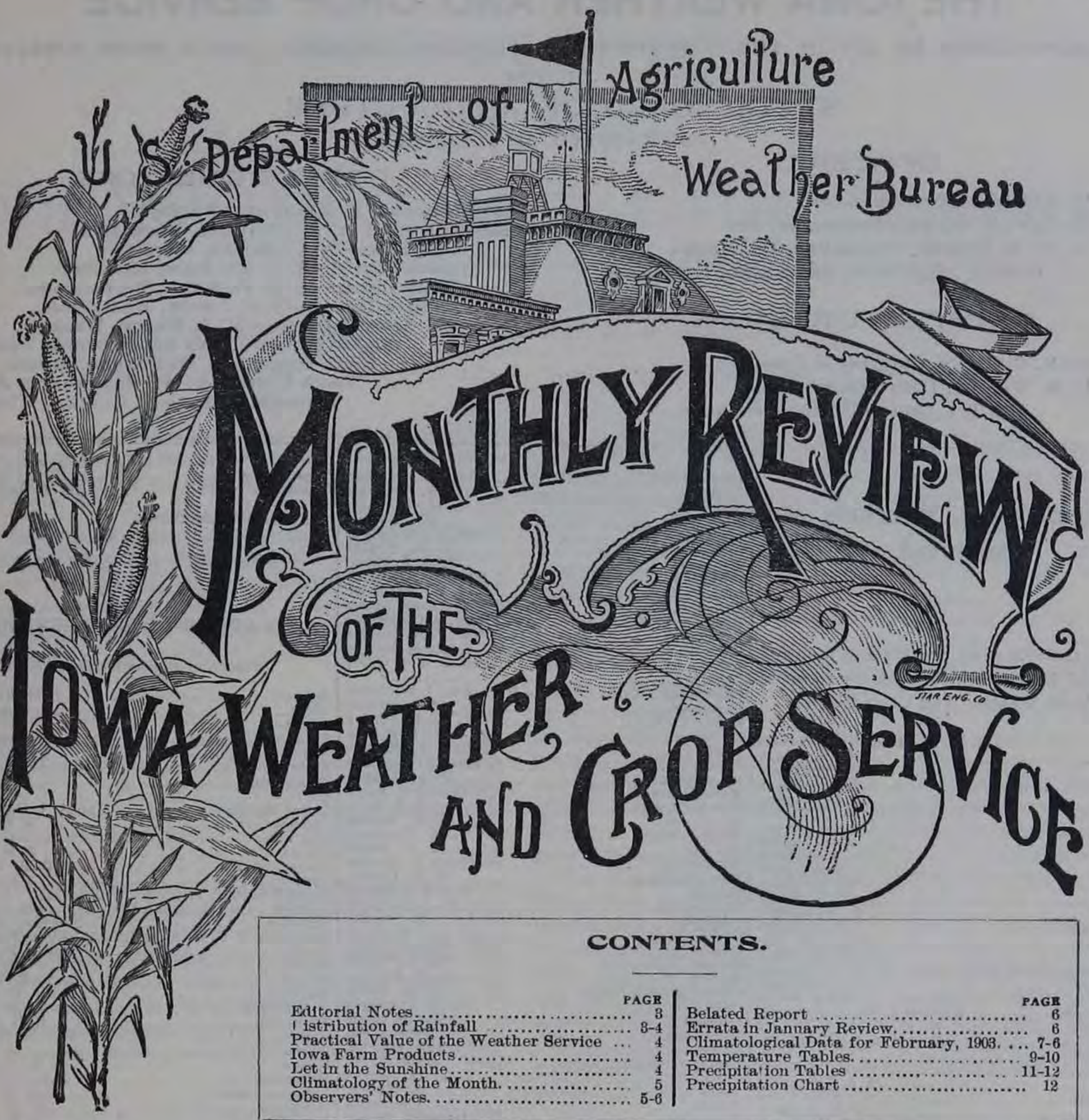
STATIONS.	DAY OF MONTH.																														TOTAL.
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Afton				T							T													T				T			T
Albia		.30		.07			T			T												T		T			T	.03			.40
Algona				T			.10			.15														T				.05			.30
Allerton		.13		.05			.05			T	.10											T	T	T			.15	T	T		.48
Alta				.01			.10			.02														T				.02	.01		.16
Alta (near)							.15															.07		.02				.05			.20
Amana		.06	.04	.04			T			T	.03											T	T		T		T		T		.28
Ames		.08		.01		T	T			T															T		T	.05	T		.14
Atlantic																															T
Baxter							.10																								.10
Bedford				T			T		.05														T		T	T	T	T	T		.05
Belknap		.50		.10			.10		T	.10												.05		.05				T	.10		1.00
Belle Plaine		.12		.05	.03						.20											20		.05	T		T	.02	.01		.70
Bonaparte							.20				.10													.13							.43
Britt		.09	.01	.04	T		.02				.03		T	T		.02						.02		.01				.13	.02		.39
Buckingham		.05		.02							.01																				.08
Burlington		.12				.05					.11											.04		.14							.58
Carroll				T	T		T			T	T														T						T
Cedar Rapids		.02		.02			.01			.02											.04		T	T					T		.11
Centerville																															
Chariton		.05		.04	T	T	.03			.02												T	T	.04			.01	.02	.04			.25
Charles City			T	T	T		T			T	T			T								T		T	T			T			T
Clarinda				T							.11																		.03			.14
Clear Lake		T		.10	T		.10			.05	T								T					T				T	T		.25
Clinton		.41		.15						.14												.04		.05					.04			.83
College Springs				T						.10	.10													T							.20
Columbus Junction		.01	T	T	.07		T				T											.03	.04	.06			T	.02	.03			.28
Corning										.07																						.07
Council Bluffs	T	.01		T			T			T																		.02				.03
Cumberland							T																		T	T						T
Danville		.70		T	T	.10													.10		T				.05	.10	.15				1.20
Davenport		.45	.02	.02	T		.16	T		T	.08											T		.07	T		T				.79
Decorah				.05			.09					.08		T													.04	.05			.31
Delaware				.02	01					.04																					.07
Denison							05			.05																					.10
Des Moines		.05	T	T	T	T	.05	T		T	.06											.03		T			T	T	.01			.20
Dows		T	T	T			.10			T														T			T	.10	T			.20
Dubuque			T	.03	.0	T	.07	T		T	.03			T								.04		T			T	.01	.02			.17
Earlham		T		.03			T			T	T																T	T				.03
Eldon	T	T	T	.05						T									T								T				.05
Elkader				.08			T				.08																		T			.16
Estherville				.02	T		.05			T														T				.02			.09
Forest City		.05		T			T			T	T								T					T			T	.05			.10
Fort Madison		.30	T	.25			.10			.25										T		.05	.30				.21	T			1.46
Galva				T			.10			.05								.15										T	T			.30
Gilman				T	T		T				.10	T										T		T			T	T				.10
Grand Meadow			T	.05		.07					.15			T					.05			T		T			.08		T			.40
Greene		T	T	.07			.05																	T					T			.12
Greenfield				.01			.02			.01	.02						T				T	T	T			T	T	.02	.01			.09
Grinnell				.12																		.14						.08				.34
Grinnell (near)				.05			05			T												.10		.01					.01			.22
Grundy Center		.09	T	02	T		T			T	T													T	T	T	T	.01	T			.12
Guthrie Center							T																				T	T	T			T
Hampton				.05						.12														.01								.18
Hanlontown																																
Harlan			T	T			T	T		.02	.02						T					T		T				.01	T			.05
Hopeville		.03		.02							.04												T				T	T	.03			.12
Humboldt			.04							T	01																		.02			.07
Ida Grove																												.10				.10
Independence		.05		.10	01		.02			.06				T								.02		.01			T	.02	.03			.27
Indianola				T			.02				.02													T					.19			.09
Iowa City		.30	T	T	.04		T				02											.05		.07			T					.67
Iowa Falls		.13		.05		T	T			T	T													.02			T	T	T			.20
Jefferson		02		.03			.10			.07																		.05				.27
Keokuk		14	.04	.08	.04		.08			.01	.20									T		.01	02	.15					T			.77
Keosauqua		.29		.16			.10				.18											.03	T	.08					T			.84
Lacona		.10				.12	.06			.09	08											.11		.09	T			07	.13			.85
Le Claire		.02	.50		.07		07	.03			02												T	.02	T			T		T		.73
Le Mars										T								T										T	.01			01
Lenox							T			.03																						.03
Leon		.08		.04	T		T			.12	.05												T	.02	T		T	T	T			.31
Logan							.20			.50																						.10
Maquoketa		T	10		.09						.05											.03		T				.03				.30
Marshaltown		.08	T	04			.04				.00											T		T				.02	.02			.29
Monticello		T		T			T	T			T	T										.20	T		T			T				.20
Mount Ayr		.04		.01			T			.10													T	.03	.02		.02	.02				.24
Mt. Vernon		.01	T	.04			T				.10											04		.06				.02	.02			.29
New Hampton				T	T		T				T								T					T			.05	.01	T			.06
Newton		.15		.10			.15				15											.10										.65
Northwood		T	T	.05	T		.20			T	.10			T					.05					T				T	T			40
Odebolt				T			.20			.08																						.28
Ogden		T					.01	05		.10																			.02			.16
Olin		05	T	.10				T		.08												.04		.04		T			T			.31
Omaha, Neb		.0	T	T	T		T			.03	.01			T								T					T	.02	.01			.07
Onawa				T			.05			T	T																	.01	T			.06
Osage		.01	T	.05	.01		.10			T	.05			.02					.05					.0	T				.01			.31
Osceola		.03		T			.01	T		.50	.02													.01			T					.57
Oskaloosa		.04		.01			.02			.04	.04										.03			.03								.22
Ottumwa		.10		20						.15														.02								.47
Ovid		.08		05	T		T	T		.13														T			T		.06			.32
Pacific Junction		T	.01	T			T			.04																			T			.05
Perry		T		.05			.10			T																			T	.50			.65
Plover				05																				T				.06				.11
Red Oak		T		T			T			.05												T		T			T	T	T			.05
Ridgeway		.01	.01	.12	.03	07	.40			.16	.01			.01					.02			.02		.01	.01		.12	.10	.04			1.14
Rockford				T						T																T		T			T
Rockwell City						.10	.30																					T	T			.40
Sac City						.10	.10			T	T																					.20
St. Charles				02			.05	.02		T	.06													T			T	01	.01			.17
Scran on		T		.04							.08																	T				.12
Sheldon							.05			T																		T	T			.05
Sibley				.02			05			.05	T								T	.05				T				T	1C			.27
Sigourney			36	.08			T			T												.07		.05			T		T			.56
Sioux Center							T			T								T										T	03			.05
Sioux City		T		T			T			.01	T			T				.01	T			T	T					.03	.01	T		.06
Spirit Lake				.10			.30				T																					.40
Storm Lake				T			T			T	T													T				.06	T			.06

DAILY AND MONTHLY PRECIPITATION FOR JANUARY, 1903—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	
Thurman	T	....	T	T	....	....	T	....	....	T	....	....	....	....	....	....	....	..	....	....	...	....	....	...	....	....	....	....	T	....	....	T
Tipton	....	.10	....	T	....	....	....	....	....	....	....	....	....	..	....	..	..	....	....	..		.10	....	.15	T	...	.	....	T	....	....	.35
Toledo	....	.18	....	.08	T		.0	..	.	.05	...	....	....	....	..	...	....	..	....	....	.10	....	....	T	....	....	....	....	....	....	....	.46
Vinton	....	T	....	.05	....		.02	....	....	T	.	....	....	..	....	....	..	....	....	....	.05	....	..	T	..	....	....	..	T	....	....	.12
Wapello	....	.20	T	.15	....	....	....	....	....	.10	...	....	....	....	....	....	..	....	....	....	..	.05	....	.15	....	....	....	..	..	....	....	.65
Washington	....	.02	....	.18	..	....	.03		....	.	.	....	....	...	..	....	....	....	...	...	..	.10	. .	.05	....	..	..	....	....	....	....	.38
Washta	....	....		T	..	..	T	..	...	.05	....	....	....	....	....	---	....	T	....	..	..	...	....		....	..	....		T	....	....	.05
Waterloo	...	T	T	.06	....		.05	..	..	....	.06	.	...	....	..	....	....	....	...	..	....	T	....	T	..	....	T	T	T	....	..	.17
Waukee	....	T	...	.10	..	..	.10	....	...	.10	...	....	..	....	....	....	....	....	....	..	....	.05	..	T	....	..	....	T	T	....	....	35
Waverly	....	.01	.07	.02	.01	....	.02		....	.01	.05	....	....	....	....	....	....	....	....	....	....	....	....	T	....	..	.01	.02	.02	....	....	.19
West Bend	....	....	...	.05	T	....	.20	....		05	....	..	..	....	....	....	....	T	....	....	...	....	....	T	....	..	....	....	c8	....	....	.38
West Branch	....	....	T	.05	....	..	T	....	....	T	T	..	....	....	....	....	....	....	....	...	.05	....	....	c8	..	..	T	T	T	.	....	.18
Whitten	....	T	T	.05	T	.05	.05	...	....	T	....	....	..	..	....	....	..	....	...	...	....		....	T	....	....	T	T	T	.	....	.15
Wilton Junction	..	.20	....	T	.	....	....	..		.10		....	....	....	....	....	....	....	....	....	....	.05	....	.07	....	..	....		....	....	.	1.02
Winterset	....	....	....	T	....	....	T	....		T	....	...	..	....	....	....	..	....	..	....	....	..	....	..	....	....	....		T	....	....	T
Woodburn		T	....	T	...	....	T		....	....	....	..	....	....	....	....		....	....		....		.05				..	T	..		...	.05



FEBRUARY, 1903. No. 2.



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DES MOINES:
BERNARD MURPHY, STATE PRINTER
1903.

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U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

VOLUME XIV. FEBRUARY, 1903. No. 2.

EDITORIAL NOTES.

Snowfall in the Texas "Panhandle" of sufficient depth to stop railway traffic was a recent novelty, breaking the weather records in that region for the past twenty years.

* * *

On the average the winter has been fairly mild and favorable for this latitude. December was a little colder than usual, but January was warmer than the average, and February brought no very severe storms. The forecast made by some weatherwise people, that the winter's snowfall would be correspondingly heavy as the summer's rainfall, came far short of verification.

* * *

A farmers' mutual insurance company of a county in a western state paid $2,375 on thirty-nine losses during the year. Of this amount $2,284.84 was for losses caused by lightning, stock killed, while only $129 75 was paid out for fire losses. This goes to show that lightning in these days of barbed wire fences is a very destructive agent —*J. S. Trigg.*

* * *

The bureau of forestry will this year begin experimenting among the sand hills of northwestern Nebraska, to see if they may be made to grow valuable timber. A nursery has been established at Halsey, Nebraska, and seed of yellow pine, jack pine, and red cedar will be planted this spring. About 100 acres will be uses for experimental work this year, and it is expected in time to extend the forest over a large part of the Nebraska reserves. The experts believe the experiment will be successful.

* * *

Mr. C. W. Hawley of Fort Dodge, contributes an interesting description and a graphic representation of parhelia observed by himself and others about 11 a m. on February 7th. There were three brilliant "mock suns" within a bright aureole encircling the zenith and in contact with the sun at the south. The phenomenon continued about half an hour The sky was blue, with a light haze, following snowfall of about six inches earlier in the day It was a rare but not an unprecedented sight under certain peculiar atmospheric conditions Observer L. E. Burdick at Storm Lake observed the phenomenon, and made a pencil sketch of the rings and luminous spots.

* * *

In a signed letter addressed to the editor of the Cincinnati *Price Current*, Prof. Willis L. Moore, chief of the weather bureau, says: "No reputable scientist will today essay to make long-range predictions. With our present knowledge of meteorological science such forecasts cannot be made with any marked degree of accuracy. Of course, anyone, with a proper consideration of the weather that usually occurs in a season,may make long range predictions and have some of them verified, but such work is worse than useless. If it were possible to make reliable long-range forecasts the weather bureau, with its corps of trained scientists, would surely do such work for the people, as no one can overestimate the immense benefit that agricultural and commmercial interests would reap from a knowledge of what the weather would be during an advancing crop season."

THE DISTRIBUTION OF RAINFALL.

(*A. S. Henderson Ph. D., in November, 1902, Harpers.*)

Rainfall, an agency at first sight so humble, is, through the ultimate dependence of all life upon vegetation, an essential link in the chain which connects the lowest and the highest forms of life. The difference in the vegetative covering in low lands is due not so much to variation in sunshine or temperature as to the differences in the distribution of the third factor —moisture.

The moisture of the atmosphere has not until recently been so thoroughly studied as temperature or pressure and winds. Yet it plays an all important part in the world's economy. Water is the life blood of the organic world, penetrating to all parts of it, purifying the air and fertilizing the land. As cloud it screens the earth' surface from the scorching sun's rays and protects it from excessve radiation. When it is deficient, extremes of temperature are great and vegetation is scanty; when it is abundant, climate is relatively equable and vegetation is prolific. The distribution of water available for plant growth is therefore a question of supreme practical importance.

The measurement of rainfall is very simple when proper precautions are taken. The amount precipitated is usually expressed in terms of the depth to which it would cover the land were none to sink into the ground and none to be evaporated. Millions of observations have been made on rainfall. The map of the rainfall of the world is based on returns from nearly 9,000 stations, and if we consider fifteen years as the average period of observation at each station, which is considerably under the mark, it represents 50,000,000 observations taken in different parts of the world.

The scientific study of rainfall distribution has been mainly the work of the last quarter of a century. The first temperature map of the world was made by the great Humboldt in 1817; that of pressure by Dr. Buchan of Edinburg in 1869; while the first quantatitive map of rainfall was made just twenty years ago by Prof Loomis of Yale. Since that time Dr. Supan of Gotha and the present writer have independently made public maps, embodying more recent results, in 1898.

By examining a map of the rainfall of the world, we notice at once that rain is very unevenly distributed. In many intertropical lands over eighty inches falls every year, while arctic circles are correspondingly dry. Arctic aridity and equatorial rains are partly expressions of the temperature differences. The warmer air holds more water in a state of vapor than the colder air, and the same degree of cooling brings about a much greater precipitation in the hotter regions. A cubic foot of air over the Caribbean Sea at 80° F. can hold 10.95 grains of water in the state of vapor, whereas at Boston at 50° F. it can hold 4 09 grains, and over Hudson Bay at 20° F. only 1.30 grains. Supposing the cubic foot of air at these places was suddenly cooled by 10° F. which is roughly what would happen were it rapidly elevated to 3,000 feet above the sea, then it could contain only 7.99 grains of water vapor at the Caribbean Sea, 2.86 grains over Boston, and 0.84 grains over Hudson Bay, forcing 2 96 grains to be precipitated in the first case, 1.23 grains in the second case, but only 0.46 grains in the third. Without going into further details, it is obvious from this that the possibilities

of heavy precipitation due to cooling diminish from the thermal equator to the thermal poles.

The divisions of the world by rainfall are of the greatest practical consequence. Each has its characteristic vegetation, and, speaking generally, the economic products of one region of each group can be grown in any corresponding region as far as climate is concerned. An instance in point is the similar distribution of Mediterranean climates and Mediterranean fruits.

Many economic problems in which rainfall is a factor present themselves for consideration, of which one or two may be mentioned as typical. There is an inferior and a superior limit of rainfall for each crop. Very little wheat is grown in the United States to the drier western side of the line where the mean annual precipitation is twenty inches. In England wheat growing is concentrated in the eastern counties, where the rainfall is less than thirty inches per annum, and in Scotland it is cultivated in similarly dry areas. In South Australia special attention has been paid by Sir Charles Todd to the relationship between the yield of the wheat crop and rainfall. The figures of average rainfall and average yield for the agricultural lands of south Australia show how very close is the connection between them.

Natural grass and fodder plants flourish best where the rainfall is uniformly distributed, and their economic value, as measured by the number of animals they can support, steadily increases with rainfall Mr. J. T. Wills shows that in Australia land receiving less than ten inches of rainfall per annum is worth next to nothing unless it can be irrigated; with ten inches of rain eight or nine sheep can be kept per square mile; with about twenty inches of rain, 640 sheep per square mile, eighty times as many; and with thirty-four inches of rain in Buenos Ayres, a square mile will support the enormous number of 2560.

The day of the medicine man with his rain-making charms is past. The future belongs not to the magician who attempts to interfere with the laws of nature, but to the man of science who can state with something approaching to certainty how they will operate under given conditions. Of all those who contribute to the cause of human progress, and the transferrence of human activites from the sphere of the accidental to the sphere of the causal, none perhaps are concerned with weightier issues than the men who patiently and persistently, day by day and season by season, measure and compare, compare and measure, the rainfall of their little districts. We may forgive the meteorologist his uninteresting statistics when we reflect that in their trustworthiness and in their right interpretation may lie the future of an abundant food supply and even of industries yet undeveloped.

PRACTICAL VALUE OF THE WEATHER SERVICE.

(From J. S. Trigg's Farm Notes.)

It costs this country $1,250,000 annually to maintain the weather signal service, and a friend writes us asking what it amounts to and what goood it does. Where a man's view is contracted so that he can only take in his immediate local conditions it is not strange that such a question should be asked. This service from a small beginning has been gradually extended so as to cover nearly the whole country. It furnishes the only reliable data as to rainfall, force of winds, varying temperature and barometrical readings. The reports from its agents are tabulated in each state, and very accurate forecasts can thus be made of coming marked changes in the weather. The value of these reports as applied to the coast and lake shipping interests is almost inestimable, while for the agricultural and horticultural interests of the country immense good results. A warning recently given out by the weather bureau saved the people of Florida millions of dollars, and a late notice given of a coming cold wave prevented shippers of perishable products from losing an enormous sum of money. The records thus made of the rainfall in any locality constitute the most reliable information to be obtained as to whether such locality is fit for settlement and cultivation or not. Perhaps if the weather service assumed to be wise enough to forecast the weather a year ahead, as do some so called weather prophets, those who doubt its value might have more faith in it. It is one of the best organized and most useful departments maintained by the general government.

IOWA FARM PRODUCTS.

Concerning some of the major and minor products of Iowa, William E Curtis of the *Chicago Record-Herald*, writes as follows:

George Fayette Thompson of the bureau of animal industry of the Agricultural Department has been making a very interesting comparison between Iowa and other of the great agricultural states in this respect, and secretary Wilson approves the totals. In 1900 the number of poultry in Iowa over three months old was 20,043 343, and they were worth $6,535,464 A comparison of values with previous census years cannot be made, as the census of 1890 only gave values. The value of poultry products for one year, when compared with that of poultry for one year is sufficient to cause astonishment For instance, the value of poultry on the farms of Iowa, as has been stated, was $6,535,464 while the poultry and eggs sold off the farm amounted to $19,508,526. Of the latter sum $10,016,707 was for eggs and $9,491,819 was for poultry. The number of dozens of eggs laid in Iowa in 1899 was 99,621,920, which was an increase of about 20,000,000 dozen over 1889. The average price per dozen of the eggs was 10 cents. The value of all animal products on the Iowa farms was $169,858,981, poultry products forming 11 5 per cent of the whole. The animals sold; with a value of $113,078,523, and the dairy products, with a value of $27,516,870, were the only two products worth more than poultry and eggs. The statement below shows the relative position of poultry in the farm economy of Iowa:

Animals sold	$113,078,523
Corn	97,297,707
Oats	33,254,987
Hay and forage	30,042,246
Dairy products (milk, butter and cheese)	27,516,870
Poultry and eggs	19,016,707
Wheat	11,457,808

LET IN THE SUNSHINE.

Spring is coming and with it sunshine and greater warmth. Do not shut out the sunshine. It is Nature's great healer and preventive of sickness. In the Mammoth Cave of Kentucky, there is a wonderful uniformity of temperature and because of this there was a belief that consumptives might be benefited by a residence there. So huts were built and the experiment tried. It was not a success There was quiet there; there were no adverse winds, but there was darkness, impenetrable darkness, where artificial light was not used. There was no sunshine, and its absence counteracted all the benefits derived from pure air, uniformity of temperature and quiet.

Invite the sunshine into your home, Don't allow the house to be so shaded by trees that it will be darkened or dampened thereby. Especially let the sunshine into the sick room. The patient needs its health-giving as well as cheering rays. The sunlight will not only warm, but purify the air and destroy

disease germs. As vegetation sickens, dies or has an unhealthy growth in the shade; so animal life loses its vitality, droops and dies without the invigorating influence of sunshine. Don't shut out the sunshine!—*Iowa Health Bulletin*.

CLIMATOLOGY OF THE MONTH.

BAROMETER—Mean pressure, 30.16 inches; highest observed, 30 68 inches, at Des Moines, on the 18th; lowest observed, 29.37 inches, at Davenport, on the 3d; range for state, 1.31 inches.

TEMPERATURE—The monthly mean temperature for the state, as shown by the records of 108 stations, was 19.8 degrees, which is 0.2 degree below normal. By sections the mean temperatures were as follows: Northern section, 17 2 degrees; central section, 20 2 degrees; southern section, 22.1 degrees. The highest monthly mean was 26 4 degrees at Keokuk; lowest monthly mean, 14 2 degrees, at Estherville. The highest temperature reported was 56 degrees, at Eldon on the 2nd; lowest temperature reported, -21 degrees, at Clear Lake, Estherville and Sioux Center, on the 16th, 17th and 18th. The average monthly maximum was 45 7 degrees; aveage monthly minimum, -16.4 degrees. Greatest daily range, 44 at Villisca; average of greatest daily ranges, 35.8.

PRECIPITATION—Average precipitation for the state, as shown by records of 120 stations, was 1.18 inches, which is 09 of an inch above normal. The averages by sections were as follows: Northern section, 1.02 inches; central section, 1 13 inches; southern section, 1 38 inches. The largest amount reported was 3.25 inches at Danville; least amount reported, .30 of an inch, at Galva. The greatest daily rainfall reported was 1 50 inches at Indianola, on the 4th. Average number of days on which .01 of an inch or more was reported, 4.

WIND AND WEATHER—Prevailing direction of the wind, northwest; highest velocity reported, 52 miles per hour, from the northwest, at Sioux City, on the 28th. Average number of clear days, 13; partly cloudy, 7; cloudy, 8

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced	EXTREMES			
		Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	30.12	30 58	18	29 37	3
Des Moines	30 18	30 68	18	29 48	27
Dubuque	30.14	30.56	18	29 39	28
Omaha, Neb	30 19	30 75	18	29 38	27
Keokuk	30 14	30 65	18	29 39	3
Sioux City	30.20	30 61	18	29 41	27
Means	30 16	30.68	18	29. 37	3

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	5688	32	NE	3
Des Moines	6521	34	NW	28
Dubuque	5358	32	NW	18
Keokuk	5993	34	W	28
La Crosse, Wis	5784	38	N	28
Omaha, Neb	7191	41	N	28
Sioux City	8426	52	NW	28

OBSERVERS' NOTES.

ALTA—*David E. Hadden.* Blizzard nearly all day the 3d. Second decade very cold; warm and thawing latter part of month.

ATLANTIC—*J. W. Love.* February was a pleasant month. Quite an electrical display in southeast on night of 2d.

BONAPARTE—*B. R. Vale.* A pleasant month; coldest of the season 16th to 20th; roads very muddy at close of the month.

BRITT—*Geo. P. Hardwick.* Excepting from 15th to 20th the month was comparatively mild, with light snowfall, allowing stock feeding in stalk fields.

CLEAR LAKE—*John Cobb.* No bad storms; ideal weather most of the month.

CLINTON—*Dr. Luke Roberts.* February, 1903, was a disappointment to many weather prophets who had avertised an extra cold month as well as a very stormy one. While there was one excessively severe and widespread storm period about the middle of the month, its behavior during other portions entitles it to be entered in the column of mild Februaries.

The month came in cloudy and sustained that record to the number of three cloudy days above normal and three per cent of cloudiness above normal, while the clear days were one less than normal. The storm days were 8 in number, each giving light precipitation, so that the total rainfall was only 1 29 inches, being 67 hundreths of an inch below normal. This was principally in the form of snow which, in depth, measured 9½ inches. There were three days, the 16th, 17th and 18th, which gave a mean temperature below zero of 1.5 degrees, 1.7 degrees and 1 degree respectively. The mean temperature for the month was 23 9 degrees, or 2 6 degrees above normal. The maximum temperature was 52 degrees, occurring on the 27th, being 1.3 degrees above normal.

Following is given some season comparisons of the last 25 winters, that is the time embraced in the three months commencing on the first of December. There is found great variation both in rainfall and temperature, especially in the latter. The mean daily temperature for this period was 21 4 degrees. For the winter just closed the mean temperature was 23 degrees or 1.6 degrees above the 25 year average, which is a small variation from normal, but enough to entitle it to a place among the warmer winters.

The highest average winter temperature for the 25 years, was 31 degrees, credited to the winter of 1899–00. The lowest average was 14 degrees, occuring in the winter of 1892–93, making a range of 17 degrees, which aggregated by its multiplication with the number of days in a winter, which is 90, would give to the latter winter 1,260 degrees of heat less than is embraced in the former.

The maximum temperature for the 25 winters was 67 degrees credited to February, 1891. The minimum temperature was 36 degrees below zero, credited to January, 1884. Approximating this terrible cold period may be mentioned a record of 33 degrees below zero in February, 1885, and one of 30 degrees below zero in December, 1886. It will be noticed that these three low records occured in three continuouos winters. Those winters can never be lost to the memory of those who experienced the inflexibility of the extreme and prolonged cold, when the minimum temperature would range from 4 to 36 degrees below zero for 16 consecutive days, and the earth frozen six feet down.

The total precipitation for the 25 winters was 11.75 feet. About one-half of that amount came in the form of snow, equaling fifty feet in depth, or an average of two feet per winter. The winter of 1884–85 furnished four feet of snow.

EARLHAM—*Geo. Phillips.* Cool and cloudy; ground bare at close of month; first flight of wild ducks on 27th.

ELKADER—*Chas. Reinecke.* Ice went out of Turkey river on 27th.

GRAND MEADOW—*F. L. Williams.* Month generally pleasant; no bad storms.

RIDGEWAY—*Arthur Betts.* Month mild; 3° above normal; 220 hours of sunshine; coldest weather of the winter 15th to 21st, with a mean of 5 degrees; about one-tenth of the corn remains to be husked.

BELATED REPORTS.

FAYETTE—January. Mean temperature, 19.3°; highest, 43° on the 29th and 31st; lowest, -9 on the 12th; greatest daily range, 33; total precipitation, 04 inch; greatest 'in 24 hours .04 inch; total snowfall 0.5 inch; prevailing direction, northwest Number of clear days 12, partly cloudy 8, cloudy 11, rainy 1.

MT. PLEASANT—January Mean temperature; 24.2°; highest, 52° on the 16th; lowest, -5° on the 12th, greatest daily range 34; total precipitation .15 inch; greatest in 24 hours, .10 on the 4th; prevailing direction, northwest; total snowfall, 1.0 inch. Number of clear days 12, partly cloudy 9, cloudy 10, rainy 2.

PELLA—January. Mean temperature, 24.4°; highest, 49° on the 31st; lowest, -5 on the 12th; greatest daily range 34; prevailing direction, northwest. Number of clear days 13, partly cloudy 0, cloudy 18.

VILLISCA—January. Mean temperature 26.4°; highest 50° on the 15th and 16th; lowest, -5° on the 12th; greatest daily range, 36; total precipitation .05 inch; greatest in 24 hours; .05 inch; total snowfall, 0.5 inch; prevailing direction, northwest. Number of clear days 12, partly cloudy 13, cloudy 6, rainy 1.

STOCKPORT—January. Total precipitation .39 inch; greatest in 24 hours .10 inch on the second; total snowfall 3.8 inches; prevailing direction, northwest. Number of clear days 14, partly cloudy 3, cloudy 14, rainy 8.

ERRATA IN JANUARY REIVEW.

ALTA—Mean temperature recorded 23.6° on page 6, should have been 21.6°. Mean minimum temperature recrded 15.5° on page 8, should have been 11.5°.

COLLEGE SPRINGS—Mean temperature recorded 27.4° on page 7, should have been 27 2°. Mean minimum temperature recorded 18 7° on page 8, should have been 18.4°.

COLUMBUS JUNCTION—Mean temperature recorded 24 4° on page 7, should have been 24 5°. Mean maximum temperature recorded 32 3° on page 8 should have been 32.6°.

BURLINGTON—Maximum temperature recorded 53° on the 1st, should have been 66° on the 28th on page 7.

GRINNELL—Total snowfall recorded 3 8 inches on page 6, should have been 2 8 inches.

OGDEN—Mean temperature recorded 23.0° on page 6, should have been 23.7°. Total precipitation recorded .16 inch on pages 6 and 10, should have been .18 inch.

OTTUMWA—Total snowfall recorded 3.8 inches on page 7, should have been 4.8 inches.

CLIMATOLOGICAL DATA FOR FEBRUARY, 1903.

NORTHERN SECTION

STATIONS	COUNTIES	Elevation, feet	Length of record, years	TEMPERATURE, IN DEGREES FAHRENHEIT							PRECIP., IN INCHES				Number rainy days	SKY			Prevailing direction of wind	DATES OF THUNDER-STORMS.
				Mean	Departure from the normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from the normal	Greatest in 24 hours	Total snowfall (unmelted)		Number clear days	Number partly cloudy days	Number cloudy days		
Algona	Kossuth	1.213	28	17.0	- 0.2	40	23, 26, 27	-20	17	33	.95	- .38	.40	5.5	5	10	13	5	NW	
Alta	Buena Vista	1,513	11	15.9	- 0.7	40	10, 22	-19	16	30	.93	† .14	.40	6.1	5	15	7	6	NW	
Alta (near)	Buena Vista										.90		.40	6 5	6					
Britt	Hancock	1,236	5	16.6	- 0.6	43	26	-19	16, 17	40	.63	- .24	.29	3.4	5	7	16	5	NW	
Charles City	Floyd	1,012	11	19.8	† 3 9	44	1, 26	-17	18	29	.50	- .81	.26	2.4	2	16	7	5	W	
Clear Lake	Cerro Gordo	1,241		16.0		42	26	-21	16, 18	40	.62		.35	3.8	3	15	8	5	NW	
Decorah	Winneshiek	875	8	18.1	† 3.1	43	10, 27	-18	18	38	1.09	† .16	.52	9 2	4					
Dows	Wright	1,142		18.0		42	1	-20	17	39	1.45		1.00	11.0	4	19	2	7	NW	
Elkader	Clayton	727	21	20 6	† 2 3	52	26	-15	17, 18	41	1.46	† .35	1.00	12.0	2	14	9	5	NW	
Estherville	Emmet	1,298	7	14.2	- 1.5	40	26	-21	17	34	1.01	† .34	.90	9.0	3	23	3	2	NW	
Forest City	Winnebago	1,226	8	15.7	† 0.7	40	26	-20	16	40	.80	† .03	.40	4.0	2	16	6	6	W	
Grand Meadow	Clayton	1,180	11	17.0	- 0.3	44	10	-18	18	27	1 18	† .16	.57	6 2	5	13	9	6	NW	
Greene	Butler	924	5	19 1	† 2 5	44	26	-16	18	29	.8	- .17	.38	5 0	4	10	8	10	NW	
Hampton	Franklin	1,155	12	18.6	† 1.9	46	1	-17	17, 18	36	1.52	† .39	.95	13.9	4	11	14	3	NW	
Hanlontown	Franklin			16.4		45	28	-20	6	41			.37			19	5	4	NW	
Humboldt	Humboldt	1,095	10	18.2	† 1.2			-17	18	36	.43	- .22	.42	T	2	22	0	6	NW	
Larrabee	Cherokee	1,366		16.4		45	22	-20	16, 17	36	1.13		.67	10.4	4	15	9	4	SW	
Le Mars	Plymouth	1,224	6	15.8	- 1.3	43	22	-19	18	33						19	7	2	S	
Mason City	Cerro Gordo	1,132		20.4		44	26	-15	16, 18	31	1.11		.73	7.4	3	15	7	6	NW	
New Hampton	Chickasaw	1,169		17.2		43	25	-19	18	36	.60		60	6.0	1	13	8	7	NW	
Northwood	Worth	1,222	6	17.8	† 2.8	42	25	-19	16	39	1.12	- .12	.60	6.5	3	17	7	4	NW	
Osage	Mitchell	1,184	11	17.6	† 3.2	43	25	-18	18	35	1.05	- .15	.60	6.9	5	12	9	7	NW	
Plover	Pocahontas	1,190	5	16 0	- 0.7	41	22, 26	-21	16, 18	37	.57	- .09	.30	3.5	3	20	4	4	W	
Ridgeway	Winneshiek	1,215		19 8		48	26	-18	17, 18	38	2 05		1.11	9 0	11	16	9	3	NW	
Sheldon	O'Brien	1,422		15 2		42	26	-20	17	38	1 57		1.00	12.7	4	14	5	9	N	
Sibley	Osceola	1,512	8	15.9	† 0.5	42	22, 26	-18	16, 18	28	.50	† .02	.20	5.0	5	8	18	2	NW	
Sioux Center	Sioux			15.0		40	22, 26	-21	17	35	.90		40	7.0	5	8	13	7	NW	
Spirit Lake	Dickinson	1,458	8	14 6	- 1.3	40	22	-20	17	32	1.00		.80	10.0	2	23	1	4	NW	
Storm Lake	Buena Vista	1,440	7	10.5	† 1 5	40	22	-20	16, 18	34	1.11	† .46	.62	5.0	4	19	2	7	SW	
Washta	Cherokee	1,157									1.20		.60	9.0	3	20	5	3	S	
Waverly	Bremer	942	6	18.9	† 0.4	45	10	-16	18	38	1.49	† .41	.85	11.4	8	11	11	6	NW	
West Bend(a)	Palo Alto	1,197	8	16.4	† 0.1	43	10	-19	16	38						11	13	4	NW	
Average				17.2	† 0.8	43.5		-18.7		35.4	1.02	† .02		7.4	4	15	8	9	NW	

CENTRAL SECTION.

Amana	Iowa	721	25	21.7	† 1 6	49	1	-13	17, 18	39	1.47	† .19	.57	10.9	8	10	9	9	NW	
Ames	Story	926	20	19 6	- 2.3	47	22	-14	16, 18	40	.94	† .07	.35	5.0	5	18	5	5	NW	
Baxter	Jasper	998		20.8		45	1, 26, 27	-15	18	40	1.15		.50	5.5	4	10	3	15	NW	
Buckingham	Iowa										.61		.40	5.2	6	9	14	5		
Carroll	Carroll	1,265	12	19.0	‡ 0.0	44	22, 24	-18	16, 18	35	1.29	† .14	.75	9.5	4	17	6	5		
Cedar Rapids	Linn	733	19	22 4	† 1.6	48	1	-12	18	37	.74	- .85	.10	8.0	3	8	9	10	NW	
Clinton	Clinton	609	34	23.4	† 1 3	52	27	-16	17	37	1.29	- .85	.65	9.5	8	8	7	13	NW	
Davenport	Scott	606	31	23 6	- 1 7	50	27	-13	17	27	1.67	† .10	.83	14.2	6	11	7	10	W	
Delaware	Delaware	1,083	11	19 2	† 2.8	46	26	-16	18	34	.77	- .09	.61	2.2	4	14	8	6	NW	
Denison	Crawford	1,180	8			50	1				1.45		.50	9.5	5	22	2	4	N	
Des Moines	Polk	861	24	21.9	- 1.2	46	22	-13	18	34	1.12	- .16	.75	9.1	6	6	14	8	SW	
De Soto	Dallas	866																		
Dubuque	Dubuque	655	29	22.4	- 0.2	49	26	-14	18	38	1.19	- .27	.55	6.0	8	9	6	13	NW	
Fort Dodge (a)	Webster	1,126		16 8		47	1, 23			41	.83		.40	5.3	5				SW	
Galva(b)	Ida	1,290	8	16.9	- 1.0	43	1	-20	16	35	.30	- .20	.20	3.0	2					
Gilman	Marshall	1,052									.83		.43	4.0	3	12	8	8	S	
Grinnell	Poweshiek	1,023	9	20.8	- 0.3	45	1	-13	18	29	1.92	† 1.09	.84	11.5	5	11	11	6	N	
Grundy Center	Grundy	976	11	19 8	† 2.0	45	10	-15	17, 18	39	.90	† .19	.43	5.5	7	11	7	10	SW, NW	
Guthrie Center	Guthrie	1,077	6	20.0	- 0.2	44	22	-17	18	39	.49	- .26	.49	7.0	4	10	11	7	NW	
Harlan	Shelby	1,192		18.1		43	10, 22	-18	17, 18	38	1.27		.54	9.0	7	6	15	7	N, SW, W	
Independence	Buchanan	921	38	10.0	- 1.0	45	26	-15	18	36	.82	- .20	.48	6.8	6	14	8	6	SW	
Ida Grove	Ida	1,220		17.9		48	2	-20	17	42	1.37		.69	4.2	4	15	7	6	SW	
Iowa City	Johnson	685	43	22.2	- 0.9	49	1	-13	17, 18	40	1 03	- .50	.38	7.0	4	10	13	5	S	
Iowa Falls	Hardin	1,107	9	16.8	† 1.5	42	22, 26, 27	-16	18	40	1.35	† .39	.60	9.5	5	16	5	7	NW	
Jefferson	Greene	1,052									.98		.50	6.8	3				NW	
LeClaire	Scott	576									1.04		.51	7.3	8					
Logan	Harrison	928	35	20.2	- 3.5	45	10	-17	17	41	1.46	† .24	1.00	14.0	5	20	2	6	NW	
Maquoketa	Jackson	688	9	22.2	‡ 0.0	49	1	-15	17	35	.82	- .70	.53		5	14	7	7	NE	
Marshalltown	Marshall	947	9	22.0	† 1 7	47	22	-14	18	39	1.14	† .35	.55	8.5	8	8	11	9	NW	
Monticello	Jones	925	48	21.8	† 0.8	47	9	-15	18	30	1.50	- .17	.80	7.0	3	6	12	10	NE	
Mt. Vernon	Linn	847	35	21.6	† 0.3	52	1	-15	17, 18	35	1.05	- .11	.43	6.7	8	14	2	12	NW	
Newton	Jasper	944	14	20.6	‡ 0.0	45	1	-17	8	39	1.65	† .61	.80	16.0	5	12	9	7	N	
Odebolt	Sac	1,356	5	18 2	† 0.6	44	1	-16	16, 18	29	.79	† .04	.35	4 0	3	19	2	7		
Ogden	Boone	1,087	8	20, 0	† 0.3	46	1, 10, 26	-17	16, 18	39	.95	† .30	.40	6.5	4	18	0	10	NW	
Olin	Jones	760		21 5		48	1	-15	18	35	1.64		1.00	5.8	5	12	7	9	NW	
Onawa	Monona	1,053		20.0		48	22	-15	17, 18	32	1.62		.55	10 7	9	19	0	9	NW	
Perry	Dallas	975		20, 2		45	22, 28	-14	16, 18	31	1.10		.50	7.8	4					
Rockwell City	Calhoun		5	19, 2	† 2.6	45	1	-18	16	36	.60	† .04	.50	1.0	2	14	4	10		
Sac City (a)	Sac	1,278	22	18.0	- 1.0	41	1, 21	-17	16, 17	33	1.10	† .13	.55	7.5	3	14	6	8	NW	
Scranton	Greene	1,172		18.2		42	22	-15	16	36	1.37		.53	10.0	4	18	4	6	NW	
Sioux City	Woodbury	1,165	13	16 1	- 2.9	45	22	-18	18	31	.66	† .11	.39	10 2	5	11	9	8	S	
Tipton	Cedar	807		23.3		48	26	-12	18	28	1.17		.42	7.5	4	15	6	7	SW	
Toledo	Tama	856	8	20.9	† 1.3	45	1, 10, 22	-14	18	41	.97	† .28	.68	8.0	3	13	5	10	NW	
Vinton*§	Benton	810	12	21.4	† 1.2	47	26	-12	17		.78	- .22	.40	6.0	4	16	1	11	NW	
Waterloo	Black Hawk	862	15	20.2	† 2.0	47	1	-15	18		1.37	† .23	.74	10.2	9	14	7	7	NW	
Wilton Junct'n	Muscatine	683	7	22.3	† 2.0	47	1	-16	17	36	1.90	† .41	.70	7.0	7	13	0	15	NW	
Whitten	Hardin	1,036		19.3		44	22	-18	18	40	1.25		.50	12.0	4	12	9	7	NW	
West Branch	Cedar	718									.99		.42	5.8	5	9	7	12	NW	
Waukee	Dallas	1,039									1.38		.80	11.0	4	8	8	12	NW	
Average				20.2	† 0.2	43.9		-15.6		36.1	1.13	† .01		2.8	3	13	7	9	NW	

CLIMATOLOGICAL DATA FOR FEBRUARY, 1903--CONTINUED.

SOUTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PREC., IN INCHES.				Number rainy days.	SKY.			Prevailing direction of wind.	DATES OF THUNDER-STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Afton	Union	1,212	7	21.6	-0.7	50	1	-14	18	33	.96	- .17	.40	8.0	5	10	6	12	SW	
Albia	Monroe	959	....	23.4	.....	53	1	-14	17	33	1.46	.....	.88	12.0	4	11	10	7	NW	
Atlantic	Cass	1,164	11	20.3	-0.7	45	22	-15	5	42	2.10	†1.11	1.20	14.0	3	9	4	15	SW, NW	
Audubon	Audubon	1,301	8	17.4	-1.8	43	22	-17	18	35	.49	- .31	.35	3.7	4	17	4	7	SW	
Allerton	Wayne	.....	...	23.0	.....	55	1	-16	17	40	1.17	.....	.60	5.8	7	9	14	5	SW	
Bedford	Taylor	.....	....	20.8	.....	52	1	-17	17	39	1.13	.....	.48	4.8	4	12	3	13	SW	
Bonaparte	Van Buren	.....	10	23.1	-0.2	49	1	-17	17	35	1.92	† .61	1.28	11.5	3	....	....	....	.....	
Burlington	Des Moines	544	....	25.0		50	27	-18	17	29	1.98	.....	.99	6.9	7	11	7	10	SW	
Chariton	Lucas	1,042	7	22.5	-0.2	53	1	-14	17	41	1.14	† .11	.45	3.2	7	12	6	10	N	
Clarinda	Page	1,069	12	22.4	-0.9	52	1	-14	18	37	1.18	† .10	.71	9.0	7	12	7	9	NW	
College Springs	Page	....	10	22.0	-1.8	51	1	-14	18	36	.92	† .02	.42	5.0	4	16	5	7	NW	
Columbus Jct.	Louisa	595	..	22.5	.....	47	27	-15	17	31	1.42	.....	.56	14.6	9	14	9	5	NW	
Corning	Adams	1,127	10	20.9	-1.9	48	1	-15	18	36	1.05	† .22	.35	8.0	8	11	11	6	SW	
Council Bluffs	Pot'wat'mie	990	5	23.1	†0.5	.....	.....	-13	18	...		...	.....		4	7	15	6	NW	
Cumberland	Cass	.....	....	.....	.....	.....	.....	.....	.....	....	1.00	.....	.60	10 0	3	14	4	10	N	
Danville	Des Moines	726	....	.....	.....	.....	.....	.....	.....	...	3.25	.....	1.25		5	9	2	17	.....	
Earlham	Madison	.....	....	18 1	...	46	1, 22	-15	18	38	1.57	.....	.62	11.8	4	10	5	13	NW	
Eldon	Wepello	630	....	24.4	.....	56	2	-20	16	43	1.14	...	.32	8.9	6	16	0	12	NW	
Fort Madison	Lee	516	51	.....	.....	.....	.....	.....	... ..	.....	1 03	- .94	.50	7 0	4	9	4	15	SW	
Greenfield	Adair	.....	11	20.6	-0.7	47	1	-16	18	34	1 13	† .03	.64	9.8	8	13	9	6	SW	
Hopeville	Clarke	.....	11	.....	...	....	.....	.....	... ...	.....	.77	- .11	.41	..	8	....	....	....	.....	
Indianola	Warren	969	11	22.5	-0.3	49	1	-13	18	32	2.58	†1 83	1.50	7.5	5	18	2	8	NW	
Keokuk	Lee	619	31	26.4	-1.9	51	27	-13	17	28	1.42	- .29	.69	6 1	9	10	7	11	SW	
Keosauqua	Van Buren	664	10	23.0	-1 6	50	1	-15	17	40	2.09	† .60	1.25	11.0	7	...	...	....	.....	
Lacona	Warren	.....	....	.....	.....	...	.....	.....	.....	...	1.04	.....	.40	5.0	7	....	....	....	.....	
Lenox	Taylor	1,250	7	20 4	-2.4	44	10, 22	-17	18	33	.98	† .28	.40	5.8	7	15	6	7	NW	
Leon	Decatur	1,120	....	23.2	.....	52	1	-12	17, 18	34	1 03	.....	.38	6.6	8	17	9	2	N	
Mt Ayr	Ringgold	1,236	8	22.8	†0.3	53	1	-16	17	34	1.08	† .00	.60	10.8	7	10	3	15	NW	
Mt. Pleasant	Henry	729	20	24.3	†0.7	55	11	-16	17	36	.32	- .74	.30	3 2	3	12	6	10	NW	
Omaha, Neb	Douglas	1,113	32	21.1	-3.9	47	22	-15	18	34	1.12	† .33	.68	8.4	7	8	9	11	N	
Osceola. (a)	Clarke	1,130	6	21.6	†1.1	52	1	-15	18	37	.90	- .18	.40	9.0	4	....	....	..	N	
Oskaloosa	Mahaska	843	18	21 4	‡0.0	49	1	-14	17	41	.29	- .29	.28	7.8	8	12	3	13	NW	
Ottumwa	Wapello	649	8	25.0	†1.9	50	1	- 9	17, 18	34	2.51	†1.43	.80	15.1	5	10	11	7	W	
Ovid	Wayne	992	9	23.5	†1.4	54	1	-15	17	40	1.55	† .09	.57	6 3	7	10	5	13	SW	
Pacific Junction	Mills	960	....	20.8	....	44	22	-15	18	35	1.04	....	.60	6.9	7	13	8	7	S	
Red Oak	Montgom'ry	1,032	....	23.2	.....	44	1	-10	18	28	1.70	.....	1.13	14.5	5	9	15	4	SW	
St. Charles	Madison	1,070	....	22.5	.....	51	1	-13	18	35	1.15	.....	.60	6.8	7	12	8	8	NW	
Sigourney	Keokuk	787	6	23 3	†1.5	51	1	-14	17	39	1.40	- .03	.64	9.5	4	10	11	7	NW	
Stockport	Van Buren	.....	....	..	.....	.....	.....	.....	.....	...	1 56	.....	.56	6.0	5	9	4	15	NW	
Thurman	Fremont	....	....	20.0	...	44	22, 25	-15	18	33	2.45	...	1.10	....	5	15	2	11	SW	
Villisca	Montgom'ry	1,058	8	21.0	-1.5	48	11	-15	18	44	1.61	† .57	.97	14.5	5	14	14	0	NW	
Washington	Washington	769	20	20 7	-2.3	47	1	-17	17	36	1.43	† .34	.85	12.5	6	....	...	....	NW	
Winterset	Madison	1,129	11	21.6	-0.3	52	1	-14	18	41	.95	† .02	.60	6.0	2	12	9	7	S	
Woodburn	Clarke	961	....	.....	...	.....	.....	.....	.....	.....	1 72	.....	1.21	6.2	5	14	4	10	NW	
Average		.....	....	22.1	-0.6	49.6	.....	-14 8	.....	36.0	1.38	† .17	.....	8.5	6	12	7	9	NW	
Av. for the state		.....	....	19.8	†0.1	45.7	.....	-16.4	.....	35.8	1.18	† .07	.....	7 9	4	13	7	8	NW	

*Means determined from 7 A. M., 2 P M, and 9 P. M. observations, and maximum and minimum are taken from eye readings. ‡Received too late to be computed with means. *a*, One day missing; *b*, two days, etc. §Not supplied with self registering instruments. † Above normal.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR FEBRUARY, 1903.

STATIONS.		DATE.																													Mean.
		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	Max.	50	45	25	23	25	23	29	31	42	44	44	33	23	23	20	3	12	18	24	38	33	44	40	40	42	43	42	36	..	..	..	32.0
	Min.	31	15	14	11	0	3	12	9	10	33	28	19	8	13	2	-13	-11	-14	-1	5	11	18	14	16	16	20	32	15	..	..	..	11.3
Albia	Max.	53	45	28	28	33	23	28	33	47	47	46	39	24	24	23	6	11	10	23	40	32	43	36	39	41	45	44	38	..	..	..	33.2
	Min.	37	19	17	12	0	2	17	19	18	35	27	23	10	13	4	-11	-14	-13	-2	4	12	12	28	15	20	23	34	17	..	..	..	13.5
Algona	Max.	38	25	15	17	22	25	23	23	32	39	39	35	14	19	15	-2	10	10	24	33	27	36	40	32	38	40	40	35	..	..	..	26.6
	Min.	22	10	4	4	-2	4	14	13	5	23	21	9	0	-6	-6	-19	-20	-18	0	0	6	11	22	14	18	24	32	8	..	..	..	7.3
Allerton	Max.	55	45	29	29	35	24	29	33	45	48	48	38	25	24	22	5	10	12	23	39	34	43	40	38	41	44	46	38	..	..	..	33.6
	Min.	35	19	18	13	-1	-1	17	10	13	34	28	22	10	14	4	-12	-16	-13	-3	-1	12	13	27	16	16	21	33	18	..	..	..	12.4
Alta	Max.	39	27	13	20	19	24	26	24	34	40	35	21	17	19	4	2	11	5	21	32	28	40	34	34	37	38	33	30	..	..	..	25.3
	Min.	24	5	5	0	-2	2	11	4	10	20	22	8	0	4	-9	-19	-18	-18	0	2	2	17	19	14	19	24	30	6	..	..	..	6.5
Amana	Max.	49	42	27	27	26	23	31	33	39	44	42	36	24	27	22	7	8	9	20	34	26	40	36	35	38	44	45	37	..	..	..	31.1
	Min.	32	23	16	13	-3	-1	18	13	14	31	24	23	10	14	7	-9	-13	-13	0	-5	10	10	30	13	13	20	37	18	..	..	..	12.3
Ames	Max.	40	37	24	20	25	24	26	28	42	45	40	36	22	22	8	-1	13	11	24	32	31	47	40	38	42	45	45	37	..	..	..	30.5
	Min.	25	9	11	10	-6	2	16	10	3	29	23	12	5	11	-1	-14	-11	-14	1	6	10	7	26	15	4	20	20	13	..	..	..	8 6
Atlantic	Max.	43	36	22	20	23	21	27	29	41	43	38	32	21	23	18	2	14	14	27	38	33	45	41	40	41	41	43	37	..	..	..	30.5
	Min.	25	13	14	9	15	..	16	3	-1	28	20	12	8	13	1	-11	-12	-14	2	2	10	21	25	10	18	29	32	15	..	..	..	10.1
Audubon	Max.	39	34	35	30	10	19	30	28	40	42	38	30	19	16	12	-1	0	-2	28	35	30	43	33	35	39	39	39	33	..	..	..	27.6
	Min.	27	9	5	5	0	2	13	1	8	16	16	14	2	-1	-2	-16	-16	-17	-7	7	7	15	18	13	19	21	31	10	..	..	..	7.1
Baxter	Max.	45	40	25	24	25	22	26	26	38	44	41	36	22	23	20	5	12	15	23	40	34	50	40	38	40	45	45	42	..	..	..	30.9
	Min.	29	16	12	12	6	2	16	5	5	29	25	18	5	12	0	-13	-13	-15	1	0	9	15	25	12	16	20	34	15	..	..	..	10.6
Bedford	Max.	52	42	22	23	25	23	22	31	39	45	43	35	25	24	22	8	15	16	25	39	34	46	35	40	43	42	39	36	..	..	..	31.8
	Min.	27	15	15	8	-9	2	15	5	5	31	25	20	10	13	2	-13	-17	-14	-6	0	12	11	27	13	15	19	32	15	..	..	..	9.9
Bonaparte	Max.	49	41	31	31	31	24	30	33	43	43	44	39	27	27	24	8	8	8	21	33	30	38	35	35	38	44	47	37	..	..	..	32.1
	Min.	35	26	22	13	-2	4	19	18	15	35	28	27	15	19	8	-8	-17	-11	-5	-1	12	8	29	11	15	22	37	20	..	..	..	14.1
Britt	Max.	34	27	16	16	20	31	29	32	35	39	39	34	13	23	16	-4	8	10	23	34	25	38	35	33	37	43	38	33	..	..	..	27.0
	Min.	17	9	4	6	-9	-1	7	12	4	21	15	11	0	3	-5	-19	-19	-18	-3	-6	5	13	23	11	15	21	33	11	..	..	..	6.1
Burlington	Max.	47	45	32	32	30	27	32	34	43	43	49	38	28	28	25	11	11	8	20	33	29	38	36	40	43	49	50	38	..	..	..	33.5
	Min.	37	29	23	15	3	10	20	18	20	36	31	28	17	22	11	-8	-18	-13	-3	5	13	12	31	19	19	25	38	21	..	..	..	16 5
Carroll	Max.	39	35	30	21	27	21	27	30	40	42	40	30	32	25	15	2	14	6	25	35	38	44	42	44	42	41	38	31	..	..	..	30.6
	Min.	23	12	7	5	3	-1	10	-1	8	27	20	8	0	8	-4	-11	-17	-18	-2	0	5	18	21	12	21	22	29	8	..	..	..	7 4
Cedar Rap.	Max.	48	41	27	27	25	24	29	29	38	43	43	38	25	26	23	8	8	10	19	24	30	41	37	37	40	46	42	47	..	..	..	31.6
	Min.	32	22	17	13	-2	1	18	19	9	32	24	22	11	14	7	-8	-11	-12	3	-3	10	15	29	14	15	21	38	18	..	..	..	13.1
Chariton	Max.	53	40	36	27	38	22	38	28	42	42	44	35	22	22	22	3	9	11	23	39	31	44	36	38	41	46	45	36	..	..	..	32 6
	Min.	35	18	17	11	-3	0	17	10	15	35	26	21	9	14	3	-11	-14	-13	-3	3	12	17	26	14	17	22	33	16	..	..	..	12.4
Charles Cy.	Max.	44	35	20	23	20	24	26	39	31	41	38	36	20	20	21	-2	-5	10	20	32	32	40	38	33	38	44	43	37	..	..	..	28.5
	Min.	24	15	9	10	-7	-4	12	10	12	24	22	15	4	7	0	-14	-15	-17	1	13	7	20	20	30	28	30	35	16	..	..	..	11 0
Clarinda	Max.	52	36	21	18	30	25	27	35	47	47	43	32	21	25	20	6	17	14	32	40	37	50	35	40	40	43	43	32	..	..	..	32.4
	Min.	28	15	15	10	-7	4	13	8	17	28	27	19	11	17	0	-10	-12	-14	2	20	20	19	17	16	19	22	32	15	..	..	..	12.5
Clear Lake	Max.	35	28	16	18	19	29	31	30	35	38	38	32	16	24	16	4	7	10	20	33	27	40	35	36	38	42	38	39	..	..	..	27.6
	Min.	18	19	4	6	-7	-2	13	15	4	15	16	10	0	1	-4	-21	-20	-21	-7	-7	3	13	22	9	15	19	32	8	..	..	..	4.4
Clinton	Max.	48	40	32	33	28	27	34	31	40	45	45	35	29	30	26	10	6	9	20	31	27	37	36	36	40	47	52	38	..	..	..	32 6
	Min.	31	25	21	12	-1	4	18	18	17	37	31	27	17	16	10	-6	-16	-12	-3	3	12	15	24	10	13	20	34	19	..	..	..	14.1
College Spr	Max.	51	36	22	22	23	23	27	31	39	41	41	34	22	24	18	3	17	14	28	40	49	38	38	39	41	40	41	34	..	..	..	31.3
	Min.	31	15	15	10	-1	7	15	10	15	30	26	20	10	16	3	-10	-12	-14	0	11	13	20	28	18	20	22	23	14	..	..	..	12.7
Colum. Jct.	Max.	45	45	30	31	31	29	32	32	42	42	40	34	27	34	22	10	8	8	20	34	29	39	35	36	42	46	47	38	..	..	.	32 4
	Min.	15	25	20	13	0	4	19	15	18	24	27	25	13	15	8	-8	-15	-12	-3	3	5	11	24	15	17	21	37	18	..	..	..	12.6
Corning	Max.	48	36	32	22	23	21	26	29	40	40	41	33	23	23	20	3	14	14	26	37	31	45	43	34	39	40	43	34	..	..	..	30.7
	Min.	30	14	13	10	-6	0	13	2	25	30	26	18	8	13	2	-12	-12	-15	-1	1	11	19	25	14	16	21	32	13	..	..	..	11.1
Corydon	Max.	54	48	28	25	34	27	30	31	44	45	47	38	25	25	23	9	10	12	25	39	35	44	40	41	42	44	46	39	..	..	..	33.9
	Min.	34	17	17	12	-3	2	16	8	14	35	24	22	10	13	4	-13	-15	-14	-4	-1	10	14	13	17	15	21	31	17	..	..	..	13.1
Co Bluffs	Max.	42	33	20	19	28	24	32	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	52	69	38	40	40	42	25	..	..	..	36 0
	Min.	27	11	11	-5	-5	-4	16	16	11	23	25	12	5	4	-4	-11	-10	-13	8	12	12	22	20	20	23	26	24	11	..	.	..	10.2
Davenport	Max.	45	40	32	32	27	25	30	29	41	45	44	36	26	29	26	7	6	7	18	31	28	36	36	35	40	46	50	39	..	.	..	31.6
	Min.	36	27	21	10	3	7	20	19	21	39	30	26	17	18	7	-6	-13	-12	0	4	11	13	25	17	19	25	37	17	..	-	..	15.6
Decorah	Max.	42	32	21	20	22	31	32	31	34	43	41	26	27	22	15	-2	6	8	18	31	22	41	38	33	38	41	43	37	..	..	..	28.3
	Min.	26	13	8	12	-2	-3	10	8	20	23	22	14	5	5	-2	-14	-16	-18	-3	-7	5	12	19	8	12	20	33	11	..	..	..	7.9
Delaware	Max.	41	36	22	21	24	26	30	30	37	42	40	34	22	24	20	7	6	10	17	29	28	39	35	35	38	46	44	35	..	..	..	29.2
	Min.	26	18	11	9	-2	0	11	10	15	25	22	20	7	9	5	-12	-15	-16	-3	-5	5	10	22	10	12	18	31	11	..	..	..	9.1
Denison	Max.	50	36	17	13	25	21	27	28	38	40	35	33	18	28	16	0	15	13	25	35	31	44	39	26	39	39	40	33	..	..	..	28.7
	Min.	21	7	-1	-3	-13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	-2	6	16	22	9	16	18	31	6	..	..	..	....
Des Moines	Max.	46	29	25	21	27	22	28	28	41	44	44	33	23	25	20	3	13	11	27	39	31	46	37	36	40	43	45	35	..	..	..	30.8
	Min.	32	16	15	15	-3	4	19	9	7	34	28	17	8	16	-2	-10	-9	-13	2	7	13	20	28	17	17	26	35	15	..	..	..	13.0
Dows	Max.	42	30	20	16	20	22	23	24	33	40	35	33	15	18	17	-3	7	7	21	33	28	40	36	33	32	41	40	34	..	..	.	26 1
	Min.	23	12	8	2	-8	-5	12	14	4	26	17	12	0	4	-3	-18	-20	-17	-3	-6	5	13	24	10	10	19	32	12	..	..	..	10.0
Dubuque	Max.	44	38	26	24	30	26	29	29	38	47	47	34	21	27	22	9	4	11	16	29	25	39	35	37	42	49	47	35	..	..	..	30.8
	Min.	34	22	15	14	4	4	20	19	22	36	30	21	12	12	9	-7	-13	-14	0	2	11	12	24	14	14	22	38	13	..	..	..	14 0
Earlham	Max.	46	41	21	21	25	19	24	27	39	41	34	21	19	22	17	0	10	10	25	37	34	46	38	37	40	43	43	33	..	..	..	29.0
	Min.	24	13	12	9	-3	-7	13	4	2	23	17	5	4	10	0	-14	-12	-15	-3	-1	9	16	14	9	13	16	31	12	..	..	..	7.2
Eldon	Max.	55	56	30	33	33	35	40	42	32	55	41	43	46	28	27	23	11	19	24	37	38	37	39	41	43	46	40	41	..	..	..	37.1
	Min.	44	21	20	15	14	0	15	10	12	25	18	20	11	7	7	-20	-8	-9	-6	-4	11	15	13	12	14	36	12	19	..	..	..	11.6
Elkader	Max.	42	35	25	24	27	28	30	32	38	45	50	35	25	25	15	19	10	14	17	32	30	42	38	40	43	52	43	36	..	..	..	31.9
	Min.	28	20	10	10	-13	-10	9	9	21	29	20	21	8	9	4	-10	-15	-15	0	-9	8	8	26	9	10	18	36	16	..	..	..	9.2
Estherville	Max.	33	25	9	18	21	23	23	22	32	37	36	31	17	12	11	-3	11	10	20	32	28	39	35	34	39	40	37	32	..	..	..	25.1
	Min.	15	4	1	3	-3	1	7	1	-2	20	15	5	-5	-3	-10	-20	-21	-19	-3	-11	4	15	18	7	16	20	31	4	..	..	..	3.2
Forest C'ty	Max.	29	11	18	12	19	27	28	22	32	34	34	19	10	16	11	-4	6	9	14	34	33	35	29	35	33	40	36	32	..	..	..	23.4
	Min.	17	9	-1	6	-6	6	8	18	20	24	19	10	0	4	-5	-20	-18	-19	6	-6	5	9	23	23	27	23	32	10	..	..	..	8.0
Ft. Dodge	Max.	47	33	27	20	20	19	25	28	37	40	41	35	17	20	..	19	19	12	10	23	31	35	47	42	35	39	45	41	..	..	..	29.9
	Min.	28	13	7	6	-21	-9	12	1	10	26	14	14	0	0	..	8	-19	-20	-18	-4	-10	5	12	19	8	10	15	9	..	..	..	3.6
Galva	Max.	43	32	15	17	17	23	27	25	35	40	36	..	21	15	0	11	7	24	33	35	.	40	38	34	38	39	38	32	.	..	..	27.5
	Min.	19	5	9	5	-5	0	14	0	3	20	18	..	15	-5	-19	-20	-18	-5	-2	15	..	15	20	10	15	19	31	8	..	..	..	6 3
G. Meadow	Max.	41	32	26	21	24	25	28	32	38	44	41	35	20	22	18	3	5	9	17	29	22	39	35	33	37	41	43	34	..	..	..	24.8
	Min.	27	5	8	13	1	3	11	13	19	26	24	20	5	7	2	-15	-16	-18	0	-4	5	13	24	12	15	20	34	12	.	..	..	9.1
Greene	Max.	42	34	21	18	24	25	29	28	36	42	38	34	19	21	19	1	8	12	21	33	30	41	38	35	40	44	40	33	..	..	..	28 7
	Min.	18	16	10	12	-5	-2	13	16	14	26	23	16	4	9	2	-14	-15	-16	1	-4	6	15	26	13	15	22	33	14	..	..	..	9.5
Greenfield	Max.	47	37	32	22	23	21	28	33	42	42	40	32	20	23	8	-1	12	11	25	35	41	44	38	36	40	41	42	36	..	..	..	31.1
	Min.	30	12	12	12	-2	-2	14	5	14	32	27	17	5	10	-1	-15	-13	-16	2	5	7	17	24	12	17	17	32	13	..	..	..	10 1
Grinnell	Max.	45	40	24	19	25	25	27	26	39	41	39	32	20	22	19	3	7	11	22	30	30	42	38	32	37	42	42	36	.	..	..	29.1
	Min.	32	19	12	11	0	3	15	20	11	33	22	19	6	12	3	-11	-12	-13	1	1	9	16	27	15	20	24	35	16	..	..	..	2.4
Grundy C'r	Max.	38	38	22	22	24	22	24	26	38	45	41	35	20	22	20	3	10	10	21	37	31	44	39	36	40	43	42	34	..	.	..	29.5
	Min.	26	17	10	11	-8	-2	16	15	10	28	24	17	5	10	3	-13	-15	-15	0	-4	7	15	28	13	17	20	34	16	..	..	..	10.2
Guthrie Cr	Max.	42	37	22	21	23	20	28	29	42	43	39	35	22	22	19	4	12	13	26	35	33	44	40	36	42	41	42	30	..	..	..	30.1
	Min.	31	12	12	10	-6	-2	17	3	3	33	25	17	5	11	0	-15	-15	-17	-2	3	4	19	24	11	17	33	30	13	..	..	..	9.9
Hampton	Max.	46	30	21	18	22	26	30	25	37	43	39	32	19	20	17	-2	8	9	21	33	28	42	37	36	41	44	39	34	..	..	..	27.7
	Min.	26	15	8	10	-1	0	15	20	7	29	24	13	2	7	-2	-16	-17	-17	-1	-3	6	15	27	15	19	21	33	12	..	..	..	9 5
Hanlonto'n	Max.	36	26	16	16	23	19	25	24	32	36	40	33	13	18	15	-5	10	11	21	34	30	38	36	36	36	40	40	45	..	..	..	26.6
	Min.	21	10	5	6	-8	-1	10	18	4	25	18	10	0	3	-5	-20	-18	-18	-2	-7	6	11	22	12	11	22	32	10	..	..	..	6.3
Harlan	Max.	40	35	21	17	22	24	30	32	41	43	38	32	18	24	16	0	16	12	25	34	31	43	36	34	40	40	40	33	..	..	..	29.2
	Min.	21	8	11	5	-10	-2	14	0	3	23	18	14	3	8	-3	-16	-18	-18	0	2	7	15	22	11	17	21	31	10	..	..	..	7 0
Humboldt	Max.	40	32	18	20	22	26	26	28	36	40	58	34	15	18	18	-3	10	9	24	35	32	40	36	32	37	41	40	34	..	..	..	28.5
	Min.	20	10	8	8	8	0	16	6	0	25	18	14	1	4	-2	-18	-16	-17	-2	-5	6	18	24	12	17	21	32	10	.	..	.	7.8
Ida Grove	Max.	44	48	27	16	26	26	38	26	38	40	38	34	28	21	19	3	12	12	24	34	31	42	40	34	39	38	38	34	..	..	..	30.1
	Min.	21	6	9	6	-5	1	15	-2	7	22	19	0	2	4	-4	-17	-20	-18	0	-1	4	15	21	10	17	21	22	8	..	..	..	5.8
In'pen'nce	Max.	37	36	22	22	20	22	26	25	33	40	38	35	22	23	17	3	5	8	19	32	28	39	35	33	37	45	43	34	..	..	.	27.8
	Min.	25	18	10	10	-6	-1	18	17	12	24	23	19	7	10	3	-11	-13	-15	1	-4	6	11	25	14	15	20	34	15	..	..	..	10 2
Indianola	Max.	49	42	26	25	27	22	27	28	45	44	43	37	25	23	21	5	12	12	24	38	33	44	40	36	40	44	44	37	..	..	..	31.9
	Min.	34	16	17	12	1	0	16	8	14	35	27	24	7	14	4	-11	-12	-13	2	6	12	19	26	16	21	23	34	15	..	..	..	13.1
Iowa City	Max.	49	42	28	28	31	28	32	33	44	45	43	36	25	25	22	8	10	9	19	35	29	43	35	42	35	48	46	38	..	..	..	32.4
	Min.	29	24	17	12	-5	-1	18	13	8	29	28	23	12	13	8	-9	-13	-13	-2	-5	9	9	30	11	28	18	28	19	..	..	..	12 1
Iowa Falls	Max.	38	30	21	18	20	24	24	24	35	41	37	30	16	19	16	-5	8	7	21	33	25	42	35	31	38	42	42	32	..	..	..	26.6
	Min.	21	14	9	9	-11	-4	13	12	6	25	22	8	2	7	-5	-15	-15	-16	0	-7	7	16	22	10	12	20	32	10	..	.	.	7.3
Keokuk	Max.	50	45	33	34	32	36	31	33	49	47	49	44	26	29	25	3	11	13	22	36	27	41	36	36	39	45	51	42	..	..	..	34.1
	Min.	42	30	24	17	8	14	22	23	26	39	33	29	20	22	11	-7	-13	-10	-2	8	10	15	31	22	21	26	39	22	..	..	..	18.7
Keosauqua	Max.	50	44	39	32	31	25	29	31	39	44	45	41	27	26	25	9	9	7	21	35	31	39	36	34	39	45	46	38	..	..	..	32.8
	Min.	38	26	23	14	-2	-1	15	21	12	28	27	27	15	19	9	-8	-15	-11	-5	-5	12	4	30	10	10	16	37	20	..	..	..	13.1
Larrabee	Max.	39	28	18	20	17	27	28	28	35	42	37	31	30	22	7	3	13	7	25	34	28	45	30	37	39	41	37	33	..	.	..	28.1
	Min.	17	4	5	4	-7	-1

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR FEBRUARY, 1903—CONTINUED.

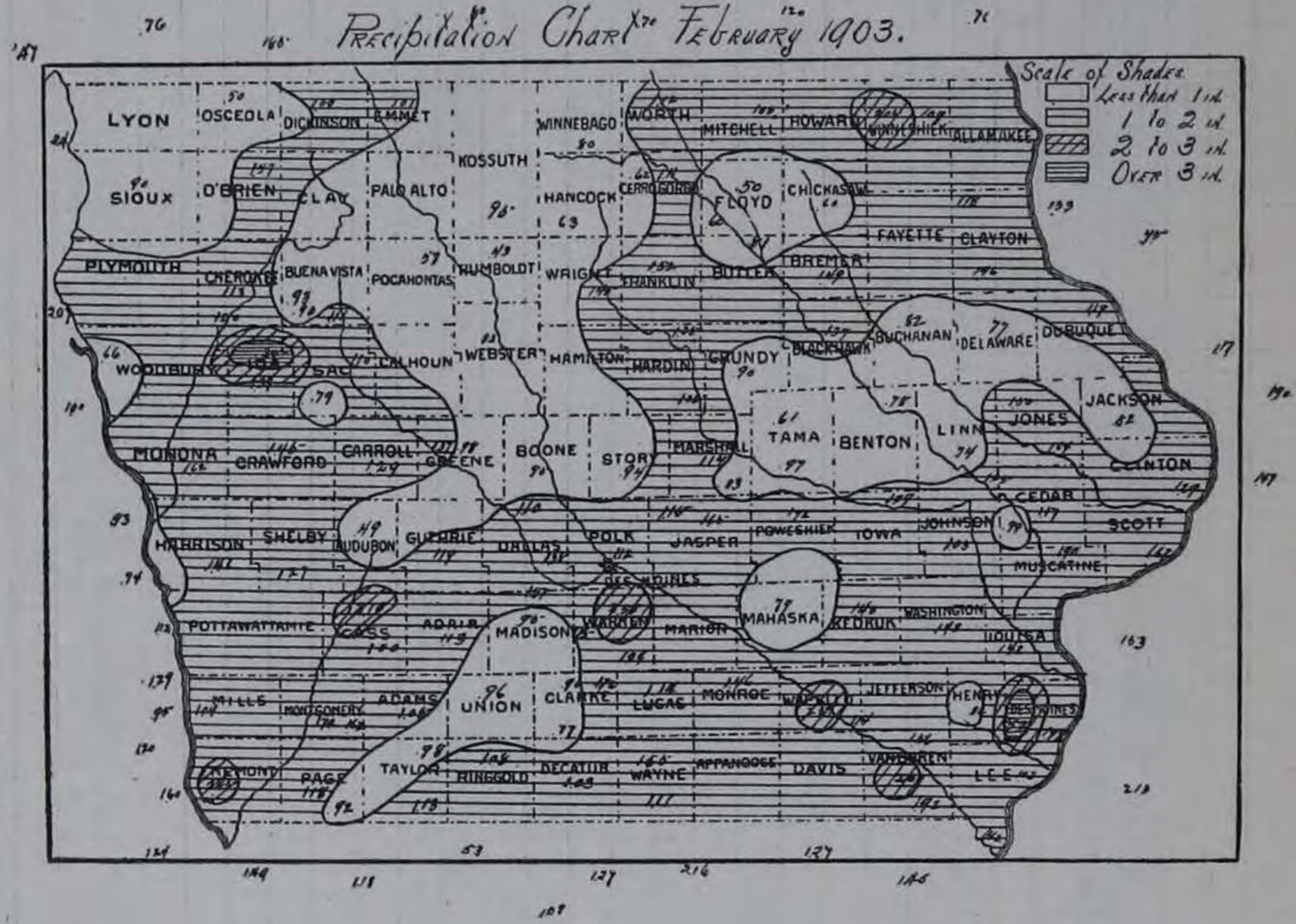
STATIONS		DATE. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean.
LeMars	Max	36	24	11	16	11	27	27	22	31	40	34	30	12	24	20	2	12	6	24	34	27	43	39	34	39	42	44	34	..	..	..	26.6
	Min	19	2	6	4	-7	3	7	1	0	17	21	6	0	5	-5	-15	-17	-19	0	1	5	19	19	11	11	22	20	6	..	..	..	5.1
Lenox	Max	43	42	23	22	24	20	23	35	42	44	41	34	22	22	20	2	14	14	24	36	31	44	39	34	39	40	43	35	..	..	..	30.5
	Min	30	13	12	8	-6	4	13	2	11	34	25	18	6	13	0	-15	-15	-17	-4	4	10	18	25	15	19	21	32	13	..	..	..	10.3
Leon	Max	52	46	27	25	29	27	30	29	44	44	43	40	25	25	23	5	11	13	22	38	36	42	40	36	40	43	45	37	..	..	..	32.8
	Min	35	14	17	14	0	6	17	9	16	36	28	22	11	16	5	-11	-12	-12	-1	4	14	19	37	17	20	22	33	15	..	..	..	13.7
Logan	Max	37	33	18	16	20	25	30	27	43	45	41	32	19	29	17	2	22	17	28	35	32	38	36	35	40	42	40	33	..	..	..	29.7
	Min	22	8	12	6	7	0	13	3	2	24	22	15	3	9	0	-13	-17	-16	2	2	8	25	17	14	18	22	32	11	..	..	..	10.6
Maquoketa	Max	49	43	31	30	26	22	31	34	38	44	44	38	28	29	26	9	5	12	16	29	29	38	35	43	41	48	47	38	..	..	..	32.2
	Min	30	25	17	15	1	3	15	16	15	26	38	25	14	12	8	-7	-15	-14	0	-6	9	8	23	8	9	15	31	18	..	..	..	12.1
Marsh'lt'n	Max	44	42	25	24	27	24	29	27	41	49	44	38	25	24	21	6	11	11	24	38	34	47	44	38	42	46	43	38	..	..	..	32.4
	Min	29	17	12	14	-1	2	17	18	10	29	28	19	5	13	3	-13	-13	-14	1	-1	9	17	28	14	14	20	35	16	..	..	..	11.7
Mason City	Max	37	39	22	26	20	25	28	27	34	42	37	37	19	21	22	2	7	12	21	33	34	40	42	35	38	44	41	40	..	..	..	29.5
	Min	25	15	10	12	2	4	17	21	10	28	24	16	5	7	-1	-15	-14	-15	2	2	7	18	25	17	19	24	33	16	..	..	..	11.2
Monticello	Max	40	38	30	18	18	30	33	42	47	40	37	33	30	38	23	20	0	10	18	20	25	33	35	40	45	43	40	29	..	..	..	30.2
	Min	33	32	20	10	-2	0	8	22	28	28	25	22	15	13	10	-10	-13	-15	-3	-7	2	12	20	30	28	27	18	22	..	..	..	13.4
Mt. Ayr	Max	53	44	23	23	26	23	29	45	42	42	33	22	23	23	21	0	13	7	23	38	32	44	36	37	41	42	41	34	..	..	..	34.4
	Min	31	15	14	7	-6	5	13	12	32	26	20	9	13	13	0	-14	-16	-15	-5	4	11	17	25	16	19	22	31	14	..	..	..	11.2
Mt. Pleas't	Max	50	45	39	31	30	25	30	39	45	50	55	40	30	35	26	10	20	10	19	35	35	45	42	45	42	39	39	45	..	..	..	35.2
	Min	35	25	15	10	-2	5	10	19	10	30	29	25	15	10	2	-10	-16	-13	0	2	26	27	30	20	30	20	10	12	..	..	..	13.4
Mt. Vernon	Max	52	40	28	20	25	25	30	31	41	43	44	37	26	28	22	8	8	13	17	32	29	39	36	42	43	49	43	38	..	..	..	31.5
	Min	30	22	14	13	-2	1	15	19	15	29	24	17	9	11	8	-11	-15	-15	-2	-3	8	9	26	12	10	23	34	16	..	..	..	11.7
NewH'pton	Max	41	33	19	18	17	26	19	28	29	40	38	34	19	20	20	1	4	9	17	31	29	40	39	32	37	43	41	34	..	..	..	27.1
	Min	..	13	8	11	-5	-2	11	13	12	23	23	15	3	6	0	-6	-17	-19	-2	-5	3	11	24	10	11	21	33	13	..	..	..	7.3
Newton	Max	45	44	26	24	21	23	28	30	39	41	40	38	22	24	23	6	9	10	23	33	31	44	41	34	38	42	42	38	..	..	..	30.9
	Min	29	17	12	12	-6	1	16	17	6	30	26	18	5	11	3	5	-15	-17	-1	-1	8	5	27	14	15	21	33	16	..	..	..	10.2
Northwood	Max	34	28	18	18	20	30	30	33	36	41	37	34	17	24	19	-3	7	10	21	34	26	40	36	34	39	42	40	34	..	..	..	27.8
	Min	21	9	6	10	-1	3	17	19	8	20	21	11	1	5	-5	-19	-17	-18	-1	-5	4	14	23	12	15	21	32	12	..	..	..	7.8
Odebolt	Max	44	36	17	18	20	26	29	29	39	40	37	32	20	21	16	0	12	10	24	34	30	41	39	34	39	39	38	33	..	..	..	28.5
	Min	22	7	9	8	-3	0	12	6	9	25	21	15	2	5	-3	-16	-15	-16	-1	1	6	15	21	11	18	21	32	9	..	..	..	7.9
Ogden	Max	46	41	24	23	26	23	30	26	43	46	42	35	30	21	20	-1	15	14	26	39	33	45	39	40	41	46	45	41	..	..	..	32.9
	Min	24	10	8	8	-8	-4	4	1	1	26	20	14	2	8	-2	-17	-16	-7	-4	0	6	15	23	15	17	20	31	10	..	..	..	7.0
Olin	Max	48	40	27	26	25	28	33	32	38	44	42	38	27	29	24	11	5	7	29	30	30	37	34	35	37	44	45	37	..	..	..	31.5
	Min	29	24	15	11	-2	0	13	19	12	25	26	25	12	13	11	-9	-14	-15	-1	-5	10	7	25	9	10	17	37	19	..	..	..	11.5
Omaha, N.	Max	39	28	19	18	26	22	27	29	44	43	37	28	16	22	15	0	22	8	30	38	32	47	38	37	37	39	42	32	..	..	..	29.2
	Min	28	10	11	7	4	7	16	16	15	32	28	13	6	12	-2	-12	-12	-15	7	15	12	25	25	21	26	26	32	11	..	..	..	13.0
Onawa	Max	44	31	16	20	26	26	34	28	39	46	39	32	22	23	20	6	21	14	30	39	34	48	43	40	39	40	38	33	..	..	..	31.1
	Min	22	7	10	4	-4	3	16	7	7	19	17	14	3	9	-2	-14	-15	-15	5	4	8	19	23	16	21	23	32	9	..	..	..	8.9
Osage	Max	37	32	16	17	18	26	28	27	31	39	37	33	16	20	18	-1	6	9	19	30	29	38	37	32	37	43	40	34	..	..	..	26.7
	Min	22	11	7	10	-4	1	15	19	12	23	22	14	3	5	-2	-17	-16	-18	0	-5	4	13	23	11	15	21	33	12	..	..	..	8.4
Osceola	Max	52	39	25	25	28	20	26	28	..	43	43	41	30	23	19	10	10	12	24	37	33	45	37	27	43	44	45	36	..	..	..	31.3
	Min	33	14	13	12	-1	2	16	8	..	36	28	17	8	13	3	-13	-10	-15	-2	5	12	19	23	15	17	20	31	16	..	..	..	11.8
Oskaloosa	Max	49	42	25	24	30	23	28	29	44	44	45	37	21	23	21	5	10	9	22	38	32	42	35	35	40	45	43	37	..	..	..	31.4
	Min	35	18	17	13	-5	-3	16	21	2	32	24	21	8	13	5	-13	-14	-13	-3	-3	10	13	29	14	12	22	35	16	..	..	..	11.5
Ottumwa	Max	50	44	32	31	32	23	29	32	44	40	46	38	26	27	25	8	12	13	23	38	33	41	39	35	40	46	46	40	..	..	..	33.3
	Min	40	25	23	16	4	5	20	25	16	36	30	25	13	18	6	-6	-9	-9	2	4	15	17	31	20	19	26	37	19	..	..	..	16.6
Pacific Jct.	Max	42	35	18	18	25	27	29	31	40	43	43	32	21	25	20	6	20	15	30	38	32	44	35	35	39	39	36	35	..	..	..	30.5
	Min	24	11	15	8	-10	2	14	13	6	25	20	17	6	14	0	-11	-13	-15	5	9	12	20	27	18	27	25	33	12	..	..	..	11.2
Perry	Max	41	37	32	19	25	22	29	28	42	44	40	34	19	23	18	1	14	9	26	36	29	45	38	35	40	43	43	45	..	..	..	30.6
	Min	27	13	12	10	-6	-2	17	5	-3	31	24	16	5	12	-1	-14	-2	-14	-1	4	10	18	25	13	18	21	33	13	..	..	..	9.8
Plover	Max	33	23	18	21	19	25	21	25	35	40	38	31	22	20	10	-7	10	12	23	33	28	41	35	34	39	41	40	31	..	..	..	26.5
	Min	22	9	4	1	-5	2	15	3	-2	22	18	10	0	-1	-10	-20	-17	-20	-5	-4	5	16	23	14	17	22	31	7	..	..	..	5.6
Red Oak	Max	44	41	24	24	24	26	28	32	37	41	38	34	24	25	23	9	18	18	26	38	32	42	40	36	40	41	43	35	..	..	..	31.5
	Min	32	15	16	12	1	8	18	13	9	31	23	21	11	17	6	-6	-5	-10	6	10	15	22	29	18	25	27	34	17	..	..	..	14.8
Ridgeway	Max	46	34	21	24	24	32	32	32	31	44	42	35	25	26	17	7	6	11	19	32	30	42	40	39	41	48	45	36	..	..	..	30.8
	Min	24	14	7	13	3	3	13	11	18	28	24	15	5	5	-5	-16	-18	-18	-3	-6	4	13	24	9	16	22	34	11	..	..	..	8.9
Rockw'l Cy	Max	45	40	19	20	20	20	25	32	38	40	40	33	19	23	19	4	14	10	26	35	31	42	41	41	40	40	40	34	..	..	..	29.7
	Min	30	16	10	7	2	8	0	0	2	19	21	16	3	12	-3	-18	-17	-17	-2	3	8	15	21	20	20	22	32	10	..	..	..	8.6
Sac City	Max	41	34	27	20	21	24	23	29	..	38	38	35	32	28	14	6	12	9	23	34	33	41	38	30	38	38	38	32	..	..	..	28.4
	Min	23	8	7	5	-3	5	11	2	..	5	24	23	14	3	-4	-17	-17	-16	-3	7	6	15	21	12	16	20	32	8	..	..	..	7.7
St. Charles	Max	51	39	23	23	30	22	27	32	45	45	44	34	22	23	20	6	11	14	25	41	38	48	39	39	41	44	44	35	..	..	..	32.4
	Min	34	16	15	13	3	2	13	7	10	35	29	20	7	13	2	-12	-10	-13	2	6	12	20	25	15	19	21	34	16	..	..	..	12.6
Scranton	Max	37	37	20	20	23	21	32	29	39	41	39	28	17	24	16	1	12	12	25	34	31	42	38	34	39	..	41	30	..	..	..	28.2
	Min	25	11	10	9	1	4	14	0	3	30	20	16	3	7	-1	-15	-13	-14	-6	4	8	19	24	14	19	..	20	11	..	..	..	8.3
Sheldon	Max	34	22	11	22	18	23	24	22	36	39	36	31	20	19	5	0	12	9	21	34	27	41	37	35	39	42	35	31	..	..	..	25.9
	Min	17	2	2	2	-7	2	10	0	3	20	22	10	0	4	-10	-9	-20	-19	-3	-4	-4	17	17	12	18	22	30	4	..	..	..	4.6
Sibley	Max	36	27	9	20	22	24	26	23	32	38	35	32	20	18	4	1	12	10	22	25	28	42	35	33	39	42	36	33	..	..	..	25.9
	Min	16	1	0	-6	2	5	10	4	2	17	23	10	1	4	-10	-18	-15	-18	-1	-1	4	28	18	12	18	22	31	5	..	..	..	5.9
Sigourney	Max	51	43	28	27	33	27	32	31	46	45	45	39	26	27	23	8	10	9	24	38	32	42	38	39	42	48	45	37	..	..	..	33.5
	Min	35	18	22	14	-3	1	18	21	9	32	24	23	10	12	7	-10	-14	-13	-3	-1	10	14	30	13	13	22	36	18	..	..	..	13.1
SiouxC'nt'r	Max	34	27	9	26	15	26	27	21	30	39	35	26	18	21	8	0	10	4	19	31	25	40	37	33	38	40	34	32	..	..	..	25.2
	Min	18	0	0	2	-7	4	10	5	3	15	23	8	0	4	-9	-18	-21	-19	-2	-2	3	16	17	11	19	21	32	2	..	..	..	4.9
Sioux City	Max	35	15	15	12	18	24	26	22	33	44	35	22	15	21	8	-1	15	8	23	35	27	45	35	34	38	40	37	24	..	..	..	25.2
	Min	15	4	8	-4	-1	8	10	5	5	21	22	6	2	4	-8	-15	-16	-18	8	5	6	21	21	15	24	25	24	6	..	..	..	7.2
Spirit Lake	Max	30	21	6	6	21	33	35	25	33	32	38	21	30	20	0	-2	8	12	25	35	30	40	35	34	36	36	36	18	..	..	..	24.8
	Min	15	4	0	0	-6	9	10	4	3	13	16	3	-1	0	-10	-10	-20	-19	-3	7	3	15	18	9	9	32	31	3	..	..	..	4.3
Storm L	Max	38	33	11	18	17	21	24	23	34	38	34	32	20	17	17	-1	10	8	21	33	31	40	38	34	36	37	38	32	..	..	..	26.2
	Min	24	14	5	4	-4	3	14	0	6	22	21	12	-1	8	-7	-20	-19	-20	5	-1	4	15	19	11	17	23	31	5	..	..	..	6.8
Thurman	Max	40	38	22	19	24	24	25	30	39	41	38	33	19	24	21	5	20	18	30	38	32	44	36	33	44	38	42	35	..	..	..	30.4
	Min	28	12	14	6	-2	-4	11	3	0	21	18	17	7	13	0	-11	-14	-15	2	5	11	19	27	16	20	24	31	11	..	..	..	9.6
Tipton	Max	46	42	29	30	27	22	30	30	38	42	43	38	28	29	26	13	7	11	18	30	29	37	33	39	40	48	45	39	.		..	31.8
	Min	34	25	20	15	3	5	18	21	15	28	27	26	15	16	13	-5	-10	-12	0	2	10	10	27	12	17	25	37	20	..		..	14.8
Toledo	Max	45	37	24	23	26	22	28	28	41	45	43	35	22	23	21	4	10	10	23	38	30	45	38	38	40	45	43	36	..	..	..	30.8
	Min	29	19	13	8	-3	-4	17	18	11	32	25	19	6	13	3	-12	-13	-14	1	-3	8	16	25	12	12	20	35	16	..		..	11.0
Villisca	Max	40	42	30	30	28	28	29	35	44	46	48	35	26	26	20	12	12	15	18	42	40	32	42	32	38	40	37	42	..	.	..	32.5
	Min	34	12	10	14	-8	0	14	5	0	27	22	17	8	14	2	-8	-10	-15	-13	4	10	14	25	14	18	21	14	17	..	..	..	9.4
Washin't'n	Max	47	33	30	23	32	25	32	34	44	44	44	31	23	28	17	7	10	8	21	35	27	38	34	36	41	45	43	32	..		..	30.9
	Min	32	20	17	9	-4	-1	14	12	12	30	24	21	10	12	2	-12	-17	-15	-5	-2	7	9	24	12	13	22	35	12	..	..	..	10.5
Waterloo	Max	47	33	27	21	21	24	30	30	34	44	40	34	26	22	16	3	9	11	21	36	30	44	38	35	40	45	43	31	..	..	..	29.8
	Min	25	16	10	10	-7	0	16	12	14	30	24	18	4	11	0	-12	-13	-15	3	-2	7	17	30	15	15	19	34	17	..	..	..	10.6
Waverly	Max	39	32	23	20	21	25	30	30	35	45	39	34	20	22	17	0	8	11	21	32	30	42	37	34	38	44	42	34	..	..	..	28.8
	Min	23	17	10	12	-10	0	13	13	14	13	22	18	5	9	0	-13	-14	-16	2	-6	6	12	27	12	15	20	34	13	..	..	..	9.0
West Bend	Max	34	27	15	16	21	26	27	26	34	43	40	32	15	20	15	-2	11	10	23	34	28	41	36	..	38	41	38	32	.	.	..	26.7
	Min	20	9	5	5	-8	-2	15	10	-2	23	16	12	0	3	-4	-19	-18	-17	-2	-4	5	16	23	..	18	23	32	10	..		..	6.2
Whitten	Max	40	38	23	20	23	25	27	28	37	43	40	36	21	23	18	-1	10	9	23	36	33	44	43	33	39	43	43	36	..	.	..	29.8
	Min	24	14	10	9	-7	-2	15	11	10	31	25	15	2	9	0	-16	-17	-18	-1	-4	6	13	26	12	13	18	34	15	..		..	8.8
Wilton Jc.	Max	47	43	28	30	26	28	32	35	40	45	43	37	30	34	25	13	7	7	20	32	30	37	37	35	38	45	46	38	..	..	..	32.1
	Min	32	24	20	16	-6	-3	18	17	12	30	27	25	14	14	11	-9	-16	-13	-5	-4	8	7	28	8	11	19	37	20	..	..	..	12.2
Winterset	Max	52	50	25	20	26	24	26	35	43	44	44	35	24	22	20	3	9	9	24	38	36	47	39	41	43	44	44	37	..	..	..	32.3
	Min	31	9	20	10	0	2	15	5	9	21	28	18	6	12	2	-12	-2	-14	0	5	10	20	25	15	20	22	30	10	..	..	..	11.0

DAILY AND MONTHLY PRECIPITATION FOR FEBRUARY, 1903.

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	....	....	.40	.20	....	.10	.10	....	..	....	..	T	...	T	....	...	....	....	T	....	....	...	....	....	....	T	.16	T	....	....	....	.96
Albia	....	....	.88	.13	....	T	T	..	..	.	..	T	....	T	.08	....	.	....	T	T	....	..	....	....	..	T	.37	T	....	..	....	1.46
Algona	..	....	.40	....	....	....	.05	....	....	....	....	....	....	T	.10	....	....	....	.10	....	....	....	....	....	....	T	.6:	....	....	....	....	1.17
Allerton	....	....	.15	.10	..	.05	.07	....	....	....	....	T	....	T	.10	....	....	....	.01	....	....	..	....	....	....	...	.4?	....	..	....	..	.93
Alta	....	....	.40	.	..	.0?	....	....	..	....	....	...	....	....	....	....	....	.0?	....	....	....	..	....	....	..	.25	.10	T	....	....	....	.90
Alta (near)	....	....	.40	....	....	.10	....	....	....	....	....	.	.	....	....	..	....	....	.02	....	....	....	....	....	..	....	.38	T	..	....	....	1.47
Amana	....	..	.31	.57	..	....	.06	.0	.	....	.	....	....	.06	.c6	....	....	....	T	....	....	....	....	....	....	.0?	.35	T	....	....	....	.94
Ames	.01	....	.30	T	....	..	.20	....	....	....	T	..	...	T	....	....	....	....	T	....	....	..	....	....	....	...	.70	.	...	....	....	2.10
Atlantic	....	....	..	1.20	..	..	.20	.	....	....	T	....	..	....	T	....	....	T	..	..	....	..	....	....	....	.c6	.03	.	...	....	....	.49
Audubon	..	....	....	.35	..	.05	.	....	....	....	....	....	..	..	....	....	T	..	..	....	....	..	....	....	....	....	.5c	....	....	....	....	1.15
Baxter	....	....	.40	.	....	.	.1c	....	....	....	....	....	..	.05	..	....	T	....	T	....	....	..	....	....	....	....	....	T	....	....	....	1.13
Bedford	....	..	.48	....	....	.04	T	..	.	....	T	.	.	....	.21	.	T	..	T	....	....	..	....	....	....	40	..	.28	....	....	..	1.02
Bonaparte	..	...	1.28	....	....	....	.	....	....	....	....	....	....	....	.36	..	....	. .	....	....	..	..	....	....	..	..	.29	.05	..	....	....	.63
Britt	....	T	..	.25	..	....	.09	T	....	....	..	.....	.	...	....	.	....	....	T	.02	....	..	T	....	....	....	.40	.02	....	..	..	.61
Buckingham	....	..	.05	T	..	....	.10	....	....	....	....	....	....	.03	....	....	....	....	.01	....	....	....	....	....	....	....	.30	.	..	..	....	1.98
Burlington	....	.	.9)	.15	..	..	....	.0?	....	T	.	..	....	.08	40	....	....	T	T	....	....	..	....	....	..	.34	..	T	....	....	....	1.29
Carroll	....	T	....	.75	....	.20	....	....	....	....	....	....	..	T	T	....	T	....	T	....	....	....	....	....	..	T	....	.	....	....	....	.74
Cedar Rapids	..	....	.	.7c	....	.	....	.02	....	....	....	....	....	T	.08	....	T	..	.04	....	....	..	..	..	.	.0?	28	T	....	....	..	1.14
Chariton	.	..	.45	.18	....	....	.06	.02	....	.	....	T	....	T	.08	....	T	..	.04	....	....	..	..	..	.	.	.26	T	....	....	..	.50
Charles City	....	....	..	.24	..	....	T	.	...	T	.	....	..	..	.	....	....	....	....	....	....	..	....	....	....	....	.30	T	....	....	.	1.18
Clarinda	....	....	....	.7)	....	....	.10	....	....	..	T	....	....	....	.07	..	T	....	T	T	....	..	....	....	....	....	.25	.02	..	....	....	.62
Clear Lake	....	....	....	.35	....	..	T	....	..	....	.	....	..	....	.27	....	....	..	....	....	....	..	....	....	....	....	.31	.01	..	..	....	1.29
Clinton	..	..	....	.65	....	..	.02	....	....	.03	....	.	..	....	.01	....	T	..	T	....	....	..	....	....	....	T	.42	.	....	....	..	91
College Springs	....	....	.20	.20	....	....	.1c	....	....	....	....	T	....	....	.01	....	T	..	T	....	....	..	....	....	....	....	.11	T	....	....	..	1.42
Columbus Junction	....	..	.2)	.50	..	....	08	.04	....	.03	....	....	....	.04	.23	....	T	....	.04	....	....	..	....	....	....	....	....	T	....	....	..	1.05
Corning	....	....	.35	.20	.....	.05	.1c	....	..	..	T	T	....	....	.03	....	T	..	.02	....	....	..	....	....	....	.10	20	T	..	..	....	1.55
Corydon	....	....	.57	.20	..	T	.05	.02	....	..	....	T	....	T	.28	....	..	T	.01	....	....	..	....	....	....	.42	....	....	..	..	..	1.00
Cumberland	....	....	60	.	....	....	30	..	....	....	....	....	..	....	.10	..	..	....	....	..	..	..	....	....	..	..	....	....	..	....	....	3.35
Danville	....	..	.60	.30	T	T	T	....	....	T	T	T	....	.1c	1.10	T	....	....	....	....	T	....	..	T	1.25	..	....	.29	T	..	....	....	1.67
Davenport	....	....	.70	.34	....	.	.02	T	...	T	....	....	....	.c2	.30	T	....	T	T	....	....	....	....	....	....	....	.37	.18	..	....	....	1.09
Decorah	....	....	....	.52	....	....	T	T	....	....	....	....	..	....	.. .	..	....	T	.02	....	....	....	....	....	....	....	.61	.03	....	....	....	.77
Delaware	. .	....	.11	....	....	....	.07	....	....	....	....	....	..	....	.05	..	....	....	....	....	....	....	....	....	....	....	.5c	....	....	..	....	1.45
Denison	....	....	.30	.50	....	....	.10	....	....	....	....	....	..	....	.01	....	T	T	T	..	....	..	T	....	....	.01	.2	T	..	....	....	1.12
Des Moines	....	.	.35	.40	..	T	.10	T	....	....	T	..	....	T	....	....	.	....	05	....	....	..	....	....	....	....	.35	.05	....	..	....	1.45
Dows	....	T	.	1.00	....	..	T	....	....	....	T	....	....	T	....	....	....	T	.01	T	....	....	....	....	....	....	.5c	.04	....	....	....	1.19
Dubuque	....	T	.11	.44	....	.	.02	.01	....	T	T	..	....	.06	T	....	....	T	.01	T	....	....	....	....	..	..	.27	T	....	....	....	1.57
Earlham	....	..	.62	.54	....	T	.14	....	....	T	..	....	....	....	....	.	....	....	T	..	....	..	....	..	....	T	....	.	....	....	..	1.14
Eldon	..	....	.15	.32	.....	....	.10	....	..	....	....	....	....	.c2	.30	..	....	....	..	....	....	..	..	..	....	.25	.	....	....	....	....	1.46
Elkader	....	.	.	1.0c	....	..	....	T	....	....	....	....	....	T	....	....	....	....	T	....	....	....	....	....	....	..	.46	T	....	....	....	1.01
Estherville	....	..	.90	....	..	..	T	.	....	....	....	....	..	....	....	..	....	....	.05	T	....	..	....	....	....	....	.06	.	....	....	....	.80
Forest City	....	....	T	.4:	....	....	T	..	....	....	..	....	..	....	....	....	....	....	T	T	....	..	....	....	....	....	.40	T	..	....	....	.83
Fort Dodge	....	....	.03	4	..	..	.0?	....	....	....	.	..	....	....	..	....	....	....	T	.05	....	....	....	....	....	....	.30	T	....	....	..	1.03
Fort Madison	....	....	.10	T	....	....	.10	....	....	T	....	..	..	....	.50	....	....	..	T	..	....	....	....	....	....	....	.33	T	....	..	....	.30
Galva	....	. .	....	.20	....	....	.10	..	....	....	....	....	....	T	T	....	....	..	....	....	....	..	....	....	....	....	.4?	T	....	....	....	.83
Gilman	.30	..	.10	T	T	T	T	T	....	....	....	....	....	....	....	..	..	..	.02	....	.	..	..	....	....	....	.57	.07	..	....	..	1.18
Grand Meadow	....	....	....	.5c	....	.	.02	....	....	....	....	....	....	....	....	..	..	..	....	....	..	..	....	....	....	....	.38	.05	....	....	....	.81
Greene	..	....	.	.36	....	.	.(2	..	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	.17	T	....	....	..	1 13
Greenfield	....	....	.3:	.3	....	.0?	.2	T	....	..	.01	T	....	T	.02	...	T	T	T	T	..	....	..	....	....	.c2	.78	...	....	....	....	1.92
Grinnell	....	....	.	.84	....	....	.09	....	..	....	....	....	....	.10	....	..	..	..	.11	..	....	....	....	..	..	....	.4?	.08	....	..	....	.90
Grundy Center	....	....	.03	.26	..	..	.06	....	....	..	.	....	....	.03	.	....	..	..	01	....	....	....	....	....	....	....	...	T	....	..	....	1.19
Guthrie Center	..	....	.40	....	..	.2	.0?	..	....	....	T	....	....	T	T	....	....	....	T	....	....	....	T	....	.49	....	....	..	....	..	....	1.52
Hampton	....	.	.95	..	....	....	T	..	..	....	..	....	....	T	.	....	....	....	.02	....	....	..	..	..	..	T	.40	T	....	....	....	1.27
Harlan	....	01	.54	.18	...	T	.12	..	....	.	.01	..	....	T	.0	..	....	....	T	..	....	..	..	..	....	.1(	.10	....	...	....	..	.77
Hopeville	...	....	.4)	.01	...	.02	.04	....	...	T	T	..	....	....	.01	..	....	....	.01	..	....	....	....	....	..	..	.42	.01	....	....	..	.43
Humboldt	..	..	....	....	....	..	..	..	....	....	....	..	....	....	.	....	....	....	....	....	....	....	....	....	....	..	.4	.c2	....	..	.. .	1.37
Ida Grove	....	..	.69	..	....	....	.2	.. .	..	....	....	....	..	....	....	....	..	....	..	....	....	....	....	....	....	..	.	.03	....	..	....	.82
Independence	....	...	.04	.44	..	..	.07	....	....	..	....	....	....	.03	....	....	....	..	.04	.	....	....	..	..	..	T	.26	....	....	..	2.58
Indianola	....	..	.5)	1.5c	.30	....	.	.	....	....	....	T	....	T	.01	....	....	....	T	....	....	..	..	..	.....	....	.3?	T	....	....	....	1.03
Iowa City	....	....	.25	.38	....	....	T	T	....	T	....	....	....	.1c	T	....	....	T	..	....	....	....	....	....	....	.05	.35	T	....	....	....	1.35
Iowa Falls	..	....	30	.6	....	....	T	1	....	....	....	....	....	....	T	..	..	..	....	.05	....	..	....	....	....	.30	...	T	....	....	....	.98
Jefferson	....	....	....	.5c	....	..	.18	....	..	....	....	....	....	T	..	..	..	....	T	....	....	..	....	....	....	T	.29	.01	..	....	..	1.42
Keokuk	....	....	.60	.1c	..	....	T	.04	....	.	....	.04	....	.02	.2'	..	....	....	01	....	....	..	....	....	....	T	.4c	....	....	....	..	2.09
Keosauqua	...	..	.c8	.17	...	..	T	.05	..	T	....	...	....	.05	.30	....	....	.	01	..	....	....	.	....	....	T	.4c	....	....	....	..	1 04
Lacona	....	....	.	....	.40	.08	.03	T	....	....	..	....	....	....	.27	....	....	....	.13	....	....	..	....	....	....	.06	.0?	..	....	....	....	1.13
Larrabee	...	....	.67	....	..	.06	....	....	....	....	.	....	....	....	....	.	....	....	T	....	....	....	..	....	....	....	.40	....	..	....	..	1.04
Le Claire	....	....	.07	.51	.05	....	....	.c2	..	....	.02	..	..	....	.11	.12	..	T	....	....	....	..	....	....	....	....	.14	....	..	..	....	.98
Lenox	....	...	.1c	.3c	....	.02	....	....	....	..	.03	....	....	....	.03	.	....	..	....	.	....	..	....	....	....	.c5	.35	....	....	....	....	1 03
Leon	..	..	.38	.13	..	.02	.04	.04	..	.	.	T	...	.	.02	....	T	....	.03	....	....	..	....	....	....	..	....	..	..	....	....	1.16
Logan	....	..	1.00	..	...	.10	....	..	....	..	.2:	..	....	....	....	....	..	..	.10	....	....	..	....	....	....	.c6	....	..	..	....	....	.82
Maquoketa	.	..	..	.13	....	....	....	.0?	....	.07	..	....	....	....	.06	..	....	..	....	....	....	....	....	....	....	..	.53	.	....	....	....	1.14
Marshalltown	....	....	.13	.42	....	....	.10	.03	....	....	....	....	....	.05	....	....	T	..	.02	....	....	....	....	....	....	....	.35	.04	..	..	..	1.11
Mason City	....	....	T	.73	....	....	....	.	....	....	....	....	....	..	....	....	....	..	T	....	....	..	....	....	....	....	.37	.01	....	....	....	1.50
Monticello	....	..	..	.60	....	....	T	.	....	....	....	....	....	.10	..	....	..	....	T	..	..	T	..	....	....	.8:	..	....	..	..	....	1.08
Mount Ayr	....	....	.6c	.10	....	.10	....	....	..	.	T	....	....	....	.c3	.	....	....	.10	....	....	....	....	....	..	.05	.10	T	....	....	....	1.08
Mt. Pleasant	...	....	.3c	.01	..	....	....	....	..	....	....	....	..	....	....	.	....	....	..	....	....	..	.	.01	....	....	....	....	....	....	..	.32
Mt. Vernon	....	....	.10	.40	..	....	.02	.01	....	....	....	....	..	.04	.03	....	....	T	....	....	....	..	....	....	....	...	.43	c2	....	....	....	1.05
New Hampton	....	....	T	.6:	..	....	....	T	....	..	....	....	....	....	....	..	..	....	T	....	....	....	....	....	....	....	....	....	....	....	....	.60
Newton	....	.	.80	..	..	....	.18	..	..	....	....	....	....	....	.09	....	T	..	.18	....	....	....	....	....	....	....	.40	....	....	....	....	1.65
Northwood	....	....	T	.60	....	....	T	T	....	....	....	....	..	....	....	....	....	..	T	T	....	....	....	....	....	....	.47	.05	.	..	..	1.12
Odebolt	....	...	.	.32	....	..	.12	.	..	....	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	..	.35	....	....	....	....	.79
Ogden	....	....	....	.40	....	....	....	.20	..	....	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	..	.30	05	..	....	....	.95
Olin	....	....	....	.5c	....	....	.10	..	..	.01	....	....	....	.0)	T	....	..	....	T	....	....	....	....	....	....	....	1.00	T	....	....	....	1.64
Omaha, Neb	T	....	.46	.22	.	T	.09	....	....	....	.02	T	T	T	.c1	....	T	..	T	..	....	....	....	....	....	.03	.29	T	..	....	....	1.12
Onawa	..	....	.40	.3'	....	.05	.10	....	..	....	....	....	....	....	.05	....	....	.	.02	....	....	....	....	....	....	.03	.55	.05	....	....	....	1.62
Osage	....	....	....	6:	....	....	T	.01	..	..	....	....	....	....	..	....	..	....	.01	T	....	..	....	....	....	..	.36	.07	....	..		1.05
Osceola	....	....	.40	.20	....	T	.20	....	....	..	....	....	....	....	.1'	..	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	.90
Oskaloosa	..	....	28	.10	....	T	.0,	.04	....	....	....	..	....	T	.0?	..	....	..	.02	....	....	....	....	....	....	.c2	.21	....	....	....	....	.79
Ottumwa	..	....	....	.80	....	....	.01	....	..	..	....	....	....	.20	..	....	....	..	.50	....	....	....	....	....	....	1.00	....	....	....	....	....	2.51
Pacific Junction	...	....	.55	.05	....	T	.05	....	....	....	.02	..	....	T	.02	..	T	..	....	T	....	....	....	....	....	0	.32	..	....	....	....	1.04
Perry	....	....	....	.50	..	....	.25	....	....	..	T	..	....	.02	....	....	....	....	T	....	....	....	....	....	....	T	.33	....	....	....	....	1.13
Plover	....	....	....	.30	....	....	.0?	..	....	..	.	..	..	....	.	..	T	..	T	..	....	.....	....	....	....	T	.22	..	....	..	....	.57
Red Oak	....	....	..	1.13	.	T	.07	..	..	....	T	.05	....	....	.05	..	T	..	T	....	....	....	....	T	....	T	.4(	.	.	..	....	1.70
Ridgeway	..	.02	.01	(.11	....	....	.01	.01	.01	T	....	....	....	....	....	....	.01	....	.03	.01	..	....	....	..	....	....	.03	.2:	....	..	....	2.05
Rockwell City	..	..	.	.10	....	....	.	....	....	....	....	..	....	....	....	..	....	....	....	....	....	....	....	..	....	....	.50	.	....	....	....	.60
Sac City	....	....	T	.05	....	....	2	....	....	....	....	..	....	....	....	..	....	....	....	....	....	....	....	..	..	....	.35	T	....	....	..	1 10
St. Charles	..	.	.10	.60	....	T	.0	....	....	....	T	T	.	..	.03	..	..	....	.03	....	....	....	....	..	....	.0'	.34	T	....	....	..	1.15
Scranton	....	....	.0	.40	....	.53	....	....	....	....	....	....	....	....	....	..	....	..	....	....	....	....	....	....	.37	....	.	....	....	....	..	1.37
Sheldon	..	T	1.00	.	....	....	.0	....	..	..	....	T	....	....	....	....	....	....	.02	T	....	..	....	....	..	..	.50	T	....	....	..	1.57
Sibley	....	.c5	.1(	.0?	..	.	.05	.	....	.	.	T	....	.	....	.	....	....	T	T	....	....	....	....	..	..	.20	....	....	..	..	.50
Sigourney	.	....	.6)	.25	.	T	T	..	..	T	..	..	....	T	.13	....	....	.	T	....	....	....	T	....	....	....	.38	1	....	..	..	1.40
Sioux Center	....	....	.40	.	....	....	....	....	..	.	....	....	....	.05	.	T	..	..	.05	....	.	....	....	....	..	....	.20	.20	....	....	....	.co
Sioux City	..	....	.1	.10	....	T	.2:	..	....	....	..	T	....	.	T	T	..	....	..	....	T	....	....	....	....	....	.39	.04	..	....	....	.66
Spirit Lake	..	.	.80	..	....	....	....	....	....	....	....	....	....	....	..	..	....	....	....	T	....	....	....	....	....	....	.2:	.	....	....	....	1.00
Stockport	..	T	.56	.52	....	..	T	T	....	T	....	T	....	T	.05	....	....	....	.0'	....	....	....	....	....	....	T	.38	T	....	....	....	1 56
Storm Lake	....	....	.16	.46	....	....	.09	....	.	....	....	....	....	....	....	....	....	..	T	..	....	....	....	....	....	....	.40	T	..	..	....	1.11
Thurman	....	....	.65	.10	..	....	.20	....	....	..	T	T	....	....	T	....	T	..	T	..	....	....	....	....	....	.40	1 10	T	...	....	....	2.45
Tipton	....	....	.25	.40	....	..	T	T	....	....	....	....	....	.10	T	....	....	....	T	....	....	....	....	....	....	....	.42	....	....	....	....	1.17

DAILY AND MONTHLY PRECIPITATION FOR FEBRUARY, 1903—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	
Toledo	....	....	....	.68	....	....	.10	....	..	....	T	....	....	T	....	.	....		T	....	....	....	....	..	....	.19	....	T	....	....	....	.97
Vi lisca	....	..	.97		....	....	.30	....	..	....	.15	...	..	.10	....	....	....	..	.10	....	....			..	..	....	....	....	....	..	....	1.62
Vinton	....	....	40	T	....	....	.10	..	..	..	....	..	....	.10	....	....	..	..	....	....	....	....	....	....	....	....	.18	..	....	....	..	.78
Washington	....	....	..	.85	....	....	.10	....	....	.05	....	....	..	....		.12	..	.	.03	....	....	....	....	....	....	.	.30	....	..	....	....	1.43
Washta	....	....	.60		....	.10		....	....	..	....	....	..	....	....	..	..	....	T	T	..	..	....	..	....	....	.50	..	..		....	1.20
Waterloo	..	.02	.08	.74	....	....	.04	.01	....	....	....	..	....	.04		....	....	..	.03	....	....	....	....	..	....	....	.35	.03	....	..		1.37
Waukee	....		.80	....	....	T	.20	.10	..	....	T	..	....	T	T	....	T	....	T	....	....	....	....	..	....	T	.28	T	....	..	....	1.38
Waverly	....	....	.12	.85	.	....	.03	.02	..	....	..	....	..	.01	....	....	.....	....	.01	..		....	....	....	....	....	.35	.10	..	....	.....	1.49
West Branch	....	....		.3	...	T	....	15	....	T	..	....	....	....	.10	..			.02	...	....	..	....	..	....	....	.4	....	....	....	....	.59
Whitten	...	....	.50	.50	....	....	.20	T	....	....	....	....	....	T	....	....	....	T	T	....	....	..	....	....	....	..	.05	T	..	..	....	1.25
Wilton Junction	..	.10	.10	.50	....	....	.28	....	....	.10	....	....	....	.70		....	....	..	....	..	..	....	..	....	....	....	.12	..	....	....	....	1.90
Winterset	....	....	T	.60	.	T	T	..	..		....	.	....	....	T	....	....	....	....	....	....	....	....	..	....	....	.3	..	....	..	..	.95
Woodburn	....	....	.2	....	....	T	.02	....		....	T	.		T	.02	..	.	..	.03		....	..		..	....	....	.4	....	....	..	..	1.72



MARCH, 1903. No. 3.

CONTENTS.

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DIRECTOR

GEO. M. CHAPPEL,
LOCAL FORECAST OFFICIAL,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

ALLIED PRINTING TRADES UNION LABEL COUNCIL DES MOINES

DES MOINES:
BERNARD MURPHY, STATE PRINTER
1903.

THE IOWA WEATHER AND CROP SERVICE

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From the following, weekly and monthly reports of Meteorological data are received by the Iowa Weather and Crop Service.

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Algona	C. D. Pettibone
Allerton	Rex Shriver
Alta	D. E. Hadden
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Amana	Conrad Schadt
Ames	Exp. Station
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Audubon	Frank Mott
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Belknap	A. W. Rankin
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Britt	G. P. Hardwick
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Carroll	Moses Simon
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Chariton	Hon. S. H. Mallory
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Chester	C. H. Meredith
Clarinda	A. S. Van Sandt
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Clinton	Luke Roberts
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Cumberland	Agent C. B. & Q. Ry
Danville	Agent C. B. & Q. Ry
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Delaware	Wm. Ball
Decorah	F. H. Baker
Denison	Prof. W. C. Van Ness
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De Soto	R. D. Minard
Dows	A. C. Fuller
Dubuque	Orin Parker
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Elkader	Chas. Reinecke
Estherville	Earle W. Peterson
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Fayette	R. Z. Latimer
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West Bend	Phil. Dorweiler
West Union	J. M. Lisher
Woodburn	C B. McDonough

*U. S. Weather Bureau

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Allerton	James Piper
Alta	Jonas Cushman
Blairstown	T. H. Weil
Burt	R. Jain
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Charles City	W B. Towner
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Danville	Sherman Matthews
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Fort Dodge	R. W. Blaine
Fruitland	R. T. Hummel
Goldfield	D. M. Stephens
Geneva	Wm. H. Thompson
Hartwick	Fred McCuiloch
Harlan	H. B. Kees
Hesper	G E. Dillingham
Humeston	Hon. S. H. Moore
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Toledo	W. G. Malin
Van Horne	Spencer Smith
Waukee	E. J. Leonard
Weldon	Ed. Worden
Winterset	H. A. Kinsman
West Branch	Wrigley Smith
West Union	H. B. Blackman
Wilton	Thos. Boot
Wiota	I. S. Coomes
Woodward	Geo. Swisher

U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

VOLUME XIV. MARCH, 1903. No. 3.

EDITORIAL NOTES.

The up-to-date Iowa Idea is to plant and harvest in 1903 the biggest and soundest crop of corn ever grown in this state. We need it in our business.

* * *

Within the past month we have received the sad news of the passing away of two of the most faithful co-workers in this service, Hon. S. H. Mallory, of Chariton, and Mr. H. C. Miller, of Ovid. The communities in which they lived, and the people of the state at large, have suffered a serious loss by the death of these public spirited and intelligent citizens.

* * *

The department of geology and mining engineering of the Iowa State College has been engaged in the study of Iowa clays during the past three years and finds that everyone of the ninety-nine counties in the state contains clay suitable for the manufacture of clay products. In 1901 the state ranked eighth in total clay production. Ninety-three counties marketed clay wares valued at $2,737,825, consisting chiefly of common building brick and drain tile, constituting 2.48 per cent of the production of the entire country, which amounted to $110, 211,587, In the cheaper clay wares, building brick, drain tile, hollow block and burnt clay ballast, she produced 4.45 per cent of a production of about $51,000,000 in those lines.

* * *

Science is touching agriculture and horticulture in many ways in plant breeding, cross fertilization, in the spraying and limitation of insect pests, in analyses of all foodstuffs as animal rations, in soil physics whereby the soil is fitted for its work, in animal husbandry, the feeding and breeding of all domestic animals—in fact, there is no other business in which man is engaged where science touches him more helpfully or with which it works more harmoniously.—*J. S. Trigg.*

THE UNITED STATES AS A STORM CENTER.

There are several reasons for believing that this continent is the peculiar theater for the interchange between the heat and the cold of the Northern Hemisphere, and that the Euro-Asian Continent plays a very different role in the meteorological economy of this hemisphere. For it is well known (1) that while the American Continent is the place for the profuse generation of cyclones, Europe is the region for their dissipation, and in Asia very few cyclones occur except along the ocean borders; (2) that the velocity of motion of the atmosphere generally is about twice as great over North America as over Europe. This points to a profound difference between the actions of the atmosphere in these two regions, but one cause of it at least is easily perceived. It has been shown that the currents which are especially concerned in forming cyclones are contained for the most part within two or three miles of the ground, though their accompanying effects may extend much higher. Hence, any barriers of elevated ground, as mountain ranges, which tend to deflect the flow of the lower strata, must strongly influence the formation of the cyclones themselves, if they are to be referred to the counter flow of long horizontal currents of different temperature rather than to local vertical convective currents.

The great range of the Himalaya Mountains stretching east and west is such a barrier to the flow of the tropical and polar currents in that region, and the result is that true cyclonic movements are almost excluded from the interior of Asia. On the other hand the Rocky Mountain range, stretching north and south along the western districts of North America, favors the counter flow from the tropics and the polar regions by deflecting the westward current of the tropics toward the north, and the eastward drift of the higher latitudes toward the south. The same tendency is favored by the location of the high pressure belt in the latitude of 35°, which causes a high pressure area to form over the middle Atlantic Ocean, while the Rocky Mountain range breaks through the midst of it The result is to produce a powerful anti-cyclonic center of action over the Atlantic Ocean, which maintains a strong northward component from the West Indies toward the interior of the continent. At the same time the American Continent causes the isobars and isotherms to loop southward, and thus in consequence to draw the Siberian atmosphere in a direction nearly parallel to the Rocky Mountain range. These physical conditions are a constant incentive to the formation of countercurrents which meet on the Canadian and United States territory, with the result that 75 per cent or 80 per cent of the storms of the Northern Hemisphere are generated in these districts.—*Relation between the general circulation and the cyclones and anti-cyclones, by Prof. Frank H. Bigelow, in the Monthly Weather Review for May, 1902.*

HOW THE AIR IS WARMED.

BY PROF. G. D. SWEEZY, LINCOLN, NEB.

The great furnace from which we get most of our heat is the sun. It sends to us little waves of heat—many thousands of these tiny waves every second; but they pass so easily and quickly through the air that they have little effect upon it on their way down; but they do warm the ground upon which they fall. for they cannot get through that so easily, and when the ground gets warm it soon warms up the air which lies upon it. This it does in two ways. In the first place, the bottom of the atmosphere actually touches the ground and rests upon it and is warmed by it just as a flat-iron is warmed when it is set on the stove; the heat creeps slowly up from the hot griddle of the

stove into the bottom of the flat-iron, or from the warm earth into the lower air. This process is called conduction. Then again, the earth warms the air in another way. If you hold your hand near the ground when it has been well heated in the sunshine, you will feel the warmth coming to your hand from the ground even if you do not touch it. This is called radiation; that is, the heat is radiated from the earth in little waves much like those which come down from the sun; but there is this difference—the heat waves radiated from the warm soil do not vibrate as rapidly as those which come from the sun, and for this reason they cannot pass through the air so easily. They are mostly stopped before they get very high up into the air, and so the air is warmed by them. That is why it is cold high up in a balloon; the sun is shining there just as much as it is at the surface of the earth, but its rapid waves pass by on their way down and do not warm the air much, and the slower waves coming back from the warmed earth do not get up so high, but mainly warm the lower air, in which the plants and trees live and grow. And so the earth's atmosphere acts as a blanket to keep the earth warm by letting in the heat waves from the sun more readily than it lets out the slower heat waves coming back from the warmed earth. The glass which is put over a hotbed acts in just the same way; it lets the sun's heat come in but will not let the heat arising from the ground get out, and so the plants are kept warm.

For fifteen years past the temperature of the soil has been measured daily at the state farm at seven different depths, ranging from one inch to three feet, and a study of the results recently has brought out many interesting conclusions.

For example, it appears that in every month of the year the surface of the ground averages warmer than the air; this shows that it is the ground which first feels the effect of the solar heat and is warmed by it and then it imparts its heat to the air, rather than the air warming the soil. The warmed surface layers also impart their heat to the deeper soil, but more slowly, so that at a depth of three feet the highest and lowest temperatures of the year are not reached till about a month later than they occur at the surface. At a depth of three feet the range between summer and winter is only thirty-four degrees, instead of a hundred and more, as it is in the air at the surface. The greatest depth to which the ground freezes in the winter is most commonly eighteen or twenty inches; twice since 1890 it has frozen to a depth of more than three feet, viz., in 1895 and in 1899.

PROGRESS AND OPPORTUNITY.

Pittsburg Gazette.

"Do you ever stop to consider young man," said the old stager, "how much you depend upon applied electricity? There goes the telephone bell now. A newspaper office without a system of telephones would be on a par of a 'home without a mother,' or nearly so. Click, click, I hear the telegraph instruments working there in the other room. That's right, my boy, push the button and let us have light. You see electricity comes at every turn. Light and the news—that's light, too—come with the electric touch, I came up an electrically operated elevator just now, and the other day when I was looking over the plant, I noted that your presses on the ground floor and your Mergenthaler machines on the top floor were all run by electricity. Wonderful machines, rapid, efficient, accurate, splendid; wonderful energy that makes them go.

"Young man, these things have all been developed, except the telegragh, within the span of your life. Most of them within the last two decades, yet there are foolish young fellows who con the names of the great and wealthy and lament that the door of opportunity is not as wide open as when those men made their start in life. Nonsense. The door of opportunity was never as wide open as now. Fame and wealth were never as ready to be embraced by ambition and brains as at this moment. Never.

"The inventions that have been made will be surpassed by those yet to come. We have but begun to realize the differentations of voltage, potentials and electro-motive force. The door of opportunity stands wide for the man whose think-tank runs at the touch of the electric facet.

"Not only in the electrical field is there opportunity. In chemistry, in engineering, in geology, in biology there are as good opportunities as were ever improved by Berthelot, Bequerel, Roebling, Lyell or Darwin. In plain business there are rich fields as rich as any worked by Rockefeller or Morgan. In industry Carnegie and Havemeyer have not exhausted the possibilities. In exploration the whole world has not been covered by Humboldt and Captain Cook. There is always opportunity, but the man who grasps it must have force and persistence, energy and brains. That's all. It's a great world, or queer world, a funny world—yes, it is a real good world to live in and be active."

WHAT "CATCHING COLD" MEANS.

The old-fashioned cold has been ousted to some extent from its former position in domestic medicine by the more modern influenza. An attack of influenza is a much better excuse for non-attendance at the office or shop than a cold, the latter being commonly regarded as an accommodation bill drawn by laziness on idleness. There is unquestionably such a thing as a cold—that is to say, a deviation from health obviously consequent upon and due to exposure to cold and damp. The initial sensation of cold is followed by more or less pronounced physical discomfort, possibly by more definite signs and symptoms of bronchitis or other disease a frigore. With that predilection for for inexorable logic which characterizes the undiscerning, the average citizen regards every illness commencing with a chill as a cold, losing sight of the fact that there are chills—i. e.: sensations of cold—which are in no wise due to the action of low temperatures. This vulgar error has been productive of serious consequences in mo e than one direction. Nowadays, and rightly, we are all for fresh air. We fear no foe save the ubiquitous microbe, and we fight him with fire and poison, with results that amply suffice to justify this war. It may, on the other hand, be a person with a weak chest who experiences a "chill," and, as it is theoretically impossible ever to exclude the influence of cold, he or she attributes the symptoms which follow—the cough, the sweating, the exporation, etc.—to incautious exposure, whereas this chill merely heralded a rise of temperature incidental to an outburst of tuberculous disease. It would suprise many intelligent people to be told that a chill is a sign that there is fever, and that sweating is usually a sign that the fever is abating. Yet such is the unvarnished fact, and it would be well for it to be generally known. Cold is merely a debilitating agent, the effects whereof will vary according to the individual. It throws a strain on the organic machinery and the weakest part gives. If the machine as a whole is in good trim, nothing happens beyond a little temporary discomfort. In a rheumatic person it may determine pains in the joints; in another, bronchitis; in a third, kidney trouble, and so on—in short, it picks out the weak spots and converts weakness into disease. Colds are notoriously infectious, and the places where colds are most frequently caught are places where ventilation is defective and where microbes abound, as in certain theaters, churches, railway carriages, and the like, so that even the symptoms of the old fashioned cold are, for the most part, the result of microbial infection and not of exposure.—*London Medical Press.*

SOME OLD-TIME DROUGHTS.

The following interesting statement of dry seasons extenting back to days of the Pilgrim Fathers, has been compiled and is worth preserving.

In the summer of 1621, twenty-four days in succession without rain.

In 1530, forty-one days without rain.
In 1657, seventy-five days without rain.
In 1674, forty-five days in succession without rain.
In 1688, eighty-one days in succession without rain.
In 1694, sixty-two days wi hout rain.
In 1705, forty days in succession without rain.
In 1715, forty-six days in succession without rain.
In 1728, sixty-one days in succession without rain.
In 1730, ninety-two days in succession without rain.
In 1741, seventy two days in succession without rain.
In 1749, one hundred and eight days in succession without rain.
In 1755, forty-two days without rain.
In 1762, one hundred and twenty-three days without rain.
In 1773, eighty days in succession without rain.
In 1791, eighty-two days in succession without rain.
In 1802, twenty-three days in succession without rain.
In 1812, twenty-eight days without rain.
In 1856, twenty-four days without rain.
In 1871, forty-two days without rain.
In 1875, twenty-six days without rain.
In 1876, twenty-six days without rain.

It will be seen that the longest drought that ever occured in America was in the summer of 1762. No rain fell from the 1st of May to the 1st of September, making 123 days without rain. Many of the inhabitants sent to England for hay and grain.—*Ex.*

WEATHER AND CROPS.

The month was warmer than usual, with less than the normal amount of precipitation. But the excessive cloudiness and lack of drying winds and sunshine retarded farm work except in dry sandy soil. The fields were excessively wet, and the roads well nigh impassable the larger part of the month. While the spring opened earlier than usual, the condition of the soil made a late start in spring work. Grass and fall grain wintered well.

CLIMATOLOGY OF MARCH 1903.

BAROMETER.—Mean pressure, 30.13 inches; highest observed, 30.50 inches, at Des Moines, on the 11th; lowest observed, 29.75 inches, at Davenport on the 23d, range for state, 0.75 inch.

TEMPERATURE.—The monthly mean temperature for the state, as shown by records of 114 stations, was 38.8 degrees, which is 6.6 above normal. By sections the mean temperature were as follows: Northern section, 36.1 degrees; Central section, 39.4 degrees; Southern section, 41.1 degrees. The highest monthly mean was 45 0 degrees at Eldon; lowest monthly mean, 30.8 at Sibley. The highest temperature reported was 82 degrees, at Mt. Pleasant on the 14th; lowest temperature reported, 6 degree at Baxter and Clear Lake on the 1st. The average monthly maximum was 72.1 degrees; average monthly minimum, 11.2 degrees. Greatest daily range, 48 at Monticello; average of greatest daily ranges, 35.3 degrees.

PRECIPITATION.—Average percipitation for the state, as shown by records of 126 stations, was 1.38 inches, which is 0.53 of an inch below normal. The averages by sections were as follows: Northern section, 1.40 inches; Central section, 1.34 inches; Southern section, 1.39 inches. The largest amount reported was 3.90 inches at Le Mars; least amount reported, .15 of an inch at Denison and Ruthven. The greatest daily rainfall reported was 1.80 inches at Keokuk on the 7th. Average number of days on which .01 of an inch or more was reported, 7.

WIND AND WEATHER.—Prevailing direction of the wind, southwest; highest velocity reported, 41 miles per hours, from the northwest, at Sioux City, on the 23d. Average number of clear days, 11; partly cloudy, 7; cloudy, 13.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES. Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	30.11	30.48	11	29.75	23
Des Moines	30.15	30.50	11	29.82	31
Dubuque	30.14	30.49	11.28	29.76	23
Omaha, Neb	30.13	30.48	28	29.75	18
Keokuk	30.13	30.48	11	29.80	7
Sioux City	30.14	30.48	28	29.81	14
Means	30.13	30.50	11	29.75	23

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	5681	32	W	24
Des Moines	6371	34	SW	18
Dubuque	5016	26	SW	24
Keokuk	5856	32	W	24
La Crosse, Wis	5663	25	NW	24
Omaha, Neb	6924	28	NW	23
Sioux City	9613	41	NW	23

OBSERVERS' NOTES.

ALGONA—*C. D. Pettibone.* On 17th first robin appeared, wild geese observed flying northward.

ALTA—*David E. Hadden.* Month warm, dry and generally cloudy; mean temperature 7° above, and precipitation 1.09 inches below average of preceding thirteen years.

AMANA—*Conrad Schadt.* Spring opened early, yet no field work could be done till about the close of the month, as the ground was too wet, on account of lack of sunshine and drying winds. Roads have not been in worse condition for many years. Some wheat and oats sown.

ATLANTIC—*J. W. Love.* Wild geese observed on 6th, robbins on 7th, and bluebirds on 8th. Month unusually mild.

BONAPARTE—*B. R. Vale.* Severe electrical storms on 7th, 17th and 18th, the last doing much damage to barns and stock; ground very wet and no farming practicable.

BRITT—*Geo. P. Hardwick.* Month comparatively mild, with little snow or wind; fruit buds forward.

CLINTON—*Dr. Luke Roberts.* March, 1903, gave us her coldest day on the 1st, having been preceded by a windy day with March characteristics, but those conditions had spent their forces at the crossing of the line, and no more "March winds" prevailed until the 23d and 24th, when an average speed of seventeen miles prevailed for thirty hours, commencing at noon of the 23d. The maximum movement of twenty miles an hour occurring during the central portion of the 24th. Snow, by spells, accompanied the wind. Not over two inches of snow fell altogether. This comprised all the snow of the month. Total

precipitation for the month was 2.36 inches, being eighteen hundredths below normal. The greatest precipitation during any twenty-four consecutive hours was 1.10 inches, occurring on the 7th. The maximum temperature was 78°, occurring on the 18th, and was 12° above normal. The minimum temperature was 14° , occurring on the 1st, and was 12.6° above normal.

The warmest day was the 18th, giving a mean of 65.2°, or 13.9° above normal. The coldest day was the 1st, giving a mean of 27°, or 15° above normal.

The total movement of the wind was 3,040, or 2,750 miles below normal, being the smallest run of wind for any March during the last twenty-two years.

It will be observed the departures from normal are greatly in excess, causing a record breaker. On some kinds of trees the buds were putting out at the close of the month.

COLUMBUS JUNCTION—*Prof. H. E. Simpson.* Ice went out of the Iowa and Cedar rivers early on morning of the 7th, followed by a very rapid rise of water on 8th, rising within three feet of high water mark of last August.

FOREST CITY—*J. A. Peters.* Robins came on 11th. No seeding done, frost out of ground.

GRAND MEADOW—*F. L. Williams.* Bluebirds on the 12th, and robins on 17th. All frost out by the 20th; grass well started by end of month; roads very bad.

GRUNDY CENTER—*E. S. King.* Some sod plowing done; clover mostly killed; heaviest snowstorm of season on 23d.

HANLONTOWN—*Miss G. M. Paschen.* First flock of geese observed on 8th; ducks on 18th; robins on 17th. Pussy willows in bud the 13th.

HUMBOLDT—*H. S. Wells.* First robin observed on 17th; fine weather at close of month.

IDA GROVE—*Theo. A. Collett.* On 12th robins appeared; on 14th plowing sod begun; on 17th lawns looked green.

LEON—*M. F. Stookey.* Two inches of snow on morning of 22nd; all off by night; four inches on morning of 23; disappeared by night.

MASON CITY—*J. S. Mills.* Robins and wild ducks on 7th; bluebirds and wild geese on 17th.

OLIN—*Nathan Potter.* Grass three weeks ahead of last year; meadows and ryefields in best of condition; some gardens made.

RIDGEWAY—*Arthur Betts.* Month unseasonably warm, same as in 1902; much thunder; 185 hours of sunshine; much hazy weather and fog; road almost impassable; at end of month soft maples, willows and hazel blossomed out.

WAUKEE—*E. J. Leonard.* First part of month gave promise of an early spring; unusually heavy snowstorms 22d and 23d postponed work in the fields till about 30th.

WAVERLY—*H. S. Hoover.* First wild geese flew north on 5th. Ice went out river on 8th; on 21st planted lettuce, radishes etc.

WEST BEND—*Ph. Dorweiler.* Month warmer than usual; ground too wet to work: roads very bad.

BELATED REPORTS FOR FEBURARY.

FAYETTE.—Mean temperature 18.1 degrees; highest 47 degrees on the 26th; lowest 17 on the 18th; greatest daily range 43 degrees; total precipitation 1.22 inches; greatest in twenty-four hours .70 inches on the 4th; total snowfall 8.7 inches; prevailing direction, northwest. Number of clear days 14, partly cloudy 8, cloudy 6, rainy 4.

WAPELLO.—Mean temperature 23.6 degrees; highest 47 degrees on the 27th; lowest 11 degrees on the 17th; greatest daily range 28 degrees; total precipitation 1.56 inches; greatest in twenty-four hours .90 inches on the 3d; total snowfall 11.5 inches; prevailing direction, northwest; number of rainy days 4.

ERRATA IN FEBRUARY REVIEW.

GRAND MEADOW.—Mean temperature recorded 17 0 degrees on page 7, should have been 18.8 degrees. Mean maximum temperature recorded 24.8 degrees on page 9, should have been 28.4 degrees.

HAMPTON.—Mean temperature recorded 18 6 degrees on page 7, should have been 19.0 degrees. Mean maximum temperature recorded 27.7 degrees on page 9, should have been 28.4 degrees.

BAXTER.—Total precipitation recorded 1.15 inches on pages 7 and 11, should have been 1.05 inches.

BUCKINGHAM.—Total snowfall recorded 5.2 inches on page 7, should have been 4.2 inches.

COLLEGE SPRINGS.—Total precipitation recorded .92 inches on pages 8 and 11, should have been .96 inches.

GUTHRIE CENTER.—Total precipitation recorded .49 inch on page 7, should have been 1.19 inches.

IOWA FALLS.—Mean temperature recorded 16.8 degrees on page 7, should have been 17.0 degrees.

PELLA.—Mean temperature recorded 22 8 degrees should have been 21.8 degrees.

LE MARS.—Maximum temperature recorded 43 degrees on the 22d, on page 7, should have been 44 degrees on the 27th.

MARSHALLTOWN.—Maximum temperature recorded 47 degrees on the 22d, on page 7, should have been 49 degrees on the 10th.

CLIMATOLOGICAL DATA FOR MARCH, 1903.

NORTHERN SECTION

STATIONS	COUNTIES	Elevation, feet	Length of record, years	TEMPERATURE, IN DEGREES FAHRENHEIT							PRECIP., IN INCHES				Number rainy days	SKY			Prevailing direction of wind	DATES OF THUNDER-STORMS.
				Mean	Departure from the normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from the normal	Greatest in 24 hours	Total snowfall (unmelted)		Number clear days	Number partly cloudy days	Number cloudy days		
Algona	Kossuth	1,213	28	36.6	† 9.1	67	18	11	1	37	.60	-1.01	.30	1.5	6	10	8	13	SE	16, 17
Alta	Buena Vista	1,513	11	35.4	† 6.7	65	31	9	1	37	.80	-1.11	.58	.7	9	10	9	12	SE, S	17
Alta (near)	Buena Vista										93		.74	.5	7					
Britt	Hancock	1,230	5	36 0	† 8 7	71	18	13	1	30	.73	- .78	.21	1.1	8	5	11	15	SW	17, 18
Charles City	Floyd	1,012	11	38.2	† 8.9	71	18	11	1, 25	38	1.65	- .06	.41		8	8	10	13	SE, NW	
Clear Lake	Cerro Gordo	1 241		36.2		68	18	6	1	42	.50		.25	1.5	4	12	9	10	SW	6
Decorah	Winneshiek	875	8	37.1	† 7.6	70	18	7	1	34	1 58	- .41	.64	6.5	6					
Dows	Wright	1,142		37.8		72	18	10	1	31	.95		.33	3.8	9	15	5	11	NW	16
Elkader	Clayton	727	21	39.4	† 8 8	76	18	10	1	36	2.07	† .25	.80	8.0	11	10	9	12	SE, NW	16, 18
Estherville	Emmet	1,298	7	34.2	† 8 4	66	12	9	1	27			.27	3.6	7	10	7	14	NW	17
Fayette	Fayette			36.5	† 6 8	72	18	7	1	36	1.70	- .56	.71	5.0	9	10	7	14	SE, NW	16, 18, 19
Forest City	Winnebago	1,226	8	33 6	† 5.2	69	18	7	1	34	.73	- .75	.36	T	4	12	4	15	W	
Grand Meadow	Clayton	1,18	11	36.8	† 7.1	75	18	7	1	33	2 05	† .00	1.00	9.5	8	9	8	14	SW	18
Greene	Butler	924	5	37 2	† 7.5	70	18	9	1	33	1.59	† .01	.42	7.0	9	9	8	14	SW	
Hampton	Franklin	1,155	12	37 3	† 9 5	72	18	10	1	32	1.33	- .88	.33	3.2	9	9	9	13	SW	14, 16, 18
Hanlontown	Franklin			36 0		70	18	9	1	41	.73		.34	.5	8	12	5	14	NW	
Humboldt	Humboldt	1,095	10	37.4	† 8.8	72	18	10	1	32	.85	- .65	.21		7	14	5	12	SE	
Larchwood (b)	Lyon			34.6		70	12	8	1	37	2 11		.70	T	5	17	3	11	S	16, 17, 19
Larrabee	Cherokee			34.6	† 6.0	64	12, 18, 31	9	1	40	1 02	- .71	.58	.6	4	11	8	12	SW	15, 17
Le Mars	Plymouth	1,224	6	35.5	† 4 6	65	12	9	1	37	3.90	†1 41	1.40	T	5				S	16, 17
Mason City	Cerro Gordo	1,132		39 4	†11.5	74	19	12	1	39	1.07	- .27	.20	4.5	8	9	8	14	SW	7
New Hampton (b)	Chickasaw	1,169		35.8		70	18	7	1	30	1.68		.80	10.0	6	10	7	14	NW	
Northwood	Worth	1,222	6	36 3	† 8.4	66	18	9	1	31	.95	- .86	.30	3.0	8	11	5	15	NW	
Osage	Mitchell	1,184	11	36.0	† 9.4	67	18	8	1	30	2.02	† .42	.72	6.5	11	9	5	17	SW, NW	18
Plover	Pocahontas	1,190	5	35.9	† 6.8	68	18	8	1	36	.50	-1.05	.22	1.0	6	15	1	15	NW	
Primghar (b)	O'Brien		6	34.4	† 6.8	62	18	12	20	36	1.15	-1.18	.75		4				N	
Ridgeway	Winneshiek	1,215		38.1		70	18	7	1	31	2.81		1.02	10.0	13	10	8	13	S	6, 16, 17, 18, 19, 31
Ruthven	Palo Alto			37.0		68	18	9	1	44	.15		.10	1.5	2	14	3	14	NW	
Sheldon (a)	O'Brien	1,422		34.2		65	12	9	1	34	2.23		1.16	.2	6	13	1	17	S	
Sibley	Osceola	1,512	8	30.8	† 1 9	63	12	10	1, 20	30	2.52	†1.26	.79	.2	6				NE	
Sioux Center	Sioux			33.2		63	12	8	1	29	2.68		1 05	2.0	6	12	7	12	SE	19
Storm Lake	Buena Vista	1,440	7	36.0	† 7.9	61	12, 18, 19, 31	9	1	36	.64	- .74	.51	T	4	12	4	15	SE	17
Washta	Cherokee	1,157									.90		.50		2	15	13	3	S	
Waverly	Bremer	942	6	37 3	† 7.0	73	18	9	1	34	1.59	- .35	.55	8.5	11	11	5	15	SE	3, 16, 18, 19
West Bend (a)	Palo Alto	1,197	8	36 6	† 8 4	69	18	10	1	32	.92	- .90	.35	1.0	7				S	17, 18
Average				36.1	† 7.6	68.6		9.0		34.6	1.40	- .39		3 7	7	11	7	13	NW	

CENTRAL SECTION.

Amana	Iowa	721	25	40.7	†9.5	73	18	11	1	28	1.44	-1.48	.22	2.0	13	7	9	15	S, SW	7, 16, 18
Ames	Story	926	20	38.6	†6.5	73	19	13	25	31	.61	- .82	.22	2.4	10				SE	
Baxter	Jasper	998		39.4		78	18	6	1	38	.90		.40	9.0	3	11	5	15	SE	
Belle Plaine	Benton	828	12	39.2	†7 2	76	18	11	1	34	2.00	- .52	.60	11.8	11	3	20	8	SE	
Buckingham	Iowa										1 08		.30	4.8	7	11	7	13		
Carroll	Carroll	1,265	12	38.5	†7.8	71	18	11	1	36	.70	-1.65	.42	1.0	6	12	7	12		16
Cedar Rapids	Linn	733	19	42 6		78	18	15	1	32	.65	-1.56	.16	3.0	5	8	9	14	S	
Clinton	Clinton	609	34	41.1		78	18	14	1	38	2.36	- .72	1.10	2.0	9	9	6	16	NE	3
Davenport	Scott	606	31	42 6	-7 7	76	18	13	1	29	2.06	- .10	1.10	.7	12	8	8	15	S	7, 16, 18
Delaware	Delaware	1,083	11	38 8	†9.1	71	18	7	1	36	1.74	- .09	.42	2.5	11	10	10	11	SW	7, 16, 17, 18
Denison	Crawford	1,180	8	33.5	†1.6	71	17	13	1, 20	41	.15	-1.48	.15	T	1	15	5	11	N-S	
Des Moines	Polk	861	24	40.6	†5.6	74	18	15	1	34	1.09	- .23	.67	8.3	11	7	12	12	SW	16, 18
De Soto	Dallas	866		38.6		74	18	15	1	35	.74		.39	5.0	7	12	4	15	SW	
Dubuque	Dubuque	655	29	39.6	†7.7	75	18	11	1	29	1.84	- .43	.40	2.6	12	7	4	20	SE	7, 16, 18
Galva	Ida	1,290	8	35.9	†4.2	64	18	13	2	35	.16	-1.38	.11	.5	1				NW	
Gilman	Marshall	1,052									1.37		.64	5.0	5	11	5	15	S	
Grinnell	Poweshiek	1,023	9	40 0	†7.3	74	18	12	1	29	1.21	- .68	.30	2.8	8	10	8	13	N	18
Grundy Center	Grundy	976	11	38.5	†7.6	72	18	9	1	34	1.91	† .30	.80	11 5	9	10	6	15	SE, S	16
Guthrie Center	Guthrie	1,077	6	38.8	†6 1	73	18	13	1	34	.95	- .37	.24	4.5	8	8	10	13	SW	
Harlan	Shelby	1,192		37.8		73	17	10	1	37	.83		.31	2.6	7	7	12	12	S, NW	
Independence	Buchanan	921	38	36 4	†6.3	72	18	10	1	37	.80	- .84	.45	4.6	5	14	5	12	SW	6, 18
Ida Grove	Ida	1,220		38.4		67	17, 18	10	1	38	1.96		.70	.6	4	10	16	5	S	
Iowa City	Johnson	685	43	41.9	†8.4	79	18	11	1	39	1.86	- .65	.95	.5	12	10	8	13	S	
Iowa Falls	Hardin	1,107	9	36.8	†6.7	72	18	10	1	30	1.35	- .20	.30	6.5	9	14	2	15	SE	16, 18
Jefferson	Greene	1,052									1.40		.70	3.5	6				NW	16
LeClaire	Scott	576									2.61		1.12	.2	10				S	
Logan	Harrison	928	35	38.2	†4.3	74	17	13	1	43	.28	-1.66	.10	1.0	5	19	2	10	SW	
Maquoketa	Jackson	688	9	41 0	†7.6	76	18	11	1	37	1.83	- .79	.35		12	11	7	13	NE	
Marshalltown	Marshall	947	9	40.4	†8.9	74	18	12	1	34	1.55	- .43	.38	8.5	11	8	9	14	SW	
Monticello	Jones	925	48	41.3	†9.5	75	18	15	24	48	2.25	- .15	1.10	5.0	6	7	5	19	SW	
Mt. Vernon	Linn	847	35	40.6	†8.7	73	17, 18, 31	8	1	35	1.66	- .60	.27	2.7	10	9	6	16	SW	6, 16, 18
Newton	Jasper	944	14	39 4	†5 8	70	18, 19	12	1	34	1.41	- .18	.47	8 0	8	12	8	11	S	
Odebolt	Sac	1,356	5	39.0	†6.0	77	31	11	1	47	.54	-1.45	.42	.5	4	15	6	10		
Ogden	Boone	1,088	8	38 2	†5.9	73	18	9	1	38	1.09	- .38	.30	4.0	7	16	2	13	SE	
Olin	Jones	760		39 8		73	18	10	1	31	3.32		1 00	2.0	10	11	7	13	E	6, 18
Onawa	Monona	1,053		38.4		69	31	13	1	38	1.08		.56	2.0	7	16	5	10	SE	
Perry (a)	Dallas	975		39.3		72	17, 18	14	1	34	.80		.39	3.0	4					16
Rockwell City	Calhoun		5	37.7	†7.3	72	18	12	1	35	.40	-2.05	.15	1.0	5	13	6	12		
Sac City	Sac	1,278	22	36.8	†5.7	69	18	10	1	36	.57	-1.05	.27	1.0	4	13	2	16	S, NW	
Scranton	Greene	1,172		38.7		71	18	14	1	34	.55		.17	.5	6	13	5	13	S	
Sioux City	Woodbury	1,165	13	36.0	†4.4	67	12	11	20	36	1.85	† .61	1.22	.3	8	8	8	15	NW	17, 18
Stuart (j)	Guthrie	1,216	5	40.6	†8 9	72	18													
Tipton	Cedar	807		41.6		75	18	11	1	33	1.37		.66	2.0	8	8	11	12	SW	
Toledo	Tama	856	8	40.0	†6.8	74	18	12	1	38	1.07		.30	4.0	9	10	7	14	SW	
Vinton*§	Benton	810	12	39.3		72	18	15	1		1.27	- .53	.50	5.0	5	12	3	16	SE	6
Waterloo	Black Hawk	862	15	38.2	†8.0	75	18	11	1	33	1.60	† .03	.75	12.0	10	12	6	13	S	19
Wilton Junct'n	Muscatine	683	7	42.6	†9.0	77	18	10	1	34	2 91	† .19	1 23	4.0	5	11	3	17	NW	18
Whitten	Hardin	1,036		33.2		72	18	9	1	34	1.77		1.00	12.0	6	10	7	14	S, NW	16, 19
West Branch	Cedar	718									1.99		.87	.8	12	6	14	11	SE	6
Waukee	Dallas	1,039									.84		.50	5.0	10	8	12	11	SW, NW	16
Average				39.1	†7.0	73.1		11.5		35.4	1.34	- .68		3.9	8	11	7	13	SW	

CLIMATOLOGICAL DATA FOR MARCH, 1903—CONTINUED.

SOUTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	PREC., IN INCHES. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).	Number rainy days.	SKY. Number clear days.	Number partly cloudy days.	Number cloudy days.	Prevailing direction of wind.	DATES OF THUNDER-STORMS.
Afton	Union	1,212	7	39.2	†4.7	74	17, 18	12	1	36	.78	-1.75	.30	4.0	5	....	....	....	SW	
Albia	Monroe	959	...	42.6	....	76	18	13	1	33	1.87	....	.50	....	10	15	6	10	SE	6
Atlantic	Cass	1,164	11	38.8	†5.9	73	17	13	23	39	1.11	- .81	.41	3.5	3	6	10	15	NW	
Audubon	Audubon	1,301	8	37.6	†5.0	71	18	11	1	37	.47	-1.32	.20	2.0	4	15	4	12	SW	
Allerton	Wayne	.....	..	41 9	.....	75	17, 18	13	1	36	1.85	.....	.40	2.0	9	11	12	8	SE	16
Bedford	Taylor	.....	....	40.1	.....	74	17	10	23	42	.83	.....	.41	4.2	4	12	7	12	SW	
Bonaparte	Van Buren	.....	10	43.2	†6.3	78	18	13	1	37	2.23	- .53	.57	T	7	....	....	....	.....	7, 17, 18
Burlington	Des Moines	544	....	44.8	.....	79	18	13	1	40	2.32	- .59	1.11	....	9	16	4	11	S	7
Corydon	Wayne	992	9	41.9	....	75	17	12	1	33	1.97	...	.50	5.0	9	12	4	15	NE, SW	16
Chariton	Lucas	1,042	7	41.3	†6.3	75	17	13	1	35	.86	- .69	.21	4.8	9	10	6	15	S	
Clarinda	Page	1,069	12	40 7	†6.1	76	17	13	1	39	.99	- .99	.45	5 0	6	11	7	13	S	
College Springs	Page	...	10	40.5	†4 4	75	17	14	1	32	1.07	- .77	.40	4 0	7	16	4	11	SW	
Columbus Jct.	Louisa	595	...	41.6	.....	78	18	10	1	35	2.40	.....	.97	1.0	10	12	9	10	SE, NW	6, 7, 16, 19
Corning	Adams	1,127	10	38.8	†3.4	71	17	7	23	41	1.34	- .47	.80	8.0	5	10	11	11	SW	16
Council Bluffs	Pot'wat'mie	990	5	36.3	†1.5	76	17	7	24	45	.50	-1.08	.26	2 6	4	8	6	17	SE, NW	
Cumberland	Cass	.....	....	.....	.....	....	....	....	.....	....	1.10	.....	.60	5.0	2	21	2	8	S	
Danville	Des Moines	726	....	.....	.....	....	....	.....	.....	....	1.55	.....	1.25	..	3	19	0	12	....	
Earlham	Madison	.....	....	39 6	.. .	74	17	12	23	35	1.05	.....	.66	6.5	5	8	5	18	S	
Eldon	Wapello	630	....	45.0	.....	73	18, 19	19	1, 25	39	.71	. . .	.20	.5	5	20	0	11	W	
Fort Madison	Lee	516	51	.....	....	....	.....	.....	....	.....	2.25	- .53	.97	..	7	6	8	17	SW	7, 16, 18
Greenfield	Adair	.....	11	38.6	†5.2	72	17	10	1	35	1.03	-1.27	.46	4.6	8	17	2	12	SW	13, 18
Hopeville (*j*)	Clarke	.....	11	42.3	†8.0	78	18	16	25	37	1.14	- .60	.35	..	9	....	....	....	.....	
Indianola	Warren	969	11	41.3	†6.7	75	17	19	1	35	1.21	† .01	1.03	8 0	4	12	7	12	SW	
Keokuk	Lee	619	31	44.4	†5 8	77	17	15	1	30	3.03	† .85	1.80	.2	11	11	11	9	SW	7, 16
Keosauqua	Van Buren	664	10	43.8	†6.2	79	18	14	1	37	3 00	† .46	1.43	T	9	....	....	....	.....	16, 18
Lacona	Warren	.....	....	.....	.....	....	.....	.....	....	....	2.49	.....	.64	7.0	9	....	....	....	.....	
Lenox	Taylor	1,250	7	39 4	†5.4	73	17	10	1	35	.79	-1.24	.45	4.5	5	15	5	11	S	
Leon	Decatur	1,120	....	41.8	..	74	17	14	1	34	1.28	.....	.40	....	8	14	5	12	S	
Mt Ayr	Ringgold	1,236	8	40.1	†5.1	74	17	12	1	36	1.38	- .75	.40	7.0	9	7	12	12	SW	
Mt. Pleasant (‡)	Henry	729	20	44 1	†8.5	82	17	10	9	41	1 15	-1.23	.55	....	3	15	5	11	SW	
Omaha, Neb	Douglas	1,113	32	39.6	†4.1	74	17	14	1	36	.58	- .92	.26	2.3	7	10	7	14	S	
Osceola	Clarke	1,130	6	40.2	†6.4	75	17	18	20	33	1.41	- .47	.50	....	6	....	...	..	SE	5
Oskaloosa	Mahaska	843	18	41 2	†7.3	73	17	12	1	32	.90	-1.04	.24	3 5	9	....	....	..	.....	
Ottumwa	Wapello	649	8	43.4	†6.3	76	18	17	1	27	.95	-1.05	.50	....	3	9	12	10	E	
Pacific Junction	Mills	960	....	39.4	....	73	17	13	1	33	.58	.....	.21	2.3	4	7	12	12	S	
Red Oak	Montgom'ry	1,033	....	40.6	.....	70	17	17	1	31	.88	.....	.38	4.2	4	9	12	10	SE	16
St. Charles	Madison	1,070	....	41.0	.....	74	17	14	1	35	1 92	.....	.70	7.7	11	13	4	14	NW	
Sigourney	Keokuk	787	6	42 6	†8.7	78	18	11	1	41	1.35	- .68	.39	1.0	8	13	10	8	SE, NW	7, 16, 18
Stockport	Van Buren	.....	....	...	.....	....	.....	.....	.....	.....	1.91	.....	.55	.2	8	9	7	15	SW	7
Thurman	Fremont	...	....	39.6	.....	70	18	12	1	38	1.23	.....	.40	4.0	4	12	5	14	SW	
Wapello	Louisa	588	....	42.6	..	75	18	17	1	31	1.38	.....	.60	.5	8	12	8	10	SE, NW	18
Washington	Washington	769	20	40 6	†7.1	77	18	9	1	37	2 25	† .14	1.28	....	10	..	...	....	SE	6
Winterset (*a*)	Madison	1,129	11	42.9	†9.4	74	19	20	2, 3	37	.66	-1.48	.22	....	5	9	7	15	S	
Woodburn	Clarke	961	....	.....		....	.....	.....	.....	.....	1.19	.....	.45	8.5	7	14	6	11	SW	
Average		....	....	41.1	†6.1	74.7	.....	13 2	.....	35.8	1.39	- .72	.....	4.0	7	12	7	12	SW	
Av. for the state		.....	....	38 8	†6.9	72.1	.....	11.2	....	35.3	1.38	- 60	.....	3 9	7	11	7	13	SW	

*Means determined from 7 A. M., 2 P M, and 9 P. M. observations, and maximum and minimum are taken from eye readings. ‡Received too late to be computed with means. *a*, One day missing; *b*, two days, etc. §Not supplied with self registering instruments. † Above normal.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR MARCH, 1903.

STATIONS.		DATE.																													Mean.
		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	Max.	38	44	46	42	38	50	50	50	56	47	51	61	56	38	46	68	74	74	64	33	55	36	35	36	..	..	46	42	52	63	70	50.3
	Min.	12	19	27	32	31	33	33	36	28	37	36	34	32	26	33	42	44	54	28	17	22	21	22	24	..	..	19	24	23	27	42	28.2
Albia	Max.	40	49	50	49	40	52	51	52	57	47	52	63	67	42	42	69	75	76	65	39	55	45	36	38	58	65	52	45	51	61	71	53.4
	Min.	13	22	34	34	32	35	35	27	30	39	38	36	34	23	33	38	45	57	38	22	25	33	26	24	23	40	30	25	25	29	44	31.9
Algona	Max.	37	40	39	36	34	42	43	47	49	52	50	62	62	32	34	44	55	67	60	31	48	41	31	42	46	43	40	37	46	61	60	45 5
	Min.	11	20	30	30	26	26	30	25	32	33	33	35	25	23	29	35	34	48	30	18	21	26	25	21	22	33	22	23	26	33	29	27.6
Allerton	Max.	40	44	49	45	39	53	53	53	56	46	51	61	68	40	45	71	75	75	66	38	55	46	35	35	56	63	57	45	51	62	71	53.0
	Min.	13	20	22	34	32	34	35	38	30	40	36	32	32	22	30	40	45	56	38	20	22	32	25	23	22	35	29	25	25	27	40	30.8
Alta	Max.	36	39	38	31	36	41	44	48	54	44	51	64	44	30	37	44	56	64	57	20	14	18	45	23	20	22	25	20	23	25	34	38	26.5
	Min.	9	18	29	28	25	31	28	27	31	30	29	36	23	22	28	34	33	53	20	14	18	45	23	20	22	25	20	23	25	34	38	26.5
Amana	Max.	37	45	43	40	41	46	49	46	46	48	51	51	61	43	43	52	68	73	62	46	51	43	34	37	50	61	47	44	47	57	68	49.4
	Min.	11	21	33	34	34	34	37	27	29	39	38	34	34	32	31	37	43	56	46	27	23	32	27	26	22	36	31	27	25	25	40	32.0
Ames	Max.	22	42	47	39	38	39	47	48	51	56	45	56	64	40	38	41	54	72	73	57	39	54	34	32	37	53	59	41	42	50	56	47.6
	Min.	14	14	24	31	31	31	33	26	29	36	35	33	34	27	30	34	41	41	51	29	27	29	26	20	13	35	27	25	25	27	40	29 3
Atlantic	Max.	40	43	42	36	37	48	50	52	59	49	57	65	53	35	44	57	73	70	61	32	53	40	31	37	56	45	38	43	52	64	69	49.4
	Min.	14	21	29	32	30	33	31	20	30	34	32	35	29	25	31	40	39	54	25	17	23	28	13	21	20	34	25	23	23	32	30	28.2
Audubon	Max.	40	43	38	34	35	42	47	50	57	51	55	64	53	32	42	58	64	71	62	32	51	42	34	38	53	53	40	43	45	50	67	47.9
	Min.	11	13	28	30	27	30	32	26	32	33	30	40	29	24	29	37	42	53	25	14	21	28	18	20	22	32	20	22	22	24	34	27.4
Baxter	Max.	42	47	40	37	38	47	49	50	55	45	52	60	50	39	39	55	71	78	67	38	53	45	35	36	52	60	40	43	48	60	69	49.7
	Min.	6	20	30	30	32	34	32	25	30	36	34	34	30	28	31	38	40	53	35	22	18	27	25	24	14	34	28	24	24	25	40	29.1
Bedford	Max.	40	44	50	41	39	53	51	54	59	49	51	63	58	39	46	68	74	72	63	35	57	43	33	37	59	55	40	45	53	64	70	51.8
	Min.	12	18	26	33	32	33	31	20	31	37	35	34	30	26	33	44	44	59	29	11	19	27	10	21	17	38	27	22	22	26	35	28.4
Belle Plain	Max.	37	44	43	39	40	47	48	46	48	48	51	53	60	41	31	30	38	45	52	25	20	28	25	24	18	30	30	25	26	28	35	29 9
	Min.	11	18	30	32	33	35	32	25	28	35	38	34	35	30	31	30	38	45	52	25	20	28	25	24	18	30	30	25	26	28	35	29 9
Bonaparte	Max.	36	46	44	47	41	53	54	50	51	40	39	33	32	31	32	39	47	58	45	26	24	36	28	27	23	36	34	27	25	26	36	32.7
	Min.	13	23	33	35	34	36	41	27	28	40	39	33	32	31	32	39	47	55	71	56	28	47	38	32	35	48	40	34	42	45	60	61	44.7
Britt	Max.	36	40	38	34	40	45	41	45	50	44	49	61	50	35	38	47	55	67	60	31	48	41	31	42	46	43	40	37	46	61	60	45 5
	Min.	13	17	30	31	27	33	29	23	31	34	33	34	26	25	32	35	35	48	28	17	18	27	26	21	18	28	23	23	23	30	30	27 3
Burlington	Max.	37	50	43	46	42	53	55	53	50	55	57	57	71	57	50	66	78	79	70	51	54	53	41	43	55	67	54	50	52	60	71	55.5
	Min.	13	24	32	35	35	36	43	29	30	43	40	36	31	34	30	38	56	60	51	28	25	35	29	27	22	39	36	28	27	28	40	34.2
Carroll	Max.	41	44	39	36	38	52	49	52	56	45	57	66	48	34	41	53	64	71	54	32	51	48	33	41	55	50	41	44	52	65	70	49 1
	Min.	11	18	28	30	28	29	30	23	30	32	29	35	28	24	28	36	36	49	38	15	26	31	24	23	19	32	22	22	24	34	36	28.0
Cedar Rap.	Max.	39	46	43	39	41	53	56	55	48	50	53	54	62	48	49	55	71	78	66	48	54	47	38	38	53	64	46	43	48	60	70	52.1
	Min.	15	23	33	34	33	36	38	30	30	40	39	36	35	34	30	38	44	56	46	27	25	34	25	25	24	38	32	28	27	28	40	33.0
Chariton	Max.	38	45	47	43	37	52	51	55	61	46	50	61	64	38	41	67	75	74	64	35	54	44	35	34	55	62	45	43	49	60	70	51.5
	Min.	13	22	28	33	33	34	34	31	28	39	36	36	34	27	34	39	45	57	34	19	23	31	26	23	20	37	39	24	24	28	43	31.1
Charles Cy	Max.	37	41	39	36	39	40	44	45	46	46	49	58	53	39	40	44	52	71	65	41	49	41	33	34	40	54	38	44	46	63	62	46 3
	Min.	11	22	33	32	32	34	33	25	29	37	36	35	32	31	32	36	39	48	39	23	23	31	27	26	11	26	29	27	27	31	35	30.1
Clarinda	Max.	43	46	42	38	38	51	51	55	62	42	53	66	49	40	47	69	76	75	60	33	60	43	33	41	61	56	40	47	55	67	73	52 0
	Min.	13	18	26	34	31	33	32	24	33	35	35	33	27	24	33	44	46	57	26	17	28	27	14	23	22	35	27	25	27	28	36	29 4
Clear Lake	Max.	35	42	36	38	42	42	42	50	51	40	51	61	50	36	36	44	55	68	57	28	47	39	31	36	52	47	40	44	62	60	62	46.0
	Min.	6	17	28	29	26	31	29	20	27	34	32	35	25	25	32	33	35	44	28	16	18	27	24	20	17	29	23	26	20	28	35	26.4
Clinton	Max.	35	45	43	38	41	47	47	47	45	51	44	56	65	49	44	55	72	78	52	28	23	33	28	26	24	28	33	28	25	22	36	30.6
	Min.	14	22	28	28	33	33	36	29	27	33	33	32	28	33	30	33	43	48	52	28	23	33	28	26	24	28	39	44	40	63	68	50.8
College Spr	Max.	40	44	45	39	37	52	48	30	60	47	52	62	50	42	27	33	43	46	67	28	16	25	26	17	23	24	37	27	25	27	30	36	30.2
	Min.	14	20	26	33	31	33	32	27	32	34	35	33	34	27	33	43	46	67	28	16	25	26	17	23	24	37	56	51	50	60	72	51.2
Colum. Jct.	Max.	37	47	45	44	41	52	53	48	47	54	54	55	68	53	49	68	72	78	61	41	54	57	38	39	55	67	56	51	50	60	72	51.2
	Min.	10	20	31	33	33	34	48	28	27	38	38	35	35	32	30	40	48	57	41	27	24	32	23	20	22	37	32	24	22	25	41	31.9
Corning	Max.	39	43	41	39	37	50	48	48	56	43	50	65	52	36	45	63	71	70	59	34	54	43	32	36	54	56	38	41	49	60	67	40.1
	Min.	12	18	27	33	31	33	32	22	32	26	34	36	32	25	32	42	43	55	25	15	23	27	7	20	16	37	26	24	25	30	38	28.6
Co Bluffs	Max.	42	45	40	35	37	45	48	53	60	39	52	44	44	35	45	61	76	71	58	35	55	36	33	39	61	51	45	43	38	66	67	48.4
	Min.	13	19	30	32	30	35	17	24	24	33	30	30	20	25	25	25	42	50	22	15	10	9	9	7	27	27	25	24	9	25	38	24.2
Corydon	Max.	40	46	50	44	40	50	53	54	58	47	51	62	68	43	44	70	75	74	68	37	55	46	34	36	56	64	53	51	52	63	72	53.4
	Min.	12	19	28	33	31	33	32	25	29	39	35	33	35	27	30	38	44	56	35	19	22	31	25	22	20	37	28	23	24	26	40	30.4
Davenport	Max.	35	46	41	39	42	50	53	47	47	51	45	54	67	48	43	61	74	76	65	42	27	26	38	29	26	28	40	35	31	27	30	43	33.9
	Min.	13	25	31	34	34	34	37	31	29	40	39	36	39	37	31	35	45	60	42	27	26	38	29	26	28	43	53	42	42	48	58	55	44.9
Decorah	Max.	37	40	44	37	35	40	44	48	45	44	39	47	45	41	38	42	47	70	64	52	47	38	33	34	43	53	42	42	48	58	55	44.9
	Min.	7	18	28	32	32	34	32	24	29	36	36	37	33	32	31	35	37	36	39	28	23	28	32	27	17	30	28	25	23	27	32	29.3
Delaware	Max.	35	42	40	35	38	44	47	46	45	44	47	49	57	43	42	44	52	71	63	50	46	43	37	33	43	56	44	42	46	59	61	46.6
	Min.	7	18	29	30	30	30	34	24	29	36	33	30	32	31	28	36	40	45	48	25	20	27	26	25	16	30	30	24	20	23	39	30.9
Denison	Max.	40	43	38	34	36	48	45	50	58	53	51	64	55	32	42	52	71	69	63	47	51	45	35	39	55	53	52	40	51	64	68	49.8
	Min.	13	18	29	29	27	31	29	22	33	31	29	34	27	24	29	39	35	55	22	13	20	28	22	21	20	29	20	22	25	32	35	27 2
Des Moines	Max.	40	45	40	39	39	51	49	51	57	45	53	60	49	39	41	59	74	74	63	33	54	38	33	37	52	59	40	42	48	61	70	49.5
	Min.	15	23	32	33	34	34	35	29	31	40	36	51	60	50	37	44	64	73	74	63	36	54	44	33	37	50	56	41	41	61	67	..	47.3
De Sota	Max.	40	44	42	38	39	50	50	48	54	49	51	60	50	37	44	64	73	74	63	30	20	22	30	27	28	20	37	28	26	26	41	..	30.0
	Min.	15	22	31	33	33	35	38	28	32	38	36	34	32	27	34	39	41	53	30	20	22	30	27	28	20	37	28	26	26	41	..	30.0
Dows	Max.	37	42	37	34	32	42	44	46	51	42	49	61	55	39	36	45	61	72	64	34	48	42	30	35	46	54	38	39	46	60	62	47.6
	Min.	15	42	37	34	32	42	44	46	51	42	49	61	55	39	36	45	61	72	64	34	48	42	30	35	46	54	38	39	46	60	62	47.6
Dubuque	Max.	37	41	39	36	39	40	44	45	46	46	49	58	53	39	40	44	52	71	65	41	49	41	33	34	40	54	38	44	46	63	62	46 3
	Min.	11	22	33	32	32	34	33	25	29	37	36	35	32	31	32	36	39	48	39	23	23	31	27	26	11	26	29	27	27	31	35	30.1
Earlham	Max.	43	46	42	38	38	51	51	55	62	42	53	66	49	40	47	69	76	75	60	33	60	43	33	41	61	56	40	47	55	67	73	52 0
	Min.	13	18	26	34	31	33	32	24	33	35	35	33	27	24	33	44	46	57	26	17	28	27	14	23	22	35	27	25	27	28	36	29 4
Eldon	Max.	35	42	36	38	42	42	42	50	51	40	51	61	50	36	36	44	55	68	57	28	47	39	31	36	52	47	40	44	62	60	62	46.0
	Min.	6	17	28	29	26	31	29	20	27	34	32	35	25	25	32	33	35	44	28	16	18	27	24	20	17	29	23	26	20	28	35	26.4
Elkader	Max.	36	45	38	36	40	40	53	50	48	45	37	30	33	38	33	30	37	40	40	46	28	26	28	28	27	17	27	32	24	20	24	35	30.0
	Min.	10	21	33	33	33	34	36	24	25	37	30	33	38	33	30	36	39	43	61	42	25	42	35	31	35	52	43	34	39	46	60	61	42.6
Estherville	Max.	34	36	39	34	34	40	40	47	49	45	51	66	49	30	36	39	43	61	42	25	42	35	31	35	34	25	20	27	23	33	37	53	25.7
	Min.	9	12	14	26	25	28	30	31	31	30	30	37	23	22	28	33	32	39	22	14	13	25	23	20	48	32	31	32	37	53	53	40.1
Forest C'ty	Max.	35	37	32	32	33	38	35	38	43	38	45	51	48	33	33	41	51	69	60	28	46	31	26	34	48	32	31	32	37	53	53	40.1
	Min.	7	19	30	30	27	32	31	23	30	34	32	35	26	25	31	34	30	45	26	16	20	26	24	20	53	50	33	49	..	55	62	45 6
Galva	Max.	35	40	40	33	37	42	42	47	54	48	51	63	45	31	40	47	63	64	58	35	49	39	32	34	18	27	19	22	..	31	31	26.2
	Min.	18	13	29	29	27	51	28	20	31	31	29	34	27	20	29	35	34	50	24	13	17	24	22	21	43	53	46	41	46	57	62	44.6
G. Meadow	Max.	32	38	37	35	39	40	45	44	40	44	45	52	49	40	39	40	42	75	60	45	23	20	28	26	16	31	28	23	22	26	37	29.1
	Min.	7	20	31	32	32	32	34	24	26	35	34	34	36	32	28	35	38	42	45	23	34	48	43	30	35	45	53	39	38	48	60	61	45.8
Greene	Max.	38	43	36	34	40	40	45	47	47	44	51	59	52	39	38	44	57	70	63	34	48	43	30	35	45	53	39	38	48	60	68	50.0
	Min.	9	20	32	32	30	33	30	25	29	35	30	34	30	29	32	37	37	45	34	22	22	28	25	23	15	31	27	25	28	40	62	68	50.0
Greenfield	Max.	38	43	40	45	38	50	48	49	56	44	60	62	55	35	45	60	72	71	63	32	52	43	36	36	53	56	47	40	51	62	68	50.0
	Min.	10	18	28	26	33	30	32	24	28	35	34	31	30	20	32	34	40	47	28	15	19	28	16	19	36	18	36	28	23	21	29	35	27.3
Grinnell	Max.	36	43	41	37	37	47	48	45	52	52	50	58	57	38	39	55	69	74	64	40	51	45	34	36	50	60	45	40	46	58	69	48 8
	Min.	12	24	31	31	32	34	33	27	30	38	37	39	33	28	30	37	42	54	40	38	23	29	25	24	21	37	28	25	19	29	44	31 1
Grundy C'r	Max.	38	43	39	35	39	43	47	48	50	44	50	59	55	38	38	48	64	72	67	38	51	41	32	36	46	55	42	41	47	60	65	47.4
	Min.	9	21	31	32	31	33	32	25	29	36	35	34	33	29	31	36	39	49	38	23	20	28	25	24	12	35	29	25	24	27	42	29.6
Guthrie Cr	Max.	40	44	38	37	37	49	48	50	57	51	54	64	56	33	43	57	72	73	65	32	52	46	32	36	50	55	37	42	50	64	69	49.5
	Min.	13	18	30	32	30	33	31	22	29	35	33	36	30	26	32	39	38	39	28	17	22	28	21	22	18	33	25	25	25	30	35	28.2
Hampton	Max.	38	44	37	34	41	40	45	49	52	43	51	62	50	37	37	45	59	72	62	31	51	39	30	35	48	55	42	44	48	62	64	46.1
	Min.	10	20	31	31	30	33	32	24	30	35	34	36	28	27	32	31	32	45	31	20	20	29	24	22	19	32	27	25	23	30	40	28 5
Hanlonto'n	Max.	45	20	30	22	32	31	24	30	34	34	37	27	27	30	34	35	43	70	68	30	46	37	30	35	46	54	35	35	45	60	60	44.7
	Min.	9	42	41	34	37	45	46	49	57	49	49	63	47	33	43	57	73	71	60	31	52	44	33	38	19	25	24	24	22	32	34	27 3
Harlan	Max.	40	16	28	31	28	32	30	22	31	32	30	33	29	24	29	40	37	50	23	13	19	29	22	20	19	51	36	32	22	22	34	48.5
	Min.	10	..	..	..	..	..	..	..	..	..	49	62	61	38	46	67	74	78	62	33	55	47	33	34	53	60	44	42	52	64	72	53.6
Hopeville	Max.	..	..	..	..	..	..	..	..	..	..	35	35	32	26	34	42	45	55	..	18	22	28	25	21	16	36	28	25	26	28	42	31.0
	Min.	..	..	..	..	..	..	..	..	..	..	35	35	32	26	34	42	45	55	..	18	22	28	25	21	16	36	28	25	26	28	42	31.0
Humboldt	Max.	38	41	40	35	37	43	44	46	50	47	52	64	56	34	38	46	62	72	62	30	50	44	34	38	51	53	38	40	48	64	63	47.1
	Min.	10	19	30	31	29	33	30	22	32	35	32	36	28	26	32	36	36	48	30	18	20	28	26	21	19	31	21	24	24	32	37	27.8
Ida Grove	Max.	43	51	40	47	48	44	45	49	55	52	51	64	60	31	41	50	67	67	61	35	51	45	34	37	54	47	36	39	50	63	65	49.0
	Min.	10	18	31	30	28	32	28	23	33	32	30	36	29	14	30	30	54	54	24	13	18	28	25	21	20	29	21	23	25	34	35	27.7
In'pen'nce	Max.	36	42	37	35	38	43	46	46	44	44	48	51	52	40	41	43	58	72	62	41	48	44	32	33	42	55	42	42	45	57	62	45.8
	Min.	10	19	30	30	31	32	33	24	27	36	36	31	31	31	29	35	39	46	41	24	29	29	25	25	16	30	30	24	30	20	36	29.0
Indianola	Max.	44	45	45	39	41	51	50	49	56	49	53	61	55	37	55	62	75	74	69	36	55	50	33	35	55	52	43	46	49	62	71	51.5
	Min.	19	22	29	33	34	33	24	29	31	38	38	49	33	27	34	39	47	43	34	20	23	23	26	23	33	29	28	25	26	29	44	31.1
Iowa City	Max.	38	47	46	42	42	47	47	52	48	52	52	53	66	46	46	60	74	79	63	47	54	48	35	38	52	64	54	47	52	62	72	52.4
	Min.	11	22	32	34	32	33	38	27	28	38	38	32	32	33	31	36	43	53	47	28	22	35	28	26	45	53	32	36	39	47	59	62	45.2
Iowa Falls	Max.	37	42	36	34	37	43	45	46	51

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR MARCH, 1903—CONTINUED.

STATIONS.		DATE.																													Mean.
		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	
Keosauqua	Max.	36	44	46	47	43	54	53	51	55	50	52	60	70	53	48	68	76	79	66	47	55	54	39	41	56	68	57	47	54	62	70	54.9
	Min.	14	24	33	35	34	36	41	27	27	40	39	32	33	31	33	35	48	60	44	26	24	35	28	27	23	38	34	27	26	22	35	32.6
Larchwood	Max.	36	41	43	38	40	43	..	..	..	..	..	70	57	39	44	50	50	56	54	33	51	38	33	42	54	40	32	35	45	50	58	45.1
	Min.	8	17	20	22	25	30	30	25	35	28	29	33	24	19	27	34	32	37	18	9	14	23	21	18	24	24	16	20	26	31	29	24.1
LeMars	Max.	35	39	39	35	37	43	43	47	53	50	48	65	55	30	38	43	48	60	52	28	49	39	33	37	55	52	33	40	50	58	64	45.1
	Min.	9	17	23	27	27	32	27	25	35	30	28	35	27	22	28	35	37	43	15	10	19	26	23	19	24	28	19	22	27	34	30	25.9
Lenox	Max.	38	43	42	40	37	51	50	50	57	47	51	62	54	36	45	65	73	72	64	33	54	46	31	35	56	58	40	41	51	62	69	50.1
	Min.	10	17	25	32	30	32	32	25	31	37	34	33	33	25	32	42	43	54	29	15	21	27	11	20	19	37	26	23	24	28	41	28.6
Leon	Max.	38	43	46	45	40	53	53	50	55	50	50	60	63	40	48	67	74	73	68	38	55	47	36	36	55	60	56	42	50	59	70	52.2
	Min.	14	21	28	34	33	34	34	30	31	40	36	36	35	27	33	42	46	56	37	20	23	31	25	22	21	38	29	26	25	28	42	31.5
Logan	Max.	40	42	38	35	37	43	40	50	57	49	50	64	54	34	42	58	74	69	63	33	52	45	33	40	57	50	38	42	53	60	62	48.5
	Min.	13	20	31	31	20	33	32	23	34	33	31	33	29	25	31	41	31	53	24	14	21	31	24	21	22	20	23	25	26	28	33	27.9
Maquoketa	Max.	35	46	41	38	40	47	55	50	45	51	47	55	66	49	43	50	63	76	68	55	52	57	41	37	49	63	55	44	47	61	70	51.5
	Min.	11	21	28	32	32	33	40	25	27	37	37	32	29	36	29	33	41	58	52	26	21	33	21	26	20	27	32	27	20	21	35	30.4
Marsh'lt'n	Max.	40	47	43	39	39	47	49	49	55	46	54	62	55	39	40	53	69	74	67	41	53	50	34	38	51	60	42	43	49	62	69	50.3
	Min.	12	21	32	32	32	34	32	25	30	37	37	36	33	29	32	37	40	52	39	23	22	29	26	25	17	34	29	25	25	28	42	30.5
Mason City	Max.	41	41	40	39	40	40	44	46	51	53	54	69	66	37	37	45	52	73	74	39	51	51	33	36	46	52	40	41	46	68	66	48.7
	Min.	12	23	32	31	30	33	32	26	27	36	35	37	31	30	32	36	37	46	35	25	23	31	26	23	23	34	26	26	27	31	37	30.1
Monticello	Max.	32	36	38	40	46	48	50	52	58	60	60	62	64	60	62	58	58	75	70	60	50	48	33	48	42	62	55	62	65	68	66	54.5
	Min.	24	23	28	33	36	38	31	28	21	25	28	27	25	33	30	31	38	37	36	38	22	20	25	15	20	29	32	23	18	20	37	28.1
Mt. Ayr	Max.	39	44	48	42	33	52	50	52	57	44	50	62	61	39	45	67	74	72	61	33	54	46	33	36	58	60	45	44	51	61	70	51.1
	Min.	12	17	16	32	31	32	32	28	30	37	34	32	32	25	32	43	45	55	28	16	21	27	20	20	22	38	27	23	25	27	42	29.1
Mt. Vernon	Max.	34	46	40	37	39	45	50	54	46	52	52	52	67	45	46	55	73	73	62	47	51	44	36	38	55	61	47	47	52	62	73	51.2
	Min.	8	20	29	33	31	31	34	26	26	37	36	33	32	32	29	34	42	52	47	24	21	32	26	21	21	26	30	25	21	26	41	30.0
NewH'pton	Max.	36	39	35	39	..	40	43	45	45	..	45	47	55	45	39	44	49	70	63	38	47	41	32	32	38	51	37	39	44	57	62	44.8
	Min.	7	18	30	..	30	31	24	..	27	..	34	34	32	31	29	34	36	45	36	21	19	19	24	23	10	29	25	22	23	23	36	26.9
Newton	Max.	38	44	39	38	38	48	48	47	53	50	49	58	54	39	40	60	68	70	70	40	53	49	34	36	51	59	44	43	47	60	66	49.4
	Min.	12	19	30	31	31	34	32	26	29	38	31	33	34	28	32	32	41	52	31	21	20	20	25	23	19	35	28	24	24	26	41	29.4
Northwood	Max.	37	40	36	36	42	48	42	50	47	43	48	62	49	35	35	43	47	66	58	28	47	39	32	35	46	46	38	40	46	61	62	44.6
	Min.	9	19	30	31	27	36	31	23	30	35	33	34	27	27	31	34	37	44	27	18	19	28	25	21	25	30	24	23	24	30	36	28.0
Odebolt	Max.	37	41	43	36	38	45	45	50	56	51	51	65	57	32	40	50	69	69	61	35	55	45	34	43	68	55	45	50	54	58	77	50.5
	Min.	11	18	30	30	28	32	29	24	32	32	30	35	28	30	30	32	35	50	24	15	19	29	19	21	21	31	21	25	24	35	36	27.6
Ogden	Max.	41	45	40	36	37	45	50	49	55	53	53	64	46	35	33	53	71	73	68	33	53	48	37	39	48	56	42	44	50	64	68	48.8
	Min.	9	17	28	29	28	32	30	22	29	34	31	36	27	24	30	34	37	51	30	17	20	25	23	21	18	32	24	23	23	28	40	27.5
Olin	Max.	34	42	43	38	42	46	50	44	43	50	49	50	61	47	44	50	66	73	65	51	49	51	48	45	45	65	47	42	43	55	67	49.5
	Min.	10	18	30	33	33	33	39	27	27	38	37	29	28	34	29	35	42	50	51	27	22	34	27	25	20	29	32	27	22	23	36	30.2
Omaha, N.	Max.	40	44	38	35	35	46	48	51	60	45	52	66	51	32	43	54	74	70	57	34	53	36	32	41	59	53	34	41	51	64	66	48.5
	Min.	14	22	31	32	31	33	34	30	37	33	31	36	30	27	32	41	40	57	21	16	28	30	25	22	30	27	24	27	30	37	40	30.6
Onawa	Max.	39	45	40	35	38	43	50	52	59	53	51	66	59	32	39	50	63	63	60	36	54	43	36	46	58	53	40	49	51	65	69	49.6
	Min.	13	20	30	30	28	31	28	26	33	32	29	32	28	24	29	36	35	47	22	14	22	29	23	19	22	29	21	23	25	32	33	27.2
Osage	Max.	36	38	36	34	38	39	41	45	45	42	47	58	51	37	36	43	48	67	62	34	46	40	30	34	42	48	37	38	45	59	60	43.7
	Min.	8	18	31	29	20	32	32	23	30	35	35	34	30	29	31	35	36	45	34	20	19	29	24	22	16	31	25	24	24	29	36	28.2
Osceola	Max.	..	40	41	..	38	..	53	52	58	47	49	64	53	54	44	47	75	74	67	35	55	48	33	35	60	47	53	43	50	62	71	50.0
	Min.	..	20	33	..	32	..	33	29	31	30	42	37	26	26	40	40	45	56	34	18	23	29	23	21	31	28	26	25	35	29	42	30.3
Oskaloosa	Max.	39	47	48	43	43	51	51	49	54	46	63	61	63	42	42	65	73	72	63	38	54	45	34	37	55	65	45	43	50	62	71	52.1
	Min.	12	20	31	33	33	35	35	26	29	38	37	33	36	28	32	36	43	54	38	21	22	32	26	25	19	27	28	24	24	24	39	30.3
Ottumwa	Max.	38	46	47	46	46	53	52	49	48	56	53	61	66	45	45	66	74	76	67	39	55	45	36	39	55	64	44	45	49	59	70	52.7
	Min.	17	26	35	37	35	33	40	32	31	32	41	37	37	32	34	40	47	59	38	25	26	34	29	28	26	42	34	29	28	28	44	34.1
Pacific Jct.	Max.	39	42	43	36	38	42	48	50	59	50	50	63	49	36	45	62	73	72	63	34	54	45	34	39	58	54	36	42	52	64	65	49.6
	Min.	13	19	28	33	31	34	30	23	33	34	32	32	31	25	33	43	43	56	26	17	23	31	14	22	25	32	25	24	25	32	35	29.2
Perry	Max.	41	45	39	36	38	48	47	49	56	49	53	63	49	36	40	56	72	72	63	32	53	40	33	38	49	..	56	42	49	63	69	49.2
	Min.	14	20	30	32	31	34	31	30	25	36	34	35	30	27	33	37	40	51	29	19	23	28	25	23	19	..	26	25	25	30	40	29.4
Plover	Max.	37	36	40	35	36	40	43	44	50	45	51	64	47	33	40	40	56	68	58	33	48	40	33	38	49	40	36	37	47	62	63	44.9
	Min.	8	16	30	29	22	32	31	24	28	32	32	43	25	25	30	35	34	52	25	16	19	24	22	20	21	33	24	22	25	26	30	26.9
Primghar	Max.	..	..	35	35	32	39	40	46	52	47	50	61	43	29	36	38	40	62	44	43	40	39	33	34	53	41	41	36	47	58	59	43.2
	Min.	..	..	25	26	20	31	27	25	32	38	29	36	23	21	26	27	30	40	22	12	16	22	23	21	22	25	18	22	26	22	33	25.5
Red Oak	Max.	36	40	41	39	38	49	45	47	55	52	51	58	54	37	47	58	70	67	63	35	50	46	35	37	53	51	40	41	48	56	60	48.4
	Min.	17	23	32	34	31	36	34	29	35	37	36	38	34	29	31	44	45	56	32	22	30	33	23	26	28	37	30	29	31	35	39	32.9
Ridgeway	Max.	38	41	39	36	45	46	48	49	53	48	49	57	45	44	39	46	47	70	64	36	48	42	33	35	41	54	44	44	49	60	65	46.9
	Min.	7	20	30	30	31	34	33	24	29	35	35	37	35	31	30	34	38	46	36	23	20	29	27	25	18	31	27	22	24	30	36	28.3
Rockw'l Cy	Max.	38	40	40	38	40	45	45	48	53	52	53	63	55	55	40	50	65	72	53	48	51	42	30	49	52	50	38	40	50	62	60	48.9
	Min.	12	19	30	31	29	33	33	25	33	33	31	35	33	20	20	25	30	38	38	18	20	29	26	21	22	21	23	25	25	35	38	26.5
Ruthven	Max.	33	39	37	33	35	40	42	46	48	46	50	64	56	54	58	54	52	68	65	46	57	59	49	41	61	46	39	37	45	61	60	49.1
	Min.	9	18	29	27	28	32	28	26	31	30	30	34	12	19	21	24	21	43	24	14	19	26	23	21	22	26	22	22	25	29	32	24.8
Sac City	Max.	38	40	39	35	36	43	45	48	54	50	52	65	52	31	37	46	63	69	62	30	50	44	32	38	54	38	37	40	50	63	66	46.7
	Min.	10	18	30	30	28	32	30	24	30	32	30	34	28	24	30	35	34	46	26	15	17	27	26	20	19	28	20	23	23	32	35	27.0
St. Charles	Max.	41	46	48	39	38	51	50	53	58	43	53	62	61	38	44	62	74	73	60	34	55	43	38	37	53	60	41	43	51	64	72	51.1
	Min.	14	21	31	32	32	34	33	39	30	38	35	37	32	27	35	39	43	54	30	19	23	29	25	23	18	38	28	24	25	30	41	30.9
Scranton	Max.	39	42	36	36	38	47	46	49	55	47	52	64	55	34	40	54	69	71	62	..	50	40	34	38	52	52	40	44	51	60	70	48.9
	Min.	14	20	20	31	29	34	29	26	29	34	32	36	29	26	31	36	37	37	28	..	17	27	26	23	21	32	25	24	23	30	38	28.5
Sheldon	Max.	39	31	35	32	35	39	44	48	52	47	50	65	55	28	35	40	41	57	44	..	46	35	31	38	54	42	34	37	47	58	63	43.4
	Min.	9	15	22	20	25	30	28	26	33	30	28	36	24	21	27	34	32	38	20	..	12	25	22	20	23	25	18	21	26	33	30	25.1
Sibley	Max.	34	38	35	36	36	40	43	48	50	33	50	63	54	28	36	39	41	51	36	22	37	36	33	37	42	33	35	37	..	55	48	36.9
	Min.	10	16	24	24	24	30	26	24	33	30	30	36	24	21	27	32	31	36	20	10	15	23	22	20	25	26	-	18	..	27	31	24.7
Sigourney	Max.	39	47	49	44	41	51	51	52	57	51	54	59	67	47	45	65	77	78	65	40	56	47	37	38	57	67	54	49	55	64	74	54.1
	Min.	11	21	32	34	33	35	36	26	26	38	38	34	34	30	31	37	44	57	40	25	21	33	27	26	20	39	26	26	22	23	41	31.2
SiouxC'nt'r	Max.	33	36	34	33	36	40	40	47	49	44	46	63	50	28	34	39	41	50	44	25	45	36	32	36	53	42	32	37	45	54	61	41.5
	Min.	8	14	23	25	25	32	28	26	34	29	29	35	25	21	27	34	33	38	18	10	16	24	22	19	24	26	18	20	26	33	33	25.0
Sioux City	Max.	38	38	35	33	35	44	43	49	54	43	50	67	50	30	36	44	51	57	52	30	50	37	30	38	55	47	35	39	49	61	63	44.6
	Min.	12	19	25	28	29	33	31	29	36	32	29	37	26	22	30	36	34	40	16	11	24	27	24	19	28	28	21	26	30	36	32	27.4
Storm L.	Max.	36	38	37	35	35	41	43	46	52	48	49	61	52	30	37	44	58	61	61	27	47	42	35	36	57	48	34	37	47	60	61	45.0
	Min.	9	17	29	28	26	31	30	27	31	31	29	37	26	23	28	36	33	48	25	13	19	25	24	20	24	26	25	23	26	34	33	27.0
Stuart	Max.	..	..	..	..	..	..	.	..	..	..	52	60	70	41	44	60	70	72	70	33	51	44	33	38	49	51	32	39	47	60	67	51.6
	Min.	..	..	..	..	..	..	..	..	..	..	40	51	31	32	30	38	38	51	27	16	20	27	21	20	18	32	24	22	22	27	37	29.5
Thurman	Max.	38	42	40	38	37	48	48	48	58	54	50	63	58	35	45	60	63	70	64	34	55	48	33	40	57	54	35	42	52	63	64	49.7
	Min.	12	20	28	32	30	33	32	24	35	34	32	32	32	27	32	42	43	46	26	18	25	30	26	22	25	34	26	24	27	32	35	29.6
Tipton	Max.	35	40	43	40	41	47	53	50	47	50	47	50	65	47	40	57	72	75	65	50	53	55	41	39	51	61	45	47	50	60	63	51.1
	Min.	11	23	31	33	33	33	39	29	29	38	37	34	32	36	30	..	43	56	50	27	22	27	27	25	24	34	34	29	25	29	41	32.0
Toledo	Max.	39	46	42	36	38	45	50	49	51	45	53	60	60	41	40	51	69	74	64	39	53	43	32	37	51	60	44	43	49	63	72	49.6
	Min.	12	21	32	30	32	34	33	24	29	37	37	36	34	30	31	36	40	54	39	24	21	28	25	25	17	39	28	25	24	25	44	30.5
Wapello	Max.	34	42	41	41	39	50	51	45	49	48	..	37	60	45	45	62	71	75	65	52	52	61	41	41	55	64	53	50	49	59	70	51.6
	Min.	17	24	28	32	34	35	42	30	29	39	..	35	36	35	31	38	46	58	51	30	21	32	32	28	27	38	34	29	28	29	41	33.6
Washin't'n	Max.	37	46	46	43	40	52	50	49	49	51	51	56	68	43	45	65	75	77	64	31	54	51	35	39	55	65	38	48	49	60	71	52.1
	Min.	9	19	30	31	31	33	33	25	26	36	36	32	31	29	27	34	40	56	38	24	20	31	24	23	19	35	30	23	21	22	38	29.2
Waterloo	Max.	44	43	37	34	39	45	49	47	46	45	50	55	50	40	40	45	64	75	68	35	50	39	33	39	44	43	43	42	46	58	62	46.8
	Min.	11	22	31	32	31	32	35	25	29	39	37	32	32	31	30	36	39	49	35	24	22	28	24	25	16	33	28	25	24	26	38	29.7
Waverly	Max.	38	41	37	35	39	42	45	47	47	45	49	52	48	39	39	44	58	73	63	36	50	42	32	36	44	54	40	39	47	59	61	45.9
	Min.	9	21	32	31	31	32	32	23	29	34	35	34	31	30	30	..	38	47	36	22	22	28	25	25	10	33	27	25	24	27	38	28.7
West Bend	Max.	36	40	39	35	38	43	42	46	51	46	50	63	54	32	37	43	57	69	60	28	48	40	32	36	50	46	35	38	47	61	62	45.3
	Min.	10	20	31	30	27	33	36	25	31	33	33	35	27	25	31	31	35	48	28	17	20	25	25	22	22	27	22	24	25	33	35	27.9
Whitten	Max.	38	43	38	37	38	44	46	46	52	48	51	59	55	38	40	51	65	72	66	42	51	47	34	36	47	54	38	38	46	59	64	47.7
	Min.	9	17	30	30	30	33	30	24	28	35	36	33	31	27	31	36	38	50	39	21	19	27	24	23	15	34	26	23	22	25	42	28.6
Wilton Jc	Max.	35	45	45	42	41	49	52	46	50	51	48	51	65	52	45	63	74	77	67	55	52	58	40	42	50	68	60	45	47	58	71	53.0
	Min.	10	21	30	33	33	37	42	27	27	35	33	35	33	34	29	..	46	50	55	27	22	38	28	23	28	34	33	27	23	24	38	32.2
Winterset	Max.	42	49	45	44	44	58	56	55	63	55	55	62	63	48	44	62	71	..	74	55	56	49	41	38	54	63	49	44	53	68	71	54.4
	Min.	30	20	30	31	30	32	31	26	39	36	32	34	31	26	31	38	44	52	32	..	22	26	20	21	..	38	26	21	24	31	38	31.4
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DAILY AND MONTHLY PRECIPITATION FOR MARCH, 1903.

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	....	...	..		.17	.10	....	....	...	.04	....	.	.	..	....	....	....	....	T	....	....	.30	.10	..	...	....	..	....	....	....	....	.78
Albia	..	....	..	.07	.09	.12	.32		....	.10	....	...	....		....	.11	....	..	.38	....	....	.06	.50	....	....		.12	...	....	..	....	1.87
Algona	...	..	....	.05	...	.05	...	....	....		..	....	...	....	....	.10	.05	..	....	....	....	....	.05		....	.30	....	....	.	....	....	.60
Allerton	....	..	...	.11	.15	.16	.31	...	....	.40	..	..	....	....	T	.15	T	....	.35	....	....	T	.20	....	....	T	.02	.	....	....	....	1.85
Alta	....	....		.05	....	.06	....	....	....		...	....	.	...	.02	...	.02	.01	...	....	....		...	....	.	.58	....	....	...	....	.01	.80
Alta (near)	....	....	...	.05	....	.04	....	...	....	....		....	.	...	.02	....	.02	.01	...	....	....		...	....	.	.74	....	. .	....	....	.10	.98
Amana	....	....	...	.11	.02	.11	.06	....	....	.14	....	...	....	...		.05	.18	.07	.22	.06	....	....	.21	.06	....	T	.15	..	..	....	....	1.44
Ames	....	..	....	.08	.03	.03	....	.09	....	...	.02	.01	....	..	T	T	09	.01	.03	....	....		.22	....	....		....	....	....	....	....	.61
Atlantic	-	....	....	.08	.03	.03	....	.09	....	...	.02	.01	....	..	T	T	09	.01	.03	....	....		.22	....	....		....	....	....	....	....	1.11
Audubon	....	....	....	T	....		....	....	....		....		....	..	....		....	....	.41	T	..	.30	T	....	....	...	.40	..	...	....	....	.47
Baxter	..	....	....	....	..	..	....	...	....	...	....	....	.	....		....	....	....	.02	....	..	.08	.20	T	....	.17	....	....	....	....	....	.90
Bedford	....	....	....	....	..	....	...	..	....	....	.	....	....	...		T	....	....	.10	....	....	.40	.40	....	....	..	...	...	....	....	....	.83
Belle Plaine	....	..	.	.05	.16	....	....	. .	....	....	....	.. .	....	....	T	05	..	....	.21	....	....	.41	....	..	....	T	..	....	....	....	....	2.10
Bonaparte	..	....	....	.12	.03	.10	....	....	...	.30	....	..	...	....	....	..	....	....	....	....	....	.20	.60	.25	....	.05	.40	....	....	.. .	...	2.23
Britt	..	..	..	.15	....		.57	....	..	.24	....	..	....	....	....	..	.46	.56	.19	....	..	....	T	.	....		.06	....	..	....	...	2.23
Buckingham	....	..	..	.10	....	.06		....	...	....	....	....	T	....	T	.20	.06	T	.04	T	....	T	.03	'03	..	.21	....	....	....	..	...	.73
Burlington	....	..	..	.10	....	T	....	....	...	....	T	....	....	....		.12	.07	....	.15	..		T	.30	.24	....	..	....	..	....	..	....	1.08
Carroll	....	..	....	.08	....	T	....	....	....	.12	T	....	....	....		.12	.07	....	.15	..		T	.30	.24	....	..	....	..	....	..	....	1.08
Cedar Rapids	....	..	....	.08	....	T	....	....	....	.12	T	....	....	....		.16	.05	....	.35	.22	....	..	.12		....	....	.10	...	....	....	....	2.32
Chariton	....	....	....	.08	..	....	1.11	....	....	.13	....	...	....	...	....	.16	.05	....	.35	.22	....	..	.12		....	....	.10	...	....	....	....	2.32
Charles City	....	....	....	.08	..	....		....	....	.13	....	...	....	...	....	.10	....	....	.08	....	.	.05	..	.05	..	...	.42	..	....	....	....	.70
Clarinda	..	....	....	....	....	T		....	....	....	....	....	....	....		.10	....	....	.08	....	.	.05	..	....	..	....	.42	..	....	....	....	.70
Clear Lake	....	....	....	T	T	T	.12	....	.10	T	..	....	....	...	....	T	T	T	.16	T	..	T	.13	....	....	T	.02	....	....	....	..	.65
Clinton	....	..	....	.10	....	....	1.10	..	...	.13	....	....	....	....	....	.08	....	..	.65	....	....	..	.08	.07	..	....	.14	....	....	....	..	.86
College Springs	...	....	....	.10	....	....	....	....	....	....	....	....	....	....	....	.01	....	....	.40	....	....	.40	T	....	....	....	.10	....	...	....	....	1.07
Columbus Junction	....	.	....	.02	.10	.04	....	....	..		..	....	....	....	....	.10	..	.97	.02	....	....	....	.11	....		.	.06	....	..	..	....	2.40
Corning	....	....	..	.08	.06	.05	.84	....	....	.11	..	....	..	....	....	.10	..	.97	.02	....	....	....	....	....	....	.03	T	..	..	..	....	1.34
Council Bluffs	....	....	....	T	T	.10	.....	....	..	T	....	....	....	....	.16	.16	..		.25	T	..	.80	..	..	...	..	..	..	..	..	....	.50
Corydon	....	...	T	.01			....	....	..		....		....	....	....	....	....	.2	.02	..	....	T	T	....	....	.26	T	....	....	....	....	.50
Cumberland	....	..	....	.10	.14	.14	.02	....	....	29	..	....	....	....	..	.50	....	....	.36	....	....	....	.36	.	....	....	.06	....	..	....	....	1.97
Danville	....	....	....	....	...	T	....	....	....	....	....	....	....	....	....	....	....	....	.36	....	....	....	....	....	....	T	....	....	..	....	....	1.10
Davenport	T	....	....	.02	.04	.02	1.08	..	....	.17	T	....	....	....	....	....	....	....	.60	....	....	.50	...	....	....	....	....	....	..	....	....	1.10
Decorah	....	....	....	....	...	.	.29	..	....		....	....	....	....	..	....	T	T	.15	....	..	T	....	....	..	...	T	T	..	....	....	1.55
Delaware	....	....	....	....		1.25	T		T	.15	....	....	..	T	....	....	....	T	.14	.26	....	.....	.07	.05	.		.09	T	....	....	....	2.06
Denison	....	....	...	.05	..	.02	.2	....	..	.18	....	....	..	....	....	....	....	....	....	....	....	....	T	....	....	.15	....	....	....	....	....	.15
Des Moines	....	....	....	....	....	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.09
De Soto	....	....	....	.03	.02	.02	T	....	..	.04	T	....	..	....	T	.13	T	T	.06	T	....	.33	.34	.01		.02	.09	...	....	....	....	.74
Dows	...	..	....	.01	T	.06	...	...	.	..	.01	....	....	...	T	T	....	....	.04	....	....	.39	.07	T	...	.16	T	....	....	....	...	.95
Dubuque	....	....	..	.07	....	.05	.06	..	..	...	....	....	..	....	....	.33	....	T	T	....	..	.10	.10	.10	....	.07	.07	....	....	....	....	.95
Earlham	T	.	....	.10	T	.04	.31		....	.15	....	....	....	T	T	.24	.03	.34	.09	.17	...	T	.14	.13	....	T	.10	....	....	....	....	1 84
Eldon	....	..	T		.06	T		....	....	T	T	..	....	..	..	T			.09	....	.66	.06	....	T	T	....	.18	....	....	....	....	1 05
Elkader	....	..	....	...	....	.20	..	...	.15	...	T	...	..	..	....	....	.10	T	.17	.04	....	.05	....	....	....	..	....	....	..	....	....	.71
Forest City	....	....	....	.11	...	.04	.03	..	..	.05	....	....	....	....	T	T	....	....	.10	T	....	.05	.80	....	....	.07	.	....	....	....	....	2.07
Fort Madison	...	....	....	T	.. .	T	.12	....	.	....		..	....	T	T	.36	T	...	-	T	..	...	.05	....	....	.20	..	..	....	..	..	.73
Galva	....	. .	T	T	.30	T	.97	....	....	.16	..	....	..	..	....	.04	....	.53	....	..	..	....	.10	....	....	...	.15	....	....	....	....	2.25
Gilman	..	.	..	....	....	T	.	....	....		....	....	..	....	....	....	.11	..	..	..	....	....	T	....	....	6	....	....	....	....	....	.16
Grand Meadow	....	....	....	T	....	T	.	....	....	.64	....	....	..	..	...	.10	...		.13	...	.	T	.30	.20	.	T	T	..	..	...	T	1.37
Greene	..	....	....	.14	..	.06	....	.	....	..	.	....	..	..	....	.34	.03	06	.36	....	....		1.0	....	....	.06	....	....	....	....	....	2.05
Greenfield	....	....	....	.10	...	.02	18	....	....		..	....	....	....	....	.15	....	....	.30	....	....	.20	.42	....	..	.12	.10	....	....	....	..	1.59
Grinnell	....	....	T	.02	.06	.05	....	....	....	T	.	....	T	T	T	.12	....	....	.24	T	....	.46	T	T	....	.02	.06	....	....	....	....	1.03
Grundy Center	....	....	..	....	.12	.03	.08	..	..	.14	....	..	.	....	....	....	.09	.16		....	....	....	....	.30	....	....	.29	....	....	....	....	1.21
Guthrie Center	....	.	....	.13	T	T	.07	....	....	.11	..	....	....	..	T	.12	....	T	.07	T	.	.27	.80	....	....	.08	.26	....	..	..	....	1.91
Hampton	....	....	....	.05	T	.10	....	....	....	....	..	....	....	..		.24	....	..	.08	T	....	.25	.05	....	....	.03	.15	....	..	..	....	.95
Hanlontown	...	....	....	.02	.12	.17	....	...	....	....		....	.03	....	.13			.15		...	..	.33	.20	..	....	.18	....	...	...	....	...	1.33
Harlan	....	....	....	T	...	.05	.03	....	..	...	....	T	...	T	.02	.34	.03	T	.02	T	....	1	.05	...		.20		....	....	....	..	.73
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Humboldt	..	..	T	.11	.16	.10	.01	....	....	.08	....	....	....	....	....	.06		T	.18	....	....	.	...	.35		....	.09	....	....	....	....	1.14
Ida Grove	....	.	....	.10	....	.20		....	....	....	....	....	....	....	.	.15	....	.01	..	....	....	....	....	.06	....	.29	.04	..	....	....	..	.85
Independence	....	...	..	.10	....	.20		....	....	....	....	....	....	....	....	...	.30	....	....	....	....	....	....	....	....	.46	....	....	....	....	....	1.96
Indianola	....	....	....	T	....	.50	...	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	T	T	....	....	....	....	.80
Iowa City	....	....	....	.04	.02	.19	.95		....	.13	....	....	....	....	....	.03	.04	.22	.07	.05	....	....	.02	T	....	..	.05	..	....	....	....	1.21
Iowa Falls	....	....	....	.09	....	.11	T	.	....	....	....	....	....	....	T	.20	T	.06	.04	T	....	.30	.25	....	....	.26	.03	....	..	....	....	1.86
Jefferson	...	....	....	.08		.20		....	....	....	....	....		....	....	.16	....	....	....	....	....	.20	.06	....	....	.70	....	....	....	....	....	1.35
Keokuk	....	....	....	.16	.02	.02	1.80	..	....	.15	..	....	..	....	....	.02	.12		.40	.26	....	....	.02	....	..	....	.06	T	....	....	....	1.68
Keosauqua	....	..	..	.09	T	.14	.52	.	..	.35	....	....	....	....	....	....	1.00	.43	.16	.14	....	....	....	....	..	....	.17	..	....	....	....	3.03
Lacona	....	.11	.33	....	.20	.19	..	....	....	..	....	....	....	T	....	....		T	.61	....	....	.31	.40	..	..	.12	.19	....	....	....	....	3.00
Larchwood	.	...	.	T	T	T	....	....	..	....	....	....	....	....	....	.70	.37	.25	.65	....	....	..	T	...		.14	....	....	....	....	....	2.49
Le Claire	T	..	....	.02	.13	.32	1.12	..	..	.01	T	..	....	....	....	....	.19		-	.63	....	....	....	.13	T	....	.04	.02	....	....	..	2.11
Le Mars	....	..	..	T	....	....	....	....	....	....	....	..	....	....	....	.30	.30	.80	1.10	..	....	....	....	....	....	1.40	....	..	....	....	....	2.61
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Leon	.	....	....	.15	.16	.19	.05	....	....	.40	..	...	..	....	....	.01	....	..	.30		....	.02	....	.	...	....	.	....	....	....	....	.79
Logan	....	....	....	....	....	....	....	.	....	....	....	....	....	....	....	....	....	....	.02	.03	....	.10	.03	....	..	.10		....	....	....	....	1.28
Maquoketa	....	....	....	.25	.02	.05	....	....	....	.35	.	.05	....	...	....	.07	.27	...	.20	.20	...	.....	.12	.02	....	...	....	.23	....	...	....	.28
Marshalltown	...	....	....	.06	....	.02	T	...	....	.05	....	....	....	....	....	.03	.32	....	.07	....	....	.27	.38	.09	...	.04	.22	..	....	....	....	1.83
Monticello	T	.80	T	T	T	.10	....	....	T		T	....	....	...	..		1.10	..	.10	....	....	....	.05	T	T	.10	T	....	....	....	....	1.55
Mason City	...	....	....	.12	....	T	20	....	....	....	....	....	....	....	....	.20	.04	T	.05	..	..	....	.15	.18	..	.13	....	....	....	....	....	2.25
Mount Ayr	....	....	....	.10	.07	.04	....	....	....	.05	....	....	....	....	....	.07	....	....	.25	....	....	.40	.30	....	..	T	.10	....	....	....	....	1.02
Mt. Vernon	....	....	....	.01	..	.60	....	....	....	.08	....	....	....	....	....	.14	.25	.10	.02	.01	...	T	.27	....	....	....	.18	....	....	....	....	1.66
New Hampton	....		..	T	....	..	.29	....	..	....	....	....	....	....	....	.30	....	....	.04	.	.20	.80	....	....	....	.05	....	....	..	....	..	1.68
Newton	....	....	....	.08	.04	.04				.26	....	....	....	....	....	.20		....	.17	....	..	.15	.47	....	....	....	....	..	....	....	...	1.41
Northwood	....	....	....	.06	....	T	.07	....	....	....	.	....	....	T	.02	.26	.02	.	.04	T	....	T	.30	....	....	.18	....	....	....	....	....	.95
Odebolt	....	....	....	.06	...	T	....	.	....	...		....		..	....	.06	....	....	....	..	....	....	....	....		.42	....	....	....	....	....	.54
Ogden	....	....	...	.04	...	T	.13	....	....	....	....	....	....	..	....	.10	....	....	.07	....	....	.25		....	....	.20	.30	....	....	....	....	1.06
Olin	..	....	.15	.10	....	1.00	....	..	T	.25	T	....	....	T	T	.30	T	T	.25	T	....		.10	.15	....	....	.20	....	....	....	....	3.52
Omaha, Neb	....	..	T	.02	T	.01	....	...	T	T	T	....	....	....	....	....	T	.02	.20	....	..	.07	.02	T	....	.05	.21	....	....	..	.	.58
Onawa	....	....	..	.03	..	.03		..	....	....	....	....	..	....	.03	.20	.03	.03	.72	T	....	.11	.38	.10	...	.10	....	....	..	....	....	1.08
Osage	..	....	....	.05	...	....	.27	....	....	...	....	....	..	....	....	....	....	.25	.05	....	....	.21	....	....	T	....	T	....	....	..	....	2.02
Osceola	..	....	T	.05	.35	.50	T	....	..	....	....	....	..	....	....	.10	....	....	.35	....	....	....	....	....	....	....	....	....	....	....	....	1.41
Ottumwa	...	....		...		.50	....	..	....	....	....	....	..	....	....	T	...	....	.21	....	....	.18	T	...	....	.04	15	....	....	....	....	.95
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Plover	....	..	....	.05	..	.08	....	....	..	....	....	....	....	....	....	.07	.75	.18		T	....	..	T	....	....	.15	....	..	....	....	....	.50
Primghar	..	....	...	T	..		....	....	....	....	....	....	....	....	....	T	...	....	.35	T	..	.38	T	T	....	T	.09	....	....	....	....	1.15
Red Oak	.	..	....	T	....	.06	....	....	....	....	....	....	....	....	....	.31	.08	.04	.18	T	....	.33	1.02	.	....	.06	....	..	....	....	....	.88
Ridgeway	....	....	....	.19	....	.55	....	....	....	.02	....	.01	....	.01	.01	....	.05	..	....	....	....	....	.05	....	....	.10	....	....	....	....	..	2.81
Rockwell City	..		....	.05		.15		..	....	....	....	....	....	....	....	....	T	.	....	....	....	....	.10	..	....	....	..	....	....	....	....	.40
Ruthven	....	....	....	.05	....	T	....	....	T	....	....	....	....	....	T	T	...	.12	....	....	..	....	....	....	....	.27	..	....	....	....	..	.15
Sac City	..	....	....	.10	....	.08	..	....	....	.14	....	.01	....	....	T	.38	....	....	.16	....	..	.23	.70	.01	..		.12	....	....	....	....	.57
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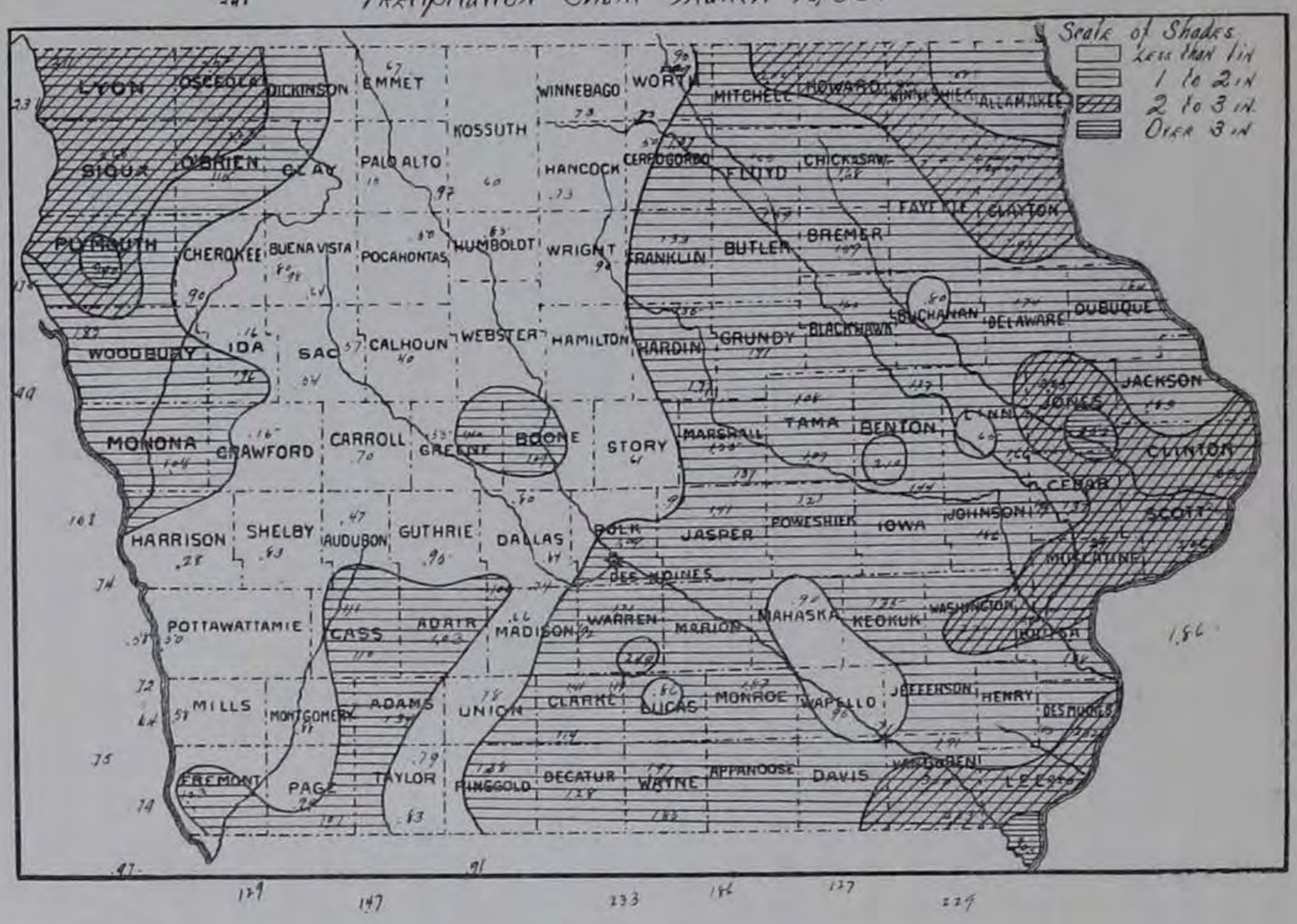
Sheldon	....	..	..	..		.01	....	..	..	..	....	..		T	....	....	.10	.60	.32	1.16	....	....	T	....	....	.04	....	..	....	....	....	2.23
Sibley	..	....	..	....		T	....	...	....			....	....	....	T	T	.79	.18	.55	.73	T	....	..	.02	....	.25	....	....	..	...	....	....	2.52
Sigourney	...	..	...	.07	.24	.10	.39	....	....	.13	....	....	....	....	....	T	.11	....	T	.21	....	....		.10	....	..	....	T	....	....	....	....	2.68
Sioux Center	...	....	....	....	....	....	T	....	T	....	....	..	....	.	....	.65	.31	.35	1.05	....	..	....	.10	....	....	.22	....	....	....	....	....	1.85
Sioux City	....	....		.02		.04		..	..	....	....	....	..	....	....	.17	.08	.57	.66	T	....	..	.01	T	....	.30	....	...	.	...	....	1.91
Stockport	....	....	T	T	T	.02	.55	....	....	.27	....	T	....	....	....	....	.51	.21	.30	T		....	.02	T	..	T	.03	T	....	....	....	1.91
Storm Lake	...	....		T	....	.09	....	....	T	...	....	...	....	T	T	.02	....	....	.02			....	T	T	....	.51	....	....	....	....	....	.64

DAILY AND MONTHLY PRECIPITATION FOR MARCH, 1903—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	
Thurman	..	..	..	T	T	T	....	....	....		....	....		....	....	....	..	....	.27	....	....	.40	T	....	....	.30	.26	...	..	....	....	1.23
Tipton	....	....	....	.12	....	.05	.66	..		.15	....	....	...	....	....	.05	.10	....	.05	.19	....		....		..	..	...	....	....	....	..	1.37
Toledo	....	....	....	.05	....	.07	.	....	....	.11	....	.	....	....	....	.18	.08	....	.12	..	....	.06	.30	....	..	.10	...	..	..	....	..	1.07
Vinton	....	..	....	T	....	T	....	....	....	.12	....	....	....	....	....	.15	.45	....	....		....	....	.50	..	..	.05	....	....	....	....	..	1.27
Wapello	....	..	....			.05	.60	....	.12		....	....	....		....	.03	...	....	.20	.21	....	..	.07	...	....		.10	....	....	....	....	1.38
Washington	..	....	...	.20	....	.05	1.28	...	....	.18	....	..	....	....	....	.01	.01	.15		.22	....	..	.04	....	....	....	.10	....	....		...	2.25
Washta	....	....	...	...		T	-	....	....		...	....	....	..	...	..	T	.40	..	....	..	....	T		..	.50	...	..	....	....	....	.90
Waterloo	....	....	....	.19		.04		..	....	.02	....	....	....	..	....	.15	T		.17		....	.15	.60	.15	....	.02	.11	..	....	....	....	1.60
Waukee	....	....	....	.02	T	.02	.01	...		.02	T	....	....	....	....	.01		T	.10	T	....	.30	.20	....	....	.03	.13	....	....	....	....	.84
Waverly	....	..	....	.10	...	.02	.05	....	....	....		....	....	....	....	.32	.05	.02	.09	....	....	.21	.55	.10		.07	....	....		....	..	1.59
West Bend	....	....	....	....	.05	.03	....	..	...	..	....	....			....	.14	.17	.13	....	T	....	..	.05	...	....	....	.35	...	..	....		.92
West Branch	....	..		.14	.03	.87	...	..	.18	.	...	....	..	....	..	.09	.01	.14	.13		....	.11	.07	.13	....	....	.09		....	....	....	1.99
Whitten	....	....	....	T	....	T	....		....	.03	...	...	..	....	....	.06		....	.08	T	...	.20	1.00	...	....	T	.40	.....	....		..	1.77
Wilton Junction	..	....	....	.15	....	T	1.23	....	....	....	...	....	....	...	....	10	.	.85	....	....	..		.58	....	....		.	....	....	....	...	2.91
Winterset	....	..	...	....	T		....	....	T		...		.		..	.10	....	.13		...	...	.21	.13	.	....	.	.09	..	....		..	.66
Woodburn	....			.07	T	.22	....		....	.12			....	....	....	.02	...	T	.15		....	.45	T		....	.15	....	....	..	...	....	1.19

241 Precipitation Chart March 1903.



APRIL, 1903 No. 4.

CONTENTS.

CENTRAL STATION, DES MOINES, IOWA.

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DIRECTOR.

GEO. M. CHAPPEL,
LOCAL FORECAST OFFICIAL,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

ALLIED PRINTING TRADES UNION LABEL COUNCIL DES MOINES, IA.

DES MOINES:
BERNARD MURPHY, STATE PRINTER,
1903.

THE IOWA WEATHER AND CROP SERVICE

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

STATE BOARD OF AGRICULTURE,

CONSTITUTED AS FOLLOWS:

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EX-OFFICIO DIRECTORS.

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DR. J. I. GIBSON, State Veterinarian.

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Eleventh District—H. L. PIKE, Whiting.

METEOROLOGICAL STATIONS AND OBSERVERS.

From the following, weekly and monthly reports of Meteorological data are received by the Iowa Weather and Crop Service.

Afton	Hon. N. W. Rowell
Albia	E. R. Reeve
Algona	C. D. Pettibone
Allerton	Rex Shriver
Alta	D. E. Hadden
Alta (near)	W. J. Minard
Amana	Conrad Schadt
Ames	Exp. Station
Atlantic	J. W. Love
Audubon	Frank Mott
Baxter	W. T. Thorp
Bedford	E. E. Healy
Belknap	A. W. Rankin
Belle Plaine	S. P. Vandike
Bonaparte	Hon. B. R. Vale
Britt	G. P. Hardwick
Buckingham (Traer P. O)	Dr. W. A. Daniel
Burlington	I. S. Shontz
Carroll	Moses Simon
Cedar Rapids	Electric Light & Power Co
Centerville	C. J. Brower
Chariton	C. C. Burr
Charles City	C. H. Priebe
Chester	C. H. Meredith
Clarinda	A. S. Van Sandt
Clear Lake	John Cobb
Clinton	Luke Roberts
College Springs	A. M. Finley
Columbus Junction	Prof. H. E. Simpson
Corning	Jerome Smith
Corydon	Miss May Miller
Council Bluffs	Agent C. R. I. & P. Ry
Cresco	J. P. Howe
Cumberland	Agent C. B. & Q. Ry
Danville	Agent C. B. & Q. Ry
Davenport	*J. M. Sherier
Delaware	Wm. Ball
Decorah	F. H. Baker
Denison	Prof. W. C. Van Ness
Des Moines	*Geo. M. Chappel
De Soto	R. D. Minard
Dows	A. C. Fuller
Dubuque	Orin Parker
Earlham, R. F. D	Geo. Phillips
Eldon	T. Madden
Elkader	Chas. Reinecke
Estherville	Earle W. Peterson
Fairfield	Prof. W. W. Mendenhall
Fayette	R. Z. Latimer
Fort Dodge	C. R. I. & P. Agent
Ft. Madison	Miss L. A. McCready
Galva	D. W. Farnsworth
Gilman	Jas. L. Wylie
Grand Meadow (Postville P.O.)	F. L. Williams
Greene	J. L. Cole
Greenfield	J. G. Culver
Grinnell	Prof. S. J. Buck
Grinnell (near)	A. O. Price
Grundy Center	Ed King
Guthrie Center	W. F. Braun
Hampton	E. C. Grenelle
Hanlontown	Geo. W. Paschen
Harlan	C. A. Reynolds
Hopeville	M. T. Ashley
Humboldt	H. S. Wells
Ida Grove	Dr. T. A. Collett
Independence	E. F. Wulfke
Indianola	Prof. L. Tilton
Iowa City	Prof. A. A. Veblen
Iowa Falls	J. B. Parmelee
Jefferson	Isaac Young
Keokuk	*Fred. Z. Gosewisch
Keosauqua	Prof. J. H. Landes
Knoxville	Casey & Belville
Lacona	Agent C. B. & Q. Ry
Lansing	J. Ackeman
Larchwood	Rev. Geo. A. Wickwire
Larrabee	H. B. Strever
Lenox	J. L. Hurley
Le Mars	Dr. T. E. Cole
Leon	Millard F. Stookey
Logan	Mrs. M. B. Stern
Maquoketa	Frank Keeney
Marshalltown	Branch S. Jones
Mason City	J. S. Mills
Monticello	C. E. Heisey
Mount Vernon	Rev. J. W. Hubbard
Mt. Ayr	A. F. Beard
Mt. Pleasant	Dr. Frank T. Stevens
New Hampton	R. H. Gurley
Newton	Hon. J. P. Beatty
Northwood	Dr. J. H. Darey
Odebolt	E. Starner
Ogden	E. Sayre
Olin	Hon. Nathan Potter
Omaha, Neb	*L. A. Welsh
Onawa	C. G. Perkins
Osage	G. D. Pattingill
Osceola	Mrs S. Lewis
Oskaloosa	Jos. Boyd
Ottumwa	Dr. W. B. La Force
Pacific Junction	Agent C. B. & Q. Ry
Pella	L. L. Davenport
Perry	J. A. Harvey
Plover	J. S. Smith
Primghar	Jasper N. Marsh
Red Oak	J. S. Cole
Ridgeway	Arthur Betts
Rockford	J. R. Waller
Rockwell City	C. M. Randall
Ruthven	F. M. Fitzgerald
Sac City	J. A. Sodestrom
St. Charles	C. W. Minard
Scranton	Willis E. Lamb
Sheldon	J. B. Frisbee
Sibley	H. G. Doolittle
Sigourney	Mrs. R. F. Ashbaugh
Sioux Center	Jacob de Ruyter
Sioux City	*U. G. Purssell
Spencer	S. Gillespie
Spirit Lake	W. C. Drummond
Stockport	C. L. Beswick
Storm Lake	L. E. Burdick
Stuart	Hon. John Herriott
Thurman	C. R. Paul
Tipton	F. K. Gregg
Toledo	Herbert Giger
Vinton	T. F. McCune
Villisca	C. E. Matteson
Wapello	Geo. W Schofield
Washington	Wm. A. Cook
Washta	H. L. Felter
Waterloo	M. L. Newton
Waverly	H. S. Hoover
Whitten	Dr. Frank P. Butler
Wilton Junction	J. M. Rider
Winterset	B. L. Sprinkle
West Bend	Phil. Dorweiler
West Union	J. M. Lisher
Woodburn	C B. McDonough

*U. S. Weather Bureau

WEATHER-CROP OBSERVERS.

Reporting for the Weekly Bulletin.

Agency	J. H. Van Zandt
Albia	Wm. Mercer
Allerton	James Piper
Alta	Jonas Cushman
Blairstown	T. H. Weil
Burt	R. Jain
Cedar Rapids	Hon. A. J. Fuhrmeister
Charles City	W B. Towner
Chariton	C. C. Burr
Clarksville	F. M. Russell
Correctionville	Hon. W. B. Chapman
Corwith	Wm. Oxley
Council Bluffs	L. Prouty
Creston	M. V. Ashby
Danville	Sherman Matthews
Dubuque, R. F. D	Hon. F. N. Knoll
Dunlap	Hon. B. F. Roberts
Gruver	E. Dawson
Emerson	D. B. Nims
Fort Dodge	R. W. Blaine
Fruitland	R. T. Hummel
Goldfield	D. M. Stephens
Geneva	Wm. H. Thompson
Hartwick	Fred McCuiloch
Harlan	H. B. Kees
Hesper	G E. Dillingham
Humeston	Hon. S. H. Moore
Independence	Geo. H. Wilson
Indianola	H. D. Guthrie
Ireton	J. M. Sherman
Lake Mills	C. B. Hamilton
Le Mars	Hon. Henry Schrooten
Manson	J. D. Skinner
Marshalltown	Hon. S. B. Packard
Martinsburg	W. B. Berridge
Mapleton	A. Lamb
Mt. Pleasant	W. S. Wright
Milton	Hon. E. C. Holland
Monroe	J. A. Dibel
Nevada	Geo. C. White
New Virginia	L E. Shane
Northwood	T L. Bolton
Orange City	H. J. Vande Waa
Owen	Hon. J. W. Bird
Pittsburg	G. C. Duffield
Red Oak	Hon. C. L. Stratton
Rock Rapids	D. E. F. Merrill
Rossville	T. B. Wiley
Seymour	L. B. Sager
Shenandoah	Reuben Mullison
State Center	E. P. Thompson
Stuart	W. W. Bailey
Toledo	W. G. Malin
Van Horne	Spencer Smith
Waukee	E. J. Leonard
Weldon	Ed. Worden
Winterset	H. A. Kinsman
West Branch	Wrigley Smith
West Union	H. B. Blackman
Wilton	Thos. Boot
Wiota	I. S. Coomes
Woodward	Geo. Swisher

U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

VOLUME XIV. APRIL, 1903. No. 4.

EDITORIAL NOTES.

The exportation of American agricultural products in March amounted to $81,000,000, an increase of $21,000,000 as compared with March, 1902.

* * *

On the night of April 28th lightning struck a new church at Dedham, Carroll county, damaging the structure to the amount of about $2,000. It was set on fire, but the flames were soon extinguished. Churches should be protected by rods, as they are exposed more than ordinary buildings.

* * *

A correspondent writing under date April 28th, says: "The ground is so saturated from last year's rains that I fear there will be much land hereabout that will not be planted this season, unless it turns off dry very soon." This describes the situation in large areas of the central counties.

* * *

On Sunday, April 19th, large portions of central Europe were swept by a hurricane, accompanied by a heavy fall of snow, which caused a large amount of damage to chimneys, trees, parks and telegraph wires. The brunt of the storm was suffered in Germany, Austria-Hungary and the Polish plains.

* * *

The Turkish government has removed the ban on American pork, which hereafter will be admitted to the empire after the customary inspection.

* * *

The general prospects of winter wheat are exceptionally promising, according to the *Modern Miller*.

* * *

A report of the bureau of statistics of the Treasury Department says: "To sum up in a single sentence comparison of production with exportation, in America, in agricultural and manufactured products respectively, it may be said that, comparing conditions in 1900 with those of 1870, agricultural production has increased 92 per cent, agricultural exportation 132 per cent, production of manufactures 209 per cent and exportation of manufactures 538 per cent."

THE NATIONAL WEATHER REVIEW.

The Monthly Weather Review, published by the weather bureau in the Department of Agriculture, challenges admiration for its high character. It is a work at once scientific and practical, besides furnishing much that is theoretical, suggestive and interesting. Its accumulation of facts and the records thereof must constitute a record of data which may hereafter prove valuable in meteorological science. Many trained and amateur observers are working in its behalf. With headquarters at Washington, D. C., the bureau has a wide area of useful activity. Particularly are the forecasts valuable, beneficial and appreciated. Science associated with the political movements of the day is surely a gratifying index of the advancing civilization of the age.

The issue of January, 1903, besides much varied matter, has an article by Prof. Edwin G. Dexter of the University of Illinois, entitled "Inductive Studies in Weather Influence." Almost every one can appreciate such a topic, for who has not heard of "blue Monday," or felt the "blues" in gloomy weather. The professor traces the influences of the weather as modified by temperature, pressure, precipitation, humidity and cloudiness on the mind and body of man through twelve respects. So much for the effects on man of meteorology, though few think of it in this aspect.

The previous issue is mainly filled with the normal summary of 1902. Other contents furnish an elaborate discussion of cannonading the clouds against hail storms, resulting in its more than probable futility. Also the studies on the snow crystals as they occurred during the winter of 1901-2. Twenty-four and one-fourth full pages of twelve cuts each are given, showing ninety-nine various types.—*Dubuque Trade Journal.*

NITROGEN FOR FERTILIZING.

The principal sources of nitrogen for fertilizers are nitrate of soda and slaughter-house products, of which latter dried blood is the most important. Slaughter-house products are called "organic" fertilizers because produced from the "organs" of animals. The nitrate of soda is obtained from mineral deposits mainly on the west coast of South America. The known deposits are by no means inexhaustible, and unless other beds are found the world a generation or two hence may have serious trouble to secure nitrogenous manures. By that time, however, it is hoped that we shall have learned how to obtain nitrogen from the air on a commercial scale, and at a cost which the industry can bear. Many scientific men are at work on the problem. Prof. A. J. Cook makes the following comparison between nitrate of soda and dried blood:

Nitrate of soda being a soluble salt in a condition for ready absorption by plants ranks first as an available source of nitrogen. It is the cheapest and most direct form of nitrogen for plant feeding. Dried blood as a source of organic nitrogen easily convertible to nitrates in the soil is a first-class product. It is a humus producer more enduring than nitrate and can be used in larger quantity without danger of loss by drainage, but its benefits are more protracted, and it must be expected to act on the crop as quickly, because it must first be nitrified in the soil

by the organisms of nitrification there. It takes a high temperature in the soil for these bacteria to do effective work, so when blood is applied in cold weather it is well to remember it only becomes available as the warmth of spring and summer proceeds.—*San Francisco Chronicle.*

COURSES OF INSTRUCTION.

Among the recent courses of instruction in meteorology and climatology we notice those offered by Dr. J. Paul Goode, Ph. D., instructor in geography in the Wharton School of Economics, in the University of Pennsylvania. There is a short course of four hours a week during the first term of the year entitled 'Climatology and Applications in Economic Geography." It covers the following subjects:

Principles of meteorology; general atmospheric circulation; laws of storms with special attention to the cyclonic storm; charting of weather elements. Application of principles of meteorology to the interpretation of regional climates. Climate as a factor in economic and social development.

There is also in the course for teachers a series of lectures, occupying one hour, given each Saturday throughout the college year, about forty in all, entitled "The Atmosphere and the Ocean."

Part 1. Meteorology; the general atmospheric circulation, the laws of storms, the charting of weather elements, and the interpretation of weather maps. Scientific weather forecasting.

Part 2. Oceanography; the principles of oceanic circulation, action of waves and tides, harbors, sailing routes.

Part 3. Climatology; the regional application of the principles of climate to the world at large.

Dr Goode has recently accepted a position in the department of geology of the University of Chicago, and will probably give these same courses at that place next year. It is most important that all teachers should profit by such lectures so that the general public may be educated up to a better appreciation of the difference between the daily weather map with the forecasts of the weather bureau and the farmers' almanacs with the forecasts of these astrological editors.—*Monthly Weather Review for February, 1903.*

OUR NATIONAL DOMAIN.

At the annual meeting of the National Geographic Society, February 10, 1903, Mr. Cyrus C. Adams delivered an address on "The United States—Land and Waters," from which the following extract is made:

"Many foreigners who cross our country are impressed by two facts: Its vast extent and its very apparent sparsity of population away from a few great centers. We are among the most populous nations in the world, but our domain south of Canada is so great that with all our 77,000,000 people we have an average density of population of only about twenty-eight to the square mile, in which respect we are comparable with Norway, one of the most thinly peopled countries of Europe. The part of Great Britain occupied by England is one of the most densely peopled regions in the world; but if England had only our density of population its inhabitants would number less than one-fourth the number in Greater London.

"We have really no conception derived from our experience at home of what great density of population means. Perhaps the following facts may give a vivid idea of it. If we were to crowd our 77,000,000 people into Texas and add to them 40,000,000 more, we should have a density of population in that state comparable with that of the lower Yangste valley and the great eastern plain of China between the Yangste and the Hoang rivers. But human experience has recently recorded a still greater density of population than this, and the following is deduced from the census taken last year by the Chinese government and already accepted by statisticians as a fair approximation of the number of persons in China. If we were to place in Texas double the population of the United States or, say, 150,000,000 persons, we should have in that state approximately the density of population that is to be found in the Shantung province. Our nation may never be called upon to confront the problems growing out of such a prodigious congestion of humanity as this; and these illustrations of great density of population are given here only to show one aspect of our enormous territory. China is not half so large as our country, and its natural resources, area for area, are no greater than our own; so the 408,000,000 souls in China, proper, at least give emphasis to the thought that we have as yet scarcely began to scratch the surface of the capacity of this country to support many times its number of inhabitants.

"Another influence of our vast area is permanent, far reaching and most significant. The United States, extending from ocean to ocean, reaching far into the north and far into the south, with vast areas only 1,000 feet or less above the sea, and others of high altitude, has great variety of climatic conditions and therefore great diversity of products; so that we grow nearly all the commodities of the temperate and sub-tropical zones, and not a few products of the tropical zones. We raise the citrus fruits of the Mediterranean, the figs of Smyrna and the dates of the Persian gulf. We find that we can grow the famous Sumatra tobacco which we still import to the amount of millions of dollars every year; that we can produce Egyptian cotton, and Egypt does not raise all that the world would like to consume of that unique and superior fiber. This diversity of products, and our large mineral resources, make the country practically self-sufficient. No nation can become self-sufficient unless it reaches across a continent and embraces a wide latitude like the Russian Empire, Australia and the United States. We really need to import very little except certain raw materials from the tropics which our own colonial possessions may some day supply."

WEATHER AND CROP CONDITIONS.

In respect to temperature and precipitation the month of April was about normal. The soil and subsoil, however, were abnormally moist at the outset, except in fields naturally well drained or thoroughly tiled. The prevalence during the larger part of April of cloudy, misty and humid weather, retarded the necessary drying of the surface, and hindered seeding and plowing operations on a very considerable area of land intended for grain seeding or corn planting. Fair progress was made in seeding and plowing, under somewhat adverse conditions, but the acreage of oats, barley and wheat was somewhat reduced on account of the excessive moisture in some portions of the land intended for these crops. Pastures and meadows made an early start, and cattle were turned on grass somewhat earlier than usual. The cereal crops germinated readily, and made a fairly good stand. The snow storm and freezing temperature at close of the month checked growth, but did not injure field crops. Apples were but slightly injured in the larger part of the state. Cherries and plums suffered the greatest amount of damage.

TORNADO IN CALHOUN COUNTY.

Late in the afternoon of Saturday, April 11th, a small but vigorous tornado was observed about four miles northeast of Rockwell City, Calhoun county. It struck the farm of C. H. Clark, occupied by P. G. Armour, on the west bank of South

Twin Lake, destroying the house and barn and much personal property, and then swept across the lake, raising a column of water in its passage and spending its force within a short distance on the east side. The Armour family found refuge in a cave and escaped personal injury, but their losses were considerable. Mr. H. C. Maulsby, who was driving homeward from the town of Jolly, was caught very near the center of the whirling shaft, and had a rough experience, but was not injured seriously. He wrote a graphic account of his observations and experiences, which appeared in the *Rockwell Advocate*. The air was dense and hot, and conditions were favorable for the development of a tornado. A cloud was noticed in the southwest, moving eastward, which shortly assumed the funnel shape and soon thereafter the lower appendage reached the earth, raising a column of dust and loose articles in its pathway. Driving rapidly southward Mr. Maulsby reached the west bank of the lake, near the Armour residence, a little ahead of the funnel, and drove his team into the grove and awaited the onset of the storm. The roar sounded like a buzzing cylinder, and struck the buildings and grove with an awful crash. Mr. Maulsby affirms that he was caught up in the air, where he was whirled around and around, with everything dark, coming in contact with flying debris of every description, and finally was let down to earth without any sudden jar or serious hurt. His team was badly injured, and a valuable mare that was tied to the hind end of the wagon was lifted bodily and carried into the lake and killed. At this point the tornado was about twenty yards wide, and the debris covered a space two to three hundred yards wide. The length of its track was less than two miles.

CLIMATOLOGY OF THE MONTH.

BAROMETER.—Mean pressure, 29.91 inches; highest observed, 30.38 inches at Sioux City, on the 25th and 30th; lowest observed, 29.30 inches at Davenport, on the 2d; range for state, 1.08 inches.

TEMPERATURE.—The monthly mean temperature for the state, as shown by records of 107 stations, was 49.8 degrees, which is 0.3° above normal. By sections the mean temperatures were as follows: Northern section, 47.6°; Central section, 50.0°; Southern section, 51.8°. The highest monthly mean was 53.8°, at Burlington; lowest monthly mean 44.9°, at Forest City. The highest temperature reported was 86°, at Mt. Vernon on the 11th; lowest temperature reported, 17° at Larchwood on the 30th. The average monthly maximum was 77.4°; average monthly minimum, 25.0°. Greatest daily range, 52°, at Stuart; average of greatest daily ranges, 39.7°.

PRECIPITATION.—Average precipitation for the state, as shown by records of 120 stations, was 2.98 inches, which is 0.03 of an inch below normal. The averages by sections were as follows: Northern section, 3.38 inches; Central section, 2.89 inches; Southern section, 2.67 inches. The largest amount reported was 6.00 inches, at Grand Meadow; least amount reported, 0.74 of an inch, at Logan. The greatest daily rainfall reported was 3.16 inches, at Columbus Junction, on the 10th and 11th. Average number of days on which .01 of an inch or more was reported, 9.

WIND AND WEATHER.—Prevailing direction of the wind, northwest; highest velocity reported, 45 miles per hour, from the south, at Sioux City, on the 27th. Average number of clear days, 11; partly cloudy, 9; cloudy, 10.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES. Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	29.88	30.25	30	29.30	2
Des Moines	29.93	30.24	30	29.85	2
Dubuque	29.92	30.28	30	29.32	2
Omaha, Neb	29.91	30.45	30	29.37	18
Keokuk	29.88	30.32	30	29.35	2
Sioux City	29.94	30.38	25, 30	29 51	2
Means	29.91	30.38	25, 30	29.30	2

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	7065	28	W	24
Des Moines	7809	38	S	5
Dubuque	7251	34	NW	14
Keokuk	7114	30	W	24
La Crosse, Wis	.....	.....	.....	.....
Omaha, Neb	9021	38	N	3
Sioux City	11525	45	S	27

OBSERVERS' NOTES.

ALLERTON—*Rex Shriver*. Oats sowing began on 1st. Plums and cherries in bloom on 20th; peaches blooming the 26th.

ALTA—*David E. Hadden*. Compared with the preceding thirteen years April, 1903, was about normal in temperature, and the precipitation was about one half inch below the average.

AMANA—*Conrad Schadt*. Snow, ice and frost on morning of 30th; fruit damaged.

ATLANTIC—*J. W. Love*. Ice formed five nights during April; snow fell on evening of 29th and morning of 30th.

BONAPARTE—*B. R. Vale*. A cold, wet month; not over half the acreage of oats sown; sub-soil, full of water and 4.15 inches of rain fell this month.

BRITT—*Geo. P. Hardwick*. Frosts on two-thirds of the mornings; farm operations backward.

CLARINDA—*A. S. Vansandt*. Hailstones on 11th were very large; one measured 6 inches the larger circumference and 5 inches the shorter.

CLINTON—*Dr. Luke Roberts*. Rainfall 4.93 inches, 2.04 above normal; plenty of moisture and coolness; spring opened early enough, but lack of warmth retarded vegetable growth.

COLUMBUS JUNCTION—*H. E. Simpson*. The spring which opened so early has been set back; fruit seems badly damaged.

ESTHERVILLE—*Earle W. Peterson*. It is a peculiar fact that the first day of the month was the warmest, and the last day the coldest.

FOREST CITY—*J. A. Peters*. Seeding began about 5th; ground very wet; considerable plowing done for corn at close of the month.

GRAND MEADOW—*F. L. Williams*. Month very wet and work backward; grass in pastures good.

RIDGEWAY—*Arthur Betts*. Wettest April on record at this station; a degree warmer than 1902; ground thoroughly soaked; 202 hours of sunshine and seven days without a sun. Large hailstones fell on the 1st and 12th.

WAUKEE—*E. J. Leonard*. Last half of month unseasonably cold; closed with a severe snow storm and freeze for a climax.

CLIMATOLOGICAL DATA FOR APRIL, 1903.

NORTHERN SECTION.

STATIONS	COUNTIES	Elevation, feet	Length of record, years	TEMPERATURE, IN DEGREES FAHRENHEIT							PRECIP., IN INCHES				Number rainy days	SKY			Prevailing direction of wind	DATES OF THUNDERSTORMS.
				Mean	Departure from the normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from the normal	Greatest in 24 hours	Total snowfall (unmelted)		Number clear days	Number partly cloudy days	Number cloudy days		
Algona	Kossuth	1,213	28	50.0	†3.7	74	11	25	30	32	2 91	† .29	1.27	1.0	8	8	11	11	NW	2
Alta	Buena Vista	1,513	11	47.2	-0 6	72	11	22	30	35	2.65	- .74	.97	.7	10	10	11	9	N, S	11, 18, 27, 28
Alta (near)	Buena Vista										2.49		.71		8					
Britt	Hancock	1,236	5	46.6	-0.4	76	11	22	4	34	2.69	† .40	1.25	.3	12	3	15	12	N	1, 11, 28, 29
Charles City	Floyd	1,012	11	48 2	†0.8	72	8, 11	28	4, 30	39	3.55	† .48	1.32	.4	11	9	12	9	N	1, 12
Clear Lake	Cerro Gordo	1,241		47 8		77	11	24	30	43	2.35		.50	.8	9	13	9	8	NW	
Decorah	Winneshiek	875	8	49.1	†0.1	73	27	27	30	39	5.38	†2.48	2.44		9					
Dows	Wright	1,142		48.0		75	11	21	4	41	4.04		1.30	.2	10	14	5	11	NE	1, 10, 11
Elkader	Clayton	727	21	48.1	-0.2	76	15	25	4	44	4.93	†2.07	1 85	.5	14	7	12	11	SE, NW	1, 10, 12, 28
Estherville	Emmet	1,298	7	46 4	-2.6	74	1	23	4, 30	39	3.04	† .51	.98	T	14	11	9	10	NW	18, 28
Forest City	Winnebago	1,226	8	44.9	-4 9	73	11	23	4	27	3 33	† .73	1.64	T	10	13	4	13	W	
Grand Meadow	Clayton	1,180	11	47.8	†0.2	72	1	25	4, 30	30	6 00	†2 71	2.50	.8	11	5	12	13	NW	1
Greene	Butler	924	5	48.4	-0.2	75	11	25	4	42	3.77	†1.68	1.48		11	4	13	13	NE	1, 12
Hampton	Franklin	1,155	12	49.0	†1.4	80	11	25	4	39	3.62	- .01	.82	1.1	13	6	15	9	NE	10, 11
Hanlontown	Franklin			46.0		70	1, 27	23	4	39	2.91		1.10	.2	11	11	8	11	N	1
Humboldt	Humboldt	1,095	10	49 2	-0.1	77	11	22	4	42	3.49	† .64	1.08		10	17	3	10	NW	28
Larchwood	Lyon			47.4		75	27	17	30	38	2.12		.90	.5	7	19	4	7	N	1, 28
Larrabee	Cherokee	1,366																		
Lansing	Allamakee			50.3		75	1	26	30	43	4.90		1 05	3.0	12	12	3	15		
Le Mars	Plymouth	1,224	6	48.6	-1.6	73	23	21	30	40	2.48	-1.30	1.05	T	5	11	8	11	N	10, 27
Mason City	Cerro Gordo	1,132		48 9		78	1	26	30	33	2.78		.75	T	10	6	10	14	SE, SW, NW	
New Hampton	Chickasaw	1,169		47.0		71	1	24	30	40	3.47		1 50		12	10	8	12	NW	
Northwood	Worth	1,222	6	47.2	-0.8	71	27	24	4	37	3 84	†1.35	1.07	T	13	13	6	11	NE	1, 12, 18, 19
Osage	Mitchell	1,184	11	46.8	†1.2	71	11, 27	24	30	39	3.93	†1.25	1.65	.7	13	9	6	15	N, S	11, 28
Plover	Pocahontas	1,190	5	46.6	-2.2	75	11	24	4	39	2 44	† .59	.75	1.0	9	17	0	13	N	1, 18
Primghar(a)	O'Brien			47.4		72	11	24	3	30	2.64		1 05		7	14	0	16	N	28
Ridgeway	Winneshiek	1,215		48 2		73	8	25	4	41	5.68		2.31	.8	17	10	8	12	NE	1, 2, 7, 10, 11, 12, 28
Ruthven	Palo Alto			47 8		74	23	24	30	31	3.25		1.00		4				NW	
Sibley	Osceola	1,512	8	45.6	-2.8	72	27	19	30	40	2.28	- .55	1.00	.6	8	9	13	8	NE	
Sioux Center	Sioux			46.6		73	23, 27	20	30	38	1 72		.55	1.0	7	11	8	11	N, S	1, 28
Storm Lake	Buena Vista	1,440	7	48.2	†1.8	73	11	23	30	33	3.61	†1.31	.97	T	10	13	8	9	N	1, 12, 18, 28
Washta	Cherokee	1,157									1.85		1.30	.5	5	14	5	11	N	28
Waverly	Bremer	942	6	48.4	†0.7	73	11	21	30	35	3.29	- .10	1.40	.3	14					
West Bend	Palo Alto	1,197	8	48.0	†1 2	77	13	24	4	31	3.47		1.48	.5	10	10	11	9	N	1, 12, 28
West Union	Fayette										3 95		1.45		9	14	0	16	NE, SE	
Average				47.6	-0.3	73.9		23.5		37 4	3.38	† .72		.6	10	11	8	11	N	

CENTRAL SECTION.

Amana	Iowa	721	25	50 8	†2.1	78	1, 11	27	4	41	2.39	- .53	.76		10	11	9	10	NW	10, 11, 22, 28, 29
Ames	Story	926	20	49 8	†0.5	80	11	24	13	47	1.97	- .80	.65	.2	13	12	5	13	NW	18
Baxter	Jasper	998		51.4		80	1	24	4	34	2.12		.65	T	6	11	4	15	NW	
Belle Plaine	Benton	828	12	50.8	†5.2	81	1	26	4	35	2.75	- .95	.70	.5	11	5	19	6	NW	
Carroll	Carroll	1,265	12	49.0	†0.0	83	11	23	4	45	2 70	-1.00	1.30	T	7	11	7	12		17, 29
Cedar Rapids	Linn	733	19	52.1	†2.0	80	11	30	4, 30	39	1.97	-1.10	.92		10	9	12	9	N	
Clinton	Clinton	609	34	51.0	†2.3	82	29	28	26	40	4.93	†1.92	1.68	1.0	10	8	9	13	NE	1, 11, 12
Davenport	Scott	606	31	50.2	†0.5	78	11	31	30	32	3.42	† .64	1.54	T	13	10	10	10	N	10, 12, 18
Delaware	Delaware	1,083	11	48.0	†2.0	73	11	26	4, 30	31	4.35	†1.12	1.08	T	10	8	16	6	SW	
Denison (e)	Crawford	1,180	8	48.4	-0.9	72	1	21	4		4.51	† .55	1.42	.5	9				N	
Des Moines	Polk	861	24	51.2	†1.6	78	11	29	30	41	1.64	-1 15	.50	.5	9	6	13	11	N	11, 18, 23, 28
De Soto	Dallas	866		51.6		77	8, 11	28	4	44	2.39		.80	.5	7	13	4	13	NW	
Dubuque	Dubuque	655	29	49.6	†1.0	75	29	28	30	35	3.29	† .50	.99	T	15	8	5	17	N	1, 11, 12, 28, 29
Galva	Ida	1,290	8	47.6	-1.9	74	11	21	4	43	3.65		1.00	.5	7	15	1	14	N	
Gilman	Marshall	1,052									3.66		2.10		9	7	14	9	N	
Grinnell	Poweshiek	1,023	9	50.4	†0 0	78	1	26	4	33	2.04	-1.48	1.25		4	11	9	10	N	
Grundy Center	Grundy	976	11	49.3	†1.6	78	11	23	4	44	1.69	-1.84	.32	T	13	8	11	11	N-S	1, 12, 28
Guthrie Center	Guthrie	1,077	6	51.1	-0.2	81	11	22	4	48	3.02	† .28	.72	2.0	8	5	18	7	NW	29
Harlan	Shelby	1,192		49.8		83	11	25	30	46	2.32		1.36	T	5	5	16	9	N	18, 23, 29
Independence	Buchanan	921	38	47 6	†0.3	75	11	26	4	40	2.67	† .20	1.15	1.0	8	11	9	10	N	1, 10, 18
Ida Grove	Ida	1,220		49.8		76	11	23	4	42	2.73		.86	.6	9	8	21	1	N	18, 28
Iowa City	Johnson	685	43	51.6	†3.0	80	1, 11	23	4	41	3.11	-.07	1.15		11	10	8	12	N	
Iowa Falls	Hardin	1,107	9	47.6	†0.0	75	11	24	4	45	3.15	- .23	1.08	1.0	12	12	4	14	N, NW	1, 10, 11, 28
Jefferson	Greene	1,052									4.13		1.59	.3	11	3	16	11	SE	10, 18, 28
LeClaire	Scott	576									3.46		2.01	T	13				NE	11
Logan	Harrison	928	35	51.4	†1.4	82	10	25	30	42	.74	-1.19	.50		6	16	5	9	NW	
Maquoketa	Jackson	688	9	49.7	†0 7	78	11	26	26	43	4.72	†2.10	1.05		10	14	6	10	NE	
Marshalltown	Marshall	947	9	51.2	†1.5	80	11	27	4	45	2.17	-1.05	.76		15	7	15	8	SE	
Monticello	Jones	925	48	48.8	†0.4	78	9	25	17, 30	42	4.65	†1.96	1.55	T	7	9	8	13	SW	
Mt. Vernon	Linn	847	35	51 4	†2.1	86	11	26	4	48	2 97	- .35	.72	2.0	12	12	9	9	NW	10, 11, 12
Newton	Jasper	944	14	50 0	†1.0	75	8, 11	21	4	41	2.79	- .63	.95	.8	10	11	7	12	N	
Odebolt	Sac	1,356	5	48.0	-1.7	79	11, 25	23	4	47	2.36	- .35	1.23		6	20	2	8		
Ogden†	Boone	1,088	8	50.0	-0.9	80	1	22	4	38	2.58	- .62	.45		10	16	2	12	NW	
Olin	Jones	760		50 0		77	11	28	23, 26, 30	34	3.28		1.50	.8	10	8	15	7	S, NW	1, 10, 11
Onawa	Monona	1,053		51.6		79	10	23	30	46	2.56		1.35	2.0	9	18	4	8	NW	29
Perry	Dallas	975		50.4		80	1	25	4	44	2 34		1.10	.5	6	9	9	12		
Rockwell City	Calhoun			49.3		82	11	25	4	31	3.44		1.20		10	18	2	10		
Sac City	Sac	1,278	22	49.2	-0.5	78	11	25	30	42	2 55	- .63	1.30	.8	7	12	7	11	SE	
Scranton	Greene	1,172		49.6		80	11	25	4	35	2.98		.91	.7	9	11	9	10		
Sioux City	Woodbury	1,165	13	49.3	-1.3	76	23	22	30	39	2.39	- .63	.80		9	9	7	14	N	
Stuart	Guthrie	1,216	5	50.3	†1.1	79	11	20	28	52	1 99	-1.22	.67		8	15	9	6	NW	12, 18
Tipton	Cedar	807		52.5		77	11, 29	30	30	34	2.76		1.00		10	9	13	8	SE, S	
Toledo	Tama	856	8	50.4	-0.5	81	1	25	4	46	2.73	- .44	.95		9	10	9	11	NW	
Vinton§	Benton	810	12	49.1	-0 2	78	11	29	4				.68			15	2	13	NW	
Waterloo	Black Hawk	862	15	49.2	†2.0	78	11	26	4	44	2 67	† .29	.85	.5	13	11	8	11	SE	10, 12
Wilton Junct'n	Muscatine	683	7	52.8	†1.6	78	1, 11, 29	28	4	36	4.78	†1.80	1.50	1.0	8	11	9	10	S	10, 12
Whitten	Hardin	1,036		49.2		77	11	24	4	32	1.18		.24	.5	7	14	5	11	NW	12
West Branch	Cedar	718									3.77		1.45	T	10	3	21	6	NW	11
Waukee	Dallas	1,039									2.04		.54	1.0	8	4	13	13	NW	28
Average				50.0	†0.8	78.5		25.4		40.7	2.89	-0.14		.6	9	10	10	10	NW	

CLIMATOLOGICAL DATA FOR APRIL, 1903—CONTINUED.

SOUTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PREC., IN INCHES.				Number rainy days.	SKY.			Prevailing direction of wind.	DATES OF THUNDER-STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Afton	Union	1,212	7	52.2	†0.7	81	11	27	30	42	1.45	-1.48	.60	T	4	10	12	8	SW	
Albia	Monroe	959	....	52.6	.....	80	1, 11	27	4	40	2.53	.....	1.51	....	10	11	7	12	SE, SW	20, 29
Atlantic	Cass	1,164	11	50 8	†1.5	83	11	21	4	51	2.26	- .93	.92	1.0	6	7	11	12	N	10, 18, 28
Allerton	Wayne	.....	....	51 5	.....	78	1, 11	26	4	38	1.80	.....	1.00	1.0	9	13	10	7	NW	10
Bedford	Taylor	.....	....	51 6	.....	79	11	23	4	48	1.53	.....	.40	....	9	13	5	12	NE	
Bonaparte	Van Buren	.....	10	52 6	†0.7	80	1, 29	28	4	40	4.15	† .90	1.70	2.0	7	....	....	....	.....	
Burlington	Des Moines	544	....	53.8	..	80	11, 29	28	4	34	3.97	....	1.21	....	12	15	6	9	NW	11, 12
Clarinda	Page	1,069	12	52.4	†0.4	84	11	26	4	50	1.02	-1.51	.78	.5	7	12	10	8	NW	
College Springs	Page	.....	10	53.0	†2.1	81	11	28	30	43	1.86	-1.06	.54	2.0	10	17	8	5	NW	
Columbus Jct.	Louisa	595	...	52.3	.....	80	11	28	4, 30	36	5.54	.....	3.16	.4	10	15	6	9	NW	11, 12, 18
Corning(a)	Adams	1,127	10	51 6	†0 6	78	8	24	4	41	1 88	-1.37	.73	.5	8	....	....	....	NE	11, 28
Corydon	Wayne	992	9	51.9	†0.1	78	1, 11	24	4	40	2.44	-1.88	1.35	.5	8	14	6	10	NW	
Council Bluffs	Pot'wat'mie	990	5	52.5	†0.5	85	11	25	5	49	2.72	† .16	1.23	.4	6	15	8	7	NW	
Cumberland	Cass	.....	....	..	.....	....	.....	.....	.....	....	1.65	.....	.75	1.0	5	21	1	8	S	
Danville	Des Moines	726	....	.....	.....	....	.....	.....	.....	....	3.80	.....	1.35	....	6	7	0	23	.....	
Earlham	Madison	.....	....	50.0	.. ..	79	1	20	4	46	1.73	.. ....	.63	1 0	8	11	3	16	N	11, 18, 28
Eldon	Wapello	630	....	51.0	.....	80	1	28	23	48	2.03	..	.83	2.0	8	18	6	6	W	
Fort Madison	Lee	516	51	..	.....	....	.....	.....	.....	.....	4 81	†1.61	2.15	...	7	6	11	13	NW	
Greenfield	Adair	.....	11	50.8	†0.0	78	1, 11	24	4	41	2.27	-1.03	.62	.3	9	16	8	6	N, SE	11, 28
Hopeville	Clarke	.....	11	51.7	†1.5	78	1, 11	26	4	41	1.72	-1.88	.88	...	4	....	....	....	.....	
Indianola	Warren	969	11	52.2	†0.6	79	11	27	4	35	2.38	-1.08	1.05	.2	8	13	5	12	NW	12
Keokuk	Lee	619	31	53.5	†1.5	79	11	31	3	30	4.91	†1.70	2.86	6.1	11	10	13	7	N	2, 10, 11, 19
Keosauqua	Van Buren	664	10	53 2	†0.3	80	11	27	4	43	4.49	† .59	1.46	....	12	...	....	....	.....	
Lacona	Warren	.....	....	.....	.....	....	.....	.....	.....	....	2.85	.....	.98	...	12	5	21	4	.....	29
Lenox	Taylor	1,250	7	52.2	†0.7	80	11	27	4, 30	41	1 91	-1.45	.57	.2	8	19	4	7	N	
Leon	Decatur	1,120	....	53.1	...	79	11	29	4, 30	37	1.69	.....	.70	....	6	14	9	7	N	10
Mt Ayr	Ringgold	1,236	8	51.6	-0.2	79	11	27	4, 30	42	2.11	-1.15	.95	1.0	10	6	14	10	NW	10
Omaha, Neb	Douglas	1,113	32	52.8	†1 8	82	10	27	30	35	2.01	-1.12	1.45	.6	9	7	12	11	N	18, 28, 29
Osceola	Clarke	1,130	6	52.8	†1.8	79	1	27	4	38	2.12	-1.72	.50	....	9	12	6	12	SE	27, 28
Oskaloosa	Mahaska	843	18	51.4	†1.0	81	11	24	4	45	1 67	- .66	.75	....	8	....	...	.	.....	
Pacific Junction	Mills	960	....	52.4	....	81	10	25	4	43	2.11	.....	1.37	.9	6	7	15	8	N	
Red Oak	Montgom'ry	1,033	....	51.8	....	72	1, 9, 10, 11	29	30	34	1.56	... ..	.72	.5	6	5	17	8	SE, NW	
St. Charles	Madison	1,070	....	52.0	.....	80	1, 11	27	4	37	3.11	.....	1.23	.3	9	14	7	9	NW	
Sigourney	Keokuk	787	6	52.2	-0.5	82	1	26	3, 4	45	2.26	-1.30	.92	T	7	18	8	4	NW	12, 29
Stockport	Van Buren	.....	....	.....	.....	....	.....	.....	.....	.....	3.60	.....	1.24	3.0	12	14	6	10	SW, NW	12
Thurman	Fremont	...	....	51.6	.....	81	11	23	29	47	3.49	.....	2.10	....	6	12	7	11	SW	
Wapello	Louisa	588	....	53.2	.....	79	11	31	4	36	3 93	.....	1.25	....	9	16	9	5	NW	
Washington	Washington	769	20	50. 3	-0.7	80	1	23	1	36	3.82	†1.20	1.15	....	12	....	...	....	SW	
Woodburn	Clarke	961	....	.....	.....	....	.....	.....	.....	.....	2.10	.....	1 02	...	5	11	8	11	NW	
Average	.....	.....	....	51.8	†0.6	79.8	.....	26.2	.....	41.0	2.67	- .69	.....	1.1	8	12	9	9	NW	
Av. for the state	....	.....	....	49 8	†0.4	77.4	.....	25.0	.....	39.7	2 98	- .03	.....	8	9	11	9	10	NW	

*Means determined from 7 A. M., 2 P. M, and 9 P. M. observations, and maximum and minimum are taken from eye readings. ‡Received too late to be computed with means. *a*, One day missing; *b*, two days, etc. §Not supplied with self registering instruments. † Above normal.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR APRIL, 1903.

STATIONS.		DATE.																														Mean.
		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	Max..	79	67	49	61	61	56	63	76	78	71	81	71	50	53	50	59	68	74	64	62	57	59	67	63	56	67	72	77	66	47	..	64 3
	Min..	48	43	30	26	42	42	31	34	42	56	51	50	37	36	35	38	35	48	46	47	39	32	35	44	36	34	49	50	36	27	..	40.0
Albia.....	Max.	80	69	68	58	64	64	62	76	77	65	80	70	59	48	48	58	65	73	68	61	57	59	65	65	57	66	72	77	70	47	..	65.1
	Min..	52	43	30	27	28	44	36	36	42	53	53	49	38	37	37	37	37	38	49	48	41	30	34	44	35	36	44	51	41	30	..	40.0
Algona	Max..	70	62	47	51	59	58	61	70	64	59	74	57	45	52	53	55	66	61	59	60	59	61	62	59	54	62	71	63	46	45	..	62.2
	Min..	42	38	26	24	41	40	82	36	32	46	48	45	31	33	31	30	37	45	49	43	33	32	39	39	32	35	47	39	31	28	..	37.8
Allerton...	Max..	78	71	47	57	61	58	66	75	77	68	78	72	51	51	48	58	64	73	67	62	57	58	62	66	54	64	69	76	70	47	..	63.5
	Min..	47	43	29	26	44	46	34	37	43	43	43	50	38	37	37	38	37	42	41	50	41	30	34	45	37	31	41	53	41	29	..	39.6
Alta	Max..	68	54	48	56	60	51	61	71	68	54	72	52	46	54	54	58	66	60	57	63	58	63	68	56	56	67	67	57	35	44	..	58.1
	Min..	48	30	25	24	43	33	29	36	40	49	51	43	35	32	30	32	32	45	47	43	34	32	38	37	33	35	47	33	28	22	..	36.2
Amana ...	Max..	78	69	45	52	58	60	65	73	70	61	78	70	46	41	49	56	62	68	62	61	55	57	64	60	56	64	70	75	73	45	..	61.5
	Min..	48	41	34	27	40	45	33	32	40	48	51	46	40	37	37	35	33	43	52	49	40	32	30	44	36	31	41	53	44	30	..	40.0
Ames	Max..	70	68	44	56	62	58	63	76	72	59	80	71	51	50	54	56	66	70	58	62	58	59	61	55	58	66	68	68	64	46	..	61.9
	Min..	46	34	30	27	42	32	33	29	39	38	53	51	24	31	36	44	33	47	51	47	38	33	32	42	35	29	43	52	35	27	..	37.8
Atlantic ...	Max..	79	68	52	62	63	56	66	77	78	77	83	62	52	57	53	60	68	59	62	62	58	65	69	63	58	68	69	72	66	47	..	64.5
	Min..	44	43	30	21	46	41	22	26	29	55	44	48	38	34	33	37	27	50	46	48	38	22	36	36	36	24	50	53	33	27	..	37.2
Baxter.. ..	Max..	80	72	62	65	64	60	65	79	73	63	78	73	52	52	51	57	64	70	60	64	58	60	63	60	58	65	70	72	70	47	..	64.2
	Min..	46	40	35	24	41	41	29	32	38	49	51	46	37	35	36	32	35	46	50	47	36	29	35	40	35	31	43	50	38	28	..	38.5
Bedford. ..	Max.	78	67	51	60	63	57	65	77	78	77	79	75	49	57	58	63	66	69	61	63	61	62	64	61	54	64	70	74	68	46	..	64 5
	Min..	48	41	30	23	45	40	29	29	35	56	52	49	41	36	34	41	35	51	46	48	40	28	35	40	38	27	28	52	35	28	..	38.7
Belle Plain	Max..	81	68	46	53	62	58	66	75	70	58	80	54	42	45	52	56	63	70	62	65	56	57	67	62	57	65	70	73	79	45	..	61.9
	Min..	47	54	33	26	39	42	32	33	43	45	50	50	38	36	37	35	35	43	49	48	38	31	32	42	34	31	43	52	50	28	..	39.8
Bonaparte.	Max..	80	72	46	54	59	64	70	74	75	62	78	69	48	42	41	58	63	69	65	63	57	57	65	68	54	65	71	78	80	51	..	63.4
	Min..	48	46	31	28	40	45	34	34	44	50	55	48	40	37	37	41	37	45	50	50	41	34	33	45	38	30	41	66	51	32	..	41.7
Britt.....	Max..	73	60	38	51	58	52	60	63	67	53	76	58	43	51	55	59	64	64	59	60	54	58	62	50	58	64	71	59	48	46	..	57.9
	Min..	45	33	27	22	41	35	28	29	32	47	47	43	32	32	32	30	32	45	48	44	32	28	32	36	32	30	45	42	32	25	..	35.3
Burlington.	Max..	79	78	47	55	58	67	73	74	77	65	80	71	51	41	44	61	63	71	67	66	58	59	65	68	51	65	71	79	80	61	..	64.8
	Min..	51	47	31	28	39	47	39	40	45	48	53	51	41	35	37	41	39	47	51	49	43	37	34	48	38	33	45	55	59	31	..	42.7
Carroll	Max..	76	48	50	61	65	52	66	77	65	58	83	52	44	51	56	58	69	65	60	54	65	61	65	67	55	60	67	63	40	48	..	60.0
	Min..	47	42	27	23	43	40	32	32	35	54	46	45	35	32	31	31	35	49	45	45	40	35	27	35	41	33	45	51	36	25	..	37.9
Cedar Rap.	Max..	79	71	46	54	59	59	64	75	71	66	80	73	47	42	50	57	63	69	64	65	58	58	65	56	56	66	73	78	76	47	..	62.9
	Min..	51	46	36	30	40	46	36	36	41	46	50	46	40	38	37	37	36	46	52	50	42	34	35	46	37	31	41	54	44	30	..	41.3
Charles Cy.	Max..	71	55	44	50	..	..	65	72	68	51	72	47	42	46	56	56	61	65	63	61	58	58	62	51	55	64	71	63	62	43	..	58 3
	Min..	36	35	32	28	41	45	34	33	36	48	50	39	37	31	39	31	32	44	50	47	38	31	31	44	36	31	43	53	39	28	..	38.1
Clarinda...	Max..	80	54	53	64	65	59	68	81	81	80	84	58	49	58	54	63	70	68	61	64	62	66	67	67	59	70	71	74	66	48	..	65.5
	Min..	44	40	31	26	42	37	29	31	31	55	53	48	39	35	34	42	35	49	47	47	43	32	36	44	38	29	49	51	33	28	..	39.3
Clear Lake	Max..	71	62	45	62	59	52	60	69	74	55	77	60	45	56	59	61	71	62	57	64	60	61	62	50	61	72	71	61	49	46	..	60.5
	Min..	43	38	26	28	37	37	31	32	36	44	41	43	33	31	33	27	30	41	47	44	32	28	30	38	31	34	40	41	31	24	..	35.0
Clinton	Max..	79	75	47	50	56	62	68	72	72	57	78	63	45	41	48	57	64	69	64	64	55	58	67	64	57	66	72	78	82	56	..	62.9
	Min..	46	46	32	31	32	43	33	32	33	45	55	44	40	33	36	38	29	36	51	44	38	35	29	44	38	28	45	52	54	32	..	39.1
College Spr	Max..	79	56	53	63	66	58	67	78	79	78	81	60	48	57	60	63	68	59	61	63	59	66	67	68	57	67	70	75	67	48	..	64 7
	Min..	48	42	30	30	45	40	35	35	42	56	56	48	40	34	33	43	39	50	48	48	40	35	37	47	38	34	47	53	36	28	..	41.2
Colum. Jct.	Max..	78	77	45	55	69	63	68	73	74	58	80	68	47	40	45	59	65	71	65	63	55	63	72	63	61	67	73	79	71	45	..	63.4
	Min..	42	43	30	28	43	43	36	36	43	47	49	45	40	33	35	29	35	43	51	48	41	37	39	43	48	35	41	53	41	28	..	41.2
Corning ...	Max.	76	63	51	60	63	56	..	78	77	76	77	63	48	54	56	58	65	70	60	61	56	60	65	64	54	65	69	72	64	47	..	63 0
	Min.	46	48	30	24	44	40	..	41	36	56	52	47	38	35	34	41	35	49	46	46	39	28	38	43	37	32	48	53	34	28	..	40.1
Co. Bluffs..	Max.	80	66	55	65	67	58	69	79	83	83	85	55	48	58	57	81	70	70	64	65	63	66	71	62	61	70	70	71	38	48	..	66.3
	Min.	36	40	28	26	25	37	33	37	34	58	50	45	40	34	35	43	43	50	48	48	43	33	42	43	37	37	42	37	30	26	..	38.7
Corydon ..	Max.	78	70	51	57	62	60	67	76	77	72	78	71	50	54	50	63	64	74	70	63	62	63	62	67	57	64	69	76	70	50	..	64.9
	Min.	48	41	29	24	42	45	32	36	41	55	56	48	37	35	35	33	34	48	41	37	36	27	34	43	36	32	42	53	39	28	..	38.9
Davenport.	Max.	76	73	46	47	56	62	68	70	75	56	78	67	45	40	48	57	61	67	61	61	54	58	62	61	55	63	69	77	78	46	..	61.3
	Min..	53	46	32	32	36	45	40	42	47	46	53	46	39	34	36	40	37	45	51	49	40	39	38	46	38	36	45	55	46	31	..	42 1
Decorah....	Max..	70	72	44	52	55	52	62	71	67	60	63	52	44	42	59	61	63	63	57	63	56	58	64	55	58	65	73	62	66	67	..	59.9
	Min..	47	37	32	28	38	40	38	32	40	44	48	42	35	37	37	31	30	38	50	42	40	32	30	40	34	31	49	53	46	27	..	38.3
Delaware..	Max..	69	64	43	49	53	56	62	70	67	51	73	67	43	39	50	55	60	65	65	61	55	56	65	56	55	63	70	71	72	45	..	59 0
	Min..	45	40	30	26	33	41	30	32	36	36	43	41	37	34	34	32	31	38	40	45	35	30	34	34	34	32	36	50	42	26	..	36 9
Denison...	Max..	72	68	50	61	57	..	..	..	..	..	..	..	..	..	..	58	68	63	60	58	58	64	68	63	51	67	68	65	45	46	..	60.5
	Min..	48	38	25	21	40	..	25	25	30	53	43	44	36	32	31	33	32	45	46	45	35	25	40	42	35	34	49	43	30	22	.	36.2
Des Moines	Max..	78	64	48	57	62	55	64	76	74	63	78	59	45	51	52	56	64	73	60	63	57	59	61	59	57	64	69	74	63	47	..	61 7
	Min .	51	38	32	29	46	41	34	35	41	53	53	45	38	39	38	39	38	49	50	48	40	35	37	41	38	33	47	54	34	29	..	40.8
De Sota....	Max..	76	71	48	58	63	56	65	77	73	65	77	70	50	54	51	55	65	72	58	61	58	61	62	59	55	64	68	70	65	49	..	62.6
	Min..	48	41	31	28	46	44	31	33	40	56	51	48	39	37	38	39	34	50	48	48	40	33	36	45	38	34	47	54	36	29	..	40.7
Dows	Max.	70	69	44	51	56	53	61	72	66	60	75	69	47	50	54	54	63	64	54	61	55	57	60	55	55	63	69	61	54	44	..	58.9
	Min.	45	40	28	22	41	39	31	31	32	45	48	45	34	33	35	32	35	45	49	44	34	28	38	39	33	32	43	52	35	25	..	37.1
Dubuque...	Max..	72	66	45	47	55	58	63	71	67	52	74	54	43	40	52	57	61	65	57	64	54	57	63	59	56	63	72	72	75	41	..	59.3
	Min..	47	43	32	31	35	43	38	36	43	45	49	41	39	35	35	37	33	42	49	49	38	35	35	42	38	31	45	54	42	28	..	39 8
Earlham...	Max..	79	69	49	59	58	54	65	74	76	65	78	57	56	53	50	59	64	73	60	62	57	59	64	66	58	64	70	73	65	47	..	63 6
	Min.	42	40	28	20	34	40	27	30	30	53	47	45	42	35	33	34	26	47	43	45	37	27	34	40	31	25	42	48	31	26	..	35.3
Eldon.....	Max..	80	79	71	68	64	69	68	69	67	76	79	78	56	50	55	58	64	72	69	68	67	60	66	62	60	66	69	79	72	48	..	66 3
	Min..	34	37	29	30	32	29	31	35	31	35	49	49	38	35	34	33	32	45	49	49	48	33	28	35	31	33	30	31	30	32	..	35. /
Elkader....	Max.	76	62	46	53	53	53	63	73	66	50	70	46	40	40	56	60	62	64	55	65	55	60	64	52	58	65	71	67	71	58	..	59.1
	Min .	40	44	32	25	27	43	31	29	34	43	48	43	39	38	36	31	28	36	50	47	37	30	29	44	35	29	42	51	45	28	..	37.1
Estherville	Max .	74	59	47	51	60	54	61	67	64	53	68	54	47	54	54	57	67	60	57	64	59	65	66	60	57	66	70	57	36	45	..	58 4
	Min..	44	33	24	23	41	37	31	36	35	41	47	42	34	32	30	27	29	44	47	39	32	26	36	38	29	33	43	33	26	23	..	34.5
Forest C'ty	Max .	62	45	27	45	53	39	57	50	52	47	73	60	47	50	50	55	61	67	60	61	56	69	59	53	55	62	65	55	41	39	..	53.8
	Min .	43	38	26	21	38	39	30	30	31	43	47	44	32	33	33	32	35	40	47	44	33	33	35	41	32	31	44	48	31	25	..	36 0
Galva.....	Max..	65	58	48	58	61	57	64	70	68	56	74	56	48	53	56	58	68	60	59	64	58	60	69	65	55	67	68	62	38	42	..	59 5
	Min..	43	38	25	21	43	38	24	27	29	50	51	43	35	30	29	30	29	45	48	42	32	25	35	41	33	30	47	37	30	23	..	35.7
G. Meadow	Max.	72	62	45	48	55	52	62	70	60	56	65	55	45	45	55	55	60	64	58	65	54	57	63	55	55	62	70	65	67	45	..	58.1
	Min .	47	42	30	25	35	41	32	35	38	45	46	41	35	35	35	31	31	38	45	46	35	30	35	41	35	35	44	52	41	25	..	37.5
Greene.....	Max.	68	62	64	52	57	50	61	72	65	57	75	60	44	46	52	57	65	66	60	61	55	59	63	49	56	62	72	61	61	45	..	59.6
	Min .	45	42	30	25	39	41	32	30	35	45	48	44	36	34	36	30	32	42	48	42	36	28	32	42	34	31	43	50	37	26	..	37.2
Greenfield.	Max..	78	68	48	60	65	62	65	76	77	75	78	70	47	53	51	60	67	73	60	60	61	62	65	60	55	65	72	67	68	45	..	63.8
	Min..	46	41	28	24	43	36	33	35	37	41	51	47	36	35	32	37	40	45	45	42	35	28	35	42	35	33	45	47	34	27	..	37.8
Grinnell ...	Max..	78	69	45	51	60	57	62	73	69	61	75	70	47	46	50	55	60	68	62	61	54	55	61	60	55	62	69	70	70	44	..	60.6
	Min..	50	44	32	26	41	43	35	40	44	48	50	47	38	35	36	35	39	41	51	48	37	28	37	43	35	37	44	52	40	28	..	40.1
Grundy C'r	Max..	75	69	48	52	58	55	64	76	69	56	79	68	45	48	54	55	62	68	60	64	57	59	64	56	57	65	70	70	65	46	..	61.1
	Min..	45	43	31	23	36	38	29	32	35	46	49	45	38	34	35	31	35	41	50	46	36	27	33	40	24	31	44	50	40	28	..	37.5
Guthrie Cr	Max..	79	70	48	59	63	56	63	76	79	66	81	59	48	59	54	58	68	71	..	63	58	62	65	62	58	67	69	75	70	50	..	64.0
	Min..	45	42	30	22	45	42	27	28	39	55	46	48	38	36	35	35	28	48	46	47	38	28	35	43	36	31	38	52	36	27	..	38.2
Hampton..	Max.	70	62	45	52	57	51	61	75	69	54	80	63	45	50	58	60	65	67	54	63	57	61	64	59	62	66	71	60	58	44	..	59.7
	Min..	45	40	29	25	40	40	33	36	40	45	48	45	35	33	36	32	33	44	50	45	35	32	37	40	33	36	45	53	35	25	..	38.3
Hanlonto'n	Max..	70	60	41	48	56	50	60	69	65	49	69	56	44	48	54	53	61	62	56	60	54	57	58	59	53	63	70	60	57	43	..	56.4
	Min.	44	39	27	23	25	38	30	30	35	44	47	43	34	33	35	31	31	40	47	45	33	36	34	38	32	31	43	45	32	25	..	35.5
Harlan.....	Max..	78	65	50	62	65	56	63	74	76	78	83	58	45	55	54	59	68	65	60	63	58	63	68	59	57	66	70	68	48	45	..	62.7
	Min.	43	38	27	24	43	40	25	28	32	54	44	46	37	32	31	36	30	47	46	46	37	28	33	41	36	27	47	48	32	25	..	36.8
Hopeville..	Max..	78	67	43	58	62	56	64	77	77	68	78	70	51	50	53	57	65	72	64	63	57	58	63	64	54	65	70	74	65	47	..	63.2
	Min..	48	42	30	26	43	39	34	36	44	55	54	47	36	36	38	40	36	49	46	49	40	30	35	43	37	36	44	51	34	29	..	40.2
Humboldt..	Max..	68	63	46	54	61	58	62	72	68	58	77	64	47	54	56	66	63	56	62	60	60	64	60	57	66	69	61	45	47	45	..	60.2
	Min..	46	41	28	22	44	49	32	30	36	48	49	46	34	34	44	34	45	50	46	36	30	30	42	33	32	49	44	35	31	27	..	38.2
Ida Grove..	Max..	67	66	50	60	64	65	63	74	71	67	76	59	48	55	54	57	68	68	60	64	64	64	70	63	56	68	68	68	40	50	..	62.2
	Min..	42	40	26	23	45	39	30	32	31	52	52	45	37	33	31	32	30	47	48	46	35	28	39	42	35	34	49	40	31	24	..	37.3
In'pen'nce.	Max..	70	64	43	49	55	52	62	71	66	57	75	66	44	41	52	56	58	66	60	62	54	56	62	50	55	63	69	70	68	43	..	58.6
	Min..	43	41	31	26	36	38	32	31	39	44	48	43	38	35	35	32	32	40	48	46	36	29	29	29	33	30	39	47	40	27	..	36.6
Indianola..	Max .	78	58	48	57	59	60	65	78	75	69	79	74	49	51	51	57	65	72	59	63	59	60	61	60	57	64	69	75	69	46	..	62.9
	Min..	46	43	31	27	46	43	44	43	44	49	55	49	37	37	37	44	37	48	47	49	39	30	38	37	36	36	50	53	39	28	..	41.4
Iowa City..	Max..	80	70	47	54	58	60	65	74	76	60	80	70	47	41	48	61	64	73	67	65	57	58	67	60	58	61	71	79	77	46	..	63.2
	Min..	47	45	38	27	38	43	35	33	38	48	51	45	39	34	37	37	34	42	52	48	43	34	31	45	38	34	39	51	46	29	..	40.0
Iowa Falls.	Max .	70	58	44	52	57	52	61	72	67	60	75	57	45	48	55	54	52	67	55	61	55	57	61	50	55	64	69	65	61	45	..	58 5
	Min	45	37	29	24	40	38	31	27	35	46	53	42	36	34	35	32	34	44	49	46	35	31	30	38	33	29	44	52	32	23	..	36.8
Keokuk ...	Max.	77	74	43	54	58	63	68	72	74	58	79	65	44	41	45	58	63	69	65	65	56	64	68	53	62	70	78	78	46	..	..	62.2
	Min..	54	59	31	32	41	51	40	42	48	54	56	51	40	38	37	43	39	48	51	47	38	38	49	39	37	45	54	61	33	..	..	44.8
Keosauqua	Max..	79	71	48	56

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR APRIL, 1903—CONTINUED.

STATIONS.		DATE.																														Mean.
		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	
Lansing	Max	75	71	47	50	56	55	64	71	68	64	65	57	44	42	60	61	62	62	62	68	62	61	66	59	60	71	70	70	69	56	..	61.6
	Min.	40	46	43	30	37	45	33	28	40	45	46	38	38	38	37	35	29	35	45	48	52	30	30	44	35	28	52	40	54	26	..	39.0
LeMars	Max.	69	58	49	60	63	57	63	71	71	60	61	55	50	57	57	60	68	65	59	68	62	65	73	64	58	68	71	61	39	45	..	60 9
	Min.	43	38	32	24	43	33	43	31	31	51	51	41	31	31	28	28	35	46	49	38	32	29	42	40	30	35	49	39	30	21	..	35.2
Lenox	Max.	78	68	50	61	63	59	65	76	78	77	80	72	50	53	51	58	67	71	62	62	58	60	65	64	53	65	70	74	67	46	..	64.1
	Min.	45	42	29	27	43	41	33	35	40	55	52	48	37	36	34	40	37	48	45	47	39	34	37	44	36	33	58	52	35	27	..	40.3
Leon	Max.	78	74	48	58	63	60	65	75	77	73	79	76	52	53	50	57	65	73	65	61	60	58	64	65	54	64	71	75	70	47	..	64.4
	Min.	49	43	41	29	44	44	34	38	43	56	58	52	38	37	37	41	37	48	46	50	41	33	37	48	37	34	45	54	42	29	..	41.8
Logan	Max.	79	64	53	64	66	57	70	78	80	82	60	48	56	55	64	70	68	66	63	65	60	66	71	67	69	68	68	70	43	49	..	64.5
	Min.	40	40	28	26	28	39	28	53	56	45	26	38	34	35	38	35	46	48	45	47	39	29	40	44	35	36	48	43	31	25	..	38.2
Maquoketa	Max.	74	71	48	49	55	61	66	71	73	60	78	69	46	41	50	60	61	69	60	63	56	59	62	61	58	63	70	75	67	57	..	61 8
	Min.	47	45	32	27	33	44	33	28	37	46	49	45	39	34	35	35	28	34	49	42	38	33	27	43	35	26	35	50	51	29	..	37.6
Marsh'lt'n	Max	79	71	48	55	62	56	64	76	74	64	80	72	48	42	53	58	65	70	64	65	57	60	66	58	59	67	71	73	68	47	..	63.1
	Min	48	44	31	27	41	43	32	31	40	48	50	47	38	35	36	33	35	45	51	47	37	29	31	43	35	35	45	51	40	29	..	39.2
Mason City	Max.	78	63	46	56	66	50	60	68	64	59	71	60	45	48	56	58	63	63	58	61	58	59	59	50	56	66	70	61	56	46	..	59.1
	Min.	45	42	30	27	39	40	32	37	39	46	47	44	38	36	36	32	35	43	48	47	36	33	41	40	34	36	43	51	37	26	..	38.7
Monticello	Max.	69	75	72	68	67	70	72	70	78	70	62	72	62	50	58	62	57	50	54	50	56	58	63	60	62	72	68	62	48	50	..	63.9
	Min.	55	33	30	28	33	35	34	37	45	35	32	42	37	34	33	28	25	32	30	31	30	28	33	35	33	40	34	35	28	25	..	33.8
Mt. Ayr	Max.	78	65	49	59	63	55	64	75	77	73	79	70	50	53	51	59	61	72	65	62	58	59	63	65	54	65	70	74	67	47	..	63.4
	Min.	48	40	30	27	43	40	31	33	43	55	58	49	37	35	35	41	36	47	45	48	39	31	37	44	36	33	44	50	36	27	..	39.9
Mt. Vernon	Max.	78	67	53	56	56	66	75	81	84	61	86	64	48	40	49	68	67	71	63	68	58	65	64	55	64	66	69	75	72	47	..	64.5
	Min.	47	38	32	26	36	42	33	33	40	43	45	48	40	34	34	32	34	43	50	46	37	31	34	44	34	34	40	50	47	27	..	38.3
NewH'pton	Max.	71	64	43	49	55	49	59	70	65	57	70	58	44	46	58	57	59	64	59	61	55	57	63	49	56	63	70	71	63	43	..	57.9
	Min.	43	39	29	25	38	38	29	30	34	34	46	42	37	32	34	35	32	32	46	44	38	26	29	40	38	45	42	42	37	24	..	36.1
Newton	Max.	71	69	47	54	61	57	61	75	70	60	75	72	49	50	50	57	64	68	60	62	56	58	62	59	58	66	68	68	66	47	..	61.4
	Min.	47	43	30	21	40	43	30	34	41	50	50	47	37	34	36	34	36	44	44	47	37	30	35	43	35	33	42	50	39	28	..	38.7
Northwood	Max.	69	58	43	48	57	48	59	68	64	55	70	56	44	50	57	61	63	62	61	64	57	63	62	47	62	66	71	60	48	45	..	57.9
	Min.	43	39	27	24	38	39	31	31	37	45	47	43	35	33	35	31	40	40	48	45	33	30	35	37	32	32	41	47	31	25	..	36 5
Odebolt	Max.	68	64	48	61	63	61	63	74	72	65	79	57	47	53	55	56	70	64	56	66	63	70	66	59	79	65	68	65	41	46	..	62.1
	Min.	46	40	24	23	45	29	37	32	33	51	51	44	36	32	33	33	29	45	48	45	34	26	41	35	32	46	48	40	31	24		33.8
Olin	Max.	75	69	46	49	55	59	64	71	68	60	77	68	45	41	49	55	58	65	61	55	65	55	63	58	54	61	70	75	75	54	..	60.7
	Min.	45	46	33	38	35	43	30	29	57	41	49	45	40	34	35	35	32	33	50	46	39	32	28	43	42	28	34	50	53	28	..	39.3
Omaha, N.	Max.	78	64	51	63	66	55	65	76	79	82	82	54	49	56	55	63	67	68	60	64	60	66	70	62	58	68	68	68	39	46	..	63.4
	Min.	53	38	30	31	49	41	38	45	44	57	54	47	40	36	35	43	41	50	48	48	44	41	47	44	36	40	55	38	29	27	..	42.3
Onawa	Max.	73	69	54	64	67	63	67	78	77	79	73	58	48	59	62	67	70	67	63	72	68	75	75	66	67	71	67	63	36	52	..	65.6
	Min.	47	40	26	27	45	38	27	32	34	55	46	43	38	31	30	35	34	48	47	44	38	32	41	41	34	35	49	36	30	23	..	37.6
Osage	Max.	70	62	42	49	56	48	60	69	67	56	71	56	42	46	56	57	60	63	57	60	55	57	60	47	53	64	71	63	57	42	..	57.2
	Min.	44	41	28	25	39	40	30	30	34	45	42	42	34	34	35	30	31	41	48	44	33	30	34	38	33	33	43	51	33	24	..	36.3
Osceola	Max.	71	65	49	60	63	56	65	76	77	64	76	65	60	55	56	57	65	73	65	73	63	59	60	65	55	65	69	74	65	47	..	63.7
	Min.	49	56	31	27	40	43	30	38	40	55	54	43	38	56	37	38	35	47	45	49	40	33	37	44	37	34	45	52	54	28	..	41.8
Oskaloosa	Max.	81	68	48	56	63	61	66	75	74	62	81	70	48	45	48	57	65	71	64	63	57	57	67	64	55	66	73	75	71	46	..	63 2
	Min.	48	44	31	24	41	44	32	30	37	51	53	48	39	37	37	37	36	44	50	49	41	30	31	44	36	30	43	52	41	33	..	39.6
Pacific Jct.	Max.	79	67	54	64	67	59	67	74	80	81	80	59	51	56	58	64	67	71	66	66	61	65	70	65	59	70	73	74	45	46	..	65.3
	Min.	47	43	30	25	47	38	30	32	37	56	49	48	38	32	33	43	36	50	46	46	40	28	40	43	37	32	50	45	32	27	..	39 8
Perry	Max.	80	70	43	59	63	56	65	76	73	64	79	67	48	53	53	58	70	71	56	62	57	60	64	57	57	68	70	66	59	48	..	62.4
	Min.	47	41	30	25	45	41	31	32	36	54	45	47	37	36	36	37	32	42	48	41	32	31	34	42	35	33	43	53	35	28	..	38.3
Plover	Max.	68	55	41	53	59	56	63	69	67	55	75	55	50	55	53	57	69	60	63	66	55	60	63	56	55	63	70	58	39	40	..	58.0
	Min.	36	36	26	24	44	35	31	30	36	43	45	39	34	30	27	30	34	45	41	42	40	29	36	39	29	30	44	37	33	25	..	35.2
Primghar	Max.	67	54	45	54	59	55	58	66	65	55	72	55	47	54	53	57	68	59	55	65	58	64	69	56	56	68	69	56	32	..	..	58.3
	Min.	43	33	24	25	42	34	28	33	37	48	48	42	37	32	32	31	32	45	49	39	33	32	38	49	30	33	46	34	27	..	..	36 4
Red Oak	Max.	72	66	47	57	59	58	60	69	72	72	72	62	52	54	54	60	64	65	60	60	57	59	64	61	61	61	65	68	66	43	.	61.3
	Min.	49	45	33	31	47	43	34	35	41	53	56	51	41	37	38	44	39	33	51	50	43	34	42	48	40	34	52	56	36	29	..	42.2
Ridgeway	Max.	70	61	46	53	56	50	62	73	69	51	65	55	45	45	58	60	62	64	60	64	58	64	61	49	62	65	72	62	64	48	..	59.2
	Min.	45	40	30	25	37	41	31	32	39	44	48	42	34	32	34	29	32	40	49	46	35	28	37	39	33	34	44	52	35	25	..	37.1
Rockw'l Cy	Max.	73	60	48	56	64	55	50	75	70	60	82	58	48	54	50	57	70	69	68	63	60	60	65	55	55	65	70	65	45	45	..	60.5
	Min.	47	40	38	25	38	40	32	37	39	50	52	40	36	35	33	32	38	33	49	46	36	36	37	40	34	34	43	43	33	27	..	38 1
Ruthven	Max.	67	62	45	48	61	46	60	66	65	50	72	55	45	53	58	62	55	62	62	68	62	63	74	58	58	65	68	58	38	42	..	58.3
	Min.	45	36	31	39	45	32	30	37	38	47	55	43	34	34	34	38	32	45	40	42	32	31	39	39	32	37	45	35	30	24	..	37.4
Sac City	Max.	67	63	48	59	62	59	62	74	71	64	78	56	47	54	54	57	68	61	55	64	60	63	68	63	57	68	66	63	40	47	.	60 7
	Min.	47	37	27	34	43	39	30	32	37	52	52	44	36	33	32	32	31	45	49	45	36	32	36	41	35	32	45	40	31	25	..	37.7
St. Charles	Max.	80	61	50	60	63	65	66	77	76	63	80	61	49	53	53	58	66	74	62	64	52	60	63	62	56	65	68	74	62	47	..	63.0
	Min.	49	42	31	27	45	43	33	40	45	55	54	49	38	37	37	38	35	48	47	48	40	32	39	48	36	35	46	53	36	28	..	41.1
Scranton	Max.	79	64	49	59	63	53	61	..	74	57	80	60	47	56	57	60	68	69	54	65	61	61	66	56	60	67	62	63	48	47	..	60.9
	Min.	47	40	29	25	43	38	31	..	42	53	48	46	36	34	34	34	33	46	48	46	37	32	36	42	35	35	34	47	33	27	..	38.3
Sibley	Max.	57	56	36	48	53	53	48	64	63	53	63	54	49	55	58	61	64	62	61	66	63	70	66	59	61	68	72	56	32	41	..	57.0
	Min.	8	31	24	23	41	37	26	30	31	48	46	39	36	32	31	30	30	45	48	45	37	32	27	38	40	29	34	46	32	27	19	..	34.2
Sigourney	Max.	82	71	48	58	64	62	68	78	80	61	81	68	48	46	48	62	68	74	70	67	58	60	70	64	61	63	75	81	77	48	..	65.5
	Min.	41	43	26	26	40	43	32	33	40	49	49	48	38	35	36	35	35	44	47	47	41	31	33	35	36	30	41	51	42	30	..	38 9
SiouxC'nt'r	Max.	69	57	47	54	58	53	59	68	68	58	57	52	49	54	54	58	68	63	56	66	59	64	73	66	59	68	73	57	32	39	..	58 6
	Min.	43	35	26	26	39	37	30	33	38	50	50	39	27	28	30	32	32	41	43	37	32	34	35	39	30	32	45	29	27	20	..	34.6
Sioux City	Max.	65	55	50	62	65	53	63	71	75	67	60	50	50	56	56	60	66	66	57	69	61	66	76	58	64	69	69	59	32	45	..	60.5
	Min.	49	32	27	30	47	38	35	38	36	54	46	42	38	35	32	33	41	48	47	40	36	33	43	42	34	39	51	31	27	22	..	38 1
Storm L	Max.	65	61	46	55	59	56	60	70	69	60	73	56	46	55	53	55	63	59	57	63	59	62	65	61	54	64	64	60	39	44	..	58.4
	Min.	61	36	25	24	43	37	33	37	37	50	51	43	35	33	31	31	38	45	49	43	34	35	41	40	33	37	48	36	30	23	..	38.0
Stuart	Max.	79	68	48	59	65	56	64	74	75	63	79	69	49	52	52	56	68	72	62	62	57	58	66	60	56	66	70	72	66	45	..	62.9
	Min.	46	40	28	24	43	40	32	37	39	58	58	45	32	34	34	36	33	46	44	45	36	32	35	43	35	34	45	20	31	25	..	37.7
Thurman	Max.	76	68	53	63	65	69	65	75	79	80	81	59	51	57	53	55	63	69	62	63	64	69	67	58	68	69	73	45	46	..	..	64.4
	Min.	47	42	30	25	49	40	28	28	35	57	35	49	40	34	32	38	44	35	51	48	41	29	44	48	37	32	50	44	23	27	..	38.7
Tipton	Max.	76	73	50	54	55	62	67	73	75	64	77	67	47	43	48	63	63	70	64	67	61	64	61	59	60	65	71	75	77	55	..	63.6
	Min.	50	46	35	32	36	45	36	39	45	46	49	47	35	35	36	37	37	43	51	47	41	36	36	45	36	39	42	54	55	30	..	41.4
Toledo	Max.	81	68	47	54	61	57	65	75	72	60	79	68	47	47	52	57	64	70	61	65	57	59	66	58	57	65	72	72	69	46	..	62.4
	Min.	46	44	32	25	40	44	31	29	38	46	50	47	39	35	36	32	33	45	52	48	37	28	29	38	34	29	44	49	42	28	..	38.3
Wapello	Max.	77	77	47	51	51	66	71	73	78	61	79	68	49	42	44	58	62	68	64	61	58	61	64	65	56	65	69	77	80	57	..	63.4
	Min.	55	47	33	31	39	44	38	39	45	48	52	49	41	35	37	39	39	48	51	49	45	40	35	47	38	34	44	55	57	33	..	42.9
Washin't'n	Max.	80	73	64	52	59	63	68	74	74	55	78	58	53	42	46	59	63	71	65	63	57	58	65	63	58	65	73	78	76	46	..	63.4
	Min.	47	40	30	23	36	41	31	33	38	45	48	43	35	34	34	35	34	42	48	45	36	29	31	41	34	28	39	49	40	28	..	37.2
Waterloo	Max.	71	60	45	50	57	52	64	73	67	60	78	60	45	44	54	58	64	68	63	64	58	58	60	55	57	65	72	70	66	46	..	60.1
	Min.	45	42	32	26	40	42	33	29	37	45	49	45	38	35	36	32	32	44	49	47	39	29	30	44	34	31	42	51	39	28	..	38.2
Waverly	Max.	70	62	44	51	57	59	61	73	64	54	73	61	45	44	54	57	62	58	.	63	56	57	64	51	55	65	71	62	66	44	..	58.7
	Min.	45	42	31	27	39	41	32	29	39	47	45	45	35	35	36	32	32	48	..	46	47	30	..	42	34	30	45	53	38	21	..	38.1
West Bend	Max.	70	59	46	53	60	55	61	69	66	55	56	46	77	53	53	57	66	59	58	63	59	62	63	56	58	65	69	65	44	46	.	58.8
	Min.	45	36	27	24	43	40	31	35	35	42	50	35	50	33	32	31	35	45	50	45	34	32	40	42	34	35	46	39	32	26	..	37.2
Whitten	Max.	75	72	45	52	59	58	61	74	69	59	77	65	48	47	53	55	63	68	65	61	61	57	64	50	55	65	70	68	66	45	..	60.9
	Min.	45	42	29	24	39	41	28	32	49	46	48	45	36	32	34	31	35	43	49	45	35	27	32	40	33	30	43	50	37	25	..	37.5
Wilton Jc.	Max.	78	72	47	51	56	61	67	67	72	62	78	69	..	42	47	58	65	62	70	60	55	59	65	65	57	64	70	76	78	51	..	62.9
	Min.	50	47	33	28	38	43	33	33	40	47	50	45	40	34	35	38	41	32	40	41	41	37	30	56	35	30	40	51	42	31	..	42.7

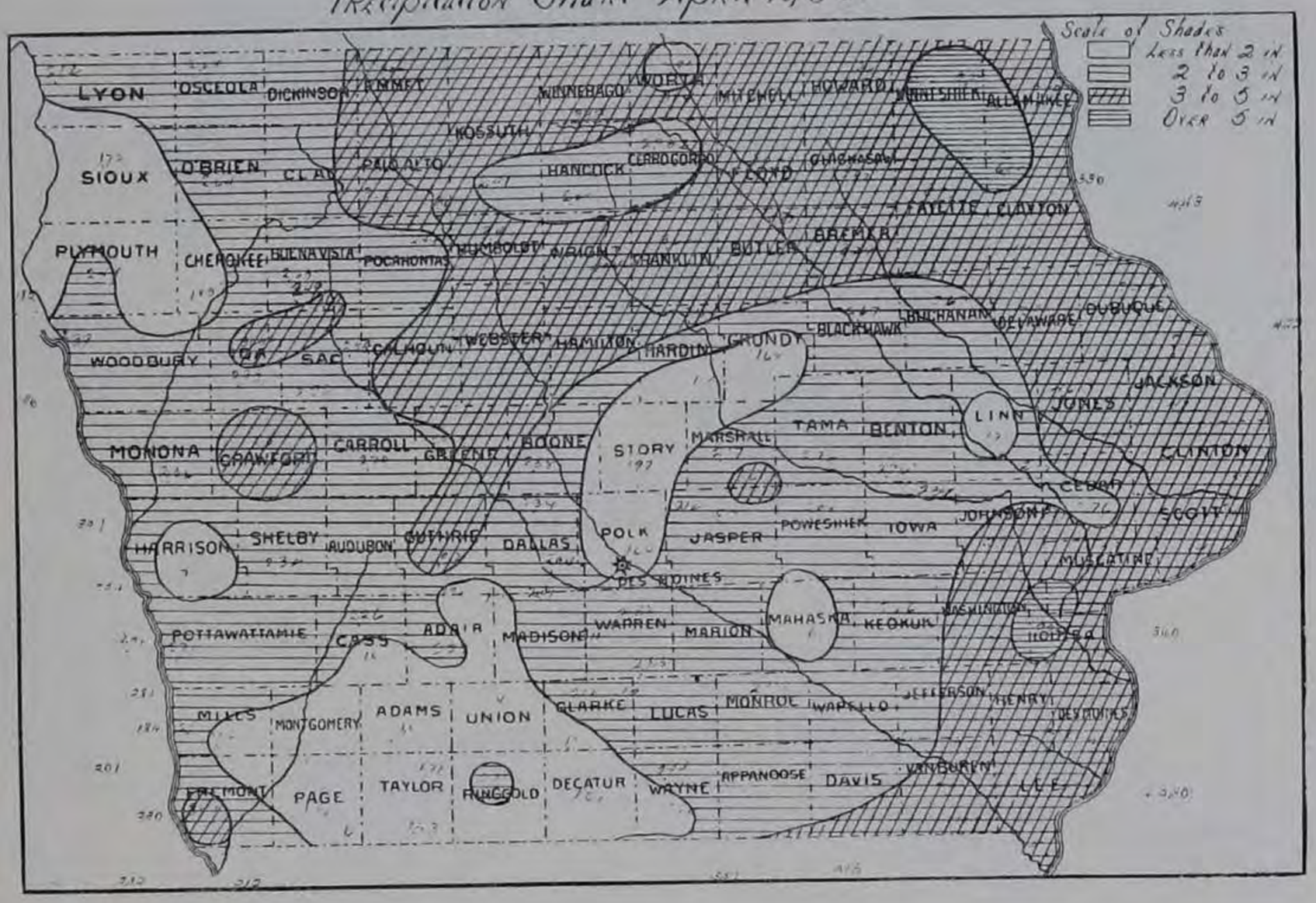
DAILY AND MONTHLY PRECIPITATION FOR APRIL, 1903.

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										.60		.22						.39		T			T						.24			1.45
Albia		.03	.10							1.51	.04		.06	.09	.05			T	.20				T		T				27	.18		2.53
Algona	.30									.02	T	.20	.05					.40	.55	T								T	1.27	.12		2.91
Allerton		T	.20							1.00			T	.02	.01			.09	14	T			T	.05					.15	.14		1.80
Alta	.09									.20	.13		.03					.97	.27	.03							03	.22	.70			2.65
Alta (near)										.25	.30		.05					.69	.30								.04	15	.71			2.49
Amana	T									.76		.48	.25	.18	.02				.05				T	.03	.08			T	.19	.35		2.39
Ames	.02					.01				.22	.30			.13	.01			.65	.04	.04			.02	T			T	.25	.24	.04		1.97
Atlantic										.41			.04					.19	.04				T					.92		.66		2.26
Baxter										.65		.53	.10					T										.57	.15	.12		2.11
Bedford		.16								36			.02		T			.40	.03	.04			T				T	.13	.33	.06		1.53
Belknap																																
Belle Plaine	.10									.70	T	.40	.03		.16			T	.20				.09	T	.07			.30	.30	.40		2.75
Bonaparte			.88							1.70		.32	T	.12	T				.28				.05							.20		4.15
Britt	.21		T	T						.08	.08	.17	.07					.29	.32	.08			.03	T	T		T	.08	1.25	.03		2.69
Burlington			.98							1.24	.45	.17	.18	.26	.05			T	.18					.06	.03				.09	.28		3.97
Cedar Rapids	T									.92		.44	.13	.05	.04			.02					.03	.16	.03			.08	.07	T		1.97
Charles City	.26					T				.14	.08	1.32	.18		T			T	.45	.06			.08	.02	'10		T	.11	.71	.04		3.55
Clarinda			T							.48	.01		T						.33	.06	.05		T				T		.78	.21		1.92
Clear Lake										.15	T	.50	.10					.27	.48	.10			T				T	.17	.50	.08		2.35
Clinton	.15	.18									1.68	.75	1.74	.77					.01				.05		.27					.33		4.93
College Springs		.04								.40	T							.15	.40	.10			.02	.01			T	.02	.54	.18		1.86
Columbus Junction			.33							1.68	1.48	1.14	.07	.17	.02			T	.07	T			T	T					.55	.03		5.54
Corning										.73	.14		.02		T			.11		.03			T				T	.35	.45	.05		1.88
Council Bluffs										.29			T				T	.32	.05	.09							T	1.23	.74			2.72
Corydon		.03	.14							1.35			T	.06				.06	.20										.40	.20		2.44
Cumberland										.21								.11		T								75	.25	.33		1.65
Danville			.65							1.35	.80	.45	T	T		T	T				T						T	.30	.25	T		3.80
Davenport			.29							.93	.6	.37	.31	.27	.01	T		T	.0	T	T			.10	.19			.03	.06	.22		3.42
Decorah	.23										1.47	2.44	.30	T				T	T				.21	.25				.11	.30	.07		5.38
Delaware	.38									.65	1.08	.50	.30										.20	.06				.42	.20	.56		4.35
Denison										.15	1.42	.01	.01					.12	1.07									.45	1.23	.05		4.51
Des Moines						T				.48		.02	.10	T	T			.39	.11	.04			T	T	T		T	08	.20	.13		1.64
De Soto										.50		T	.12		T			.42	.14	.04							T	.80	37			2.39
Dows	.17					.13				.20	.18	1.30	.23		T			.42	.47	.14			T				T	T	.80			4.04
Dubuque	.28	T				.02				.40	59	40	.68	08	01			T	.03	T			.01	.04	19			.22	.04	.30		3.29
Earlham										.6	T		.08	T	T				02	.02					T		T	.16	.28	.11		1.75
Eldon			.20							.83			.08					.02					.10	.10				02	.68			2.03
Elkader	.18	.01				.05				1.85		.63	.65	.10					.05	.05			.25		.15			.60	.13	.23		4.93
Esthersville	.26	.04			T	T	T			24	.12	.05	.07					.54	15	04			.02	T			.10	.38	.98	.05		3.04
Forest City	.18									.3	.01	.37	.08					.23	.48				T		T			.10	1.52	.02		3.33
Fort Madison			1.32							2.15	.08		.27	.13	T	T			.25					T	T				61	T		4.81
Galva	.80									.15		.75						.40									T	.50	1.00	.05		3.65
Gilman										.60		.45	.04	T	T			T	.05	.04			T	T	.07		T	2.10	.30	.01		3.66
Grand Meadow	.15	.19				.05					2.50	1.70	.10	.08	T				T				.39	.20				.35	.20	.09		6.00
Greene	.25									.18		1.48	.13						.36				.12	.03	.07			.30	.80	.05		3.77
Greenfield		T	.01							.62		.04	.10		T			.09	20				T	T			T	.52	.58	.11		2.27
Grinnell										1.25									.20									.24	.35			2.04
Grundy Center	.11									.27		.32	.05	T	.04			.01	.16	.06			.01	T	.06		T	.31	.22	.07		1.69
Guthrie Center				T	T					.50	30		.12		T			.51		.12			T					.55	.72	.20		3.02
Hampton	.24				.14					.42	.87	.13			.04			.53		.22			.06	.05			.08	.68	.16			3.62
Hanlontown	.18									.10	.03	43	.07		T				.53	.04			.03	T	T		T	.10	1.10	.25		2.91
Harlan		T								.33			T			T		.27	T	T			T				T	.30	.36	.06		2.32
Hopeville		T								.88			.03					.43	T	T			T				T	T	.38			1.72
Humboldt	32									.10	.70	.15	.08					.70	.24	.14							.08	1.08				3.49
Ida Grove	.06									.24		.84							.35	.21	.04							.23	.56	.20		2.73
Independence	T									1.15		.15		T	T				.10	T			.20	.10				.75	.12	.10		2.67
Indianola						T				.52		1.05	.05	T				.4	.16	T			T				T	.02	.10	.07		2.38
Iowa City	T									1.15	.23	.59	.15	.10	.04				.10	T			T	.07	.06		T	T	.14	.48		3.11
Iowa Falls	.15					.04				.19	1.08	T	.15	T	T			.23	.20	.01			.06	T	T		T	.44	.57	.03		3.15
Jefferson	.02									.52	.35		.17		.03			1.12	.03	.27								1.59	.03			4.13
Keokuk			1.03							1.69	1.17	.01	.19	.13	.03	.01			.20				T		T				.14	.31			4.91
Keosauqua			.9							1.46	.10	.27	.04	.06	.02				.39				.04	.01					.2	.90			4.49
Lacona						.06				.98		.38	.13	.12	.11			.48	.24	.10								.17	.22	.16		2.85
Lansing		.62			.46	T				.35	.70	1.05	.45	.10	.10				.15					.32				T	.37	.23			4.90
Larchwood	.90					T				.09	.01							.13	.17	T				T			T	.20	.62	T			2.12
Le Claire		T	.11	T						T	2.01	.21	.20	.33	.09	.03			.07		T			3	.13	.02			02	.21			3.46
Le Mars										.70							T	.33									.30	1.05	.10			2.48
Lenox										.49		.57	.05					.30	.04									.10	.34	.02			1.91
Leon			.40							.10								.40	.30										.15	.34			1.69
Logan									.02									.03		.05								.15	.50	04			.79
Maquoketa	.23									1.05	.66	1.05	.76	.14					.08					.08	.27					.40			4.72
Marshalltown	.01					.02				.56		.76	.05	.02	.02			T	.14	.08			.02	.02	.03			.13	.23	.08			2.17
Monticello	.9										1.55		1.25					T	.15	T				.10	T	.60			.10				4.65
Mason City	.26									.20		.75	.18					.13	.33	.04			.03					.16	.70	T			2.78
Mount Ayr		.07	.04							.95			.05					.17	.33	.01			T	T			T	.04	.37	.08			2.11
Mt. Pleasant			.75							.63	.10	50	.10	.20	.02														.30	.50			3.12
Mt. Vernon										.72	.52	.52	.23	.10	01				.01	01			.02	.20			T	04	.59			2.97
New Hampton	.27	.02								.28	.25	1.50	.18						.16				.05	.10				.19	.42	.05			3.47
Newton										.60		.20	.11	T	.04				.22	.03					.07			.95	23	.34			2.79
Northwood	.55	.13			T					.13	.09	1.00	.10					.11	.38	.08			07	T	T		T	.10	1.07	.03			3.84
Odebolt										.17		.33	T				35	.03									T	28	1.20				2.30
Olin	.17									1.50	.64		.07	.07	.01				T	T			.01	T	.19		T	T	.62				3.28
Omaha, Neb			T			T				12			.01				.01	.23	.03	05			T				T	27	1.24	04			2.01
Onawa										.46		.03					T	35	.04	03							.05	.05	1.35	.20			2.56
Osage	.25									.25	.22	1.65	.09					.04	.47	.07			.09		03			.13	.60	.05			3.93
Osceola		T								.50	.08	T	.08	T	T			.30	.50	.10			T				.06	.20	30	T			2.12
Oskaloosa										.75	.12			.02	.03			20	T				T	T				.13	.18	.24			1.67
Pacific Junction										.17			T					.09	.04				T	T			T	.35	1.37	.09			2.11
Perry										1.10	.07		.18					.50					T					.44	T	.04			2.34
Plover	.21									.15		.25						.75	.10					.04				.22	.62	.10			2.44
Primghar	.20									.40								.27	.20	.07				T				.45	1.05				2.64
Red Oak			T	T						.25	T		T		T		T	.11	.11	T				T			T	.32	.72	05			1.56
Ridgeway	.67	.01								.34	.71	2.31	.25	02				.01	.01	08			.21	.09	.04		.01	.07	.60	25			5.68
Rockwell City	.50									.20		.10	.12					.80	.15	.05							T	.20	1.20	.12			3.44
Ruthven	1.00										.70							.85									T		.70			3.25
Sac City										.33								.52	.07	.06			T				T	.19	1.30	.08			2.55
St. Charles										.74		1.23	.07		T			.01	.60	.05			.01				T	.07	.25	.08			3.11
Scranton	T									T	.54		.25						.91	.05	.24							.11	.80	.07			2.98
Sibley	.18	.02								.44								.24		.08							.16	.16	1.00				2.28
Sigourney		T				T				.92		.47	.09	T	T				.10				.05	T					.28	.35			2.26
Sioux Center	.16									.20		T						.19	.23					T			T	.55	.29	.10			1.72
Sioux City	.10									.80	T	T					T	.39	.04	.03			T				.04	.45	.49	.05			2.39
Stockport			.55							1.24	.25	.29	.05	.04	.01				.24	T			.02		.21				.28	.48			3.66
Storm Lake	.08	T								.33	.01	.97	T					.74	.30	.03							T	.22	.88	.05			3.61
Stuart										.50		T	.16					.14	.03	.06								.67	.43	T			1.99
Thurman		T	T							.25			T						.20	.30			T	T			T	.34	2.10	.30			3.49

DAILY AND MONTHLY PRECIPITATION FOR APRIL, 1903—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	
Tipton	....	...	.05	....	....	....	....	..	...	1.00	.38	.66	.22	.13	.05	....	....	....	....	.04	...		...	....	.06		..	....	....	.17	....	2.76
Toledo	.10	....	..	....	....	....	....	....	....	.75	...	.48	T	....	.03	..	....	....	T	...	..	..	.02	....	..	..	....	.95	.18	.22	..	2.73
Wapello	....	...	.45	....		..	....	..	....	1.25	.60	.76	.03	.22	T	...	....	....	.08	T	....	....	1	....	..	..	...	....	.04	.50	....	3.93
Washington	....	....	.23	.03	....	....	...	..	....	1.15	1.00	.40	.09	.04	.05	..	....	.02	.05	....	..	..	.03	...	....	....	....	....	..	.67	....	3.82
Washta	.10	....	....	....	....	....	....	..	....	.15	....	....	T	....	....	....	T	.25	T	....	....	..	T	....	....	....	T	.10	1.30	.05	...	1.85
Waterloo	.13	T	...		....	.05	..	....	..	.24	.	.85	.04	T	.03	....		T	.15	.03	...	..	.05	T	.11	...	T	.4	.50	.08	....	2.67
Waukee	....	.	...	....	....		...	....	....	.54	....		.07	....	T	....	....	.36	.32	.10	....	....	T		....	...	T	.30	.20	.15	.	2.04
Waverly	.20	.10	....	...	....	.10	....	....	....	.21	.34	1.40	.08	....	.	....		.02	.15	...			.13		.13	..	....	.20	.20	.05	....	3.29
West Bend	.17	....	....	....	....	....	....	....	....	.13	...	.44	.03	....	..	....		.58	.41	.15	....		T	T	....	....	T	.20	1.28	.05		3.47
West Branch	....	....		.		....	....	...	....	1.45	.49	.69	.06	.24	.05	....	....	....	.07	..	.	....	....	.15	....	....	...	.	.08	.19	...	3.77
West Union	11	....		....	..	..	....	....	....	1.45	.75	.65	T	T	....	..	..		.06	.03	..		21	.10	....	..	....	...	.56	.. .	....	3 95
Whitten	..	....	....	....	....			...	....	.22	...	.24	.14	T	T	....	..	T	.15	T		...	T	.	....	.. .	....	.10	.23	.10	....	1.18
Wilton Junction	....				....	.....	....	....	....	1.20	1.50	.48	.13	.40	....	...		....	....	....	....	....	.22	..	.10	.	....	..	....	.75	..	4.78
Woodburn		T		....	....	....	....	....		1.02	...	....	.04	T	T	...		.41	.11	....	....	....	T	....	1	...	...	T	.52	....	....	2.10

Precipitation Chart April 1903.



MAY, 1903. No. 5.

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GEO. M. CHAPPEL,
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ALLIED PRINTING TRADES UNION LABEL COUNCIL DES MOINES

DES MOINES:
BERNARD MURPHY, STATE PRINTER.
1903.

THE IOWA WEATHER AND CROP SERVICE

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U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

VOLUME XIV. MAY, 1903. No. 5.

IOWA CROPS JUNE 1, 1903.

Reports of the regular crop correspondents of the Iowa Weather and Crop Service, made June 1st, have been received and tabulated for the state at large. The showing as to the acreage, as compared with last year is somewhat better than we had reason to expect in view of the adverse weather conditions and saturated state of the soil in the seeding and planting season. The county reports were generally mailed about the 27th to 30th of June, when the conditions were at their worst for the formation of a fair estimate as to the status of the crops.

The figures as to the acreage of corn, as compared with last year, must needs be revised, and will be included in the report for July 1st. It was impossible to make, during the last week in May, even an approximate estimate of the acreage that will be finally included in the corn harvest of this year. So the figures as to the corn acreage will be omitted from this report. The per centages of the acreage of the other staples are as follows, the figure 100 representing the area of last year:

Winter wheat, 83 per cent; spring wheat, 85; oats, 92; barley, 90; rye, 88; meadows, 101; potatoes, 94; flax, 87.

CONDITION OF CROPS AND FRUIT.—Winter wheat, 96; spring wheat, 93; corn already planted, 75; oats, 93; barley, 96; rye, 94; meadows, 109; pastures, 107; flax, 84; potatoes, 91; apples, 70; plums, 35; peaches, 40; cherries, 35; grapes, 70; strawberries, 90; blackberries, 92; raspberries, 85.

LIVE STOCK.—Cattle, 99; sheep, 99; hogs, 98; spring pigs, 89; horses, 96; foals, 95.

Last year at corresponding date conditions were rated as follows: Corn, 97 per cent; wheat, 99; oats, 98; barley, 100; rye, 99; flax, 98; potatoes, 103; meadows, 96; apples, 70; plums, 72; cherries, 70; grapes, 72; strawberries, 80; raspberries, 71; blackberries, 67.

CONDITION OF FRUIT JUNE 1.

Secretary Green, of the Agricultural Society, has issued the following report:

A summary of the reports for June shows a decline of 10 to 30 per cent in some varieties of fruit since the last report. The lowest percentage is in the Des Moines valley, the next lowest is in the Nishnabotna. The counties east of the Iowa river show the highest percentages in plums, cherries, currants and gooseberries; these fruits, if properly distributed, should bring a good price, as not more than one-fourth the usual crop will be harvested. Apples will be about half a crop in the southwest, from present indications, and three-quarters in the north and east. Strawberries, raspberries and blackberries are well distributed over the state, and will be a good crop unless injured by unfavorable weather conditions later in the season.

A summary for June is as follows: Apples, 68 per cent; pears, 22; plums, 27; cherries, 26; peaches, 30; grapes, 64; currants, 36; gooseberries, 34; red raspberries, 76; black raspberries, 72; blackberries, 90; strawberries, 86 per cent of a full crop.

WEATHER AND CROP CONDITIONS, MAY, 1903.

The month of May, 1903, scored a meterological record fairly comparable with that of May, 1892, which was characterized as the most unfavorable May for farming operations known in Iowa for a quarter of a century. The mean temperature for May, 1892, for the state, was 54°, or 5.7° below normal, and the average rainfall was 8.77 inches, or more than double the normal. In May, 1903, the temperature was 61.6°, which is slightly above normal, and the average rainfall for the state was 8.55 inches, or 4 52 inches above normal, and .22 of an inch below the total for May, 1892. The general weather conditions for the month this year were exceedingly unfavorable, but were notably better than the records show to have been prevalent eleven years ago. The temperature was seasonable except for very short periods at the first of the month and during the heavy storms the last week. The distribution of the rainfall was somewhat variable, ranging in amounts at local stations from 2.88 to 15.45 inches; but the average of each section was above 8 inches. The best conditions as to dryness of soil prevailed in the Mississippi river counties. The great interior basins of the Des Moines, Iowa and Cedar rivers were subjected to very heavy floods about the close of the month, causing much delay in farming operations and damage to all crops. From about the 3d to the 18th conditions were at their best, and during that half of the month the plowing, planting and other farm operations were in progress on the drier lands, with only occasional interruption by showers. Most of the corn that was planted was put in during that period. The protracted and very heavy storms during the last decade rendered field work impracticable in more than four-fifths of the state. At the close of the month not over two-thirds of the usual corn area had been planted. The germination was generally quick and satisfactory in the stand, but the fields soon became very foul from lack of cultivation, and much more than the usual amount of replanting was necessitated as a result of washing and flooding the fields. The general condition of wheat, oats, rye, barley and meadows was better than seemed to be possible during prevalence of the storms. The fruit crop suffered some damage by the frost and freezing temperature the first of the month, but the general condition of apples; berries and grapes is fairly good.

MAY RAINFALL IN IOWA, 1890–1903.

The following table gives the average rainfall for the state, in the month of May, for the period of fourteen years:

Year.	*Inches.*	*Year.*	*Inches.*
1890	3.56	1898	4.67
1891	3.18	1899	6.23
1892	8.77	1900	3.31
1893	3.45	1901	2.35
1894	1.87	1902	5.39
1895	3.19	1903	8.57
1896	6.69		
1897	1.92	Average	4.50

SEASONABLE NOTES.

Within the past seven years many articles have been published under the caption "Lessons of the Drought." A new leaf has been turned, and we are called upon to study object lessons set in another chapter of human experience. Sodden fields, impassable roads, flooded bottoms, eroded hillsides, washed out and drowned out crops, furnish timely topics of interest to students of nature, tillers of the soil and business men of the country.

The people of New England, New York, Canada, and other portions of the east, have been stricken by the drought, while our fields were drenched and our people have been contending with the floods. We might swap literature with them just now, giving them the benefits to be derived from all the writings of all the people of this region who have essayed to tell all about the cause of droughts and how to cure them. We may safely loan them all of that sort of dissertations that have been filed away in libraries and lumber rooms, and if they should forget to return the articles we will not be much the poorer. When the metorological pendulum again swings toward the droughty side in this region, as it surely will in due time, we can then depend upon getting at short notice revised and enlarged editions of the essays that tell specifically how the people have been ruining their climate by draining their farms and cutting off trees somewhere or other.

About fifteen years ago, after the west had suffered some damage from drenching rains and floods, a gentleman of note as an author, wrote an elaborate article wherein he attempted to prove by facts and deductions that the heavy downpours of that period were due in considerable part to human agency. His theory was that the increasing use of steam power in this country, in form of stationary engines, locomotives, and steam heat in buildings, had largely added to the humidity of the air arising from solar evaporation, resulting in a vast increase in the total amount of precipitation. His very ingenious and seemingly plausible article was widely disseminated and elicited much favorable comment; but it was not sufficiently vigorous and well rooted to withstand the very severe drought that came with blistering effect within the next year or two. That theory had in reality more scientific backing than the correlated hypothesis that was broached a little later to account for the drought, viz: that it was the result of man's agency in the drainage and cultivation of western lands. The truth is, as we must allow, man is a puny creature when his strength is pitted against the mighty powers that cause the winds, rains and floods.

The world over the people have persistently trenched upon the rivers, floodlands, and shores of lakes and oceans. As a result of their folly thousands upon thousands have been overwhelmed by floods and tidal waves, and the burden of support of the survivors in times of calamity falls upon those who are wise enough to build their homes upon the uplands. The world is big enough and broad enough, and there is room for all its inhabitants upon the slopes and ridges, far above all high water marks. The bottoms that are subject to periodic overflow may be profitably used for pastures, meadows, truck gardens and cornfields in ordinary seasons. The occasional loss of crops would be trifling in comparison with the damage and risk of life resulting from flooding the homes of the poor, who have been induced to locate on cheap bottom lands. For sanitary reasons, as well as immunity from floods, human habitations should not be permitted in flood districts.

See Matt. 7:25. Anent the foolish man "which built his house upon the sand; and the rain descended, and the floods came, and the winds blew, and beat upon that house and it fell: and great was the fall of it." So the same sort of folly was committed in the olden time.

The Iowa lakes are now at the highest stage they have reached in eleven years. Spirit Lake is reported to have risen twenty-two inches, and many of the docks are under water. Those who a couple of years ago predicted the early drying up of those noted summer resort lakes are not saying anything about it just now.

A news special from Ottawa, Canada, dated May 30th, said no rain had fallen there for several weeks, and for the purpose of breaking the drought and preventing the outbreak of destructive fires the mayor requested the minister of militia to bring out his battery of big guns and bombard the heavens to jar down the moisture from the air. The rains will undoubtedly be copious hereafter—this season or some other year.

Observer Arthur Betts, from Ridgeway, Winneshiek county, reports a distinct shock of earthquake at 2:10 A. M. on the 21st of April. It was a low rumbling that shook the house, jarred windows, for space of about ten seconds, the apparent direction of the wave being from S. E. to N. W.

A dispatch from Utica, New York, dated June 10th, says that Prof. Carl Meyers, the rainmaker, accompanied by experts in the use of oxygen and hydrogen, has gone into the Adirondack forest preserves to conduct experiments in rainmaking by use of powerful explosives. Prof. Meyers' apparatus includes balloon bombs eight, ten and twelve feet in diameter, and he is quoted as saying that the local weather conditions would determine the time and method of exploding them. That is a wise thing to do in making such experiments. The barometer, wind direction and humidity should be carefully noted; then when things are just right you may begin firing, as Dewey said to Captain Gridley at Manila Bay. But how strange it seems to be trying to make rain fall in a great forest preserve! Possibly, however, the trees need to be awakened and set to work at their legitimate business as rainmakers. Those bombs will jar 'em.

FLOODS, DROUGHTS AND DISMAL PROPHECIES.

"Is America's Ruin Threatened by an Era of Floods?" Under this alarming headline the Chicago *Inter-Ocean*, of June 7th, published a half-page article written by John P. Brown, secretary of the International Society of Arboriculture, in which was uttered this solemn warning: "Within twenty-five years these great inundations, which have been steadily increasing in number and violence for sixty years, will be general through-

out the continent, and no section will be secure from periodical deluges; and within half a century the great agricultural regions of the continent will be sterile as the deserts of Arizona, or the plains of China." This most deplorable condition, Mr. Brown affirms, we are bringing upon ourselves by the rapid denudation of forest areas, stripping state after state of the fertilizing timber which for ages has chained the soil to the fields, fed the rivers with a steady flow and regulated the water supply.

This solemn warning is evidently uttered to promote the most excellent cause of arboriculture, by scaring people into good works in the line of tree planting. But the end to be attained, though good in itself, does not justify the questionable means employed in its promotion, such as dire prophecies of evil and irrational arguments or assumptions. There are some most convincing reasons that may be urged in favor of conservation of our remaining forest areas, and in behalf of tree planting on some of the slopes, ridges and practically useless lands in these prairie states, but in this work the appeal must be made to intelligent people, who may not be moved by specious arguments and warnings of awful calamities to come. This pessimistic prophecy uttered by Mr. Brown appears very like the familiar scare-crow that was made to do duty in the same good cause during our recent antedeluvian (before the flood) period of severe drought, the only difference observable being that the frightful figure is now togged out in a rubber suit to withstand the latter day wet weather!

When the excessively wet period began, about a year ago, we found a measure of comfort amid our watery woes in the thought that we had secured a short season of rest from being worried by good people who persisted in warning us that the climate of this section is being ruined by drainage of wet lands and cutting timber, and that this region will become sterile from droughts of greater frequency and severity in future years; that we can only be saved from utter desiccation by planting trees and taking up our tile drains. But now comes Prophet Brown, with a new chapter of lamentations, and a fresh batch of predictions of woes to come in the form of floods only a little less in amount than the Noachian deluge.

There is a confusion of tongues among these two classes of prophets, but they all agree that there is no way of escape from the predicted disasters except to take to the woods. Plant trees to save from droughts and make increased rainfall; and to prevent damaging floods, plant more trees. The trees make more rain, and then perform a beneficent office, we are told, by preventing floods by holding back a big portion of the surplus waters. Mr. Brown says the forests regulate the water supply and feed the rivers with a steady flow.

Seriously now, while it is true that in time of excessive rainfall the forests help to retard the outflow of a portion of the surplus waters, yet this is only a half-truth that has been made to give currency to unsound theories. In matter of fact, the capacity of a forest bed to serve as a reservoir of surplus waters depends upon its character as to density, the kind of trees, and the location, whether on rocky hillsides and mountains or level lands in the valleys. Millions of acres of forests on the rocky hillsides possess no appreciable capacity to retain moisture beyond the actual necessity of the trees, and they only serve a mechanical purpose in preventing erosion of the slopes. There are millions of acres of slopes now subjected to erosion that ought to be protected by trees, but that is far from allowing that such slopes would thereby prevent torrential rains or keep water from running down hill. The dense forests on level lands in the valleys do serve a beneficent end in retaining a portion of the surplus water, and in using a goodly portion of it in the growth of timber. In that respect there is but little to choose between a bottom land forest and a well drained and deeply tilled corn field on the same kind of soil, and the difference, if any, is on the side of the latter. That is to say, our best bottom land corn fields soak up and hold back from the streams more water than the average forest beds.

The floods and droughts of this abnormal season appear to have been sadly misplaced to serve as object lessons in support of Mr. Brown's theories and predictions. The early and later rains of nearly the whole continent were poured out upon the well-nigh treeless plains and valleys of the central west, producing disastrous floods, very nearly as heavy as those which visited this region fifty and sixty years ago. At the east from Ohio to Jersey and Maine, a very damaging drought held sway over a region including the Allegheny and Catskill mountains, the great Adirondack forest preserves, the Green and White mountains, and all the most heavily timbered regions of Maine, Ontario and New Brunswick. In large portions of the forests great destruction was caused by fires, and reports stated that even in some of the most dense forests the fires burned beneath the moss down to the roots of the greenest trees. In that time of greatest need the forests of that region did not "feed the rivers and regulate the water supply," nor did they have capacity to retain enough moisture to save the heaviest timber from destructive flames. In times of severe drought the trees consume for their own support the storage of moisture, and then the litter of the forest becomes dry as tinder, constituting an element of destruction instead of a source of water supply for streams.

So it appears that Mr. Brown's theory will scarcely hold water. He affirmed that great inundations have been steadily increasing in frequency and volume for the past sixty years, but refrained from offering evidence to sustain the statement. As a matter of fact, the flood of 1844 at St. Louis scored high water records that have not been reached since that time. In the Des Moines valley the volume of the flood in 1851 was the greatest ever known. And in that early period the cutting of the forests at the head waters of the Mississippi had not progressed very far. It would be an easier task to prove the reverse of Mr. Brown's assertion. Not only in the treeless central valleys, but also in the most heavily timbered regions of the south and east, the student may notice the erosive effects of great floods, which came at frequent intervals in the centuries before the axe of a civilized man had cut a tree to build a cabin. There have been floods and floods all along down the ages of human history, and in the most distant ages the vast forests of all the continents did not avail much in averting great disasters by floods. Note the formation of the vast delta at the mouth of the Mississippi as proving the occurrence of great inundations for unknown centuries.

While giving due credit to forests for their beneficent effects in the retention of a portion of excessive rainfall, we must also recognize the fact that the deeply tilled soils and subsoils of these western prairies perform the same good office in a larger measure, because they possess greater storage capacity than the average forest areas. In this section the floods have never invaded the valleys to any considerable extent until the deep soil, subsoil and drift deposits had been filled down to the impervious bed rock. So it may be proven quite readily that the mulched and moss-carpeted forests of the rocky hillsides, mountains and valleys of the east do not possess nearly as much storage capacity for moisture as an equal area of well cultivated tile-drained farming lands in Iowa.

It is a subject of general remark by people from abroad, as well as residents of this section, that these well-tilled fields possess a marvelous quality for withstanding both droughts and floods, and the reason is obvious. The storage capacity of the soil and the immense deposits of humus afford a large measure of immunity from ill effects of droughts which would ruin the crops on the lighter soils of the east. With a fair supply of moisture at the outset of the season, it has been found possible in this state to grow and ripen a good crop of corn with less than one-third of our normal rainfall for the crop season.

Prophet Brown, in attempting to sustain his prediction of disastrous floods that will ruin this treeless valley, says the excessive rainstorms that visit this section are caused by electrical disturbances, which are due to the absence of trees. Of this he says there is no doubt, and then hedges by saying: "To what extent this is true is not known." Exactly so; and because it is not known it is best not to indulge in dogmatic statements. We have been led to believe that the electrical disturbance in a storm is a result of rapid condensation of vapor and not the cause thereof; and that condensation of vapor into rain is due to dynamic cooling of the humid air. Mr. Br. wn's mistake is in confounding causes and effects, like the man who expressed wonder that electricity possesses the power to make the dynamos revolve so rapidly in the power plants at Niagara Falls.

Our prophet who warns us that this valley will soon be washed into sterility in consequence of its treeless condition, does not stop to consider the fact that this region has been treeless very many centuries, and that during this period the rich humus of the soil has been stored up for the support of millions. The process of growth and decay, with alternations of wet and dry seasons, has been in operation for centuries, resulting in making a marvelously fertile plain, far away from the "fertilizing timber." And the fact that it was made rich under the same climatic and treeless conditions, gives us strong faith that it will retain its position as the granary of America for centuries to come.

Our faith in the substantial permanence of general climatic conditions in this valley is so strong that we unhesitatingly advise the farmers of Iowa to hold their farms as the richest legacies they can leave to their posterity for scores of generations. But if we gave credence to much of the talk of our over-zealous arboriculturists, we should exhort friends to get out and take to the woods, or climb a tree.

At the east the drought problem has been the foremost topic, while our people have been worried over the floods. And professional rainmakers exploited their theories while the drought was at its worst. The complex weather problems have been discussed at considerable length in the papers, but the sanest and most well considered article appeared in the editorial columns of the New York *Tribune*. Referring to proposed experiments in rainmaking the *Tribune* said:

"It is not at all strange that people whose interests are affected by the present drought in Canada, New England and the Middle Atlantic states should jump at any chance to secure relief. Some of their projects are, however, unpromising. Scientific men long ago became convinced that the occasional association between bombardment and rain after a heavy battle was purely accidental. They think that the precipitation would have come anyhow, owing to other causes, and point to the fact that many engagements in which artillery was employed were not attended with the same consequences. After testing the theories of General Dyrenforth ten years ago, the United States weather bureau reached the conclusion that explosions in the upper air had no effect whatever. Overlooking those experiments and conclusions, perhaps, one of the *Tribune's* contemporaries in this city promoted a similar venture in 1900, but with absolutely no success. A lot of vine growers in southern Europe are resorting to practically the same means to break up hailstorms. Possibly they, too, will in time conclude that their procedure is foolish. At any rate, it is hardly logical to resort to bombardment both to induce and to stave off precipitation.

"A partial but convincing explanation of the present drought is furnished by the daily weather maps. Any one who possesses the most elementary knowledge of meteorology is aware that rain and snow occur in this country only in connection with the great barometric depressions, which move in a generally eastward direction across the continent. The area in which most precipitation is observed is not at the center, but in advance of it, say from two hundred to five hundred miles. The great majority of these depressions, when they come as far east as the Mississippi valley, follow the great lakes and St. Lawrence valley to the Atlantic. Since the middle of April, however, all storms which have entered the country have departed from that rule. Either they would move out to the southward—perhaps entering the Gulf of Mexico—or they would die out. In the latter case precipitation would cease with the rising of the barometer at the center of the 'low.' To all appearances this abnormal behavior was due to the singular obstinacy of areas of high barometer which lingered over the lakes and blocked the path of the storms.

"Now, eccentricities of that sort are compensated by eccentricities of another kind in another part of the country or the hemisphere. While their cause is not fully understood, most meteorologists worthy of the name believe that both 'highs' and 'lows' are a product of the great currents which flow between equatorial and polar regions, and hence the general circulation of the atmosphere. Sooner or later nature herself, in some mysterious way, effects a readjustment in the distribution of pressure, as it appears on the weather maps. It may be asserted with perfect confidence, therefore, that such a change will occur in the route of rainstorms between the Mississippi and the Atlantic, though one cannot predict the exact time. Anybody can see, however, that the forces involved operate on a colossal scale. Possibly half of the globe will be affected in one way or another when a new chapter of meteorological history opens. To hope to hasten that transition by any means within the power of man, is the height of folly. One might with equal sanity expect to bale out the ocean with a thimble, or obliterate Pike's Peak with a firecracker!"

FORESTS AND FLOODS.

As this is a timely topic in this season of extremes, the following clipping, from the *Evening Wisconsin*, will be of interest:

"Henry Gannett, in the *Bulletin* of the American Geographical Society, attacks the theory set forth in many works on forestry, that the presence or absence of forests exerts an influence on the rainfall; and the *Monthly Weather Review*, edited by Prof. Cleveland Abbe, endorses his opinion. He also denies that floods in American rivers are more frequent than formerly, as a consequence of the removal of forests from their drainage areas. This relieves the lumbermen of Wisconsin from the imputation of homicide, for if the old and exploded notion were correct, the men who chop down trees in Wisconsin might be held morally responsible for the drowning of people in Louisiana caused by high water in the Mississippi

"'The situation which exists in the arid regions of the earth, Mr. Gannett says is due to their physiography. The forms of their mountains, cliffs and canons are not such as are found in moist climates and attest that the regions in which they exist have been arid 'for thousands if not millions of years' Popular theory regarding them has put the cart before the horse. 'Want of rain prevents the growth of trees; want of trees does not prevent rain.'

"So much as to the arid regions As to the floods, Mr. Gannett observes that 'where forests are cut away, land is seldom left bare; it is cultivated or covered with bushes which hold the water quite as effectively as forests' Records covering a long series of years show that floods in American rivers are not greater now than they were in the past. 'The Ohio river,' he remarks, 'has been gauged continuously for many years, and these gauges show no appreciable change in regimen, whatever changes may have been made in the forest cover of its basin' He might with equal truth have made the same statement concerning the Mississippi. At the beginning of the nineteenth century, when Wisconsin and Minnesota were given over to solitude and Indians, there were floods in Louisiana as forminable as any of the worst that occurred toward the century's close, when the forests over the large areas had been felled and the spaces that they once occupied had been utilized for farming. A field of corn or wheat will hold the water as effectively as a grove of trees.

"It is pleasant to note these conclusions of science. It would be sad to be forced to believe that a man could not procure the material for constructing a house in territory near the head of a watershed without endangering the habitation and jeopardizing the lives of people down the stream."

HEAVY WIND STORMS.

On the evening of Tuesday, May 26th, a very severe wind, storm swept over a considerable portion of the western and central districts. The storm was wide spread, covering an area of more than one third of the state, and at many places the velocity of the wind was not very far short of a tropical hurricane. Reports from all points as to the characteristics of the storm clearly prove that it was a wind squall, or straight blow of unusual force and destructiveness, and not of the nature of a tornado, or "cyclone," as was set forth in the sensational headlines of the newspapers, and the associated press dispatches. From the tenor of these dispatches the people abroad must have received the impression that a whole brood of tornadoes had been incubated and let loose to devastate some of the fairest cities and towns in the doomed state of Iowa. If all the places visited by the storm of the 26th had been struck by veritable tornadoes the list of fatalities would have been in the thousands, and the loss of property would have amounted to millions. Happily for the people the elements are more merciful than the exaggerated reports make it appear.

The city of Des Moines received the onset of the storm at about 6 P. M. Every part of the city felt the shock and suffered some measure of damage, but the greatest destruction was wrought along the 'Coon river bottoms, where the bluffs at the south deflected and intensified the force of the northwest wind. A number of weak buildings were wrecked at that point, though the aggregate of loss was very small in comparison with the reports that were published. The worst effect of the storm was the death of a man and child, by the wrecking of a frail and very unsafe building in which they lived.

The city of Creston was struck at about 5:15 P. M. The reports of damage, as given in detail in the Creston papers, show that the storm swept over the entire city, and continued to blow for the period of twenty minutes. If it had been a tornado, the pathway of the funnel would not have been more than a block or two in width, and the force would have been expended in less than two minutes; but the loss of life and property within that narrow path would have been very great, and sufficient to justify the most stunning headlines in the reports

The same storm visited Corning, Brooks, and numerous places in the southwest and south central counties, causing a good deal of damage at all points.

On the evening of Monday, May 25th, the state institution for the feeble minded, at Glenwood, was struck by a wind storm similar in character and force to the one above described. It was a straight blow from the north, leaving no indications of the effects of a tornado. The force of the wind was sufficient to unroof and materially damage portions of the structures, and two of the inmates of one of the dormitories were killed. Numerous local squalls were noted in various parts of the state the same evening. The last decade in May was a period of unusual meteorological disturbances, winds, downpours and floods, but happily we have no evidence as yet that any part of the state was visited by a tornado. A number of lives were lost, however, by wind storms of sufficient force to wreck the weaker class of buildings. In the observers' notes severe storms are noted on other dates than the ones referred to above.

CLIMATOLOGY OF THE MONTH.

BAROMETER.—Mean pressure, 29.95 inches; highest observed, 30.39 inches, at Davenport, Dubuque and Keokuk, on the 1st; lowest observed, 29.55 inches, at Dubuque, on the 27th; range for state, 0 84 inch.

TEMPERATURE.—The monthly mean temperature for the state, as shown by records of 117 stations, was 61.6 degrees, which is 1.4° above normal. By sections the mean temperatures were as follows: Northern section, 60.4°; Central section, 61.9°; Southern section, 62.6°. The highest monthly mean was 65.2°, at Burlington; lowest monthly mean, 55.2°, at Estherville. The highest temperature reported was 91°, at Clinton, on the 20th; lowest temperature reported, 24°, at Bedford and Earlham, on the 1st and 3d. The average monthly maximum was 83.3°; average monthly minimum, 29.6°. Greatest daily range, 49°, at Larchwood; average of greatest daily ranges, 33.8°.

PRECIPITATION.—Average precipitation for the state, as shown by records of 129 stations, was 8.55 inches, which is 4.52 cinhes above normal. The averages by sections were as follows: Northern section, 8.11 inches; Central section, 8.73 inches; Southern section, 8.80 inches. The largest amount reported was 15.45 inches, at Thurman; least amount reported, 2.88 inches, at Fort Madison. The greatest daily rainfall reported was 4.80 inches, at Thurman, on the 22d. Average number of days on which .01 of an inch or more was reported, 16.

WIND AND WEATHER.—Prevailing direction of the wind, southeast; highest velocity reported, 72 miles per hour, from the southeast, at Sioux City, on the 21st. Average number of clear days, 9; partly cloudy, 12; cloudy, 10.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced	EXTREMES			
		Highest reduced barometer	Date.	Lowest reduced barometer.	Date.
Davenport	29.96	30.39	1	29.56	27
Des Moines	29.95	30.38	1	29.61	27
Dubuque	30.00	30.39	1	29.55	27
Omaha, Neb	29.90	30.21	1	29.56	18
Keokuk	29.94	30.39	1	29.56	27
Sioux City	29.94	30.27	31	29.58	19
Means	29.95	30.39	1	29.55	27

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	6249	27	W	27
Des Moines	7499	48	SW	20
Dubuque	5311	28	S	19
Keokuk	5824	30	W	25
La Crosse, Wis	....	.....	.....	....
Omaha, Neb	7201	37	SE	22
Sioux City	10415	72	SE	21

OBSERVERS' NOTES.

AFTON.—*N. W. Rowell.* Greater rainfall in May, 1903, than in any one month in eight years past; 11.90 inches. Frost and ice on 1st and 3d.

ALLERTON.—*Rex Shriver.* Rain has fallen 21 days in May; very little over half of corn crop planted at close of month; meadows and pastures good.

ALTA.—*David E. Hadden.* Severe wind squall about 8 P. M. on 22d, damaged some buildings, windmills and trees, southwest and west of town. Mean temperature of the month one degree above the normal of the preceding thirteen years. The precipitation (6.96 inches), is 2.82 inches in excess of the average during the same period. Thunderstorms occurred on thirteen days; maximum temperature, 79°, is the lowest recorded in thirteen years, except in May, 1892, when it only reached

74°. Last frost on May 3d, which is from two to three weeks earlier than usual.

AMANA.—*Conrad Schadt.* The river was 6 to 8 inches higher than last year. The last decade of May was very wet and little farm work could be done.

ATLANTIC.—*J. W. Love.* Heaviest rainfall (12.37 inches), of any month on record here. Soil very wet and much land under water; rain fell on 20 days.

AUDUBON.—*Frank Mott.* More than twice as much rain in this month as in May, 1902.

BONAPARTE.—*B. R. Vale.* Rainfall 4.30 inches; first half of month seasonable; last half constant rainfall and cold; little farm work possible during last eleven days.

BRITT.—*Geo. P. Hardwick.* Rainfall 6.89 inches; excessively cloudy—not one clear day; field work retarded; but half of corn planted at end of month; severe wind and lightning on 23d, damaging windmills and buildings.

CLINTON.—*Dr. Luke Roberts.* Rain 5.45, or .15 of an inch above normal. During first and second decades rain was needed to germinate seeds and for plant growth; after that rain was plentiful and storms retarded work in fields.

COLUMBUS JUNCTION.—*H. E. Simpson.* Clear, dry weather forepart of month, followed by excessively wet and cold weather.

CORNING.—*Jerome Smith.* A violent wind storm on 26th, at 5:15 P. M., changing from southwest to northwest, caused considerable damage to trees and windmills.

DECORAH.—*F. H. Baker.* On 26th a hard wind blew down barns, windmills and a great many trees.

EARLHAM.—*Geo. Phillips.* May was abnormally wet, with 11.60 inches of rain, on ground already saturated; 7.46 inches fell in the last week.

ESTHERVILLE.—*Earle W. Peterson.* On night of 22d a very hard wind swept the country south of this place, destroying some buildings and much property. Heavy rain of the 25th flooded the Des Moines river.

FOREST CITY.—*J. A. Peters.* Greatest rainfall during the month (10.17 inches) ever recorded here for May within ten years; 20 per cent of corn ground will not be plowed.

GRAND MEADOW.—*F. L. Williams.* Rainfall 8.33 inches. On 26th a fall of 3.16 inches raised all streams, washed cornfields and damaged railroads; farm work backward; hay crop good.

GREENFIELD.—*J G. Culver.* Rainfall 13.50 inches. It was less than normal up to 17th, and since that date it was excessive, with unusual number of thunderstorms, many of them severe. On night of 26th 1.64 inches fell in 46 minutes, and a total of 3.82 for the whole day; corn badly washed out.

GRUNDY CENTER.—*E. S. King.* A very wet month; 11.04 inches of rain; small grain, pastures and meadows very heavy growth.

GUTHRIE CENTER.—*W. F. Brann.* On the 26th a heavy thunderstorm and high wind, caused damage by lightning and wind.

HANLONTOWN.—*Miss G. M. Paschen.* Corn planting begun the 8th; hard windstorm on evening of the 22d; potatoes and peas in blossom May 26th.

HUMBOLDT.—*H. S. Wells.* Rain, 7.50. For the past five months the rainfall was 12 34 inches; for same period last year it was 7.69. Much corn not planted on June 1st.

LANSING.—*J. Ackerman.* The rain on 27th caused heavy floods in this section, doing thousands of dollars' worth of damage; small rivers out of banks, and it will be impossible to plant some of the richest lands.

LARRABEE.—*H. B. Strever.* Rain for month, 10.52 inches. Heavy hailstorm about 1 P. M. on 24th; poultry, pigs and young lambs were killed, and much damage to crops and trees. At this place hail lay on the ground four inches deep. Bottom lands were flooded, and some cattle were washed away and drowned.

MARSHALLTOWN.—*B. S. Jones.* Rain, 8.46 inches. On May 31st the Iowa river reached a point higher than last year's high water mark; it is believed to be the highest since 1881.

MONTICELLO.—*C. E. Heisey.* Corn planting much belated by wet weather. On the 25th lightning struck in three places, damaging three houses and burning one large barn.

MT. VERNON.—*Rev. J. W Hubbard.* Not the amount, but the persistency of the rain told; there being fourteen consecutive days of rainfall; prevailing winds easterly.

NEW HAMPTON.—*R. H. Gurley.* Heavy hailstorm on afternoon of 12th; violent windstorm on night of 22d caused damage to barns and windmills.

OLIN.—*Nathan Potter.* The month was favorable for farm work up to 25th, after which date all field work was suspended because of rains and floods.

OSKALOOSA.—*Joseph Boyd.* On night of 26th a heavy thunder and hailstorm passed over, the hailstones being as large as hickorynuts.

OTTUMWA.—*Dr. W. B. LaForce.* The Des Moines river was 22 feet above low water mark on May 31st and June 1st, breaking all records.

PERRY.—*J. A. Harvey.* A terrible windstorm evening of 22d; rainfall this month, 11.41 inches.

RIDGEWAY.—*Arthur Betts.* This May was 2° above normal. Rainfall, 8.70 inches, or 0.89 of an inch less than the amount in May, 1902; many severe thunderstorms; 262 hours of sunshine; gale on 22d was the worst that ever visited this section, destructive to trees, windmills and buildings.

SPIRIT LAKE.—*W. C. Drummond.* Rainfall, 13.03 inches; last ten days of month brought 7.18 inches, causing the worst washout of bridges known in years.

STORM LAKE.—*L. C. Burdick.* Damaging hail and snowstorm about twenty miles north and west on 24th; small grain doing well.

TOLEDO.—*H. P. Giger.* Severe windstorm on 26th.

VILLISCA.—*C. E. Matteson.* Hail on 20th destroyed crops in a radius of three miles. Rainfall for the year to date, 19.33 inches, of which 13.66 fell in May.

WAUKEE.—*E. J. Leonard.* Rainfall for the month, 10.78 inches; May, last year, 3.42 inches; June, last year, 8.57 inches. So this month breaks the record of any month last year by 2.21 inches.

WEST BEND.—*Ph. Dorweiler.* Month remarkable for excess of rain. Roads very bad and crop prospect poor.

DATES OF THUNDER STORMS

NORTHERN SECTION.

Algona, 8, 10, 19, 20, 22, 24, 26.
Alta, 9, 10, 11, 18, 19, 21, 22, 24, 25, 26, 27, 28.
Britt, 9, 20, 22, 23, 25.
Charles City, 9, 12, 22.
Clear Lake, 9, 20.
Dows, 10, 11, 12, 19, 22, 23, 26.
Elkader, 4, 5, 9, 10, 11, 12, 17, 22, 23, 26, 27.
Estherville, 9, 10, 20, 22, 23, 25.
Hanlontown, 5, 9, 10, 11, 12, 19, 20, 22, 23, 24, 25, 26.
Humboldt, 10, 19, 20, 22, 27.

Larchwood, 5, 9, 17, 18, 22, 23, 24, 26.
Le Mars, 9, 24.
Northwood, 9, 10, 11, 19, 20, 21, 23, 24, 25, 26, 27.
Osage, 4, 9, 10, 11, 12, 17, 19, 20, 22, 24, 26.
Plover, 9, 10, 19, 20, 23.
Ridgeway, 5, 9, 10, 11, 12, 17, 19, 20, 22, 23, 24, 25, 26.
Storm Lake, 9, 10, 11, 22, 23, 25, 26, 29.
Waverly, 5, 9, 10, 12, 13, 17, 22, 23, 25, 26, 27, 28.
West Bend, 9, 10, 11, 19, 22, 23, 24, 26, 27.

CENTRAL SECTION.

Amana, 9, 20, 22, 25, 26, 27.
Ames, 26.
Baxter, 13, 22, 26.
Carroll, 9, 11, 12, 13, 17, 19, 21, 25, 26, 29.
Clinton, 8, 22, 26.
Davenport, 11, 13, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30.
Delaware, 10, 17, 22, 25, 26, 27, 28.
Des Moines, 9, 12, 13, 14, 17, 20, 21, 22, 25, 26, 27, 28, 30.
Dubuque, 5, 9, 10, 11, 12, 16, 17, 22, 25, 26, 27, 28.
Grinnell, 11, 13, 20, 22, 26, 27.
Grundy Center, 5, 9, 10, 11, 12, 13, 17, 19, 21, 22, 25, 26, 27, 28.
Guthrie Center, 20, 26.
Harlan, 3, 10, 11, 12, 17, 20, 22, 23, 25.
Independence, 12, 17, 22, 25, 26.
Ida Grove, 19, 23, 26.
Jefferson, 9, 10, 11, 12, 18, 20, 21, 22, 25, 26, 27 29.
Mt. Vernon, 9, 11, 20, 26, 27, 28.
Olin, 7, 11, 17, 20, 21, 22, 25, 26, 28, 29.
Onawa, 5, 9, 10, 11, 19, 22, 25, 26, 27, 28, 29.
Perry, 12, 13, 20, 22, 24, 25, 26, 27, 28.
Sac City, 2, 3, 10, 11, 12, 17, 19, 22.
Scranton, 21, 22, 23, 25, 26, 27.
Sioux City, 3, 9, 10, 18, 21, 24, 25, 26, 29.
Toledo, 28.
Vinton, 21, 22.
Waterloo, 5, 10, 11, 12, 22, 23, 26.
Whitten, 5, 9, 12, 13, 20, 22, 23, 25, 26, 27, 28, 29.
Waukee, 13, 17, 20, 22, 23, 25, 26, 27.

SOUTHERN SECTION.

Atlantic, 9, 11, 17, 18, 21, 25, 26.
Allerton, 9, 11, 17, 21, 22, 25, 26, 27.
Burlington, 4, 11, 13, 14, 21.
Columbus Junction, 11, 17, 21, 22.
Corning 13, 17, 20, 21, 22, 23, 25, 26, 27
Corydon, 22, 26.
Earlham, 11, 13, 16, 20, 22, 23, 25, 26, 27.
Ft. Madison, 9, 13, 18, 21, 22, 23, 24, 25, 27.
Greenfield, 9, 11, 12, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28.
Keokuk, 11, 13, 18, 21, 22, 23, 24, 25, 26, 27.
Lacona, 12, 13, 22, 25.
Lenox, 20, 21, 22, 23, 25, 26, 27.
Leon, 26.
Mt. Ayr, 25.
Omaha, 10, 16, 17, 20, 21, 22, 24, 25, 26, 27, 28, 29.
Osceola, 20, 21, 24, 25, 26, 27.
Oskaloosa, 21, 26.
St. Charles, 20.
Sigourney, 9, 11, 12, 13, 22, 23, 26, 27, 28.
Stockport, 9, 11, 14, 21, 23, 24, 25, 27.
Villisca, 11, 13, 17, 20, 21, 22, 24, 25, 27, 29.
Winterset, 12.

ERRATA IN MARCH REVIEW.

AFTON.—Mean temperature recorded 39.2° on page 8, should have been 40.0°. Mean maximum temperature recorded 50.3° on page 9, should have been 50.4°. Mean minimum temperature recorded 28.2° on page 9, should have been 29.6°. Total precipitation recorded .78 inch on pages 8 and 11, should have been .71 inch.

HAMPTON.—Mean temperature recorded 37.3° on page 7, should have been 37.6°. Mean maximum temperature recorded 46.1° on page 9, should have been 46.7°.

IDA GROVE.—Mean maximum temperature recorded 49.0 on page 9, should have been 49.1°.

IOWA FALLS.—Mean maximum temperature recorded 45.2° on page 9, should have been 45.3°. Maximum temperature on the 16th, page 9, should have been 47.0°. Maximum temperature on 24th, page 9, should have been 35.0°.

ODEBOLT.—Mean temperature recorded 39.0° on page 7, should have been 38.9°. Mean maximum temperature recorded 50.5° on page 10, should have been 50.2°.

OSCEOLA.—Mean temperature recorded 40.2° on page 8, should have been 41.6°. Mean maximum temperature recorded 50.0° on page 10, should have been 51.7°. Mean minimum temperature recorded 30.3° on page 10, should have been 31.6°.

VINTON.—Mean temperature recorded 39.3° on page 7, should have been 39.4°.

ALTA.—Total precipitation recorded .80 inch on page 7, should have been .81 inch.

WHITTEN.—Mean temperature recorded 33.2° on page 7, should have been 38.2°. Mean maximum temperature recorded 47.7° on page 10, should have been 47.8°.

MT. VERNON.—Mean temperature recorded 40.6° on page 7, should have been 40.5°. Mean maximum temperature recorded 51.2° on page 10, should have been 51.0°.

LARRABEE.—Mean temperature recorded 34.6° on page 7, should have been 34.8°. Mean minimum temperature recorded 24.0° on page 10, should have been 24.5°.

AMES.—Mean temperature recorded 38.6° on page 7, should have been 38.4°.

DENISON.—Mean temperature recorded 33.5° on page 7, should have been 38.5°.

LEON.—Precipitation on 22d, recorded .02 inch on page 11, should have been .20 inch. Precipitation on 23d, recorded .02 on page 11, should have been .20 inch. Total precipitation recorded 1.28 inches on page 8, should have been 1.86 inches. Total snow fall recorded 0 inches on page 8, should have been 6.0 inches.

TIPTON.—Precipitation on 23d, recorded 0, on page 12, should have been .20 inch. Total precipitation recorded 1.37 inches on page 7, should have been 1.57 inches.

ELDON.—Mean temperature recorded 45.0° on page 8, should have been 44.0°. Mean maximum temperature recorded 58.9° on page 9, should have been 56.7°. Mean minimum temperature recorded 31.0° on page 9, should have been 31.2°.

ERRATA IN APRIL REVIEW.

COLUMBUS JUNCTION.—Mean temperature recorded 52.3° page 7, should have been 51.8°. Mean minimum temper recorded 41.2° on page 8, should have been 40.2°.

EARLHAM.—Mean temperature recorded 50.0° on should have been 49.4°. Mean maximum temperature [illegible] 63.6° on page 8, should have been 62.6°. Maximum temperature on 24th, page 8, recorded 66.0°, should have been 60.0°

MONTICELLO.—Mean temperature recorded 48.8° on page should have been 48.4°. Mean maximum temperature recorded 63.9° on page 9, should have been 62.9°.

ODEBOLT.—Mean temperature recorded 48.0° on pa should have been 49.6°. Mean minimum temperature rec 33.8° on page 9, should have been 37.1°.

AFTON.—Minimum temperature recorded 27.0° on the 30th, page 7, should have been 26.0° on the 4th.

ALGONA.—Minimum temperature recorded 25.0° on the 30th, on page 6, should have been 24.0° on the 4th.

HARLAN.—Minimum temperature recorded 25.0° on the 30th, page 6, should have been 24.0° on the 4th.

WASHINGTON.—Total precipitation recorded 3.82 inches on pages 7 and 11, should have been 3.79 inches. Daily precipitation recorded .05 inch on 19th, page 11, should have been .08 inch.

WASHTA.—Total precipitation recorded 1.85 inches on pages 6 and 11, should have been 1.95 inches.

WAVERLY.—Precipitation on 30th, of .05 inch on page 11, should have been .03 inch.

CLIMATOLOGICAL DATA FOR MAY, 1903.

NORTHERN SECTION.

STATIONS	COUNTIES	Elevation, feet	Length of record, years	TEMPERATURE, IN DEGREES FAHRENHEIT							PRECIP., IN INCHES				Number rainy days	SKY			Prevailing direction of wind	DATES OF THUNDERSTORMS.
				Mean	Departure from the normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from the normal	Greatest in 24 hours	Total snowfall (unmelted)		Number clear days	Number partly cloudy days	Number cloudy days		
Algona	Kossuth	1,213	28	61.4	†1.6	83	16, 21, 22	31	1	31	8.05	† 4.67	3.20	....	11	3	21	7	SE	
Alta	Buena Vista	1,513	11	59.4	†1.1	79	16, 21, 22	31	1, 3	30	6.96	† 2.75	1.47	....	20	6	18	7	S	
Alta (near)	Buena Vista	.....		.....		.....		.....		.....	7.27	....	1.33	....	17	...	..	...	.....	
Britt	Hancock	1,230	8	61.6	†3.1	82	22	27	1	40	6.89	† 3.73	.99		17	0	20	11	NE	
Charles City	Floyd	1,012	11	60.5	†2.2	83	23	31	3	29	9.15	† 5.52	3.24		20	8	14	9	SE	
Chester	Howard	....	....	59.6	..	81	16	27	3	32	9.44	.....	1.70	....	17	12	5	14	SE	
Clear Lake	Cerro Gordo	1,241	...	62.6	....	....	.....	29	3	41	7.54	.....	1 45	....	12	12	12	7	SW	
Decorah	Winneshiek	875	8	61.4	†1.5	87	23	32	3	37	6.75	† 3.42	1.89		15	..			.....	
Dows	Wright	1,142		60.4		80	16, 22	29	1, 3	31	9.33		1.65	....	15	11	9	11	SE	
Elkader	Clayton	727	21	62.1	†1.3	88	16	30	1	42	5.89	† 2.16	1.17	....	16	8	20	3	SE	
Estherville	Emmet	1,298	7	55.2	-3.0	86	23	29	3	43	10.69	† 7.87	3.50	....	15	7	7	17	SE, NW	
Fayette	Fayette	.....	12	60.0	†2.5	88	22	28	3	37	6.65	† 2.70	2.69	....	17	7	12	12	SE	
Forest City	Winnebago	1,226	8	59.6	†0.0	82	21	30	1	30	10.17	† 6.37	3.85	...	15	15	1	15	W	
Grand Meadow	Clayton	1,180	11	61.0	†3.0	82	16, 22	30	3	34	8.33	† 4.35	3.16		17	7	14	10	SE	
Greene	Butler	924	5	61.8	†1.7	84	16, 22	30	1, 3	35	6.37	† 2.88	1.82		17	6	14	11	SE, S	
Hampton	Franklin	1,155	12	62.0	†3.9	83	16, 22	31	1, 3	32	7.95	† 4.05	2.43		17	5	17	9	SW	
Hanlontown	Franklin			60.4	.....	80	4, 16, 22	30	1	40	7.67	...	2.00	....	15	13	14	4	SE	
Humboldt	Humboldt	1,095	10	61.8	†1.7	89	23	30	3	32	7.50	† 4.49	1.20		17	12	9	10	SE	
Lansing	Allamakee	.....	...	61.8	.....	85	16	27	1	40	7.30	...	2.40		12	14	6	11	.....	
Larchwood	Lyon	.....	..	59.6		86	4	28	3	49	8.33	.....	1.68	....	10	14	12	5	S	
Larrabee (*d*)	Cherokee	1,366		59.6	.....	84	20, 22	30	1, 3	35	10.52	..	2.04	....	11	4	19	8	SW	
Le Mars	Plymouth	1,224	6	59.2	-1.1	80	16, 17	31	1, 2, 3	36	9 89	† 5.95	2.00		12	6	16	9	S	
Mason City	Cerro Gordo	1,132	....	61.6	.....	82	16, 22	32	3	30	7.57	.....	1.62	..	11	4	22	5	SE	
New Hampton	Chickasaw	1,169	..	59.8		79	16, 22	29	3	31	6.46	.....	1.66	....	15	9	13	9	S	
Northwood	Worth	1,222	6	60.2	†1.6	80	22	31	1, 3	32	6.95	† 3.37	1.78	...	19	6	18	7	SE	
Osage	Mitchell	1,184	11	60.2	†3.4	81	16, 22	30	3	31	8.23	† 4.38	1.81	....	16	7	12	12	S	
Plover	Pocahontas	1,190	5	61.3	†1.2	83	16	30	2, 3	33	8.01	† 5.03	3.31	....	15	8	9	14	S	
Primghar ‡	O'Brien	.....	....	59.0	...	78	16, 17, 20, 21, 22	32	3	31	7.62	...	1.60		14	15	0	16	NE	
Ridgeway	Winneshiek	1,215	....	62.8	.....	86	16	30	1, 3	33	8.70	...	2.65	....	19	10	14	7	S	
Ruthven	Palo Alto	.....	....	61.0	.....	81	22	32	3	30	5.78	... ...	1.33		6	13	5	13	SE	
Sheldon	O'Brien	1,422	....	58.6	.....	79	16, 21	30	1	36	9.00	....	1.96	...	12	10	8	13	S	
Sibley	Osceola	1,512	8	58.6	†0.3	80	21	29	3	35	9.00	† 5.56	1.77	....	14	3	19	9	NE	
Sioux Center	Sioux		....	57.8	....	80	17	30	1	36	7.73	.....	1.76	....	14	11	7	13	SE, S	
Spirit Lake (*h*)	Dickinson	1,450	8	60.7	†1 6	82	21	.....	.....	....	13.03	.....	3.10	....		...	..	....	.....	
Storm Lake	Buena Vista	1,440	7	59 4	†1.4	78	22	34	1	...	4.72	† 1.20	1.30	....	15	10	5	16	SE, S	
Washta	Cherokee	1,157	....	.....	.....	....	.....	.....	.....		10.80	.....	2.00	....	10	10	13	8	SE	
Waverly (*a*)	Bremer	942	6	61.0	-0.1	82	22	30	1, 3	32	6.66	† 2.85	1.60		15	8	14	9	S	
West Bend	Palo Alto	1,197	8	61.0	†2.0	84	22	31	3	31	8.69	† 5.87	3.58	....	16	8	13	10	S	
West Union	Fayette	.....	....	.....		.....	.....	....	.....		8.28	....	4.06	....	12	12	0	19	SE	
Average			....	60.4	†1 4	82.6		30.6		34.7	8.11	† 4.24	....	....	15	8	13	10	SE	

CENTRAL SECTION.

Amana	Iowa	721	25	62.8	†3.0	85	22	29	1	34	7.30	† 3.05	2.16	....	18	10	14	7	S	
Ames	Story	926	20	62.3	†2.9	83	22	29	1	30	9.46	† 5.32	2.18	....	21	15	7	9	SE	
Baxter	Jasper	998		62.2	..	83	22	27	1	36	11.70	.....	2.60	..	16	8	1	12	SE	
Belle Plaine	Benton	828	12	62.8	†3 8	83	16, 20, 22	30	1, 3	32	7.53	† 3.31	2.51	...	17	2	26	3	SE	
Buckingham	Iowa	.....	12				.....	....	.....		7.57	.....	1 10	....	17	6	20	5	.....	
Carroll	Carroll	1,266	19	59.8	†0 7	85	22	29	3	38	9.54	† 4.98	2.08		15	8	10	13	.....	
Cedar Rapids	Linn	733	34	64.1	†4 4	87	17	33	1, 3	27	6.11	† 1.59	1.09		14	13	3	15	S	
Clinton	Clinton	609	31	64.2	†4.2	91	20	28	1	42	5.45	† 1.02	1.42	....	16	8	11	12	S, SW	
Davenport	Scott	606	11	64.2	†3 5	85	20	35	3	32	5.52	† 1.20	2.29	...	14	7	16	8	S	
Delaware	Delaware	1,083	8	60.6	†2.2	83	22	28	1	32	4.47	† .65	.75	....	13	8	19	4	SW	
Denison	Crawford	1,180	24	58.8	-1.8	81	22	29	3	33	9.92	† 6.32	2.34	...	14	15	7	9	N	
Des Moines	Polk	861	...	62.8	†2.4	83	22	31	3	31	10.64	† 5.94	3.02	...	20	3	19	9	S	
Dexter	Dallas	866	29	62.5		82	22	31	1	28	8.38	...	1.90	....	19	17	4	10	SW	
Dubuque	Dubuque	655	8	62 8	†2 9	83	16	33	1	32	4.25	† .26	2.28	....	18	6	9	16	SE	
Webster City	Webster	1,126	..	60.0	....	82	22	31	1	28	.....	....	.....	...	..	12	0	19	.....	
Ida Grove	Ida	1,290	9	60.2	-0 2	80	21	27	2	35	10.07	† 6.67	1.80	....	15	12	7	12	S	
Iowa Falls	Marshall	1,052	11	...	...	...	.....	....	.....		8.24	....	2.05	....	15	4	18	9	S	
Grinnell	Poweshiek	1,023	6	61.7	†1.8	81	22	30	1	36	12.69	† 8.06	3.27		11	12	13	6	S	
Grundy Center	Grundy	976	....	61.0	†2.7	82	22	29	3	33	11.04	† 6.32	2.18	...	18	11	10	10	SE	
Guthrie Center	Guthrie	1,077	38	62.4	†1.2	84	22	29	3	37	14.16	† 9.38	4.34	...	16	3	22	6	SE	
Harlan	Shelby	1,192	....	61.3	....	83	22, 28	26	1	35	10.43	... ..	1.80		18	3	16	12	NE, SW	
Independence	Buchanan	921	43	61.8	†1.5	81	22	28	1	29	6.78	† 2.83	1.52	....	15	15	8	8	SE	
Iowa Grove	Ida	1,220	9	61.2		81	16, 22	31	1, 3, 4	39	8.40	.....	1.40	....	14	1	22	8	S	
Iowa City	Johnson	685	..	63.8	†3.6	00	23	29	1	33	6.90	† 2.54	2.31	....	13	1	14	16	SE	
Iowa Falls	Hardin	1,107	..	60.6	†1.1	82	23	28	3	25	7.17	† 3.88	1.91	....	19	10	3	18	SE	
Jefferson	Greene	1,052	35	....	....	...	.....	....	.....	.....	14.29	.....	4.02	....	18	....	..	..	S	
Le Claire	Scott	576	9		....	...	.....	...	.....	.....	4.27	...	1.98	....	12	....		....	N, NE, SE, W	
Logan	Harrison	928	9	62.0	†1.0	84	23	29	1	31	5.77	† 1.55	1.45	....	15	11	7	13	SW	
Maquoketa	Jackson	688	48	61.2	†0.6	86	17	27	1	31	6.55	† 2.17	2.00	....	19	14	7	10	SW	
Marshalltown	Marshall	947	35	62.5	†2.9	85	23	29	1, 3	29	8.46	† 4.01	1.75	....	21	11	8	12	...	
Monticello	Jones	925	14	62.2	†2.8	85	22, 24	29	3	42	6.30	† 2.43	1.75	....	9	7	14	10	SW	
Mt. Vernon	Linn	847	5	62.3	†1.6	87	16	29	1	38	7.05	† 2.37	1.80	....	18	12	9	10	.. ...	
Newton	Jasper	944	8	61.4	†0.5	82	22	28	1	31	13.07	† 8.61	3.40	....	17	10	16	5	SE	
Odebolt	Sac	1,356	...	61.5	-0.4	83	20, 22, 24	29	3	35	7.93	† 5.16	1.05		17	13	7	11	.....	
Ogden	Boone	1,088	....	60.0	-1.1	84	29	26	3	30	10.95	† 6.00	3.19	.	20	11	3	17	SE	
Olin (*a*)	Jones	760	....	62.0	....	87	22	27	1	38	5.55	.....	1.83	.	14	....		....	S	
Onawa	Monona	1,053		62.2	....	83	20, 22, 24	31	1, 3	33	14.76	.....	3.30		18	20	2	9	SE	
Perry (*a*)	Dallas	975	22	63.0	...	85	22	30	1, 3	35	11.41	.....	2.00	..	18		....	..	.....	
Rockwell City	Calhoun	..	....	61.4	....	83	16, 22	32	1, 3	35	11.09	..	1.67		17	12	12	7	.....	
Sac City	Sac	1,278	13	61.6	† .6	85	16	30	3	33	8.85	† 4.86	1.43		19	8	9	14	SE	
Scranton	Greene	1,172	5	61.4	...	83	16	31	3	32	12.06	.....	1.75	....	17		....	....	SE	
Sioux City	Woodbury	1,165	....	60.8	†2.4	81	17	34	1	28	11.78	† 8.11	2.83	....	16	4	11	16	NE	
Stuart	Guthrie	1,216	8	62.5	†1 0	83	9, 10	20	5	44	10.54	† 6.09	2.25	..	13	19	0	12	SW	
Tipton	Cedar	807	12	64.6	....	87	16	32	1	34	6.20	.....	1.85	....	13	10	13	8	S	
Toledo	Tama	856	15	61.1	-0.7	82	16	29	1, 3	32	8.78	† 5.07	2.00	...	21	11	13	7	SE	
Vinton*	Benton	810	7	62.4	†3.0	83	22	35	1	.....	5.30	† 1.89	1.40	..	11		....	....	SE	
Waterloo	Black Hawk	862	....	61.4	†1.4	84	17	20	1	29	7.85	† 4.11	2.52	...	20	16	1	14	SE	
Wilton Junct'n	Muscatine	683		63.8	†1.7	88	22	29	1	34	5.89	† 1.64	2 12	....	12	16	3	12	SW	
Whitten (*c*)	Hardin	1,036	....	62.0	....	82	26	27	1	32	10.44	... ..	2.10	..	18	10	6	15	SE	
West Branch	Cedar	718	...	....	....	...	.....	....	.....	.....	6.76	... ..	2.45	..	14	5	19	7	S, SW	
Waukee	Dallas	1,039	....	...	....	...	.....	....	.....		0 78	.....	2.90	....	19	7	7	17	S	
Average				61.9	†1.8	83.9		29.2		33.2	8.73	† 4.16	.....	...	16	10	10	11	SE	

CLIMATOLOGICAL DATA FOR MAY, 1903—CONTINUED.

SOUTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PREC., IN INCHES.				Number rainy days.	SKY.			Prevailing direction of wind.	DATES OF THUNDER-STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Afton	Union	1,212	7	63.6	†0.9	84	22	27	1	35	11.90	†7.56	2.20		16	2	18	11	SW	
Albia	Monroe	959		61.2		85	17, 23	30	1, 3	31	9.13	.....	2.52	...	17	11	6	14	SE	
Atlantic	Cass	1,164	11	62.0	†2.8	83	22	25	3	37	12.37	†8.23	2.57		20	2	12	17	SE, S	
Audubon (*k*)	Audubon	1,301	8	64 2	†4.3	83	21	.....	.....		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Allerton	Wayne	.....	....	62.6	.....	83	22	28	1, 3	34	8.20	.....	1.08	...	19	13	9	9	S	
Bedford	Taylor	....	....	61.8		81	22	24	1, 3	40	9 83	----	1.88	..	15	7	6	18	SE	
Bonaparte	Van Buren	.....	10	63 6	†1.1	84	16, 22	28	1	31	4.30	† .14	.80	....	12	...	.....		.....	.....
Burlington	Des Moines	544	....	65.2	.....	85	16	31	1	28	4.83	.....	1.13	....	13	10	9	12	SW	
Centerville	Appanoose	1,013	7	...		.....	....	.....	... .		.....	.....	.....	.....	...	...	...	...	.....	.....
Chariton*	Lucas	1,042	7	61.4	-0.9	83	3	28	1	33	7.75	†3.67	1.29	....	15	9	15	7	S	
Clarinda	Page	1,069	12	62.9	† .6	84	16, 22	27	1	34	9 97	†5 39	2.00	..	15	10	12	9	S	
College Springs	Page		10	62.8	†1.4	82	22, 23	28	1	33	9. 0	†4.43	1.40		16	11	14	6	SE	
Columbus Jct.	Louisa	595	..	64.2		87	16	31	1	34	5 33	...	1.58	....	13	14	7	10	SW	
Corning	Adams	1,127	10	61.5	†0.9	81	22	30	1	29	10.68	†6.06	2.00		14	4	21	6	SE	
Corydon	Wayne	992	9	61.8	†0.3	82	22	27	1, 3	36	7.70	†3.83	1.20		17	10	15	6	SE	
Council Bluffs	Pot'wat'mie	990	5	58.2	-4.5	86	20, 24	29	3	37	10.01	†5.51	1.37		13	8	17	6	NW	
Cumberland	Cass	.....	....		...	.....	.....		...		8.27	.... .	1.80		12	20	3	8	SW	
Earlham	Madison	....	....	61.6	...	81	22	24	3	38	11 60	.....	2.50	...	16	6	8	17	S	
Fort Madison	Lee	516	51		.....	...	.....	...	.....	.....	2.88	-1.63	.86	....	9	4	11	16	SW	
Greenfield	Adair	.....	11	60.7	†0.5	80	22, 25	28	3	34	13.50	†9.10	3.82	....	17	11	10	10	SE	
Hopeville	Clarke	.....	11	62.2	†1.8	83	22	29	1, 3	37	8.59	†3.82	1.25	....	18	2	19	10	S	
Indianola	Warren	969	11	63.1	†2.5	83	22	30	1	32	8.39	†3.76	1 84		17	11	11	9	SE	
Keokuk	Lee	619	31	64 9	†2.3	85	22	32	1	26	3 56	- .51	1.40		10	9	15	7	SE	
Keosauqua	Van Buren	664	10	64.2	†1.4	87	22	29	1	28	4.84	+ .28	.90	..	16	5	9	17	...	
Lacona	Warren	.....	...	.....		...	....	.....	.....	.....	11.35	....	2.34	..	19	4	17	10	.....	.....
Lenox	Taylor	1,250	7	61.9	†0.2	80	22	30	1	34	10.58	†5.87	2.97	..	16	12	7	12	S	
Leon	Decatur	1,120	....	63.3	.....	84	22	29	1	40	7.25	...	1.05	..	19	16	5	10	S	
Mt Ayr	Ringgold	1,236	8	61.7	-0.4	83	22	27	1	34	8 90	†1.47	1.94		22	4	10	17	SE	
Omaha, Neb	Douglas	1,113	32	62.9	†1.2	84	20	35	1	26	8.32	†3.95	1.43	....	19	8	15	8	S	
Osceola	Clarke	1,130	6	61 6	-0.4	83	23	28	1	30	7.16	†2.32	1.50		15	12	5	14	SE	
Oskaloosa	Mahaska	843	18	62.8	†2.5	80	22	30	1	31	9.68	†6.12	3 43	..	17	10	...	21	.....	.....
Ottumwa	Wapello	649	8	63.2	-0.2	87	17	36	1	31	7.90	†2.97	1.66	.....	14	6	7	18	SE	
Pacific Junction	Mills	960	....	62 8		83	22, 24	28	3	36	2.43	.....	2.18	....	18	3	17	11	S	
Pella	Marion	877	....	62.8		83	21, 22, 28	29	1	31	10. 16	.....	2.20	...	19	5	17	9	SE	
Red Oak	Montgom'ry	1,033	....	62.9	.....	79	16, 22, 24	33	1, 3	25	11.74	.....	2.43	....	17	2	23	6	SE	
St. Charles	Madison	1,070	....	62.4	.....	87	20	32	1	33	10 28	.....	1.84		21	10	13	8	SW	
Sigourney	Keokuk	787	6	64. 1	†0.3	80	15, 16, 20, 22, 28	29	1	41	8.69	†4.75	1.85		16	15	10	6	SE	
Stockport	Van Buren	....	....	...	.....	.....	.....	.....	... ...	.....	5.31	.....	.80	....	20	8	4	19	S, SW	
Thurman	Fremont	..	....	62.7		83	22	29	3	35	15.45	.....	4.80	....	18	7	9	15	NE	
Villisca (*g*)	Montgom'ry	1,058	8	59.5	-2.6	82	19	27	1, 3	.....	13.66	†9.63	2.98	....	17	3	21	7	SW	
Wapello	Louisa	588	....	64.0	.....	85	20	33	3	27	5.59	.. .	1.08	....	12	9	19	3	SE	
Washington	Washington	769	20	62.0	†1.0	86	16	27	1	34	5 12	†1.56	1.25	...	14	....	....		SE	
Winterset	Madison	1,129	11	64.0	†3.0	85	9	27	3	41	9.20	†4.68	1 77	....	13	11	14	6	S	
Woodburn	Clarke	961	....			...	.....	.....	.....	.....	7.23	....	1.55	..	15	9	10	12	SE	
Average	.....	.....	....	62 6	†1.0	83.5	.....	29.0	.....	33.4	8 80	†4.20	.....	....	16	8	12	11	SE	
Av. for the state	.....	.....	....	61.6	†1 4	83.3	.....	29.6		33.8	8 55	†4.20	.....		16	9	12	10	SE	

*Means determined from 7 A. M., 2 P M, and 9 P. M. observations, and maximum and minimum are taken from eye readings. ‡Received too late to be computed with means. *a*, One day missing; *b*, two days, etc. §Not supplied with self registering instruments. † Above normal.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR MAY, 1903.

STATIONS.		DATE.																															Mean.
		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	Max.	60	54	65	75	64	70	72	75	80	80	77	76	77	76	82	83	81	79	78	80	79	84	81	83	83	78	77	83	72	61	47	74.8
	Min.	27	41	30	43	54	43	46	45	54	56	55	67	57	54	54	55	58	68	57	50	59	60	60	59	59	57	53	56	61	45	41	52.4
Albia.....	Max.	47	60	52	63	73	64	72	70	76	80	79	76	76	79	75	80	85	79	79	78	82	73	85	85	77	81	80	75	83	70	50	69.9
	Min.	30	33	30	32	45	46	46	45	48	58	58	58	58	54	56	56	59	64	61	54	59	62	63	61	60	62	57	58	61	49	43	52.5
Algona	Max.	56	54	63	71	70	64	73	74	78	71	72	62	66	72	80	83	74	76	75	80	83	83	82	75	78	77	74	78	70	65	60	72.2
	Min.	31	37	32	41	48	41	44	44	55	53	50	47	46	55	55	57	59	61	56	50	58	57	61	52	59	61	57	55	59	47	44	50.7
Allerton...	Max.	57	53	62	72	63	70	70	75	79	77	76	72	71	74	79	81	77	76	76	79	76	83	79	78	79	77	74	81	72	64	48	72.6
	Min..	28	40	28	42	50	47	46	46	54	55	56	57	57	55	54	57	59	63	58	53	60	63	62	60	59	60	56	54	60	45	42	52.5
Alta	Max.	55	49	60	69	69	65	69	72	76	66	65	58	66	71	76	79	75	74	71	77	79	79	69	76	74	73	72	76	65	58	56	69.0
	Min..	31	35	31	39	47	41	40	46	52	52	49	46	46	56	54	59	58	59	56	50	59	58	55	52	60	59	55	54	58	47	42	49.9
Amana ...	Max..	57	50	61	70	69	70	67	72	78	78	75	78	76	76	78	84	79	77	77	85	72	84	80	75	80	81	72	82	70	61	50	73.0
	Min..	29	42	32	42	52	42	44	44	48	55	57	59	58	56	49	50	58	63	62	52	63	62	65	58	63	62	58	57	60	46	45	52.7
Ames.....	Max.	59	51	64	74	62	69	70	72	78	78	73	74	68	76	78	81	75	81	71	76	75	83	77	79	82	75	74	82	75	61	51	72.3
	Min..	29	41	39	44	50	42	45	44	53	55	55	58	56	55	53	55	58	64	57	50	58	59	63	55	60	59	57	57	60	44	46	52.3
Atlantic ...	Max..	58	53	62	71	63	68	70	74	79	76	69	72	69	74	80	81	78	78	75	77	79	83	78	80	80	75	74	78	71	64	64	72.7
	Min..	30	41	25	42	49	40	42	45	47	56	56	57	55	48	48	56	60	62	56	50	59	59	61	56	59	60	58	57	61	47	45	51.2
Audubon ..	Max..	..	..	..	..	..	..	..	..	..	..	..	68	64	74	75	80	79	79	75	79	83	80	80	79	78	75	70	79	75	59	50	74.0
	Min..	..	..	..	..	..	..	..	..	..	..	..	55	50	56	52	65	60	59	56	49	66	57	55	54	54	55	50	53	56	44	52	54.4
Baxter.. ..	Max.	60	53	64	70	65	70	75	73	76	76	74	76	78	75	78	80	75	76	76	78	73	83	80	78	78	79	74	80	75	65	53	75.1
	Min..	27	42	28	43	49	43	43	48	53	55	57	57	54	54	52	55	58	62	56	49	59	59	60	55	60	58	54	54	58	43	44	51.3
Bedford. ..	Max.	57	54	64	74	64	68	71	74	78	75	69	71	75	72	79	78	78	76	75	72	71	81	76	79	79	74	75	76	71	64	48	71.5
	Min .	24	42	24	45	50	43	48	50	54	56	57	58	57	52	52	57	62	64	55	50	60	62	59	59	59	59	55	55	61	46	42	52.2
Belle Plain	Max..	57	50	62	70	73	70	66	72	77	80	77	80	78	75	78	83	82	77	75	83	66	83	80	77	72	78	73	80	70	49	49	72.3
	Min..	30	40	30	42	49	43	54	43	51	59	60	58	57	54	53	55	60	64	62	53	60	61	64	58	61	60	57	57	61	44	44	53.4
Bonaparte.	Max..	58	54	62	71	63	70	69	73	82	77	76	76	76	76	78	84	80	79	80	83	74	84	82	74	78	80	75	83	73	67	49	73.7
	Min..	28	41	31	42	49	49	45	44	51	57	59	59	58	53	55	56	60	64	64	54	63	62	64	62	62	63	58	56	60	49	43	53.6
Britt.....	Max .	59	50	68	69	75	53	81	74	78	74	76	62	67	77	80	80	77	81	78	80	78	82	76	78	80	78	72	79	71	69	56	73.2
	Min..	27	35	28	38	45	41	41	40	52	54	54	54	50	56	53	57	58	59	53	50	56	58	60	53	58	61	58	54	58	46	45	50.1
Burlington.	Max..	58	57	62	70	65	72	71	75	81	79	78	77	75	77	79	85	81	79	80	83	74	84	80	76	76	82	74	82	73	66	51	74.3
	Min.	31	42	45	45	51	51	45	46	53	59	63	65	59	62	65	56	63	66	65	58	62	62	66	60	62	63	59	59	61	51	44	56.1
Carroll	Max.	58	50	62	71	60	65	70	73	80	74	68	65	76	74	80	83	78	77	75	79	80	85	70	81	80	75	76	77	63	54	52	71.5
	Min..	31	41	29	41	51	42	40	42	52	53	54	55	49	52	48	51	53	60	50	53	56	51	50	43	59	60	59	54	60	31	42	48.1
Cedar Rap.	Max..	47	58	52	62	72	72	70	67	72	78	81	80	80	74	74	79	87	81	77	79	86	74	86	79	75	80	79	72	81	70	52	73.4
	Min..	33	43	33	41	53	45	44	43	52	56	60	62	60	55	53	54	62	64	65	61	64	65	71	60	63	63	60	59	60	46	45	54.8
Chariton ..	Max..	50	48	63	72	61	69	70	74	79	77	74	75	76	74	78	81	78	77	77	79	75	83	83	79	79	78	73	80	76	64	46	71.1
	Min..	28	45	30	41	47	44	41	44	52	55	55	57	57	56	54	55	55	62	57	52	60	62	61	59	60	62	55	52	60	45	42	51.8
Charles Cy.	Max..	43	56	54	61	69	66	63	66	71	69	75	75	79	65	71	77	78	82	77	75	82	77	83	79	76	78	77	66	76	69	55	70.6
	Min.	33	33	31	34	45	45	40	42	42	54	55	55	55	55	51	53	53	60	63	50	57	62	63	51	59	62	56	55	57	46	45	50.4
Chester ...	Max..	63	47	59	66	71	63	65	69	69	71	74	79	60	73	76	81	77	72	73	77	77	79	77	75	77	73	67	76	70	65	57	70.3
	Min..	36	38	27	43	42	40	35	37	50	53	53	56	58	53	46	52	57	59	59	46	54	59	60	48	55	57	57	51	55	43	42	48.8
Clarinda...	Max..	60	48	67	76	64	71	73	76	82	80	70	74	78	75	82	84	81	80	80	78	80	84	79	83	82	73	78	75	72	62	49	74.0
	Min..	27	39	29	42	51	45	48	50	51	55	54	57	56	52	52	56	61	68	54	48	60	60	58	59	58	57	55	55	60	47	43	51.8
Clear Lake	Max..	59	50	62	75	71	74	79	80	80	72	74	74	68	85	89	..	80	82	79	88	71	91	82	87	89	76	75	83	73	65	58	75.7
	Min..	32	37	29	41	44	40	38	39	51	52	50	55	49	54	49	53	56	61	58	47	55	56	60	49	57	60	56	53	56	45	42	49.5
Clinton....	Max.	62	59	62	70	76	72	70	75	85	85	84	86	78	78	79	90	87	83	82	91	76	88	84	79	78	85	75	83	76	59	52	77.1
	Min	28	38	33	43	48	52	41	38	43	57	58	59	58	53	45	51	57	65	57	49	58	63	59	58	59	64	58	54	56	47	46	51.4
College Spr	Max .	59	49	65	73	67	68	71	77	79	79	70	73	73	73	80	80	79	77	74	77	78	82	82	80	80	74	76	80	72	62	47	72.8
	Min .	28	40	32	42	50	45	48	52	55	57	57	57	57	54	56	59	62	63	54	60	55	61	62	58	58	57	55	55	58	45	42	52.7
Colum. Jct.	Max .	60	54	63	72	67	73	69	72	75	80	78	80	78	80	87	87	82	81	83	86	75	87	82	74	80	82	73	76	76	58	51	74.9
	Min .	31	38	33	44	50	49	44	52	43	56	59	60	53	53	54	58	60	61	65	57	61	61	64	62	62	68	58	62	48	43	44	53.4
Corning ...	Max.	57	47	67	72	58	67	69	72	79	76	70	71	71	71	77	80	77	76	75	76	75	81	75	79	79	73	77	78	67	62	48	70.7
	Min.	30	37	58	43	50	42	45	45	52	59	55	56	56	53	49	55	60	62	55	52	60	60	60	59	58	57	55	53	60	44	42	52.3
Co. Bluffs..	Max..	61	50	66	72	71	69	74	78	81	77	68	69	70	80	81	82	83	81	78	86	80	70	77	86	80	70	63	75	68	60	67	73.3
	Min..	30	30	29	41	48	48	48	47	43	43	42	41	41	40	39	39	38	36	35	32	52	52	51	51	49	60	45	60	47	36	44	43 1
Corydon...	Max..	52	52	63	72	62	69	69	75	78	77	73	72	75	73	77	81	71	76	76	78	75	82	79	78	77	76	74	79	72	64	48	71.9
	Min..	27	39	27	42	48	47	46	45	54	51	56	57	57	55	55	50	59	61	58	53	60	60	60	60	58	61	55	55	59	44	41	51.6
Davenport.	Max..	56	54	59	67	69	70	67	71	81	81	78	79	75	76	78	85	81	79	79	85	71	85	81	74	76	81	73	82	73	54	53	73.3
	Min.	36	42	35	47	53	53	45	42	49	60	63	63	61	54	53	58	63	68	64	59	63	63	66	62	62	64	60	59	54	46	45	55.2
Decorah....	Max.	57	49	62	69	67	68	68	73	68	73	77	78	65	73	77	82	79	74	74	79	75	82	87	78	75	74	69	76	71	58	57	71.4
	Min .	33	38	32	45	44	48	38	36	53	53	53	58	48	53	50	50	60	65	61	50	60	62	63	52	60	60	59	56	58	48	47	51.4
Delaware..	Max..	55	47	60	58	60	68	61	69	77	77	76	79	71	72	75	82	78	76	74	79	69	83	79	77	77	77	71	81	72	61	54	70.9
	Min..	28	40	29	32	41	43	38	40	46	54	55	58	58	49	46	50	46	62	62	50	58	60	67	66	65	61	56	56	54	42	43	50.2
Denison...	Max.	57	55	62	68	61	65	68	66	70	65	67	57	64	68	73	75	74	72	78	72	78	81	77	80	77	72	69	77	70	60	51	68.7
	Min.	31	37	29	41	48	44	38	44	51	55	55	53	49	49	49	59	60	62	57	52	57	56	60	52	56	55	56	55	58	46	44	49.0
Des Moines	Max..	57	49	62	70	63	68	69	73	77	75	72	75	75	74	76	81	77	77	76	80	73	83	77	79	78	74	75	81	67	56	50	71.6
	Min..	32	41	31	46	52	44	49	46	58	57	60	59	60	56	58	59	61	65	59	54	62	60	64	60	61	58	56	60	56	44	54	53.9
De Soto....	Max..	57	50	61	71	63	65	67	70	74	76	72	72	74	71	76	79	76	76	73	76	75	82	77	80	80	74	73	79	70	60	50	70.9
	Min.	31	42	33	45	52	44	48	47	55	58	60	60	59	57	54	57	61	65	60	52	63	61	64	59	63	60	58	59	60	46	45	54.1
Dows	Max..	55	51	60	68	63	64	64	70	75	73	71	75	67	71	76	80	73	74	73	76	74	80	76	76	77	74	71	77	76	64	53	70.1
	Min..	29	38	29	42	46	44	42	43	53	55	53	57	53	54	54	56	58	61	56	50	55	59	61	54	59	58	57	50	59	45	44	50.7
Dubuque...	Max .	55	49	59	67	69	71	66	70	78	79	76	80	68	74	76	83	80	76	76	82	71	83	79	76	77	79	71	78	70	56	57	72.0
	Min .	33	41	35	46	51	45	43	42	50	48	61	64	58	52	50	51	62	66	64	56	65	61	64	58	59	61	58	56	56	47	46	53.5
Earlham...	Max	57	50	62	70	61	67	68	71	77	75	71	74	73	73	74	73	75	71	77	76	75	81	77	79	78	73	79	79	77	70	48	74.2
	Min..	29	40	24	42	48	39	41	40	51	42	41	55	54	52	47	57	62	55	47	50	57	58	59	53	58	57	54	55	58	42	42	49.0
Elkader....	Max .	55	46	60	68	68	70	68	74	73	81	75	83	72	80	80	88	75	76	78	82	73	84	80	80	78	78	72	83	70	62	57	73.2
	Min .	30	42	29	44	43	49	42	36	46	47	58	59	59	54	46	46	56	65	64	50	57	60	61	54	61	60	60	54	54	47	47	51.0
Estherville	Max.	41	51	45	53	61	60	58	60	63	60	48	56	50	58	66	70	72	72	70	64	73	77	86	70	84	67	66	71	75	66	58	63.6
	Min.	33	35	29	40	47	36	34	42	53	51	45	43	44	54	49	57	57	60	55	45	55	57	43	36	42	60	55	50	53	50	42	46.8
Fayette ...	Max.	56	46	60	67	62	65	66	70	68	77	77	80	72	74	77	82	78	76	73	79	72	88	77	77	78	75	70	78	69	60	58	71.2
	Min .	29	38	28	42	45	45	38	38	48	46	54	57	56	51	45	45	56	66	43	47	56	59	60	51	58	58	58	54	54	48	40	48.8
Forest C'ty	Max.	39	50	42	53	56	56	55	66	74	73	70	74	64	66	73	78	80	78	74	72	82	80	82	79	78	76	77	77	76	71	57	68.7
	Min .	30	42	31	40	47	43	41	43	53	54	50	57	49	55	53	52	58	62	58	52	56	58	62	51	52	61	57	54	58	41	46	50.5
Ft. Dodge.	Max..	54	54	54	63	65	63	64	68	72	72	70	62	68	72	75	80	76	73	72	76	79	82	79	78	77	73	76	70	65	58	69.7
	Min .	31	38	40	43	45	42	38	43	54	54	54	55	49	54	52	56	55	62	56	54	53	56	61	50	56	58	57	54	52	47	37	50.2
Galva.....	Max..	57	62	61	69	..	72	69	73	77	70	69	62	70	72	77	79	73	76	71	79	80	79	75	79	75	77	74	78	71	70	57	71.8
	Min..	30	27	29	38	..	40	37	46	50	53	50	48	47	54	49	56	56	57	54	45	66	56	54	49	59	56	55	50	59	40	40	48.5
G. Meadow	Max..	55	55	60	66	62	66	66	72	66	78	75	80	73	73	75	82	78	75	75	79	73	82	78	78	76	75	75	79	69	59	55	71.3
	Min.	32	38	30	43	48	46	39	38	48	54	56	58	56	50	47	51	57	62	62	52	57	57	60	54	59	60	57	54	55	45	45	50.6
Greene.....	Max..	58	57	61	70	65	64	68	74	72	76	75	81	68	77	80	84	75	77	74	80	80	84	79	80	79	76	71	80	71	63	54	72.6
	Min..	30	40	30	44	45	45	39	39	50	55	54	56	57	55	50	53	58	62	71	45	57	59	60	51	57	56	57	55	58	45	44	50.9
Greenfield.	Max.	55	50	62	72	65	67	69	73	76	75	72	75	71	72	77	79	77	76	73	77	79	80	77	79	80	75	70	79	70	60	47	71.2
	Min..	29	35	28	40	41	43	43	44	53	54	55	55	54	55	54	56	57	60	56	53	59	59	57	59	56	51	50	56	58	43	42	50.2
Grinnell ...	Max..	55	52	58	68	65	67	66	70	74	76	73	75	75	73	76	80	75	79	75	79	75	81	77	76	77	75	68	79	75	60	49	71.1
	Min .	30	43	32	32	52	41	41	43	53	53	59	59	57	55	55	58	60	54	60	54	66	60	60	58	62	61	57	57	60	45	44	52.3
Grundy C'r	Max..	56	50	62	68	66	67	61	70	71	77	74	77	74	72	78	81	74	76	73	76	71	82	75	76	78	77	71	79	69	61	50	70.8
	Min..	31	41	29	42	47	39	42	42	50	54	56	57	56	53	52	54	58	63	61	51	53	59	61	55	62	60	57	55	59	43	44	51.2
Guthrie Cr	Max..	63	55	62	72	67	68	71	71	81	77	72	74	70	73	79	81	78	76	76	76	78	84	78	81	79	76	78	79	78	62	50	73.1
	Min..	32	41	29	47	50	43	46	44	44	56	56	58	50	53	50	53	60	62	57	50	60	60	62	54	59	57	58	56	60	45	45	51.8
Hampton..	Max..	57	50	62	72	64	70	70	73	77	75	74	80	69	78	81	83	73	77	75	80	79	83	76	78	79	76	71	80	71	50	54	72.5
	Min..	31	41	31	43	48	44	41	41	54	55	54	58	56	56	51	55	57	63	58	52	58	60	60	53	60	51	59	56	59	47	45	51.5
Hanlonto'n	Max.	55	50	64	80	70	60	63	70	72	70	70	67	63	75	76	80	73	73	77	75	77	80	73	75	75	75	76	78	67	63	56	70.3
	Min..	30	38	39	40	46	41	39	37	48	54	50	55	49	55	50	52	56	63	59	48	56	59	64	50	67	60	56	55	58	45	45	50.5
Harlan.....	Max..	58	52	62	71	69	66	72	75	79	77	71	67	68	74	81	82	80	79	74	81	81	83	76	82	81	76	76	83	70	61	51	72.8
	Min..	26	38	27	38	49	44	44	47	49	54	55	56	51	50	50	50	59	61	56	46	57	59	59	54	58	55	56	50	58	45	42	49.8
Hopeville..	Max .	58	50	66	72	61	68	69	75	80	75	70	73	75	73	78	81	77	76	72	78	77	83	81	80	81	75	74	80	69	61	48	72.1
	Min..	29	42	29	42	50	42	46	47	53	57	58	58	58	53	55	56	60	64	56	52	61	61	61	60	59	57	53	56	61	45	42	52.4
Humboldt.	Max .	58	54	62	70	69	65	69	74	77	72	72	65	68	64	77	82	76	76	74	80	78	83	89	79	76	76	73	78	74	64	55	71.9
	Min.	32	40	30	42	47	44	39	44	57	56	54	54	50	56	53	56	60	64	54	52	58	59	61	53	61	60	59	56	60	48	45	51.7
Ida Grove..	Max .	58	56	63	70	72	67	69	74	80	72	66	62	69	72	79	81	78	78	74	80	79	81	77	80	76	76	74	78	70	61	56	71.9
	Min..	31	38	31	31	46	43	38	47	52	55	53	51	50	53	51	60	61	63	55	51	59	58	61	54	52	60	52	55	61	50	48	50.6
In'pen'nce.	Max .	54	49	58	65	66	66	65	69	71	76	74	77	74	73	74	80	76	75	73	76	70	81	75	76	78	77	75	78	70	63	54	70.6
	Min..	28	40	31	43	47	43	39	40	49	55	56	57	57	49	49	56	57	62	59	55	56

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR MAY, 1903—CONTINUED.

STATIONS.		DATE.																													Mean.
		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	
Keokuk	Max.	56	61	60	71	62	69	69	74	80	77	76	75	73	76	79	83	81	78	80	82	77	85	81	72	77	83	76	81	70	67	51	73.6
	Min.	32	41	37	48	55	52	47	48	54	58	61	61	59	53	56	59	63	66	64	59	62	66	64	64	60	70	61	62	62	51	46	56.2
Keosauqua	Max.	55	59	55	64	73	65	71	71	75	82	79	77	77	71	76	79	84	80	79	82	85	76	87	84	76	81	81	77	86	72	54	74.6
	Min.	29	41	31	45	51	49	48	46	48	56	59	60	57	54	54	51	61	65	63	55	61	63	64	62	63	62	58	57	61	53	44	53 9
Larchwood	Max.	55	54	67	86	82	65	71	73	70	65	62	61	64	72	78	79	79	80	74	81	79	78	76	70	76	71	71	76	69	64	61	71 3
	Min.	31	36	28	37	40	36	40	46	54	45	43	42	45	51	54	58	60	60	52	50	56	57	52	53	56	54	52	50	58	50	40	47.9
Lansing	Max.	56	55	60	68	66	70	66	72	71	70	79	82	80	72	80	85	83	78	76	83	78	84	83	78	78	76	74	78	71	69	62	73.3
	Min.	27	45	30	45	40	45	38	44	42	54	56	59	58	38	50	45	56	64	65	48	55	58	62	52	61	62	60	56	52	46	42	50.3
Larrabee	Max	60	57	65	72	66	66	69	76	78	67	57	58	67	78	78	80	82	78	69	84	82	84	75	..	..	..	..	81	70	62	60	71.1
	Min	30	35	30	39	45	37	39	46	52	50	45	45	46	53	55	58	58	60	53	48	58	58	58	..	..	..	..	53	52	50	48	48.2
LeMars	Max.	57	61	65	70	71	68	71	73	75	62	53	57	68	75	79	80	80	79	74	78	79	80	75	70	73	75	76	77	68	63	56	70 6
	Min.	31	31	31	39	42	39	35	47	54	46	42	44	43	42	54	59	60	58	54	42	59	58	55	52	53	57	54	53	58	48	42	47.8
Lenox	Max.	58	52	63	77	61	67	69	73	79	77	70	72	72	71	77	79	78	75	74	74	74	80	75	78	78	76	73	76	70	63	48	71.3
	Min.	30	40	39	43	52	43	45	47	54	56	58	57	57	53	55	57	60	62	56	53	59	60	60	60	59	58	55	58	60	43	42	52.6
Leon	Max.	56	56	70	72	68	68	69	75	77	77	74	73	77	74	79	82	81	77	77	76	80	84	82	81	81	81	75	79	75	64	48	73.8
	Min.	29	41	40	32	50	45	48	47	54	55	57	57	57	51	55	56	60	64	57	53	61	65	61	60	59	61	56	57	60	46	42	52.8
Logan	Max.	60	54	65	71	70	67	70	76	82	78	75	67	70	77	81	82	80	75	70	72	74	80	84	79	78	78	76	77	68	70	69	73.4
	Min.	29	32	40	42	49	46	57	50	51	55	52	53	54	49	56	58	56	50	56	54	58	58	55	56	50	50	54	55	50	50	44	50.6
Maquoketa	Max.	46	57	50	61	67	70	72	68	72	81	81	79	81	71	77	78	86	80	77	78	84	70	84	81	77	77	82	74	82	72	51	73.1
	Min.	27	34	32	42	45	42	35	35	42	50	58	61	57	51	43	45	51	62	63	45	54	61	63	54	60	61	59	56	82	73	51	73.3
Marsh'lt'n	Max	47	60	47	64	72	70	69	70	73	76	80	79	79	79	77	80	84	77	78	78	78	72	85	78	79	81	79	74	82	73	51	73.3
	Min.	29	35	29	39	45	41	45	44	47	52	58	58	57	55	50	54	57	64	60	51	55	59	62	55	61	60	55	56	59	44	41	51.7
Mason City	Max.	56	50	62	70	66	65	70	72	75	70	72	73	64	75	80	82	75	76	75	76	61	52	58	60	63	55	58	61	59	57	60	71.1
	Min.	34	40	32	42	48	45	42	42	59	52	52	57	52	55	54	54	59	62	61	52	58	60	63	55	58	61	59	57	60	48	46	52.2
Monticello	Max.	72	70	68	72	74	70	68	75	78	79	76	80	76	78	80	79	76	75	77	79	82	85	80	85	82	78	82	80	76	62	58	75.9
	Min.	33	42	29	34	32	35	37	39	42	48	50	58	43	55	52	50	48	52	56	50	50	68	62	69	62	60	62	65	42	39	42	48.6
Mt. Ayr	Max.	58	49	63	71	60	69	70	73	78	76	70	71	76	74	79	81	79	76	75	77	78	83	78	80	79	71	73	77	72	63	48	71.8
	Min.	27	40	29	42	49	43	47	48	55	54	57	56	57	54	55	55	59	62	55	51	59	64	59	59	57	57	52	55	59	44	41	51.6
Mt. Vernon	Max.	55	49	62	76	65	75	71	76	80	77	76	84	73	85	86	87	77	75	77	75	77	69	86	82	75	77	75	81	72	60	49	73.5
	Min.	29	40	31	40	46	42	40	39	49	54	55	59	57	54	51	49	59	61	55	54	62	61	61	59	60	61	56	55	57	44	44	51.1
NewH'pton	Max.	54	49	60	66	63	64	65	69	67	72	74	77	68	74	75	79	77	74	73	77	74	79	76	75	77	74	69	75	75	..	56	70.2
	Min.	30	38	29	..	43	41	39	39	49	49	49	55	56	56	48	52	56	64	59	50	56	59	59	52	57	58	56	54	..	44	43	49.5
Newton	Max.	57	51	61	70	65	69	69	73	75	77	74	76	76	67	77	81	74	77	76	79	69	82	76	78	77	72	70	77	70	61	49	71.1
	Min.	28	35	30	42	50	44	41	44	53	56	58	58	57	54	54	55	59	61	58	53	58	59	63	57	61	60	55	54	57	44	43	51.6
Northwood	Max.	56	49	62	72	71	67	65	70	72	71	74	73	67	76	76	79	74	74	72	76	76	80	75	75	75	74	74	69	70	63	57	70.5
	Min.	31	38	31	40	45	43	40	39	51	54	50	56	49	55	51	53	58	60	59	45	56	60	61	51	57	60	52	57	57	45	43	49.9
Odebolt	Max.	60	55	64	71	70	66	72	74	79	71	70	62	71	75	80	82	80	78	82	83	82	83	76	83	81	76	73	81	79	61	55	73.4
	Min.	31	32	29	41	44	43	39	40	51	54	52	51	49	56	51	52	60	65	62	49	49	56	56	50	60	59	55	54	60	47	42	49.6
Ogden	Max.	46	55	46	64	65	63	62	70	67	68	69	66	62	68	75	78	82	79	78	79	81	77	83	76	77	80	80	79	75	61	57	70.2
	Min.	28	40	26	41	48	40	42	43	52	53	53	55	54	54	52	54	56	60	56	49	56	56	60	53	56	57	56	54	57	45	42	49.9
Olin	Max.	56	50	..	67	70	70	65	70	80	77	80	80	72	73	74	62	82	76	75	84	75	87	78	76	77	83	72	80	70	62	52	72.5
	Min.	27	37	..	41	47	42	42	42	42	53	57	60	64	68	76	79	80	81	79	76	84	76	83	74	81	76	70	76	74	68	60	71.6
Omaha, N.	Max.	59	52	62	70	68	67	70	73	78	74	66	64	68	76	79	80	81	79	76	84	76	83	74	81	76	70	76	74	68	60	51	71.5
	Min.	35	41	36	45	54	50	50	54	57	57	52	51	55	53	60	62	62	65	55	58	61	61	60	60	60	58	58	62	60	48	44	54.3
Onawa	Max.	59	56	64	71	73	70	70	74	80	66	63	62	74	74	80	80	80	80	74	83	78	83	78	83	77	74	78	77	70	62	56	72.5
	Min.	31	38	31	41	46	44	39	51	52	55	53	48	50	52	54	59	62	64	54	54	61	59	60	57	61	59	56	59	60	50	45	51.8
Osage	Max.	50	49	61	66	70	64	66	70	73	72	74	76	65	74	78	81	74	73	73	78	77	81	75	78	76	75	69	75	69	62	56	70.3
	Min.	31	38	30	42	45	43	39	39	51	54	53	57	52	55	49	52	58	62	60	49	56	60	60	51	56	59	57	52	52	55	44	50 0
Osceola	Max.	47	64	47	65	72	60	69	68	75	76	76	65	74	75	73	77	81	77	76	76	79	76	83	78	79	81	77	80	73	50	50	71.1
	Min.	28	44	31	43	51	43	46	45	54	56	57	52	57	55	54	56	54	63	56	53	61	69	83	79	74	78	79	73	80	70	61	52.1
Oskaloosa	Max.	59	51	62	72	65	70	70	74	78	78	70	71	77	74	78	83	76	77	75	83	76	83	74	78	78	78	76	78	72	48	42	72.2
	Min.	30	42	31	45	49	43	45	45	50	54	53	57	60	55	55	57	61	64	62	55	62	61	64	61	62	61	57	59	61	45	45	53.3
Ottumwa	Max.	57	56	61	71	65	69	66	73	76	77	67	75	77	56	74	76	84	62	60	63	57	64	64	64	55	50	64	59	60	62	49	53.0
	Min.	36	43	37	48	53	49	48	46	54	59	52	41	56	54	45	56	62	60	63	57	64	64	64	55	50	64	59	60	62	49	44	53.4
Pacific Jct.	Max.	60	53	64	72	70	68	73	78	81	77	70	74	72	78	81	82	82	81	78	78	83	79	83	81	73	79	75	70	61	55	44	74.0
	Min.	29	41	28	38	51	46	47	50	49	56	55	52	56	51	51	57	61	63	54	50	59	59	60	59	58	59	54	58	60	46	43	51.6
Pella	Max.	58	50	63	73	66	68	70	75	82	78	75	77	79	73	78	82	77	78	77	83	70	83	79	76	81	78	75	83	70	59	49	73.4
	Min.	29	41	31	43	50	41	43	43	51	55	55	58	57	55	58	55	59	63	58	52	61	60	60	58	60	59	55	62	58	45	43	52.2
Perry	Max.	59	50	65	72	65	67	..	75	80	77	74	76	71	75	80	82	77	77	77	79	78	85	78	83	82	77	80	81	73	61	50	73.5
	Min.	30	41	30	44	51	43	..	45	54	56	57	53	57	56	54	55	58	62	59	50	60	59	61	57	60	58	58	56	60	45	46	52.5
Plover	Max.	58	56	63	70	70	64	69	70	80	73	74	63	66	74	81	83	82	76	73	80	80	82	77	73	78	77	73	80	70	60	58	72.0
	Min.	31	30	30	40	46	40	40	47	55	54	50	49	50	55	53	62	60	59	55	50	60	57	50	55	62	64	55	55	60	48	47	50.6
Primghar	Max.	56	52	63	70	68	64	71	73	74	60	59	73	66	73	68	78	76	77	72	78	78	78	72	72	72	72	71	74	68	61	59	69.0
	Min.	33	35	32	39	45	38	40	45	53	49	45	43	45	54	54	58	55	59	55	49	51	57	58	53	59	60	55	52	58	51	42	49.1
Red Oak	Max.	56	54	58	66	63	66	69	71	74	74	67	72	72	73	78	79	76	76	73	75	75	79	77	79	77	76	73	74	70	64	51	70.5
	Min.	33	43	33	43	55	49	50	54	54	60	59	59	58	55	56	61	64	65	58	56	62	63	63	61	61	62	58	59	63	48	46	55.2
Ridgeway	Max.	54	49	63	72	70	70	69	72	72	73	79	80	67	80	81	86	81	81	81	80	80	84	80	81	81	84	76	83	73	59	60	74.3
	Min.	30	36	30	43	46	42	43	46	52	54	54	58	56	51	50	55	59	62	62	52	58	59	60	54	58	60	60	55	56	44	43	51.2
Rockw'l Cy	Max.	53	53	64	70	71	65	56	71	78	75	74	66	66	75	78	83	76	75	75	80	78	83	78	80	80	78	75	80	70	65	53	71.8
	Min.	32	39	32	42	48	44	42	42	48	55	54	54	48	52	55	56	58	58	55	48	57	58	58	54	58	61	58	46	60	66	47	51.1
Ruthven	Max.	55	53	62	69	67	66	69	70	80	62	65	60	65	70	69	79	76	78	77	80	79	81	78	77	76	79	76	77	61	62	52	71.5
	Min.	33	36	32	40	48	39	41	44	53	56	58	58	57	54	54	55	59	61	58	53	58	59	63	57	61	60	55	54	57	44	43	51.6
Sac City	Max.	58	54	63	70	67	64	70	70	78	70	68	68	68	75	79	85	77	76	74	80	80	83	79	80	78	76	76	79	77	60	53	70.5
	Min.	31	37	30	41	47	43	41	44	50	54	52	50	49	55	53	57	57	62	53	50	58	57	60	52	60	59	56	56	60	47	42	50.4
St. Charles	Max.	57	48	63	72	60	68	68	74	79	77	73	74	75	72	78	81	77	76	77	87	74	83	77	79	79	73	73	68	77	61	49	71.9
	Min.	31	39	32	46	50	42	51	45	56	58	57	57	57	55	56	56	59	64	57	54	60	60	62	57	60	58	54	60	60	45	43	52 9
Scranton	Max.	58	51	63	63	68	69	67	70	80	75	73	70	68	75	80	83	76	76	75	80	81	81	79	82	81	71	76	80	70	60	50	72.0
	Min.	32	39	31	34	50	45	42	43	53	55	55	57	52	55	52	55	57	61	56	48	58	58	61	54	59	55	59	55	59	45	42	50.9
Sheldon	Max.	56	55	65	72	70	66	72	72	70	60	60	55	64	72	76	79	77	76	74	72	79	77	70	72	72	74	75	75	70	60	61	69.3
	Min.	30	35	33	38	45	36	36	43	..	48	40	43	45	50	52	58	55	58	53	50	55	54	56	52	57	57	55	51	58	51	40	47.8
Sibley	Max.	54	41	64	71	74	70	72	74	70	56	49	45	42	45	53	50	58	59	60	53	48	55	57	56	49	57	58	54	51	57	50	41	48.1
	Min.	33	33	29	35	43	37	37	44	52	49	45	42	45	53	50	58	59	60	53	48	55	57	56	49	57	58	54	51	57	50	41	48.
Sigourney	Max.	57	51	65	76	68	78	76	80	83	83	84	83	82	84	88	88	82	79	79	88	72	88	82	76	86	86	75	88	71	64	48	77.
	Min.	29	40	30	35	51	41	41	41	48	55	56	50	52	51	52	58	60	61	62	51	61	59	63	58	60	62	57	55	55	45	44	51.1
SiouxC'nt'r	Max.	54	52	64	70	69	65	71	74	71	58	49	54	62	71	76	78	80	78	72	77	78	78	73	72	71	71	73	74	69	61	58	68.5
	Min.	30	34	31	39	47	36	35	44	53	49	44	37	45	51	51	50	52	52	53	48	47	57	57	52	56	56	53	53	57	52	40	47.1
Sioux City	Max.	57	52	64	70	71	66	69	72	74	62	53	56	68	71	77	78	81	78	76	81	77	78	81	72	76	75	72	77	76	66	59	69.7
	Min.	34	37	36	43	52	43	42	53	52	51	47	45	48	54	59	62	63	65	54	57	58	58	57	57	58	56	55	58	59	50	44	51.8
Spirit L.	Max.	..	..	..	..	..	..	..	..	61	60	55	51	60	73	72	73	69	68	67	65	82	78	78	80	79	78	72	75	80	60	60	69.3
	Min.	..	..	..	..	..	..	..	..	46	45	45	43	45	55	56	55	50	51	50	52	55	65	60	55	57	54	56	56	55	48	44	52.1
Storm L.	Max.	54	51	60	66	68	63	61	68	72	67	66	56	65	70	74	76	75	73	71	76	76	78	77	75	74	71	72	75	72	61	49	68.4
	Min.	34	36	35	41	47	41	38	46	52	54	49	47	46	55	57	59	59	62	36	52	59	58	59	55	61	59	56	55	59	50	41	50.3
Stuart	Max.	58	53	64	72	65	66	68	70	88	88	84	83	81	75	80	82	78	78	75	75	71	83	79	72	75	78	82	80	75	61	50	73.8
	Min.	28	40	20	43	50	42	43	43	50	55	60	58	63	54	54	55	59	63	58	52	52	59	59	53	58	60	55	57	60	41	43	51.2
Thurman	Max.	59	54	64	71	67	68	70	75	79	76	67	72	72	73	78	79	76	76	73	75	75	79	77	79	77	76	73	74	70	64	51	70.5
	Min.	31	42	29	42	52	46	48	52	50	59	57	52	57	52	54	58	62	64	54	58	60	59	59	59	59	57	57	59	59	47	45	52.9
Tipton	Max.	57	50	63	70	68	75	71	76	79	80	80	83	79	81	81	87	81	77	80	86	75	84	83	77	79	79	72	82	72	61	51	74 8
	Min.	32	40	33	44	55	48	44	42	50	57	60	61	61	55	55	57	60	65	65	57	62	63	66	62	62	64	58	60	56	45	45	54.3
Toledo	Max.	57	53	61	68	68	69	69	73	76	78	75	78	77	73	77	82	75	75	74	79	70	81	76	77	77	78	71	80	70	60	50	70.8
	Min.	29	42	29	43	52	39	43	41	50	56	56	57	56	53	50	51	58	63	60	51	58	59	63	55	61	60	56	55	58	44	45	51.4
Villisca	Max.	62	48	65	75	63	69	71	72	80	75	73	74	73	75	80	81	81	81	82	..	..	..	..	..	..	..	..	76	74	72	61	71.4
	Min.	27	35	27	40	50	44	46	47	49	50	50	53	50	50	48	56	50	59	56	..	..	..	..	..	..	..	..	56	57	61	45	42	47.6
Wapello	Max.	56	51	55	72	65	73	72	73	78	76	76	77	78	78	80	81	78	77	84	85	80	79	78	72	72	73	78	72	76	70	68	72 9
	Min.	37	41	33	48	52	53	41	46	51	59	60	61	61	56	57	58	62	66	60	59	61	59	62	62	65	59	58	60	48	45	55.2
Washin't'n	Max.	57	51	61	71	65	71	69	74	81	80	80	78	77	78	79	80	78	79	79	68	84	80	74	78	82	74	73	78	71	63	50	73.5
	Min.	27	36	29	41	48	41	41	41	47	54	56	57	57	57	50	54	58	61	58	53	58	57	61	58	59	61	56	55	54	45	41	50.5
Waterloo	Max.	46	56	50	61	68	66	68	65	69	68	77	74	78	74	79	78	84	77	76	65	79	74	82	74	77	79	76	73	78	71	55	70 9
	Min.	30	42	39	45	48	42	41	41	51	55	57	58	57	52	50	51	59	62	63	49	59	60	62	54	63	60	58	58	58	45	44	52.0
Waverly	Max.	58	50	62	68	62	67	66	70	67	76	76	78	71	75	75	81	75	75	74	79	72	82	76	..	79	75	74	75	70	62	53	70.8
	Min.	30	41	39	45	41	44	41	43	50	53	56	58	57	54	51	54	60	62	62	51	58	60	62	..	55	61	59	56	54	47	45	51.3
West Bend	Max.	58	52	62	69	71	65	62	72	76	72	72	58	67	72	78	80	76	75	73	82	79	84	75	78	77	77	73	78	72	63	56	71.1
	Min.	33	38	31	40	48	41	42	43	55	54	50	50	47	54	56	55	58	62	58	49	58	61	54	62	61	57	54	60	50	43	51.	0
Whitten	Max.	57	53	62	64	70	65	65	73	71	75	75	77	74	75	78	81	77	78	81	77	78	77

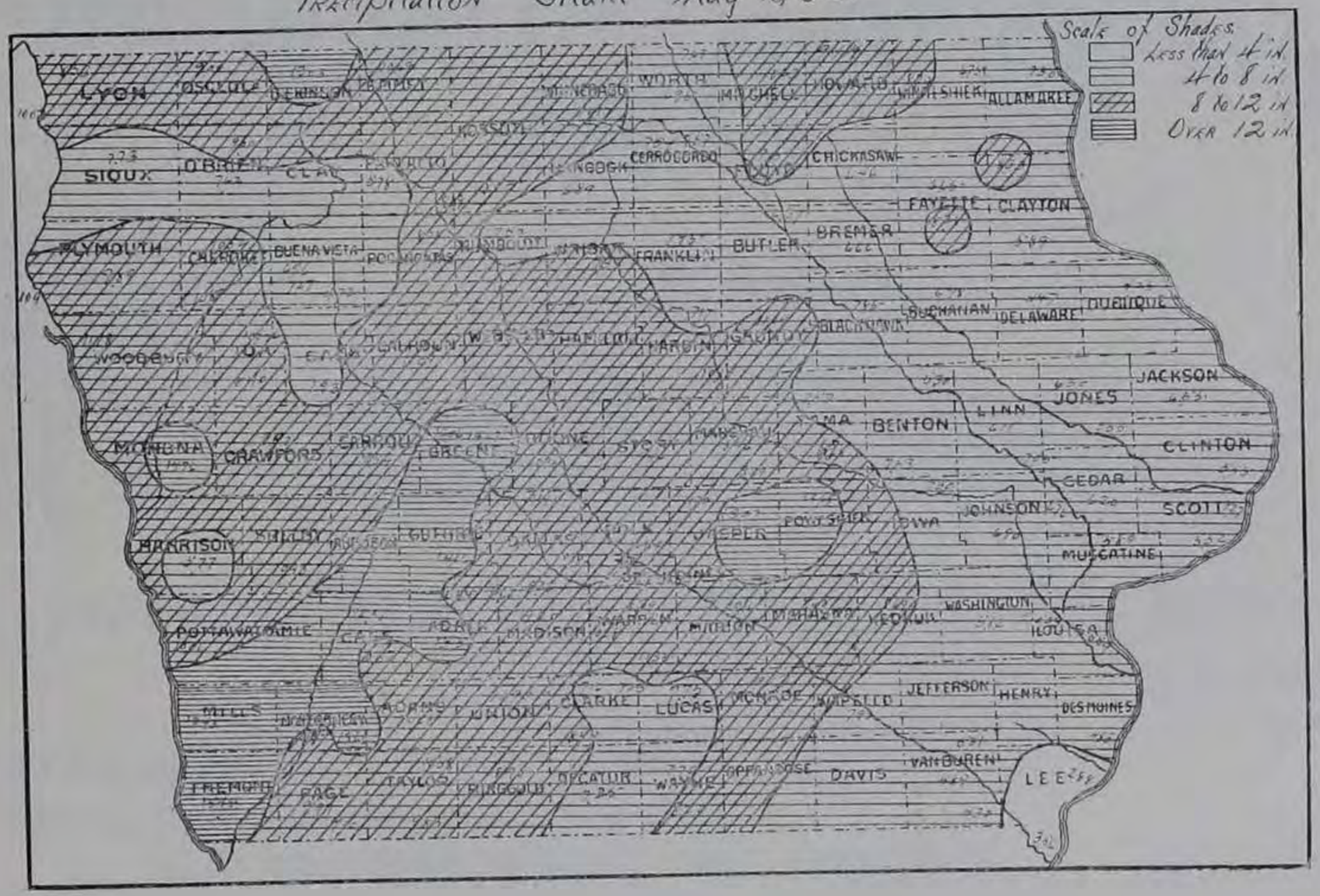
DAILY AND MONTHLY PRECIPITATION FOR MAY, 1903.

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	....	.12	....	....	.04	T	....	....	.14	....	T	.50	.30	....	....	....	.38		T	.38	1.14	1.25	.44	....	.60	1.47	1.26	....	2.20	1.18	.50	11.90
Albia		...	.15	....	....	.05	....	....	....	.42	....	.13	.05	.16	....	....		.35	.33	....	.33	.91	03	.20	.09	.36	1.63	....	....	2.52	1.42	9 13
Algona	....	.45	....	....		..	....	....		.80	....	1.00	.15	....		....	T		.70	20		.80	...	3.20	10	.25	.40		....	....		8.05
Allerton	....	.16	....	....	T	....	....	....	.05		.32	.45	.32	.04	....	....	.38	T	.03	.06	.90	.95	.05	.43	.47	.86	.46		.56	.63	1.08	8.20
Alta	....	.23	T	....	....	....	....	T	.25	1.14	.83	.19	.05	..	....	....	.13		.66	....		1.47	.32	....	.35	.46	.01	.01	.57	....	.28	6.96
Alta (near)	..	.25	...	....	....		..	.02	.31	1.33	.71	.08	.14	....	....	....	.15	.50	...	...	1.32	.3	...	.3.	.40	.29	.02	...	.93	....	.2.	7 27
Amana	....	.15	...	....	....	....	....	....	.19	.02	.08		.07		...	....	.09	.12	.04	T	45	.46	.01	..	20	1.58	.78	.18	.30	2.16	42	7.30
Ames	..	.15	.02	....	.23	T	..	....	.52	.15	.07	.22	.65	.01	....	....	.49	T	.04	.08	....	1.04	23	....	.36	2.18	.74	.02	.47	1.42	.37	9.46
Atlantic	..	.30	.08	....	.06	....	..	....	.15	....	.55	.49	.07	....		....	.56	.16	.41	20	1.30	.20	.04	..	2.10	2.57	.48	....	2.16	.40	.09	12 37
Audubon	....	....			....	....	..		....	.04	.43	.89	....	....	....	....	.58		....	.52	....	.84	.24		.27	1.14	.57	.03	1.70	1.15	.09	9.09
Baxter	....	.12	...			....	....	..	.23	T		.30	1.80				.10	....	05	.18	.2.	.82		....	.20	2.62	.75	.25	1.05	2 60	.40	11.70
Bedford	....	.15	....	.01	T	....	....	....	..	.. .	.80	.02	.07	....	....	.31		....	.19	T	.57	.44	.40		1.54	1.88	....	....	.86	.58	1.01	9.83
Belle Plaine	.22	....	.. .		....	..	...	....	....	.10	....	.30	03	..	..	....	.10	...	.30	01	.05	.95	.02	T	.15	.75	1.01	.20	.30	2.51	.55	7.53
Bonaparte	....	...	....	....	..	....	....		.16		.18		.80	....	....	..	....	..	....	....	.52	.11	.26	.65	.16	....	.73		.24	.03	.46	4 30
Britt	..	.50	T	....	.05	....	....	T	.12	.79	.65	.62	.04	..	....	....	.07	....	.08	.26	...	.94	.23	T	.86	.58	.99	.02	....		.09	6.89
Buckingham	..	.27	....		.42		..	....	.07	.72	....	T	.47	....	....	....	.08	20	.20	.29	.10	.94	....	....	.40	1.10	.29	82	..	.96	.24	7.57
Burlington		06	....	....	T	....	....	....		T	.06		.72	.12		....	....		....	....	....	.60	23	.23	.35	21	....	.45	....	.02	1.13	.60	4.83
Carroll		.53	....	T	T	....	..	...	..	1.20	....	1.05	.28	....	....	..	.22	..	.20	..	1.05	.12	....	14	.40	2.00	....	.05	2.08	10	.12	9 54
Cedar Rapids	T		....	..	....	T	....	....	....	.18	....	.05	.2		....	....	T	.12	.11	.06	.26	.77		T	.34	82	1.09	.62	T	.86	.60	6 11
Charles City	.04	.20	.30	.01	....	.12	....	....	T	.24	.47	.35	.84	.63	..		.10	....	.04	.13	.02	.78	.18	....	.85	.37	3 24	.24	....	....	..	9.15
Chester	....	1.66		.14	.25	.10	...	.	.08	54	.06	.88	.19	....		..	.23	.04	.14	..	..	.76	.20	...	1.12	1.35	1 70	..	....	....		9.44
Clarinda	..	.14	....	....	....	....	....	....	....		.30	.32	.03	.66	..	..	.32	....	.19	....	1.18	2 00	.46	..	.80	1.32	....	....	.11	1.11	.43	9.97
Clear Lake	..	.45	....	....	.12	....	..	....	1.05	1.15	.25	.35	....	....	..	....	T	....	.12	T	....	.75	.15	T	1.45	.80	.90	..	....	....	T	7.54
Clinton	..	.05	....	..	..	....	..	....	.01	...	.03	.03	.01	....				05	....	.01	.25	.18	.35	....	.11	1.15	.47	.15	..	1.42	1.58	5.45
College Springs		.11	.01	.. .	....	..	....	....	....	..	.40	.55	.20	....	....	..	.32	..	.31	.05	.35	1.05	....	..	1.33	1.40	.24	T	1 16	.78	.84	9.10
Columbus Junction	....	.08	....		T	..	..	....	.08		.30	....			....	..	.25		T	....	.30	.59		.28	.10	....	.82	.18	1.58	.42	.35	5.33
Corning		....	..	T	T		...	T	....	T	.62	.24	.68	T	....	....	.51	T	T	.39	1.89	2 00	.30	....	84	.83	.53	....	.84	.63	.38	10.68
Council Bluffs	..	.44	.21	....	....	..	.	....	....	1.00	1.00	.52	....	.	....	....	.11	.12		.60	1.01	....	....	.94	1.37	.70	.48	..	.73	.55	.2	10.01
Corydon	....	.17	.....	....	T	....	..	....	.04		.26	.57	48	....	....	..	.36	....	.05	.38	1.20	.67	..	.13	.35	.52	.69	..	.59	47	.77	7.70
Cumberland	....	....	T	..	....	....	....	....	T	....	.20	.24	....	..	.31	....	.81	....	T	T	....	1.40	....	....	1.20	1.80	.30	1.10	.40	30	.21	8.27
Davenport	....	.02	..	T	....	..	....	....	....	..	.11	T	.02	..		....	....	T	T	....	.49	.08	.20	.05	.08	.87	41	.38	.32	2.03	.46	5 52
Decorah	....	.57	.09	....	.25	..	....	..	.20	.42	.12	.12	.34	.	....	..	.65	....	.20	..	..	.49	.25	T	.58	1.89	.58			....	T	6.75
Delaware	....	.24	....	....	....	...	....	..	.47	.24	..	.13	..			....	.14	..	.05	....	.40	.75	....	....	....	.17	.64	.62		.60	.32	4.47
Denison	....	.63	....	....	....	....	....	....	T	1 71	.59	.17	05	....	....	.	.27		....	T	....	1.57	.07		.44	2.34	.30	...	1.32	.34	.11	9.92
Des Moines	....	.09	...	T	T	....			.04	.14	.08	.36	.22	.28		....	.30	T	.05	.03	.07	1.38	.13	....	.18	2.08	1.38	.06	.94	2.52	.31	10.64
De Soto	....	.14	....	.01	T	....	....	....	.14	.04	.18	.35	.12	.02	....	....	.50	....	T	.26	.03	.78	.25	....	.18	1.90	.53	T	1.05	1.60	.30	8.38
Dows	....	.48	T	T	T	...	....	....	T	1.19	.54	.64	32	....	....	....	.4		.10	..		1.35	.18	....	35	1.65	1.51	.45	....	.06	.20	9.33
Dubuque	..	.12	T	.02	.04		....	....	.01	.01	.21	T	.08	....	....	....	.09	T	T	.01	.06	.50	.02	...	.10	1.40	1.11	.01	T	.35	.11	4.25
Earlham	..	.16	....		.06	....	...	..	T	....	.36	.78	.60	....	....	.81	....	....	....	.08	.03	.8	.40		.32	2.50	.74	T	1 82	1.82	.26	11.60
Elkader	....	.38	...	.18	.10	....	....	...	....	.04	.63	.15	.02	....	....	.	.08	.....	.10	....	.12	1.02	.25		.65	.75	1.17	.	....	....	.30	5.89
Esthersville	..	.18	.02	T	...	....	....	..	T	.70	2.22	.40	.05	.	..	.02		T	40	.05	.01	1.95	1.00	....	3.70	.75	.24	....	....	....	....	10.69
Fayette	....	.35	..	.25	73		...	...	.19	T	.18	.07	....	....	....		.63		.07		.08	1.02	.18	.04	.10	2.69	.34	.15	...	....	.18	6.65
Forest City	....	.35	.06	...		T		..	....	T	.85	.39	.93	1.18	..		....	07	.07	T	.11	.83	.20	....	3.63	.20	1.00	.08	....	....	....	10.17
Fort Madison	....	T	....	....	T	..	....	....	T	....	T	.11	....	....	....	..	T	.02	..	....	.86	.35	.25	.4	.13	T	.52		.21	T	....	2.88
Galva	....	.20	.10	....		.		..	.70	1.10	.80	.12	.60		....	....	T	....	..		...	1.80		....	.80	1.45	.05	1.15	.85	.25	.10	10.07
Gilman	....	.16	....	...	.05	...		....	.08	.05	T	.22	.83	....		....	T	T	.10	.18	....	1.13	...	....	.18	1.17	.47		1.20	2 06	3	8.24
Grand Meadow		.33	....	.03	.25	....	.	....	.15	T	.80	.40	.25	....	....	....	.43		.26	..	.04	73	.33	.02	.24	3.16	.71	..	....	....	.48	8.33
Greene	.37	..	....	....	.20	....	....		.22	.31	.13	.49	.10	.04	....	....	.15		.03	.15	....	.85	.15	..	.32	1.82	.92	..	....		.12	6.37
Greenfield	....	.2	T	T	T	.	T	T	.37	T	.09	29	.56	T	..	....	1.02	T	T	.06	.23	1.95	.26	.	.8	3.82	.71	.16	1.11	1.63	.18	13.50
Grinnell	....	....	....		.15	.	....		....	....	.58	....	3.00	....	..	....	....		....	.95	....	.90	....	....	.18	1.19	1.17	.09	....	3.23	1.25	12.69
Grundy Center		.25	....	.01	.68	....	....	....	.17	T	.22	.10	1.50	....	..	..	.04	T	.05	.02	1.20	.18			.12	2.18	1 6.	1 36	T	1.14	.19	11 04
Guthrie Center		.29	T	...	T	....			....	.64	.37	1.07	T	....	....	....	.92	.10		.53	1.08	T	.21	.31	.29	3.52	.82	T	.94	2.86	.2.	14.16
Hampton	..	.37	.02		.12	....	....	....	.19	.27	1.32	.25	....	....	....	..	.41	.06	.83	....	1.00	.2	....	.30	.50	2.43	.11	....	..	....	.30	7.95
Hanlontown	....	.42	....	..	....	.		....	.32	.85	.55	.63	.12	....	.	..	.02	.03	.33	....	....	.75	.30	.06	....	.55	.74	....	....	..	T	7 67
Harlan	...	.34	.08	T	.02	..		....	....	1.59	.80	.42	.05		.	..	.32	....	.26	61		.80	24	....	.34	.84	.60	T	1.80	1.10	.22	10.43
Hopeville	....	.14	..	....	.04	.	...	T	.60	.03	.54	.60	.51	...	....		.45	T	.12	T	1.07	.40	.07	...	.46	1 2.	.61	....	.81	.43	.48	8.59
Humboldt		.70	.03		.01	..	....	...	.12	1.18	.76	.32	.08	....	..	..	...	...	.60	34	....	1.20	.10		.28	.55	.86	.15	...		.20	7.50
Ida Grove	....	.55	.09	....	.07	....	....	....	1.40	....	1.18	.17	....	...	.	...		.05		1.00	....	1.23	.28	...	.64	.14	.	....	...	1 40	.20	8.40
Independence		.35	....	.03	.70	....	....	....	.10	.01	T	.30	..		....	....	.32	T	T	....	.25	1 5.	.15	....	.50	1.15	.50	T	.	.50	.40	6.78
Indianola	....	.12	....	....	.02	T	....	....	.01	.03	.08	.44		....	....	....	.16	T	....	.31	.44	1.23	03	..	.32	1.09	1.16		1 84	.77	.34	8.39
Iowa City	....	....	.12	..	....		....		..	.19		.08	....	.04	....	....	....	.05	T	T	T	.99	T	.05	.11	.40	1.13	.25	T	2.31	1.18	6 90
Iowa Falls	...	.04	.20	.05	T	.26	....	....	.21	.60	03	.93	.08	....			....	.31	.02		T	.7	.26	.	.22	.42	1.91	.73	....	.10	.07	7.17
Jefferson	....	.32	....	....	.04	....	....	..		1.16	.16	1.24	.17	....	..		.57	.08		.03	....	1.41		.....	.87	....	4.02	....	....	3.75	.47	14.29
Keokuk	..	T		....	T	...		....	....	....	T	T	.2.	.03		....	T	06	T	....	.77	.04	06	1 40	.52	....	.06		T	T	.38	3.56
Keosauqua		....	....	....		.21	....	.	..	T	....	.08	.02	.50		...	....	.16	.09		.03	.58	.68	.26	.08	.37	.47	.0'		.40	.90	4 84
Lacona	....	.21	....	.	.05			....	.19	.04	.16	1.12	.80	.24	.	.	.16	....	.21	T	2.24	.87	.23	....	.39	.80	1.00	T	1.19	.78	.67	11 35
Lansing	....	.54		..	.30	...	..	....	.20	.10	.12	....	1				44	.10	....	....	T	.70	.30	..	1 10	1 0.	2.40		....			7.30
Larchwood	..	....		....	.13	..	..		.50	1.60	1.30	.45		T			T	T	.97	...	....	1.0.	.52	.13	.	1.68	....		T	....	T	8.33
Larrabee	..	...	T		....	....	....	.02	1 01	1.19	.76	.51	....	....	....	....	T	1.54	..	....	1.34	1.55		2 04	.24	.18	....	....	T		.14	10.52
Le Claire	.02	....	T		....	....		....	..	....		T	.02	....	....	....	T	....	.02		..	.50	.02	.30	.03	.14	48	.41	T	1.98	.35	4.27
Le Mars	....	....	..	..	..		....	....	.30	.85	1.30	1.05	....	..	..	....	....	....	2.00	....	..	..	1.25	1.40	.01	.50	..	..	.90	.10	.20	9.89
Lenox	..	.13	....	T	....	...	....	....	....	....	.38	34	.40	.	....	....	.52	...	.15	.40	2.57	2.00	24	....	.6	58	.56	....	.20	1.05	.46	10.58
Leon	....	.19	...	...	.05	...		...	.11	....	29	.67	....	.24	....	....	35	....	.28	.20	1.05	.16	.11	.20	.34	.63	.72	....	.36	.37	.93	7.25
Logan	.20	....	.10	.05	....	..	...		50	.28	.30	.22	.08	....	....	....	.20	.07	....	..	....	....	..	.33	1.44	..	1.45	.05	.60	.10	..	5.77
Maquoketa	.05	.13	....		....	....	....	....	....	..	.02	.13	....	.13	....	....	.05	.07	.25	.05	..	.45	.18	.06	.14	.45	2.00	59	.05	.85	.90	6.55
Marshalltown	....	..	.25	.02	.01	.33			....	.16	.05	.18	.02	.14	..	..	....	.20	.06	..	.83	.83	.20	..	.19	1 20	1.75	.20	12	1.37	.35	8.46
Monticello	T	T	..						.15	T	.10	T	....			....	T	T	T	.10	1.31	....	....	.33	.91	1.75	.55	....	....	1.10	6.30
Mason City	....	.70	....	....	T	..	....	....	37	1.62		.55	.05	....	....	....	T		.27	T		.98	.20	..	1.0.	.30	1 48	.	....	....	T	7.57
Mount Ayr	....	.16	....	.03	.08	....	....		.07	.28	.14	.64	03	.04	....		.67	....	07	.08	1.94	.15	.27	.01	77	.75	.91	T	.52	.66	.63	8.90
Mt. Vernon		.17	..	.. .	..	..		...	.10	.05	.20	....	.20	..	....	....	.18	.04	.01	.05	.47	.30	.01	....	.01	1.10	1.50	.53	....	1.80	.33	7.05
New Hampton	....	.41	....	....	.32	....	....		.23	.36	.10	1.14	....		....	.	.03	...	.09	....	....	.6.	.22	....	.48	1.66	.75	.02			.65	6.46
Newton	....	.12		....	.11		....	....	.13	...	....	.18	.70	.11	.	....	T	T	.05	.86	.02	1.80	.	T	.20	3.40	.62	.34	.90	2.98	.55	13.07
Northwood	...	.44	....	04	.07	..	..	....	.20	1.11	.15	.18	.22	....	.		.02	....	.10	.27	.19	.71	.21	.10	1.78	.39	.75	....	....	....	.02	6.95
Odebolt	....	.58	.05		.05		....	....	.60	1.02	.40	.30	.05	....	....	....	.61	..	....	....	1 00	.05	..	....	.25	1.05	.40	....	1.00	.61	.06	7.93
Ogden	.05	.05	.25	.	.03	.11	....	....	.02	.92	.17	.29	.15	..	...	....	.	.67	.04	....		1.35	.14		.27	.35	3.19	.60	....	1.90	.38	10.95
Olin	....	.07			....	....	....	....	.64	...	.43	T	T	24	....		.10	T	T	.08	.26	.20	..	T	.18	...	1.83	.08	.09	1.67	.08	5.55
Omaha, Neb	....	.37	.05	.15	T	...	....	..	....	1.21	.38	.83	.08	....	...	...	.16	....	.05	.10	.65	.81	.01	.95	....	.93	.55	T	.53	.41	.10	8.32
Onawa	....	.86	T	....	1.05	....	..	....	1 41	1 37	1.21	.36	....	....		...	.03	...	3.30	.03		1.33	.65	....	16	.93	.17	.05	1.27	.45	.10	14.76
Osage	.	.68		.03	....	T	....	....	.09	.96	.16	1.06	.14	....	...	..	09	....	.11	....	.04	.76	.09	....	1.8.	1.31	.88	....	....	....	.02	8.23
Osceola	T	....	.19	..	.02	T	....	....	....	....	T	.50	.30	.18	T	..	....	.28	.05	...	.7.	.60	30		.50	.25	1.50	....	....	1.01	.78	7.16
Oskaloosa	.10	....	....	....	.07	....	....	....	1 38	..	.10	.01	75	...		....	.21	.09	T	.35	.35	..	T	.06	.20	3.4.	.78	T	.15	1.30	.32	9 68
Ottumwa	....	.14	....	....	.01	...		...	.80		.40	....	.91	....	...	.05	.20	....	.	....	.71	.53	....	.35	.07	.22	.68		.52	37	1.37	7.90
Pacific Junction		.35	T	.06			....	....	....	.68	.57	.43	.17	....	.	....	.20	....	.09	2.04	.07	1.80	.18	....	1.12	2.18	.78	T	.92	.63	.16	12.43
Pella	...	.12		....	T	....		....	.09	.03	.08	.02	1.00	.76	....		10	T	....	.24	.46	.91	....	.04	.13	2.25	.27	.37	.70	2 15	.49	10.16
Perry	T	.65	T	.11	T	..		...	....	.40	.15	.37	.38	....	....	.	.97		.07	.14	T	.97	.25		.55	1.57	.87	.65	1.03	2.00	.33	11.41
Plover	.15	....	.	....	T	...	....	..	.31	.34	.91	.12	.11	....	....	....	.08	....	.42	T		.94	.23	3.31	....	.51	.16	.16	....	....	.23	8.01
Red Oak	..	.27	....	.04	....	....	....	....	....	T	.72	.17	.15	....	....	....	.43	....	.54	2 43	.87	1.15	.94	....	1.00	1 64	.43	T	.40	.34	.22	11.74
Ridgeway	....	.64	.14	....	.28	..	....	....	.31	.36	10	.57	03	..	....	..	.02	T	.09	.01	.01	2 65	.06	.08	.79	1.92	21	....	T	..	.43	8.70
Rockwell City	..	.65	.05	..	T	....			.05	1.60	.65	.78	.	....	....		...		35	.50	....	1.67	.35	....	30	1.28	.95	.30	.80	.41	.10	11.09
Ruthven	..	....	....	....	....	....	....	....	....	1.33	....	60		....		....	T	....	T	..	..	1.30	.90	1.00	....	.65	....	T	..	T	T	5.78
Sac City	..	.53	.22	..	.12	....	....	T	.04	1 26	.80	.40	....	....			.21		.32	.04	..	1.43	.20	....	.12	1.04	.42	.37	.48	.61	.24	8.85
St. Charles	....	.12	....	...	.03	.01		....	.10	.02	.22	.35	.10	.05	....	....	.27	T	.06	.88	.59	1.84	.10	....	.20	1.65	1.02	T	1.35	.67	.65	10.28
Scranton	....	.38	T		T	....	....	T	....	1.32	.40	.91	.01			....	.41	..	.09	.04	..	.13	.21	....	.52	1.45	.79	.78	.15	1.64	.23	12.06
Sheldon	.01			...		....	....	....	1.00	1.00	1.10	.40	....	....	....	.01	....	...	1.60	.05	....	....	1.15	.62	..	1 90	.10	....	....	....	T	9.00
Sibley	....	....	T	....	.04	....	....	....	.92	1.77	1.08	.07	....		....	....	T	.40	1.15	.04		.86	.58	.23	.65	.98	.23	....	....	....	T	9.00
Sigourney		.20	....	..	T	....	....	....	T	...	.25	.17	.76	....	....	T	.18	.07	....	....	.50	.70	.05	.10	....	.90	.54	.25	1.07	1.85	1.10	8.69
Sioux Center	....	T	....	....	.02	....	....	T	.15	1.08	1.42	.12	....	..	....	T	....	.24	.94	.02	....	.64	.33	.75	....	1.76	T	.18	....	..	.07	7.73

DAILY AND MONTHLY PRECIPITATION FOR MAY, 1903—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	...	.17	T		-	....	...	T	2.58	.9[illegible]	1.48	.41	....	....	-	....	.02	.73	1.08		....	.88	.24	.02	.01	.47	T	...	2.27	.43	.09	1[illegible].78
Spirit Lake	....			..	....		...		2.00	[illegible].00	1.65	....	....		....	....	..	.75	.35	....	....	1.11	.60	.20	3.10	2.15	.12			....	T	13.03
Stockport	....	.21	....	....	.02	...	-	...	.48	....	36	.0[illegible]	.02	.58	..	T	.17	.03	.04	...	.58	.08	.54	.37	.31	.07	.80		.10	.22	.2	5.31
Storm Lake	....	.22	T		T	-	-	T	.17	.59	.24	.29	.04			....	.20	....	....	T		1.30	.19	..	.12	.44	.04	...	.44	.12	.12	4.72
Stuart	..	.15	....		T		....	....	....		.01	.25	T	T	....	....	.72	T		.80	1.04		.75	.40	.90	2.25	T	...	2.20	.95	.72	10.54
Thurman	....	.32	....	.02	T		....	....	....	.80	.90	.35	T	.22			.10		.18	.72	T	4.80	.2[illegible]	..	1.22	1.98	.51	.15	3.02	.60	.18	15.45
Tipton	...	.13		....		....	....	....	.19		T	....			....		.21		...		.52	.25	.15		.05	.75	1.17	.33	.22	1.8	.38	6.20
Toledo	....	.17	....		.04	....	..	T	.10	.25		.53	.91	....	....		.25	.10	.06	.40	.10	1.10	....	.09	.74	.55	.14	.88		2.10	.27	8.78
Villisca	..	.15	.15	T	T	...	..		..	.10	.43	.2	.20	....	....	....	1.28	...		2.98	2.65	.60	..	.75	.18	2.00	38		.92	.2	.48	13.66
Vinton	....	.20	..		.26	....	....	...	...	.24	11	....	.07	....	....	....	T	T	T	.30	1.25	....	.07	T	t	1.40	T			1.24	.16	5.30
Wapello	....	T			....		...		T	T	.2	....		08	...	....	...	T	....	....	.08	.16	.12	T	.50	.70	.55	.10	.73	1.08	.45	5.59
Washington	....	.06		....	....	...	....	....	.03			.02	..	...	..	..	.05		....	....	.37	.58	.05	06		.34	.56	06		1 75	60	5.12
Washta	.20		T	....		....	...	.	....	2.02	1.60	T	...	..	..	T	T		1.70	....	1.40	1.44	....	T	T	.74	.2	.	1.26	..	.2	10 80
Waterloo	.02	.03	.2	.02	.05	.23		....		.37	.18	.44	.19	....	....	..		.21	.06	T	..	1.08	.37	...	0[illegible]	1.18	2.52	.07		.21	.32	7.85
Waukee	....	.15	....	06	.02	T	....	....	T	.01	.09	.2[illegible]	.6	.06	.	....	.34		....	.95	.06	.93	.16	....	.24	2 63	.49	....	.96	2 90	.30	10.78
Waverly	....	.23	..	....	.10	....		....	.57	....	.06	.88	.60	....		....	.03	....	.10	....	....	.72	.19	....	.05	1.10	1.60	....		.04	.13	6.66
West Bend	....	.30		...	.08	..	...	T	.30	.48	1.32	.26		....	....		.09	....	.26	.05	...	1.05	.25	1.52	.06	.35	.12	....			20	8.69
West Branch	....	.15	...		..	...		....	....	.0[illegible]	.18	.0[illegible]	...	...	....	..	.04	....		T	.57	.4[illegible]	.09	....	.01	4[illegible]		1.50	40	2.45	.45	6.76
West Union	.25			....	.23	....	....	...	.41	19		...	.18	....	..	..	.54	T	T	.91	...	.13	....	..	.94	4 06	.13	....	..	...	.31	8.28
Whitten	....	.14		....	.45			....	.87	.07	T	.12	.70	.62		....	.17	.03	....	T	....	1.63	.10	....	.2[illegible]	1.25	2.10	.55	.19	1.00	.20	10.44
Wilton Junction	....	.15		....		....	...	..	T	.03		..	.10	....	....	T	T	T	..	....	20	.58	.17	...	.21	.2[illegible]	.70	T	.81	2 12	.62	5.89
Winterset	....	..	....	..	T	....		....	T	...	.04	.53	.42	T			.39		...	.10	.39	.7[illegible]	.1[illegible]	....	1.10	1.50	....		1.70	1.77	.36	9 20
Woodburn	....	.11			T	..	....		.2[illegible]	....	.43	.12	.67	....	....	....	.25	25		.59	.57	.07		....	.45	1.55		....	.95	.88	.14	7.23

Precipitation Chart May 1903.



JUNE, 1903. No. 6.

MONTHLY REVIEW

OF THE

IOWA WEATHER AND CROP SERVICE

CONTENTS.

CENTRAL STATION, DES MOINES, IOWA.

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DIRECTOR.

GEO. M. CHAPPEL,
LOCAL FORECAST OFFICIAL,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

ALLIED PRINTING TRADES UNION LABEL COUNCIL DES MOINES, IA.

DES MOINES:
BERNARD MURPHY, STATE PRINTER
1903.

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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METEOROLOGICAL STATIONS AND OBSERVERS.

From the following, weekly and monthly reports of Metorological data are received by the Iowa Weather and Crop Service.

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Allerton	Rex Shriver
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Ames	Exp. Station
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Chariton	C. C. Burr
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Chester	C. H. Meredith
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Clear Lake	John Cobb
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Grand Meadow (Postville P. O.)	F. L. Williams
Greene	J. L. Cole
Greenfield	J. G. Culver
Grinnell	Prof. J. S. Buck
Grinnell (near)	A. O. Price
Grundy Center	Ed King
Guthrie Center	W. F. Braun
Hampton	E. C. Grenelle
Hanlontown	Geo. W. Paschen
Harlan	C. A. Reynolds
Hopeville	M. T. Ashley
Humboldt	H. S. Wells
Ida Grove	Dr. T. A. Collett
Independence	E. F. Wulfke
Indianola	Prof. L. Tilton
Iowa City	Prof. A. A. Veblen
Iowa Falls	J. B. Parmelee
Jefferson	Isaac Young
Keokuk	*Fred Z. Gosewisch
Keosauqua	Prof. J. A. Landes
Knoxville	Casey & Belville
Lacona	Agent C., B. & Q. R'y
Lansing	J. Ackerman
Larchwood	Rev. Geo. A. Wickwire
Larrabee	H B. Strever
Lenox	J. L. Hurley
Le Mars	Dr. T. E Cole
Leon	Millard F. Stookey
Logan	Mrs. M. B. Stern
Maquoketa	Frank Keeney
Marshalltown	Branch S. Jones
Mason City	J. S. Mills
Monticello	C. E. Heisey
Mount Vernon	Rev. J. W. Hubbard
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Mt. Pleasant	Dr. Frank T. Stevens
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Odebolt	E. Starner
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Osage	G. D. Pattingill
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Oskaloosa	Jos. Boyd
Ottumwa	Dr W. B. La Force
Pacific Junction	Agent C., B & Q. R'y
Pella	L. L. Davenport
Perry	J. A. Harvey
Plover	J. S Smith
Primghar	Jasper N. Marsh
Red Oak	J. S. Cole
Ridgeway	Arthur Betts
Rockford	J R. Waller
Rockwell City	C. M Ra dall
Ruthven	F. M. Fitzgerald
Sac City	J. A. Sodestrom
St. Charles	C. W. Minard
Scranton	Willis E. Lamb
Sheldon	J. B. Frisbee
Sibley	H. G. Doolittle
Sigourney	Mrs. R. F. Ashbaugh
Sioux Center	Jacob de Ruyter
Sioux City	*U. G Purssell
Spencer	S. Gillespie
Spirit Lake	W. C. Drummond
Stockport	C. L. Beswick
Storm Lake	L. E. Burdick
Stuart	Hon. John Herriott
Thurman	C. R. Paul
Tipton	F. K. Gregg
Toledo	Herbert Giger
Vinton	T F. McCune
Villisca	C. E. Matteson
Wapello	Geo. W. Schofield
Washington	Wm. A. Cook
Wa-hta	H L. Felter
Waterloo	M. L. Newton
Waverly	H S Hoover
Whitten	Dr. Frank P. Butler
Wilton Junction	J. M. Rider
Winterset	B L. Sprinkle
West Bend	Phil Dorweiler
West Union	J M. Lisher
Woodburn	C. B. McDonough

* U. S. Weather Bureau.

WEATHER-CROP OBSERVERS.

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West Branch	Wrigley Smith
West Union	H. B. Blackman
Wilton	Thos. Boot
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U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

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IOWA CROP REPORT JULY 1, 1903.

Reports from county and township crop reporters for July 1st have been tabulated, showing the following percentages of condition: Spring wheat, 88 per cent; corn, 77; oats, 87; barley, 89; rye, 98; flax, 85; meadows, 104; pastures, 107; potatoes, 96; apples, 70; plums, 49; grapes, 78.

Last year at corresponding date the percentages were as follows: Wheat, 97; corn, 92; oats, 95; rye, 98; barley, 97; flax, 99; potatoes, 108; meadows, 99; pastures, 107; apples, 65; grapes, 65.

A revised estimate of the area of corn planted this year shows 87 per cent, or an average decrease of 13 per cent, compared with the area planted in 1902.

JUNE TEMPERATURE AND RAINFALL.

The following table shows the mean temperatures and average rainfall for the state, for the month of June from 1890 to 1903, inclusive. The figures show that the month just closed was the coldest June on record for the period of 14 years, and also the driest except one, which was June 1894.

YEAR.	Temperature, degrees.	Rainfall, inches.
1890	72.7	7.76
1891	69.1	5.39
1892	69.2	5.19
1893	71.2	3.91
1894	73.2	2.67
1895	69.7	4.32
1896	69.1	3.11
1897	69.1	3.81
1898	71.4	4.72
1899	70.7	5.04
1900	69.7	3.98
1901	72.3	3.71
1902	65.2	7.16
1903	64.6	2.86
Average	69.8	4.54

WEATHER AND CROP CONDITIONS IN JUNE 1903.

The month of June as a whole was unseasonably cool and dry, the daily mean temperature being 5.6 degrees below normal, and the deficiency in the average rainfall 1.52 inches. The records show that it was the coldest June in the last fourteen years, and the driest, except one (June 1894). On the first of the month the soil was saturated by the excessive rains of the last decade in May, the rivers were at flood-tide, and many thousand acres of bottom lands were flooded. The change from this saturated condition was gradual, the drying process being retarded by light showers, cool and cloudy weather, with less than the normal amount of sunshine during the first decade. This was altogether more favorable than would have been a sudden change to hot and dry weather, causing an encrusted surface of the soil. The cool and dry weather prevalent the larger part of the month was favorable for wheat and oats, checking the tendency to rust and rank growth, but corn needed much warmer weather to quicken the germination and growth of this belated crop Notably good progress was made, however, in replanting the washed out fields, planting the previously saturated area, and cultivating the early planted corn on dry uplands. The seasonable weather prevalent about the close of the month caused a marked improvement in the appearance and prospects of this important staple, the early planted fields were fairly well cultiuated, and in size and color were much nearer the normal condition than was deemed possible at the outset. Clover cutting was begun near the middle of the month and the hay harvest was quite general at its close, with prospect of a very heavy yield of both clover and timothy. The minor crops, such as potatoes, garden truck and berries, were generally in excellent condition. Apples appeared to be doing better than was indicated earlier in the season. The prospects for all soil products were so much better at the close than at the first of the month that there was a general spirit of rejoicing over the brighter outlook.

NOTES AND COMMENTS.

Thunderstorms have been very frequent and unusually destructive to farm animals this season, and as in former years wire fences have served as efficient conductors for the deadly bolts. A case in point was reported from Jefferson county. Lightning struck a large maple tree, and from its base was conducted by a wire fence to a bunch of steers thirty rods distant. Five of the steers were prostrated by the shock, three being killed, and two badly injured. The insurance company paid $105.00 to adjust a loss which might have been prevented by use of ground wires costing less than a dime. This is a story oft-repeated, with some variations.

On the evening of July 2d, according to eastern news specials, after a period of intense heat, a terrific storm swept over New York City. In the upper part of the city the wind blew at one time at the rate of 72 miles an hour, causing an immense amount of damage. Three deaths were reported directly traceable to the force of the wind. The eastern papers and press dispatches called it a heavy gale, and that fairly described the windstorm. In the west, however, it is customary to term that sort of dis-

turbance "a deadly cyclone," or "an awful tornado," with stunning headlines in the newspapers. Those eastern scribes are rather moderate in their reports of such things, and it would be well if westerners would follow their example.

The *Scientific American* says that Point Reyes, an important United States weather bureau and storm signal station, located on the California coast some thirty-five miles north of San Francisco, holds the world's record for high, strong, continuous winds. Last year Point Reyes captured this honor from the weather stations of the earth, and again this month (May) has gone several notches higher on the meteorological scale. On May 18, 1902, the wind at Point Reyes attained a velocity of 102 miles and hour, and for several minutes was rushing along at the furious rate of 120 miles per hour. A fearful gale lasted for three whole days, and at one time the winds in a playful mood ripped the cups from the anemometer. This year, on May 14, the winds commenced to blow again with the greatest violence. For four days the velocity registered averaged more than sixty miles an hour. For nine days the average velocity was fifty-two miles an hour. The total number of miles recorded on the anemometer was 11,223 miles. This is the highest velocity of wind for the time on record in the world.

"It is very curious," said the old professor of physics, "to see how many market gardners there are to raise things under glass, make money out of the process, and yet do not know why their heating frames and their hothouses remain hot inside. Now, as a matter of fact, the heat mechanism of a hothouse depends on a well known proposition of physics. I suppose you are acquainted with the fact that the energy from the sun travels in the form of little waves. The energy does not come down to us in straight lines; it comes, as it were, in a zigzag manner, dancing from side to side as it comes along. If these waves are very short, light is the result; if they are a trifle longer, they take the form of heat. If the light waves strike anything on the way down they are very apt to be turned into heat. Now, the waves which form light are so short that they will readily pass through glass, but the waves which form heat are so long that they will not pass through. From this, therefore, you may see why a hothouse remains hot. The energy from the sun passes into the house through the glass roof in the form of light. Then it strikes the objects in the house and is turned to heat. But this heat cannot pass out through the glass. The heat waves are too long. So the light keeps coming in and the heat keeps accumulating, and soon the hothouse becomes very warm indeed, even on the coldest days in winter."—*Boston Globe.*

It is stated that the everglades of Florida are to be drained, thereby rescuing 600,000 acres of good, rich land from the swamp where it has been submerged as long as our knowledge of the peninsula recurs. Dr. Wiley of the Department of Agriculture places an approximate value of $300 an acre on this land and adds that it will be capable of producing more sugar than the entire island of Cuba. The everglades extend through the southern part of the peninsula, south of Lake Okeechobee, an immense body of water lying near the cen'er of the state. The region is flooded at intervals, but it is several feet above sea level and can be drained by digging an immense ditch to the ocean. This is not a difficult matter as the ground is soft. For that reason it may be a task to keep the ditch open. For cultivation waterflows are suggested. Rice, cane and tropical fruits can be grown, as the everglades are below the frost line. If undertaken, this gigantic scheme will at least have the result of adding a large tract to our agricultural estate. It is an experiment and $2,000,000 of Philadelphia capital is interested, according to the story.—*New York Commercial.*

THE PRAIRIE HOME.

Outward far the rolling landscape reaches,
Loamy billows capped with harvest foam,
Level is the view, and subtly teaches
Man to take the prairie for his home.

Here is beauty, here is silent power,
Here the hidden forces crux and rest,
Here dead centuries have shed their dower—
On the spreading prairies of the West!

Winds are roaming—man need never wander,
Born to earth, he has a rich estate;
Seedtime, harvest and his trust grows fonder,
Here he needs alone to work and wait.

—*Chas. W. Stevenson.*

EVOLUTION OF THE THERMOMETER.

It is probably not generally known that the thermometer was invented by Galileo. When we remember that we owe to this one man not only the foundations of physical science, but also in large measure the pendulum, the compass, the telescope and the microscope, it may lead to a certain amount of modesty in our appreciation of modern inventions.

Galileo, probably in 1596, invented the open air thermoscope. Ferdinand II., of Tuscany, first sealed the glass, making the instrument independent of atmospheric pressure. Many improvements were gradually made, especially in the endeavor to fix points on a definite scale, the freezing point of water being first used by Robert Hooke in 1664. Of the three thermometers still in use, Fahrenheit's thermometer was invented in 1709, Reaumur's instrument in 1730, and the scale of Celsius—the centigrade scale—in 1742. None of these thermometers, however, is now used in the form in which it was originally devised. It is a somewhat curious fact that the instrument constructed by the German, Fahrenheit, is used most exclusively by the English speaking people. That invented by the Frenchman, Reaumur, is used chiefly in the north of Europe, while that of the Swede, Celsius, is used in French speaking countries. The centigrade scale, the zero point of which is the freezing point of water, is now used nearly universally in scientific investigations. The main objection to its common use is the length of the degree, the interval between the freezing point and the boiling point of water being divided into 100 instead of 180 degrees, as on the Fahrenheit scale. This makes the length of a centigrade degree nearly twice—nine-fifths—that of the familiar Fahrenheit degree.—*Popular Science Monthly.*

A TYPHOON IN THE PHILIPPINES.

H. Phelps Whitmarsh in the *Atlantic Monthly:* Yesterday nature bore herself proudly; now she appears overwhelmed and tearful. The plumed bamboos which held themselves so haughtily are now spread and bent under the incessant beat of the rain, and cataracts run through their battered leaves. The fields have turned to lakes, the streams are rivers, the rivers are floods; and these roofs of bamboo and nipa are irrigating pipes guiding numberless jets inside the houses.

In the meantime the rain has grown heavier. At intervals cold gusts of wind are flung from the north and the horizon darkens with clouds more black than ever. The barometer, moreover, has fallen a degree. In these suspicious days of the colla, every white man looks at this sentinel of the atmosphere more often than a vain girl looks into a mirror. The barometer to me in my loneliness is a welcome companion. When it falls, I prepare myself for the worst, and when it rises I anticipate the end of the storm.

The rain falls heavier and heavier; the world, seen from my window, is a muddy flood and my house an ark. The barom-

eter is still falling. The dial hand already points to the remark "with winds from the northeast and northwest the baguio approaches." Soon I can hear the wind coming. With a sudden gust to which the house heels like a ship, it is upon us. A great guava tree falls with a crash outside, and the nipa shutters go flying to leeward. The wind converts the raindrops into projectiles which pierce the house at all points with the violence of hailstones.

Night falls early; dark, drenching and furious. "The waters are out," and the storm carries with it a terrible note. And the glass is still falling. Will it never end? Rumors of destruction come in from the forest at intervals of a minute, together with the crashings of torn branches and the blowings, it seems, of a hundred horns. Gusts of wind and water combined come howling over the flood and hurl themselves against the house. At each onset the building cracks and staggers more than ever like a storm-tossed craft.

But at last the monster seems to be seeking its prey in another direction, and turns slowly eastward, hungry for more ruins. Southward, then, unless the law of storms is wrong, it will cause the greatest ravages. The vortex, to which all the radii of this gigantic wheel of the baguio converge, will pass through the south of the archipelago.

CLIMATOLOGY OF THE MONTH.

BAROMETER.—Mean pressure, 29.98 inches; highest observed, 30.44 inches, at Sioux City, on the 11th; lowest observed, 29.55 inches, at Sioux City on the 30th; range for state, 0.89 inches.

TEMPERATURE.—The monthly mean temperature for the state, as shown by records of 109 stations, was 64.6 degrees, which is 5.6° below normal. By sections the mean temperatures were as follows: Northern section 64.1 degree; central section 64.5 degrees; southern section 65.3 degrees. The highest monthly mean was 67.8° at Tipton; lowest monthly mean, 59.4° at Ogden. The highest temperature reported was 96°, at Cedar Rapids and Sigourney on the 26th and 30th; lowest temperature reported, 30°, at Denison, on the 4th. The average monthly maximum was 89.7°; average monthly minimum, 38.6°. Greatest daily range, 50° at Scranton; average of greatest daily ranges 34.1°.

PRECIPITATION.—Average precipitation for the state, as shown by records of 125 stations, was 2.86 inches, which is 1.52 inches below normal. The averages by sections were as follows: Northern section, 2.84 inches; central section, 2.89 inches; southern section, 2.85 inches. The largest amount reported was 6.04 inches at Humboldt; least amount reported, .75 of an inch, at West Union. The greatest daily rainfall reported was 3.00 inches at Washta, on the 30th. Average number of days on which .01 of an inch or more was reported, 10.

WIND AND WEATHER.—Prevailing direction of the wind, northwest; highest velocity reported, 66 miles per hour, from the northwest, at Sioux City, on the 8th. Average number of clear days 13; partly cloudy, 10, cloudy, 7.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced	EXTREMES. Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	29.95	30.29	11	29.67	19
Des Moines	30.00	30.39	11	26.63	30
Dubuque	30.02	30.35	11	29.68	30
Omaha, Neb	29.98	30.41	11	29.53	30
Keokuk	29.94	30.30	11	29.65	19
Sioux City	30.02	30.44	11	29.55	30
Means	29.98	30.44	11	29.53	30

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	4605	21	NE	1
Des Moines	4522	28	W	8
Dubuque	3735	22	NW	8
Keokuk	4740	20	NW	8
La Crosse, Wis.	4413	37	S	30
Omaha, Neb	4950	36	N	8
Sioux City	6701	66	NW	8

OBSERVERS' NOTES.

ALTA.—*David E. Hadden.* Compared with thirteen preceding Junes the month just closed was 5.4° cooler, and the precipitation was .91 of an inch below the normal.

AMANA.—*Conrad Schadt.* The Iowa river was at its highest on June 1st, being about six to eight inches above last year's flood mark.

BONAPARTE.—*B. R. Vale.* A seasonable month; too cool for corn till just at the close.

BRITT.—*Geo. P. Hardwick.* No serious storms except on morning of the last day, when high and damaging wind swept over south half of county; corn uneven and late; grain below average.

CLINTON.—*Dr. Luke Roberts.* Mean temperature 65.4°, which is 4.3° below normal, and 1.7° below June, 1902, which was then a record breaker as a cold June. The average of the first decade was 64°; second decade, 63.7°; third decade, 67.5°. Rainfall 1.66 inches, or 2.89 inches below normal. Very little fell after the 5th and crops were much in need of it before the close of the month.

COLUMBUS JUNCTION.—*J. B. Johnson.* On 1st and 2nd the Iowa river was higher than in 1881.

EARLHAM, R. F. D.—*Geo. Phillips.* Corn was smallest for years at close of month; small grain and grass never looked better.

ESTHERVILLE.—*Earle W. Peterson.* A severe windstorm swept through the northwestern part of Emmet county on afternoon of 24th; in its path, about three rods wide, all buildings were destroyed.

GRAND MEADOW.—*F. L. Williams.* The month was favorable to most crops; there were extreme variations between day and night temperatures.

HANLONTOWN.—*Miss G. M. Paschen.* There was frost on night of 11th which did some damage to corn and other tender vegetation on low ground.

HUMBOLDT.—*H. S. Wells.* Rainfall 6.04 inches; much low ground still unplowed; corn has made advance; haying begun; small fruit and apples good.

LARRABEE—*H. B. Strever.* Wet weather retarded field work first half of the month; frost on the 11th did little damage.

RIDGEWAY—*Arthur Betts.* Month was fine, with 333 hours of sunshine, though the temperature was 3 degrees below normal. I have been reporter since May, 1882, and never reported so small rainfall (1.22) for June. Northern lights were very beautiful on evening of 4th, passing beyond the zenith.

STOCKPORT—*C. L. Beswick.* Continued rainy weather the first six days and continued dry the last nine days of the month, with rain badly needed at close.

STORM LAKE—*L. E. Burdick.* Small grain rank; corn backward; potatoes commencing to rot. Rainfall for month 4.85 inches.

WASHTA—*H. L. Felter.* Rain 4.42 inches; a very heavy storm on night of 29th; lightning struck an elevator at Washta and burned it.

WAUKEE—*E. J. Leonard.* Rain 3.11 inches; month remarkably free from storms; only one heavy rain (1.61 inches) fell, on 18th; continuous northeast wind for nine days, from May 29th to June 6th.

WHITTEN—*Frank P. Butler, M. D.* Frost on morning of 12th but little damage resulting; rain on 30th was a great help to all vegetation, corn making rapid progress.

CLIMATOLOGICAL DATA FOR JULY, 1903.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Algona	Kossuth	1,213	28	65.4	-4.6	91	29	41	12	34	4.26	- .14	2.40	....	10	7	19	4	NW	29, 30
Alta	Buena Vista	1,513	11	63.3	-5.7	87	30	38	11	30	4.85	- .69	2.05	...	14	12	15	3	N	7, 8, 18, 25, 29, 30
Alta (near)	Buena Vista		....	.....	.....	.....	....	.....	.....	.....	5.25	.....	1.81	....	14	....	..	....	.....	
Britt	Hancock	1,236	5	64.9	-3.6	90	30	36	12	38	2.58	-2.02	1.07	..	16	3	22	5	NE	28, 29, 30
Charles City	Floyd	1,012	11	62.6	-6.1	86	16, 28, 29	34	12	33	1.93	-2.86	.40	..	10	17	1	12	E, NW	30
Clear Lake	Cerro Gordo	1,241	....	67.4	.....	95	26	37	12	44	1.60	.....	.50	....	6	15	10	5	SW	
Chester	Howard	.....	....	61.8	.....	85	15	32	12	36	2.28	.....	.62	....	6	....	..	....	.....	
Decorah	Winneshiek	875	8	63 2	-5.5	83	15, 30	39	12	30	1.57	-2.65	.62	..	7	....			.....	
Dows	Wright	1,142	....	63.4	..	88	30	37	12	33	3.07	.....	1.80	....	11	18	7	5	NE	30
Elkader	Clayton	727	21	64.0	-5.7	90	7	34	12	40	1.50	-2.33	.50	..	8	15	12	3	NW	7, 8, 18, 29, 30
Estherville	Emmet	1,298	7	62.9	-5.7	86	30	38	11, 12	33	3.36	+ .27	1.00	....	14	14	7	9	NW	29, 30
Fayette (c)	Fayette	.....	..	61.8	-6.8	88	30	30	1, 12	42	1.91	-3.70	1.10	....	7	..	..	....	NW	
Forest City	Winnebago	1,226	8	63.6	-4.5	85	29, 30	38	12	30	1.70	-3.36	.68	..	7	17	1	12	W	
Grand Meadow	Clayton	1,180	11	63.8	-3.8	87	8	38	12	32	1.90	-3.23	1.10	.	8	14	11	5	NE, NW	29, 30
Greene	Butler	924	5	64.4	-5.8	90	30	36	12	37	2.56	-1.39	1.00	....	10	6	15	9	SE, W	
Hampton	Franklin	1,155	12	65.0	-3.5	88	30	39	12	30	2 49	-2.48	1.12	....	12	10	11	9	NE	
Hanlontown	Franklin	.....	...	61.0	.....	88	30	35	12	34	1.23		.37	....	8	18	9	3	NE	8, 20, 29
Humboldt	Humboldt	1,095	10	64 8	-5.6	89	30	40	11, 12	32	6.04	+1.63	1.67	....	13	14	11	5	NW	1
Lansing	Allamakee	.....	....	64.9	.....	87	7	35	12	42	2.08	..... .	.70	...	5	16	7	7	....	
Larchwood	Lyon	.....	...	64 6	...	91	29	35	11	44	3.34	.....	1.84	....	13	20	7	3	S	17, 18, 19, 25, 26, 29, 30
Larrabee (a)	Cherokee	1,366	...	65.4	.....	93	28	34	11	41	3.02	.....	.96	...	11	11	14	5	.....	
Le Mars	Plymouth	1,224	6	64.8	-4.8	92	30	36	11	36	3.80	- .11	.70	....	12	8	18	4	S	
Mason City	Cerro Gordo	1,132	...	65.6	....	87	30	42	12	30	1.42	... .	.38	....	8	16	19	5	E	1, 18, 19, 29, 30
New Hampton	Chickasaw	1,169	....	.....		.....	.....	37	12	.....	2.09	.....	.84	....	8	17	9	4	NW	
Northwood	Worth	1,222	6	63.4	-4.1	81	15, 30	38	12	27	3.24	-1.21	1 51	....	10	16	9	5	NE, NW	19, 29, 30
Osage	Mitchell	1,184	11	63.1	-3.7	85	30	38	12	32	2.10	-2.20	.99	..	9	12	9	9	E, NW	4 19, 29, 30
Plover	Pocahontas	1,190	5	64.8	-5.0	90	30	38	11, 12	34	3.50	† .00	.71	....	13	15	8	7	SW	1, 17, 29, 30
Primghar	O'Brien	.....	..	63.9	.....	89	30	37	11	33	3.22	....	1.00	..	10	22	...	8	NE	
Ridgeway	Winneshiek	1,215	....	66.3	.....	89	30	41	11, 12	34	1.22	... .	.45	....	12	18	7	5	NE	4, 18, 29, 30
Sheldon (b) ‡	O'Brien	1,422	....	63.4	.....	86	7, 28, 29	42	10	35	2.82	.....	.80	..	12	....	....	....	S, SW	
Sibley	Osceola	1,512	8	63.4	-4.1	87	30	36	11	34	3.82	- .56	1.28	....	12	5	21	4	SW	
Sioux Center	Sioux	.....	....	64.0	....	89	30	38	11	33	2.99	.....	.88	....	13	14	11	5	.....	8, 18, 19, 25, 29, 30
Spirit Lake	Dickinson	1,458	8	64.2	-4.6	88	28	42	11, 12	31	3.27	.....	1.35	..	6	8	20	2	NW	
Storm Lake	Buena Vista	1,440	7	63.8	-4.2	87	29	38	11	30	4.85	- .03	1.95	....	16	15	8	7	SE	7, 8, 18, 19, 26, 29, 30
Washta	Cherokee	1,157	....		.....	.....	.....	.....	.....	.....	4.72	.....	3.00	...	9	16	10	4	S	
Waverly	Bremer	942	6	63.6	-6.0	87	30	37	12	31	1.86	-2.80	.78	....	12	12	14	4	.....	6, 18, 29, 30
West Bend	Palo Alto	1,197	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....	..	...	...	.....	
West Union	Fayette		....	.....	.....	.....	.....	.....	.....	.....	.75	.....	.75	..	1	18	....	12	NW	
Average		.....	....	64.1	-4.9	88.1	....	38.5	....	34.1	2.84	-1 39	.....	....	10	13	11	6	NW	

CENTRAL SECTION.

Amana	Iowa	721	25	64.9	-5.0	93	30	36	12	33	1.33	-3.07	.48	....	8	13	11	6	NE	4, 7
Ames	Story	926	20	64.8	-5.3	90	30	37	12	32	1.97	-2.58	.68	...	15	14	12	4	NE	18, 29, 30
Baxter	Jasper	998	...	64.4	.....	89	30	36	12	33	1.42	.....	.25	...	10	14	9	7	NE	
Buckingham	Iowa	.....	.....	...	.....	.....	.....	.....	.....	.....	2.40	.....	1.21	....	6	9	20	1	.....	
Carroll	Carroll	126	12	64.0	-5.9	90	29, 30	36	11, 12, 13	39	4.99	† .53	2.10	..	12	16	7	7	.....	6, 18, 24, 29, 30
Cedar Rapids	Linn	733	19	65.4	-5.5	96	30	41	11	40	1.14	-2.69	.33	....	8	7	17	6	NW	
Clinton	Clinton	609	34	65.6	-4.3	94	30	37	12	36	1.66	-2.80	.45	..	7	11	8	11	NE, NW	3, 4
Davenport	Scott	606	31	66.1	-4.8	91	30	41	12	28	2.28	-2.11	1.04	....	6	13	7	10	W	3, 4
Delaware	Delaware	1,033	11	63.2	-5.8	87	30	38	12	36	2.12	-1.94	1 30	....	8	13	14	3	NW	
Denison	Crawford	1,180	8	61.4	-7.5	86	30	30	4	36	3.17	- .41	1.45	....	10	18	7	5	N, S	
Des Moines	Polk	861	24	65.8	‡0.0	92	30	43	12	29	3.06	-2.30	1.56	..	12	5	17	8	SW	3, 7, 8, 18, 30
De Soto	Dallas	866	....	64.9	.....	89	30	42	12	31	3.82	.	1.46	..	13	19	5	6	NE	
Dubuque	Dubuque	655	29	64.6	-4.9	87	30	40	12	30	2.16	3.04	.68	....	11	14	8	8	NW	4, 29, 30
Fort Dodge	Webster	1,126		61.8	.....	87	30	37	12	38	...			....	....	....	....	....	....	
Galva (c)	Ida	1,290	8	63.6	-5.8	89	30	34	11	40	4.07	† .19	1.80	..	6	....	....	....	.....	
Gilman	Marshall	1,052	....	.....	....	..	....	....	.....	.....	2.56	.....	.42	...	8	16	8	6	E	
Grinnell (near)	Poweshiek	.....	....	65.3	.....	92	30	37	12	37	1.90	.....	1.23	....	11	13	11	6	NW	3, 8, 29, 30
Grundy Center	Grundy	976	11	63.6	-5.9	88	30	38	12	33	3.14	-1.77	1.90	....	14	11	13	6	NE, NW	8, 10, 30
Guthrie Center	Guthrie	1,077	6	65.6	-4.7	91	30	38	11, 12	37	3.62	- .02	1.00	..	10	12	15	3	NE	25
Harlan	Shelby	1,192		65 0	.....	91	30	37	11	36	2.83	.....	.83	....	13	6	20	4	SW	8, 18, 22
Independence	Buchanan	921	38	62.8	-6.1	87	30	35	12	30	3.32	-1.41	1.90	..	7	20	7	3	NW	4, 30
Ida Grove	Ida	1,220	....	65.6	...	91	30	38	11	36	3.45	.....	1.52	..	12	8	20	2	S	24, 25, 29, 30
Iowa City	Johnson	685	43	64.8	-5.6	89	29	39	12	32	1 95	-2.62	.59	....	10	2	15	13	N	
Iowa Falls	Hardin	1,107	9	62.2	-6.8	86	30	34	12	32	2.15	-2.04	1.00	....	9	14	7	9	NE	28, 30
Jefferson	Greene	1,052	....	.....	.....	.....	.....	.....	.....	.....	4.58	.....	1.20	...	16	....	....	....	NE	4, 5, 9, 18, 19, 25, 29, 30
LeClaire	Scott	576	....	.....	.....	....	....	.....	.....	.....	3.04	.	.68	....	10	..	..	....	W	
Logan	Harrison	928	35	65.4	-4.8	93	29	38	11	49	3.73	-1.92	.88	....	9	17	8	5	E	
Maquoketa	Jackson	688	9	62.7	-8.0	87	8	33	12	35	2.10	-3.25	.67	....	9	16	10	4	NE	
Marshalltown	Marshall	947	9	64.1	-5.6	90	30	36	12	35	2.74	-1.46	.64	....	13	12	4	14	NW	30
Monticello	Jones	925	48	65.6	-3.0	89	30	36	12	38	4.03	- .24	1.95	....	8	13	8	9	SW	2
Mt. Vernon	Linn	847	35	66.1	-4.7	91	30	38	12	35	1.17	-2.88	.46	....	10	14	5	11	NE	30
Newton	Jasper	944	14	63.6	-7.1	90	30	38	13	37	1.87	-2.73	.54	...	11	14	13	3	NW	
Odebolt	Sac	1,356	5	65 2	-5.6	94	29	37	11	36	2.70	-1.61	.50	....	13	15	11	4	.....	
Ogden	Boone	1,088	8	59.4	-10.4	88	30	36	11	44	5.42	† .97	2.50	....	11	17	1	12	SE	
Olin	Jones	760	...	63.8	.....	90	30	35	12	33	1.42	.....	.75	....	9	12	14	4	E	
Onawa	Monona	1,053	....	67.2	....	93	30	43	11	34	3.85	.....	1.65	....	12	23	1	6	SW	4, 8, 9, 10, 19 20, 24, 25, 30
Perry	Dallas	975	....	65.2	.....	87	30	40	12	32	3.09	.....	.80	....	11	....	....	....	....	3, 7, 8, 18, 19 25, 29
Rockwell City	Calhoun	...	....	65.8	.....	90	30	41	11, 12	30	5.93	.	1.38	...	14	18	4	8	.....	
Sac City	Sac	1,278	22	65.0	-6.2	91	30	39	11, 12	30	4.20	- .85	1 02		14	13	6	11	S	1, 2, 7, 16, 17 18 21, 24, 29, 30
Scranton	Greene	1,172	....	.....	.....	94	29	.....	.....	50	4.24	.	1.50	....	13	...	....	..	SE	3
Sioux City	Woodbury	1,165	13	66.0	-4.3	93	30	40	11	30	5.65	†1.85	2.83	....	13	8	16	6	NE	
Stuart	Guthrie	1,216	5	64.2	-7.2	90	30	40	1	41	4.09	† .12	1.15	...	9		....		NW	
Tipton	Cedar	807	....	67.8	.....	92	30	40	12	33	.98	.....	.35	..	5	18	6	6	NE, NW	
Toledo	Tama	856	8	64.0	-6.7	89	30	34	12	35	2.07	-1.53	.80	..	6	14	12	4	NW	
Vinton*§	Benton	810	12	64.8	-6.1	83	27, 30	46	12	.....	1.91	-1.71	.78	...	12	19	2	9	NW	
Waterloo	Black Hawk	862	15	63.2	-5.5	85	8, 29, 30	37	12	32	1.93	-2.03	.61	....	9	14	5	11	NW	4, 30
Wilton Junction	Muscatine	683	7	66.0	-5.6	94	30	36	12	33	2 04	- .53	.63	....	6	16	7	7	N	
Whitten	Hardin	1,036	...	65.0	.....	90	29	35	12	38	3.45	.....	2.55	..	5	12	14	4	SE	3, 8, 19, 30
West Branch	Cedar	718	....	.....	.....	.....	.....	.....	.....	....	1.57	.....	.54	....	7	....	....	....	.....	
Waukee	Dallas	1,039	....	.....	....	.....	.....	.....	.....	....	3.11	.....	1.61		12	8	14	8	NW	18, 30
Average		... ..	....	64.5	-5.6	90.0	....	37.7	.....	35.2	2.89	-1.48	.....	...	10	13	10	7	NW	

CLIMATOLOGICAL DATA FOR JUNE, 1903—CONTINUED.

SOUTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Afton	Union	1,212	7	66.1	-6.1	94	30	38	12	34	2.97	-1.26	.68	....	11	9	13	8	NE	
Albia	Monroe	959	....	64.4		89	29	38	12	32	3.93		1.97	....	7	17	2	11	SW, NW	
Atlantic	Cass	1,164	11	64.4	-5.6	93	30	36	11	42	3.34	-2 23	1.19	..	8	6	14	10	NE	8,18,21, 24,25
Audubon †	Audubon	1,301	8	64.6	-4.7	90	30	38	11	36	3.33	- .18	1.10	....	11	19	8	3	SW	
Allerton	Wayne	.....	....	64.8	.....	90	30	36	12	32	3.90	... .	1.30	....	10	18	9	3	NE	8, 18, 19
Bedford	Taylor	.....		64.6	.....	90	29,30	38	12	38	1.50	.....	.47	....	7	11	13	6	NE	
Bonaparte	Van Buren	.....	10	65.8	-7.1	93	30	38	12	31	2.30	-1.42	.88		5	....		....	.....	
Burlington	Des Moines	544	...	66.2	.....	91	30	40	12	31	1.75	.....	.52		8	15	7	8	SW, NW	
Chariton	Lucas	1,042	7	64.0	-7.1	90	30	37	12	32	3.61	- .25	1.00	....	9	16	0	14	N	
Clarinda	Page	1,069	12	66.3	-5.9	93	29,30	41	12,13	36	3.29	-1.38	1.02		12	15	12	3	NE	
College Springs	Page		10	67.0	-4.5	91	15,30	42	12	36	1.44	-2.50	.62	....	9	20	6	4	NE	
Columbus Junc'n	Louisa	595	....	65.7	.....	91	30	40	12	39	2.69	.....	.55		6	15	10	5	NW	7,8,18,21,24, 25
Corning	Adams	1,127	10	64.2	-6.7	89	30	40	11,12	32	3.38	- .66	1.06	....	8	10	15	5	SW	
Corydon	Wayne	992	9	64.4	-7.0	88	30	37	12	32	4.31	† .17	1.86	....	11	14	13	3	NE	8, 18
Council Bluffs (*b*)	Pottawattamie	990	5	66.4	-7 3	91	29	42	12	40	1.83	-3.34	.60	....	7	16	11	3	NW	
Cumberland	Cass	.....	....	.....	.....	....	.....	.....	.....	.....	2 93	.....	1.35	...	8	21	2	7	NE	
Danville	Des Moines	726	....			.....	.....	.....	.....	.....	3.64	.....	1.05	....	7	17	0	13	.....	
Earlham	Madison	.....		62.6	...	88	30	34	12	38	4.20	.	1.28	..	12	10	5	15	E	7, 8, 18, 21, 24
Fort Madison	Lee	516	51	.....	.....	.....	.....	.....	.....	.....	2.49	-1.76	1.75	..	8	6	14	10	S	2,3,4,5,18,21
Greenfield	Adair	....	11	64.1	-7.0	89	30	40	12	28	4.83	- .17	1.49	...	12	13	10	7	NE	3, 7, 8, 18, 21, 24, 25
Hopeville	Clarke	.....	11	64.3	-6.2	93	30	39	12	39	3.06	-1.16	.86	..	12	5	18	7	.....	
Keokuk	Lee	619	31	67.0	-5.5	91	30	44	12	26	1.40	-3.14	.46	..	8	11	16	3	NW	4, 8, 18, 21
Keosauqua (*a*)	Van Buren	664	10	65.0	-8.5	89	29	36	12	34	2.41	-1.15	.72	....	8	...	...	...	.....	
Lacona	Warren	.....		.....	....	.....	.....	.....	.....	.....	4.60	.....	1.00	..	13	7	17	6	.....	
Lenox	Taylor	1,250	7	64.5	-6.3	89	30	40	12	26	2.65	-1.22	.91	...	9	18	8	4	NE	
Leon	Decatur	1,120		66.2		91	30	39	12	30	2.64	.....	.85	....	11	21	7	2	N	4, 8
Mt. Ayr	Ringgold	1,236	8	64.6	-6.7	85	18,30	38	12	31	3.38	- .64	.67	....	11	11	10	9	NW	
Mt. Pleasant	Henry	729	20	66.3	-5.9	94	30	42	11	39	1.05	-2.31	.60	....	5	16	13	1	SW	
Omaha, Neb.	Douglass	1,113	32	67.6	-3 9	95	30	48	1	24	1.31	-4.36	.47	..	11	14	11	5	N	7, 8, 18, 19, 20 21, 24, 29
Osceola	Clarke	1,130	6	64.2	-7.3	88	30	37	12	34	4 13	- .01	1.80	...	11	20	3	7	NW	8
Oskaloosa	Mahaska	843	18	64.7	-5.4	91	30	38	12	29	1.73	-2.28	.37	....	8	15	4	11	SW	
Ottumwa	Wapello	649	8	66.6	-6.5	91	30	45	12	31	2.37	- .84	1.20	..	7	15	10	5	SW	
Pacific Junction	Mills	960		66.6	.....	93	30	41	11	35	1.70	.	.48		7	6	22	2	S	
Red Oak	Montgomery	1,033	....	66.3	.....	91	30	46	11	29	3.25	.....	1.00		11	4	23	3	NE	8, 19,21,24,25
St. Charles	Madison	1,070	....	65 2	.....	91	30	41	12	28	5.21	.....	2.09	....	12	17	10	3	SW	18
Sigourney	Keokuk	787	6	66.2	-7.3	96	30	35	12	39	1.72	- .99	.54	..	6	17	11	2	NW	3, 7, 8, 18
Stockport	Van Buren	.....	...	.....	.....	.....	.....	.....	.....	.....	1.42	.....	.53		10	21	1	8	NE	
Thurman	Fremont	.....	---	66.2	.....	94	30	41	11	35	1.62	.....	.44	..	9	16	9	5	SW	
Wapello	Louisa	588	....	64.8		89	30	42	12	22	2.99	.....	.80	....	7	18	11	1	W	
Washington	Washington	769	20	63.8	-8.7	92	30	35	12	34	1.70	-1.28	.64	...	6		....		E	
Winterset	Madison	1,129	11	65.4	-5.4	92	30	39	12	36	4.23	-1.52	1.25	...	12	14	7	9	SE	7
Woodburn	Clarke	961	....	.....	.....	.....	.....	.....	.....	.....	3.77	... .	1.67	....	11	12	12	6	NW	
Average			..	65.3	-6.4	91.0	.....	39.5	.....		32.9	2.85	-1.44	.....	....	9	14	10	6	NE	
Average for state			..	64 6	-5.6	89.7	.....	38.6	.....		34.1	2.86	-1.44	.....	....	10	13	10	7	NW	

*Means determined from 7 A. M., 2 P. M. and 9 P. M. observations, and maximum and minimum are taken from eye readings. †Above normal.
†Received too late to be computed with means. (*a*) One day missing; (*b*) two days, etc. §Not supplied with self-registering instruments.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR JUNE, 1903.

STATIONS.		DATE.																													MEAN.
		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.....	Max..	53	66	75	74	72	78	83	84	70	67	66	72	78	81	85	78	83	86	81	79	72	74	80	80	76	83	85	87	92	94	..	77.8
	Min ..	41	57	58	56	56	54	59	58	57	46	43	38	44	47	51	59	52	56	58	59	56	53	49	60	60	59	57	60	64	71	..	54.4
Albia.....	Max..	50	56	70	74	74	71	78	84	85	71	66	65	66	76	81	83	77	79	79	79	73	72	74	76	76	78	82	83	85	89	..	75.1
	Min ..	43	49	55	56	58	58	59	59	53	48	44	38	42	50	54	58	47	50	59	59	55	55	49	52	60	59	56	59	59	66	..	53.6
Algona....	Max..	59	62	74	73	79	88	81	77	61	67	60	72	82	84	86	72	80	80	73	70	72	72	71	78	80	85	90	85	91	87	..	76.4
	Min ..	46	57	55	55	52	57	60	61	50	50	46	41	48	50	56	58	48	59	58	57	51	51	49	57	58	57	59	64	68	60	..	54.5
Allerton....	Max..	54	67	74	71	71	75	82	83	70	65	64	65	74	80	83	76	78	81	79	74	69	73	77	74	76	80	82	85	87	90	..	75.3
	Min ..	47	52	58	58	55	57	56	58	50	46	44	36	44	51	55	56	46	54	59	60	55	56	48	59	61	59	55	60	63	70	..	54.3
Alta.....	Max..	54	60	72	72	74	79	81	78	65	60	62	70	75	80	82	70	78	77	70	70	62	70	75	73	76	78	79	83	86	87	..	73.3
	Min ..	42	51	55	54	54	58	58	55	48	42	38	42	47	51	54	57	48	50	58	56	54	47	48	58	59	57	58	62	64	64	..	53.3
Amana.....	Max..	55	68	73	73	68	77	88	83	69	65	61	67	76	81	84	77	77	80	77	74	75	72	76	81	80	82	85	86	88	93	..	76.2
	Min ..	49	54	56	58	60	54	54	59	53	48	45	36	43	53	53	57	47	52	58	58	53	56	49	50	56	57	52	56	60	71	..	53.6
Ames.....	Max..	55	66	73	74	73	81	83	79	68	62	62	68	77	82	84	79	78	76	76	70	68	72	74	76	75	79	82	85	87	90	.	75.1
	Min ..	48	54	56	57	58	56	61	57	52	48	42	37	45	55	55	60	49	56	58	57	57	53	50	58	59	59	55	63	61	62	..	54.6
Atlantic....	Max..	53	62	73	74	74	81	82	84	66	65	67	73	78	84	83	77	83	85	82	78	71	74	82	70	70	83	84	87	89	93	..	76.9
	Min ..	47	52	58	52	52	49	53	55	49	43	36	38	41	45	47	53	41	59	57	55	56	51	74	82	70	70	83	84	87	89	93	..	76.9
Audubon....	Max..	53	62	74	74	75	79	84	85	70	64	68	72	80	84	81	75	81	84	79	70	67	74	79	77	75	82	83	87	89	90	..	76.6
	Min ..	45	51	56	54	53	53	54	56	48	44	34	40	47	50	48	56	45	55	54	56	55	49	48	58	56	57	56	60	63	69	..	52.5
Baxter.....	Max..	55	66	72	74	73	80	84	84	70	66	65	68	77	82	84	76	76	72	79	74	69	74	76	75	78	83	83	86	88	89	..	75 9
	Min ..	47	53	56	54	58	54	59	55	50	45	42	36	44	53	54	54	44	55	57	56	52	53	48	55	56	56	54	60	60	68	..	52,9
Bedford.....	Max..	53	65	75	70	71	78	82	82	71	66	67	66	75	82	84	72	81	85	82	80	77	73	79	80	73	80	82	86	90	90	..	76.6
	Min ..	46	52	59	54	54	51	52	54	50	44	40	38	39	44	47	52	45	57	61	55	58	53	44	58	61	57	51	64	64	74	..	52.6
Bonapar'e....	Max..	56	71	72	70	74	77	83	85	73	68	65	65	74	81	84	76	78	84	78	74	73	74	76	80	79	79	80	86	89	93	..	76.6
	Min ..	49	54	58	58	59	55	56	79	53	47	43	38	44	52	54	58	49	54	58	60	56	54	49	56	57	58	57	54	66	68	..	55.1
Britt.....	Max..	60	65	77	77	86	86	82	83	77	63	61	74	80	85	85	73	78	81	72	75	71	72	72	83	83	85	83	84	88	90	..	77.8
	Min ..	45	52	53	56	56	56	58	50	48	42	38	36	43	50	54	53	44	58	61	56	50	48	45	56	56	53	54	62	61	65	..	52.0
Burling'n....	Max..	57	70	70	72	73	75	83	84	73	67	64	65	75	80	85	80	75	79	79	75	73	74	75	79	80	79	78	83	88	91	..	76.0
	Min ..	50	56	59	59	60	57	56	59	57	48	44	40	44	54	59	59	55	57	60	58	63	55	49	55	58	62	60	58	63	70	..	56.5
Carroll.....	Max..	55	65	72	75	74	83	85	82	64	65	64	68	72	84	83	78	81	84	79	78	65	72	76	73	79	82	80	88	90	90	..	76.1
	Min ..	45	50	55	54	54	52	61	55	45	42	36	36	36	54	52	57	42	61	55	56	52	46	45	58	55	55	52	63	64	65	..	51.8
Cedar R.....	Max..	57	67	74	74	67	77	83	86	70	64	59	68	77	82	86	76	79	82	75	72	76	73	74	79	79	81	87	86	90	90	..	76.5
	Min ..	50	56	58	60	56	58	61	55	48	48	41	43	51	57	61	50	56	59	57	54	57	51	51	54	54	55	56	56	56	56	..	54.2
Chariton.....	Max..	54	65	72	71	68	76	80	84	69	64	64	61	73	80	82	77	78	77	78	75	70	72	74	78	75	79	81	83	86	90	..	74.4
	Min ..	42	53	58	57	56	57	58	52	52	46	43	37	41	50	53	57	47	54	56	59	54	55	48	58	59	59	56	59	62	71	..	53.6
Charles C.....	Max..	57	60	65	74	75	75	81	82	82	67	63	58	67	78	82	86	72	76	82	72	69	69	72	73	79	81	81	86	86	84	..	74.5
	Min ..	47	48	53	56	52	50	56	53	49	45	42	34	42	51	55	56	42	48	61	50	53	51	47	45	51	51	51	60	60	63	..	50.7
Chester.....	Max..	63	65	74	73	77	82	82	82	70	62	62	68	77	83	85	83	72	..	67	70	71	78	80	82	84	80	82	82	76	83	..	75.0
	Min ..	46	54	52	55	48	50	56	49	44	42	38	32	39	47	62	52	56	53	46	48	43	42	44	48	48	55	48	42	59	64	..	48.7
Clarinda.....	Max..	52	66	76	74	75	81	86	87	73	66	69	71	79	84	85	81	84	92	87	82	78	77	77	84	74	80	85	89	93	93	..	79.3
	Min ..	47	52	58	55	54	52	54	57	51	46	42	41	41	48	49	58	48	56	60	58	58	53	47	58	57	56	53	57	63	73	..	53.3
Clear L.....	Max..	59	66	81	84	86	94	88	80	67	72	75	85	89	94	95	85	89	80	79	77	70	76	85	91	89	95	92	92	91	93	.	83.3
	Min ..	45	45	52	54	55	53	56	54	43	44	39	37	50	56	57	54	43	57	60	55	49	48	47	57	52	51	54	63	61	63	..	51.5
Clinton.....	Max..	57	71	80	80	67	80	88	85	77	70	64	70	79	86	87	78	79	80	78	75	79	76	75	81	84	83	86	87	90	94	..	78.9
	Min ..	50	55	57	55	59	54	52	58	53	48	41	37	44	54	53	58	46	54	55	53	51	53	49	45	51	51	53	54	59	68	..	52.3
College S.....	Max..	52	68	74	71	74	78	83	89	72	66	67	76	77	83	91	76	88	87	83	81	78	75	83	82	70	82	88	88	90	91	..	79.1
	Min ..	45	51	58	56	56	54	58	60	51	47	43	42	44	49	54	56	52	57	60	58	58	54	51	56	61	57	55	59	69	73	..	54.8
Colum. J.....	Max..	55	68	73	76	76	78	84	86	70	65	65	66	84	81	85	76	77	80	80	75	77	72	75	79	83	79	80	84	88	91	..	76.9
	Min ..	47	54	57	58	54	56	56	61	54	47	46	40	45	54	57	58	49	54	56	55	57	53	49	55	57	57	57	60	64	68	..	54.5
Corning.....	Max..	53	64	70	69	71	76	81	81	69	64	64	68	65	49	82	72	80	86	77	79	76	72	77	77	72	79	80	86	88	89	..	75.2
	Min ..	46	52	58	53	54	51	55	59	50	46	40	40	45	49	52	55	45	60	58	54	52	53	45	59	60	57	57	59	64	72	..	53.2
Co. Bluffs.....	Max..	54	63	75	62	75	81	86	86	72	66	70	74	79	80	85	80	85	91	78	74	..	..	80	86	72	77	85	74	91	84	..	77.3
	Min ..	45	53	59	55	56	55	58	56	52	48	44	42	51	54	56	58	50	60	61	61	..	.	53	46	59	55	55	64	69	75	..	55.4
Corydon.....	Max..	54	67	72	70	70	77	84	82	71	66	67	66	75	81	82	77	77	79	79	75	68	74	77	70	74	78	80	82	85	88	..	74.9
	Min ..	46	52	58	58	55	56	57	57	51	45	42	37	43	50	55	57	45	55	59	59	55	55	48	58	59	58	56	60	63	70	..	54.0
Davenpo't.....	Max..	58	68	74	71	68	78	88	84	72	65	61	67	76	81	83	76	75	80	75	72	72	73	78	78	78	78	80	83	85	91	..	75.3
	Min ..	49	56	59	60	61	58	59	61	56	49	47	41	48	57	61	60	53	59	52	55	59	53	53	54	59	59	59	61	67	72	.	56.9
Decorah.....	Max..	61	64	74	73	76	80	82	80	67	60	57	62	78	79	83	75	78	79	70	70	67	73	70	75	78	82	82	81	81	83	..	73.8
	Min ..	48	56	53	58	60	52	57	53	48	49	43	39	42	51	53	59	46	52	57	53	52	56	52	46	49	52	53	62	57	68	..	52.5
Delaware.....	Max..	56	64	72	75	68	75	83	82.	69	63	57	66	77	82	85	73	78	79	71	71	71	70	71	76	78	81	84	82	84	87	..	74.3
	Min ..	43	53	52	55	58	55	55	55	56	44	44	38	41	50	58	57	45	52	55	51	52	53	57	48	51	55	54	57	58	66	..	52.2
Denison.....	Max..	53	61	66	66	68	76	75	72	64	62	56	70	70	74	75	74	75	74	77	65	62	70	76	69	74	78	75	80	83	86	..	70.9
	Min ..	45	51	55	30	52	48	54	52	48	43	37	50	47	47	52	58	41	60	55	57	52	48	53	60	61	55	52	66	66	66	..	52.0
Des M.....	Max..	56	67	71	70	71	79	85	82	70	64	63	66	76	80	81	75	77	72	78	70	66	73	76	72	76	81	81	87	88	92	..	74.8
	Min ..	49	54	58	58	59	58	62	61	55	50	45	43	47	55	57	60	48	60	60	58	57	55	50	62	63	62	59	64	66	69	..	56.8
De Sota.....	Max..	54	64	70	69	70	75	82	82	69	65	63	67	76	80	82	74	78	78	76	71	66	70	75	72	75	79	80	84	86	89	..	74 0
	Min ..	47	58	58	57	58	56	66	60	54	49	46	42	46	56	55	60	47	59	58	59	55	54	49	61	62	60	56	56	63	72	..	55.8
Dows.....	Max..	59	64	72	73	74	80	81	79	65	61	59	70	75	82	82	76	76	79	73	69	66	70	73	76	77	81	81	83	86	88	..	74.2
	Min ..	46	52	53	53	56	56	58	54	50	45	39	37	45	54	54	56	44	59	58	55	50	48	45	55	56	53	54	62	60	64	..	52.5
Dubuque.....	Max..	58	63	76	76	67	78	83	82	70	61	55	67	76	81	84	74	75	78	70	71	70	72	71	76	80	81	83	83	85	87	..	74.4
	Min ..	48	54	58	60	59	56	56	59	53	48	48	40	46	54	57	59	49	57	57	55	56	57	51	50	55	57	55	60	62	67	..	54.8
Earlham.....	Max..	53	64	73	72	71	79	89	83	69	64	65	68	76	80	82	75	79	80	79	75	67	72	77	73	75	81	80	85	81	88	..	74.3
	Min ..	44	50	53	52	51	49	53	53	47	43	38	34	40	48	63	52	41	55	56	55	50	44	53	57	58	57	49	58	59	68	..	51,0
Elkader.....	Max..	60	64	75	78	74	82	90	86	72	63	63	72	80	86	85	77	78	82	73	76	76	72	75	82	82	85	86	85	87	85	..	77,7
	Min ..	48	55	50	57	58	53	52	55	47	45	46	34	40	48	51	49	43	49	59	52	52	55	47	44	47	52	50	59	55	60	..	50.4
Estherv'le.....	Max..	60	59	63	75	73	78	83	84	76	63	63	63	71	78	82	85	72	78	79	66	70	67	70	75	74	77	81	83	83	86	..	73.9
	Min ..	48	48	54	53	53	55	57	51	48	44	38	38	48	54	57	55	45	58	58	56	49	50	46	55	55	52	55	62	63	52	..	51,9
Fayette.....	Max..	60	65	75	75	76	81	83	81	69	61	59	68	78	83	84	73	77	80	..	..	..	68	71	78	80	83	85	85	86	88	..	76.0
	Min .	30	53	53	50	58	52	53	55	45	41	41	30	36	46	50	55	39	50	..	..	..	52	45	42	46	49	48	60	55	54	..	47.7
Forest C'y.....	Max..	58	60	64	70	75	81	83	84	76	65	64	61	68	78	82	84	72	79	80	69	71	67	72	76	78	81	84	82	85	85	..	74 4
	Min ..	46	48	53	55	56	56	61	55	48	44	41	38	47	55	55	54	48	55	60	55	51	49	47	53	54	55	57	62	61	65	..	52.8
Ft. Dodge.....	Max..	58	62	70	71	74	78	80	70	65	60	60	62	73	78	80	75	79	75	72	69	70	68	72	75	77	80	78	81	83	87	..	72.7
	Min ..	45	51	54	53	52	54	58	52	48	43	38	37	43	47	55	57	41	58	57	42	45	41	44	56	57	55	57	62	60	62	.	50.8
Galva.....	Max..	54	69	74	74	78	84	83	81	..	69	67	72	78	82	85	75	79	..	84	75	68	70	79	75	..	83	82	84	87	89	..	77.4
	Min .	45	51	54	53	50	49	53	51	..	41	34	38	37	47	51	55	39	..	56	55	50	48	42	58	..	..	52	63	63	62	..	49.9
Grand M.....	Max..	58	65	75	77	75	80	83	87	75	68	59	67	76	82	80	72	75	79	74	72	71	71	72	76	77	82	79	80	85	87	..	75.1
	Min ..	46	53	51	56	57	53	58	55	48	45	45	38	45	54	57	58	47	52	57	52	52	52	48	48	53	54	54	62	57	66	..	52.4
Greene.....	Max..	63	66	76	78	77	83	84	81	69	64	62	71	80	85	86	76	81	82	73	72	69	73	77	82	80	85	86	87	87	90	..	77.5
	Min ..	45	52	52	56	55	51	56	53	48	44	40	36	45	52	54	55	44	56	59	55	62	51	46	47	51	52	51	61	58	65	..	51.4
Greenfi'ld.....	Max..	51	62	72	71	70	77	80	82	72	65	62	65	72	77	78	75	76	81	78	74	77	70	75	72	72	76	78	82	86	89	..	73.9
	Min ..	44	51	52	55	55	52	56	54	48	46	41	40	46	50	57	55	45	58	57	58	57	50	49	59	53	58	62	61	65	75	..	54.3
Grinnell (near)..	Max..	55	64	70	70	74	70	74	82	78	64	61	74	78	80	85	80	84	84	76	72	72	70	74	83	81	80	85	87	90	92	..	76.3
	Min ..	47	54	56	55	58	60	58	58	60	40	43	37	45	49	56	57	47	56	59	56	53	54	49	56	59	60	57	59	62	70	..	54.3
Grundy C.....	Max..	56	65	72	71	72	79	83	83	69	65	62	69	76	81	83	76	77	79	77	76	67	73	75	78	80	80	83	85	86	88	..	75.2
	Min ..	48	53	53	57	57	51	58	54	49	45	39	38	55	54	55	57	44	57	56	56	49	52	47	47	56	55	54	60	60	65	..	52.0
Guthrie C.....	Max..	54	63	72	72	71	79	83	84	68	60	60	68	77	81	82	77	79	62	78	75	70	72	77	75	67	79	83	84	88	91	..	77.7
	Min ..	46	52	58	54	54	51	57	56	49	44	38	38	40	53	53	57	43	54	57	58	57	51	45	60	58	68	54	60	62	72	..	53.6
Hampton.....	Max..	59	64	74	75	77	84	82	83	67	63	62	69	78	82	85	75	78	80	76	68	68	72	75	78	82	85	84	85	86	88	..	76.1
	Min ..	47	53	53	57	57	55	60	55	51	46	43	39	49	56	58	57	47	58	61	56	51	51	48	54	57	56	57	62	61	66	..	54.0
Hanlont'n.....	Max..	60	63	72	70	75	80	80	77	67	60	57	68	76	80	82	70	75	78	71	77	65	68	70	75	75	80	82	80	83	88	..	73.5
	Min ..	47	54	52	55	56	54	59	51	50	45	41	35	46	46	55	55	45	59	61	55	50	48	46	48	52	50	52	63	60	65	..	48.5
Harlan.....	Max..	53	63	75	76	75	80	84	85	69	65	67	74	78	81	84	80	83	85	88	76	71	73	81	80	73	82	86	85	90	91	..	77.8
	Min ..	45	52	57	54	53	50	54	54	50	46	37	39	43	46	48	56	43	55	56	56	56	49	46	57	60	56	53	61	62	73	..	52.2
Hopeville.....	Max..	53	65	71	70	69	74	77	83	70	64	63	70	76	81	84	73	80	81	78	76	68	71	79	74	73	79	84	84	89	93	..	74.1
	Min ..	47	52	57	56	56	56	58	58	52	46	42	39	45	42	54	59	50	56	57	60	56	54	48	60	60	60	58	59	66	71	..	54.5
Humboldt.....	Max..	59	62	74	74	76	82	83	78	65	62	61	70	78	82	84	74	78	74	72	71	66	72	76	78	80	83	84	84	88	89	..	75.3
	Min ..	47	54	56	56	56	56	59	54	51	46	40	40	46	52	56	58	46	60	60	59	54	50	48	58	60	57	56	62	64	65	..	54.2
Ida Grove.....	Max..	55	61	78	77	75	82	81	82	66	62	65	77	79	78	82	90	79	84	75	74	70	76	79	79	71	80	81	84	89	91	..	76.7
	Min ..	43	52	57	53	53	51	56	55	50	45	38	41	58	57	71	45	43	62	59	59	53	50	47	61	61	59	56	65	67	68	..	54.5
Indep'nce.....	Max..	57	65	74	75	70	77	80	79	67	61	56	65	74	80	81	74	77	70	75	66	70	75	70	75	76	79	80	82	84	87	..	73.4
	Min ..	47	53	52	56	58	54	55	56	50	45	42	35	40	52	52	59	52	55	58	54	51	53	47	46	52	56	53	58	57	66	..	52.1
Iowa City.....	Max..	52	57	72	72	76	69	80	84	85	71	67	63	69	77	82	86	78	78	81	78	74	79	75	75	81	84	84	87	85	89	..	76.3
	Min ..	45	51	55	58	60	55	54	59	54	47	46	39	42	50	55	57	48	52	58	57	56	57	49	51	55	57	54	55	61	62

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR JUNE, 1903—CONTINUED.

STATIONS.		DATE.																													MEAN.
		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	
Larchw'd	Max.	59	67	77	80	80	86	84	77	67	62	70	75	80	86	83	85	83	82	78	70	68	73	80	70	79	82	81	87	91	90	..	77.7
	Min ..	38	52	52	50	55	55	60	54	46	42	30	40	36	50	55	51	45	58	55	58	54	48	48	57	51	54	57	57	65	62	..	51.5
Lansing. .	Max.	65	70	78	78	79	80	87	83	72	68	59	72	78	82	86	82	84	83	80	76	69	79	74	78	83	85	85	82	84	82	..	78.1
	Min ..	50	50	56	58	58	50	52	55	45	48	45	35	42	57	58	40	49	51	58	55	56	45	58	46	50	54	50	56	55	68	..	51.2
Larrabee.	Max..	55	64	76	79	78	87	87	80	70	71	71	79	83	88	89	73	84	84	76	76	..	78	81	80	84	88	83	93	92	91	..	79.9
	Min ..	44	50	52	53	52	54	55	53	46	40	34	38	43	46	53	51	44	49	56	55	..	47	47	56	54	54	54	63	64	66	..	50.8
LeMars ..	Max.	55	63	74	73	77	82	84	78	67	64	67	73	77	82	83	81	81	83	76	73	67	74	79	74	76	81	84	86	89	92	..	76.8
	Min ..	45	51	54	52	52	55	53	52	48	43	36	41	49	52	57	52	45	60	56	59	54	49	48	59	54	57	59	61	66	66	..	52.8
Lenox	Max.	53	64	71	69	70	75	80	81	69	64	63	65	73	78	80	76	77	84	79	77	70	71	76	76	70	76	79	83	87	89	..	74.2
	Min ..	46	51	58	55	55	55	57	58	51	47	44	40	46	52	54	57	49	58	58	56	57	53	49	59	60	59	60	62	65	73	..	54.8
Leon.	Max..	57	67	75	71	73	78	83	82	69	68	67	68	75	81	82	83	78	82	79	81	76	79	75	75	76	80	82	85	90	91	..	76.9
	Min .	..	53	58	57	57	58	60	57	53	48	45	39	45	51	55	60	48	56	59	61	57	51	52	59	61	60	57	60	64	71	..	53.7
Logan	Max..	60	58	63	76	78	80	89	86	84	80	82	89	90	80	86	81	80	84	76	75	70	65	85	80	76	82	91	90	93	90	..	80.0
	Min ..	40	43	48	56	58	55	54	53	52	46	38	40	45	44	45	50	48	50	52	48	48	50	50	58	50	55	59	63	64	66	..	50.9
Maquo'ta.	Max..	51	57	69	75	77	60	80	87	85	79	67	62	70	75	84	86	77	77	79	70	75	72	75	75	80	82	81	84	83	86	..	75.7
	Min ..	49	49	55	55	59	52	50	58	50	45	45	33	38	48	49	54	43	45	53	51	48	56	47	42	49	51	50	51	55	62	..	49.7
Marshlt'n	Max..	51	55	68	74	75	74	80	86	86	71	67	65	69	79	84	85	77	79	80	70	71	71	75	77	83	83	84	86	88	90	..	76.1
	Min ..	43	49	54	46	59	54	57	56	51	46	43	36	43	51	53	59	44	50	58	57	52	53	47	54	57	56	53	57	59	65	..	52.1
Mason C..	Max..	59	64	75	76	77	83	84	76	66	63	61	72	79	84	85	75	80	77	71	66	65	71	77	80	79	86	85	85	85	87	..	75.8
	Min ..	47	54	55	58	59	57	60	58	52	47	47	42	51	56	59	59	50	61	63	56	53	51	49	52	57	56	59	65	63	65	..	55.4
Monticel'o	Max..	59	62	68	72	78	86	82	83	78	72	70	68	78	82	87	85	70	67	65	72	75	82	80	80	82	81	83	85	88	89	..	77.0
	Min ..	43	48	50	50	52	58	60	62	48	44	38	36	42	50	52	57	58	62	60	55	58	57	60	42	58	62	59	65	68	72	..	54.2
Mt. Ayr..	Max..	54	64	74	71	73	78	81	81	70	64	65	68	74	79	81	77	79	85	79	77	74	73	79	78	75	78	83	84	82	85	.	75.5
	Min .	45	51	58	56	55	55	57	57	51	46	43	38	43	50	53	59	48	56	59	58	56	54	49	49	60	58	57	58	62	70	..	53.7
Mt. Pl's'nt	Max..	55	79	79	76	80	80	83	82	76	74	76	76	80	89	87	85	85	87	84	89	86	85	84	89	86	85	88	89	90	94	.	82.2
	Min ..	40	46	43	48	49	48	47	49	47	45	42	45	46	50	49	55	56	57	56	58	50	46	45	56	50	54	59	57	58	60	..	50.4
Mt. Ver'n	Max..	64	73	78	77	67	83	83	88	71	68	65	74	80	87	87	83	81	77	78	70	73	74	75	83	87	86	89	83	87	91	..	78.7
	Min .	48	54	53	59	59	54	54	60	53	46	42	38	46	55	57	59	47	53	58	54	53	55	48	50	53	57	54	57	61	68	..	53.5
New H. ..	Max.	59	57	74	74	75	..	.	.	..	..	.	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	85	..	....
	Min ..	45	53	51	55	56	52	52	55	47	43	41	37	38	54	54	54	45	53	55	50	49	46	..	.	47	63	55	60	59	65	..	50.8
Newton ..	Max	55	65	69	69	68	75	80	80	68	64	62	67	75	80	78	75	73	70	72	71	68	70	74	75	76	79	83	85	85	90	..	73.4
	Min .	46	51	55	56	58	55	59	59	52	47	44	39	38	45	56	58	48	56	59	57	52	53	50	58	58	53	56	60	64	70	..	53.9
Northw'd	Max.	62	67	74	75	77	80	80	77	64	62	57	65	75	79	81	73	74	78	74	69	67	69	70	75	77	80	80	79	79	81	..	73.3
	Min .	46	54	54	57	58	56	60	54	49	45	42	38	48	56	55	54	47	56	61	55	52	56	47	50	53	54	54	62	62	66	..	53.4
Odebolt ..	Max..	51	63	74	77	79	85	85	81	71	65	70	78	84	86	87	84	86	85	76	76	72	74	72	84	78	79	86	91	94	92	..	78.4
	Min ..	41	51	51	52	52	53	57	53	47	44	37	38	47	50	51	57	42	60	58	57	51	47	46	44	58	60	57	68	64	64	..	51.9
Ogden....	Max..	53	56	67	75	74	73	84	85	85	72	72	67	72	79	83	84	77	78	70	77	76	68	75	79	78	81	83	84	87	88	..	71.1
	Min ..	44	46	51	51	54	61	54	41	41	42	36	38	38	47	51	55	44	50	55	54	52	48	43	49	58	56	54	54	62	64	..	47.8
Olin	Max..	50	67	74	75	68	75	83	80	68	67	59	65	76	80	84	74	75	79	73	74	75	74	73	77	82	79	83	84	88	90	..	75.0
	Min ..	49	55	55	58	60	42	52	68	53	45	43	35	44	63	53	56	47	50	56	53	53	54	47	46	44	64	58	56	55	76	..	52.6
Omaha, N	Max.	54	62	73	69	73	79	84	83	70	63	66	70	76	80	82	76	82	88	80	74	71	73	76	74	71	80	82	85	90	93	..	76.3
	Min ..	48	53	58	56	57	57	64	62	55	50	48	50	53	57	61	60	58	66	63	62	59	54	57	62	60	59	62	66	71	77	..	58.8
Onawa....	Max..	53	60	73	73	76	82	82	77	68	66	71	75	81	84	86	82	84	89	80	78	73	75	77	77	75	80	82	88	91	93	..	77.6
	Min .	47	52	56	56	56	56	59	60	52	48	43	47	51	54	57	61	50	63	60	62	59	51	54	59	60	58	60	66	70	76	.	56.8
Osage.....	Max..	60	67	75	77	75	81	83	78	66	62	57	68	78	81	84	72	77	80	69	68	66	70	71	77	78	81	82	83	81	85	..	74.4
	Min .	46	54	53	56	57	54	58	52	48	45	41	38	44	53	52	54	44	55	58	55	51	49	46	47	51	52	53	62	60	65	..	51.8
Osceola...	Max..	48	54	66	73	72	70	76	83	83	70	66	67	66	75	80	80	75	78	83	80	78	75	70	79	75	77	85	82	85	88	..	74.6
	Min ..	42	48	55	57	56	57	59	59	52	46	43	37	45	51	51	59	47	52	59	60	59	54	50	56	61	59	51	58	65	68	..	53.9
Oskaloosa	Max..	55	68	73	70	69	75	81	82	69	64	61	64	74	79	82	75	76	72	77	71	71	72	74	75	71	79	82	83	86	91	..	74 0
	Min .	47	53	59	57	59	57	57	60	55	48	45	38	45	54	55	59	49	56	59	59	58	56	56	57	59	60	56	56	64	72	..	55.4
Ottumwa	Max..	57	61	71	70	69	75	82	82	74	65	64	64	62	79	80	76	76	78	79	72	73	72	75	77	78	79	81	84	88	91	..	74.8
	Min ..	50	53	53	54	54	65	65	67	62	60	50	45	57	58	58	59	54	56	59	48	56	54	53	60	62	62	64	68	70	71	..	58.4
Pacific J'n	Max..	51	64	74	75	75	80	82	85	73	68	71	75	79	84	84	77	85	88	82	76	76	77	81	79	72	81	83	91	92	93	..	78.4
	Min .	45	51	58	54	54	53	62	58	53	48	41	45	47	50	54	55	50	60	60	60	53	60	51	59	60	56	55	61	61	74	..	54.9
Perry.	Max..	55	65	75	73	75	82	86	85	73	65	67	72	81	85	86	77	83	77	77	74	68	64	70	70	66	74	76	80	83	87	..	75.0
	Min ..	48	53	52	55	57	55	60	58	51	47	42	40	45	52	55	60	47	59	59	59	57	52	49	61	62	59	67	63	64	71	.	55.8
Plover....	Max..	57	63	73	75	77	84	85	82	65	60	65	72	78	83	85	76	80	75	69	74	66	70	77	80	81	84	84	85	88	90	..	76.1
	Min ..	46	50	55	57	55	56	59	55	50	43	38	38	50	55	54	56	47	60	57	59	50	48	46	58	63	55	58	60	66	64	..	53.6
Primghar	Max..	56	62	74	73	77	83	82	71	65	63	66	73	70	82	83	72	80	78	71	70	64	69	78	75	77	81	80	88	85	89	..	74.6
	Min ..	46	51	53	54	53	58	58	55	44	41	37	40	49	52	55	56	48	59	56	55	54	48	49	57	59	58	59	63	67	68	..	53.2
Red Oak..	Max..	54	63	71	70	72	78	78	81	68	64	65	73	78	76	80	76	78	84	80	78	74	72	78	78	72	77	79	84	87	91	..	75.3
	Min ..	47	53	59	57	57	55	58	61	54	50	46	47	49	53	55	59	52	62	63	62	63	56	53	62	63	59	58	64	68	75	..	57.3
Ridgeway	Max .	63	64	80	81	80	86	86	84	72	68	62	75	80	84	86	80	82	85	76	75	67	74	76	75	82	84	86	85	86	89	..	78.4
	Min ..	47	54	52	56	59	55	62	58	49	46	41	41	48	57	59	57	50	54	57	53	53	53	50	51	56	57	58	63	62	67	..	54.2
Rockw'l C	Max..	57	63	72	75	82	86	82	75	72	69	65	71	80	80	82	80	80	79	79	75	65	78	80	79	80	80	84	85	87	90	..	76.9
	Min ..	46	52	52	55	57	59	65	50	48	46	41	41	47	53	56	58	55	60	59	59	55	49	55	60	58	59	59	63	64	64	..	54.8
Sac City..	Max..	54	62	73	73	76	83	83	80	72	64	66	72	79	82	84	76	82	84	76	75	70	73	78	75	78	82	82	86	89	91	..	76.7
	Min ..	46	50	56	54	54	56	57	57	48	45	39	39	47	52	54	52	46	59	58	57	54	48	48	57	60	56	55	63	66	64	..	53.2
St. Cha'les	Max..	54	64	71	69	69	75	82	84	71	66	64	65	75	80	83	74	77	80	78	74	65	73	78	72	76	80	81	85	88	91	..	74.8
	Min ..	46	52	56	54	56	56	59	59	52	48	44	41	47	54	57	59	49	59	60	59	56	54	51	61	61	60	59	63	66	72	.	55.7
Scranton.	Max..	54	62	75	74	74	83	87	86	74	66	68	78	83	86	90	78	85	70	76	76	77	75	76	78	78	82	84	87	94	91	..	78.2
	Min ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Sheldon..	Max..	57	62	75	73	77	84	86	74	65	63	64	72	77	83	85	80	79	77	72	72	63	72	77	74	76	82	.	86	86	..	..	74.8
	Min ..	46	54	51	53	52	53	57	60	45	42	37	48	49	51	55	45	50	58	51	56	52	44	44	56	58	54	..	62	64	..	..	51.9
Sibley	Max..	58	67	75	74	77	82	83	69	64	63	66	72	78	82	83	75	78	79	75	74	65	72	76	76	78	83	79	84	83	87	..	75.2
	Min ..	48	52	54	54	53	54	58	52	47	42	36	40	45	48	51	53	44	57	57	57	51	47	44	55	57	53	55	58	65	65	..	51.7
Sigourn'y	Max..	55	70	79	78	72	81	86	88	73	69	67	70	80	85	88	82	85	78	83	77	77	77	78	82	86	87	88	89	92	96	..	79.9
	Min ..	47	52	56	57	59	54	57	52	51	43	43	35	44	52	55	47	46	54	57	57	54	47	47	54	57	58	53	55	62	68	..	52.4
Sioux C'r.	Max..	55	62	73	72	76	81	81	76	65	62	67	71	76	81	83	71	79	81	73	72	67	72	78	76	76	81	79	87	86	89	..	74.9
	Min ..	46	51	50	54	54	58	61	56	47	42	38	39	48	49	54	54	46	59	57	58	54	49	50	58	53	57	57	62	65	64	..	53.1
Sioux C'y.	Max..	56	62	72	72	75	82	83	79	66	64	67	72	77	82	84	73	81	86	78	74	63	73	77	74	71	79	82	88	89	93	..	75.8
	Min ..	48	52	57	55	56	57	60	58	51	46	40	48	54	57	61	59	51	57	57	58	56	52	52	61	59	56	61	65	69	67	..	56.0
Spirit L..	Max	59	63	79	70	73	84	84	76	63	61	61	73	82	82	82	70	78	78	73	69	69	70	76	78	80	80	80	88	82	85	..	74.9
	Min ..	..	52	55	56	54	55	60	55	49	45	42	42	50	50	57	55	53	52	50	57	53	51	48	50	54	55	54	62	66	65	..	53.5
Storm L..	Max..	56	60	71	72	74	80	80	78	64	61	62	69	75	79	81	73	77	75	70	71	64	70	75	74	75	78	79	83	86	87	..	73.3
	Min ..	46	51	55	54	53	57	59	55	49	44	38	45	52	53	57	56	47	59	58	57	52	51	49	59	59	56	60	64	66	67	..	54.3
Stuart. ..	Max..	53	64	74	73	73	78	64	66	61	59	60	63	80	85	80	78	70	68	71	78	..	..	..	..	..	81	84	89	96	90	..	73.3
	Min ..	40	51	57	55	55	54	58	57	51	46	42	46	46	44	65	58	56	59	58	58	54	52	49	60	59	58	62	61	70	74	..	55.2
Thurman.	Max..	55	63	72	73	73	78	83	83	71	67	69	74	78	82	84	79	84	89	82	77	77	75	79	77	72	79	83	89	92	94	..	77.8
	Min .	46	52	59	54	53	52	55	58	52	47	41	42	45	47	49	54	49	64	61	60	67	54	49	58	59	55	54	60	68	75	..	54.6
Tipton....	Max..	56	69	75	77	69	80	86	87	74	71	66	73	79	85	88	84	80	80	78	77	75	77	78	83	83	83	87	86	87	92	..	78.8
	Min ..	48	54	55	59	60	56	59	67	56	49	47	40	49	56	62	62	53	56	60	57	58	57	51	53	57	62	60	61	63	74	..	56.7
Toledo....	Max..	55	67	73	74	72	77	85	84	70	67	65	66	76	80	83	75	75	77	78	69	70	74	75	79	80	84	83	85	86	89	..	75.8
	Min ..	48	54	54	56	59	52	57	57	50	46	43	34	41	53	51	56	43	52	57	57	52	54	46	52	55	55	51	59	57	67	..	52.3
Wapello..	Max..	55	67	69	69	71	72	76	78	70	65	62	64	70	75	78	77	74	76	76	72	71	69	71	76	74	74	77	80	82	89	..	72.6
	Min ..	49	54	59	60	60	50	58	62	58	52	48	42	48	55	59	60	54	58	61	60	59	58	52	55	67	61	60	59	62	70	..	56.9
Washi'ton	Max..	55	68	71	71	67	77	83	83	72	66	64	66	76	81	83	77	76	77	79	72	73	73	75	80	79	80	82	83	87	92	..	75.4
	Min ..	46	52	54	55	57	52	53	57	48	45	41	35	42	51	53	55	46	53	55	55	53	52	46	58	56	56	54	56	60	67	..	52.1
Waterloo.	Max..	54	59	66	74	75	72	80	85	84	71	65	62	69	78	83	82	75	77	80	74	68	70	73	74	79	79	80	84	85	85	..	74.7
	Min ..	46	48	53	56	58	52	56	56	52	46	43	37	43	51	55	60	45	49	59	56	49	53	49	49	51	54	52	57	58	60	..	51.8
Waverly..	Max..	59	63	72	73	71	78	80	81	67	68	68	65	75	79	82	72	76	80	71	67	67	70	71	76	77	81	82	83	83	87	..	74.1
	Min ..	47	53	54	57	58	52	58	55	50	47	44	37	44	52	55	59	55	55	59	56	52	50	48	48	53	54	53	62	59	69	..	53.2
Whitten..	Max..	57	66	74	74	74	81	83	83	69	65	60	70	79	84	85	73	81	81	76	72	70	72	77	82	83	85	87	88	90	88	..	77.0
	Min ..	41	52	52	57	58	52	59	55	49	44	40	35	42	54	54	59	43	55	58	56	50	50	67	55	57	55	53	60	60	65	..	52.9
Wilton J.	Max..	56	75	78	78	72	79	85	84	74	75	65	68	75	83	87	77	78	83	82	79	78	76	74	81	83	81	83	88	91	94	..	78.7
	Min ..	48	51	56	62	60	53	53	60	46	51	41	36	43	51	61	57	49	52	58	50	62	53	46	51	53	54	54	55	64	69	.	53.3
Winters't	Max..	54	65	75	73	71	80	85	85	71	68	66	70	79	84	87	76	80	80	79	77	70	74	80	75	77	83	84	87	89	92	..	77.2
	Min ..	45	51	57	55	49	52	57	55	50	44	40	39	43	50	53	55	49	59	57	53	53	54	46	59	60	58	53	60	65	78	..	53.5
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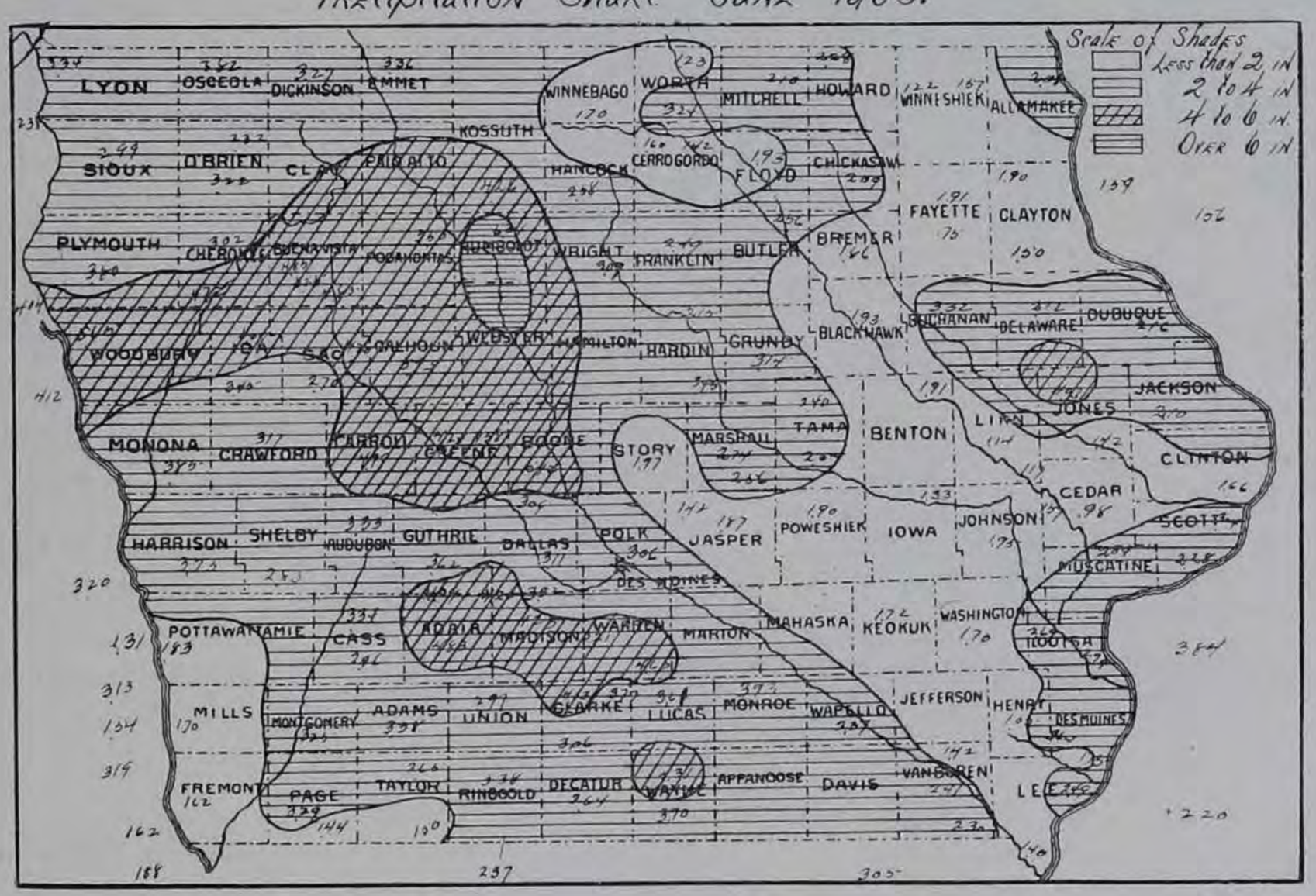
DAILY AND MONTHLY PRECIPITATION FOR JUNE, 1903.

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	.38	....	.07	.02	.24	....	.16	.42	.04	...	....	....	....	....	....	....	....	.29	....	....	.68	....	....	.13	.54	....	....	....	..	....	....	2.97
Albia	.70	.22	....	T	.07	.10	T	...	.15	....	....	....	....	....	....	....	....	....	1.97	...	....	.72	....	....	....	....	....	....	....	....	..	3.93
Algona	.40	.10	....	....	....	.20	..	.05	....	....	....	....	....	....	.02	....	....	.37	.25	....	.05	..	....	....	....	....	....	....	.42	2.40	....	4.26
Allerton	.70	.09	.03	.16	T	....	..	.10	T	....	..	....	....	....	....	..	..	1.30	.19	T	1.00	.32	....	.01	....	....	....	....	....	....	....	3.90
Alta	.28	....	.10	.09	....	....	T	.26	.03	T	....	....	....	....	....	.19	....	.68	.54	.03	.27	....	....	.23	.04	....	....	....	2.05	.06	....	4.85
Alta (near)	.17	.01	.04	.12	....	....	.13	.22	.21	..	....	....	....	....	....	.20	....	1.39	....	....	.28	....	....	.53	.08	....	....	....	1.81	.06	....	5.25
Amana	.48	.06	T	.01	.10	....	.22	.02	....	....	....	....	....	....	....	....	....	....	....	....	.17	.27	....	....	....	..	....	..	....	....	....	1.33
Ames	.13	.06	.03	.03	.02	....	....	.01	.02	....	....	....	....	....	....	..	....	.49	23	.01	.18	.03	....	.01	....	....	..	....	.04	.68	....	1.97
Atlantic	.38	....	....	.05	....	....	T	.22	T	....	....	..	....	....	....	....	....	T	.16	....	1.19	....	.12	.52	.70	....	....	T	....	....	..	3.34
Baxter	.25	....	.05	.10	.10	....	....	....	.05	....	....	....	....	....	....	....	....	.10	....	12	.15	.25	....	....	....	....	..	....	....	.25	....	1.42
Bedford	.23	.18	.11	.07	T	....	....	.08	T	....	....	....	....	....	....	....	....	....	....	T	.47	....	....	T	.36	..	....	..	....	....	..	1.50
Bonaparte	.50	....	....	.03	.88	....	....	....	....	....	....	..	....	....	....	....	....	.30	....	....	.59	....	....	....	....	....	....	....	....	....	....	2.30
Britt	.17	.03	.01	.05	.01	..	.01	.13	T	.01	....	....	....	....	....	....	....	.42	.04	.01	.08	.01	....	....	....	....	....	.17	.36	1.07	..	2.58
Buckingham	.28	....	T	T	.09	....	....	.05	T	T	....	....	....	..	..	T	..	T	.18	T	.59	....	....	T	....	....	..	T	T	1.21	....	2.40
Burlington	.52	.04	.46	.15	.23	....	....	....	T	.06	..	..	..	....	....	....	....	....	T	....	.26	.03	....	....	....	....	..	....	....	....	....	1.75
Carroll	.18	.15	.05	T	..	....	.42	.05	....	....	....	....	....	....	....	....	..	1.70	.40	....	....	.68	T	.35	....	....	....	....	.40	.61	....	4.99
Cedar Rapids	.33	T	.05	.30	.06	..	T	.02	....	....	....	....	....	....	....	..	....	T	T	....	.32	.04	....	....	..	....	....	....	.02	....	..	1.14
Chariton	.50	T	.17	.64	.15	....	....	.22	T	T	....	....	....	....	....	....	..	55	..	....	1.00	.15	....	.23	....	....	....	....	....	....	..	3.61
Charles City	.40	.10	....	..	.30	..	.04	...	.05	....	....	....	....	..	....	....	....	....	.04	.38	....	.18	....	..	....	....	.	.04	.	.40	..	1.93
Chester	.56	....	....	..	....	..	....	.10	....	....	....	....	....	....	....	....	....	....	.50	....	.13	....	....	....	....	....	....	....	.37	.62	..	2.28
Clarinda	.64	.20	.03	.16	.05	....	....	.23	.09	....	....	.	....	....	....	....	....	....	.03	....	.78	....	....	.06	.11	.91	....	....	....	....	....	3.29
Clear Lake	.25	..	..	T	....	....	....	.10	....	T	....	....	....	....	....	....	..	.30	....	....	.10	T	....	....	....	....	....	....	.35	.50	...	1.60
Clinton	.32	....	.12	.45	.41	....	....	....	....	.02	...	....	....	....	....	....	....	....	.14	....	....	.20	....	....	....	....	....	....	....	....	....	1.66
College Springs	.23	.05	T	.01	.01	..	....	.12	....	....	....	....	....	....	....	....	....	....	.02	....	.36	....	....	.02	.62	....	....	....	....	....	....	1.44
Columbus Junct'n	.40	.13	.31	.81	....	....	....	....	....	T	..	....	....	....	..	....	....	....	T	....	.49	.55	...	....	....	....	..	....	..	....	....	2.69
Corning	.39	.04	T	T	.03	..	T	.83	T	....	....	....	..	..	....	....	....	.29	....	....	.73	....	....	.01	1.06	....	..	T	....	T	....	3.38
Council Bluffs	.60	T	.02	.36	.01	....	....	.21	....	..	....	....	....	....	....	....	....	T	....	....	.27	....	T	....	.36	....	....	....	....	....	....	1.83
Corydon	.61	.07	.08	.06	.08	.01	..	.22	T	T	....	....	....	....	....	....	....	1.86	.08	....	.84	.29	....	.11	..	....	....	....	....	....	....	4.31
Cumberland	.10	....	T	.02	....	....	..	T	....	....	....	....	....	..	....	....	....	.35	....	....	1.35	....	.35	.26	.38	.15	....	....	....	....	....	2.96
Danville	.85	.50	.67	1.05	T	..	....	..	....	....	....	..	T	...	....	....	T	....	T	.14	.32	.11	....	....	....	....	....	....	....	....	....	3.64
Davenport	.87	T	.05	.18	.14	....	....	....	....	....	T	....	....	....	....	....	....	T	T	T	.33	.71	..	...	....	....	....	....	T	..	...	2.28
Decorah	.47	....	....	.04	....	..	....	....	....	....	....	....	....	....	....	.02	.10	..	.13	....	.19	....	....	....	.	....	....	....	....	.62	....	1.57
Delaware	....	....	....	.20	....	.02	....	...	.05	.	....	....	....	....	T	....	....	.10	.15	T	.25	.05	....	....	....	....	....	....	T	1.30	....	2.12
Denison	.08	T	..	..	T	....	.27	.18	....	....	....	....	....	....	....	....	....	.04	.62	.04	1.45	....	....	14	....	.15	....	....	.20	T	....	3.17
Des Moines	.17	.05	.07	.04	.08	....	T	.10	.08	T	....	....	....	....	....	....	....	1.47	.09	....	.80	.09	....	T	T	....	....	....	....	.02	..	3.06
De Soto	.30	.05	.25	.40	.10	....	T	.40	.09	T	....	....	....	....	....	....	....	1.46	.10	.02	.56	.05	..	....	..	....	..	..	....	.04	..	3.82
Dows	.22	.04	T	.17	..	....	T	.08	.10	.10	.	....	..	..	....	....	....	T	.27	....	.09	.07	....	....	....	....	....	T	.13	1.80	..	3.07
Dubuque	.47	.10	....	.06	.12	....	....	T	.08	.01	..	....	....	....	....	T	....	.03	.50	..	.09	.02	....	....	....	....	....	....	....	.68	...	2.16
Earlham	.46	.11	.39	.06	.02	..	.01	70	.01	....	....	....	....	....	....	....	....	.57	....	T	1.28	T	....	.08	.51	....	....	T	....	....	....	4.20
Elkader	.31	....	....	.05	.02	....	....	03	....	....	....	..	....	....	....	T	....	.05	....	....	.50	06	....	..	....	....	....	....	....	.48	..	1.50
Estherville	.04	.15	.05	.55	.04	.03	....	T	.15	T	T	....	....	....	....	....	....	.55	20	....	....	.16	....	....	20	T	..	.08	16	1.00	....	3.36
Forest City	.12	T	.	T	....	....	....	T	.12	....	....	....	....	....	....	....	....	.45	.10	T	T	.12	..	..	....	....	....	.11	T	.68	....	1.70
Fort Madison	.30	T	.19	.13	1.75	....	....	.05	....	T	..	....	..	....	....	....	....	.14	....	....	.70	.23	....	....	....	....	....	....	....	....	....	2.49
Galva	.20	T	....	....	....	....	....	....	....	....	....	....	....	....	T	....	....	....	.50	T	.50	....	....	.75	.	....	....	.32	1.80	....	4.07
Gilman	.30	T	.25	T	.30	T	T	T	....	T	....	....	....	....	....	....	....	.10	.18	....	.21	.42	....	....	....	....	....	....	T	.80	...	2.56
Grand Meadow	.06	T	....	.02	.03	....	....	....	....	....	....	....	....	....	....	....	....	.02	....	....	.55	.10	....	....	..	....	....	T	.02	1.10	....	1.90
Greene	.44	.09	....	.43	....	.03	....	....	....	....	....	....	....	....	....	....	....	.09	.10	...	.18	.08	....	....	....	....	....	....	.12	1.00	....	2.56
Greenfield	.36	.07	.31	.20	.08	..	.01	.52	T	....	....	....	....	....	....	....	....	.28	.04	....	1.33	.02	....	.12	1.49	T	....	....	....	T	..	4.83
Grinnell	.05	.08	.05	T	.20	....	.05	T	.05	.03	....	....	..	....	..	....	....	.08	.08	....	.48	.75	....	....	..	....	....	T	T	T	....	1.90
Grundy Center	.10	.04	.18	.05	.01	....	....	T	.01	.11	....	....	....	....	....	....	..	....	.08	..	.07	.40	....	.08	....	....	....	.03	.02	1.96	..	3.14
Guthrie Center	.20	T	.31	.43	.09	....	T	.11	T	....	....	....	....	....	....	....	....	.78	.13	....	.55	....	..	.02	1.00	....	....	....	T	....	....	3.62
Hampton	.13	....	.05	.04	....	.37	.	.08	....	.05	....	....	....	..	..	.04	....	.13	.11	....	.28	....	....	....	....	....	....	.09	1.12	....	..	2 49
Hanlontown	.18	....	....	T	....	....	....	T	....	.12	....	....	....	....	....	....	....	....	.09	.04	.03	....	....	....	....	....	....	.20	.37	.20	....	1 23
Harlan	.12	.08	T	.02	T	....	.04	.23	.02	T	....	....	....	..	....	..	....	.68	.24	.01	.83	T	....	.42	.11	.03	....	....	....	....	....	2.83
Hopeville	.51	.03	.04	.10	.03	.	.07	.21	.03	....	....	....	....	....	....	..	..	.31	....	....	.86	....	....	.07	.80	....	....	....	....	....	....	3.06
Humboldt	.65	....	.01	.26	..	....	1.11	20	.07	T	....	..	....	..	.	....	....	.35	.41	.61	.40	....	....	....	....	....	....	.15	.15	1.67	....	6.04
Ida Grove	.06	....	.02	....	.02	....	....	....	.05	....	....	..	....	....	....	....	....	.21	02	....	1.07	....	....	1.52	.07	.06	....	....	.17	.18	....	3.45
Independence	.05	....	....	.20	....	....	....	.01	....	01	....	....	....	....	....	....	....	.05	....	....	....	1.10	....	..	....	....	....	....	T	1.90	....	3.32
Iowa City	.59	.41	T	.04	.39	.05	....	T	.04	..	.03	....	....	....	....	....	....	....	....	.03	T	.34	.03	....	....	....	....	....	....	T	....	1.95
Iowa Falls	.23	.15	T	.40	.01	....	....	....	T	.01	T	....	....	....	....	T	....	....	T	.10	....	.24	....	....	....	....	....	.01	....	1.00	....	2.15
Jefferson	...	.25	.12	.15	.40	..	.03	.05	.15	....	....	....	....	....	....	....	....	1.20	.30	....	.32	....	....	.03	.33	....	....	T	.45	.80	....	4.58
Keokuk	.46	.05	.04	.07	.15	....	....	.18	....	....	....	....	..	....	....	....	....	....	.30	....	.15	....	....	....	..	....	....	....	....	....	....	....	1.40
Keosauqua	.71	.30	.02	....	.10	.02	....	....	.07	....	....	....	....	..	....	....	....	....	.47	....	..	.72	....	....	....	....	....	....	.	....	....	2.41
Lacona	.56	.01	.44	.27	.45	....	..	.20	.20	....	....	....	....	..	....	....	....	1.00	....	10	1.00	.30	....	....	.05	....	....	....	....	.02	....	4.60
Lansing	.20	.28	....	....	....	....	....	T	....	....	....	....	....	....	....	....	....	....	....	.55	.35	....	....	....	....	....	....	....	....	.70	....	2.08
Larchwood	.15	T	T	T	T	.1	T	.13	.14	....	....	....	....	....	....	T	....	.11	.08	.05	.21	....	.10	....	.09	.17	....	..	.14	1.84	....	3.34
Larrabee	.22	.02	.05	.07	.18	....	T	.21	T	T	....	....	....	....	....	.33	....	.53	....	....	....	....	....	.30	.15	.	..	....	.96	....	..	3.02
Le Claire	.52	.68	.09	.56	.11	.22	....	....	....	....	.02	....	....	....	....	....	....	....	....	....	.33	....	.48	.03	....	....	....	....	....	....	....	..	3 04
Le Mars	.28	....	T	T	T	..	..	.35	.07	T	..	....	....	....	..	.06	....	.04	.70	.28	.46	....	....	.60	.30	..	..	....	.25	.41	....	3.80
Lenox	.41	.01	.10	.10	T	....	..	.18	....	....	....	....	....	....	..	....	..	.10	..	....	.91	....	....	.16	.68	....	....	....	..	....	....	2.05
Leon	.46	.08	....	.20	.08	....	....	.25	05	....	....	....	..	....	..	....	....	.05	.85	....	.50	.07	....	.05	....	.	....	....	....	....	..	2.64
Logan	.60	.10	....	.10	....	....	.45	....	....	....	....	....	....	..	....	....	....	.75	.25	....	.53	....	....	....	.07	.88	....	....	....	....	....	3.73
Maquoksta	.05	.11	T	....	.35	.14	....	....	T	....	....	....	..	....	....	..	..	....	.25	.20	..	.30	.03	....	..	..	....	....	....	.67	....	2.10
Marshalltown	.30	.22	.03	.46	08	.02	..	....	.01	.01	.02	....	....	....	....	....	....	.	.12	.40	....	.43	..	..	....	....	....	....	....	.64	..	2.74
Monticello	T	.15	1.01	.10	T	...	T	.32	....	T	....	....	....	....	....	....	T	....	.10	.15	....	.25	....	....	....	....	....	....	1.95	....	....	4.03
Mason City	.30	....	....	....	.06	....	....	.07	....	....	....	....	....	....	....	....	....	.12	.10	....	.04	....	....	....	....	....	....	T	.35	.38	....	1,42
Mount Ayr	.33	.11	.33	.02	.09	....	....	.67	T	....	....	....	....	....	....	....	....	.55	....	....	.65	....	....	.12	.50	.01	....	T	....	..	....	3.38
Mt. Pleasant	60	....	.13	.	.01	....	....	.01	....	T	....	....	....	....	....	....	....	T	....	T	....	30	....	....	.	....	....	....	....	..	....	1.05
Mt. Vernon	.46	T	.01	.10	.35	T	T	....	.01	T	....	....	....	....	....	T	..	.02	.01	T	.18	.02	....	..	..	....	....	....	..	.01	..	1 17
New Hampton	.37	....	....	.12	....	....	.	....	....	....	....	....	..	....	....	....	....	.01	.20	.23	.15	....	....	....	..	....	....	.17	.84	....	2.09
Newton	.35	.05	.10	.08	.07	....	....	.04	T	.04	....	....	....	....	....	....	....	.16	.06	....	.54	.38	....	....	....	....	....	....	T	....	....	1.87
Northwood	.30	....	.07	....	....	....	....	.20	T	T	....	....	....	....	....	.02	....	.01	1 51	T	.04	....	....	....	....	....	....	.04	.74	.31	....	3.24
Odebolt	.21	.05	....	.08	.05	....	.30	.04	.02	....	....	....	....	....	....	....	....	.30	.30	....	.50	....	....	....	.25	....	.30	....	....	.30	....	2.70
Ogden	.35	.17	T	.24	.20	..	....	.17	....	.06	....	..	....	....	....	....	....	....	2.50	....	....	.13	....	.03	....	.77	....	....	....	.80	....	5.42
Olin	.05	T	.02	.01	.40	....	....	....	....	.01	..	....	..	....	....	....	....	.02	.01	T	.15	....	....	....	....	....	....	....	....	.75	..	1.42
Omaha, Neb	.38	.05	T	.05	.01	....	....	.08	T	..	....	....	....	....	....	....	....	T	.10	.02	.33	T	...	.01	.05	.23	....	T	....	T	....	1.31
Onawa	.18	.09	....	.16	T	....	T	.19	.03	.02	..	....	....	.	....	....	..	..	.04	.05	1.65	....	....	.16	1.26	....	....	....	....	.02		3.85
Osage	.35	....	.05	.02	..	....	....	T	....	....	..	..	....	....	.	....	....	....	.99	T	.15	.02	....	....	....	....	....	.02	.26	.24	....	2.10
Osceola	.35	.17	T	.01	.03	.04	....	T	.65	T	T	....	....	....	....	....	....	....	1.80	....	.80	.20	....	.01	.07	....	....	....	....	....	....	4.13
Ottumwa	.06	....	.08	.15	.70	....	....	.03	....	....	....	....	....	....	....	....	....	.15	....	....	1.20	....	....	....	....	....	....	....	....	....	....	2.37
Pacific Junction	42	.08	....	....	T	....	....	.28	T	....	....	....	....	....	.	....	.	T	T	.48	....	....	....	.02	.25	17	....	....	....	....	..	1.70
Perry	.16	.14	.16	.06	T	....	16	.08	.03	T	....	....	....	....	....	....	....	.80	.40	....	.46	..	....	....	.64	....	....	..	T	..	....	3.09
Plover	.46	.22	.08	T	....	....	....	.11	.08	.04	....	....	.	..	....	.04	....	.67	.34	.04	.63	....	....	....	....	....	....	....	.08	.71	....	3.50
Primghar	.20	T	T	T	....	....	T	.26	.20	.07	....	....	....	....	....	.03	....	.20	.58	....	.44	....	....	.24	....	.	....	....	....	1.00	....	3.22
Red Oak	.48	.08	T	T	.01	....	....	1.00	.01	....	....	....	....	....	....	....	....	..	.12	....	.48	.04	....	.08	.37	.58	....	T	....	....		3.25
Ridgeway	.09	T	....	.01	....	....	....	.07	.01	.01	....	..	....	....	.03	....	....	.13	.13	....	.12	....	....	....	....	....	....	.04	.13	.45	....	1.22
Rockwell City	.35	.08	....	.20	.05	.20	.18	....	....	....	....	..	....	..	..	....	....	1.38	.75	....	.25	.30	..	....	.93	....	....	.05	.25	.96	...	5.93
Sac City	.21	.16	T	T	T	..	.23	.21	.04	T	....	....	..	....	..	04	....	.83	.69	.05	.47	....	...	.06	....	....	....	.04	.15	1.02	..	4 20
St. Charles	.55	.05	.67	.14	.07	....	.07	.60	.03	....	.	....	....	....	....	....	....	2.09	....	....	.82	.02	..	.10	....	....	....	T	....	T	....	5.21
Scranton	.22	.08	.15	.14	.06	....	.05	.04	....	....	....	....	....	....	....	....	....	....	.96	.11	.33	..	....	....	.20	....	....	....	.40	1.50	....	4.24
Sibley	.11	....	.11	T	.04	....	.11	.12	.25	.01	....	....	....	....	....	....	....	.96	T	....	.14	....	....	.50	....	....	....	....	.19	1.28	....	3 82
Sigourney	.42	.05	.54	T	.17	....	....	.08	....	T	....	..	....	....	....	....	....	T	T	..	.46	....	....	....	....	....	....	....	....	....	....	1.72
Sioux Center	.22	.14	.03	T	T	..	.12	.11	.12	T	....	..	....	..	....	T	....	.08	28	T	.20	..	....	.16	.88	....	..	....	.27	.38		2.99
Sioux City	.30	.24	.01	.02	....	..	....	.06	.01	T	....	....	....	....	....	T	..	....	.41	.03	2.83	....	....	.39	.40	....	....	....	.25	.70	....	5 65
Spirit Lake	T	T	T	....	....	....	.30	.16	T	T	T	....	....	....	....	....	....	.85	....	....	....	....	....	....	.36	....	..	....	.25	1.35	....	3.27
Stockport	.10	.15	.25	.05	.02	.01	....	.11	T	T	...	....	...	....	....	....	..	.05	.15	..	.53	....	....	....	....	.	...	....	....	....	....	1.42

DAILY AND MONTHLY PRECIPITATION FOR JUNE, 1903—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	.42	.05	.04	.04	....	....	.01	.35	.03	T	...	....	....	....	....	.11	....	.93	.40	....	.31	.03		.09	....	.09	....	....	.21	.74	....	4.85
Stuart	.20	.04	.07	.08	.35	....	.30	.56	T	...	....	....	....	....	....	....	....	.59	..		1.15	....	..	..	.75	....	....	....	....	....	...	4.09
Thurman	.44	.12	.08	.02	T	...	.	.06	....	....	..	....	....	..	....	....			T	T	28		T	.15	.42	.05	....	....		....	....	1.62
Tipton	.26	..	.16		.14	.07		....	....	T	..	....	....	....	..	.	....	T	T	....	.35	..	....		..	....	..	....	T		....	.98
Toledo	.30	....	.25	T	.15	....	T	....	T	....	....	....	..	....	..	....	....	...	T	.	.55	....	....	....	....	..	..	....	.02	.80	....	2.07
Vinton	.12	T	.05	.13	.21	.04	....	.03	....	....	....	....	....	..	....	....	..	.05	.05	..	.78	.04	....	....	....	....	....		.37	.04	....	1.91
Wapello	.55	.05	.79	T	.15	....	....	T	....	.19	....	....	....	....	..	....	....	...	.	....	.80	.46	....	....	....	....	....	....	....	....	....	2.99
Washington	.44	.09	.11	.15	.27	....	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	.64	....	....	....	....	....	....	....	....	....	1.70
Washta	.13	T		T	....	.	....	.05	.10	....	...	....	....	..	....	T	....	.40	.08		.43	.	....	.30	....	....	....	.	.23	3.00	..	4.72
Waterloo	.28	.08	....	.04	.22	.02	....	T	T	....	T		....	....	....	....	....	.09	T	.04	....	.61	....	....	....	..	....	T	....	.55	....	1.93
Waukee	.25	.06	.13	.02	.16	....	T	.12	.06	.02		..	..		....	.	...	1.61	.05	T	.48	.15		T	....	....	....	....	....	T	....	3.11
Waverly	.15	.09	.01	.16		....	.02		....		....	....	....	....	....		....	.08	.05	.01	.13	.28	.....	....	....	....	....	....	.10	.78	....	1.86
West Branch	.53	.05	T	.08	.54	....	....	....	....	.05	..	....		....	..	....	....	....	T	...	24	.08	....	....	....	..	....	....	....	....	....	1.57
Whitten	.11	....	.44	.10	T		....	T	T	T	.	....	...	....	....	....	....	T	.25	T	T	T	..	...	....	....	....	T	T	2.55	....	3.45
Wilton Junction	.63	...	.10	.10	.60	....	....	....		....	....	....	....		....	....	....	....	....	.	.45	.16	....		....	....	....	..	....	..	....	2.04
Winterset	.46	.06	.22	.09	.10	....	.60	.43	T	....	....	..	....	...	....	....	....	1.25	....	.15	.76	.07	....	.04	..	....	....	....	....	.....		4.23
Woodburn	.17	.04	.04	.10	.13	.01	....	.69	T	T	....	....	....	.	..	..	.	1.67	....	T	.77	....	.07	.08	..	....	....	....	....	....	....	3.77

Precipitation Chart June 1903.



JULY, 1903. No. 7

MONTHLY REVIEW

OF THE

IOWA WEATHER AND CROP SERVICE

CONTENTS.

CENTRAL STATION, DES MOINES, IOWA.

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ALLIED PRINTING TRADES UNION LABEL COUNCIL DES MOINES

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THE IOWA WEATHER AND CROP SERVICE

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U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

VOLUME XIV. JULY, 1903. No. 7.

IOWA CROP REPORT, AUGUST 1, 1903.

Reports from township and county crop correspondents of the Iowa Weather and Crop Service have been tabulated, showing the following estimates of the condition of the staple crops on August 1, 1903: Spring wheat, 82 per cent; corn, 73; oats, 77; millet, 96; flax, 84; buckwheat, 89; pastures, 104; sorghum, 84; potatoes, 80; apples, 65; grapes, 80.

At corresponding date last year the estimates were as follows: Spring wheat, 84; corn, 93; oats, 83; flax, 91; potatoes, 107; apples, 66.

WEATHER AND CROP CONDITIONS, JULY, 1903.

July was characterized by frequent and sudden alternations from high to low temperatures. The daily mean for the month was about two degrees below normal, the first decade being unusually warm, the second decade unseasonably cool, and the third decade bringing the two extremes of temperature. The average rainfall for the state, 4.83 inches, was .91 of an inch above the July normal. The distribution was very unequal, the average of the northern section being 6.49, the central section 5.28, and the southern section 2.73 inches. The heaviest amounts of rainfall were reported at stations in the N. E. district. The most destructive storm of the month occurred on the afternoon of the 20th, sweeping across the state on a direct line from Lyon and Osceola southward to Adams, Taylor and Ringgold, its pathway varying in width from one to eight miles. At numerous points along this line the storm was accompanied by high winds and very heavy hail, causing almost total loss of growing crops within an area of more than three hundred square miles.

In portions of the southern section drouthy conditions prevailed for many days, causing some detriment to growing crops; but the closing week brought relief in form of generous showers. On the whole the month was favorable for haymaking and harvesting of wheat, oats, barley and rye. The hay crop proved to be one of the best ever produced in the state, and the greater part of it was secured in excellent condition. Wheat and oats were generally harvested in good condition, but on account of the rust and blight the yield has been disappointing, though the quality of the grain will be greatly superior to the output of last year. The corn crop made fairly good progress during the month, though the temperature was somewhat unfavorable about half of the time. The early planted portion of the crop reached the earing stage while the late planted corn was generally small and unpromising. The outlook for the crop as a whole was not encouraging at the close of July. Reports indicated generally favorable prospects for late potatoes, early apples, grapes and vegetables. Millet, buckwheat, flax and sorghum were rated good in condition.

CROP AND WEATHER NOTES.

The St. Louis correspondent of the *Northwestern Miller* says that all the wheat arriving at St. Louis is of so high a milling quality that the millers feel elated over the bright prospects of having at least the quality, if not the quantity, of wheat to grind this year. The lower river boats are bringing in sacked lots and every sample shown so far has been fully up to milling grade, besides being hard and perfectly sound.

It really takes a most extraordinary year to beat in a crop way a country that raises some crops over an area 3,000 miles long and 2,000 miles wide, says the *Minneapolis Journal*. Of the wheat crop of 1902, 362,000,000 bushels were winter sown and 307,000,000 spring wheat. The lower Missouri valley produced about 184,000,000 bushels, the upper Mississippi and Red river valley 187,000,000; the Pacific coast 61,000,000; the Atlantic coast states 42,000,000, and the Ohio valley and lake states 132,000,000. It is not in the natural order of things that weather conditions will be such as to ruin both winter and spring wheat over such a large area and with such marked difference in climate.

A news special, dated Crawford, N. H., July 28th, notes a remarkable fall in the temperature in the region of the White Mountains, as follows: With three inches of snow on Mount Washington, trees prostrate along the Crawford Notch carriage road, and Jackson Village cut off from the outside world by the blowing down of the telegraph and telephone poles, the record of unseasonable weather during this unusual summer is broken to-day. At the Summit House, on Sunday evening at 8 o'clock, the thermometer registered 30 degrees. Yesterday morning it was only 16 degrees above zero. A terrific northwest gale blew all night, the equal of which the Summit dwellers say they have not seen in years. With the wind came snow, and fully three inches cover the mountain top.

Alfalfa is comparatively a new plant in this country, but in Asia it was known and cultivated before the dates of the most ancient history. It grew in abundance in Assyria and Persia, and at an early day found its way to southern Europe, and thence with the Spanish conquerors to Mexico and Peru. It was grown to some extent, but not appreciated, in the eastern states, long before it was recognized as of material value anywhere in this country. In portions of South America it has escaped from the fields and grows wild over large areas. It is now grown largely in all the arid and semi-arid regions of the

world, and is everywhere recognized as the most valuable forage plant known for all sections where rainfall is scant. But it is by no means confined to arid sections, but is grown and esteemed where rainfall is abundant. Its most perfect development, however, seems to be where it can get sufficient moisture by means of its long tap root, and does not have to depend upon rains.—*Exchange*.

CLIMATE OF THE NORTHWEST.

The northwest leads in the great variety of its climatic conditions. Far removed from ocean influences, it has a climate all its own and of the extreme sort. No monotony about it. We have a taste of all climates found anywhere on earth and some which are found nowhere else. It is nature's grand experimental laboratory, the place where Leyden jars, electric batteries, refrigerators, furnaces and retorts, manipulated by the great chemist of the universe, evolve and liberate the snow-capped cumuli cloud mountain surcharged with its awful voltage of electricity, and burden of tropical humidity; where is cradled the cyclone demon of the air, the laboratory combination of mysterious forces; where is set free the blizzard, the incarnated spirit of vast polar seas and mighty icebergs; a climate whose furnaces give an equatorial heat and a tropical summer, and whose refrigerators invest us with an arctic temperature in winter. Intermingled with these extremes are other types—serene and peaceful days when the earth smiles and blushes at the heavens' tender caress, nights so calm and silent that were it not for the night cry or the whippoorwill, the chir-r of a tree toad or the distant barking of a dog the star set heavens might seem to look down upon an uninhabited world. Under these forceful and constantly changing climatic conditions the very best there is in man is being brought out and developed; he becomes of necessity virile, energetic, aggressive; the dolce far niente of perennial sunshine is to him unknown, and so mid the storm and the great wind, the heat and the cold, the turmoil and calm, there is being evolved—there is nowhere else—a type of manhood and womanhood unexcelled on earth.—*J. S. Trigg*.

FLOOD LESSONS.

A large section of the middle west has been this season visited by floods of greater magnitude than have been known for sixty years. The resulting loss of life has been great and the destruction of property almost immeasurable. Some facts, which in a general way have been known, yet but little heeded, have been terribly emphasized as a result of these floods. One of them is that the settlement and improvement of a country tend to a quick release of excessive rainfall, the universal system of draining, tiling and ditching incident to the reclamation of all wet lands insuring the rapid movement of the water to the streams and rivers, these augmenting the flood in the seagoing streams with a cumulative effect. Another fact which has been made very plain is that the general effect of man's work on the country has been in the way of narrowing the original waterways and obstructing the natural outlets for flood waters. This has been brought about by the desire of municipalities and railways to curtail as much as possible the length of their bridges and the filling up of ancient ravines to secure valuable building sites, it being shown that a western city, one of the worst sufferers by the late flood, had actually narrowed the main channel of the river which passed through it 150 feet in the manner above indicated, besides having filled up and obliterated numerous gulches and bayous on the one-time river bottom which were the safety valves for the flood seasons of fifty years ago. Another fact developed, and one which more particularly concerns the farmer, is that his low lands, the marsh and bog of the pioneer days, which of late years he has broken up and cropped and not tile drained, are now well under way back to the primeval bog conditions and will remain unprofitable land for him until he can either get it seeded down or properly underdrained. The last lesson is that there is no visible or permanent change in progress of climatic conditions. These remain as they always have been, cycles or periods with a marked tendency toward extreme heat, cold, drouth or flood following each other with a certain fixity of purpose, but according to no regular known periodicity. The high water marks of 1903 will furnish plenty of material for future thought and study.—*J. S. Trigg*.

THE RELATIONS OF FORESTRY TO ZOOLOGY.

It has been pointed out recently by H. A. Surface, professor of Zoology at Pennsylvannia State College, that there is a direct and important connection between forestry and zoology, and he gives several examples of how this connection exists. Aside from the clearing of forest growths which naturally drives the denizens of the woods from the cleared localities, he finds that the effect of forest destruction on streams is a far-reaching one. Clear streams, flowing perpetually through wooded country, are the natural haunt of the trout; but if the country in which these streams rise or have their courses is destructively cut over, the streams themselves become intermittent, muddy, and in some cases only a succession of warm and slime-covered pools in midsummer. As such they are fit only for the lurking places of the mud-sucker and the carp. In the larger streams and rivers which, under natural conditions, are the homes of the desirable game fishes, the black bass and pickerel, which pass the winter in deep pools in a state of partial hibernation or quietude, the changes are more to be deplored when the watershed is deforested. Floods arising from the destruction of the trees bring down immense quantities of silt, "washings," sand, etc., and deposit them in the deep pools, where the current runs slower, so that the quiescent fish are covered and destroyed. Another disastrous result comes from the washing of the fishes out of their places of winter abode, dashing them against rocks and ice and in some cases leaving them stranded to gasp out their lives after the water subsides.

The setting aside of forest reserves will not only keep the forest and the beauty of the landscape, but will restore game and song birds to their original haunts, protect the wild animals, and preserve the most desirable fishes—the trout, bass, and pickerel.—*Exchange*.

CLIMATOLOGY OF THE MONTH.

BAROMETER.—Mean pressure, 29.96 inches; highest observed, 30.23 inches, at Dubuque, on the 31st; lowest observed, 29.53 inches, at Davenport, on the 17th; range for state, .70 inch.

TEMPERATURE.—The monthly mean temperature for the state, as shown by the records of 112 stations, was 72.9 degrees, which is 1.5° below normal. By sections the mean temperatures were as follows: Northern section, 71.0 degrees; central section, 72.9 degrees; southern section, 74.7 degrees. The highest monthly mean was 77.4°, at Keokuk; lowest monthly mean, 68 5°, at New Hampton. The highest temperature reported was 100°, at Thurman and Sigourney, on the 9th and 27th; lowest temperature reported, 40°, at Chester, on the 31st. The average monthly maximum was 92.7°; average monthly minimum, 46.4°. Greatest daily range, 39°, at Lansing, Clarinda, Earlham; average of greatest daily ranges, 31.3°.

PRECIPITATION.—Average precipitation for the state, as shown by records of 124 stations, was 4.83 inches, which is .91 of an inch above normal. The averages by sections were as

follows: Northern section, 6.49 inches; central section, 5.28 inches; southern section, 2.73 inches. The largest amount reported was 12.72 inches at Elkader; least amount reported, .94 of an inch, at Belknap. The greatest daily rainfall reported was 5.12 inches, at Delaware, on the 10th. Average number of days on which .01 of an inch or more was reported, 9.

WIND AND WEATHER.—Prevailing direction of the wind, south; highest velocity reported, 48 miles per hour, from the northwest, at Sioux City, on the 1st. Average number of clear days, 17; partly cloudy, 9; cloudy, 5.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced	EXTREMES.			
		Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	29.95	30.17	24	29.53	17
Des Moines	29.97	30.20	31	29.61	17
Dubuque	29.98	30.23	31	29.59	17
Omaha, Neb	29.93	30.18	31	29.62	17
Keokuk	29.95	30.16	26	29.59	17
Sioux City	29.96	30.22	31	29.60	2
Means	29.96	30.23	31	29.53	17

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	5034	32	NW	10
Des Moines	5497	29	NW	28
Dubuque	4666	38	NW	9
Keokuk	5074	30	SE	3
La Crosse, Wis	4896	27	N	9
Omaha, Neb	5731	34	N	20
Sioux City	8545	48	NW	1

OBSERVERS' NOTES.

ALTA.—*David E. Hadden.* On the 20th a hailstorm lasting 7 minutes caused much damage west and southwest of town.

AMANA.—*Conrad Schadt.* Fine weather for harvesting and threshing; corn made good growth during month.

ATLANTIC.—*J. W. Love.* A severe storm of wind, rain and hail occurred at 4:30 P. M. on 20th, damaging crops, buildings, trees and electric lines.

BEDFORD.—*E. E. Healy.* A severe hailstorm on 20th destroyed corn in a wide belt.

BONAPARTE.—*B. R. Vale.* A very seasonable and satisfactory month; rain was needed at its close for corn and pastures.

BRITT.—*Geo. P. Hardwick.* A month of variable temperature, but no severe storms; wheat blighted and oats rusted badly.

CLINTON.—*Luke Roberts.* A good month for farmers. Rain 5.27 inches, which is 1.11 above normal. Mean temperature about normal; highest, 96°; lowest, 51°. Mean of first decade was 77.1°; second decade, 69.6°; third decade, 78.9°.

CORNING.—*Jerome Smith.* A destructive hailstorm on afternoon of the 20th, covered about one-third of the county.

CUMBERLAND.—*J. H. Reppert.* Much damage done to corn and small grain by wind and hail on 20th.

EARLHAM.—*Geo. Phillips.* Poorest show for corn crop for years; best hay crop.

FOREST CITY.—*J. A. Peters.* Harvesting grain begun on 25th, and about 80 per cent in shock by close of month. Early planted corn in silk.

FORT MADISON.—*Miss L. A. McCready.* July was a very dry month; no good rain between 5th of June and 29th of July. Oats very light and poor prospect for corn

GRAND MEADOW.—*F. L. Williams.* On 9th rain washed roads and fields badly; barley harvest begun on 14th; on 16th first field corn in tassel; oats badly rusted; wheat crop light.

GRINNELL.—*A. O. Price.* Fine month for harvest work; hay extra in yield and quality, secured in fine condition. Wheat, oats and barley in shock.

HANLONTOWN.—*Miss G. M. Paschen.* Haying commenced on 6th; barley harvested 13th; commenced oats harvest on 22d.

HUMBOLDT.—*H. S. Wells.* Rain, 5 39 inches; no high winds; corn and potatoes doing well.

OLIN.—*Nathan Potter.* First part of July was too wet for cultivating corn; last half of month all that could be desired for hay and grain harvest, but too cool for rapid growth of corn.

OSKALOOSA.—*Jos. Boyd.* A fine month for securing the hay crop.

RIDGEWAY.—*Arthur Betts.* A pleasant month; 358 hours of sunshine; growing weather. With good corn weather till September 15th, this part of Iowa will have a good corn crop.

WASHTA.—*W. L. Felter.* On July 3d water in small streams was highest ever known.

WAUKEE.—*E. J. Leonard.* Rain was well distributed through the month; heavy thunderstorms and high winds were lacking, and there has been very little uncomfortably hot weather.

LENOX.—*J. L. Hurley.* On the 20th a severe windstorm came with the hail, damaging windmills, barns and outbuildings. Two large barns north of town were blown to pieces and some parts scattered eighty rods. Corn almost a total failure in the hail strip from eight to twelve miles wide.

ERRATA IN MAY REVIEW.

ALBIA.—Mean maximum temperature recorded 69.9° on page 12, should have been 70.0°.

CLARINDA.—Mean temperature recorded 62.9° on page 11, should have been 63 0°. Mean maximum temperature recorded 74.0° on page 12, should have been 74.1°.

DELAWARE.—Total precipitation recorded 4.47 inches on pages 10 and 14, should have been 4.77 inches.

EARLHAM.—Mean temperature recorded 61.6° on page 11, should have been 60.0°. Mean maximum temperature recorded 74.2° on page 12, should have been 71.0°.

LANSING.—Mean temperature recorded 61 8° on page 10, should have been 62.0°. Mean maximum temperature recorded 73.3° on page 13, should have been 73.6°.

OSCEOLA.—Mean maximum temperature recorded 71.1° on page 13, should have been 71.2°.

BELATED REPORTS.

VILLISCA.—*June.* Mean temperature, 67.0; highest, 91° on the 30th; lowest, 42° an the 10th; greatest daily range, 33°. Total precipitation, 3.82 inches; greatest in 24 hours, 1.08 inches, on the 21st; prevailing direction, southwest. Number of clear days, 11; partly cloudy, 16; cloudy, 3; rainy, 10.

WEST BEND.—*June.* Mean temperature, 65.7°; highest, 88° on the 30th; lowest, 39° on the 11th; greatest daily range, 35°. Total precipitation, 3.03 inches; greatest in 24 hours, 1.72 inches on the 29th and 30th. Number of rainy days, 11.

BELLE PLAINE.—*June.* Mean temperature, 64.1° highest, 90° on the 30th; lowest, 38° on the 12th; greatest daily range, 30°. Total precipitation, 2.81 inches; greatest in 24 hours, 1.06 inches on the 22d; prevailing direction, southeast. Number of clear days, 15; partly cloudy, 12; cloudy, 3; rainy, 6.

CLIMATOLOGICAL DATA FOR JULY, 1903.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Algona	Kossuth	1,213	28	72.2	-1.7	92	7,25	49	31	33	2.77	- .20	1.10	....	6	13	16	2	SE	4, 8, 9, 10, 17
Alta	Buena Vista	1,513	11	69.6	-3.3	89	7,9	45	31	26	6.81	+2.78	1.79	....	9	14	15	2	S	3, 8, 10, 17, 20, 26, 28
Alta (near)	Buena Vista	....	....	.....	.....	.....	....	...	.....	....	6.23	.....	1.92	....	8	...	...	...	.....	
Britt	Hancock	1,236	5	71.0	-2.0	93	9	46	31	31	3 45	- .16	1.12	....	11	6	23	2	SE	8, 9, 26, 28
Charles City	Floyd	1,012	11	71.0	-2.8	93	10	44	31	31	7.36	+4.55	1.90	..	10	20	3	8	E	8, 9, 28
Clear Lake	Cerro Gordo	1,241	....	73 1	...	98	8	45	31	36	4.95	... .	2.20	..	8	16	12	3	NW	9
Chester	Howard	.....	....	69.1	.....	90	25, 28	40	31	31	4.15	.....	1.75	....	6	23	5	3	SE	
Decorah	Winneshiek	875	8	71.8	-1.0	90	7	47	31	26	8.14	+5.51	3.09	....	6	....	...	...	.....	
Dows	Wright	1,142	....	70.2	.....	91	9	47	31	31	9.50	.....	3.28	....	7	21	7	3	SE	8, 9
Elkader	Clayton	727	21	72.4	-1.6	93	9	46	31	33	12.72	+8 55	5.00	....	9	20	8	3	NW	2, 3, 8, 9, 10, 17, 27, 28
Estherville	Emmet	1,298	7	70.9	-2.3	90	8, 17	43	31	37	7.21	+3.63	3.00	....	16	13	6	12	NW	17, 18
Fayette	Fayette	.....	...	70.6	..	91	9, 23	42	31	31	10.71	....	3.42	....	10	18	9	4	SE	2, 3, 8, 9, 10, 12, 28
Forest City	Winnebago	1,226	8	71.2	-1.6	91	8, 28	45	31	34	3.78	+ .35	1.71	....	9	22	2	7	S & W	
Grand Meadow	Clayton	1,180	11	68.8	-2.2	87	7	48	31	23	10.85	+7.11	4.02	....	8	16	9	6	SW	
Greene	Butler	924	5	71.9	-3 6	92	27	45	31	35	8 90	+5.63	3 41	..	8	12	11	8	SE	
Hampton	Franklin	1,155	12	72.3	-0.5	92	7	46	31	29	9.70	+6.12	2.91	....	7	13	14	4	NW	
Hanlontown	Franklin	.....	...	69.6	.....	89	7	43	31	29	3.89	.....	2.00	....	10	23	6	2	NW	7, 8, 10, 17, 20, 26, 28
Humboldt	Humboldt	1,095	10	72.2	-1.9	92	9, 25	48	31	26	5.39	+1.80	1 68	.	8	21	7	3	NW	8, 9, 10, 17
Lansing	Allamakee	.....	....	72.6	.....	91	7, 8	45	30	39	5.25	.....	2.75	..	8	14	8	9		
Larchwood	Lyon	.....		71.0	.....	94	25	45	31	30	5.83	.....	2.10	....	11	21	7	3	S	1, 8, 9, 11, 17, 26
Le Mars	Plymouth	1,224	6	71.4	-2.8	92	25, 27	45	31	34	5.46	+ .92	2 05	..	7	13	15	3	SE	
Mason City	Cerro Gordo	1,132	....	72.4	.....	93	7	49	31	28	5.94	.....	2.75	....	8	10	17	4	NW	
New Hampton(a)	Chickasaw	1,169	....	68.5	.....	91	9	45	31	.....	8.08	.....	3 42	....	10	19	9	3	NW	9, 17
Northwood	Worth	1,222	6	69.6	-2 8	87	7	46	31	25	3.41	+ .17	1.72		8	14	15	2	NW	9, 11, 17, 20, 26 28
Osage	Mitchell	1,184	11	69.9	-0.9	90	7	45	31	31	6.39	+3.06	2.41	..	10	9	14	8	S	8, 9, 10, 11, 16, 17, 28
Plover	Pocahontas	1,190	5	71.0	-4.3	93	9	44	31	28	5.30	+ .98	1.84	....	10	22	1	8	SW	4, 8, 9, 17, 20, 21
Primghar	O'Brien	.....	....	70.0	.....	88	5, 7	41	31	34	4.52	.....	1.05	..	7	20	0	11	NW	
Ridgeway	Winneshiek	1,215	....	73.5	.....	98	7	50	31	31	6.12	.....	2.47	....	10	15	15	1	S	2, 3, 8, 9, 10, 16, 17, 21, 25, 26, 27, 28
Sheldon (c)	O'Brien	1,422	....	70.4	.....	90	25	43	31	33	6.22	.....	1.80	..	11	14	12	5		
Sibley	Osceola	1,512	8	69.4	-2.0	89	8	45	31	31	5.93	+2.20	1.23		12	17	2	12	... ...	
Sioux Center	Sioux	.....	..	70.4	.....	90	25	45	31	31	2 70	.....	1.00	....	8	15	11	5	S	1, 9
Storm Lake	Buena Vista	1,440	7	70.2	-2.9	89	9	46	31	25	5.83	+1.55	1.42	....	9	18	9	4	SE	4, 7, 8, 9, 10, 17, 20, 26, 28
Washta	Cherokee	1,157	....	.....		....	....	....	.....		7.14	.	3.32	..	6	17	13	1	S	
Waverly	Bremer	942	6	71.3	-2.9	91	9	47	31	26	7.50	+4.20	2.87	....	9	16	11	4	NW	2, 8, 9, 10
West Bend(a)	Palo Alto	1,197	8	72.2	-0 9	92	9	48	30	31	4.55	+1.21	1.30	....	9	....	....		.....	
West Union	Fayette	.....	....	.....	.....	....	....	.....	.....	.....	11.12	.....	4 20	..	8	22	0	9	SW	
Average	.....	.....	....	71.0	-2.2	91.2	.....	45.4	.....	30 6	6.49	+3.00	....	..	9	17	9	5	NW	

CENTRAL SECTION.

Amana	Iowa	721	25	73.5	-0.5	94	9	51	14, 31	31	2.47	-1.66	.78		8	17	12	2	S, NW	
Ames	Story	926	20	73.4	-1.8	93	9, 27	50	14	32	4.77	+ .33	2.36	....	11	20	8	3	NE, SE	17
Baxter	Jasper	998	...	73 1	.....	94	9	50	30, 31	31	3.61	.....	1.25	..	8	12	13	6	SW	
Belle Plaine	Benton	828	12	72.8	-1.0	93	9	50	31	25	3.47	+ .05	1.35	...	8	17	12	2	SE	
Buckingham	Iowa	.....	....	.....	.....	.....	.....	.....	.....	.....	2.41	.....	.96		6	11	20	0	.....	
Carroll	Carroll	1265	12	72.2	-1 8	95	9	44	31	35	5.59	+2.24	3.05	..	10	20	8	3	... .	3, 4, 8, 9, 17, 20, 23, 28
Cedar Rapids	Linn	733	19	73.8	-1.3	96	7, 9	52	30	29	4 94	+1.28	1.15	.	9	12	14	5	S	
Clinton	Clinton	609	34	73.6	-0.2	96	8, 9	51	19	35	5.27	+1.30	2.38	...	8	15	9	7	NW	1, 8, 9, 10, 17
Davenport	Scott	606	31	74.4	- .6	95	9	55	13	26	4.47	+ .81	1.44	....	11	13	16	2	W	1, 2, 3, 8, 10, 11, 16, 17, 21, 28, 29
Delaware	Delaware	1,083	11	70.8	-1.9	90	7	46	31	30	10.50	+7.03	5.12	....	9	17	11	3	S	
Denison	Crawford	1,180	8	70.8	-3.0	86	9, 26	49	13	25	5.28	+ .96	3.43		10	...	...	0	S	
Des Moines	Polk	861	24	74.3	-0.1	94	9	55	31	27	3.62	+ .09	1.42	....	10	8	19	4	SW	1, 3, 8, 10, 20, 28, 29
De Soto	Dallas	866	....	73.0		92	9	50	31	28	4.44	.....	1.11	..	10	24	4	3	SW	
Dubuque	Dubuque	655	29	72.4	-1.9	91	9	23	31	26	7.10	+2.82	2.10	...	9	10	15	6	NW	
Fort Dodge	Webster	1,126		70.0	.....	89	9	45	31	29	...	.....	..	..	..	26	0	5	.....	
Galva	Ida	1,290	8	70.6	-3.8	94	9	44	31	30	4.32	+1 01	1.15	....	9	15	9	7	SE	
Gilman	Marshall	1,052	..	....	.....	.	.....	..	....	...	4.49	. ...	1.54	...	7	14	12	5	S & W	
Grinnell(near)	Poweshiek	.....	....	73.3	..	94	9	49	5	36	3.79	.....	1.20	....	8	17	11	3	SW	3, 4, 8, 9, 10, 11, 17, 20, 21
Grundy Center	Grundy	976	11	71.4	-1.0	92	9	46	31	28	6.19	+2.43	2.00		9	19	9	3	S	3, 8, 10, 17, 26, 28
Guthrie Center(a)	Guthrie	1,077	6	72 8	-1.4	95	9	47	31	30	5.35	+1.48	2.26	....	10	16	13	2	SE, SW	
Harlan	Shelby	1,192	....	73.3	.....	95	9	46	31	36	5.05	.....	2.28	....	10	10	17	4	S	1, 4, 8, 10, 17, 21, 22, 28, 29
Independence (d)	Buchanan	921	38	70.5	-2.8	90	9	47	31	....	.....	. ...	3.85	.....	..	...	....	....	....	1, 3, 8, 9, 17
Ida Grove	Ida	1,220		72.2	....	92	9	46	31	31	4 43	.	.96	....	11		..		S	8, 9, 18
Iowa City	Johnson	685	43	74 8	†0.5	96	10	53	13	31	4.76	+ .32	1.20	...	7	11	14	6	NW	
Iowa Falls	Hardin	1,170	9	71.2	-2.0	92	10	45	31	31	6.58	+3.56	1.49	....	11	20	5	6	SE	1, 2, 4, 8, 9, 10, 11, 18, 26, 29
Jefferson	Greene	1,052	....	.....	....	....	.....	.....	..... .	.....	3.89	.....	1.75	..	8	....	....	...	S	4, 8, 17, 20, 28
LeClaire	Scott	576	....	.....	....	....	... .	.....	.....	.....	4.54	.....	1.30	..	10	...	....	....	S	
Logan	Harrison	928	35	.....	.....	...	.....	47	31	.....	4.96	+ .23	2.30	....	10	18	5	8	S	
Maquoketa	Jackson	688	9	72.2	-3.1	93	10	48	31	31	7.68	+4.11	2,18	....	10	21	2	8	NE	
Marshalltown	Marshall	947	9	73.8	†0 1	96	10	46	31	33	6.12	+1.99	1 96	....	13	18	5	8	SW	4
Monticello	Jones	925	48	74.1	†1.2	93	9, 26	46	30	37	8.40	+4.32	3.00	..	7	23	5	3	SW	
Mt. Vernon	Linn	847	35	73.8	-1 0	96	8	49	31	33	4.10	+ .12	1.59	..	10	21	4	6	W	
Newton	Jasper	944	14	72 9	-2.3	93	9	51	31	27	5.30	+1.71	1.18	..	7	16	10	5	S	

CLIMATOLOGICAL DATA FOR JULY, 1903—CONTINUED.

CENTRAL SECTION—CONTINUED.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted)		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Odebolt	Sac	1,356	5	73 4	-2.7	97	9	44	31	34	4.87	- .25	1.85	....	10	23	4	4	.....	
Ogden	Boone	1,088	8	71.5	-3.5	95	10	45	31	36	5.09	†1.57	1.95	....	8	20	2	9	SE	
Olin	Jones	760		72.3		93	28	51	31	33	7.50		2.24	....	9	17	13	1	NW	
Onawa	Monona	1,053		75.0	....	96	9	52	31	26	7.21	.....	2.78	....	12	26	2	3	SE	3, 4, 8, 12, 14, 17, 21, 22, 29
Perry	Dallas	975	....	73.8	....	94	28	50	31	32	3.64	....	2 25	..	8	17	8	6	....	16, 17, 20, 28
Rockwell City	Calhoun		....	72.2	.....	95	9	48	31	31	6.64		2.50	..	8	17	5	9	.....	
Sac City(*b*)	Sac	1,278	22	71.9	-4.0	95	9	46	31	30	7.26	†3.32	2.40	....	9	....	....	..	SE	8, 9, 10, 17, 26, 28
Scranton	Greene	1,172	....	73.6	.....	96	6	47	31	34	4.88		1.58		10	20	7	4	SE, S	17, 23
Sioux City	Woodbury	1,165	13	72.5	-1.8	93	7	51	31	27	5.57	†2.20	1.40	...	11	11	11	9	S	
Stuart(*a*)	Guthrie	1,216	5	75.4	-1.2	96	27	50	31	35	3.18	-1.79	1.18	..	6			....		
Tipton	Cedar	807	...	75.8	.....	97	9	52	30	28	6.86		3.41	....	8	18	11	2	SE, SW, NW	
Toledo	Tama	856	8	72.4	-2.5	92	9	46	31	30	4.43	†1.20	1.50	....	8	15	11	5	NW	
Vinton*§	Benton	810	12	72.5	-1.3	92	9	55	30, 31	.....	4.71	†1.76	1 22		9	25	2	4	SW	
Waterloo	Black Hawk	862	15	72.7	-1.3	95	10	46	31	34	9.08	†4.80	2.78	....	9	18	8	5	W	
Wilton Junction	Muscatine	683	7	74.1	-1.4	97	8, 9	53	14, 30, 31	33	6.36	†1.54	3.66	..	5	19	7	5	S	9, 10, 17, 28
Whitten	Hardin	1,036	..	72.8	.....	93	7, 9	47	31	33	4.63	.....	2.15	....	11	18	9	4	SW	8, 9, 11, 17, 26, 28, 29
Waukee	Dallas	1,039	....	.....	...	..	.....	....	.....	....	4.32	.....	1.60	....	11	12	12	7	SW	8, 10, 17 20, 21, 22, 28, 29
Average				72.9	-1.6	91.5	.....	48.8	...		30.9	5.28	†1.64	.....		9	17	9	5	S	

SOUTHERN SECTION.

Afton	Union	1,212	7	74.8	-1.5	97	10	48	31	36	2.83	-1.49	1.86	....	7	15	12	4	SW	
Albia	Monroe	957	....	75.0	....	96	11, 28	49	30, 31	35	2.21	....	1.10	..	8	17	9	5	SW	
Atlantic	Cass	1,164	11	74.2	†0.4	97	9	44	31	38	3 68	- .22	1.02	..	9	6	11	14	S	8, 10, 17, 20, 28, 29
Allerton	Wayne	.....	....	74.0	.....	94	10	50	31	33	3 92	.....	1.66	..	8	24	5	2	SW	4, 11, 17, 20, 21, 29
Bedford	Taylor	.....		74.0	..	94	10, 16	48	31	38	2.48	....	1.23	....	10	15	7	9	SE	
Belknap	Davis	877	7	76.0	-0.2	96	8	55	30	31	.94	-3.43	.33	....	4	28	2	1	S	
Bonaparte	Van Buren	.....	10	75.4	-1.2	96	8	53	14	34	2.74	- .55	1 07	..	5	....	....	....	.....	
Burlington	Des Moines	544	6	75.6	.....	94	9, 10, 26	55	14	28	1 82	- .80	.72	....	6	23	5	3	SW	2, 11, 17
Chariton	Lucas	1,042	7	72.9	-2.4	93	10	50	31	32	4.43	-2.26	1.05	....	6		....	...	S	
Clarinda	Page	1,069	12	75.6	-0 8	98	9	48	31	39	2 02	-2.40	.75		9	19	8	4	S	
College Springs	Page		10	76.4	†1.0	96	10, 16	50	31	30	2.34	-3 01	.85	..	7	20	7	4	SE	
Columbus Junc'n	Louisa	595	....	74.2	.....	95	9	53	13, 30, 31	31	1.58	.....	.56	..	5	18	12	1	NW	3, 10, 28
Corning	Adams	1,127	10	73.6	-1 0	93	9, 10	47	31	31	2.51	-1 49	.89	..	7	11	17	3	SE	10, 15, 20, 21 28, 29
Corydon	Wayne	992	9	73.3	-2 8	93	10	50	31	31	2.94	- .66	1.81	..	9	16	9	6	SW	11, 28
Cumberland	Cass	.....	....	.....	....	.....	.....	.....	.....	...	6 69	.....	2.21	..	7	27	2	2	SW	
Danville	Des Moines	726	....	.....	....	.....	.....	.....	.....	.....	1 75	.....	.85	..	6	....	....	....	.....	
Earlham	Madison	.....	...	71.4	.....	91	9, 10, 27	42	31	39	3 62	... .	1.09	....	9	19	6	6	S	1, 3, 20, 21, 28, 29
Fort Madison	Lee	516	51	....	.....	.....	.....	.....	.....	.....	1.70	-2.15	.67	..	6	10	17	4	S	10, 17, 28, 29
Greenfield	Adair	....	11	73.0	-1.8	92	9	40	5, 31	30	2.43	-1.92	1.05	....	7	15	10	6	S	1, 2, 3, 4, 7, 8, 10, 15, 17, 20 22, 28, 29
Hopeville	Clarke	.....	11	74.1	-0.3	95	8, 9, 10	49	31	34	2 21	-2.11	.78		11	8	18	5	S	
Indianola (*b*)	Warren	969	11	75.0	-0.8	94	9	52	31	.....	.....	.....	2.70	....	....	....	...	....	.....	
Keokuk	Lee	619	31	77.4	†0 5	96	10	57	13	28	1.27	-2.87	.41	..	7	17	14	0	SW	1, 11, 17, 21 28, 29
Keosauqua	Van Buren	664	10	75.6	-1.3	97	9, 11, 27	53	31	34	2.72	-1.00	1.03	....	8	12	17	2	.....	
Lacona	Warren	.....		.....			.....	.....	.....	.....	1.99	.....	.50	....	6	22	3	6	.....	
Lenox	Taylor	1,250	7	73.8	-1.2	92	8, 9, 27	49	31	36	4.23	- .61	1.60	...	8	21	5	5	S	
Leon	Decatur	1,120		75 5	.....	96	10	49	31	33	1.88	.....	.52	....	10	24	4	3	S	10
Mt. Ayr	Ringgold	1,236	8	74 8	-1.1	94	8, 10, 27	50	12, 31	36	4.33	. 52	2 20	....	10	10	15	6	E, S	
Omaha, Neb.	Douglass	1,113	32	76.4	†0.2	98	9	56	31	26	2.67	-2 08	1.18	...	12	10	14	7	S	1, 3, 8, 10, 13 15, 17, 20 22, 28, 29
Osceola	Clarke	1,130	6	74 4	-1.9	95	11	49	31	32	2.45	-1.95	.65	..	7	22	2	7	.....	
Oskaloosa	Mahaska	843	18	74.8	-0 3	94	9, 27	53	22, 30, 31	29	1.61	-2.23	.56	....	8	27	1	3	SW	17
Ottumwa	Wapello	649	8	75 2	-1 8	98	27	51	21	37	1.78	-2.13	.46	....	9	20	9	2	SW	22, 28
Pacific Junction	Mills	960		75 2	....	97	9	50	31	32	2.88	.....	.92	....	9	11	18	2	SE	
Red Oak	Montgomery	1,033	....	76.2	...	94	9	55	31	27	2.34	....	1.28	....	9	7	23	1	SE	4, 8, 10, 14, 15 17, 21, 27 28, 29, 31
St. Charles	Madison	1,070	....	73.8	.....	95	10	50	31	27	4.19	.....	1 31	..	10	19	10	2	NW	
Sigourney	Keokuk	787	....	76.0	.....	100	27	50	31	38	2.71	.....	1.30	....	7	20	11	0	.....	10, 17, 21, 28 29
Stockport	Van Buren	....	...	.....	.....	.....	....		.....		2 53	.....	.63	.	7	19	6	6	SW, NW	3, 10, 11, 21
Thurman	Fremont	.....	---	76 0	....	100	9	47	31	35	3 06	.....	1.20	..	5	19	6	6	SE	
Wapello	Louisa	588	....	74.8	.....	94	9	56	13	26	2.59	.....	1,23	..	6	23	8	0	SW	3, 10, 16
Washington	Washington	769	20	72.9	-4 2	96	9	50	13, 20, 31	33	1.52	-1 71	.62	....	5	....		..	SW, NW	
Winter-set (*a*)	Madison	1,129	11	74.4	‡0.0	96	28	45	31	33	4.34	-1.13	1.55	....	7	23	7	1	S	20
Woodburn	Clarke	961	....		.....	.....	....	.....	.....	.....	3.41	.....	.89	..	9	18	10	3	SW	3, 10, 20, 28
Average		.....	..	74.7	-1.0	95.3	....	50.1	.....	32.4	2.73	-1.64	...	....	8	18	9	4	S, SW	
Average for state		.....		72 9	-1 6	92.7	....	46.4	.....	31.3	4.83	†1.00	...	....	9	17	9	5	S	

*Means determined from 7 A. M., 2 P. M. and 9 P. M. observations, and maximum and minimum are taken from eye readings. †Above normal.
| Received too late to be computed with means. (*a*) One day missing; (*b*) two days, etc. §Not supplied with self-registering instruments.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR JULY, 1903.

STATIONS.		DATE.																															MEAN.
		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. ...	Max..	92	89	81	77	85	90	93	96	96	97	85	84	85	88	88	93	87	82	84	92	87	73	86	90	91	93	95	93	84	82	76	87.5
	Min ..	73	69	69	69	54	59	68	68	72	73	66	55	55	58	62	64	69	61	55	56	62	57	59	57	60	62	65	66	64	53	48	62.2
Albia.	Max..	92	90	87	89	75	84	89	92	95	95	96	86	81	80	85	87	88	86	83	84	89	88	81	87	91	92	94	96	94	84	70	87.4
	Min .	72	70	71	67	58	61	63	71	73	74	68	59	54	56	59	63	66	63	59	57	60	55	58	59	61	64	66	69	64	49	49	62.5
Algona. ..	Max.	88	87	81	76	89	87	92	89	91	83	84	77	78	81	82	87	82	82	78	72	81	79	83	91	92	87	91	84	82	68	72	83.1
	Min ..	66	67	67	60	56	61	69	69	68	69	60	58	55	53	57	61	64	57	58	56	59	66	60	60	67	62	69	69	55	50	49	61.2
Allerton .	Max..	89	85	85	76	83	86	89	92	92	94	85	80	79	83	84	87	87	82	83	88	87	79	85	88	89	93	93	92	83	75	71	85.3
	Min ..	72	69	70	63	54	60	69	69	70	72	65	59	56	61	63	66	70	63	57	55	65	55	62	58	59	64	65	68	64	54	50	62.8
Alta. . ..	Max..	80	82	79	71	78	85	89	82	89	77	80	75	75	78	79	86	75	76	78	82	79	76	81	83	87	83	86	80	79	66	64	79.1
	Min ..	61	67	64	57	53	62	70	65	69	65	62	59	52	54	58	60	62	56	56	54	60	58	57	62	66	65	66	68	57	49	45	60.0
Amana.	Max..	91	90	88	77	83	88	92	92	94	86	86	78	77	82	83	85	78	80	79	82	83	80	82	88	91	89	91	93	83	75	75	84.5
	Min ..	75	71	72	70	58	58	65	71	72	69	65	62	52	51	56	61	67	62	59	57	63	57	57	56	60	65	67	71	66	53	51	62 5
Ames	Max.	90	88	80	75	83	87	91	89	93	89	82	78	77	86	85	89	84	81	80	83	82	79	85	87	91	87	93	92	82	75	70	84.3
	Min ..	71	71	71	61	55	59	67	66	72	71	65	60	55	54	60	63	67	60	60	57	65	58	59	60	61	69	69	65	66	52	50	62.5
Atlantic..	Max.	89	86	95	78	85	90	94	95	97	94	88	85	86	85	87	95	82	82	86	91	89	72	84	89	93	91	94	93	85	73	69	87.2
	Min .	67	71	71	58	50	61	66	73	74	72	67	56	51	57	63	60	61	57	53	53	63	55	60	53	62	64	66	69	64	52	44	61.1
Baxter. ..	Max.	90	88	83	75	83	85	92	90	94	88	88	81	81	85	83	85	84	82	80	84	85	78	84	87	89	88	91	90	85	75	74	84.7
	Min ..	72	71	72	62	53	58	67	69	71	69	64	56	51	54	58	60	67	59	58	55	63	55	59	59	62	67	67	65	65	50	50	61.5
Bedford ..	Max.	91	83	77	76	80	85	87	92	91	94	87	85	85	83	86	94	85	83	87	92	90	78	86	88	92	93	92	90	84	71	76	85.9
	Min ..	71	69	59	59	51	59	69	69	72	74	66	59	56	61	64	64	69	61	55	54	64	58	61	59	60	68	62	66	64	55	48	62.1
Belknap..	Max..	90	88	88	77	80	86	89	96	95	94	82	79	85	90	89	89	88	81	83	85	88	85	90	88	89	93	94	93	80	71	83	86.7
	Min ..	75	73	73	70	61	62	67	69	69	68	65	60	57	65	62	62	63	66	62	65	65	60	59	63	64	69	70	70	70	55	63	65.2
Belle P....	Max..	87	90	87	76	80	83	92	88	93	84	83	77	75	79	80	82	75	79	79	80	82	78	82	87	86	88	88	91	82	69	74	82.4
	Min ..	73	72	72	67	58	60	67	71	70	68	65	60	53	53	59	62	63	60	59	57	63	58	59	63	62	65	67	69	65	54	50	62.7
Bonapar'e	Max..	92	89	89	81	84	89	92	96	95	95	86	80	80	84	84	84	87	84	85	87	88	83	85	90	93	95	95	94	85	77	78	87.3
	Min .	75	69	70	70	59	57	74	73	75	73	68	62	57	53	60	63	67	63	58	54	63	69	57	58	59	63	66	68	61	54	54	63.6
Britt. ..	Max.	87	88	86	75	82	86	89	88	93	81	85	76	79	81	83	86	76	78	75	83	78	83	86	86	91	88	90	88	79	69	72	82.8
	Min ..	65	66	66	60	51	61	68	64	68	65	56	54	49	49	56	60	64	55	56	53	57	54	59	59	63	66	69	65	60	49	46	59.1
Burling'n	Max..	91	87	88	82	82	88	91	92	94	94	85	82	79	82	83	84	86	81	82	83	88	83	83	89	91	94	91	93	84	76	77	86.0
	Min ..	75	73	69	70	59	61	67	72	75	73	68	66	56	55	62	63	69	64	60	57	67	60	63	64	63	69	68	73	65	57	54	65.2
Carroll ...	Max..	89	86	81	76	84	88	92	93	95	89	92	82	80	83	84	89	85	80	83	87	86	76	82	88	90	87	91	92	82	70	71	84.9
	Min ..	65	78	65	57	53	58	69	65	65	69	63	52	50	5.	57	60	65	55	54	52	60	55	55	56	55	68	16	69	64	50	44	59.6
Cedar R..	Max..	93	92	89	72	83	91	96	89	96	85	86	78	78	81	82	84	75	80	78	83	83	80	82	91	92	86	92	94	84	71	74	84.5
	Min ..	71	69	69	61	62	68	72	69	69	66	64	56	56	57	58	66	63	61	60	63	60	61	61	64	70	65	67	65	55	52	56	63.1
Chariton .	Max.	88	84	84	75	82	85	89	92	92	93	81	79	78	82	85	86	86	80	83	87	85	72	85	86	89	91	92	89	83	77	75	83 7
	Min ..	72	79	71	61	54	58	67	69	70	74	62	59	55	57	60	64	63	73	58	53	64	55	60	57	59	59	64	63	62	54	50	62.1
Charles C.	Max.	87	92	87	85	76	81	84	90	87	93	79	82	74	74	80	80	84	73	78	75	79	79	84	82	85	91	80	89	91	81	69	82.3
	Min ..	66	67	71	67	53	59	63	68	63	65	59	58	50	49	54	58	63	59	59	54	60	54	56	56	60	63	68	68	65	50	44	59.6
Chester...	Max..	83	87	83	74	82	82	88	89	88	79	82	81	75	79	77	83	76	78	75	79	79	84	82	84	90	82	85	90	79	67	70	81.0
	Min ..	68	59	70	64	52	57	64	64	62	61	54	50	47	47	52	58	64	55	56	51	57	60	56	54	62	64	63	66	57	49	40	57.2
Clarinda..	Max.	94	87	77	80	85	91	92	97	98	96	84	87	87	84	90	96	88	86	91	96	94	75	90	94	95	94	97	95	88	69	74	88.7
	Min ..	71	70	70	58	52	58	68	70	71	72	68	58	56	61	66	65	68	62	59	57	64	59	60	60	60	58	63	66	65	54	48	62.5
Clear L.	Max..	95	92	85	77	90	95	94	98	91	86	85	80	83	83	81	92	81	84	81	84	82	89	93	94	94	85	95	86	80	72	75	86.6
	Min ..	66	64	70	60	57	60	64	66	66	69	57	51	58	49	53	58	65	55	57	55	61	58	58	58	65	65	69	65	60	48	45	59.6
Clinton ...	Max..	92	95	91	87	85	91	95	96	96	88	86	80	80	83	82	86	77	83	81	83	86	85	86	90	92	89	88	95	83	76	78	86.6
	Min ..	73	68	68	65	55	56	62	68	68	67	68	61	54	51	55	56	62	63	60	56	58	56	56	55	58	64	61	66	62	57	52	60 7
College S.	Max.	92	86	82	77	85	88	91	95	95	96	86	87	84	87	87	96	87	85	87	95	93	80	86	93	93	95	94	93	85	70	75	87.9
	Min .	71	70	70	59	55	61	70	70	71	74	68	62	60	63	68	68	70	62	63	60	66	61	63	65	69	63	67	68	64	57	50	64.8
Colum. J.	Max..	91	90	90	81	83	88	93	94	95	92	86	79	77	81	83	84	83	81	80	82	85	72	84	83	92	92	92	94	85	80	76	85.4
	Min .	74	70	71	70	60	67	58	70	73	66	67	64	53	55	59	59	67	62	59	55	62	58	58	67	61	64	66	70	64	53	53	63.1
Corning..	Max.	89	84	78	74	79	86	88	92	93	93	87	81	83	82	84	91	83	83	86	90	87	75	82	88	90	90	92	91	83	71	71	84 7
	Min .	71	69	69	53	53	65	73	70	72	73	67	57	52	62	63	64	67	60	57	55	62	57	61	59	68	62	67	68	63	54	47	62.6
Corydon.	Max..	88	83	84	76	82	88	88	91	92	93	87	83	81	82	83	85	85	82	83	86	88	75	83	86	88	90	92	90	85	71	74	84.6
	Min ..	71	69	70	65	55	60	67	69	70	72	65	58	55	58	61	61	65	60	58	55	63	55	61	58	60	63	67	66	63	52	50	62.0
Davenpo't	Max..	90	89	88	82	82	87	90	92	95	88	87	78	78	80	80	82	79	80	80	81	85	80	82	89	92	87	90	92	80	72	72	84.2
	Min ..	76	67	70	67	62	65	69	73	71	66	69	63	55	57	59	58	68	63	62	59	66	61	62	63	69	70	65	70	67	56	58	64.6
Decorah. .	Max..	83	88	83	77	80	84	90	87	87	89	80	77	74	76	78	82	77	79	78	80	82	79	84	83	88	78	84	87	82	67	70	81.6
	Min ..	68	64	72	65	57	60	68	74	68	68	61	59	52	53	53	62	65	63	61	58	63	57	59	57	64	69	66	68	62	55	47	61.9
Delaware.	Max..	86	88	88	78	83	84	90	87	89	79	81	74	74	80	78	84	72	76	75	81	78	81	80	86	87	83	87	89	83	69	74	81.4
	Min ..	73	65	70	66	55	58	62	70	6.	65	60	5.	50	51	52	57	64	67	55	55	60	55	59	56	61	69	60	68	62	49	46	60.1
Denison ..	Max..	81	81	80	74	80	83	85	85	86	85	76	79	71	76	77	83	83	75	75	76	76	76	75	81	86	85	85	84	74	71	67	79.2
	Min ..	64	71	66	57	55	65	72	68	72	70	64	60	49	55	59	60	65	58	53	60	60	55	59	59	67	67	66	68	70	64	52	62.3
Des M....	Max	90	86	79	73	81	87	90	91	94	89	87	81	80	82	85	86	81	82	81	84	85	75	83	87	89	88	92	90	85	68	72	84.1
	Min ..	72	73	70	61	57	63	70	72	75	71	68	64	58	61	62	65	69	63	61	57	64	59	63	62	64	67	68	67	65	55	55	64.5
De Soto...	Max..	86	83	79	73	80	85	88	89	92	89	83	78	78	81	82	86	82	80	80	84	82	77	81	85	87	86	89	89	89	69	70	82 4
	Min .	72	72	71	61	55	60	71	71	75	76	67	61	58	57	61	64	68	62	61	56	63	57	60	69	59	66	66	67	66	54	50	63.7
Dows. ...	Max..	85	85	80	73	81	85	89	84	91	81	82	74	75	80	79	83	78	78	75	78	78	78	81	85	88	87	88	87	79	66	69	80.7
	Min ..	67	62	59	60	54	60	67	66	63	68	60	57	52	52	56	60	64	58	58	55	59	56	57	59	62	68	70	66	60	49	47	59.6
Dubuque.	Max..	88	90	86	80	82	85	90	89	91	82	85	76	76	79	76	81	73	79	76	79	80	82	83	86	90	80	83	90	82	69	73	82.0
	Min ..	73	69	71	64	60	62	67	72	67	67	63	62	53	55	55	60	65	62	60	60	65	60	60	60	68	69	60	67	65	55	53	62 9
Earlham .	Max.	88	83	78	75	80	85	87	90	91	91	85	82	81	82	83	87	80	81	83	87	84	75	83	86	89	88	91	90	84	71	71	83.6
	Min .	63	69	67	58	60	56	67	69	71	72	66	55	50	50	57	58	67	57	53	48	58	50	58	56	59	63	64	64	62	49	42	59.1
Elkader ..	Max.	89	90	86	75	87	87	92	89	93	80	88	80	80	82	80	88	80	81	75	80	84	85	85	88	91	80	88	12	85	75	76	84.2
	Min ..	78	67	73	70	55	56	63	74	66	67	61	58	50	50	52	59	60	58	58	55	59	55	59	55	60	70	63	67	63	52	46	60.5
Esthervi'e	Max..	87	83	85	80	80	81	85	90	83	84	86	87	78	87	85	80	90	82	81	79	77	78	79	83	84	89	87	89	82	79	79	82.9
	Min ..	63	63	66	52	50	55	68	63	65	64	59	56	52	50	56	68	62	57	58	55	56	54	57	57	68	67	66	67	61	48	43	58 9
Fayette...	Max..	88	88	84	78	81	85	90	87	91	78	82	76	74	76	79	83	73	76	75	77	79	83	83	86	89	79	88	91	82	72	74	81.5
	Min ..	68	67	72	68	59	56	64	68	60	66	58	58	48	48	51	58	62	58	56	54	60	53	58	55	62	67	62	70	60	50	42	59.7
Forest C'y	Max..	88	83	88	80	78	82	88	91	88	89	82	84	77	79	81	81	85	77	81	77	80	78	81	84	84	-8	84	91	81	82	69	82.6
	Min ..	65	64	66	65	58	60	65	65	68	64	58	56	52	51	54	60	63	56	53	55	57	58	61	60	65	66	65	69	65	48	45	59.9
Ft. Dodge	Max.	82	83	81	73	78	82	87	84	89	81	79	76	74	80	82	85	82	79	76	78	80	79	81	82	84	84	85	87	84	75	68	80.6
	Min ..	66	68	66	58	53	61	71	63	76	68	59	57	50	51	53	60	54	56	56	52	55	53	58	66	65	65	64	66	62	49	45	59.5
Galva.....	Max..	84	83	82	73	80	86	89	85	94	87	85	71	75	80	82	88	80	78	79	85	80	78	82	80	91	84	89	85	85	71	67	81.7
	Min .	61	69	64	56	53	62	71	69	70	66	60	55	50	55	58	58	65	64	54	51	55	56	55	57	65	66	65	65	62	47	44	59.6
Grand M.	Max.	83	86	84	73	66	70	87	80	84	74	81	72	62	76	70	80	72	76	68	75	..	73	80	82	84	77	82	80	79	70	72	76.3
	Min ..	71	64	71	61	56	60	64	72	64	66	62	62	52	56	53	58	64	58	58	54	61	57	57	57	64	70	62	66	63	60	48	61.2
Greene ...	Max..	86	89	82	75	84	88	93	89	91	80	84	77	79	85	85	89	76	80	78	81	82	85	87	90	90	83	92	89	81	69	75	83.7
	Min .	68	66	70	63	52	58	65	66	66	66	60	56	51	50	54	60	66	57	57	54	60	56	61	58	61	71	68	66	63	50	45	60.1
Greenfi'ld	Max.	89	88	84	74	78	87	90	91	92	90	85	78	77	82	83	88	..	80	81	85	82	82	84	85	87	83	88	90	82	76	70	83.9
	Min ..	70	70	70	58	48	62	71	73	73	75	67	58	55	58	60	64	67	58	53	56	58	58	57	58	66	67	66	62	64	52	48	62 2
Grinnell (near)	Max	93	89	89	74	85	88	92	90	94	88	82	77	76	82	82	86	85	78	77	85	81	80	82	89	90	90	91	91	80	74	74	84.3
	Min ..	74	73	72	64	49	60	67	67	73	66	65	59	52	55	60	63	66	59	58	56	64	5.	60	62	60	66	70	67	64	51	51	62.3
Grundy C	Max.	86	86	82	72	82	84	90	87	92	83	85	78	78	79	81	83	78	79	77	83	83	78	82	85	89	88	89	89	82	69	72	82.3
	Min ..	70	68	68	65	54	58	66	68	70	67	61	57	50	51	55	60	66	58	57	55	58	55	59	59	62	68	69	64	63	50	46	60.5
Guthrie C	Max.	89	..	..	75	83	87	91	91	95	91	79	..	78	84	86	90	83	80	82	88	83	72	83	87	91	87	93	99	74	67	69	84.0
	Min ..	69	70	70	59	53	58	69	72	74	71	67	57	52	55	60	61	60	59	57	57	62	55	62	55	63	67	66	65	..	52	47	61.5
Hampton	Max.	87	88	84	75	83	86	92	85	92	80	84	77	78	82	83	85	77	79	76	82	81	81	86	87	90	88	90	90	82	69	74	83.0
	Min ..	69	68	72	62	57	60	66	67	67	68	62	59	55	53	55	60	67	59	59	58	61	59	60	58	63	70	69	67	64	51	46	61.6
Hanlont'n	Max..	82	87	80	76	80	83	89	85	88	77	80	72	73	77	78	82	85	77	73	77	77	81	81	84	88	80	88	86	80	68	70	80.1
	Min ..	67	61	65	60	54	62	66	65	69	64	56	55	51	48	52	58	65	56	57	54	54	54	60	56	65	65	69	69	60	48	43	59.0
Harlan....	Max.	88	87	85	75	83	88	92	92	95	90	86	83	80	85	86	93	82	80	82	90	85	82	83	89	93	91	91	93	81	73	70	85.6
	Min ..	66	69	67	57	51	60	70	72	72	70	65	57	54	60	62	61	68	59	56	54	60	57	60	59	60	64	62	65	63	51	46	61.0
Hopeville.	Max.	91	85	79	75	83	88	91	95	95	95	79	79	80	85	84	89	84	81	84	40	86	74	84	90	91	93	94	92	83	72	73	85.3
	Min ..	73	70	68	60	56	59	69	69	71	75	66	59	56	59	64	65	70	61	60	56	64	58	60	59	61	64	66	66	64	53	49	62.9
Humboldt	Max..	86	88	82	74	83	88	90	86	92	78	82	76	78	82	82	87	80	80	79	80	80	80	84	86	92	86	90	89	88	72	72	83.0
	Min ..	68	68	68	60	69	62	70	66	68	68	60	58	54	54	60	63	68	60	59	54	60	56	58	60	66	68	68	71	64	50	48	62.2
Ida Grove	Max.	86	85	82	75	81	87	90	86	92	85	84	77	79	80	82	89	88	83	78	85	82	77	82	85	91	88	89	86	80	70	67	82.9
	Min ..	63	71	66	58	55	63	72	68	72	69	64	57	53	57	61	61	60	67	56	54	60	58	60	60	68	68	61	66	61	52	46	61.5
Indep'nce	Max..	84	86	84	74	79	82	89	86	90	79	82	76	73	79	78	80	74	77	75	77	78	80	82	84	87	85	..	..	.	..	..	80.4
	Min ..	72	68	76	64	55	57	65	70	64	66	63	56	51	51	58	58	65	58	58	56	59	53	60	57	59	71	..	..	..	..	..	60.6
Indianola	Max..	90	85	80	75	82	86	90	92	94	93	84	81	80	..	..	..	..	..	82	84	86	84	76	83	87	90	90	92	91	90	76	73	85.0
	Min ..	71	72	72	61	57	60	70	71	74	70	79	60	..	57	58	65	71	61	60	57

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR JULY 1903—CONTINUED.

STATIONS.		DATE.																														MEAN.
		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	
Keokuk	Max.	92	85	89	80	84	88	92	95	95	96	89	82	81	86	85	86	88	83	86	86	90	83	85	90	93	94	94	93	86	80	75	87.5
	Min	76	75	73	72	62	63	70	75	76	75	71	68	57	59	64	65	70	64	63	59	68	61	63	64	65	70	73	76	68	59	58	67.2
Lansing	Max.	86	90	86	82	82	86	91	91	86	74	86	84	80	80	80	82	78	80	81	84	83	82	85	87	90	84	82	90	89	84	86	84.2
	Min	61	62	75	71	55	62	68	78	68	68	62	50	52	48	50	62	60	55	60	61	60	55	60	57	62	63	63	64	70	45	62	60.9
Larchw'd	Max.	88	85	80	72	80	86	89	84	84	81	83	77	77	80	83	88	81	78	80	85	82	82	85	86	94	86	90	87	77	69	68	82.2
	Min	60	63	60	55	51	63	71	62	70	61	67	67	51	56	58	58	61	53	52	55	58	58	58	61	76	63	65	65	62	46	45	59.9
LeMars	Max.	84	87	82	71	81	87	91	82	90	82	84	79	78	81	79	89	82	79	80	87	82	77	83	85	92	87	92	81	79	71	66	82.9
	Min	60	69	64	56	55	66	71	66	70	64	59	55	51	57	61	59	62	55	55	53	56	59	56	60	69	61	68	68	64	47	45	60.0
Lenox	Max.	87	83	80	74	79	85	87	92	92	91	86	79	78	83	83	89	83	81	85	88	87	79	82	88	89	91	92	91	84	79	72	84.5
	Min	71	71	68	58	55	60	69	72	73	74	66	60	58	63	62	65	70	61	59	52	63	59	61	60	63	63	66	69	63	54	49	63.1
Leon	Max.	91	90	86	76	86	80	89	93	95	96	95	82	82	84	85	90	87	83	85	89	87	87	86	90	90	93	94	94	90	85	77	87 6
	Min	72	70	70	62	70	56	68	69	71	74	66	60	57	63	64	60	70	62	61	57	64	58	60	57	61	64	61	70	66	55	49	63.4
Logan	Max.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....
	Min	62	60	62	62	53	55	55	65	74	72	65	61	54	58	63	63	60	58	60	57	63	60	59	60	61	65	64	67	65	55	47	60.9
Maquo'ta	Max.	90	90	90	86	80	84	86	90	90	93	88	88	80	79	82	79	84	77	83	80	82	85	84	83	88	90	87	87	90	83	75	84.9
	Min	67	65	71	69	55	54	59	68	69	64	65	63	50	50	53	58	62	60	58	56	58	53	55	52	58	65	62	63	62	52	48	59.4
Marshlt'n	Max.	89	91	92	85	76	85	89	94	92	96	86	89	82	81	84	85	87	78	82	81	84	86	79	87	89	92	91	94	95	85	71	86.4
	Min	68	69	72	67	54	59	64	71	71	68	63	58	52	53	56	60	63	59	59	56	60	55	57	58	60	65	70	70	65	52	46	61.3
Mason C.	Max.	85	89	83	73	86	89	93	89	88	80	81	76	78	81	81	85	77	80	78	79	81	83	87	89	90	83	92	87	80	69	74	82.8
	Min	69	67	72	63	58	62	67	69	68	64	59	58	54	55	55	61	65	59	59	57	63	59	63	61	62	68	70	69	66	51	49	62.0
Monticel'o	Max.	88	89	90	88	89	91	90	89	93	88	85	87	78	75	80	83	79	80	82	84	87	89	90	89	90	93	92	90	82	75	68	85 9
	Min	72	79	75	68	62	67	68	66	76	70	69	68	57	59	60	68	58	50	52	58	52	49	53	58	62	75	64	68	53	46	48	62.3
Mt. Ayr	Max.	83	85	80	75	85	88	90	94	93	94	85	83	83	87	87	93	85	85	88	93	90	77	85	91	90	92	94	90	86	76	77	86.6
	Min	70	69	66	59	57	59	69	69	71	73	66	50	58	63	63	66	69	61	60	57	62	59	60	60	64	65	68	69	64	55	50	62.9
Mt. Ver'n	Max.	93	88	85	78	90	89	94	96	94	88	92	78	80	89	87	85	75	82	79	83	84	87	89	90	93	89	93	89	86	75	75	86 3
	Min	73	69	72	68	57	60	64	69	67	64	63	60	55	53	54	59	65	59	57	56	61	57	60	59	60	66	62	65	63	51	49	61 2
New H.	Max.	81	84	80	74	..	..	90	84	91	77	80	73	73	77	77	80	73	76	73	..	76	80	82	82	86	76	85	87	78	70	72	79.2
	Min	65	65	67	63	53	..	..	66	64	65	58	55	49	50	52	57	57	55	55	54	54	57	60	58	58	..	63	65	61	48	45	57.8
Newton	Max.	91	84	82	73	82	82	91	91	93	87	83	79	79	82	83	86	78	79	80	82	83	77	79	87	89	88	92	89	84	73	73	83.1
	Min	74	73	68	61	56	60	65	70	73	70	65	60	55	56	60	62	67	60	60	57	65	58	58	61	62	62	69	70	64	53	51	62.7
Northw'd	Max	81	85	82	73	79	82	87	83	86	76	80	73	72	76	77	81	77	76	73	76	76	80	82	81	86	81	85	84	84	66	71	79.1
	Min	66	62	66	60	56	58	66	65	67	67	58	56	53	51	54	60	61	57	57	56	60	58	63	58	63	66	68	70	62	49	46	60.0
Odebolt	Max.	90	89	85	76	85	90	94	91	97	86	88	88	84	87	88	94	85	83	89	85	86	75	87	90	93	90	93	90	83	75	71	86.7
	Min	62	69	66	56	53	60	71	65	71	68	62	55	50	55	59	60	65	55	52	59	57	56	59	58	64	67	64	67	66	48	44	60 1
Ogden	Max.	90	91	86	88	77	83	89	92	90	95	87	87	81	82	84	86	88	81	83	81	85	86	78	85	86	91	86	91	92	85	73	83.8
	Min	65	65	69	57	52	60	59	59	64	67	62	55	50	50	52	58	52	55	53	51	51	52	55	56	59	62	64	65	60	49	45	57.2
Olin	Max.	90	88	87	85	79	84	90	90	90	83	82	77	82	78	80	80	75	79	78	81	80	84	81	86	89	88	88	93	81	76	75	82,2
	Min	72	75	67	67	57	57	62	70	66	66	66	63	52	62	58	59	68	60	58	55	59	56	59	66	59	66	65	67	64	63	51	62.4
Omaha, N	Max.	90	85	81	76	83	89	93	94	98	92	86	79	82	85	88	92	80	82	86	92	88	78	85	89	92	88	91	92	82	69	66	85.6
	Min	71	75	61	59	61	66	74	77	78	75	70	63	64	65	68	68	66	63	65	66	66	65	65	67	72	71	74	72	65	58	56	67.3
Onawa	Max.	89	87	86	75	82	89	93	91	96	87	85	82	77	82	82	88	87	82	84	87	85	83	82	87	91	89	91	88	83	77	68	85.0
	Min	65	74	66	57	58	65	73	74	75	72	67	62	58	60	65	65	67	60	60	61	64	64	63	64	70	72	69	71	68	56	52	65.1
Osage	Max.	82	87	82	72	82	85	90	85	89	77	82	73	74	80	81	85	78	77	75	76	79	83	84	85	88	82	87	88	80	66	71	80.8
	Min	67	63	68	56	53	56	66	65	67	62	57	56	52	49	52	59	65	57	57	55	55	56	62	57	62	67	68	64	61	49	45	59.0
Osceola	Max.	93	91	86	80	77	82	87	90	93	94	95	83	75	79	83	83	88	88	86	85	89	87	76	87	98	88	91	94	93	85	69	86 3
	Min	73	69	70	63	55	58	64	70	73	75	67	59	56	56	60	67	68	61	59	57	61	56	60	56	56	65	67	68	65	53	49	62.5
Oskaloosa	Max.	89	88	86	..	86	88	92	92	94	93	83	78	78	83	84	85	84	81	82	84	87	80	85	90	92	92	94	92	83	75	75	85.6
	Min	75	73	73	67	56	60	71	72	75	73	69	63	54	54	62	67	70	63	60	55	64	53	57	63	59	61	70	72	64	53	53	63,9
Ottumwa	Max.	90	88	87	77	81	88	91	92	94	95	84	80	78	82	84	84	85	83	84	90	88	83	89	91	95	97	98	96	86	75	79	86.9
	Min	70	68	67	64	64	65	70	70	71	68	64	62	60	61	62	65	61	66	61	60	51	57	60	62	63	63	69	68	64	55	54	63.4
Pacific J'n	Max.	91	87	81	76	83	90	93	95	97	95	89	83	85	87	89	94	84	85	86	92	87	78	85	89	92	91	92	93	83	74	65	86.8
	Min	71	71	67	58	54	61	71	72	73	73	69	60	55	62	66	65	65	65	57	60	62	62	62	61	65	65	66	68	62	56	50	63.7
Perry	Max.	86	80	80	73	78	81	92	92	93	87	86	83	81	87	88	91	86	82	82	88	84	76	85	90	93	88	93	94	83	72	72	84.7
	Min	71	73	71	61	55	62	71	69	74	73	65	59	51	56	61	64	65	60	59	56	63	58	60	58	61	68	66	66	67	52	50	62.8
Plover	Max.	83	86	86	76	82	87	90	85	93	79	87	77	76	80	82	89	74	79	77	80	77	82	84	83	90	87	88	87	80	68	73	82.1
	Min	64	65	66	58	58	60	68	64	66	65	60	58	58	55	60	62	60	56	58	53	55	55	59	56	64	68	66	67	64	48	44	60.0
Primghar	Max.	82	83	80	82	88	85	88	84	87	82	81	75	76	77	78	87	80	76	76	82	79	80	81	84	87	86	87	79	76	67	67	80.7
	Min	60	65	65	59	54	54	71	65	70	63	58	58	54	53	58	59	60	54	55	54	60	60	59	51	68	65	65	67	60	47	41	59.4
Red Oak	Max.	88	84	82	78	79	86	88	91	94	92	89	82	81	82	86	89	85	81	84	90	87	83	84	87	89	90	93	89	93	89	86	85 0
	Min	73	74	75	61	58	66	73	75	77	78	73	63	60	66	68	69	70	66	62	63	67	66	65	67	67	68	71	72	67	59	55	67 5
Ridgeway	Max.	87	92	85	81	86	88	98	93	95	85	82	80	59	54	56	55	61	65	59	57	57	60	60	62	62	64	71	64	71	62	52	50	62.3
	Min	72	66	74	71	55	60	67	71	70	64	60	59	54	56	55	61	65	59	57	57	60	60	62	62	64	71	64	71	62	52	50	62 3
Rockw'l C	Max.	87	87	85	79	69	82	92	85	95	80	86	80	80	81	84	89	83	81	81	86	85	82	82	87	92	86	92	92	83	71	70	83.8
	Min	67	70	65	59	55	55	65	65	69	68	63	61	54	55	56	61	63	58	60	55	55	58	58	58	62	68	66	66	65	51	48	60.6
Sac City	Max.	88	85	81	76	82	88	92	86	95	84	84	79	78	81	..	89	78	80	82	84	..	82	78	87	92	90	90	87	81	71	66	83.3
	Min	65	69	65	58	55	60	69	66	69	66	62	58	53	55	..	59	60	57	58	55	..	58	58	58	65	67	65	65	66	50	46	60.5
St. Cha'les	Max.	87	82	79	74	82	86	89	91	94	95	84	80	80	83	83	86	81	81	83	86	84	75	82	87	89	90	92	90	82	68	72	83.7
	Min	72	72	70	61	56	61	69	71	75	71	69	61	58	60	60	65	70	62	61	59	63	59	62	60	64	68	68	66	66	54	50	64.0
Scranton	Max.	93	81	82	78	87	90	93	93	96	87	89	84	85	87	87	91	80	82	84	89	86	73	86	90	94	88	93	91	84	70	70	85.9
	Min	67	70	68	59	53	58	68	66	70	70	65	59	56	55	57	61	64	58	58	56	62	58	68	57	63	68	64	63	65	50	47	61.4
Sheldon	Max.	88	85	77	..	78	86	89	80	89	79	85	78	..	..	86	83	80	80	80	82	75	83	85	90	85	89	83	78	68	76	81.9
	Min	59	72	62	..	54	62	70	62	69	61	57	55	57	..	..	52	61	56	55	50	57	57	52	60	65	64	64	65	63	48	43	59.0
Sibley	Max.	87	81	86	77	72	80	86	89	79	83	80	85	77	78	79	79	86	77	75	67	82	80	76	83	83	87	86	88	79	78	67	80.4
	Min	60	64	65	55	56	51	70	64	68	62	56	56	50	53	57	58	61	54	54	51	56	57	58	59	69	60	66	65	62	47	45	58.5
Sigourn'y	Max.	95	93	90	78	89	94	97	98	99	99	91	84	83	90	92	93	80	84	84	89	84	85	90	92	95	98	100	96	85	74	82	89.8
	Min	75	77	71	67	56	56	67	69	73	67	66	60	52	53	58	60	67	63	54	64	65	56	56	58	60	62	62	65	63	53	50	62.1
Sioux C'r.	Max.	84	85	79	71	79	85	89	80	89	80	82	77	79	80	79	89	79	78	78	85	85	81	83	85	90	86	88	85	77	68	68	81.4
	Min	61	60	61	55	54	63	71	62	70	63	61	59	54	54	58	59	62	57	58	53	60	56	52	58	68	64	63	66	65	47	45	59.4
Sioux C'y.	Max.	86	86	75	72	80	88	95	87	90	79	84	79	76	81	80	87	78	81	82	88	83	72	82	84	92	86	91	82	79	70	65	81.9
	Min	64	69	58	55	60	67	73	68	74	68	64	57	55	59	65	64	64	60	60	61	60	63	61	66	73	65	69	70	61	53	51	63.1
Storm L.	Max.	83	82	79	76	78	84	87	82	89	79	83	75	75	78	78	85	78	77	77	80	80	75	80	82	88	83	86	83	78	67	65	79.7
	Min	62	69	65	56	58	63	71	65	69	65	60	56	52	57	59	60	64	57	57	55	61	61	57	62	68	65	67	68	61	49	46	60.8
Stuart	Max.	90	90	80	..	85	79	93	95	94	95	92	89	86	87	87	90	80	82	84	80	80	79	85	91	93	94	96	93	84	74	74	86 6
	Min	71	71	69	..	63	59	69	75	77	71	70	65	58	60	62	66	60	74	60	58	60	59	59	58	58	64	67	63	63	63	50	64.1
Thurman	Max.	91	85	83	80	85	90	93	96	100	97	72	84	84	86	87	93	85	83	88	93	89	82	86	89	91	90	92	92	87	77	70	87.7
	Min	72	73	72	59	51	63	74	72	74	72	70	59	55	63	69	65	67	59	57	60	62	64	62	63	69	62	66	72	64	56	47	64.2
Tipton	Max.	93	91	89	82	88	88	93	94	97	86	88	84	83	85	85	85	78	82	82	84	88	82	88	91	93	89	93	93	83	78	77	86.8
	Min	75	74	72	71	61	63	67	77	72	65	67	66	55	57	60	60	67	62	61	60	64	62	62	63	66	69	66	71	65	52	56	64.8
Toledo	Max.	87	90	86	74	83	86	91	88	92	83	86	81	80	81	82	83	79	79	78	84	84	80	84	87	89	86	90	91	82	71	74	83.6
	Min	73	70	71	64	54	58	67	71	73	67	63	58	50	51	56	60	67	60	57	55	61	54	56	58	59	68	68	68	64	52	46	61.3
Wapello	Max.	91	90	85	77	81	84	87	90	94	89	81	80	80	81	82	80	81	81	83	80	88	79	83	88	91	88	89	91	81	77	72	84.0
	Min	72	74	71	71	61	63	66	72	74	70	73	62	56	57	63	62	68	65	62	58	66	66	62	64	65	62	68	72	67	59	59	65.5
Washi'ton	Max.	90	88	88	77	83	89	92	92	96	93	86	80	79	82	84	86	80	80	81	83	83	80	85	90	92	92	93	94	83	77	76	85.6
	Min	72	68	70	58	56	58	64	69	72	66	65	59	50	52	57	58	65	60	56	50	60	55	57	57	60	60	65	66	61	51	50	60.2
Waterloo	Max.	88	88	90	83	76	84	86	94	86	95	80	86	79	78	80	82	84	76	82	78	81	83	83	84	87	91	87	90	94	85	70	84.2
	Min	69	69	72	68	56	68	60	70	68	68	62	60	52	52	55	57	62	60	60	58	58	57	57	58	60	65	67	66	65	51	46	61.2
Waverly	Max.	85	87	82	73	81	85	90	85	91	78	82	75	74	78	79	82	77	78	75	78	79	79	82	84	88	83	87	89	81	69	72	80.9
	Min	70	67	71	65	55	60	69	89	68	67	62	60	53	52	56	61	67	59	59	56	61	57	63	60	62	68	68	67	64	52	47	61.7
W.Bend	Max.	84	87	85	85	85	86	90	88	92	78	85	78	77	83	83	89	76	79	77	81	84	86	86	86	90	89	89	84	79	68	..	83.6
	Min	66	67	67	60	56	63	69	64	69	64	60	58	52	54	52	60	64	56	57	53	55	61	59	59	66	66	68	69	60	48	..	60.9
Whitten	Max.	89	86	84	76	85	88	93	88	93	85	84	77	79	85	87	88	86	80	78	85	83	84	85	88	92	90	90	91	79	69	75	84.6
	Min	69	67	71	62	53	58	66	65	70	66	61	57	51	52	56	72	62	57	58	65	60	51	58	58	60	68	69	68	63	49	47	60.9
Wilton J.	Max.	91	94	91	85	78	89	95	97	97	92	88	82	80	82	81	79	82	83	80	85	86	83	82	89	92	92	91	96	85	75	78	86 5
	Min	74	71	73	64	56	56	65	69	73	66	66	65	56	53	57	59	62	62	60	55	62	55	58	57	60	64	63	68	59	53	53	61.7
Winters't	Max.	83	..	83	75	85	86	90	91	94	94	90	85	85	84	85	89	83	84	87	89	88	86	86	87	94	90	95	96	86	79	73	87.1
	Min	69	71	67	59	54	..	..	70	78	74	71	57	52	55	57	62	68	60	55	55	60	54	60	56	62	65	68	68	63	51	45	61.6

DAILY AND MONTHLY PRECIPITATION FOR JULY, 1903.

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	.04	....	1.86	....	....	....	....	....	..	.53	.07	....	....	..	....	..	T	..	....	.14		.04	....	....	....	..	....	.15	...	..		2.83
Albia	....	....	.04	.41		....	....	....	....	T	.20	....		....	....	..	.05	....	..	...	.20	..	.01	....	....	....	....	....	1.10	.20	..	2.21
Algona		....	...	.30	....	....	....	.70	.45	.20	...	....	....	....	....	..	1.10	....	...	...	...	....		....	....	.02	..	T	....	....	....	2.77
Allerton	T	....	.19	.55	....	....	....	...	..	....	1.66	....	....	....	....	....	.21	....	....	.12	.13	.09	..	....	....	....	....	...	.97	T	....	3.92
Alta	....	.09	.30	.72	....	....	....	1.79	....	.53	....		..	....	....	....	1.30	....		78		..	....	....	....	1.27	....	.03	..	....	T	6.81
Alta (near)	....	....	.90	....	....	..	..	1.92	....	.60	...	....	..	....	...	....	1.20	....	....	.92	...	..	....		....	.25		.11	....		.33	6.23
Amana	....	T	.11	.5	....	..	..	.03	.07	.52	....	....	....	....	....	T	.78	..		..	T	....	....	....	....	..	T	.02	.35	..	...	2.47
Ames	T	.06	.60	.04	....	....	..	.34		.18	....	....	....	....	....	....	2 36	....	....	.08	.19	.03	....		....	...		.36	.53	..	T	4.77
Atlantic	.25	....	.17	..	....	....	....	.05	..	.30	..	..	....	....	....	....	1.02	..	...	1.02		.12	....	....		....	....	.15	.60	.	T	3.68
Baxter	....	...	.43	.10	....	....	....	.03	....	.85	....	....	....	....	....	....	1.25	....	..	....	....	....	.05	....	....	....	....	.30	.60			3.61
Bedford	.01	....	1.23	..	....	....	....	....	....	....	.05		.02	....	....	T	.27	....	...	.02	.44	.05	..	....	....	....	....	....	.30	T	09	2.48
Belknap	..	....	.33	.07	...	....	....	....	....	...	.30	....	....	....		....	T	...	...	T	...	T	..	....	....	....	....	....	.24	....	....	.94
Belle Plaine	....	..	.30	.95	....	..	....	.20	...	1.35	....	....	....	....	...	T	1.10	....			.10	....	....	....	....	T	.02	....	.45	....	.. .	3.47
Bonaparte	....	....	.56		..	....	....	....	....	.21	1.07	....	....	..	....	....	....	....	....	....	.82	....	..	.. .		....	....	.08	..		...	2.74
Britt	T	....	.01	.60	....	....	....	.40	.68	.12	.02	....	....	....	....		1.12	....	..	.08	.03	....		....	....	.11	T	.28	....	....	T	3.45
Buckingham	....	.29		....	....	....		....	.16	.96	....	....	....	....	....	....	.02	..	..	T	....	....	..	..	....	T	....	.50	.48	..	....	2.41
Burlington	..	...	.57	....	..	....		....		T	.72	....	....	....	....	.11	.26				..	....	....	....	....	..	....	T	.13	....	.03	1.82
Carroll	..	..	.26	.48	....	....	..	.45	.65	..	.05		..	....	....	....	3.05	....	....	.30	....		.13	....	....	....	...	.18	.04	...		5.59
Cedar Rapids	.26	T	1.15	..	....	..	....	.90	.13	.93	....	....	....	....	....	....	1.06	....	....	....	....	....	....	....	....	.20	..	.29	.02	..	...	4.94
Chariton	T	....	.95	.50		....	....	....	....	....	1.05		....	....		....	T	...	....	T	.78	T	....	....	....	....	....	.45	.70	..	....	4.43
Charles City	1.15	..	....	.35	T	....	....	.04	1.73	1.90	.14	T	....	....	..	....	28	1.53	....	....	.04	....	....	....	..	T	..	....	.20	....	..	7.36
Chester	....	....	.12	.08	....	....	....	....	1.28	....	..	....	....		....	..	1.75	....	..	....		....	....	....		.17	..	.75	....	..	....	4.15
Clarinda	.02	...	...	.75	....	....	....	...			....			.06	....	....	.13	....	..	.04	....	.15	....		....	...	....	....	.73		.15	2.02
Clear Lake	....	T	.05	.20	....	..	...	.20	2.20	.07	T			....	....	....	1.40	....	...	T	....	.....	....	....	....	.07	....	.76	....	...	..	4.95
Clinton	....	.35	.20	.16	....	..	....	....	.53	2 38	....	....	....	....	....	..	1.08	...	....	....	....	....	....	....	....	..	..	.57	....	....	.....	5.27
College Springs	....	....	.46	.56	..	..	..	..	....	....	T	..	T	..	.01	....	25			....	.01	T	....	....	....	....	....	....	.85	....	.20	2.34
Columbus Junct'n	T		.29	....	..	....	....	....		.50	T		....	....	....	.10	.53	....	....	....	T	....		....	....	....	....	....	.10	....	....	1.58
Corning	T	....	.89	.18	....	....	....	T	..	..	T	T	T	T	T	....	T	....	....	.50	.10	.02	....	....	....	....	....	T	.78		.04	2.51
Corydon	.02	....	.11	.18	..	..	....	....	....	....	1.81	....	....	..	....	....	.52	....	....	.09	..	.06	....	....	....	....	..	.04	.11	....	..	2.94
Cumberland	....	....		.60	....	....	....	....	....	T	....	..	....		....	2.20		....	....	..	2.21	.08	..	....	..	..		1.00	.40	....	.20	6.69
Danville	....	.10	.85	..	....	....	T	....	....	....	..	....	....	....	.	....	T	.50	....	..	....	..	.	....	..	..	.15	T	T	.05	.10	1.75
Davenport	...	.70	.49	.06	....	....	...	....	.07	1.24	.20	....	....	....	....	1 00	.48		....		.01	..	....	....	..	.		.16	.06	....	....	4.47
Decorah	..	....		1.60	..	...	..	...	3.09	.15	....		..	....	....		2 12	...	..		....	....		...	T	..	.30	.88	....	....	..	8.14
Delaware	...	.47	.23	.68	..	..	..	.27	.90	5.12		....	...	....	....		2.56	....	.	....		....		....	....	.02	..	.25	....	....		10.50
Denison		....	....	.52		....	...	.19	.04	.20	T		..	....	...	....	3.43	...	....	.28	....	.19		....	.	.10	..	.18	.15	..	....	5.28
Des Moines	T	...	.92	.01	..	....	....	.34	T	.30	....	....	....	....	....	....	.31		....	.01	.30	.01	...		....	....	..	.47	.95	....		3.62
De Soto	T	...	.60	.05	..	....	....	.22	....	.41	....	....	....	....	....	....	.55	.	..	.05	1.11	.05	....	....	....	....	....	.65	.75	....	T	4.44
Dows	....	....	.05	.05		....	..	42	2.30	3.28	....	....	....	....	....	....	2.60		....	....	....	....	....	....	....	T	....	.80	....	....	..	9 50
Dubuque	....	.36	.01	.42	....	....		T	1.75	1.63	....	..	....	....	....	....	2.10	T	...	..	....	....	....	....	..	.69	.04	.10	T	...		7.10
Earlham	.50	....	.70	.10	....	....	....	....	....	....	..	....	....	....	....	....	.26	....	....	.19	.53	.06	..	....	....	....	....	.19	1.09	....	T	3.62
Elkader	....	.58	....	.80	....	...	....	....	4.06	.46	..	....	....	....	....	.02	5.00	....	..	....	....	..	....	....	....	....	.65	1.00	.15	....	....	12 72
Estherville	.20	.04	.24	3.00	.03	....	....	1.00	.56	.15	.02	.01	....		....	T	1.00	50	...	..	.04	..	....	....	.20	.18	..	1.53	....	....		7.21
Fayette	....	.04	2.10	.34		....	....	.95	2.52	.39	.49	...	....	....	....	.06	3 42		....	....	..	....	....	....	....	T	....	.40			..	10 71
Forest City	....	..	....	.34	T	....	....	.22	.30	.57	.10	.50	....	....		....	1.00	.71	....	T	..	..	....	....	.	.05	....	....	....	....	....	3.79
Fort Madison	....	....	.45	....	..	....	....	....	..	T	.33	....	....	....	....	.18	.15	.	...	T	..	T	..	....	.	....	....	.03	.67	.07	....	1.70
Galva	T	....	.62	.20	...	..	....	.64	.23	.95	....	..	....	....	..	..	.14	..	..	1.15	....	....	....	....	....	.18	....	.21	....			4.32
Gilman	..	....	.58	.14		....	....	.33	T	1.54	....	..	....	....	T		1.06	.	....	T	.	T	..	....	....	T	..	.26	.58	....	T	4.49
Grand Meadow	...	.43	.86	..	..	....	....	...	4.04	1 25	..	...	..	....	....	....	3.20	....	..	..	....	..	....	....	T	T	.70	.37	..	....	....	10.85
Greene	....	....	.24	.12	....	....	....	.30	2.28	3 41	...	....	....	..	..	....	1.87	....	....	T	..		....	....	....	.03	..	.65	..	....	..	8.90
Greenfield	T	T	.78	.08			T	T	....	....	..	....	..	....	....	....	.29		....	.12		.11	....	..	....	....	....	.72	.33	...	T	2.43
Grinnell (near)	.01	....	.30	.35	....	..	...	.41	....	1.20	....	....		....	....	....	.60	....	....	T	T	.02	....	....	..	....	....	T	.90		..	3.79
Grundy Center	....	.27	.87	....	..		....	.30	.03	1.07	.	....	....	....	....	....	2.00	....	....	T		....	....	....	..	.41	....	1.17	.07	..	..	6.19
Guthrie Center	T	..	.46	.55	..	....	....	.11	..	.06	....	....	....	....	....	....	2 26	....	....	.41	....	.11	....	....	....	....	....	.71	.66	....	.02	5.35
Hampton	....	..	.15	..	....	....	....	2.91	2.74	.47	..	..	..	....	....	..	2.42	..	....	....		..	....	....	....	01	....	.90	....	....	....	9.70
Hanlontown			.10	.43	....	..	...	.29	.63	.05	.28		....	....	....	..	2.00	....	...	.04	.05	....	....	....	....	T	....	.02	....	....	....	3.89
Harlan	.09	.04	T	.62		....	....	.49	..	.34	....	T	T	T	....	....	2.28	....	..	T	.06	.09	..	....	....	....	....	.13	.91	....	T	5.05
Hopeville	.03	..	.78	.11			....	.08	..	.47	.02	....	....	....	....	....	.10	....	....	.25	....	.04	....	....	..	....	..	1.	.20		....	2.21
Humboldt	..	....		.40	..	....	..	1.20	1.68	.68	....		....	....	....	....	.98	....			.15	..	....	....	....	.28		.02	T	..	..	5.39
Ida Grove	.42	....	.17	.29	....	....	....	.70	.43	2.27		....	....	....	....	....		.96		.11	....	.12	....	..		.63	....	.29	....	..	....	4.43
Independence	T	..	.40	.10	..		..	.10	1.40	2.45	..	....		....	....	....	1.50	....	....	..	....	....		....	....	T	..	....	....	....	..	
Indianola	.05	....	.46	....	....	....	....	T	....	....	....	....	....	....	....	....	.10	....	....	....	....	....	..		....	....	....	2.70	....	....	.70	
Iowa City	...	T	.23	.29	..	....	....	....	.33	1.15	1 20	..		....	....	....	....	.80	....	....	....	....	..	....	....	....	....	....	.76	T	..	4.76
Iowa Falls	.04	.06	....	.23	T		....	.09	1.23	.63	.86	....	....	..	....	....	.03	1.20	....	....	T	....	....	....	....	1.49	....	.72	....			6.58
Jefferson	....	..	.17	.07	....	....	....	1.75	....	..	....		....	....	....	....	1.52		...	.15		.02	..	....	..	....	....	.20	..		.01	3.89
Keokuk	....	....	.20	.12	..	....	....	T		...	.36	....	....	....	....	....	.05	....	....	....	.07	T	....	....	....	....	....	T	.41	..	.06	1.27
Keosauqua	....	....	....	.53	....	....	....	..	....	..	.25	1.03	..	....		....	.03	.02	..	..	.77	....	.03	..	..	....	....	..	.06	..	....	2.72
Lacona	...	....	.45	.39	....	..	....	....	....	.19	..	....	....	..	....	....	.10	....	....	.36	....	....	..	..	..	....	....	.50	....	..	....	1.99
Lansing	.10	.30	.	.2	....	..	....	....	2.75	.22	..	....	..	....	....	....	1.10	..	....	..		....	....		....	.20	....	.30	....	....	...	5.25
Larchwood	.10	....	.53	.24	....	..	....	.82	.10	.05	.08	.05	....		....	....	2.10	....	....	....	....	....	....	....	....	.68	....	.08	....	....	T	5.83
Le Claire	....	.22	.38	.23	..	....		....	.67	.70	.61	....	....	....	..	.22	....	1.30	....	..	T	....	....	....	....	....	....	T	....	.19	.02	..	4 54
Le Mars	.25	....	2.05	.70	...	....	...	.59	.04		....		.		T	...	1.60	....	..	....	....	....	....	....	....	..	....	.23	....	..	T	5 46
Lenox	.02	..	1.12	.37	..	...	....			T	.17	...	..	.		....	.07		....	1.60	.18	....	.	....	....	..	....	T	.70	..	....	4.23
Leon	.06	....	.25	.27	.....		....	..	....	....	.22	.11	....	....	..	....	39	....	....	.25	....	.08		....	....	....	....	....	.25	T	T	1.88
Logan	...	....	....	.88	....		.02	...	....	.07		....	.18		.05	..	2.30	....	.04	....	.12	....	....	..	....	....	....	....	.73		.07	4.96
Maquoketa	.02	.73	.16	.61	....	....	....	....	1.73	2.18	.71	....	....	..	....	....	....	1.03	....	....	....	....	....	....	....	....	....	.41	.05	....		7.68
Marshalltown	.30	.07	.	1.09	..	....	....	....	.06	.07	.03	1.25	....	..	....	.01	.21	1.96	....	....	....	....	....	..	....	....	.03		.97	.07	...	6.12
Monticello	1.65	....	.75	....	....	....	....	....	1.50	3.00	.10	..	....	....	....	T	1.10	....	....	....	....	....	....	....	....	.30	T	T	....	....	....	8.40
Mason City	....	....	.10	.26	....	....	..	.25	2.75	.12	.45	....	..	....	....	....	1.45	....	....	T	..	..	....	..	T	....	.56	....	....	....		5.94
Mount Ayr	.10	....	2.20	.50	....	....	....	....			.60		....	T	T	....	.10	....	..	.31	.18	.06	....	....	....	....	....	.25	T	.05		4.33
Mt. Vernon	..	.05	.25	.50	..	....	....	.50	.25	1.57	...	...	....	....	...	.13	.62	..		..	..	..	....	....	....	T	..	.03	.18	....	....	4.10
New Hampton	....	.21	.18	.23	..	...	....	.07	3.42	.55	....	....	..		...	.11	3.00	....	....	....	....	....	....	....	....	.08	....	.23	....	....	....	8.08
Newton	....	. ..	1.50	.25	..	..		.13		1,18	.	....	..	....	...	....	1.09	....	...	T	.05	..	....	.	..	....	....	...	1.10		....		5.30
Northwood		....	.10	.23	T	....	....	.19	1.08	.03	.02	....	....	....	T	..	1.72	....	....	.04	....	....	....	..		T	..	T	..	...	....		3.41
Odebolt	.40	.05				....	..	....	.97	.75	.07	.	...	..	....	....	....	1.85	.45	....	..	....	.05	....	.	..	.20	....	.08	....	....	....	4.87
Ogden		.28	....	.38	....	....	....	....	.46	.36	....	....	....	....	....	....	.26	1.95	....	....	.25	....	....	....	....	....	....	....	1 15	..	....		5.09
Olin	...	1.25	..	1.00	..	..	....	.10	2.00	2.24	...	....	....	....	....	.33	.53	....		....	....	....	....	....	....	....	....	.04	.01	....	....	7.50
Omaha, Neb	.01	..	.01	.13	....	....	....	T		T	....	...	.01	.08	.02	....	.72	..	....	....	.12	.17	....	....	....	....	....	.22	.96	..	.22	2.67
Onawa	.50	....	1.25	1.42	..	....	...	.15	...	.26	....	.05	.05	.04	....	....	2.78	....	....	..	.22	.27	...	....	....	....	....	T	.22	..	T	7 21
Osage	....	..	.15	.22	....	....	....	.34	.96	.04	.02	..	..		....	.01	2.20	....	.	.04		....	....	....	....	T	....	2.41		....	....	6.39
Osceola	..	..	....	.52			..	....	....	....	.65	....	....	....	....	....	.60	.02	.	..	.50	..	.02	....	..	..	..	....	.14	T	....		2.45
Oskaloosa	T	...	.41	.15	....	....	....	....	....	.33	.02	....	....	....	..	..	.28	....	....	T	..	.02	....	....	....	....	....	.04	.36	T	. ..		1 61
Ottumwa	..		.16	.02	..	..	....		....	.61	....	..	....		....	....	.36	....	..	T	.46	.01	....	....	....	....	....	.02	.14	....	..		1.78
Pacific Junction	..	....	T	.30	....		....	.12	.	....		....	T	.05	.04	....	.92		..	....	.28	.03	....	..	....	....	....	....	.85	.	.26	2.88
Perry	T	.08	.50	..	....	..	....	T	....	..	....			.		....	2.25	....	..	.05	....	.07	..	....	....	.12	....	.21	.36	....	T	3.64
Plover	..	....	.04	.47	....	....	..	1.84	1.00	.24	....		..	....	....	..	1.00	....	....	.06	.38	....	...		..	.16	.	.11	..	....		5.30
Primghar	....		.05	.70	..	....	....	.45	.17			...		....	T	..	.85	..	...	.50	....		....	....	....	....	.80	....	....	....	T	4.52
Red Oak	..		.26	.06	.	....	...	T	....	T	T	..	T	.03	T	....	.22		..	T	.09	.02	....	....	....	....		.16	1.28	...	.22	2.34
Ridgeway	....	T	.38	.02	..	.		.05	2.47	.06	.01	..	....	....	....	....	2.04	....	....	....		....	....	..	T	.02	.15	.92		..	....	6.12
Rockwell City		...	.15	.41			2.50		1.01	1.05	....	....	....	....	....	....	1.40	..	....	.02	....	....	....	..	T	....	.10	....	....	....	....	6.64
Sac City	.18	....	T	.15	....		...	1.47	.49	2.40	....	....	....	....		..	1.52	....	....	.19	....	....	....	....	....	.40	....	.46	T	....	...	7.26
St. Charles	.06	....	1.31	.12	..		....		....	....	.30	....	....	....		..	.10	....	..	.04	.55	.05	....	....	....	.	....	.54	1.12	....	....	4.19
Scranton	....		T	.11	....	.01	....	1.17	.35	.01	T	....	....	..	....	....	1.58	....	....	.18	....	.07	....		....	....	....	1.35	.05	....	T	4.88
Sheldon	.10	1.27	.15		....	....	..	.75	T	...	.15	.02	..	....	.10	....	1.12	....	...	1.80	....	....	....	....	....	.73	....	.03	..	....	....	6.22
Sibley	..	..	.23	1.23	....	....	....	1.01	.11	.10	..	.07	....	....	....	.01	1.22	.93	...	....	.68	....	..	....	....	.37	....	....	.08	....			5.93
Sigourney	T	..	.03	..	....	..	..			.28	.10	....	....	....	....	..	.44	....	....	..	.39	T	....	....	....	....	....	1.30	.17	....	....	2.71
Sioux Center	.09	....	.74	.15	....	....	....	.18	T	T	..	.15	.	....	T	..	1 00	....	....	..		T	....	....	....	.36	....	.03	....	....	..	2.70

DAILY AND MONTHLY PRECIPITATION FOR JULY, 1903—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	....	....	1 01	.88	...		. .	.38	....	.73		....	T	.	.04	....	.97	....	....	..	.09	.01	..	....	...	1.40	....	.04	....	....	.03	5.57
Stockport	.	....	.36	...	..	.	...	....	..	.60	.63	....		.		....	.25	....	...	....	.51	T	....		....	....	....	....	.17	..	.01	2.53
Storm Lake	T		.05	.40		...	.59	.79	.11	1.16	...	...			....	..	1.42	....	.	.45	....	....	...	....	....	.70	..	.16	..	...	...	5.83
Stuart	T	.70	.	....		....	....	.22	..	...		....	....	T	....	...	1.1c	..	....	T	T	.15	..	....	....	....	....	.10	.83	..	..	3.18
Thurman	....	....	T	.52	..	...	....	T	.	T	T	....	T		T	...	1.20	.....	....	....	.78	T	....	....	....	....	....	....	.28	..	.28	3.06
Tipton	T	.10	.31	.43	..	.	.	T	....	3.41	...	....	....	...	....	.52	.83		....			....	....	....	....		....	.05	.71	...	....	6.36
Toledo	....	....	.03	.60	....	....	....	.25	.25	1.25	....	...	..	....	T		1.30	....	..	..	...	....	....	....	..	.20	....	....	.55	....	....	4.43
Vinton	....	.38	.09	.02	...	....	....	.46	1.00	1.10	...	..	....	....	....	1.22	....	....		..	....	..	....	....	..	.06	....		.38	....		4.71
Wapello	....		1.23	..	....	....	.	...	....	.70	.10	....	....	....	....	.16	.20	..	....	....	....	....	....		....	.	....	....	....	....	.20	2.59
Washington	....	....	.08	...	....	...	....	...	....	.47	.15	....	...	....	.....		.63	...	....	.04	..	....	....	....	....	....		....	.15	..	....	1.52
Washta	....		3.32	....	....	...	....	.23	...	2.25	....	T	....	....	T		.87	....	....	T		T			....	.38	....	.09	....	....	..	7.14
Waterloo	T	.25	T	.40	...	....	..	.24	.5)	2.39	1.26	...	.	....	....	....	.55	2.78		..	T		....	....	....	T	T	....	.71	....	....	9.08
Waukee	.02		.56	.04		....	...	.15		1 02	....	....	....		..	...	57	..		.05	.26	.05	....		..	.	..	.60	1.00	...	T	4.32
Waverly	...	.18	.28	.12	.....	....		.15	1.94	2.87	..	....	....	....	....	....	1.44	.	...	.02	....	...	....	...		...		.50	....		....	7.50
West Bend	....	....	....	.55	....	..	.	.8	1.08	.14	....	T	....	....		....	1.30	..	....	.06	....	..	....	....	....	.20	.11	.30	....	....	....	4.55
West Union	....	.54	1.55		...	....		.60	4.20	.37	....	....	....	....	.03	....	3 56	..	..	....	....	....	..	....	....	....	....	27	..			11.12
Whitten	....	.53	.35	.10	....	..	....	.28	.02	.57	.04	....	....	...	T	..	2.15			....	....	....	....	....	....	.42	.03	T	.14	....	....	4.63
Wilton Junction	...	....	.08		....	....	....	....	....	3.66	.73	.47	....	...	...		.73	....	....	....	....	....	....	....	....	....	....	.68	....	....	....	6.35
Winterset	....	....	1.04	.11	..	.	....	....	...	...	....	..	....		....	....	.13	....	....	.10	1.35	.06		.	....	....	....	....	1.55	....	....	4.34
Woodburn	...	..	56	.09	..	..		...	...	89	.05	....	....	...	....	....	.09	....	....	.72	07	..	..	....	..	....	....	.74	.20			3.41

Precipitation Chart July 1903.

AUGUST, 1903. No. 8.

CONTENTS.

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GEO. M. CHAPPEL,
LOCAL FORECASTER,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

DES MOINES:
BERNARD MURPHY, STATE PRINTER,
1903.

THE IOWA WEATHER AND CROP SERVICE

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Woodward	Geo. Swisher

U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

VOLUME XIV. AUGUST, 1903. No. 8.

WEATHER CROP CONDITIONS, AUGUST, 1903.

August was cooler than usual, with a large excess of rainfall, humidity and cloudiness. The daily mean temperature for the state was 69.1°, which is 3.1° below normal, and exactly the mean of August, 1902. There have been two colder Augusts in the past thirteen years—in 1890 and 1897. The average rainfall, 6.64 inches, was 3.43 inches above normal, and the heaviest state average in any August of which we have records. The southern section received the larger amount, an average of 8.74 inches, the greater part of which fell in the last week of the month, when it was much needed and beneficial, though some local damage resulted from excessive downpours. For the state there was an average of twelve clear days, and nineteen cloudy or partly cloudy. Considerable progress was made during the fair weather periods in threshing and other farm operations. Haymaking was continued throughout the month, when the weather permitted, securing a large amount of aftermath, wild hay, and second crop of clover for seed and fodder. More than the usual amount of plowing was done, with generally favorable conditions of soil for this work. Threshing returns indicated generally light and unsatisfactory yield of wheat, oats and barley; the yield of timothy seed has been unusually heavy. The development of the corn crop was all that could be expected under the prevalent weather conditions. At the close of the month the early planted corn, about forty per cent of the whole area, had reached the roasting ear stage, or a little beyond, giving promise of reaching maturity within twenty days, under favorable conditions. The balance of the crop was in various stages of growth, indicating need of very good ripening weather for a full month or more to place the bulk of it beyond danger of harm by frost. The outlook for the crop as a whole was at that time very unsatisfactory. The late potato crop made fair growth in dry and sandy soil, but there were reports of damage by rot in many localities. The crop of early and fall apples gave good returns, especially in the northern half of the state; but winter apples were very unpromising. Pasturage made a heavy growth, giving assurance of abundant fall feed for stock.

NOTES.

As the apple in prime condition will soon be here again, it is well to remember, says the cooking club, that this fruit contains a larger percentage of phosphorus than any other fruit or vegetable. This phosphorus is admirably adapted for renewing the essential nervous matter of the brain. The acids are also of great value for people of sedentary habits, whose livers are sluggish in action, these actions serving to eliminate from the body noxious matters, which if retained, would make the brain heavy and dull, or bring about jaundice or skin eruptions. Some such experience must have led to the custom of using apple sauce with roast pork and similar dishes. The malic acid of ripe apples, either raw or cooked, neutralizes any excess of chalky matter engendered by eating too much. Apples are useful as a disinfectant for the system, and have considerable value as an antidote for tobacco and liquor. Under all conditions and in all cases there is no fruit so beneficial or harmless as the apple.—*Exchange.*

There has been some speculation as to the cause of the crop deterioration which occurred just before harvest this year. The *Commercial West* notes the remarkable deterioration which cut the crop down from 800,000,000 bushels, the earliest optimistic report of the "probable" crop made by the government, to 625,000,000, the present estimate. It is well known, and has been noted before in the *Modern Miller*, that the deterioration was not caused by a series of calamities in the way of frosts, drouths or insects, and in searching for an explanation the *Commercial West* advances the novel theory that the sun's rays were absorbed in the atmosphere and plant life did not receive enough heat and light. The theory is credited to one Duvigneaud, of a Minneapolis grain commission company, who discovered that the July sun was not sufficient to give the usual actinic effects in camera work and that photographic plates were under-developed, where the usual amount of time was allowed. The theory is strengthened by a professor in the Smithsonian Institute, who claims that this year there has been an unusual decrease in the transparency of the atmosphere, probably due to volcanic dust from Mt. Pelee, or to an overdose of moisture in the atmosphere.—*Modern Miller.*

BENEFITS OF FALL PLOWING.

Cultivation is probably the most important feature connected with the handling of soils. Nature has placed large quantities of plant food in our soils, and it depends upon our skill and knowledge how far we can make use of and work this mine for the benefit of our crops. Cultivation is vital, and the subject is so wide that one scarcely knows where to begin. For spring grains I try to plow in the fall. When the furrows are well and evenly set up and are frozen, and when the frost comes out, fertilization takes place and the soil is left in a fine granulous condition. Plant food is liberated and a warm seed bed is formed. When plowing for spring grain is left until the spring, our teams are plowing when they should be surface cultivating and drilling in the seed. Every day's delay in getting in grain after the soil is dry enough to work means fewer bushels at

threshing time. Soil plowed in the spring, too, is colder on the surface than that plowed in the fall, which involves slower germination and vegetation. As to the proper depth to plow, it seems to me that is a question which each farmer must decide for himself, according to his own soil, conditions and crop requirements. If the soil of a given field is deep, say ten or twelve inches, and that field were plowed in the fall for spring grain, I would try to plow it about seven inches deep. But if by some mischance that field were not plowed until the spring I would plow it lighter, as the deeper the plowing the colder the surface turned up. If that field were plowed in the fall for mangels, I would try for about eight inches. But if the surface soil of this field is only six or seven inches deep, I would try to plow it only five or six inches deep. In other words, the depth of the soil, the time of plowing and the nature of the crop grown are all factors in determining how deep to plow. I do not wish to bring any subsoil to the surface if I can avoid it. Sometimes, however, the surface soil is so shallow that some of the subsoil must necessarily be brought to the surface in plowing. If I have a deep soil I want to give the roots of the plants liberal feeding grounds, because they will, if allowed, strike down deeply. As to the question of frequency of plowing, it appears to me that that also depends upon soils and circumstances. Heavy, compact soils require most plowing than lighter ones. Such soils tend to get hard and bake and become inert, and hence require the plow to open them and improve their mechanical condition. The plow, too, is the surest and quickest way to destroy many sorts of weeds. Where the land is clean and the soil will permit it, surface cultivation with a disc or spring tooth often forms better seed-bed than the use of the plow.—*A. W. Pearl, in Farmers' Review.*

RAIN AS A PURIFIER.

The health department has often called the attention of the public to the fact that rain is a great purifier, and there is some highly interesting testimony to the same effect in a recent number of the *London Lancet* which is fortified by references to recent examination and analysis.

Beginning with June 13th London had a continuous rainfall for five days, the total precipitation being estimated at 3.8 inches. On the third day of the period a supply of raindrops was secured for an investigation, and it was found that the solid matters contained therein amounted to 9.1 grains per gallon. Among the constituents noted were common salt, ammonium sulphate, organic ammonia, soot and suspended matters and nitrates. The *Lancet* assures us that the quantity of ammonia sulphate, .625 grains, was remarkable, and that its chief origin is the consumption of coal. Salt contributed .8 grains and soot and suspended matter 5 grains. With this analysis and an estimate of 6,437,229,860 gallons for the total rainfall over the London country area as the basis of the calculation, it is figured that the enormous downpour "represents the washing out of no less than 3,738 tons of solid impurities, of which 330 tons consisted of common salt, 267 tons of soot and suspended matters." Another interesting computation is given as follows: "Regarding the combustion of one ton of coal to produce 20 pounds of ammonium sulphate (a very fair average) the quantity of coal represented by the storm would be 29,904 tons."

The *Lancet* adds that besides the purification which is shown by the analysis there is a bacteriological purification also, which of course is a very important factor in the beneficient work of the rain.—*Chicago Record.*

ERRATA IN JUNE REVIEW.

FT. MADISON.—Total precipitation recorded 2.49 inches on pages 7 and 10, should have been 3.49 inches.

LANSING.—Mean minimum temperature recorded 51.2° on page 9 should have been 51.7°.

STUART.—Mean temperature recorded 64.2° on page 6, should have been 64.4°.

Mean maximum temperature recorded 73.4° on page 9, should have been 73.5°.

REPORT OF SPRING FLOODS.

REPORT SHOWS TOTAL LOSS FROM FLOODS WILL REACH $40,000,000.

WASHINGTON, D. C., September 2.—Dr. Frankenfield of the United States weather bureau has completed and sent to the printer an exhaustive report on the floods of the Missouri and Kaw rivers. The report is the most comprehensive thing of the kind ever attempted by the government.

His report will show that the spring floods of 1903 in the Missouri and Kaw rivers and upper Mississippi were the most destructive in the history of the country and were the greatest in the volume of water, with the exception of 1844. The fact that a lesser volume of water in 1903 created greater havoc is due to the narrowing of the channels of the river by the march of civilization up and down the water courses and the reclamation of lowlands. Dr. Frankenfield corrects an erroneous popular impression that forests make rains. He says that while they do not make rains, they are valuable in that they retain the moisture. In recent years the denuding of the forests makes it possible for the water to reach the water courses much quicker than when there were extensive forests. This causes quicker rises in the water courses and enlarges the possibilities of destruction.

In support of the assertion that there was a greater volume of water in the flood of 1844 than in that at Kansas City of this year, Dr. Frankenfield says that the water was two feet higher at Kansas City than this year and three and a half feet higher at St. Louis. Recent years have seen the river at Kansas City reduced in width from 2,000 to 1,100 feet. This illustrates the contraction of the water course and the resultant increase in the speed of the current. There were sixteen bridges swept from their foundations by the Kaw river during this year's flood. Some of these were not more than 400 feet long and this is a further illustration of the contracting of the courses of streams. Present day construction of bridge approaches is tending all the time in the direction of solid embankments of masonry and these have the effect of a dam. This increases the back water and the height of the stream at these points.

The report asserts that the total loss from the floods in the upper river was in round numbers $40,000,000. This is neither speculative nor an estimate, but is based upon actual investigation by the observers of the weather bureau. The loss in the vicinity of Topeka, Des Moines and Kansas City was largely to crops, railroad rights of way and bridges, and to the commercial interests along the river. A loss of $11,500,000 was sustained between Hannibal and St. Louis on the Mississippi, and between Alton and Kansas City on the Missouri. The loss in the immediate vicinity of Kansas City was $15,500,000.

Usually the agricultural interests suffer greatest from the flood, but Dr. Frankenfield remarks that the high water of this year distributed its ravages with impartiality. The farming interests sustained about a third of the loss, the railroads another third and the balance was to the commercial interests of cities and the loss of personal property. The loss from the destruction and damaging of bridges alone amounted to $750,000. The total area overflowed by the spring floods was 3,500 square miles. As large an area has been overflowed before, but with less disastrous results. This year 320,000 acres of land in the "American" bottoms opposite St. Louis from Alton to the Kashaskia river were overflowed.

In the state of Missouri alone about 1,000,000 acres were submerged. The floods were severe tests to the levee system. On the Mississippi side the levees were badly broken from about Warsaw to Hamburg. The Hunt, Lima, Lake, Indian Grove and Sny levees suffered severely. The three first ran from Warsaw to the bluffs at Quincy, and the Sny continues the

chain to Hamburg for about fifty miles. The severe test applied to the Sny levee demonstrated its superiority for that sort of engineer construction work. It had a serious break in only one place and that was where the Alton railroad uses it as a right of way to get into Louisiana.

The Skunk river levee broke, putting 15,000 acres of land under water. Dr. Frankenfield says that a good portion of the water was drained off the land in time for late seeding and raising of fair crops. He comments on the great commercial loss because of the overflowing of large portions of the cities of Kansas City, Topeka and Des Moines. While this is not generally known, he asserts that in the city of Des Moines seven square miles were overflowed.—*Press Special.*

FARMERS AIDED BY SCIENCE.

No book is more certain of a large circulation than the "Year Book" of the Department of Agriculture. One of the most interesting articles in the new volume relates to the results of experiment station work. Our agricultural experiment stations now form the most complete system of agricultural research in the world and the results they attain are influencing our farmers to a large extent.

There are sixty of these stations, employing nearly 1,000 trained scientific and practical men; and they are in operation in every state and territory, including Alaska, Hawaii, Porto Rico and the Philippines. The stations have existed as a national enterprise for fourteen years and the outlay for agricultural investigation in that time has been at the rate of $1 for nearly $3,000 worth of farm products, which cannot be considered an extravagant outlay.

Here are some results of the work of the stations:

Our farmers spend over fifty million dollars a year for fertilizers and the stations therefore have given particular attention to this subject. Fraud and extravagant assertions about fertilizers have been largely eliminated from the business and thousands of farmers are buying fertilizers more intelligently and economically. They also know just what they are using in terms of nitrogen, phosphoric acid and potash with the reason for using them.

The annual loss to our farmers from waste of barnyard manure is estimated at seven million dollars. Many of the stations have given special attention to the economic use of manure on the farm, with the result that better methods for its care and use are being employed.

The successful introduction of Mansury barley, for which the Wisconsin station is mainly responsible, has increased the yield of barley over a wide region, with results worth millions of dollars.

Kaffir corn was introduced about fifteen years ago by the stations in California, Kansas and Oklahoma. It has been found specially suited to regions of scanty rainfall. The crop in Kansas alone in 1899 was valued at over six million dollars.

A variety of oats introduced by the Department of Agriculture and tested and improved by the Wisconsin and other stations has been widely distributed and is grown with an average yield wherever it is sown of from three to five bushels an acre.

The various macaroni wheats which have been tested under varying conditions by a number of the stations have proved so successful that the United States will probably produce all the macaroni it consumes in the course of a few years.

The investigations of the experiment stations in the southern states have convinced farmers that many varieties of forage plants may be more successfully grown in the south than was supposed and have laid the foundation for a wide development of the live stock and dairy industries of that region.

The Department of Agriculture and the Connecticut State Station, co-operating with local tobacco growers, have within the last three years demonstrated that a fine grade of Sumatra wrapper tobacco may be grown under shade in the Connecticut valley. Professor Whitney says that this discovery will increase the value of light lands of the Connecticut valley over 200 per cent.

Speaking of the work of the Minnesota station in breeding wheat, W. S. Harwood has recently written that it is not only quite possible, but is indeed an established fact, that wheats superior to the best the world has possessed may now be produced. By the use of the new wheats the crop of the hard wheat region of the northwest may be increased from three to five bushels to the acre.

The stations of the northwestern states have extended the limits of corn culture by proving, by careful selections of varieties and modified methods of culture, that this crop may be grown in regions heretofore believed to be unsuited to corn culture.

The stations have been prominent in the investigations which have led to the new system of forcing vegetables in the field and under glass for supplying the markets with fresh vegetables at all seasons of the year. For example, the winter culture of lettuce in eastern North Carolina is now yielding over $100,000 a year. The Ohio station discovered that onions started in the greenhouse or under frames from seed and then transplanted to the open field produced larger onions and earlier and heavier crops than by the usual methods of tillage and seeding. This discovery is changing the methods of onion culture.

These are only a few of the many ways in which the experiment stations are helping agriculture. Their investigations relating to protective measures against plant diseases and injurious insects, the storage and utilization of fodder crops, breeding and dairying, the protection of farmers against fraud and many other topics have been of the utmost value.—*New York Sun.*

CLIMATOLOGY OF THE MONTH OF AUGUST, 1903.

BAROMETER.—Mean pressure, 29.96 inches; highest observed, 30.19 inches, at Dubuque, Keokuk and Des Moines, on the 1st, 3d and 31st; lowest observed, 29.63 inches, at Sioux City, on the 24th; range for state, 0.56 inches.

TEMPERATURE.—The mean monthly temperature for the state, as shown by records of ninety-nine stations, was 69.1°, which is 3.1° below normal. By sections the mean temperatures were as follows: Northern section, 67.0°; Central section, 69.3°; Southern section, 70.9°. The highest monthly mean was 75.0°, at Logan; lowest monthly mean, 63.8°, at New Hampton. The highest temperature reported was 101°, at Logan, on the 24th; lowest temperature reported, 41°, at Ogden, on the 31st. The average monthly maximum was 91.6°; average monthly minimum, 47.3°. Greatest daily range, 45°, at Logan; average of greatest daily ranges, 31.4°.

PRECIPITATION.—Average precipitation for the state, as shown by records of 110 stations, was 6.64 inches, which is 3.45 inches above normal. The averages by sections were as follows: Northern section, 5.51 inches; Central section, 5.67 inches; Southern section, 8.74 inches. The largest amount reported was 17.74 inches at Woodburn; least amount reported, 2.55 inches at Toledo. The greatest daily rainfall reported was 11.22 inches, at Chariton, on the 27th. Average number of days on which .01 of an inch or more was reported, 11.

WIND AND WEATHER.—Prevailing direction of the wind, southwest; highest velocity reported, 44 miles per hour, from the southeast, at Sioux City, on the 1st. Average number of clear days, 12; partly cloudy, 10; cloudy, 9.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced	EXTREMES. Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	29.94	30.17	3	29.72	23
Des Moines	29.98	30.19	31	29.72	23, 27
Dubuque	29.98	30.19	1	29.73	24
Omaha, Neb	29.95	30.19	31	29.69	23
Keokuk	29.94	30.19	3	29.74	27
Sioux City	29.97	30.18	30	29.63	24
Means	29.96	30.19	1, 3, 31	29.63	24

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	4606	27	S	5
Des Moines	4985	30	W	24
Dubuque	4360	24	NW	8
Keokuk	4774	30	NW	28
La Crosse, Wis.	4532	49	N	5
Omaha, Neb	4874	35	SW	24
Sioux City	6850	44	SE	1

OBSERVERS' NOTES.

ALTA.—*David E. Hadden.* Frequent and heavy rains during the month, with total of 6.28 inches; several destructive electric storms and some hail; bright aurora on evening of 21st.

AMANA.—*C. Schadt.* On the 1st 0.42 of an inch of rain fell in ten minutes—7:32 to 7:42 P. M. Weather has been too cool for corn, but favorable for harvest and threshing.

ATLANTIC.—*J. W. Love.* A very wet and cool August.

BELKNAP.—*A. W. Rankin.* Heavy rain, greatly needed, on 26th, 27th and 28th; damaging hailstorm on 28th.

BONAPARTE.—*B. R. Vale.* A cool but growing month; 7.53 inches of rain, but none too much; fall plowing begun and pastures improved.

BRITT.—*Geo. P. Hardwick.* Cool, with excessive cloudiness; no damaging winds; ground in good condition for plowing; much tiling being done.

CHARITON.—*C. C. Burr.* Rainfall in August 14.05 inches. The storm of the 27th (11.22 inches) was accompanied by excessive lightning and three barns were burned. The floods washed away bridges and covered lowlands, floating away hayricks which looked like steamboats going down the streams.

CLINTON.—*Dr. Luke Roberts.* Rainfall 4.79 inches, which is 1.77 above normal; mean temperature 2° below normal; no other August during the last twenty-five years gave a lower mean temperature; coldest day was the 30th; per cent of cloudiness high. It was not golden weather for maturing corn.

POSTVILLE.—*F. L. Williams.* The month was noted for cool nights and heavy rains; corn late and oats light.

HANLONTOWN.—*Miss G. M. Paschen.* Threshing from shock and fall plowing commenced on first of month; oats light, ranging from twenty to thirty-one pounds per bushel.

HOPEVILLE.—*M. T. Ashley.* About 5 P. M. on the 26th a terrific electrical storm occurred; three fires from effects of lightning were visible during the storm. The rainfall of the 26th and 27th made a total of 10.08 inches—the heaviest since this station was established.

JEFFERSON.—*Isaac Young.* Hail at Scranton on 14th destroyed several hundred acres of corn.

LEON.—*Millard F. Stookey.* The floods of the 26th and 27th swept away bridges and culverts, and damaged corn on bottom lands.

OLIN.—*Nathan Potter.* August has been cool, and the corn crop was delayed in ripening.

OSCEOLA.—*Mrs. S. Lewis.* Between 5:30 on the 26th and 5:30 on the 27th the amount of rainfall was 9.34 inches, of which amount 7.68 fell in thirteen hours.

RIDGEWAY.—*Arthur Betts.* The coolest August on record here, and the smallest daily range, but the mean minimum was lower in 1898 and 1902. There were 249 hours of sunshine, or 57 per cent. Pretty northern lights on 21st.

VILLISCA.—*C. E. Matteson.* An unusual month of thunderstorms and excessive rains and floods; much damage to crops on bottom lands.

WAUKEE.—*E. J. Leonard.* Cool and wet; rainfall, 9.33 inches; last year for August, 6.89 inches; farm work delayed and corn endangered by retarding its growth.

WOODBURN.—*C. B. McDonough.* Rainfall, 17.74 inches; greatest amount in twenty-four hours, 14.61, began at 6 P. M. on the 26th; much damage was done to railroad and country bridges.

DATES OF THUNDERSTORMS.

NORTHERN SECTION.

Algona, 23, 24, 26.
Alta, 1, 3, 7, 9, 14, 18, 22, 23, 24, 26.
Charles City, 3, 4, 5, 10, 25.
Elkader, 1, 3, 5, 8, 14, 25, 26, 28.
Grand Meadow, 1, 3, 5, 8.
Britt, 3, 4, 25, 26, 27, 28.
Larchwood, 7.
Hanlontown, 3, 4, 8, 24.
Northwood, 2, 3, 4, 5, 10, 14, 21, 23, 24, 25, 28.
Osage, 3, 4, 5, 14, 24, 26, 28.
Ridgeway, 1, 3, 4, 5, 9, 10, 14, 23, 24, 26, 28.
Sioux Center, 3, 8, 9.
Storm Lake, 1, 3, 8, 9, 15, 25, 26.
Waverly, 9.
West Bend, 3, 23, 24.

CENTRAL SECTION.

Amana, 1, 3, 5, 24, 26.
Ames, 3.
Carroll, 1, 3, 9, 13, 14, 24, 26, 27, 28, 29.
Clinton, 3, 5, 25.
Grinnell (near), 3, 5, 8, 14, 26, 27.
Grundy Center, 1, 3, 26, 28.
Harlan, 1, 3, 5, 7, 9, 12, 14, 18, 25, 26, 27.
Iowa Falls, 3, 4, 5, 15, 18, 25, 26, 29.
Jefferson, 1, 3, 14, 24, 26, 27.
Mt. Vernon, 25, 26, 27, 28.
Olin, 3, 5, 26, 28.
Onawa, 1, 5, 7, 8, 14, 22, 24, 26, 27.
Perry, 1, 3, 8, 9, 14, 24, 26, 27.
Sac City, 1, 3, 12, 14, 25, 26.
Vinton, 3.
Waterloo, 1, 3, 28.
Wilton Junction, 1, 27.
Whitten, 1, 3, 8, 19, 25, 26, 27, 28.
Waukee, 1, 3, 5, 8, 9, 12, 14, 26, 27.

SOUTHERN SECTION.

Afton 28.
Atlantic, 1, 3, 5, 9, 12, 14, 19, 24, 26, 27.
Audubon, 14, 24, 26.
Allerton, 1, 5, 10, 12, 13, 25, 27.
Bedford, 14.
Belknap, 28.
Corning, 1, 3, 5, 7, 9, 10, 12, 15, 19, 25, 26, 27, 28.
Corydon, 5, 27.
Columbus Junction, 5, 13, 25, 26, 27.
Earlham, 3, 5, 9, 12, 14, 24, 26, 27.
Ft. Madison, 9, 19, 26, 27.
Greenfield, 1, 3, 5, 6, 7, 9, 11, 12, 15, 25, 26, 27, 28.
Hopeville, 23.
Indianola, 5, 10, 24, 25, 27.
Keosauqua, 28.
Lenox, 27.
Leon, 3, 5, 7, 26, 27.
Red Oak, 1, 3, 5, 7, 8, 9, 10, 12, 14, 15, 18, 19, 24, 25, 26, 27, 28.
St. Charles, 25, 26, 27, 28.
Sigourney, 1, 5, 10, 25, 26, 27.
Stockport, 1, 5, 12, 27, 28.
Thurman, 1, 3, 12, 24, 25, 26, 27.
Villisca, 1, 3, 5, 7, 10, 11, 12, 14, 19, 26, 27, 28, 29.
Wapello, 5, 25, 27, 28.
Woodburn, 5, 9, 14, 24, 26, 27, 28.

CLIMATOLOGICAL DATA FOR AUGUST, 1903.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Algona	Kossuth	1,213	28	68.1	-3.1	91	4	47	30,31	34	3.90	† 3.2	1.00	....	9	10	16	5	SE	
Alta	Buena Vista	1,513	11	66.5	-4.6	88	4	47	8	32	6.28	†2.66	1.65	....	14	13	13	5	S	
Alta (near)	Buena Vista	....	....	.....	.....	.....	.....	.....	.....	.....	6.04	.....	1.93	....	13	.....	.....	.....	.....	
Britt‡	Hancock	1,236	5	67.2	-3.2	90	4	43	31	34	4.50	†1.54	1.09	....	11	5	19	7	SE, SW	
Charles City	Floyd	1,012	11	65.9	-5 5	89	25	46	7	33	4.38	†1.80	2.00	....	13	14	1	16	SW	
Clear Lake	Cerro Gordo	1,241	....	68.6	.....	91	2	46	30	34	9.59	.....	6.00	....	11	12	13	6	NW	
Decorah	Winneshiek	857	8	65.8	-5.2	84	4	48	7,12	30	8.07	†6.39	1.73	....	13	.....	.....	.....	.....	
Dows	Wright	1,142	....	67.0	.....	89	4	44	30	30	4.47	.....	1.28	....	9	16	6	9	SE	
Elkader	Clayton	727	21	68.7	-2.3	91	24	47	31	38	7.18	†4.37	2 20	....	9	13	12	6	NW	
Estherville	Emmet	1,298	7	63.2	-4.8	89	5,25	43	31	34	3.26	- .04	.90	....	9	15	1	15	NW	
Forest City‡	Winnebago	1,226	8	66.8	-4.7	90	4	48	9,11,12	34	4.38	†1.02	1.54	....	8	15	0	16	SW	
Grand Meadow	Clayton	1,180	11	65.2	-4.0	86	4	48	30,31	24	9.52	†6 98	5.40	....	11	3	17	11	SE	
Greene	Butler	924	5	67.8	-5.5	90	4	45	30	32	5.16	†3.02	1.43	....	10	7	13	11	W	
Hampton	Franklin	1,155	12	69.0	-1.4	93	23	48	30	30	5.28	†2.36	1.61	....	11	8	16	7	SW	
Hanlontown	Worth	.....	...	66.3	.....	88	21	45	31	30	6.15	.....	1 70	....	13	20	6	5	SE, NW	
Humboldt(*a*)	Humboldt	1,095	10	70.6	†1 3	91	4	45	31	30	3.21	† .40	1 34	....	9	23	4	4	NW	
Larchwood‡	Lyon	.....		68.0	.....	89	4	45	30	29	4.87	.....	1.10	....	8	12	12	7	S	
Larrabee‡	Cherokee	1,366	....	68.2	.....	92	4	46	30,31	32	5.83	.....	2.00	....	12	10	16	5		
Le Mars	Plymouth	1,224	6	67 5	-5.1	89	4	45	11,31	30	5.79	†3 24	1.20	....	11	9	15	7	N, S	
Mason City	Cerro Gordo	1,132	...	67.8	.....	90	4	47	30	28	6 23	.....	2.80	....	13	3	20	8	S	
New Hampton(*d*)	Chickasaw	1,169	....	63.8	.....	85	24	45	30	26	4.75	.....	1.89	....	9	14	11	6	NW	
Northwood	Worth	1,222	6	66.0	-8.6	84	4,24	47	30	25	6.94	†3.69	1.75	....	14	13	9	9	NW	
Osage(*a*)	Mitchell	1,184	11	64.1	-3.6	85	2,4,24	45	30	30	4.43	†1.51	1,46	....	13	9	10	12	S	
Plover	Pocahontas	1,190	5	67 9	-4.0	90	4	44	31	29	4 25	†1.16	1.94	....	10	19	4	8	S	
Primghar	O'Brien	.....	....	66.8	.....	88	3,4	43	11	30	5.35	.....	1.75	....	8	20	0	11	NE	
Ridgeway	Winneshiek	1,215	....	68.5	.....	90	4,21	48	30	31	5.87	.....	1.30	....	17	13	10	8	S	
Sibley	Osceola	1,512	8	65.0	-4.7	88	4,22	44	30,31	31	3.91	†1.33	.71	....	11	13	3	15	.....	
Sioux Center	Sioux	.....	...	67.5	.....	90	4	45	30	28	4.33	.....	1.38	....	11	12	9	10	S	
Storm Lake	Buena Vista	1,440	7	67.0	-4.5	86	4,24	46	30	28	7 65	†4.73	2.40	....	13	.....	.....	.....	SE, NW	
Washta	Cherokee	1,157	....	.....	.....	.....	.....	.....	.....	.....	5.08	.....	2.75	....	10	15	9	7	S	
Waverly	Bremer	942	6	67.6	-4 6	88	24	49	7,30	29	3.06	† .70	.65	....	13	6	17	8	.....	
West Bend	Palo Alto	1,197	8	67.0	-2.9	90	4	45	30	30	3.61	† .42	1.32	....	11	11	12	8	S	
West Union	Fayette		....	.....	.....	.....	.....	.....	.....	.....	6.19	.....	1.85	....	9	13	10	8	.....	
Average		.....	....	67.0	-4.0	88.6	.....	45 8	.....	.....	30.2	5.51	†2.38	.....	....	11	12	10	9	S	

CENTRAL SECTION.

Amana	Iowa	721	25	69.4	-1.4	94	23	50	7,30	31	7 31	†3.96	2.35	...	11	11	11	9	SW	
Ames	Story	926	20	69.4	-3.0	92	23	49	31	33	3.70	† .31	1.35	....	14	17	10	4	SW	
Baxter	Jasper	998	..	69.2	....	93	23	46	30	30	5.35	.....	2.35	....	8	11	14	6	SW	
Belle Plaine	Benton	828	12	69.8	-1.0	93	23	50	7 ,10,12, 30,31	31	5.46	†1.97	1.78	..	10	11	11	9	E	
Buckingham	Iowa	.....	....	.....	.....	.....	.....	.....	.....	.....	7.11	.....	5.10	..	10	8	20	3		
Carroll	Carroll	1,265	12	68 6	-2.7	92	23	42	9	33	6.00	†2.38	1.95	...	10	13	2	16	.....	
Clinton	Clinton	609	34	69.4	-3.5	93	23	48	7,12	34	4.79	†1.44	1.69	....	10	10	11	10	NW	
Davenport	Scott	606	31	70.7	-2.1	94	23	53	31	25	4.68	†1.10	2.21	...	8	11	9	11	SW	
Delaware	Delaware	1,083	11	66.7	-3.4	88	23	47	7,30	28	4.14	†1.36	1.39	....	11	7	18	6	SE, SW	
Des Moines	Polk	881	24	70.2	-1.8	92	23	50	31	27	6.72	†3.46	3.19	....	13	5	15	11	SW	
De Soto (*a*)	Dallas	806	....	69.0		91	23	48	31	.....	6.40	.	2.00	..	14	..	.....	..	SW	
Dubuque	Dubuque	655	29	68.4	-3.2	90	24	51	7	27	5 27	†2.12	1.23	..	14	10	12	9	NW	
Fort Dodge	Webster	1,126		67.2	..	89	4	46	30	32	.....	.....	.....		....	14	0	17	.....	
Galva (*b*)	Ida	1,290	8	67.1	-4.7	89	23	44	30	34	6.11	†2.97	2.56		7	..	..	..	SW	
Gilman (‡)	Marshall	1,052	..		.....	.....	.....	.....	.....	....	4.85	.....	1.68	...	11	10	18	3	S	
Grinnell(near)	Poweshiek	.....	....	68.8	.....	94	23	49	30	28	7.13	....	4.55	..	8	11	7	13	SW	
Grundy Center	Grundy	976	11	68.7	-2.3	91	23	46	30	31	4 03	†1.03	1.55	..	11	10	12	9	S	
Guthrie Center	Guthrie	1,077	6	68 2	-4.9	93	4	44	31	35	5.65	†1.46	1.14	....	7	9	17	5	SW	
Harlan	Shelby	1,192	....	69.2	.....	92	23	44	31	34	9.39	.....	2.96	....	13	6	16	9	SW	
Independence(*c*)	Buchanan	921	38	67.6	-2.7	.	.....	46	30	.....	...	.....	.....		...	..	.....	.....	.....	
Iowa City	Johnson	685	43	70.0	-1.7	97	23	51	7,12,30,31	36	3.45	- .65	1.74	....	9	4	10	17	SW	
Iowa Falls	Hardin	1,170	9	66.6	-3.9	89	4	45	31	31	2.77	- .15	.90	.....	12	14	5	12	SE, NW	
Jefferson	Greene	1,052	....	...	.....	.....	.....	....	.....	...	6.17	.....	1.85	....	10	6	20	5	S	
LeClaire	Scott	576	....	.....	.....	.....	.....	.....	.....	.....	4.26	.....	1.61	....	12	..	.....	.....	S	
Logan	Harrison	928	35	75 0	-2.2	101	24	48	11,31	45	11.66	†7.84	2.70		10	16	5	10	S	
Maquoketa	Jackson	688	9	68.6	-3.7	95	23	46	12	36	5 24	†2.49	2.00	....	14	12	5	14	NE	
Marshalltown	Marshall	947	9	69.4	-2 8	94	4,23	47	30	36	3.23	† .09	1.35	...	14	14	1	16	SE, NW	
Monticello	Jones	925	48	72.0	-1.8	95	23	46	12	37	4 54	- .01	1.75	....	6	9	8	14	SW	
Mt. Vernon	Linn	847	35	69.1	-2.4	93	4,23	47	30	36	4.72	†2.24	1.28	....	12	11	8	12	W	
Newton	Jasper	944	14	69.0	-3 4	92	23	50	30,31	27	9 02	†5.38	5.25	....	10	15	8	8	S	
Odebolt	Sac	1,356	5	70.8	-3 8	92	4	43	31	36	6.44	†2.75	2.00	...	10	17	9	5	.....	
Ogden	Boone	1,088	8	68 0	-5.0	91	23	41	31	37	5.47	†1.78	1.80	...	11	17	2	12	SE	
Olin	Jones	760	..	68.7	.....	92	23	49	11,12	30	5 02	.. .	1.50	..	7	11	12	8	SW	
Onawa	Monona	1,053		70.9	.....	91	4	51	31	28	11.62	.....	5.00	....	13	23	2	6	S	
Perry	Dallas	975	....	70.0	.....	93	23	48	31	30	8.31	.....	2.22	....	10	..	..	.	.....	
Rockwell City	Calhoun		...	69.2	.....	94	5	48	30	30	4.93	.	1.15	..	11	17	6	8	....	
Sac City	Sac	1,278	22	69.2	-3.4	90	4,5	47	31	30	6 16	†2.66	1.65	....	12	12	8	11	S	
Sioux City	Woodbury	1,165	13	69.3	-2.3	90	4	47	31	28	5.67	†2.48	2.16	..	13	7	13	11	SE	
Stuart	Guthrie	1,216	5	70.5	-4.1	96	25	48	31	32	5 23	†2.67	1.07	....	10		....		.....	
Tipton	Cedar	807	...	71.8	....	96	23	52	30,31	31	2 57	.....	1.11	....	9	9	14	8	NE	
Toledo	Tama	856	8	69.2	-3.7	92	23	48	7,11,31	34	2.55	- .60	1.20	....	8	7	14	10	NW	
Vinton*§	Benton	810	12	68.2	-2.7	91	23	51	30	.	3.94	†1.78	1.21	....	7	20	2	9	SE	
Waterloo	Black Hawk	862	15	68.0	-2.8	90	24	46	30	33	5.17	†1.50	1.76	....	10	9	15	7	SE, NW	
Wilton Junction	Muscatine	683	7	70.4	-2.8	96	23	48	7	34	3.52	- .22	1.81	..	6	16	8	12	SE	
Whitten	Hardin	1,036	..	68.8	.....	93	23	45	30	31	3 42	.....	.82	..	7	12	8	11	SW	
Waukee	Dallas	1,039	....	.....	.....	.....	.....	.....	.....	.....	9 33	.....	2.65	..	13	12	12	7	NW	
Average		.....	....	69 3	-2 7	92.6	.....	47.4	.....	32.2	5.67	†1.92	.....	....	10	12	9	10	SW	

CLIMATOLOGICAL DATA FOR AUGUST, 1903—CONTINUED.

SOUTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Afton	Union	1,212	7	71.0	-3.3	94	23	48	31	31	12.34	†9.11	9.30	....	13	10	10	11	SW	
Albia (*h*)	Monroe	957	....	70.8	.....	95	4	50	11	34	7.49	.....	.....	....	...	...	...	...	SE	
Atlantic	Cass	1,164	11	70.1	-1.8	92	4,23	44	31	35	9.10	†6.20	3.35	....	13	7	9	15	S	
Allerton	Wayne	.....	...	71.0	.....	95	23	49	10,11,31	36	11.58	.....	9.25	....	11	18	9	4	NW	
Bedford	Taylor	.....		70.4	.....	90	25	45	31	32	7.46	.....	4.41	....	11	14	8	9	NE	
Belknap	Davis	877	7	72.2	-1.4	95	24	53	20	37	6.72	†2.67	3.50	....	8	...	...	...	NW	
Bonaparte	Van Buren	.....	10	71.5	-3.8	98	23	48	7	41	7.53	†4.13	4.77	....	8	...	...	...	.....	
Burlington	Des Moines	544	6	72.8	.....	95	23, 24	51	11	30	7.63	.....	3.64	....	8	15	7	9	SW	
Chariton	Lucas	1,042	7	69.9	-4.3	93	23	43	31	34	14.05	†10.77	11.22	....	7	19	0	12	SW	
Clarinda	Page	1,069	12	71.6	-3.0	95	23	47	31	31	9.50	† 6.04	5.20	....	14	12	15	4	S	
College Springs‡	Page		10	72.2	-2.2	95	2	52	12, 31	33	8.36	† 5.18	4.25	....	10	18	10	3	NW	
Columbus Jct.‡	Louisa	595	....	70.4	.....	96	23	50	11, 30, 31	31	9.10	.....	3.05	....	10	9	17	5	N, SE	
Corning	Adams	1,127	10	69.4	-3.6	90	23	45	31	29	13.80	†10.84	8.02	....	12	11	14	6	SW	
Corydon	Wayne	992	9	65.9	-8.8	95	23	49	31	35	10.14	† 6.64	8.10	....	12	13	10	8	SW	
Council Bluffs‡	Pottawatt'mie	990	5	.....	.....	.....	.....	.....	.....	.....	13.09	† 9.63	8.30	....	10	...	...	...	.....	
Cumberland	Cass	.....	....	.....	.....	.....	.....	.....	.....	.....	9.32	.....	3.17	....	11	15	5	11	S	
Danville	Des Moines	726	....	.....	.....	.....	.....	.....	.....	.....	5.97	.....	2.85	....	4	...	...	...	.....	
Earlham	Madison	.....	..	67.8	.....	90	4,23	43	31	33	8.20	.....	2.95	....	12	14	8	9	S,SE,SW	
Fort Madison	Lee	516	51	.....	.....	.....	.....	.....	.....	.....	5.09	† 1.50	1.67	....	7	5	12	14	SW	
Greenfield	Adair	.....	11	69.0	-4.0	89	23	48	11,31	25	8.87	† 6.34	4.79	....	14	13	7	11	S	
Hopeville. (*a*)	Clarke	.....	11	71.1	-2.0	95	23	49	31	28	12.24	† 9.43	10.31	....	14	...	...	...	.....	
Indianola	Warren	969	11	71.8	-1.2	93	23	51	13,29,31	33	7.54	† 3.52	1.90	....	7	12	9	10	SW	
Keokuk	Lee	619	31	73.6	-0.9	96	28	52	31	27	4.80	† 1.97	2.07	....	9	10	16	5	SW	
Keosauqua	Van Buren	664	10	73.0	-2.3	98	24	49	7,31	38	6.18	† 3.06	4.33	....	10	7	15	9	.....	
Lacona	Warren	.....	..	.....	.....	.....	.....	.....	.....	.....	9.16	.....	6.20	....	10	11	10	10	.....	
Lenox	Taylor	1,250	7	70.6	-3.1	92	4	49	31	28	10.60	† 7.46	7.15	....	12	23	2	6	.....	
Leon	Decatur	1,120		71.6	.....	93	5,23	50	12	31	10.48	.....	7.25	....	12	21	5	5	S	
Mt. Ayr	Ringgold	1,236	8	72.2	-1.9	93	23	50	31	30	6.85	† 4.18	3.59	....	12	10	12	9	SW	
Mt. Pleasant	Henry	729	20	73.2	-0.1	98	4	48	31	34	5.32	† 3.32	2.50	....	6	17	9	5	SW	
Omaha, Neb.	Douglass	1,113	32	71.6	-2.1	92	23	54	31	23	12.50	† 9.16	7.03	....	14	9	13	9	S	
Osceola	Clarke	1,130	6	70.6	-4.1	94	23	50	12, 31	34	11.30	† 8.61	9.34	....	14	...	...	...	SW	
Oskaloosa	Mahaska	843	18	70.6	-1.3	94	23	52	31	31	5.72	† 2.76	1.78	....	9	15	2	14	SW	
Pacific Junction	Mills	960	..	70.6	.....	91	24, 25	48	31	33	6.28	.....	1.55	....	12	10	20	1	SE	
Red Oak	Montgomery	1,033	....	71.3	.....	88	4	52	31	21	11.61	.....	6.14	....	13	7	20	4	SE, S	
St. Charles	Madison	1,070	....	70.8	.....	93	23	50	31	31	7.43	.....	2.45	....	12	14	11	6	NW	
Sigourney	Keokuk	787	....	71.8	.....	98	22, 23, 24	49	7, 11, 12	39	6.37	.....	2.65	....	8	18	11	2	SW	
Stockport	Van Buren	.....	...	.....	.....	.....	.....	.....	.....	.....	5.91	.....	4.01	....	10	16	4	11	SW	
Thurman	Fremont	.....	...	70.5	.....	90	4,23	46	31	30	6.37	.....	1.58	....	11	15	9	7	SW	
Villisca	Montgomery	1,058	8	69.6	-3.1	90	23	48	31	25	12.02	† 8.20	6.15	....	13	6	21	4	SW	
Wapello‡	Louisa	588	....	71.4	.....	96	23	52	11	29	5.60	.....	4.60	....	5	13	16	2	E	
Washington	Washington	769	20	67.8	-5.6	98	23	48	31	34	4.76	† 2.40	3.23	....	5	...	...	...	SW	
Winterset	Madison	1,129	11	71.2	-1.5	95	23	47	11, 12	34	8.47	† 5.53	3.65	....	11	22	4	5	E	
Woodburn	Clarke	961	....	.....	.....	.....	.....	.....	.....	.....	17.74	.....	7.71	....	13	9	19	3	SW	
Average	.....	.....	..	70.9	-2.8	93.5	.....	48.7	.....	31.8	8.74	† 5.81	.....	....	11	13	10	8	SW	
Average for state	.....	.....		69.1	-3.2	91.6	.....	47.3	.....	31.4	6.64	† 3.37	.....	....	11	12	10	9	SW	

*Means determined from 7 A. M., 2 P. M. and 9 P. M. observations, and maximum and minimum are taken from eye readings. †Above normal.
‡Received too late to be computed with means. (*a*) One day missing; (*b*) two days, etc. §Not supplied with self-registering instruments.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR AUGUST, 1903.

STATIONS.		DATE.																													MEAN.
		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.....	Max..	84	90	92	93	84	77	82	79	83	74	71	69	81	83	78	79	83	86	82	84	88	93	94	90	84	90	78	78	79	71	74	82.4
	Min ..	59	60	65	69	66	61	52	58	54	58	50	49	58	63	60	58	54	59	63	54	63	62	67	71	66	66	64	58	56	52	48	59 5
Albia.	Max..	80	88	92	95	85	77	80	79	81	74	71	74	79	80	84	74	84	87	81	84	90	94	..	..	..	..	..	..	..	..	74	82.0
	Min ..	52	58	71	71	72	62	53	57	53	59	50	52	56	62	65	58	55	56	64	53	56	65	68	..	..	..	..	..	..	..	..	59.5
Algona...	Max..	73	86	89	91	87	78	87	80	78	72	73	69	75	72	76	79	83	82	80	84	85	80	80	81	82	70	68	71	65	69	74	78.0
	Min ..	55	60	64	68	70	49	53	56	50	50	49	50	57	62	63	64	57	61	58	56	67	67	65	68	62	57	55	59	58	47	47	58.2
Allerton .	Max..	79	86	91	91	84	78	80	78	82	75	71	72	82	81	82	75	89	88	83	86	88	92	95	87	89	89	82	83	70	71	76	82 4
	Min ..	57	60	67	70	66	61	52	58	53	49	49	51	60	63	64	61	54	58	63	50	61	61	67	71	68	67	65	60	57	53	49	59.5
Alta.	Max..	75	84	86	88	84	74	70	78	82	68	70	64	70	74	73	76	78	80	78	80	82	80	81	85	76	64	70	66	63	68	72	75 5
	Min ..	55	60	63	70	66	58	53	47	50	51	49	51	56	62	60	56	56	59	58	55	66	65	65	66	62	59	57	56	54	49	49	57.5
Amana...	Max..	72	86	79	89	84	76	77	79	78	72	72	75	71	80	82	75	81	85	80	82	89	86	94	90	81	71	76	80	68	66	73	79.0
	Min ..	57	64	66	65	71	61	50	60	52	57	51	51	59	63	65	57	54	56	63	51	58	65	69	73	68	63	62	64	58	50	51	59 8
Ames	Max..	74	86	86	90	85	81	73	78	78	73	69	70	71	76	78	79	85	83	80	84	88	85	92	88	81	74	75	73	66	68	73	78 8
	Min ..	56	61	63	70	73	61	52	60	53	56	53	51	56	63	61	59	59	57	61	51	67	64	65	73	67	61	65	60	59	50	49	59 9
Atlantic..	Max..	80	89	90	92	85	81	74	82	83	75	69	77	77	83	77	80	84	86	86	84	88	90	92	89	81	79	78	79	70	74	79	81.7
	Min ..	60	62	64	70	71	57	53	57	51	55	46	46	58	59	57	53	53	53	59	54	67	63	68	72	65	65	66	58	57	52	44	58.5
Audubon.	Max..	.	.	..	..	..	..	..	..	..	..	..	..	..	83	76	79	83	85	82	84	88	86	91	88	81	73	79	80	67	73	78	....
	Min ..	..	..	..	..	..	..	..	..	..	..	..	..	..	62	56	52	52	51	55	47	64	63	64	70	62	59	65	56	56	48	40	....
Baxter. ..	Max..	76	85	77	90	86	82	76	80	80	70	75	70	72	77	82	75	84	85	83	83	85	83	93	88	84	80	80	82	70	71	72	79.9
	Min ..	55	60	63	67	71	58	51	59	50	55	51	50	58	62	61	57	55	56	59	52	64	65	69	73	65	62	60	60	56	46	47	58.6
Bedford ..	Max..	80	85	88	89	84	80	82	79	82	78	69	67	82	81	79	79	84	85	85	83	85	88	89	84	90	82	80	80	68	73	73	81.0
	Min ..	60	58	65	70	72	57	50	58	52	59	50	50	61	62	61	59	51	55	62	54	65	63	70	74	67	67	66	56	58	57	45	59.8
Belknap..	Max..	78	84	92	94	85	78	80	78	78	81	78	80	79	79	83	80	84	86	82	90	90	92	94	95	90	90	90	86	70	69	73	83 5
	Min ..	60	65	69	70	70	64	60	60	55	56	54	54	64	65	66	63	57	63	65	53	64	68	68	74	74	68	66	65	59	55	57	62.9
Belle P....	Max..	74	85	82	90	84	76	78	79	75	76	73	75	72	78	83	75	81	85	82	83	87	84	93	90	78	73	76	81	70	68	74	79 4
	Min ..	58	60	64	65	71	60	50	60	56	50	53	50	58	59	63	57	56	58	62	52	61	65	69	73	68	60	61	63	58	50	50	60.3
Bonapar'e	Max..	77	88	94	96	94	80	80	76	83	77	76	76	78	84	89	75	85	89	84	87	91	95	98	95	88	91	82	84	70	70	77	84.1
	Min ..	57	57	67	71	63	62	48	59	53	59	50	50	50	63	67	68	56	54	63	51	56	51	57	70	70	66	67	61	57	53	50	58.9
Britt.	Max..	76	86	88	90	87	72	77	80	81	69	74	72	76	74	77	79	81	85	77	84	85	82	84	87	78	67	69	72	66	71	74	78.1
	Min ..	55	59	63	64	70	55	48	55	46	51	46	48	57	62	63	52	55	56	55	50	65	66	65	66	61	56	55	59	52	45	43	56.2
Burling'n	Max..	77	88	91	94	92	80	78	73	80	81	76	84	72	83	89	77	82	87	82	85	86	90	95	95	86	83	82	82	71	63	74	82.7
	Min ..	60	64	68	73	66	63	52	63	55	59	51	54	61	64	70	64	60	59	64	56	66	65	71	74	72	70	67	68	57	55	56	62 8
Carroll...	Max..	80	88	90	91	89	79	78	81	83	72	71	67	72	82	77	79	82	84	84	86	85	83	92	90	80	81	78	79	68	76	77	80.8
	Min ..	55	68	62	62	71	55	52	58	42	53	46	50	53	57	55	54	52	55	55	51	59	65	67	70	64	60	61	55	55	49	44	56.6
Chariton .	Max..	72	85	89	90	85	76	78	77	80	74	72	70	70	80	81	73	83	87	81	85	87	91	93	87	85	88	83	80	73	70	76	80.7
	Min ..	5[illegible]	59	68	69	66	62	50	52	52	57	54	49	50	60	61	60	71	55	64	51	61	63	69	72	63	65	64	60	54	52	43	59.1
Charles C.	Max..	74	86	79	86	84	72	77	81	78	68	72	72	75	73	72	75	82	85	78	83	87	79	81	89	71	64	67	76	65	68	73	76.5
	Min ..	51	56	66	64	68	59	46	50	47	55	49	47	52	56	61	55	52	53	56	50	54	66	56	65	64	54	57	54	55	47	48	55.3
Clarinda..	Max..	83	89	93	94	86	84	81	81	84	79	67	64	85	84	81	80	84	88	87	86	90	93	95	88	88	84	85	84	69	76	80	83 6
	Min ..	60	60	64	68	68	59	52	57	55	57	52	50	61	60	61	58	53	56	61	55	63	61	68	71	66	66	65	58	57	55	47	59.5
Clear L...	Max..	75	91	88	90	89	77	77	81	83	72	77	72	79	71	80	84	89	86	85	89	89	89	88	88	80	65	65	72	64	72	80	80.2
	Min ..	53	62	62	59	70	57	49	58	50	50	49	48	55	60	62	55	55	53	57	57	65	67	60	65	60	55	54	58	54	46	48	56.9
Clinton ...	Max..	78	88	84	92	78	78	76	80	78	78	75	78	67	85	83	78	82	85	84	84	88	88	93	92	86	72	76	80	70	64	75	80.5
	Min ..	60	64	64	66	64	57	48	55	53	56	50	48	56	59	64	62	54	55	62	50	55	63	67	67	66	62	60	62	57	52	49	58.4
College S.	Max..	81	95	89	91	90	81	82	82	85	75	66	62	82	81	79	80	83	84	83	83	86	87	90	87	88	88	85	79	70	72	75	82.0
	Min ..	60	62	68	70	70	62	67	67	68	61	53	52	62	61	65	61	55	60	63	60	64	64	70	67	68	68	65	57	58	57	52	62 5
Colum. J.	Max..	75	88	88	95	86	77	78	79	79	75	75	78	75	83	83	78	83	86	82	82	90	89	96	94	83	85	75	80	70	63	73	81 4
	Min ..	57	61	66	66	67	64	51	60	53	53	50	54	53	61	66	59	52	57	64	53	59	62	67	72	63	64	64	64	57	50	50	59.5
Corning ..	Max..	78	84	89	81	81	77	77	79	77	73	67	66	78	81	75	75	79	83	81	81	85	88	90	86	81	85	79	78	70	70	75	79 2
	Min ..	60	61	65	70	67	59	53	56	52	58	49	58	59	62	61	55	51	54	63	56	65	64	69	73	66	67	65	57	57	55	45	59.7
Corydon.	Max	76	84	89	91	83	79	78	78	80	76	73	70	79	79	84	74	83	88	85	86	88	90	95	86	88	90	84	81	69	72	77	72.1
	Min ..	57	60	66	70	66	60	52	57	52	58	51	50	61	63	63	60	53	58	64	51	61	67	62	72	69	66	65	60	57	51	49	59.7
Davenpo't	Max..	76	86	86	92	77	76	75	76	78	75	73	76	65	81	84	75	82	84	82	82	87	86	94	93	85	73	74	80	67	60	74	79 2
	Min ..	59	66	68	71	63	61	55	64	55	59	54	56	57	62	66	63	60	62	65	57	63	68	72	74	69	66	63	64	58	54	53	62.2
Decorah. .	Max..	67	82	75	84	82	77	73	77	76	69	71	78	71	68	73	79	82	76	77	81	73	76	83	80	..	63	69	61	61	65	70	73.6
	Min ..	59	62	67	66	65	58	48	60	51	58	53	48	55	60	64	62	55	60	59	53	62	69	67	64	60	50	57	51	56	49	49	58.0
Delaware.	Max..	68	85	75	87	84	74	75	79	77	70	72	72	72	78	73	75	81	84	77	80	84	80	88	87	78	65	66	75	64	62	71	76.1
	Min ..	54	62	65	66	66	50	47	60	50	57	49	48	56	59	62	56	55	58	59	54	58	64	67	65	64	56	57	60	55	47	49	57.3
Des M....	Max..	77	85	89	91	86	76	74	79	79	72	71	69	73	78	79	77	82	85	82	82	88	87	92	87	75	77	73	78	68	70	74	79.2
	Min ..	57	62	64	72	72	62	54	59	54	57	53	54	60	64	61	63	56	59	64	55	67	66	72	67	66	63	67	60	60	53	50	61.1
De Soto...	Max..	77	85	87	89	84	74	78	79	71	..	68	67	73	78	76	75	80	82	80	82	81	85	91	87	81	74	72	76	66	70	74	77.3
	Min ..	57	62	65	71	60	54	61	52	59	..	52	50	59	65	61	60	55	59	65	58	67	67	70	74	67	63	67	59	59	52	48	60.6
Dows.	Max.	72	85	85	89	84	81	75	77	77	69	71	69	72	73	76	75	80	82	77	81	85	81	85	87	79	70	68	73	65	68	74	76.9
	Min ..	54	61	63	66	73	57	51	59	47	51	46	51	57	60	58	55	52	56	53	51	65	66	67	70	61	58	58	59	55	44	45	57.1
Dubuque.	Max..	73	85	74	88	83	73	73	78	75	71	73	73	73	78	79	78	82	85	79	82	86	82	89	90	78	66	67	78	64	62	73	77.1
	Min ..	57	65	64	67	63	58	51	59	55	59	54	52	58	62	65	62	56	50	61	55	62	70	72	67	63	58	57	58	58	53	52	59.8
Earlham .	Max.	78	85	88	90	85	77	75	78	81	72	69	65	75	79	76	78	81	85	81	82	86	88	90	86	81	82	75	78	68	71	75	79.4
	Min ..	56	60	67	69	65	56	47	57	45	55	44	43	56	63	55	55	48	52	61	46	64	65	67	66	64	61	65	54	55	49	43	56.2
Elkader ..	Max..	66	84	80	89	89	76	75	81	80	72	75	75	76	75	73	81	87	88	83	88	87	88	89	91	80	66	66	80	65	66	81	79.3
	Min ..	57	63	65	66	67	59	57	61	50	57	50	47	56	60	63	61	54	56	58	50	57	62	68	69	65	53	59	60	57	43	47	58.1
Esthervi'e	Max.	74	85	87	89	85	73	73	77	78	70	72	67	75	74	75	79	82	84	80	83	85	84	77	89	79	76	66	68	69	74	75	77.5
	Min .	53	55	63	64	68	56	48	53	48	47	48	47	52	57	62	52	57	60	55	50	59	65	63	65	62	45	55	56	50	45	43	54.9
Forest C'y	Max..	78	87	83	90	87	75	74	78	80	68	77	70	78	72	78	80	82	86	80	83	85	80	84	88	76	61	67	72	65	72	76	77 8
	Min ..	55	53	63	63	67	57	47	55	48	50	48	48	54	58	61	54	55	57	59	53	58	62	64	61	61	56	52	55	55	49	50	55.7
Ft. Dodge	Max..	72	79	81	89	88	81	70	77	76	70	70	67	67	74	76	78	80	81	80	82	81	82	85	87	77	75	76	73	63	68	74	76.7
	Min ..	53	58	62	69	73	55	62	57	48	53	48	49	56	63	56	60	52	58	54	50	65	66	67	66	64	60	60	56	56	46	43	57.6
Galva.....	Max..	76	86	87	88	88	78	78	78	81	70	74	69	74	81	76	78	80	84	80	81	..	81	89	..	87	70	75	70	64	72	74	78.2
	Min ..	55	60	63	69	70	54	52	55	47	52	43	50	54	62	57	52	51	56	54	51	..	64	65	..	62	65	64	53	55	44	45	56.0
Grand M.	Max..	66	82	72	86	80	69	70	70	73	66	79	71	72	74	69	74	79	81	70	70	81	76	81	84	79	65	66	69	69	59	72	73 1
	Min ..	56	62	63	68	69	58	49	60	50	50	50	49	52	58	63	62	55	59	58	55	62	60	65	63	62	55	56	59	56	48	48	57.4
Greene...	Max.	70	88	82	90	86	78	77	81	81	71	74	73	77	75	75	78	85	86	80	84	85	80	84	89	79	67	67	75	64	69	77	78.3
	Min ..	55	62	64	64	74	57	48	61	49	49	49	49	56	61	62	56	53	59	55	53	64	67	65	65	60	55	57	60	54	45	46	57.2
Greenfi'ld	Max..	77	85	87	88	84	78	76	76	78	76	71	67	75	79	76	75	78	78	76	80	83	88	89	87	84	82	76	75	74	68	70	78.9
	Min .	59	62	67	71	65	61	55	56	53	58	48	50	51	64	63	64	54	53	54	60	62	67	64	73	66	64	61	57	54	50	48	59.2
Grinnell (near)..	Max.	76	86	82	88	81	77	78	78	78	72	74	75	73	81	79	75	80	83	78	81	88	85	94	89	82	76	75	75	67	67	72	78.9
	Min ..	57	60	62	67	67	59	52	61	50	57	50	52	58	52	63	58	56	59	63	53	63	64	68	68	66	63	61	62	50	49	50	58.7
Grundy C	Max..	72	87	83	89	87	74	76	80	77	71	73	72	71	75	80	73	85	85	81	83	83	88	91	87	81	74	68	71	79	67	71	77	79.3
	Min ..	55	60	63	66	72	56	49	61	49	56	49	52	56	61	60	60	54	56	56	53	63	66	67	72	65	57	60	61	54	46	47	58.1
Guthrie C	Max..	78	89	88	93	86	80	76	80	82	73	70	66	78	80	77	77	80	83	88	86	88	85	91	89	82	74	76	80	68	72	74	80.3
	Min ..	57	61	63	68	71	58	52	59	49	56	48	48	58	64	57	57	52	55	61	51	55	55	56	57	57	54	53	51	58	50	44	56.0
Hampton.	Max..	72	88	85	91	86	76	76	80	81	71	75	72	75	74	79	81	85	84	79	86	88	90	83	89	78	67	67	77	64	69	80	79.3
	Min ..	54	62	63	65	74	59	50	60	51	54	50	52	57	61	61	58	57	60	56	56	67	67	68	63	64	57	58	60	55	48	49	58 6
Hanlont'n	Max..	68	85	81	87	84	75	73	78	77	69	70	67	73	70	75	75	80	83	75	80	88	80	77	86	77	64	64	66	66	70	74	75.4
	Min ..	53	60	63	63	71	55	48	55	47	51	48	48	54	61	64	55	53	60	55	53	60	61	65	63	65	61	55	55	58	53	45	57.2
Harlan....	Max..	82	89	89	90	87	79	74	81	84	70	70	69	77	85	77	79	80	85	82	84	89	86	92	89	79	79	79	78	67	72	75	80.7
	Min ..	59	59	61	68	70	57	53	59	50	55	46	49	57	61	58	54	52	53	60	53	64	62	63	68	63	63	64	57	56	52	44	57 7
Hopeville.	Max..	81	88	91	93	84	78	81	79	..	74	69	68	78	81	78	76	84	88	81	86	89	92	95	88	85	90	77	81	68	70	77	81.7
	Min ..	59	62	68	70	64	60	53	59	..	56	51	50	60	63	62	60	55	59	64	56	63	63	68	73	67	67	66	58	57	53	49	60.5
Humboldt	Max..	74	88	86	91	86	76	80	79	71	73	70	73	78	76	78	82	82	80	82	87	80	86	89	..	82		74	73	65	69	73	82.9
	Min ..	56	62	60	60	74	52	60	49	53	49	50	57	64	60	54	54	60	58	52	67	66	66	69	58	64	60	60	59	59	47	45	58.2
Indep'nce	Max..	68	84	77	86	83	74	70	78	74	68	70	72	73	72	77	76	81	83	77	80	85	77	80	87	..	..	..	..	..	76	73	77.2
	Min ..	55	64	64	66	69	58	48	60	57	57	50	48	57	58	60	60	55	55	60	57	59	64	66	66	..	..	..	..	..	46	48	58.0
Indianola	Max..	91	85	90	92	85	84	76	78	81	84	83	82	78	81	85	85	86	84	86	86	87	89	93	86	80	85	71	78	78	70	76	83.1
	Min ..	64	53	66	73	70	63	56	59	57	53	65	63	51	53	60	57	60	60	59	60	57	56	70	74	68	63	67	60	51	53	51	60.4
Iowa City	Max..	75	88	83	93	84	76	79	80	82	74	75	79	70	84	85	78	86	82	82	85	90	93	97	92	84	78	78	83	69	65	70	81.3
	Min ..	55	59	65	65	70	63	51	53	54	58	52	51	55	58	64	57	55	56	56	53	54	62	68	72	69	63	62	63	58	51	51	58.8
Iowa Falls	Max.	75	86	85	89	84	73	76	78	78	70	72	74	74	76	77	76	82	83	78	81	86	83	88	88	73	70	70	76	65	68	74	77 7
	Min ..	48	55	63	64	68	57	48	49	47	53	48	51	53	57	58	55	51	52	54	49	53	66	66	69	65	57	59	59	54	46	45	55.5
Keokuk ..	Max..	77	88	92	95	93	81	79	75	81	78	75	77	79	83	87	74	83	87	83	83	89	93	96	94	89	90	80	84	70	69	73	83.1
	Min ..	61	67	70	74	66	66	56	60	57	63	54	58	64	64	70	66	63	60	65	57	63	67	73	76	71	72	68	67	59	56	52	64.0
Keosa'qua	Max..	77	89	94	96	94	82	83	79	84	84	75	78	81	85	88	90	86	90	85	88	92	95	98	93	91	92	79	85	72	71	75	85.6
	Min ..	60	63	68	71	72	63	49	54	54	60	51	50	55	64	66	54	60	54	58	51	54	62	65	72	72

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR AUGUST 1903—Continued.

STATIONS.		DATE.																													MEAN.
		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	
Lenox....	Max..	80	87	90	92	86	78	78	79	82	74	71	65	78	80	76	75	79	84	81	83	86	89	91	87	83	87	79	79	68	70	74	80.4
	Min ..	60	62	65	77	67	63	55	59	54	59	54	51	59	61	62	59	53	60	64	57	64	63	70	73	67	67	65	58	57	55	49	60.9
Leon.	Max..	83	88	91	92	93	78	78	77	82	82	75	71	80	82	80	79	82	85	86	83	83	90	93	90	87	88	84	82	75	70	73	82.6
	Min ..	59	61	67	70	62	64	54	58	56	59	52	50	60	62	64	61	57	59	66	55	54	63	70	73	69	67	66	60	58	54	51	60.7
Logan	Max..	90	94	97	99	97	87	91	90	87	88	83	90	88	93	97	93	94	94	95	95	95	97	97	101	90	89	89	95	87	92	87	92.3
	Min ..	58	60	64	68	71	59	55	59	55	57	48	51	56	58	58	56	55	56	59	51	50	52	61	64	65	65	64	58	58	52	48	57.8
Maquo'ta.	Max..	74	87	81	91	88	71	75	79	78	76	76	77	68	80	81	78	84	87	84	84	94	86	95	90	86	66	71	82	70	68	77	80.0
	Min ..	53	59	64	66	68	60	47	52	50	57	49	46	52	56	61	60	51	53	65	48	56	66	65	68	66	58	59	61	56	52	48	57.2
Marshlt'n	Max..	77	90	88	94	87	77	80	81	81	75	75	75	74	81	83	76	85	87	84	87	89	82	94	93	77	70	76	83	71	72	78	81.8
	Min ..	50	56	63	63	69	59	50	53	60	56	50	49	53	58	62	59	53	55	59	51	53	65	60	72	66	59	61	61	56	47	48	56.9
Mason C..	Max..	70	88	80	90	86	77	75	77	78	68	72	69	75	69	76	79	83	84	78	83	86	80	78	88	82	69	65	69	62	67	74	76.7
	Min ..	58	62	64	64	72	61	51	61	52	54	50	51	57	51	64	57	59	64	60	57	68	68	66	66	64	57	55	59	56	47	50	58.9
Monticel'o	Max..	73	88	84	86	90	82	85	89	90	88	82	83	85	88	75	72	83	80	82	87	88	89	95	94	91	88	82	86	89	80	82	85.0
	Min .	49	58	49	62	65	58	52	58	55	53	48	46	48	52	48	52	55	58	57	62	65	75	78	80	79	75	70	52	59	56	49	59.1
Mt. Ayr..	Max..	82	87	91	92	84	82	79	80	83	89	69	67	81	83	82	78	85	88	86	85	..	91	93	87	86	90	86	82	82	74	79	83.5
	Min .	59	62	61	70	68	62	55	58	55	59	52	55	60	62	62	61	57	61	65	58	..	63	68	73	67	..	66	..	58	55	50	60.8
Mt. Pl'snt	Max..	90	89	90	98	92	90	89	90	92	89	84	83	82	82	88	79	83	87	80	89	89	84	96	95	86	90	83	81	71	68	73	85.9
	Min ..	69	58	60	67	65	61	59	60	64	62	64	59	58	58	66	58	55	58	59	55	55	59	66	70	68	65	65	65	56	51	48	60.6
Mt. Ver'n	Max..	70	88	78	93	86	76	77	82	82	77	73	74	65	79	83	84	89	88	81	89	89	87	93	89	80	68	68	81	64	62	81	79.9
	Min	56	63	65	65	63	60	49	59	52	56	52	52	55	60	63	55	59	58	62	53	56	62	68	71	65	59	59	60	55	47	49	53.3
New H. ..	Max.	65	82	78	84	82	71	72	76	..	69	70	70	72	70	72	70	..	81	76	78	83	..	..	85	68	65	64	72	63	67	70	73 2
	Min ..	54	54	63	64	68	56	46	..	46	53	47	47	52	57	57	54	54	..	56	52	60	58	..	..	61	52	55	56	53	45	47	54 3
Newton ..	Max	75	85	87	89	87	75	76	77	77	72	70	72	71	78	79	73	81	83	80	82	86	84	92	86	80	76	71	74	67	69	72	78.3
	Min .	56	61	64	68	68	62	53	59	52	57	52	52	58	63	62	59	57	59	62	55	64	65	69	73	66	61	62	59	57	50	50	59.8
Northw'd	Max	66	82	79	84	82	74	73	76	75	69	69	69	73	71	75	76	78	82	79	79	83	76	78	84	77	66	65	71	63	66	71	74.5
	Min	55	62	64	64	70	57	50	55	50	51	49	58	54	59	63	56	59	62	57	57	64	66	65	64	60	55	55	58	55	47	49	57.4
Odebolt ..	Max..	80	90	90	92	91	81	80	81	85	72	75	70	74	82	77	87	85	85	84	85	87	87	88	91	88	74	79	72	65	74	79	84.8
	Min ..	55	62	63	70	72	62	52	64	48	52	47	50	53	60	50	54	55	52	55	55	66	64	63	55	64	61	60	56	56	46	43	56.9
Ogden.. .	Max.	75	87	90	90	89	76	80	84	79	73	73	70	73	80	80	80	84	85	83	85	87	85	91	89	89	76	78	84	68	74	78	82.2
	Min .	45	53	62	60	67	55	50	50	45	54	45	47	50	55	56	56	50	51	54	50	51	62	53	69	58	58	59	54	54	45	41	53.8
Olin	Max..	76	85	79	88	82	79	75	79	78	73	74	76	68	80	83	77	80	84	80	80	88	86	92	90	83	71	72	77	68	61	72	78.6
	Min ..	56	65	67	69	65	60	50	59	52	57	49	49	58	61	65	57	53	55	63	50	57	65	67	69	67	61	60	60	57	50	50	58.8
Omaha, N	Max.	78	85	90	91	83	76	72	80	81	72	64	66	80	83	77	77	81	83	83	84	88	89	92	90	76	80	79	75	65	70	76	79.5
	Min ..	60	66	67	74	70	66	63	62	63	57	56	56	62	66	63	61	62	62	64	60	69	68	71	68	68	67	66	62	58	58	54	63.7
Onawa. ...	Max..	81	85	90	91	88	82	76	81	81	72	73	70	74	81	79	78	83	82	84	85	87	83	89	88	73	74	75	73	69	62	79	80.0
	Min .	60	65	65	72	73	62	60	63	57	57	52	54	58	65	62	53	58	62	62	60	67	67	68	70	67	64	65	57	57	57	51	61.8
Osage.....	Max..	65	85	76	85	84	74	74	79	77	67	71	70	74	69	74	..	81	83	77	81	84	77	76	85	78	63	64	72	62	67	74	71.6
	Min ..	55	62	65	65	71	58	47	56	50	53	49	48	53	59	64	..	51	53	54	52	63	65	65	65	53	53	55	58	53	45	47	56.6
Osceola ..	Max..	75	86	87	91	93	84	77	78	78	81	74	71	70	79	81	79	76	83	87	83	84	90	92	94	88	83	89	78	80	76	71	81.7
	Min ..	53	53	68	68	73	62	52	58	55	60	51	50	53	62	61	60	55	57	63	55	57	65	66	73	68	66	65	59	58	53	50	59.6
Oskaloosa	Max..	75	84	90	93	85	76	77	76	78	72	70	74	73	78	78	73	82	84	82	83	89	91	94	88	82	88	72	80	69	69	72	79.9
	Min ..	58	62	67	76	70	62	52	60	52	58	50	49	61	65	64	59	56	57	63	52	62	66	73	76	71	66	66	63	59	53	52	61.3
Pacific J'n	Max..	80	87	90	90	84	80	78	81	83	75	67	66	82	85	82	77	80	85	82	84	87	89	91	91	80	87	87	77	66	67	73	80.9
	Min ..	59	60	65	69	67	61	56	57	57	61	51	51	61	63	60	57	56	52	60	60	64	63	66	74	65	67	67	58	57	57	48	60.2
Perry.....	Max..	79	88	89	92	86	80	77	82	81	71	70	69	74	81	77	78	82	85	81	84	88	85	93	89	80	74	76	79	67	71	74	80.1
	Min	56	61	64	70	72	61	54	60	51	56	51	51	58	64	53	58	55	59	61	54	67	66	62	73	68	63	68	53	59	50	48	59.8
Plover....	Max..	75	87	87	90	87	73	75	80	82	71	75	71	73	80	77	78	81	84	82	83	85	83	84	88	81	67	68	77	66	67	73	78.4
	Min ..	55	59	64	66	72	56	55	52	48	53	46	63	55	60	60	53	55	57	53	52	65	64	65	68	64	60	58	55	55	46	44	57.4
Primghar	Max..	71	84	88	88	82	73	70	76	78	75	73	66	71	75	74	78	81	81	78	81	84	82	82	87	86	65	66	67	62	68	74	76.3
	Min ..	56	57	64	70	63	56	55	53	51	48	43	52	55	63	62	57	59	61	56	56	66	67	66	67	62	58	56	52	55	47	47	57.4
Red Oak..	Max..	76	82	87	83	86	78	75	78	78	74	67	66	78	80	77	73	78	81	79	81	85	87	87	86	83	83	78	77	74	68	73	78.8
	Min ..	63	64	69	73	70	65	60	61	60	61	57	55	62	66	63	60	59	60	63	61	68	69	71	75	70	71	68	63	59	59	52	63 8
Ridgeway	Max..	66	87	79	90	87	80	81	84	82	70	72	73	75	70	73	79	85	86	82	83	90	78	79	89	79	65	65	74	68	69	71	77.8
	Min ..	56	60	69	67	73	60	50	50	52	56	50	50	54	59	63	62	60	63	60	56	65	70	67	65	60	55	56	50	58	48	51	59.2
Rockw'l C	Max	78	87	87	92	94	79	79	81	80	70	71	70	72	80	70	80	81	85	85	85	86	88	88	90	73	73	80	75	67	72	79	79.9
	Min ..	56	61	61	68	73	57	55	58	52	52	55	53	55	58	58	55	59	58	59	66	65	65	68	64	60	61	56	55	48	50	58 6
Sac City..	Max .	77	88	89	90	90	85	72	80	80	70	70	66	70	78	74	80	81	82	81	82	85	83	86	89	80	72	78	71	67	72	76	80.1
	Min .	55	61	63	70	73	58	53	58	50	53	48	53	54	60	59	56	55	59	57	55	66	65	64	69	64	61	60	56	57	48	47	58.3
St. Cha'les	Max.	78	85	89	91	86	75	77	78	80	72	70	69	75	80	77	77	81	86	83	83	87	91	83	85	83	86	74	78	69	70	75	80.1
	Min .	58	63	66	72	66	63	63	60	54	59	52	52	59	65	63	61	57	61	66	57	56	66	76	74	67	64	66	60	59	53	50	61.5
Sibley	Max..	70	75	84	86	88	84	75	67	78	50	68	74	66	74	73	75	82	82	83	81	83	85	88	67	87	76	64	65	67	62	72	75.1
	Min ..	50	55	59	65	67	54	51	54	47	47	45	50	52	57	59	53	55	59	53	50	55	65	64	64	61	58	55	53	53	44	44	54.8
Sigourn'y	Max	76	92	94	97	85	78	80	80	83	76	77	79	77	86	88	77	90	90	86	89	93	98	98	98	85	93	78	83	71	78	80	84 9
	Min ..	57	60	64	64	67	60	49	58	51	57	49	49	58	62	63	55	55	58	62	50	60	62	67	70	66	60	62	57	52	50	53.7
Sioux C'r.	Max..	75	85	89	90	87	79	76	77	77	68	75	66	75	76	75	80	81	81	79	82	85	86	82	80	80	71	67	67	62	69	75	77.6
	Min ..	56	58	64	69	67	56	53	54	51	49	49	52	54	64	61	54	56	60	58	54	64	66	65	65	62	59	57	53	54	45	49	57.4
Sioux C'y.	Max.	78	84	89	90	87	77	72	78	80	69	70	66	73	80	76	78	81	82	84	84	88	81	83	89	76	67	68	69	63	72	75	77.7
	Min ..	59	63	63	74	71	60	56	58	56	54	49	56	59	65	59	57	57	64	60	63	70	66	68	71	66	63	59	55	54	55	47	60.6
Storm L..	Max..	75	83	85	86	85	76	..	70	77	78	78	71	64	70	73	73	76	79	81	78	79	83	80	82	86	77	64	71	68	63	70	76.3
	Min ..	55	63	63	70	69	57	..	57	50	51	49	51	54	59	59	54	59	60	58	58	60	67	65	68	62	60	57	55	56	46	48	58.0
Stuart. ..	Max..	80	84	90	92	86	78	70	79	82	85	72	74	76	83	76	77	80	85	89	83	86	79	85	94	96	75	75	78	68	75	73	81.1
	Min ..	56	57	58	68	66	60	50	60	61	52	50	50	58	64	59	58	56	60	70	73	72	65	72	65	..	..	60	57	57	54	48	59.9
Thurman	Max..	80	87	89	90	86	78	76	80	83	76	69	62	80	82	79	76	80	83	83	83	87	89	90	88	81	85	80	78	68	70	74	80.4
	Min ..	59	63	66	73	56	63	55	57	57	60	52	51	60	61	60	58	55	55	53	53	59	67	67	71	74	67	68	67	57	57	58	60.6
Tipton	Max	74	84	81	92	84	80	80	81	79	78	80	67	78	82	86	86	86	89	88	88	91	88	96	93	87	77	72	82	72	63	77	81 8
	Min ..	57	64	67	68	67	62	55	63	59	54	57	58	60	62	67	62	60	62	71	58	60	66	69	73	69	65	60	63	58	52	52	61 8
Toledo....	Max..	73	87	83	90	83	83	78	79	78	73	74	75	70	77	82	75	83	83	83	83	86	81	92	90	80	70	77	80	80	72	76	79.9
	Min ..	57	60	64	65	75	59	48	59	50	57	48	49	56	62	59	60	54	53	60	49	63	64	68	74	66	58	61	62	56	49	48	58.4
Villisca...	Max..	77	82	89	89	85	82	78	75	76	75	72	72	75	74	74	73	75	82	81	82	86	89	90	88	84	82	76	78	65	79	72	79.1
	Min ..	60	70	65	70	66	62	54	52	55	52	50	52	59	56	58	57	54	53	53	64	69	64	68	72	70	67	65	62	57	57	48	60.1
Wapello..	Max..	77	84	86	83	79	78	76	74	78	77	70	74	68	81	85	77	83	87	86	82	90	89	96	94	85	84	71	77	69	63	69	79.9
	Min	59	65	68	71	67	65	53	62	57	62	52	54	59	64	69	65	57	58	66	54	62	67	71	76	72	71	67	67	60	53	53	62.9
Washi'ton	Max..	76	86	85	92	72	74	75	78	75	69	70	72	65	74	79	69	78	82	84	84	92	94	98	93	84	88	72	81	79	66	74	79.0
	Min ..	55	61	65	50	50	50	50	52	56	56	49	50	51	61	65	56	54	57	58	51	57	61	67	72	67	61	62	60	55	49	48	56.6
Waterloo.	Max..	75	69	86	77	88	86	75	75	82	79	72	75	74	78	76	82	75	83	87	83	84	87	89	90	75	67	70	69	67	69	78.6
	Min ..	56	57	63	63	67	61	49	61	51	59	50	49	53	55	60	62	54	54	68	52	55	67	66	68	66	57	59	61	55	46	48	57.5
Waverly..	Max..	68	84	77	85	84	80	73	77	78	69	72	71	74	73	75	73	81	83	78	81	85	78	84	88	80	67	67	75	65	68	73	76.3
	Min ..	57	64	65	67	74	60	49	62	52	58	52	51	58	61	61	59	53	57	58	52	63	68	67	68	63	57	59	60	55	49	50	59.0
W.Bend..	Max..	73	82	89	90	86	74	77	79	78	69	74	69	74	77	75	82	81	83	79	82	84	82	85	87	78	67	70	72	63	69	75	77.6
	Min ..	56	60	63	67	70	51	52	57	48	51	47	49	50	61	60	52	51	59	54	52	62	67	65	68	63	58	52	57	53	45	46	56.4
Whitten..	Max..	78	88	86	91	86	80	79	80	79	72	75	77	75	80	79	76	83	85	79	83	87	84	93	89	85	72	74	78	67	68	73	80.0
	Min ..	55	60	63	65	72	57	50	61	48	55	48	52	57	61	59	58	53	56	57	52	62	65	66	71	64	58	60	54	58	45	46	57.7
Wilton J.	Max..	79	88	87	94	85	78	78	80	81	78	76	80	69	85	86	78	86	86	83	83	89	90	96	95	87	76	80	81	74	65	75	82.2
	Min ..	53	62	67	66	65	58	49	57	57	54	50	53	57	62	64	60	55	56	61	52	55	50	64	68	69	63	62	63	56	52	49	58.6
Winters't	Max..	78	87	91	93	85	79	77	85	84	75	72	68	76	80	78	77	82	89	85	86	90	91	95	90	83	86	74	81	75	72	78	82.0
	Min ..	56	60	63	70	65	58	52	68	50	57	47	47	62	65	57	66	52	57	67	60	70	69	72	75	64	66	69	61	61	51	52	60.5

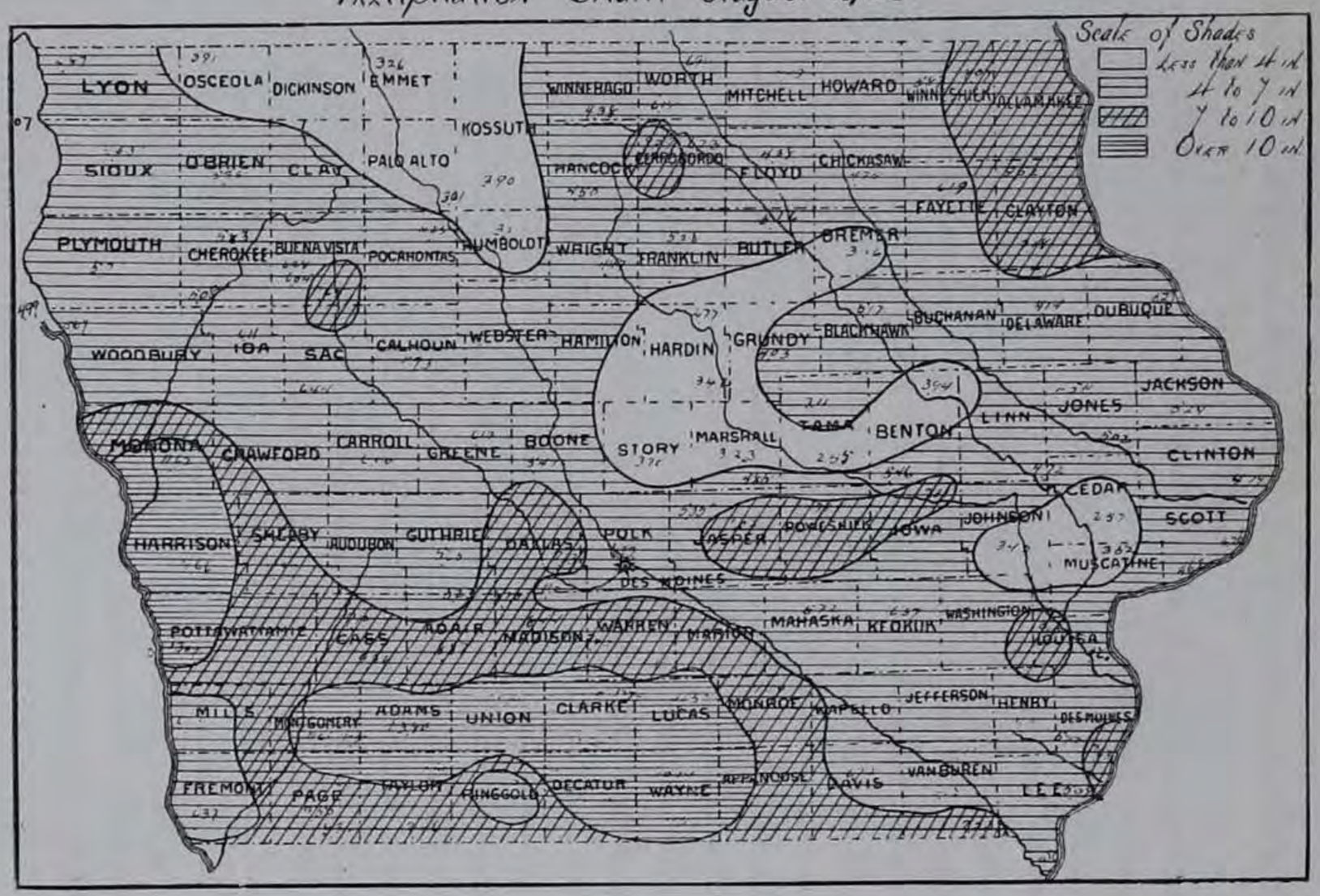
DAILY AND MONTHLY PRECIPITATION FOR AUGUST, 1903.

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	.24	....	.03	....	.14	....	.20	....	....	.46	.11	.49	...	....	.24	....	....	....	.03	....	....	....	...	..	.20	.29	9.30	.53	..	...	....	12 34
Algona	.45	....	.80	....	....	....	T	.05	...	..	T	....	....	.05	....	....	...	....	....	..	....	.02	.40	.30	....	1.60	.23	....	....	...	...	3.90
Allerton	.75	....	T	....	.37	....	.10	T	.10	.08	.45	.02	...	.02	....	....	....	..	...	....			....	T	.34	.10	9.25	T	T	....	...	11.58
Alta	.45	...	.54	....	....	..	.20	....	.16	....	....	.29	....	1.54	....	....	....	.03	....	....	T	.06	.02	1.04	.10	1.65	.10	.10	....	....	....	6.28
Alta (near)	..		.68		-	....	.23	....	.03	....	....	.27	....	1.42	....	...	....	.05	....	..	..	.07	.14	1.02	....	1.93	.09	.08	.03	....	....	6.04
Amana	2.85	.42	.43	.17	.28	....	T	....	....	....	....	.05	.03		..	....	....	..	T	..	..	T	....	T	1.53	.27	1.60	.18	...	....	....	7.31
Ames	.31	....	1.35	....	.03	....	.01	.11	.04	.02	.	.07	.04	....	..	..	....	....	....	....	....	T	..	....	.14	1.07	.43	02	...	....	..	....	3.70
Atlantic	1.15	..	.72	....	.93	....	T	...	.82	.04	.10	.32	....	.25	....	....	....	.11	.03	....	....	....	....	.58	....	3.35	.70	..	....	..	....	9.10
Baxter	.2	....	1.75	....	.40	..	....	.20	....	....	....	.12	....	T	....	....	....	....	....	....	....	....	..	....	....	2.35	.20	.10	....	....	..	5.35
Bedford	.30	....	.20	..	.09	....	.29	....	....	.52	.21	.47	..	2.00	....	....	....	....	.10	....	....	..	....	....	...	.87	4.41	....	T	....	....	7.46
Belknap	.35	....	..	..	.72	....	T	.51	....	.25	...	.10	....	....	....	....	....	....		..	....	....	....	....	.14	T	3.50	1.15	....	....	...	6.72
Belle Plaine	.75	...	1.05	..	.10	...	....	.20	...	...	....	.13	.12	....	....	....	....	....	....	....	....	..	..	.30	.45	1.78	.58	....	....	...	5.46
Bonaparte	.38	....		....	1.19	....	....	.30	....	.14			.08	....	....	....	....	..	....	....	....	....	.	.32	....	4.77	.35	..	....	....	7.53
Britt	.32	....	.68	.34	..	....	....	T	T	.04	...	T	..	.38	....	..	....		....	..	...	.06	.16	.	1.00	1.09	.23	.20	T	....	..	4.50
Buckingham	.12	...	5.10	....	...	....		.04	....	....	..	.07	..	.07	..	..	....	.08	....	..	...	....	..	.12	..	1.05	.16	.30	....	....	....	7.11
Burlington	.03	....	.16	....	2.03	....	T	.06	....	....	....	T		....	..	..	....	....	.86	....	....	....	..	....	.45	....	3.64	.40	T	....	....	7.63
Carroll	.46	....	1.61	....	....	....	....	.05	.46	...	....	....	.20	1.10	....	....	....	....	....	....	....	....	..	T	.22	...	11.22	.20	..	..	.	14 05
Chariton	.80	T		...	.71	....	T	T	....	.55	....	T	.35	....	..	....	....	....	....	....	....	T	.04	T	.10	....	2.00	.10	.48	.07	...	4.38
Charles City		.27	.25	.40	.06	....	..	T	.04	.34	..	....		....	.23	..	....	....	....	....	....	....	....	.18	.30		5 20	.15	...	....	..	9.50
Clarinda	.49	...	.34		.04	....	.68	...	.34	....	....	.39	.73	.62	..	....	....	.07	....	....	....	....	T	.20	...	.38	1.21	.05	.25	.05	..	....	9 59
Clear Lake	.20	....	.65	6.00	T	....	....	....		.35	....	....	....	.25	..	....	....	....	....	....	..	....	....	.40	.55	....	1.69	....	..	....	....	4.79
Clinton	.08	.38	..	....	.97	....	....	.02	....	.10	....	....	.20	....	.40	..	..		....	....	....	....	...	.12	.92	4.25	....	....	....	....	8.36
College Springs	.75	....	..	....	.01	....	.42	....	.	.22	.33	.66	....	..	.68	....	....	T		....	....	....	....	....	.80	.92	3.05	.19	.02	....	....	9.10
Columbus Junct'n	.13	....	.04	....	.83	....	T	.07	....		....	....	3 05	....	....	....	....	....	T	..	....	....	....	....	....	2.00	1.85	8.02	T	T	....	13.80
Corning	.30	....	.15	....	.20	....	.20	T	T	.10	.13	.65	T		1.92	..	....	.	.08	....	..	....	....	....	....	8.30	1.88	....	....	..	....	13.09
Council Bluffs	1.01	....	.60	....	-	....	....	....	....	.50	.26	.28	....	.21	....	....	..	.05	....	..	....	....	....	2.00	.05	.11	8.10	.24	....	....	....	10.14
Corydon	.51		.04	.	.34	..	.09	T	....	.25	.05	.33	.03	..	T	....	..	....	....	....	..	....	....	....	.90	1.50	3.17		..	....	....	9.32
Cumberland	....	.80	..	.35		....	.30	....	...	.20	.25	1.10	..	.	.45	..	....	....	....	..	..	.30	.	....	.90	2 85	.47	T	....	....	....	5.97
Danville	.10	....	...	T	T	....	....	....	.		....	2 55		T	..	....	....	..	T	....	....	T	..	....	....	.02	2.00	.49	T	T	....	4 68
Davenport	.04	T	.11	....	1.18	....	..	T	....		....	T	.14	....	....	..	....	....	T	....	....	T	..	70	.02	2.00	.49	T	T	....	4 68
Decorah	.92	....	.82	....	.78	....	..	..	..	1.73	..	....	..	1.34	..	....	....	..	..	..	T	.02	.10	.02	.10	1.08	.53	.55	.08		....	8.07
Delaware	.70	.15	1.89	.12	.13	....	....	....	....	....	....	....	....	.05		....	....	....	....	....	....	T	....	....	.39	.72	.23	.24	.02	....	....	4.14
Des Moines	.30	..	.72	...	.49	....	T	.43	.16	.53	....	.08	....	.05	.08	....	....	....	.02	..	T	T	....	T	.56	1.86	1.44	T	T	T	....	6.72
De Soto	.31	...	.70	.11	....	....	.57	.08	.03	...	..	.25	....	....	.10	T	....	....	....	..	....	....	..	....	.8	2.00	1.23	.10	.06	..	..	6.40
Dows	.20	....	.55	.03	....	....	....	....	....	....	..	....	..	.15	....	..	....	.03	....	....	....	T	T	T	.66	.90	.13	.26	.09	T	....	5.27
Dubuque	.32	.71	1.10	.12	.92	..	....	.02	.01	.02	....	.	....	..	.01	....	....	..	....	....	....	....	....	....	.81	1.15	.21	1.28	....	....	....	4.47
Earlham	.12	..	.41	....	1.43	....	.05	.06	.15	T	T	.48	....	..	.12	..	..	....	....	..	....	....	..	.77	....	2.95	1.65	.01	T	....	....	8.20
Elkader	1.66	....	1.13	....	.60	....	....	1.10	....	....	....	....	....	.05	....	..	....	....	....	....	....	....	....	....	.12	2.20	T	.20	.12	..	....	7.18
Estherville	.18	.12	.40	..	....	....	....	.26	....	T	....	....	T	T	.50	T	....	....	....	....	....	T	T	T	T	.40	.90	.30	.20	T	....	3.26
Forest City	.10	....	.74	.60	....	....	....			.46	....	....	....	....	.51	....	....	....	....	....	....	....	..	....	.43	....	1.20	.34	....	....	....	4.38
Fort Madison	T	..	....	....	1.35	T	..	.18	.02	..		T	.09	....	....	..	....	....	.18	....	....	..	.....	..	....	....	1.87	1.40	T	....	....	5.09
Galva	.50	....	.55	....	....	....	....	.90	T	..	....	.20	....	.80	....	....	....	T	....	....	....	....	..	....	.00	2.56	....	T	T	....	....	6.11
Gilman	.12	....	.99	....	.29	..	.01	.01	.02	....	....	.19	T	T	..		....	..	....	....	....	....		....	1.40		1.68	.13	.01	T	T	4.85
Grand Meadow	2.00	...	1 28	....	.68	....	....	.02	....	.03	..	....	....	.35	..	....	....	....	....	....	....	.02	T	T	.3	....	3.40	.04	1.34	....	....	9.52
Greene	.26	....	.40	1.25		....	..	....	....	....	....	....	....	.19	..	....	....	....	....	....	....	.05	T	....	.36	1.43	.25	.85	.14	....	....	5.16
Greenfield	.02	....	.52	...	1.32	.10	....	...	.33	T	.03	.40	....	....	.30	....	....	T	.14	....	....	..	....	.33	T	2.76	.55	.04	.02	....	....	8.87
Grinnell (near)	.20		1.55	..	.30	T		T	....	....	....	18	...	T	.05	..	....	....	....	..	....	....	....	....	.30	2.00	2.55	T	T	....	..	7.13
Grundy Center	.14	....	1.55	.02	....	....	....	.01	....	..	.	.12	....	02	....	..	....	.04	....	....	T	..	....	T	.32	1.16	.17	.48	....	....	....	4.03
Guthrie Center	.36	....	1.03	....	....	...	T	....	....	..	..	.42	....	.25	T	....	....	T	....	....	..	....	..	1.00	....	1.14	.85	.	....	....	..	5.65
Hampton	.25	..	.77	.47		....	.02	.02	..	....	.	....		.18	....	..	....	.23	....	....	....	....	..	.82	....	1.61	.68	.23	....	....	..	5.28
Hanlontown	.28	....	.76	1.70	.02	....	....	.20	....	.20	.	..	....	.61	.02	....	....	..	....	....	....	....	T	.39	.25	1.21	.50		.11	....	....	6.15
Harlan	.52	....	2.20	....	.20	..	.05	.04	.23	T	.01	.52	....	.92	T	..	..	.10	....	..		T	..	T	.77	2.9	.76	T	T	T	....	9.39
Hopeville	.23	..	.01	..	.26	....	.18	.18	.08		.08	.40		.21	....	....	..	....	.06	..	....	....	....	.03	....	.23	10.8	21	..	....	....	12.24
Humboldt	.30	....	....	....	...	.12	.34	..	....	....	.20	...	....	.01	....	....	....			....	....	....	....		.40	1.34	.0	.48	T	....	....	3.21
Independence	.40	....	1.60		....	...	....	....	....	....	....	....	....	.35	..	....	....	.05	....	....	....	..	....	T	.20	1.90	1 34	T	T	....	....	7.54
Indianola	....	..	.75		1.10	....	....	....	....	1.40	...	T	.85	....	..	....	..	....	T	T	....	....	T	..	.23	....	1.74	.26	.01	T	....	3.45
Iowa City	T	.36	....	.50	..	.26	....	T	....	....	....	....	.07	.02	....	....	....	....	....	T	....	....	T	T	.64	..	.90	13	.14	T		2.77
Iowa Falls	.08	.08	.34	.18	.02			T	.02	.....	...	....	T	T	.01	T	....	....	.15	....	....	T	T	....	.17	..	2.03	.06	....	..	....	6 17
Jefferson	.45	...	1.85	..	....	..	....	.22	.03	.	..	.06	....	1.30	....	....	..	....	..	..	....	..	...	....	..	2.07	.81	....	....	....	....	4.80
Keokuk			....	....	1.12	...	02	T		.24	T	.16	...		.02	....	..	..	.25	....	..	..	....	..	.11	T	2.07	.81	....	....	....	4.80
Keosauqua	.21	...	....		....	21	....	....	.40	.11		....	.07	..	....	....	..	....	.02	....	..		..	....	.16		3 00	1.95	.05	....	....	6.18
Lacona	.55	....	.	....	.46	..	.06	.75	.47	....	.14	..	...	.03	....	....	..	....	....	..	....	..	....	.50	....	....	6.20	..	..	....		9.16
Larchwood	1 10	....	.32	..	....	...	.32	....	.13	..	....	....	..	.80	..	.....	....	1.00	..	..	....	....	....	....	....	1 00	.20	....	....	....	....	4.87
Larrabee	.50	....	.29	..	..	..	.29	T	T		....	.15	T	1.33	....	..	..	T	....	..	....	.10	.02	.13	....	2.00	.93	.03	.06	..	..	5.83
Le Claire	....	.03	....	.03	....	.61	....	....	....	....	....	....	.41	.15	.02	.03	..	....	....	....	....	....	..	....	.90	..	1.61	.43	.03	.01	....	4 26
Le Mars	.85	.12	.43	....	....	....	T	.86	.53	....	....	.20	....	.50	....	....	....	T	....	..	T	.05	....	....	....	....	1.20	.90	.10	....	....	5.79
Lenox	.15	....	.10	....	.36	....	.17	.15	..	.10	.10	.46	....	....	1.40	....	....	....	....	..	....	....	....	....	.15	.81	6 65	..	....	..	....	10.60
Leon	.27	....	.15	..	.81	....	.13	.02	....	.71	.07	.58	....	....	..	.18		.16	.0	....	..	....	....	....	....	.25	7.25	....	....	..	..	10.48
Logan		2.70	....	.88	....	..	.37	....	....	....	.05	.90	...	1.40	....	..	....	.22	....	....	....	..	....	.25		2.41	2.28	....	..	..	....	11.66
Maquoketa	....	.40	....	.47	..	2.00	....	.05	.06	....	..		.15	.05	.15	02	....	....	..	....	..	....	....	....	.25		1.12	.09	.40	.03	....	5 24
Marshalltown	.04	.02	.74	.05	.	.16	....	.02	..	.02	..	....	.20	....	.02	....	..	....	.01	....	....	....	....	....	.32	.	1.35	.13	.15	....	....	3.23
Monticello	.05	1.75	.30	T	.15	....	....	T	....	-	....	T	T	....	T	....	..	..	....	....	T	....	T	T	1.10	1.19	....	.	....	....	4.53
Mason City	.17	..	.50	2.80	.13	....	....	.12	.38	.	....	....	....	.23	....	....	....	....	....	....	....	....	T	.05	.10	1.00	.25	.30	.10	....	....	6.23
Mount Ayr	.25	....	.0	..	.37	....	.18	....	T	.30	.12	.55		....	.25	....	..	..	....	....	....	....	..	.04	T	1.10	3.59		.03	..	....	6.85
Mt. Pleasant	1.00	..	....	....			.10	....	....		..	....	T		....	..	....	....	.75	....	....	..	..	....	.45	....	2.50	.52	....	....	....	5.32
Mt. Vernon	1.0	.18	.68	....	.18	....	..	....	..	....	....	.01	.24	....	.02	..	..	....	..	....	..	..	....	..	.22	.38	1.10	.70	.01	....	..	4.72
New Hampton	.47	....	.41	.05		..	....	..	....	.65	....	....	....	.13	....	....	....	....	....		..	....	....		.21	1.89	.50	.44	....	..	..	4.75
Newton	.13	....	1.29	....	1 52	....	....	.18	....	.11	....	.08	...	T	.04	....	....	..	....	....	....	....	....	....		5.25	.28	.14	....	....	..	9.02
Northwood	.30	.27	.90	1 61	.04	..	....		T	.29	....	....		.35		....	..	....	....	....	T	.02	T	.01	.73	1.75	.35	.30	.02	....	....	6.94
Odebolt	.40	....	1 26	....	....	....	.12	.45	.35	..	....	.33	...	....	....	1.30	..	..	..	....	....	....	....	....	....	2.00	.13	....	.10	..	..	6.44
Ogden	....	....	1.80	20			T	.31	.10				.1		.22	....	....	....	....	.01	....	....	....	....	.15	.10	1.40	....	.08	....	....	5.47
Olin	.08	....	.83		1.50	....	T	....	....	....	....	T	.27	....	....	....	....	....	....	....	....	....	..	T	.10	1.30		.94	T	..	..	5.02
Omaha, Neb	1.15	....	.39	....	32	..	.11	T	....	.10	.14	.57	....	.07	.04	....	....	.01	..	..	....	....	....	.52	1.44	4.64	3.00	....	T	....	..	12.50
Onawa	.80	..	2.23	....	.02	.	.1	....	.27		....	.40	....	.35	....	....	....	.46	..	....	....	.03	....	1.05	.10	5.00	.80	....	.	..	....	11.62
Osage	.26	.01	.56	.03	.29				..	.15	....			.22		....	..	....	....	....	....	.01	T	T	.26	1.46	.41	.74	.03	....		4.43
Osceola	....	....	.04		..	.40	....	.12	.10	.14	..	.08	.35	.14	....	..	..	..	.01	....	..	....	....	....	.12	.21	7.68	1.66	.34	T	....	11.30
Oskaloosa	.83	..	.09	...	1.00	....	....	.27	.16	...	....	.08	....	..	....	....	..	....	....	..	....	....	T	.47	1.04	1.78	T	T	..	..	5.72
Pacific Junction	.98	....	.50	...	.29	....	.37	....	.04	....	.27	.70	....	T	.57	..	...	.46	...	....	. .		....	....	.38	.08	1.55	....	....	....	....	6.28
Perry	.57	..	1.22	....	.10	....	T	.55	2.22	..	....	.04	....	.39	T	....	....	..	..	....	....	..	..	T	.16	1.94	1 12	T	T	....		8.31
Plover	.42	....	.76	....	....	....	.06	....	0.2	....	....	....	....	.03	....	....	....	..	..	....	....	.09	.11	.05	....	1.94	.77		....	..	....	4.25
Primghar	.60	T	.50	....		..	T	.79	.04	....	..	.15	T	1.75	....	....	..	....	....	....	T		T		..	1.40	..	.12	T	....	....	5.35
Red Oak	.64	....	.48		.16	....	.07	.09	T	.90	.19	.50	....	.	.81	....	....	.40	T	....	....	....	....	T	.30	.93	6.14	T	...	T	....	11 61
Ridgeway	.51	.15	.67	.03	.40	....	....	....	.50	.17	....	....	....	.77	.01	....	....	....	....		T	.03	.05	.42	.01	1.30	.36	.44	.05	....	..	5.87
Rockwell City	.30	....	1.15	....	....	....	.03	.15	.70		....	.23	....	.35	....	....	....	..	....	....	....	....	..	....	65	.85	.35	.15	..	....	..	4 93
Sac City	.38	..	.90	T	....	....	.26	.14	.02	....	....	.38	..	1.65	....	..	.	T	....	..	....	T	....	..	.80	1.34	.20	.03	.06	....	....	6.16
St. Charles	..	....	.17	..	1.65	....	.06	.20	.02	02	T	.23	....	....	.10	....	..	..	....	....	..	....	....		.50	2.45	2.02	.01	T	T	.	7.43
Sibley	.50	....	.30	..		....		.12	.	.	....	....	.17	....	.44	....	..	....	.02	....	..	....	....	.01	..	.50	.71	.46	.68	T	....	3.91
Sigourney	.71	....	.13	....	.63	...	T.	.20	....	.17	..	T	T	....		....	....	..	....	....	....	....	....	....	1.38	2.65	.50	....	....	....	....	6.37
Sioux Center	.82	...	.18	....	....	..	.06	.77	.12	....	..	.16	....	.18	....	....	..	.06	....	.	T	....	....	....	...	1 38	.48	.12	T		..	4.33
Sioux City	1.02	..	.48	....	....	...	.16	.11	.23	....	..	.42		.32	.01	..	...	....	....	..	....	.07	....	....	...	2.16	.57	.09	T	.03	....	5 67
Stockport	.10	.02	...	....	1.00		T	.17		.10	....	.03	.05	....	..	....	....	....	....	..	....	....	....	....	.17	T	4.01	.26	...	....	....	5.91
Storm Lake	.47	....	.71	....		...	...	.16	.27	.13	..		.23	....	2.40		....	...	.14	...	....	....	T	T	.95	.72	1.35	.03	.09	T	...	7.65
Stuart	.17	.50	....		.12		....	...	.04	..	....	1.10	....	....	.40	..	.....	.	...	..	....	..	....	..	1.07	.75	1.00	.08	.	....	..	5.23
Thurman	1.58	..		.52	....	.15	....	.10	....	..	....	.28	1.20	....	....	.90	....	....	.28	....	....	....	..	T	.50	.24	.62	.	..	....	....	6.37
Tipton	.38	.11	.34	....	.15	....	....			....	....	.10	....		....	..	..	....	....	..	..	....	....	...	.10	.14	1.11	.14	..	..	....	2.57
Toledo	.20	...	.50	....	T	...	T	T	.02	....	....	.20	..	T	....	....	..	....	....	....	....	....	....	.22	....	.35	1.01	0.5	T	....	.	2.55

DAILY AND MONTHLY PRECIPITATION FOR AUGUST, 1903—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	
Villisca	.65	....	.23	....	.28	..	.12	.30	....	.12	.42	.60	..	1.85	...	.....	....	....	.30	....	....	..	....	...	....	.98	6.15	T	.02	....	..	12.02
Vinton	.72	....	1.21	....	T	..	....	.05	...	...	....	....	.04	....	....	....	....	.03	...	....	..	..	....	T	..	....	.99	.90	..	....	....	3.94
Wapello	.22	....	...	....	.47	....	T	T	....	T	....	....	....	..	....	....	....	....	..	....	....	..	....	..	.15	T	4.60	.16	....	....	....	5.60
Washington	.38	....	.08	....	...	...	..	....	...	..	....	..	....	....	....	....	.	....	..	....	....	....	....		.13	....	3.23	.94	....	....	....	4.76
Washta	.40	....	44	...	.	....	.47	....	.27	....	....	.17	....	.14	....	....	....	....	....	....	..	.09	....	.15	....	2.75	.20	T	T	....	....	5.08
Waterloo	.	.41	1.20	1.76	.03	...	..	.02	...	...	..	..	...	T	..	...	....	....	.08	....	....	....	....	....	.61	.58	.02	.46	T	....	..	5.17
Waukee	.70	....	.78	.	.04	...	.01	.53	.10	..	....	.18	..	1.90	.13	....	..	....	..	....	....	....	..	T	.93	2.65	1.30	.08	...	....	..	9.33
Waverly	.30	..	.57	.59	.01	....	....	.01	....	..	..	.	....	.03	....	....	....	..	....	....	....	....	.01	....	.18	.65	.20	.47	.03	.01	....	3.06
West Bend	.32	....	.59	..	...	....	....	.19	....	.02	.	T	....	.02	....	..	..	....	....		T	.12	.29	.35	....	1.32	.38	T	.01	...	....	3.61
West Union	1.49	T	.63	.46	....	....	..	....	....	....	..	..	....	.23	....	..	..	....	....	..	....	..	....	.61	....	1.85	.15	.72		....	....	6.19
Whitten	.52	....	.67	....	....	....	...	T	T	....	....	.20	..	T	....	....	....	....	T	....	..	..	.	...	.53	.82	.28	.40	T	....	....	3.42
Wilton Junction	.28	..	.35	..	.27	..	...	....	....	....	....	T	T	....	...	..	....	..		....	..	....	....	....	.43		1.81	.38	....	....	....	3.52
Winterset	.15	...	22	....	1.26	....	.05	....	.30	.26	....	.27	....	..	.11	..	....	....	....	....	....	..	..	...	.72	3.65	1.45	....	....	....	....	8.44
Woodburn	.70	....	T	...	.18	....	.10	.13	.65	T	.06	.25	....	.06	....	...	...	....	.03	..	...	....	...	.07	....	7.00	7.71	.75	...	...	....	17.74

Precipitation Chart August 1903.



SEPTEMBER, 1903. No. 9.

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DES MOINES:
BERNARD MURPHY, STATE PRINTER.
1903.

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Vinton	T. F. McCune
Villisca	C. E. Matteson
Wapello	Geo. W. Schofield
Washington	Wm. A. Cook
Washta	H L. Felter
Waterloo	M. L. Newton
Waverly	H. S Hoover
Whitten	Dr. Frank P. Butler
Wilton Junction	J. M. Rider
Winterset	B. L. Sprinkle
West Bend	Phil Dorweiler
West Union	J M. Lisher
Woodburn	C. B. McDonough

*U. S. Weather Bureau.

WEATHER-CROP OBSERVERS.

Reporting for the Weekly Bulletin.

Agency	J. H. Van Zandt
Albia	Wm. Mercer
Allerton	James Piper
Alta	Jonas Cushman
Blairstown	T. H. Weil
Burt	R. Jain
Cedar Rapids	Hon. A. J. Fuhrmeister
Charles City	W. B. Towner
Chariton	C C. Burr
Clarksville	F. M. Russell
Correctionville	Hon. W. B. Chapman
Corwith	Wm. Oxley
Council Bluffs	L. Prouty
Creston	M. V. Ashby
Danville	Sherman Matthews
Dunlap	Hon. B. F. Roberts
Emerson	D. B. Nims
Fort Dodge	R. W Blaine
Fruitland	R. T. Hummel
Goldfield	D. M. Stephens
Geneva	Wm. H. Thompson
Hartwick	Fred McCulloch
Harlan	H. B. Kees
Hesper	G. E. Dillingham
Humeston	Hon S. H. Moore
Independence	Geo. H. Wilson
Indianola	H. D. Guthrie
Ireton	J. M. Sherman
Lake City	C. B. Hamilton
Le Mars	Hon. Henry Schrooten
Manson	J. D. Skinner
Marshalltown	Hon. S. B. Packard
Mapleton	A. Lamb
Mt. Pleasant	W. S. Wright
Milton	Hon. E. C. Holland
Monroe	J. A. Dibel
Nevada	Geo. C. White
Northwood	T. L. Bolton
Orange City	H. J. Vande Waa
Pella	J. H. Ver Steeg
Pittsburg	G. C. Duffield
Red Oak	Hon. C. L. Stratton
Rock Rapids	D. E. F. Merrill
Rossville	T. B. Wiley
Seymour	L. B. Sager
Shenandoah	Reuben Mullison
State Center	E. P. Thompson
Stuart	W. W. Bailey
Toledo	W. G. Malin
Van Horne	Spencer Smith
Waukee	E. J. Leonard
Weldon	Ed Worden
Winterset	H A. Kinsman
West Branch	Wrigley Smith
West Union	H. B. Blackman
Wilton	Thos. Boot
Wiota	I. S. Coomes
Woodward	Geo. Swisher

U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

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WEATHER AND CROP CONDITIONS.

September was cooler than usual, with some excess of rainfall, cloudiness and humidity. The daily mean temperature, 60.8° for the state, was 3.4° below normal. The average number of cloudy days was 10, and partly cloudy 6, with 14 days of clear skies and sunshine. On the whole the month was materially better in all the elements than September, 1902. Frosts were noted at numerous stations, in all districts, on 16th, 17th, 18th, 24th and 27th, ranging from light to heavy; but little damage resulted to farm crops except in quite limited areas. The main detriment caused by the cold and frosty period was the delay in bringing belated corn to full maturity. The period of most unfavorable weather and heaviest rainfall was from the 4th to the 16th. In the last half of the month there were about twelve days of ideal weather for maturing crops, harvesting, threshing and plowing. During this time corn made very good progress, and at the close of the month fully 80 per cent of the crop was well matured, the balance requiring one to two weeks of frostless weather and generally favorable conditions to make it safe. At the best there was but little expectation of bringing all of the belated portion of the crop to maturity, as some of it was still green and soft at the close of September. A considerable amount of the early corn was cut and put into shocks after the first appearance of frost. Fall pasturage was never better, and seldom as good at this time of the year. Fair progress has been made in harve ting the minor crops, and a good deal of second crop hay has been secured. Fall plowing is well advanced, much more than the usual acreage having been done with the soil in excellent conditlon. The potato harvest showed a very light yield, and much damage by rotting. The fall apple crop was fair, but winter apples are inferior in size and quality. On the whole September was a fairly satisfactory month, though below normal in tenperature and sunshine. The adverse features of the month were the natural sequence of the preceding abnormal spring and summer. There is much cause for congratulation and thankfulness, that under such unusual conditions the yield of staple crops will be sufficient to afford a liberal surplus for export to regions of less productiveness.

NOTES AND COMMENTS.

The weather records at Manila, P. I., show a total of 37 inches of rainfall in the month of June, 1903.

Abnormally wet seasons always insure poorer crops and smaller profits than abnormally dry ones. In a dry season a man is able to save what he raises, while in a wet one the loss is enormous on every hand.—*J. S. Trigg.*

Whi'e irrigation schemes are being promoted in the West, the Iowa farmer is making plans to tile his wet lands.

Corn experts are needed all along the northern limit of the corn belt to show to corn growers the folly of attempting to grow varieties of corn only suited to the more southern latitude of Kansas and Nebraska. One season with another, only corn which will mature in ninety or ninety-five days should be planted.—*J. S. Trigg.*

The health of the hog population of the country continues surprisingly good, says the *Chicago Live Stock World*. Sick pigs are abnormally scarce at market centers, an infallible indicator, and reports from producing districts are equally optimistic. The growing pig crop has doubtless not enjoyed a very strong diet. Old corn has been scarce and high priced and the new corn crop is late. Meanwhile the maturing pig has reveled in an abundance of clover, a condition that is largely responsible for his good health. Never before has such a wasteful abundance of this great legume been seen in the corn belt. A healthy pig, however, soon becomes invalided when allowed his fill of new corn, and at present prices there is every inducement to force him into market conditions as soon as grain is available. Because the porcine population is healthy now it does not follow that there is any assurance of a continuance of such conditions.

According to the bureau of statistics of the Department of Commerce, the value of the tropical and sub tropical products brought into the United States the past year was over $400,000,000. In 1895 the value of this class of merchandise imported was only $300,000,000; in 1875, $200,000,000, and in 1870, $140,000,000. Thus, the value of the tropical products brought into the country in the year just ended was about three times as much as in 1870, twice as much as in 1875, and one-third more than in 1895.

Tropical islands of the United States contributed nearly $50,000,000 worth of the $400,000,000 value of tropical products brought into the country last year. Over $26,000,000 of this was from Hawaii, more than $11.000,000 worth from the Philippines. In 1896 they contributed $19,000,000 worth to the tropical requirements of the country.

The hay crop of the United States in 1903, according to an estimate of the *Cincinnati Price Current*, has amounted to about 62,750,000 tons, which is about 3,000,000 tons larger than the crop of last year, and about 5,500,000 tons or nearly 10 per cent above the average of the past ten years. Compared to the

yield in 1902 this makes a shortage in the New England States of 3,847, and a gain in the group of states comprising New York, New Jersey, Pennsylvania, Ohio, Michigan and Indiana of 4.11 per cent, and in Illinois, Wisconsin, Missouri, Kansas and Nebraska a gain of 4.20 per cent. New York, Michigan and Indiana show slight losses, and New Jersey, Pennsylvania and Ohio slight gains.

Three New York firms have recently secured three African mahogany logs, all parts of the same tree, which brought at an auction sale in Liverpool the unprecedented sum for the produce of one tree of $15,728. The first measured 21 feet long, 38 inches deep at the butt and contained 1,386 square feet; the second's length was 23½ feet, depth at the butt, 44 inches, and it contained 2,441 feet; the length of the third was 25½ feet, it was 46 inches deep at the butt and contained 3,025 square feet. These logs are said to have produced the finest African mahogany veneers the United States has seen.

Dr. Kennedy, secretary of the Iowa Board of Health, says in a recent issue of the *Health Bulletin:* "We verily believe, and have often declared, from a personal experience and observation in Iowa covering more than forty-four years, that there is not a more invigorating and healthful climate in the world than in Iowa if people will only use common sense and observe the laws of hygiene in preparing to meet these frequent and sudden climatic and electrical manifestations. This is not said in the interests of any immigration company or commercial exchange, but is the honest conviction of the writer."

S. A. French, residing near Geneva, Franklin county, has succeeded in raising two crops of strawberries this season. The second crop was ripening October 5th and the berries are said to have a fine flavor and color.

The top of the building of the Philadelphia Hospital is to be used as a roof garden for the tuberculous patients. The hospital roof, 26 by 150 feet, is covered with a canvas roof, to which are attached sideflaps for use when protection from sun or rain is necessary, and will be fitted up with beds, so that the patients may be kept in the open air 24 hours of the day. Dr. Martin is quoted as saying that not only as a mere sleeping place and a space to work about in has this been planned. It is expected that flowers and shrubbery will be scattered on the roof, and that it will really be a garden, with walks and shade, attractive to the patients. In planning the construction of hospitals hereafter, will not architects have to allow for this excellent method of treating patients? And why only for the tuberculous? And why for the sick alone?—*American Medicine.*

THE RAINMAKER IN AUSTRALIA.

In connection with the droughts in Australia we have received abundant details of the efforts made to force rain from the unwilling clouds.

At a meeting of the Chamber of Commerce of Broken Hill, Thursday, July 2, the mayor submitted the formula given by Mr. J. J. Phelps, of Sydney, and his method was indorsed by several. The formula consists in using sulphuric acid and zinc. The hydrogen set free ascends with aqueous vapor "in spiral columns which are hollow when they reach the rainbelt in the atmosphere, and the cold air in that region rushes down to the warmer air below."

Any one can try this simple well-known chemical experiment for making hydrogen, but we have every assurance that no rain will result and no cold air will rush down and no rainbelt will be found in the atmosphere. This, in fact, was the experience of Mr. Allen and the Australian committee at Stephen Creek, which reported that "the experiments were not successful, owing to there being rather too much wind to allow the column of gas to ascend perpendicularly."

The failure of Mr. Allen was complete; the excuse was quite unphilosophical and unneccessary.

Previous to Mr. Allen's fiasco, a much more imposing attempt had been made by Dr. C. DeLacy McCarthy, who is said to be "a graduate of Trinity College, Dublin, who spoke with the utmost confidence on the question of the production of rain, saying: 'I will start to work on Wednesday, and you will have rain by Saturday.'"

The Government of South Australia, the Chamber of Commerce, and the water companies of Broken Hill had united in bearing the expense of a special train to bring Dr. McCarthy and five assistants and apparatus from Petersburg. He did not wish the details of his method known except that in general—

"He forces chemical fumes into the air for a great distance which create a vacuum in the fourth, fifth and sixth strata of air. The center of a heat storm is thus formed and the cold air descends, resulting in a heavy tropical rain The secret of the chemicals was given him by a man in America. He had improved on the system with the aid of a clever Japanese chemist. He changes his methods to suit varying conditions. It may require thirty-two hours of continuous work to achieve success. He produced rain in twenty-two hours in Victoria."

Dr. McCarthy delayed three days before beginning; meantime the sky clouded over and predictions were received from Mr. Barrachi, Director of the Meteorological Office, at Melbourne, forecasting rain within three days. McCarthy's experiments began on Wednesday, a furious dust storm prevailed with northwest winds; although the wind and dust were distressing, he announced that "the vacuum is working still far up," But the wind veered to the south and all chance of the predicted rain from the west seemed to disappear. Eventually, "on July 3, Dr. McCarthy suspended operations, saying that conditions were all against him." He expected to resume when favorable predictions should be published by the Meteorological Office.

A few days before this Mr. Rutter, with several local chemists, "Had sent up a column of hydrogen which was followed by clouds and light rain, and they felt certain that a heavy downpour would have resulted had they continued their efforts." Probably they realized that the clouds and light rain had nothing to do with their hydrogen gas.

In their extremity the Broken Hill people naturally clutched at the flimsiest straws, "listening even to Mr. F. J. Mars, engineer of the local electric light works, who urged that huge kites should be sent up carrying dynamite to be fired by electricity."

We have given much space to this interesting episode in the great Australian drought, as we hope it may prove to be the last occasion on which the rainmakers will attempt to delude the suffering people with their chemicals, their upper vacuum, their dynamite, and their false theories

The time has not yet come when man may plow the atmosphere for rain as he plows the soil for crops. If mines must be worked and towns built in arid regions, let the promoters of these schemes be required to build aqueducts and bore wells sufficient in advance to supply the needed water, not waiting until the droughts come and the people die. Every place on this globe has its rainy years and its dry years. Areas of cold and heat, wind and calm, rain and drought appear and move and disappear in regular succession. We must prepare for them and provide against disaster. We cannot control the weather, but we may control ourselves.—*U. S. Monthly Weather Review, July, 1903.*

UNPRODUCTIVE ACRES.

The unproductive acre on the farm is a different proposition from the unproductive cow in the dairy. Both are bad leaks, but with the cow which does not pay for her board regeneration is impossible, and she should be sent to the feed yard, but the unproductive acre cannot be thus got rid of and becomes a problem involving regeneration. It may be a hillside, poor soil, washing badly, for which one of two things may be done—it can be got into grass and kept there, or it may be planted with fruit or forest trees. The acre may be a strip all round the line fence grown up to weeds and bramble. This should be reclaimed by breaking up and seeding down. It may be a wet acre in the middle of the field which a little job of tiling will reclaim, or, if this cannot be done, it would grow a lot of nice willows. Then it may be an acre and perhaps more which has been so starved and robbed that oats a foot high or ten bushel of corn is all it will produce, in which case seed down with clover and give it twenty-five loads of barnyard manure to the acre. There is still another acre bordering the public highway which should be so treated that it will produce a ton or more of good hay each year instead of a useless mass of weeds and rubbish. We would not be looking for more land until these unproductive acres were reclaimed and utilized if we were in your place. So far as the old cow is concerned, see that Chicago gets her and not your neighbor or the local butcher.—*J. S. Trigg.*

MODERN FARM LIFE.

In the course of a speech before the farmers of Whitman county, Washington, Gov. Henry McBride said: "Farm life is not what it was twenty-five years ago. You have more of the comforts and conveniences of life. You are not so isolated. The building of railroads, the extension of the telegraph and telephone systems, the construction of highways, and increased mail facilities have brought the farmer in closer touch with the world at large. The farmer of today, especially in localities covered by the free rural delivery system, receiving as he does his daily mail, is as well posted and can feel the great throbbing pulse of humanity as well as the dweller in the city.

"This is in utter contrast with the loneliness pervading farm life in former years—a loneliness that tempted many a boy and girl cityward when, in many instances, it would have been much better for them had they remained in their old homes. With the rapid advancement along material lines—with better schools—with greater opportunities for social intercourse—with the opening up of all the avenues of information, thus bringing it in closer touch with the great outside world, farm life has become more attractive, and there is no longer danger of the urban population increasing at the expense of the rural. And this is well; for an intelligent, contented, sturdy and self-reliant class devoted to agricultural pursuits is one of the chief bulwarks of any state or nation."

CLIMATOLOGY FOR THE MONTH OF SEPTEMBER, 1903.

BAROMETER.—Mean pressure, 30.03 inches; highest observed, 30.40 inches, at Sioux City, on the 23d; lowest observed, 29.45 inches, at Sioux City, on the 12th; range for state, 0.95 inches.

TEMPERATURE.—The monthly mean temperature for the state, as shown by records of 104 stations, was 60.8°, which is 3.4° below normal. By sections the mean temperatures were as follows: Northern section, 59.0°; Central section, 61.1°; Southern section, 62.4°; The highest monthly mean was 66.2°; at Belknap; lowest monthly mean, 56.9°; at Forest City. The highest temperature reported was 94°, at Logan, on the 1st; lowest temperature reported, 28°, at Larchwood, on the 16th. The average monthly maximum was 84.8°; average monthly minimum, 33.6°. Greatest daily range, 51°, at Clarinda and Marshalltown; average of greatest daily ranges, 34.8°.

PRECIPITATION.—Average precipitation for the state, as shown by records of 116 stations, was 3.81 inches, which is 0.61 of an inch above normal. The averages by sections were as follows: Northern section, 3.94 inches; Central section, 3.46 inches; Southern section, 4.09 inches. The largest amount reported was 8.79 inches, at Larrabee; least amount reported, 1.42 inches, at Waukee. The greatest daily rainfall was 4.09 inches, at Larrabee, on the 11th and 12th. Average number of days on which .01 of an inch or more was reported, 10.

WIND AND WEATHER.—Prevailing direction of the wind, south; highest velocity reported, 42 miles per hour, from the northwest, at Sioux City, on the 26th. Average number clear days, 14; partly cloudy, 6; cloudy, 10.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced	EXTREMES. Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	30.03	30.28	18	29.65	26
Des Moines	30.05	30.30	23	29 59	25
Dubuque	30.06	30.27	24	29.62	26
Omaha, Neb	30.00	30.34	16	29.49	25
Keokuk	30.04	30.28	23	29.70	25, 26
Sioux City	30.01	30.40	23	29.45	12
Means	30 03	30.40	23	29.45	12

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	4981	30	S	12
Des Moines	6287	37	S	12
Dubuque	5084	28	SE	12
Keokuk	5045	24	S	12
La Crosse, Wis.	5 53	30	S	2
Omaha, Neb	6661	32	N	13
Sioux City	9855	42	NW	26

OBSERVERS' NOTES.

ALLERTON.—*Rex Shriver.* Corn was uninjured by frost during the month and dried up rapidly.

ALTA.—*David E. Hadden.* Unusually fierce lightning on morning and evening of 13th, with temperature at 40. First frost of season on 16th, mainly light, and killing only in exposed places; last decade of month brought ideal fall weather.

ATLANTIC.—*J. W. Love.* First frost on 16th, said to have been a benefit to corn; ducks fly southward on 13th.

BAXTER.—*W. T. Thorp.* No frost in this locality to do damage as yet.

BONAPARTE.—*B. R. Vale.* Rain 5.95 inches, following 5.44 the last six days of August. Too much moisture, but otherwise a seasonable month; vegetation luxuriant.

BRITT.—*Geo. P. Hardwick.* First half wet; last half more favorable to belated corn; whole season so cool and wet that

half a crop results; severe loss by hail on 13th in strip of country from east center to southwest corner.

CLEAR LAKE.—*John Cobb*. Quite hard frosts on 24th, but did not seem to kill anything.

EARLHAM, A. D.—*Geo. Phillips*. Corn made rapid progress last days of the month, and except a small area of very late planting was safe from danger of harm by frost.

ESTHERVILLE.—*Earle W. Peterson*. Up to last of month the corn remained unharmed by frost, and will be a better crop than was expected.

FOREST CITY.—*J. A. Peters*. Frosts on 18th and 24th did very little damage, and last week was favorable to corn.

GRAND MEADOW —*F. L. Williams*. Many fields of corn still green, and frost did little damage; most of it safe at close of month; pastures extra good; oats proved the poorest crop ever raised here.

GREENFIELD.—*J. G. Culver*. No frost sufficient to injure the tenderest vegetation; 70 per cent of corn safe at close of month, and will have more sound corn than last year.

GRINNELL.—*A. O. Price*. No killing frosts during the month; pastures seldom better; fall plowing nearly finished and ground in fine condition.

GRUNDY CENTER.—*E. S. King*. All corn past frost; very little harm done by frosts on 17th, 18th, 24th and 27th; fall work well advanced.

HANLONTOWN.—*Miss G. M. Paschen*. Corn cutting began 21st and mostly finished by 30th; not as large acreage as last year; upland corn good well filled ears; potatoes light and subject to rot.

HARLAN.—*C. A. Reynolds*. September has been a very acceptable month in this vicinity.

HOPEVILLE.—*M. T. Ashley*. No frost except very light on 17th and 18th; no vegetation hurt; much green corn at close of month needing ten days to ripen.

HUMBOLDT.—*H. S. Wells*. Quite favorable weather for ripening corn; threshing completed and grain little damaged.

LARRABEE.—*H. B. Strever*. Heavy rainfall during first half of month; frost on 16th did considerable damage to late corn.

OGDEN.—*E. Sayre*. No frost to kill tender vines up to 30th; corn was then doing finely.

OLIN.—*N. Potter*. First and last of month favorable for maturing the corn crop; middle period cold and cloudy with frosts on 18th that did damage on low ground.

PACIFIC JUNCTION.—*H. H. McCartney*. Frost on 16th was not killing on account of continued cloudy weather; 40° always shows white frosts in this locality if clear and calm at time.

RIDGEWAY.—*Arthur Betts*. Month was two degrees warmer than September, 1902; last decade was fine; killing frost of 18th was general hereabout, with temperature 27° to 33°; about 90 per cent of corn fields were deadened, and will be much soft corn; we had 234 hours sunshine, or 63 per cent; aurora on 26th.

SAC CITY.—*J. A. Sodestrom*. No damage by frost on 16th.

STOCKPORT.—*C. L. Beswick*. An unusual month; only four days in which wind was not in south, southeast or southwest.

TOLEDO.—*H. P. Giger*. On 17th frost was averted by clouding over a little about midnight; other frosts did not seem to do much harm.

WAUKEE.—*E. J. Leonard*. Except the rainy period, 4th to 14th, the month was generally clear and cool; light frost on 18th and 24th did no damage; most of corn well matured, but late portion needs a little more time.

WEST BEND.—*Ph. Dorweiler*. First half month rainy, and last half fine; no killing frost.

WHITTEN.—*Dr. Frank P. Butler*. Frost on 17th and 24th did but little damage to corn; the crop has never been in better condition in this section; potatoes rotting and a poor crop; fall pastures excellent; much fall plowing down.

ERRATA IN JULY REVIEW.

BELLE PLAINE.—Total precipitation recorded 3.47 inches on pages 6 and 10, should have been 4.47 inches.

DECORAH.—Mean temperature recorded 71.8° on page 6, should have been 71.5°. Mean maximum temperature recorded 81.6° on page 8, should have been 81.1°.

ESTHERVILLE.—Total precipitation recorded 7.21 inches on pages 6 and 10, should have been 7.71 inches.

FOREST CITY.—Total precipitation recorded 3.78 inches on page 6, should have been 3.79 inches.

IDA GROVE.—Daily precipitation recorded .96 inch on 18th, on page 10, should have been .98 inch. Total precipitation recorded 4.43 inches on pages 6 and 10, should have been 4.31 inches.

WILTON JUNCTION.—Total precipitation recorded 6.37 inches on page 7, should have been 6.35 inches.

CLIMATOLOGICAL DATA FOR SEPTEMBER, 1903.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	PRECIP., IN INCHES. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).	Number rainy days	SKY. Number clear days.	Number partly cloudy days.	Number cloudy days.	Prevailing direction of wind.	DATES OF THUNDER STORMS.
Algona	Kossuth	1,213	28	60.2	-1.7	85	2	36	24	36	3.90	† .81	1.60	.....	7	11	12	7	SE	
Alta	Buena Vista	1,513	11	57.9	-5.7	80	22	32	16	36	7.05	†4.49	2.30	....	13	12	11	7	S	3, 6, 7, 11, 13, 30
Alta (near)	Buena Vista										7.83		3.60		12					
Britt	Hancock	1,236	5	58.7	-3.8	85	2	32	24	35	4.43	† .25	1.12	...	12	7	16	7	SW	7, 11, 13
Charles City	Floyd	1,012	11	57.3	-5.8	83	2	32	18, 24	44	2.06	- .82	.42	....	11	15	0	15	SE	8, 11, 14, 15
Clear Lake	Cerro Gordo	1,241	....	59.9		87	2	33	24	34	5.10	.....	2.35	...	9	13	10	7	SW	
Decorah	Winneshiek	857	8	59.4	-3.0	81	22	32	18	32	2.94	- .45	.72	....	15					
Dows	Wright	1,142	...	59.6		83	2	33	18	33	2.00	.....	.60	...	10	17	5	8	SE, S NW	
Elkader	Clayton	727	21	61.6	-0.6	86	2, 8, 21	31	18	39	2.67	-1.12	.75	..	9	16	7	7	SE	4, 7, 8, 12, 14 26
Estherville	Emmet	1,293	7	57.2	-4.4	84	3	32	24	44	3.83	† .73	1.75	....	12	15	4	11	NW	
Forest City	Winnebago	1,226	8	56.9	-5.7	84	26	31	28	38	3.67	- .61	2.00	....	8	18	1	11	S	
Grand Meadow	Clayton	1,180	11	59.0	-2.1	79	2	35	11, 24	27	4.27	†1.23	1.49	....	10	13	8	9	SW	
Greene	Butler	924	5	60.4	-4.8	84	2	33	18	33	1.81	-1.40	.35	....	11	12	4	14	S	
Hampton	Franklin	1,155	12	61.4	-1.2	86	2, 3, 8	36	18, 24	34	2.09	- .95	.52	..	12	10	14	6	SW	
Hanlontown	Worth	.....	..	58.4		82	1, 22	32	24	32	4.03		.75	....	13	14	8	8	S	11, 12, 13, 30
Humboldt	Humboldt	1,095	10	61.0	-1.6	90	21	35	24	34	5.23	†1.76	2.70	...	9	13	5	12	NW	
Larchwood	Lyon	.....	....	60.0	....	85	22	28	16	39	1.92	.....	.83	..	8	12	11	7	N, S	11
Larrabee	Cherokee	1,386	...	58.8	.....	86	2	29	16	36	8.79	.....	4.09	..	12	13	10	7	SW	6, 7, 11, 12, 13, 30
Le Mars	Plymouth	1,224	6	57.8	-5.8	84	1, 25	32	16	34	3.80	† .85	1.35	....	7	13	8	9	S	
Mason City	Cerro Gordo	1,132	...	60.4	.....	82	2, 22	38	18	30	4.04	.....	1.25	....	10	8	14	8	S	6, 7, 11, 14
New Hampton(b)	Chickasaw	1,169	....	57.0	.....	80	2, 22	31	18	31	1.66	.....	.40	....	7	13	5	12	NW	
Northwood	Worth	1,222	6	58.0	-2.8	80	22	34	18	28	4.46	† .80	1.17	....	13	11	9	10	SE, SW	2, 3, 4, 6, 11, 13, 30
Osage	Mitchell	1,184	11	58.0	-1.5	81	2	32	18	33	3.86	† .26	1.21	....	14	11	4	15	S	2, 4, 6, 7, 11, 13, 26
Plover	Pocahontas	1,190	5	59.6	-5.3	86	2	33	24	34	5.65	†1.64	1.52		9	15	6	9	S	11, 13, 14
Primghar	O'Brien	.....	....	58.5	.....	83	1	35	24, 27	34	3.79	.....	1.00	....	7	13	0	17	S	
Ridgeway	Winneshiek	1,215	....	61.0	...	85	25	32	18	37	3.13	.....	1.00	.	17	14	10	6	S	2, 3, 4, 6, 7, 8, 11, 12, 13 14, 15, 26
Ruthven	Palo Alto	.....	....	60.0	...	85	2	34	16	34	4.91	.....	1.10	....	7	12	6	12	S	
Sheldon	O'Brien	1,422	..	59.1	.....	84	2, 22	30	16	39	1.84		.77		9	....	..	...	S	
Sibley	Osceola	1,512	8	56.2	-5.5	84	22	30	16	36	2.80	- .26	.66	....	11	14	6	10		
Sioux Center	Sioux	.....	...	59.0	.....	83	1, 2, 21, 25	30	16	36	1.51	.....	.45	....	8	14	6	10	S	2, 7, 11, 13
Storm Lake	Buena Vista	1,440	7	57.6	*5.9	82	3	32	16	35	6.49	†3.47	2.66	....	13	17	4	9	SE	6, 7, 12, 13, 14
Washta	Cherokee	1,157	....	.....	.....	.....	.....	.....	.....	.....	5.19	.....	1.25	....	10	13	10	7	S	
Waverly	Bremer	942	6	60.7	-2.5	82	21, 22	34	24	34	1.76	-1.26	.41		9	14	4	12	S	4
West Bend	Palo Alto	1,197	8	59.1	-2.1	84	2	30	27	31	5.47	†2.26	1.48	..	12	12	7	11	S	7, 11, 13
Average				59.0	-3.6	84.8	.....	32.5	....		34.8	3.94	† .58	.....	...	10	13	7	10	S	.....

CENTRAL SECTION.

Amana	Iowa	721	25	61.8	-0.4	84	7, 8	33	18	32	4.43	†1.19	1.07	....	11	18	12	5	S	6, 7, 8, 12, 14, 30
Ames	Story	926	20	60.5	-3.1	82	2, 25	34	18	36	1.46	-2.15	.45	....	7	16	8	6	SE	
Baxter	Jasper	998	..	60.6		83	8	33	24	31	1.77	.....	.72	..	5	12	12	6	SW	
Belle Plaine (†)	Benton	828	12	58.8	-5.3	84	3	36	24	30	3.97	†1.30	.90	...	10	11	12	7	SE	
Buckingham	Iowa		....	.....	.....	....	.....	.....	.....	.....	2.19	.....	.62		9	13	13	4	.....	
Carroll	Carroll	1,265	12	60.2	-3.2	86	26	30	24	39	1.74	-1.19	.32	....	12	18	4	8	.....	
Cedar Rapids	Linn	733	19	61.8	-2.0	86	8, 9	37	18	32	4.06	†1.38	1.56	....	13	12	8	10	S	
Clinton	Clinton	609	34	62.2	-1.1	86	7	32	18	35	6.12	†3.02	2.44		9	14	4	12	SW	9, 26
Davenport	Scott	606	31	63.8	-0.9	86	7	40	18	28	7.09	†3.91	3.54	....	11	14	6	10	S	7, 8, 9, 10, 14, 15, 26
Delaware	Delaware	1,083	11	59.0	-2.8	82	7	33	18	31	3.78	† .56	1.04	..	10	14	10	6	S	
Des Moines	Polk	841	24	61.9	-1.3	84	25	39	18	33	1.62	-1.47	.53	....	12	11	6	13	SW	5, 7, 13, 14, 15
De Soto	Dallas	866	....	62.4		84	25	36	16, 18, 24	32	1.81	.....	.53	....	7	16	2	12	SW	
Dubuque	Dubuque	655	29	61.8	-1.4	84	7	35	18	28	3.20	- .89	.77	..	12	15	8	7	S	4, 6, 7, 8, 10, 12, 14, 26
Fort Dodge (c)	Webster	1,126		61.4	....	84	22	31	24	31		.....	.....	.		....	..	....	.....	
Galva (b)	Ida	1,290	8	58.6	-6.7	84	3	31	16, 27	40	4.25	†1.35	2.00	....	5			....	SW	
Gilman	Marshall	1,052			.....	.....	.....	.....	.....		2.21	.....	.47	....	11	12	7	11	S	
Grinnell(near)	Poweshiek	.....	....	60.6	.....	83	3, 7	34	18	43	3.63		1.58	....	12	14	4	12	SW	7, 8, 12, 14
Grundy Center	Grundy	976	11	60.4	-2.9	82	2, 3, 21, 22	34	18, 24	34	4.23	†1.03	1.42	....	11	14	4	12	S	6, 7, 9, 12
Guthrie Center(†)	Guthrie	1,077	6	60.6	-3.7	87	7	32	16	32	2.88	- .29	1.22	....	7	15	10	5	SE	
Harlan	Shelby	1,192	....	59.7	.....	84	3, 7	31	16	35	1.90	.....	.50		10	12	10	8	S	7, 9, 10, 11, 12, 30
Independence	Buchanan	921	38	59.4	-2.3	81	3, 7, 8	32	18	31	3.05	-1.07	1.50	...	8	13	7	10	SW	4, 7, 14
Iowa City	Johnson	685	43	61.8	-1.7	87	7	34	18	41	5.38	†1.55	1.98	....	11	9	8	13	S	
Iowa Falls	Hardin	1,170	9	57.8	-4.8	83	8	31	18, 24	47	1.45	-1.85	.74	....	10	15	3	12	S	6
Jefferson	Greene	1,052	....	...	.....	.....	.....	.....	.....	...	4.24	.....	1.83	....	11	....	....	....	S	7, 12, 14, 15
LeClaire	Scott	578	....	.....	.....	....	.....	.....	.....		8.23	.....	2.43	....	10	....		....	SW	
Logan	Harrison	928	35	61.8	-2.4	94	1	34	16	44	1.66	-1.44	.95	....	5	18	2	10	S	
Maquoketa	Jackson	688	9	60.5	-3.7	86	7	30	18	47	3.48	† .62	1.48	....	8	16	6	8	SW	
Marshalltown	Marshall	947	9	60.6	-4.1	87	21	33	18	51	3.07	† .70	.97	....	15	10	6	14	NW	
Monticello (‡)	Jones	925	48	.....	.....	.....	.....	.....	.....	...	4.57	† .66	1.17	....	10	13	5	12	SW	
Mt. Vernon	Linn	847	35	61.5	-1.2	84	7	33	18, 24	33	4.64	†1.96	1.00	....	14	13	6	11	S	
Newton	Jasper	944	14	61.1	-2.1	81	2	37	18, 24, 27	33	2.41	- .70	.74	....	8	16	4	10	S	
Odebolt	Sac	1,356	5	60.6	-2.5	85	1, 2, 3	32	24	34	4.68	†1.73	1.65	...	8	17	4	9	.....	
Ogden	Boone	1,088	8	60.2	-5.0	90	4, 5	30	27	45	2.10	-1.77	.90	..	7	16	3	11	SE	
Olin (a)	Jones	760	....	62.0	....	85	8	32	18	30	3.42	.....	1.45	....	6	....	....	....	S	7, 8, 9, 12, 30
Onawa	Monona	1,053	.	63.5	.....	86	25	35	16	34	4.30	.....	1.08	..	11	20	2	8	SE	7, 11, 13, 14, 30
Perry	Dallas	975	....	61.4	.....	84	6, 8, 25	33	18	35	2.08	.....	.76	....	8	10	7	13	.....	
Rockwell City	Calhoun			65.6	....	85	2	34	16	33	5.26	.....	2.85	...	9	16	7	7	.....	
Sac City	Sac	1,278	22	59.4	-4.0	84	3	32	16	33	4.22	† .91	1.02	..	12	14	3	13	S	6, 7, 11, 12, 13
Sioux City	Woodbury	1,165	13	60.8	-4.4	86	25	33	16	37	3.06	† .97	.76		9	13	6	11	S	
Stuart	Guthrie	1,216	5	60.8	-6.6	85	3, 7	34	16	33	3.54	†1.63	.95	..	7	20	2	8	SW	
Tipton	Cedar	807	..	64.1	.....	87	7	35	18	30	5.30		1.30	..	11	13	10	7	S	
Toledo	Tama	856	8	61.0	-3.6	83	21	31	18	38	2.64	- .30	.72	..	12	14	7	9	SW	
Vinton*§	Benton	810	12	60.7	-2.5	82	21, 22	36	24	....	4.42	†1.67	1.01	....	10	17	5	8	SE	
Waterloo	Black Hawk	862	15	60.2	-2.2	88	2	33	18	34	2.75	-1.39	.66	..	9	10	11	9	S	7
Waukee	Dallas	1,039	....	.....	.....	.....	.....	.....	.....		1.42	.....	.39	....	8	18	2	10	S	7, 14, 30
Wilton Junction	Muscatine	683	7	63.6	-1.2	85	7, 8	34	18	31	4.93	†1.86	2.48		9	15	0	15	S	7, 30
Whitten (b)	Hardin	1,036	..	59.4	.....	82	2, 3	33	18, 24	30	2.82	....	1.82	....	7	...	....	....	S	
Average				61.1	-2.9	84.8	.....	33.4	....	...	35.3	3.46	† .40			10	16	6	9	S	.....

CLIMATOLOGICAL DATA FOR SEPTEMBER, 1903—CONTINUED.

SOUTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted)		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Afton	Union	1,212	7	61.0	-4.9	84	3	34	18	33	3.38	- .06	71		9	14	3	13	SW	
Albia	Monroe	957	...	62.0	.....	87	7,8	31	24	36	5.02	.....	1.42	..	13	....	....		SE	
Allerton	Wayne	...	....	62.4	.....	85	7	35	17	36	6.90	.....	2.61		11	15	5	10	S	5, 8, 9, 14, 15, 26
Atlantic	Cass	1,164	11	61.5	†2.4	87	8	30	27	36	2.01	- .49	.60		10	10	4	16	S	7, 13, 30
Audubon	Audubon	1,301	8	60.2	-3.7	86	8	30	16,24,27	39	2.78	† .00	.79	..	10	14	3	13	S	7, 13, 14
Bedford	Taylor	.....	....	61.9	.....	83	25	32	27	36	4.00	.....	1.18	....	10	15	3	12	S	
Belknap	Davis	877	7	66.2	-1.6	87	19	40	17	42	5.08	†1.65	2.50	....	10	....	....		S	
Bonaparte	Van Buren	.....	10	63.7	-4.6	84	3	36	18	31	5.95	†1.89	3.08	....	7	....	....		.....	
Burlington	Des Moines	544	....	66.1	.....	88	7	40	18,24	31	5.81	.....	2.51	..	9	17	6	7	S	
Chariton	Lucas	1,042	7	62.0	-4.5	87	2	35	17,18.24,27	34	2.78	- .18	1.15	....	6	14	11	5	SE	
Clarinda	Page	1,069	12	61.4	-5.8	88	3,25	35	16,24,27	51	2.46	† .08	.63	.	9	13	7	10	S	
College Springs	Page	.....	10	62.7	-5.4	84	3,7,8,25	35	16	31	2.99	† .64	.94	....	7	18	4	8	SE	
Columbus Jct.‡	Louisa	595	....	63.2	.....	84	7,8	37	18,24	28	5.48	.....	2.00	.	10	15	10	5	SE	
Corning	Adams	1,127	10	60.7	-5.1	81	3,7,8	34	24	30	3.47	†1.27	1.30		9	13	9	8	SW	5, 14
Corydon	Wayne	992	9	62.4	-4.8	84	7	36	17,24	35	5.16	†1.72	2.35	..	10	16	2	12	S	8, 9, 14
Council Bluffs‡	Pottawatt'mie	990	5	.....	.....	.....	.....	32	16	.....	1.71	-1.64	.62		6	18	2	10	NW	
Cumberland	Cass	.....	....	.....	.....	.....	.....	....	.....	....	1.70	.....	.60	...	8	14	7	9	SW	
Earlham	Madison	.....	...	59.8	.....	83	8	31	18	37	1.91	.....	.51	....	10	16	4	10	S	7, 30
Fort Madison	Lee	516	51	.....	.....	.....	.....	.....	.....	.....	6.37	†2.55	2.11	....	7	13	7	10	SW	
Greenfield	Adair	.....	11	61.4	-4.1	82	2,22,25	33	16	41	2.15	- .85	.62		12	15	6	9	S	4,5,7,9,11, 12,13,15
Hopeville.(a)	Clarke	.....	11	61.6	-5.0	83	6,7,8.25	36	16,17	31	3.97	† .90	.74	....	9	13	5	12	S	
Indianola	Warren	969	11	62.1	-3.9	84	3,6	36	18,24	33	4.23	†1.09	2.00	...	11	10	10	10	SE	4,7,8,9,13, 14,15
Keokuk	Lee	619	31	65.6	-0.8	89	7	41	24	30	7.16	†3.64	2.79	....	10	15	5	10	S	5,7,8,9,12, 14,15,26,30
Keosauqua	Van Buren	664	10	63.1	-4.9	86	8	37	18	40	6.50	†1.99	3.43	....	10	10	6	14	.....	
Lacona	Warren	.....	1	.....	....	.....	.....	.....	.....	.....	4.15	.....	1.02	.	11	6	2)	4	.....	
Lenox	Taylor	1,250	7	61.8	-4.3	83	25	35	16	33	3.70	† .91	1.20	..	11	19	4	7	S	
Mt. Ayr	Ringgold	1,236	8	62.9	-4.5	85	25	36	16	32	5.88	†3.17	1.80	..	11	13	4	13	SW	
Mt. Pleasant	Henry	729	20	62.6	-2.3	87	14	33	17,18	32	6.15	†2.98	2.70	....	9	15	10	5	SW	
Omaha, Neb.	Douglass	1,113	32	63.2	-1.6	87	25	36	16	31	2.50	- .41	1.08		11	12	6	12	S	5, 7, 9, 12, 13
Osceola	Clarke	1,130	6	63.8	-2.1	86	8,9	35	16	38	3.61	- .11	.69		10	16	4	10	SE	
Oskaloosa	Mahaska	843	18	61.9	-2.6	84	7	36	17,18,24	32	3.12	† .10	1.25	....	10	16	0	14	SW	
Pacific Junction	Mills	960	....	61.3	.....	84	6,11,25	33	16	36	2.49	.....	1.35		7	14	7	9	S	
Red Oak	Montgomery	1,033	...	63.0	...	82	7	39	16	28	2.84	.....	1.12	.	9	11	12	7	S	5, 7, 9, 13, 14, 26
St. Charles	Madison	1,070	...	63.0		84	3	36	16	32	2.70	.....	.68	....	13	16	8	6	SW	
Sigourney‡	Keokuk	787	6	63.0	-3.0	88	3,7,8,20	34	18	45	6.86	†4.02	2.26	....	9	17	8	5	SW	7, 8, 9, 12, 14, 15
Stockport	Van Buren	.....	....	.....	.....	.....	.....	.....	.....	.....	7.34	.....	2.29	..	9	13	8	9	S	8, 9, 14, 26
Thurman	Fremont	.....	....	62.2	....	85	25	32	27	30	2.87	.....	1.02	....	9	18	5	7	SW	
Wapello (a)	Louisa	588	....	62.9	.....	82	7	38	18	25	5.47	.....	2.15	....	9	....	..	....	.....	4, 9, 14, 15, 26
Washington	Washington	769	20	61.0	-3.7	87	7	34	18,24	40	4.76	†2.38	1.55	....	9	..	....	....	SW	
Woodburn	Clarke	961	....	.....	....	.....	.....	.....	.....	.....	5.02		1.20	....	9	14	2	14	SW	7
Average	.....	.....	..	62.4	-3.4	84.9	.....	35.0	.....	34.2	4.09	†1.09	.....	....	9	14	6	10	S	
Average for state	.....	.....	....	60.8	-3.3	84.8	.....	33.6	.....	34.8	3.81	† .69	.....	...	10	14	6	10	S	

* Means determined from 7 A. M., 2 P. M. and 9 P. M. observations, and maximum and minimum are taken from eye readings. † Above normal.
‡ Received too late to be computed with means. (a) One day missing; (b) two days, etc. § Not supplied with self-registering instruments.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR SEPTEMBER, 1903.

STATIONS.		DATE.																													MEAN.
		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.....	Max..	78	81	84	74	67	82	83	83	72	70	81	79	77	72	54	54	55	67	75	77	71	81	74	66	82	72	67	73	65	69	..	72.8
	Min .	49	53	55	59	53	53	64	59	56	46	57	62	48	49	46	35	36	34	48	52	53	54	49	36	49	47	38	39	42	59	..	49.3
Albia.....	Max..	82	84	85	74	64	85	87	87	66	75	80	80	75	68	56	48	57	69	78	76	82	83	64	67	83	65	69	75	68	..	..	73.5
	Min .	54	57	48	60	55	55	63	63	64	48	49	56	53	55	52	42	37	38	41	53	57	57	55	31	37	53	39	42	48	50	..	50 4
Algona..	Max	80	85	80	70	72	74	79	79	70	73	66	75	60	49	50	50	53	65	74	76	80	80	78	70	80	76	63	71	69	70	..	70.6
	Min .	52	60	61	64	50	54	63	59	57	46	51	57	39	42	44	39	40	37	47	53	58	57	42	36	49	49	38	43	46	58	..	49.7
Allerton .	Max..	81	82	83	75	66	84	85	84	70	74	82	78	79	71	55	52	57	68	77	77	80	81	69	67	83	75	70	74	69	70	..	73 9
	Min ..	50	55	56	63	55	57	64	60	56	47	55	64	54	53	51	38	35	37	49	54	52	54	53	36	47	49	36	43	49	58	..	51.0
Alta. . ..	Max..	80	80	80	65	69	77	77	77	62	72	72	72	45	47	46	54	50	67	74	76	80	80	67	66	81	70	67	74	68	64	..	68.6
	Min ..	53	61	59	54	48	55	57	50	49	44	51	45	38	42	39	32	38	36	49	55	56	58	42	35	53	39	34	39	49	56	..	47.2
Amana. .	Max..	78	82	83	72	72	76	84	84	73	71	76	80	71	70	64	53	55	65	75	77	79	79	68	63	79	71	62	71	70	71	..	72 5
	Min ..	49	53	58	61	54	56	64	61	59	50	52	65	50	57	53	45	38	33	46	54	53	55	51	37	47	48	36	44	45	56	..	51.1
Ames	Max.	78	82	81	75	68	79	79	81	71	72	75	73	63	62	52	52	52	66	75	77	81	81	70	65	82	74	68	72	63	68	..	71.2
	Min ..	52	58	59	61	55	57	59	57	56	49	52	62	44	43	42	41	40	34	44	53	55	55	49	36	46	47	39	42	47	59	..	49.8
Atlantic..	Max..	81	83	85	75	64	84	83	87	71	74	82	77	61	60	52	68	56	63	79	79	84	85	72	68	86	75	70	77	64	73	..	73.9
	Min ..	50	58	61	58	55	59	63	51	53	39	53	61	43	46	46	32	34	33	52	56	56	59	47	33	52	45	30	37	50	60	..	49.1
Audubon.	Max..	82	83	83	73	63	84	82	86	69	73	79	76	60	60	51	58	54	70	79	79	84	84	70	69	85	74	70	78	64	73	..	73.2
	Min ..	46	57	60	58	54	58	61	48	49	42	50	60	42	43	44	30	36	31	41	54	51	55	45	30	50	45	30	39	49	59	..	47.3
Baxter. ..	Max.	77	82	80	74	70	80	80	83	70	72	78	77	70	70	55	50	50	65	75	78	82	80	73	64	80	62	64	73	65	68	..	71 6
	Min .	51	56	57	58	54	58	65	59	57	47	53	60	45	48	47	41	37	86	45	55	54	55	50	33	47	42	36	42	46	57	..	49.7
Bedford ..	Max..	77	80	82	76	69	82	81	81	72	71	81	76	77	74	53	51	67	67	76	76	81	72	71	81	83	74	68	74	63	71	..	73.6
	Min .	47	56	56	68	56	60	67	56	57	42	55	61	49	49	47	35	36	35	50	53	55	33	51	55	50	48	32	38	59	59	..	50.2
Belknap..	Max..	75	80	82	70	68	81	86	85	75	76	82	83	82	83	70	70	67	67	67	79	82	85	65	72	78	70	70	78	75	86	..	77.0
	Min ..	57	60	64	66	58	58	63	68	62	54	58	58	59	62	55	45	40	45	45	57	58	58	59	41	42	66	42	51	54	57	..	55.4
Bonapar'e	Max..	81	83	84	80	70	84	88	85	72	74	80	85	78	83	68	58	59	67	78	80	82	83	66	67	82	71	67	75	73	74	..	75.7
	Min .	48	53	56	61	56	58	63	63	62	50	51	69	56	64	53	44	37	36	48	52	53	53	51	37	46	50	38	44	45	55	..	51.7
Britt. ...	Max.	80	85	83	65	68	75	79	82	65	73	69	74	57	49	53	53	54	65	74	72	81	82	68	64	80	73	62	68	71	67	..	69.7
	Min ..	48	60	58	54	50	53	64	51	53	40	50	57	34	43	44	40	39	33	47	53	57	57	43	32	4	47	33	41	45	59	..	47.7
Burling'n	Max	79	83	84	84	70	82	88	83	74	75	81	85	78	83	68	55	58	67	79	81	84	83	71	69	80	71	66	78	72	75	..	76.2
	Min .	52	63	62	63	62	59	66	67	64	54	55	70	63	66	54	46	41	40	51	54	53	57	55	40	59	51	50	51	56	57	..	56 0
Carroll ...	Max..	82	82	83	72	71	82	80	83	68	73	76	72	52	50	52	60	57	69	78	80	82	84	62	68	86	58	71	77	68	..	..	71.7
	Min ..	52	60	61	56	52	55	62	50	50	49	50	65	37	42	45	30	37	35	48	55	57	56	44	32	54	50	34	38	46	56	..	48.6
Cedar R..	Max.	80	85	84	69	71	75	86	86	66	75	75	83	70	71	58	51	53	66	78	80	83	83	63	65	81	68	64	73	73	71	..	72.9
	Min ..	51	52	60	61	54	55	56	63	64	52	52	55	51	52	55	45	40	37	38	50	57	58	57	38	39	49	40	42	47	49	..	50 6
Chariton .	Max.	79	87	83	72	68	83	84	86	73	74	81	78	77	76	54	54	57	67	76	77	80	81	72	61	82	70	69	70	70	70	..	73.7
	Min ..	49	54	55	61	54	57	62	60	56	46	55	62	52	52	50	38	35	35	50	54	52	55	52	35	49	47	35	44	47	57	..	50.3
Charles C.	Max	79	83	81	67	67	69	81	81	64	73	72	78	60	54	54	52	54	64	75	77	80	81	58	63	80	60	61	66	72	..	..	69.2
	Min .	47	50	51	49	52	51	55	58	53	46	46	52	41	46	48	43	36	32	33	33	57	55	50	32	36	45	35	41	41	47	..	45.4
Clarinda..	Max..	84	85	88	76	68	87	85	85	65	78	86	74	77	56	53	61	61	74	80	80	83	86	67	72	88	59	75	80	62	..	..	74 0
	Min ..	51	54	56	59	55	61	64	57	62	44	46	59	50	50	48	35	37	37	39	48	52	57	51	35	37	49	35	48	39	50	..	48.8
Clear L...	Max.	78	87	85	76	78	74	79	86	71	76	65	71	62	52	51	53	52	69	76	80	84	82	70	67	83	73	64	72	70	65	..	71.7
	Min ..	54	58	61	56	50	51	62	55	51	48	48	60	38	42	44	39	38	37	44	54	55	58	45	33	49	43	37	39	40	56	..	48 1
Clinton...	Max..	78	82	85	71	73	75	86	84	72	74	81	85	76	85	74	56	57	65	76	78	81	80	67	62	78	72	61	70	74	70	..	74 3
	Min ..	46	53	57	58	55	55	59	63	61	53	48	64	55	55	55	49	40	32	44	51	49	49	47	38	43	49	37	43	42	56	..	50.2
College S.	Max..	78	81	84	75	68	83	84	84	72	69	83	74	78	72	53	56	56	67	76	77	80	82	68	66	84	72	69	75	62	75	..	73.4
	Min ..	52	54	58	60	53	58	62	59	56	46	54	51	59	56	46	35	37	39	49	54	55	56	..	38	49	44	38	43	50	60	..	50.8
Colum. J.	Max.	77	81	83	75	70	78	84	84	75	72	78	82	78	83	72	55	57	65	75	77	79	80	69	64	77	72	62	71	72	72	..	74.0
	Min .	51	55	58	61	56	56	63	64	51	50	52	68	56	66	52	45	38	37	50	55	55	55	54	37	46	52	39	45	48	46	..	52.3
Corning ..	Max..	77	79	81	77	67	80	81	81	69	69	79	75	75	70	58	59	55	66	75	75	79	80	68	64	73	72	67	72	62	70	..	71.7
	Min .	53	57	52	59	53	59	66	59	54	43	53	56	49	47	45	35	35	38	51	53	55	57	50	34	..	43	35	41	51	59	..	49.7
Corydon..	Max	78	82	83	74	66	83	84	83	71	74	81	78	77	72	55	52	58	62	76	77	80	81	73	62	83	76	71	74	69	68	..	73.4
	Min .	52	56	56	62	55	57	64	61	56	47	55	62	53	53	50	38	36	37	50	54	59	56	51	36	48	50	37	44	49	57	..	51 4
Davenpo't	Max..	77	82	83	72	71	73	86	83	72	73	78	83	73	83	68	54	55	64	76	78	81	81	66	63	78	71	62	72	72	72	..	73.4
	Min ..	53	60	63	62	56	56	64	66	63	54	56	65	60	66	54	45	41	40	52	56	59	57	47	51	50	47	41	48	50	58	..	54.3
Decorah. .	Max..	77	79	78	67	66	62	78	77	71	73	69	78	64	67	62	50	51	62	74	75	78	81	74	60	77	77	57	53	71	63	..	69.0
	Min ..	49	62	63	53	53	47	60	63	57	51	55	59	45	48	48	42	38	32	47	58	56	55	45	33	50	45	39	40	45	57	..	49.8
Delaware.	Max..	75	79	80	70	67	68	82	81	68	70	73	72	69	71	64	52	52	62	74	75	78	78	68	61	77	70	59	64	70	68	..	69.6
	Min .	49	57	58	58	50	52	60	60	56	48	48	62	44	50	50	43	35	33	43	53	53	53	43	34	44	47	34	41	42	52	..	48.4
Des M....	Max..	78	82	82	73	65	82	81	82	68	73	77	77	72	55	54	53	53	67	77	78	81	82	68	65	84	73	68	75	65	68	..	71.9
	Min ..	54	58	59	61	56	60	67	60	54	49	54	60	51	50	45	40	42	39	49	56	58	58	49	39	51	43	40	48	48	59	..	51.9
De Soto...	Max..	80	81	81	74	64	82	81	83	72	73	81	77	66	64	53	55	55	68	76	78	82	82	71	68	84	75	70	76	65	70	..	72.9
	Min ..	52	58	62	61	56	60	67	59	56	47	54	62	56	49	48	36	42	36	48	56	57	58	50	36	52	48	38	46	48	60	..	51.9
Dows. ...	Max	79	83	82	75	67	74	79	82	73	73	71	74	60	52	57	52	52	66	74	77	80	80	71	63	81	73	64	70	69	68	..	70.7
	Min ..	49	59	59	57	51	54	63	54	52	45	50	59	39	44	46	40	37	33	46	56	56	57	46	34	47	46	34	40	44	57	..	48.5
Dubuque.	Max..	77	81	82	72	68	68	84	82	69	75	74	83	71	71	67	53	54	63	75	77	81	81	68	61	77	69	59	65	72	66	..	71 8
	Min .	51	60	61	59	52	56	62	65	56	52	54	65	51	55	51	46	40	35	50	56	57	56	48	40	50	48	39	45	45	56	..	52.0
Earlham .	Max.	78	81	82	72	63	82	82	83	70	72	80	76	71	63	52	53	54	67	76	77	81	81	70	65	82	72	69	74	63	70	..	72.0
	Min .	45	54	59	57	48	56	65	56	54	44	49	59	41	45	45	32	35	31	46	53	54	55	46	30	49	45	32	42	48	57	..	47 7
Elkader ..	Max..	82	86	82	75	80	70	81	86	75	76	76	75	70	65	60	60	55	65	78	81	86	82	69	66	80	65	62	67	74	66	..	73.2
	Min ..	47	59	64	60	53	48	65	61	57	48	50	64	45	51	51	45	34	31	47	58	55	52	52	33	48	48	36	43	38	55	..	49.9
Esthervi'e	Max.	74	84	73	65	65	74	80	78	67	75	72	75	47	48	47	54	54	67	75	78	80	83	55	65	81	64	63	71	72	..	..	68.5
	Min .	57	57	59	49	49	51	63	51	50	46	48	52	36	40	42	38	38	35	42	50	51	53	40	32	37	48	37	38	40	47	..	45.9
Forest C'y	Max.	78	81	82	67	74	68	80	82	64	76	72	74	52	50	50	53	53	66	76	79	82	82	56	65	84	59	62	59	72	66	..	68.8
	Min ..	50	53	59	55	50	50	64	52	54	42	44	51	38	42	44	39	39	34	36	47	57	56	44	34	35	50	33	31	32	35	..	45.0
Ft. Dodge	Max.	81	83	74	71	69	77	78	82	79	72	72	..	..	..	..	..	..	54	69	71	79	83	84	70	67	68	64	68	75	67	68	..	73.0
	Min ..	50	60	59	56	51	56	64	51	53	45	54	..	..	..	..	..	..	41	39	50	56	59	61	46	31	38	36	38	42	49	61	..	49.8
Galva.....	Max	81	..	84	75	68	79	81	81	69	..	73	74	60	48	48	54	57	67	75	75	80	81	57	65	81	71	69	75	69	69	..	70.2
	Min	53	..	57	54	49	54	63	48	50	..	49	58	36	41	44	31	..	35	49	53	56	56	42	32	51	39	31	35	46	59	..	47.1
Grand M.	Max..	75	79	69	68	69	65	78	77	70	70	71	77	66	60	60	51	51	61	72	76	78	78	68	60	78	70	56	63	70	65	..	68 4
	Min ..	50	59	63	55	50	50	59	62	58	50	52	60	43	46	50	43	36	35	46	56	56	54	48	35	49	46	36	43	44	55	..	49.6
Greene...	Max.	79	84	82	73	62	72	82	83	75	74	68	76	63	55	57	50	53	66	76	80	83	82	73	66	81	73	63	69	74	67	..	71.4
	Min ..	49	59	61	58	51	52	63	58	55	47	51	65	41	46	48	41	37	33	44	54	57	56	48	34	47	47	36	41	44	57	..	49.3
Greenfi'ld	Max..	76	80	82	76	61	80	80	79	75	69	79	75	78	68	52	52	54	65	73	75	78	82	74	65	82	75	75	70	68	70	..	72.3
	Min .	54	56	60	59	55	52	66	59	56	46	53	62	46	46	45	33	37	37	50	55	57	59	47	37	51	45	34	46	49	59	..	50.4
Grinnell.	Max	..	..	..	..	..	..	..	..	..	..	..	.	..	..	57	52	53	64	74	75	79	78	72	61	78	72	62	71	..	..	..	....
	Min ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50	41	38	38	48	55	57	47	51	36	48	48	39	45	..	..	..	....
Grinnell (near)..	Max..	75	82	83	72	70	81	83	82	74	67	75	77	72	68	55	51	52	65	73	75	78	79	73	62	79	73	62	70	68	68	..	71.5
	Min	51	58	57	60	53	53	63	60	55	47	51	60	47	50	50	41	36	34	45	54	55	55	51	36	36	45	36	43	45	57	..	49.6
Grundy C	Max..	78	82	82	73	69	75	81	81	69	73	74	76	60	64	55	51	56	65	75	78	82	82	71	64	81	72	65	74	71	65	..	71 5
	Min ..	50	58	60	59	50	55	65	59	55	46	50	59	42	48	49	41	35	34	48	51	56	57	46	34	49	46	35	40	45	56	..	49.3
Guthrie C	Max.	81	82	79	82	68	75	87	72	72	72	78	70	66	60	52	53	55	66	75	76	79	72	70	65	83	77	67	74	75	66	..	71.6
	Min ..	50	60	53	60	56	59	54	54	46	53	54	60	42	46	48	32	40	35	48	56	56	56	47	34	53	48	35	49	45	59	..	49.6
Hampton .	Max.	81	86	86	74	71	79	81	86	73	77	77	68	60	52	52	52	54	70	78	82	85	85	70	68	84	72	67	75	75	67	..	72.8
	Min ..	52	59	62	59	53	55	64	56	56	48	52	60	40	45	46	41	39	36	48	56	57	59	48	36	50	46	37	49	45	48	..	50.1
Hanlont'n	Max.	82	77	80	64	65	70	79	80	68	73	66	72	58	50	50	51	52	65	74	77	81	82	70	64	81	72	62	67	72	68	..	68.9
	Min ..	52	56	62	55	50	49	63	53	53	44	49	58	38	44	44	40	39	34	45	54	55	59	44	32	50	48	35	38	40	57	..	48 0
Harlan....	Max.	79	81	84	73	63	84	82	83	67	72	80	75	56	49	51	55	54	66	76	76	80	83	65	82	72	69	74	63	70	..	..	71.6
	Min ..	49	54	57	58	55	59	63	50	52	41	52	56	43	44	45	31	35	34	45	50	53	55	46	33	47	48	33	39	46	60	..	47.8
Hopeville.	Max..	79	82	82	72	61	83	83	83	68	72	81	74	77	70	54	52	55	68	76	78	81	82	69	68	83	71	68	74	65	68	..	72.6
	Min ..	52	54	56	60	54	58	66	61	54	46	55	62	62	51	47	36	36	37	48	54	54	56	48	37	48	42	38	43	48	59	..	50.7
Humboldt	Max.	81	84	82	75	71	78	80	81	71	73	68	74	65	51	53	58	52	66	75	77	90	82	73	65	82	78	63	72	69	68	..	71.9
	Min ..	51	60	62	59	51	56	64	53	53	45	54	64	40	45	45	41	40	36	47	55	56	60	45	35	50	50	39	40	47	60	..	50.1
Indep'nce	Max..	77	80	81	71	66	71	81	81	70	72	72	75	68	66	62	51	52	63	75	76	80	80	67	63	78	70	62	68	70	65	..	70.4
	Min ..	48	56	58	59	52	52	62	57	56	49	49	48	43	48	44	43	37	32	44	53	55	53	50	34	43	48	37	41	42	55	..	48.3
Indianola.	Max..	80	83	84	72	64	84	74	83	71	73	79	78	75	69	54	52	54	68	77	79	82	83	70	67	83	74	68	75	65	68	..	72.9
	Min ..	51	56	58	61	55	59	65	61	57	47	53	64	48	50	48	37	39	36	50	56	55	57	56	36	50	47	37	44	47	59	..	51.3
Iowa City	Max.	81	85	85	74	74	79	87	86	69	76	80	82	73	76	61	53	55	63	78	80	83	83	63	66	81	70	65	75	73	75	..	74.4
	Min ..	49	49	58	59	54	55	56	64	67	51	51	54	52	54	57	46	39	34	37	46	53	53	53	37	37	46	38	39	45	47	..	49.3
Iowa Falls	Max..	79	82	82	70	69	76	79	83	67	73	76	75	63	54	53	52	52	65	74	77	82	81	59	64	81	57	64	71	71	..	..	70.0
	Min ..	45	47	59	59	50	51	57	56	52	45	46	53	39	45	48	41	36	31	35	47	54	54	47	31	34	48	34	38	39	47	..	45.6
Keokuk ..	Max..	78	83	86	82	74	85	89	80	71	75	82	85	75	83	66	51	57	66	77	79	80	81	68	65	80	72	65	73	72	74	..	75.1
	Min ..	53	59	64	66	60	59	67	69	68	55	56	73	64	66	55	46	41	42	51	56	56	58	56	41	50	51	42	52	50	58	..	56.1
Keosa'qua	Max..	81	84	85	81	70	84	86	85	69	75	80	84	75	84	63	50	59	67	75	78	80	81	67

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR SEPTEMBER 1903—CONTINUED.

STATIONS.		DATE.																													MEAN.
		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	
Le Mars..	Max..	84	83	80	65	70	80	79	76	72	73	72	74	56	48	48	54	53	67	74	76	81	80	75	84	84	75	70	73	69	69	..	70.5
	Min .	56	63	59	51	48	55	56	56	51	42	52	56	38	38	42	32	39	39	50	54	57	60	41	42	50	42	34	39	53	59	..	45.1
Lenox....	Max..	79	81	82	75	68	81	81	82	74	70	80	76	75	72	52	54	55	67	75	76	79	80	73	66	83	74	68	72	63	70	..	72.8
	Min ..	53	56	58	58	52	58	65	59	56	46	54	61	49	48	46	35	38	38	50	53	55	56	50	36	50	49	37	44	50	59	..	50.7
Logan....	Max..	94	90	92	93	93	90	92	84	78	80	82	76	50	45	50	55	57	67	76	80	81	82	83	76	82	70	72	68	72	76	..	76.2
	Min .	50	52	54	52	51	58	60	52	52	46	40	52	46	42	38	34	37	38	54	50	52	46	48	46	50	48	50	38	46	48	..	47.3
Maquo'ta.	Max..	79	82	83	74	73	71	86	85	67	77	78	84	75	81	68	54	59	60	76	78	83	82	68	65	80	73	64	73	74	..	..	74 2
	Min ..	44	49	55	56	51	54	54	62	63	50	46	48	51	54	61	47	38	30	41	46	49	47	47	32	33	47	30	38	39	39	..	46.8
Marshlt'n	Max.	81	81	85	76	74	80	83	85	63	77	77	79	69	57	57	51	58	69	79	81	87	85	64	69	86	65	69	78	72	.	..	73.7
	Min .	49	51	58	59	52	53	56	59	58	47	48	53	44	48	51	42	37	33	41	50	56	54	50	34	35	49	36	37	42	43	..	47.5
Mason C..	Max..	78	82	79	71	67	69	78	79	74	74	66	71	63	51	50	50	52	64	75	77	81	82	73	65	81	73	61	68	71	65	..	69.7
	Min ..	54	60	63	59	51	53	62	57	58	46	54	61	43	45	46	42	40	38	47	57	67	60	49	39	51	51	39	42	45	57	..	51.2
Mt. Ayr..	Max..	80	84	84	74	68	84	84	83	72	74	82	77	78	71	55	56	59	70	77	80	82	82	72	68	85	75	70	75	67	69	..	74.6
	Min ..	53	55	56	61	54	58	64	61	57	47	55	59	51	51	46	36	39	38	50	53	55	55	50	39	53	46	39	45	50	59	..	51.2
Mt. Pl'snt	Max.	77	80	83	79	68	81	86	85	75	71	81	84	77	87	73	55	59	64	74	75	78	79	67	62	77	73	62	71	72	74	..	74.3
	Min .	46	50	55	59	56	57	62	62	61	50	50	68	56	64	52	44	33	33	47	52	52	53	51	36	45	49	37	42	46	55	..	50.8
Mt. Ver'n	Max..	80	81	82	72	72	75	84	81	70	75	74	77	74	71	66	53	53	65	73	76	82	83	68	66	79	67	66	77	69	69	..	72 7
	Min .	51	56	52	62	51	53	62	61	57	50	50	70	49	57	53	43	36	33	46	53	61	54	46	33	44	47	38	43	45	54	..	50.3
New H. ..	Max.	75	80	78	71	64	67	79	79	72	71	72	76	63	54	54	50	51	62	74	76	79	80	..	61	79	73	57	64	73	64	..	68.9
	Min ..	48	58	59	55	49	49	49	..	53	45	49	49	39	44	44	40	34	31	43	52	55	..	45	32	33	46	38	39	43	..	..	45.0
Newton ..	Max.	76	81	80	75	69	80	79	79	72	69	75	76	70	69	56	52	52	65	74	76	79	80	73	63	80	75	64	71	66	67	..	71.5
	Min	52	56	58	59	55	58	64	59	57	47	52	62	47	50	50	41	39	37	47	54	54	55	50	37	47	48	37	43	48	57	..	50.7
Northw'd	Max.	76	78	78	65	64	69	77	77	70	71	67	72	61	51	50	51	51	61	72	74	78	80	70	63	78	70	58	65	70	63	..	67.7
	Min ..	49	60	62	55	51	50	62	54	55	48	50	59	41	43	45	40	39	34	44	53	55	56	45	36	47	46	36	39	43	56	..	48.4
Odebolt ..	Max	85	85	85	77	71	83	81	84	73	74	74	74	62	48	49	52	55	69	76	78	81	82	72	66	82	80	70	75	68	67	..	72.6
	Min .	52	63	59	52	51	56	64	50	51	47	52	60	38	42	44	37	39	35	50	54	55	52	44	32	52	48	38	37	48	59	..	48.7
Ogden....	Max.	82	79	90	90	80	84	82	85	66	76	78	78	62	55	56	58	55	68	76	79	85	87	85	68	88	60	72	78	68	70	..	74.6
	Min	42	48	57	57	57	56	58	54	52	41	42	52	38	43	44	34	36	34	56	46	55	55	44	35	45	50	30	33	40	44	..	45.9
Olin	Max..	75	80	82	76	70	72	83	85	74	70	78	80	73	78	..	68	59	62	75	70	75	80	63	61	76	69	60	67	71	70	..	72.5
	Min ..	47	55	55	60	54	54	60	60	59	60	50	70	52	59	..	47	36	32	45	65	55	55	51	35	43	53	36	45	43	55	..	51.4
Omaha, N	Max.	82	84	83	74	64	86	83	86	74	73	83	76	57	49	49	58	54	68	78	79	82	85	70	69	87	77	71	76	64	74	..	73.2
	Min .	59	62	64	60	55	61	66	60	53	49	57	57	45	44	44	36	37	43	54	57	60	61	50	44	56	49	42	50	56	60	..	53.1
Onawa....	Max..	85	85	85	79	66	83	82	84	77	75	76	76	68	48	49	59	57	70	79	81	84	83	77	71	86	79	75	76	67	69	..	74.7
	Min ..	57	63	62	59	56	60	66	55	58	47	56	60	45	42	43	35	42	44	51	55	59	61	48	42	52	52	39	46	54	61	..	52 3
Osage.....	Max	78	81	80	68	65	67	77	78	68	71	67	74	62	51	52	48	51	61	72	74	77	79	69	61	78	71	58	64	71	64	..	67.9
	Min ..	48	60	58	56	49	48	59	57	55	45	49	62	41	44	47	41	38	32	44	52	55	55	45	33	45	48	36	39	43	56	..	48 0
Osceola...	Max..	78	82	83	73	83	83	86	86	67	75	84	80	76	51	54	52	57	69	78	80	84	81	75	70	85	66	70	76	66	74	..	74.1
	Min .	50	53	57	59	54	63	66	63	64	47	49	58	50	49	50	35	36	56	38	51	56	56	52	37	37	53	39	45	45	53	..	53.4
Oskaloosa	Max..	78	81	82	74	66	81	84	82	74	72	75	79	72	68	57	51	54	65	66	73	79	79	70	64	79	73	65	7.	68	72	..	71.9
	Min	50	58	56	62	54	60	65	63	57	51	55	65	54	55	51	43	36	36	49	56	55	57	53	36	47	48	37	47	47	54	..	51.9
Pacific J'n	Max..	80	81	83	75	65	84	83	82	67	71	84	76	60	53	49	56	55	68	76	77	80	83	67	67	84	74	68	77	62	77	..	72.1
	Min ..	54	56	61	60	56	62	67	55	55	44	54	60	48	45	45	33	36	39	48	55	55	57	50	36	51	48	35	41	50	60	..	50.5
Perry.....	Max..	81	83	83	73	69	84	82	84	72	73	78	74	62	61	53	55	53	68	77	78	82	82	71	67	84	74	68	75	65	69	..	72 7
	Min .	51	59	61	61	56	59	65	56	51	46	52	62	44	47	47	36	41	33	45	51	57	57	48	36	50	46	37	42	46	60	..	50.1
Plover....	Max..	83	86	83	68	80	75	80	82	65	74	67	75	60	52	66	52	52	67	76	77	82	83	69	66	82	60	65	72	68	70	..	71.3
	Min ..	50	58	60	54	50	55	65	48	50	45	48	67	38	42	41	38	39	34	45	52	56	58	43	33	52	34	38	38	39	60	..	47 8
Primghar	Max..	83	82	78	64	69	77	77	79	66	72	65	71	58	46	46	55	56	67	70	75	80	81	70	66	78	72	67	73	68	65	..	69.2
	Min	54	63	59	51	51	55	55	59	53	46	50	37	37	44	42	30	37	37	56	54	55	58	39	35	52	38	35	42	50	59	..	47.8
Red Oak..	Max..	77	80	80	76	69	81	82	80	77	71	79	77	70	69	52	53	53	66	74	74	79	80	73	65	80	76	63	73	66	71	..	72.2
	Min ..	56	60	63	62	57	62	68	61	56	49	58	63	51	47	46	39	42	43	53	58	60	61	50	40	54	49	41	45	56	62	..	53.7
Ridgeway	Max..	77	80	80	72	66	66	83	81	70	76	72	78	66	60	59	50	51	62	78	80	83	82	70	69	85	72	64	67	77	69	..	71.5
	Min ..	52	64	64	57	53	49	59	63	56	49	54	60	44	47	48	44	40	32	47	57	60	56	47	37	48	45	36	41	46	57	..	50.4
Rockw'l C	Max..	83	85	83	79	72	74	80	83	74	73	71	74	67	50	53	54	50	67	75	78	82	83	72	66	82	75	70	75	68	70	..	72.3
	Min ..	53	60	60	58	52	55	57	53	50	45	50	63	41	43	45	34	39	39	45	49	55	55	45	38	49	49	36	41	45	58	..	48 8
Ruthven .	Max..	80	85	80	65	68	75	78	78	75	73	74	73	63	47	46	56	51	67	76	78	82	84	74	66	82	81	68	70	70	65	..	71.0
	Min ..	55	60	60	51	50	53	61	49	53	50	45	58	37	42	43	34	39	39	48	67	56	59	40	36	53	47	43	35	46	58	..	48.9
Sac City..	Max .	80	83	84	75	68	80	80	82	72	73	71	77	49	49	50	55	52	69	75	77	81	82	70	66	82	74	69	75	67	60	..	70.9
	Min .	51	62	58	56	52	55	64	50	52	47	49	..	39	43	44	32	38	36	46	56	54	56	44	35	51	45	36	39	45	58	..	48.4
St. Cha'les	Max .	79	82	84	74	61	83	81	83	70	72	80	77	75	70	58	51	56	64	76	79	82	82	70	70	83	74	70	76	76	68	..	73.6
	Min .	54	58	60	60	54	58	67	60	53	48	55	63	49	49	50	36	41	38	50	57	57	58	50	38	52	55	40	46	53	60	..	52.3
Sheldon ..	Max..	75	84	79	74	78	80	72	77	72	74	68	72	54	49	50	57	54	70	76	77	82	84	77	72	82	72	69	75	69	75	..	71 6
	Min .	55	60	57	50	50	52	62	48	51	44	48	50	35	39	42	30	35	40	42	55	53	57	39	33	50	46	33	40	46	55	..	46.6
S.bley	Max..	81	81	74	67	68	77	75	76	68	74	71	70	46	48	45	56	56	67	74	77	60	84	57	67	82	56	68	75	74	..	..	68.1
	Min ..	47	58	57	49	50	51	59	48	48	40	42	53	36	39	40	30	31	36	38	50	53	54	38	32	34	49	32	41	42	52	.	44.3
Sigourn'y	Max	82	85	88	78	71	84	88	88	73	75	80	84	75	83	59	53	56	76	85	88	84	85	70	65	70	71	82	80	85	80	..	77.4
	Min ..	50	52	54	60	55	57	61	61	57	48	48	63	51	51	51	43	35	34	48	50	53	53	47	37	40	45	37	39	40	40	..	48.7
Sioux C'r.	Max..	83	83	80	65	71	80	78	76	68	73	69	73	51	48	45	53	53	68	74	76	83	82	73	67	83	73	69	76	70	67	..	70.3
	Min ..	56	60	59	50	50	56	63	47	53	44	50	51	36	38	42	30	40	36	49	53	55	59	40	34	51	47	36	40	51	59	..	47.8
Sioux C'y.	Max	82	85	80	63	68	83	80	80	63	74	76	76	50	48	46	55	53	69	77	78	82	82	68	69	86	77	74	76	66	70	..	71.2
	Min ..	59	68	62	54	51	60	58	52	53	50	56	50	40	40	38	33	38	41	52	55	60	61	44	38	54	48	37	44	56	58	..	50.3
Storm L..	Max..	81	81	82	65	68	78	77	80	62	72	73	09	46	47	47	55	52	68	74	76	80	80	53	65	80	58	69	74	66	..	..	68.2
	Min ..	50	57	62	54	48	51	57	52	54	48	50	54	38	42	42	32	35	38	40	53	56	58	41	35	43	50	36	39	43	51	..	46.9
Stuart. ..	Max..	79	82	85	75	65	83	85	68	60	59	82	75	65	62	53	53	53	65	74	80	81	80	82	65	81	80	71	76	66	69	..	71.8
	Min ..	52	57	62	60	55	58	57	56	54	56	45	60	60	45	46	34	38	35	49	52	54	53	47	36	50	48	38	46	48	47	..	49,9
Thurman.	Max..	79	81	83	78	69	83	84	82	69	70	82	78	69	57	50	55	55	68	76	77	80	82	76	66	85	79	69	74	65	73	..	73.1
	Min ..	52	58	62	61	57	62	69	53	55	42	56	62	49	46	45	34	36	39	52	57	59	62	50	35	55	46	32	38	53	62	..	51.3
Tipton....	Max	80	83	84	76	75	77	87	83	74	75	77	83	76	78	70	55	54	65	76	79	83	83	70	66	79	71	65	71	73	70	..	74.6
	Min ..	54	58	61	64	56	56	64	63	59	53	53	74	55	64	54	45	40	35	48	55	56	57	55	41	50	50	40	46	48	55	..	53.6
Toledo....	Max..	78	82	82	75	73	77	82	82	69	75	75	78	69	69	55	50	55	66	77	77	83	82	70	65	80	73	73	73	71	68	..	72 8
	Min ..	47	56	58	59	53	55	62	60	55	48	50	61	44	44	49	41	34	31	48	55	54	58	47	33	49	47	35	43	46	56	..	49.3
Wapello..	Max..	73	79	78	71	64	77	82	81	75	69	75	81	77	77	71	57	54	62	74	76	79	80	68	61	78	70	60	63	..	70	..	71.1
	Min ..	52	57	62	64	56	59	64	67	62	54	54	70	61	63	55	47	43	38	49	54	57	57	54	45	49	53	43	48	..	50	..	54.7
Washi'ton	Max..	79	83	83	76	68	81	87	84	67	73	77	82	72	80	60	51	56	66	78	78	81	82	68	65	81	69	66	75	71	72	..	73.0
	Min .	48	52	56	60	53	54	61	62	55	47	50	62	52	59	49	42	36	34	42	53	53	53	45	34	41	42	36	42	45	50	..	48.9
Waterloo.	Max..	80	85	83	72	69	72	81	83	67	75	74	79	69	60	55	51	55	67	81	79	84	84	61	65	81	64	66	70	75	..	..	72.0
	Min ..	49	52	59	60	53	53	59	60	56	48	49	60	45	47	52	43	37	33	55	52	56	52	51	34	39	49	37	42	44	48	..	48.4
Waverly..	Max..	76	81	80	74	66	70	79	81	70	73	71	77	64	57	55	55	54	65	75	77	82	82	70	64	80	72	62	67	73	66	..	70.6
	Min ..	50	59	62	58	53	53	64	60	56	48	53	63	44	48	48	44	39	35	47	55	59	55	51	34	46	48	37	43	57	56	..	50.8
W.Bend..	Max.	81	84	83	65	70	74	79	81	67	73	66	75	57	59	49	53	52	67	75	78	82	83	56	66	82	74	65	72	79	67	..	69.8
	Min .	56	59	60	54	49	60	63	51	53	44	50	56	38	43	43	38	40	37	46	54	56	60	42	33	49	46	30	41	44	58	..	48.4
Whitten..	Max..	78	82	82	78	70	80	80	81	75	..	76	..	77	63	54	50	53	64	70	76	80	80	70	63	80	73	63	70	70	68	..	71.7
	Min .	49	57	57	60	51	55	63	55	54	.	45	.	41	45	48	40	36	33	41	45	54	54	47	33	45	45	35	40	43	52	..	47.2
Wilton J.	Max..	78	82	84	77	74	77	85	85	80	74	79	83	82	83	71	56	60	64	75	78	80	75	66	64	77	74	63	72	74	72	..	74.5
	Min ..	47	58	58	63	55	55	68	63	57	52	50	69	54	65	55	46	40	34	47	54	52	66	53	35	47	53	37	54	46	52	..	52.7

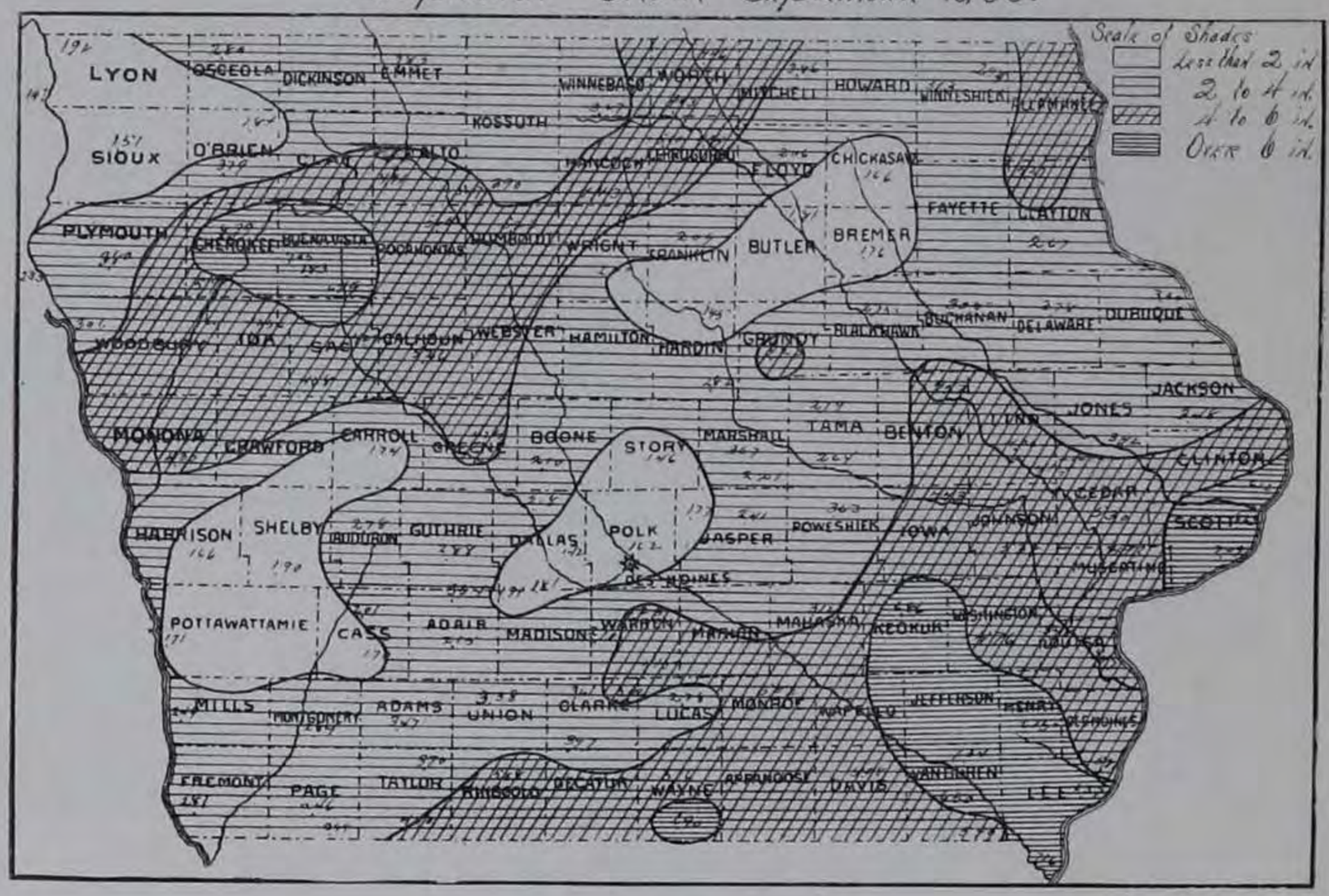
DAILY AND MONTHLY PRECIPITATION FOR SEPTEMBER, 1903.

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	....	....	....	....	.67	....	.71	.43	.48	....	....	.36		.55	.10	....	T	....	....	....	....	..	....	..	....	.05	....	....	T	.03	....	3.38
Albia	..	....	....	...	.12	.16	...	1.02	.85	1.42	..	....	.25	.10	.35	.28	.01	.03	..	....	....	..	....	..	....	..	.31	..	...	.12	..	5.02
Algona	..	....	.	.30	.70	.03	....	07	....	....	....	.80	....	1.60		....	....		....	....	....	....	..	....	....	....	....	..	..	.40	....	3.90
Allerton	....	....	..	.02	1.45	.	T	1.25	2.61	.04	T	.03	T	.86	29	....	....	....	....	..	..	....	....	..	..	.24	....	....	.04	.07	....	6.90
Alta	....	...		..	.02	2.30	T	..	.07	...	1 12	.63		2.05	.05	.	.18	....	..	....	....	..	..	....	....	.04	....	..	.02	.57	....	7.05
Alta (near)	....	..		..	....	3.60	.06	...	.09	..	.8(	.61	1.80	.08	.08	.14	..	....	..	..	....	....	....	....	....	.04	....	....	.03	.50	....	7.83
Amana	....	..	....	T	T	.26	T	.53	1 07	.05	T	1.07	.12	.31	.18	..	.01	..	....	....	....	....	....	....	...	.22	....	....	....	.61	..	4.43
Ames	....	....	...	....	....	.04	.45	....	.31	...	T	.24		.20	.10		..	....	....	....	..	..	..	....	..	.12	....	....		....	....	1.46
Atlantic	....	..	...	....	.3	...	T	....	36	.	...	.60	.24	.10	.10	.02	....	.	..	..	....	..	..	..	....	.08	..	....	.04	.17	....	2.01
Aububon	....	....	....	..	.15	..	.79	..	.36	..	.06	.78	..	.57	.10	.01	....	....	....	....	..	....	....	....	....	.07	....	..	...	.03	....	2.78
Baxter	....	....	...	...	...	...	.72	.	23	..	....	.27	....	.45	..	....	..	..	..	..	..	....	..	....	...	.10	....	....	...	....	....	1.77
Bedford	....	....	....	T	1.18	....	.90	.04	.74	...	....	.13		.45	.11	.	...	..	....	..	..	..	..	...	....	.05	..	...	.32	.08	..	4.00
Belknap	....	....	....	....	.40	....	T	.40	2.50	.25	....	T	.48	.06	.40	..	.06	....	...	..	..	....	....	....	....	.48	....	....	...	.15	...	5.08
Bonaparte	....	....	....	...	.19	....	...	50	3.08	....	....		.32	..	.95	....	....	..	..	..	..	..	..	....	....	.73	....	....	....	.20	....	5.95
Britt	....	T	T	.05	.02	.60	.08	T	.06		.80	22	1.12	1.08	.04	T	.02	....	..	....	....	..	....	....	T	...	..	....	T	.34	....	4.43
Buckingham	....	..	.07	....	....	....	.58		.37	....	....	...	. .	.62	.1	....	.01	....	....	....	....	....	....	....	....	.10	....	....	.26	.06	....	2.19
Burlington	....	....	....	....	.11	....		.33	2.51	.81	....	...	.08	.30	79	....	....	....	....	..	....	....	....	..	....	.75	....	....	....	.13	..	5 81
Carroll	....	....	....	....		.17	.06	.10	.32		.04	.25	...	.26	.04	.14	.12	....	....	....	....	....	....	.	.08	....	..	..	.16	....	1.74
Cedar Rapids	....	..	....	.18	T	.20	.07	.46	.03	1.56	....	....	.55	.28	.13	.05	....	.02	....	....	....	..	....	....	....	...	.16	....	....	.37	..	4.06
Chariton	....	....	....	....	....	....	.52	....	1.15	T	....	.20	T	.50	.25	....	....	....	....	..	....	..	....	..	..	.16	....	....	T	T	....	2.78
Charles City	....	T	....		.02	.16	....	.19	...	.10	....	.35	.11	.42	.18	.04	T	....	....	....	....	....	....	..	..		.15	....	...	.34	.	2.06
Clarinda	....	....	..	....	.25	..	..	.12	.30	.52		T	.30	.45	.18	....	....	....	....	.	....	....	....	....	T	T	...	.07	.27	..	2.46
Clear Lake	....	....	....	....	T	.50	...	.05	.05	...	2.35	.50	.20	1.00	.15	....	T	....	....	....	....	..	....	....	....	T	....	....	....	.30	....	5.10
Clinton	....	....	....	.04	....	.05	....	.30	....	2.44	.71	..	....	1.68	.18	....	....	....	..	....	..	....	....	..	..	.60	....	....		.12	....	6.12
College Springs	....	..	..	....	.25	....	.30	...	.94		..	.45	...	.83	.20		.02	....	....	....	....	....	....	..	....	T	....	....	....	....	..	2.99
Columbus Junct'n	...	....	..		T		.30	.44	2.00	.53	....	.02	.37	.42	.79	T	....	....	..	..	....	....	....	....	....	.40	...	....	....	.21	....	5.48
Corning	...	..	....	....	T	1.30	...	.25	T	.63	....	T	.26	.44	.24	..	.05	....	....	..	....	....	....	....	....	.05	..	....	25	T	....	3.47
Council Bluffs	...	..	..	....	.23	....	.20	.56	...	....	..	.62	....	....	.10	..	..	..	..	..	....	....	....	....	....	.25	....	....	.03	T		1.71
Corydon	....	....	..	....	.78	....	.	.64	2.35	.04	....	.07	.01	.78	.21	....	T	...	....	..	....	....	....	....	....	....	.06	....	....	.20	...	5.16
Cumberland	....	..	..	....	....	....	.02		.40	.02	T	.60	.30	.10	.	....	....	....	....	....	....	....	....	....	....	..	.02	....	.09	...	1.70
Davenport	....	....	....	T	.01	.10	....	.35	2.78	.94	....	T	.11	1.77	.51	..	T	....	....	....	....	....	....	....	....	.41	....	....	..	.09	...	7.09
Decorah	.03	....	..	.16	.09	.18	.15	.72	.02	.06	T	.42	T	.57	.13	....	.02	....	....		.	....	....	..	..	10	....	....	.02	.27	....	2 94
Delaware	....	....	....	.03	.04	.15	...	.72	.30	....	..	.78	....	1.04	.15	..	..	....	..	....	....	....	....	....	....	.10	..	....	...	.47	....	3.78
Des Moines	....	....	..	T	07	....	.52	.02	.24	.12	T	.04	....	.2	.08	...	.05	..	..	....	....	....	....	....	..	.17	....	....	.03	.02	....	1.62
De Soto	...	..	....	....	T	...	.50	...	.15	.	.12	.28	....	.53	.11	....	T	....	....	..	....	....	....	....	....	.12	....	....	T	....	....	1.81
Dows	....	....	....	....		.60	.07	.12	.17	.03	..	.53	.06	.18	T	...	T	....	....	....	....	....	....	..	..	.05	....	....		.21	..	2.00
Dubuque	...	T	....	.17	.10	.07	T	.44	.42	.23	.	.05	.63	.77	.06	T	....	....	....	....	....	....	....	..	..	.22	T	....	....	.04	....	3.20
Earlham	....	....	....	....	.10		.41	.03	17	.16	.08	.31	T	.51	.10	....	T	....	....	....	....	....	....	....	..	.04	....	....	T	T	....	1,91
Elkader	....	....	....	.05	.07	.15	...	.60	.12	....	..	.75		.53	....	....	....	....	....	....	....	....	....	....	..	15	....	....	....	.25	....	2.67
Estherville	....	....	....	.02	.04	.20	.18	T		....	....	1.00	.34	1.75	.10	.05	.04	.03	..	....	..	....	..	....	....	...	...	....	....	.08	....	3.83
Forest City	....	T	....	.23	....	.49	.10	T	T	....	....	.50	.20	2.00	.10	....	..	...	....	....	....	....	..	..	....	...	..	.	....	.05	....	3.67
Fort Madison	....	....	....	....	.21		.72	....	1.57	2.11	...	....	....	....	.55	...	..	....	....	....	....	....	....	....	....	1.03		....	T	.24	....	6.37
Galva	....		T		....	.99	...	...	....	....	....	2.00	.26	.95	.05	....		....	....	....	....	....	....	..	..	....	T	T	T	T	....	4.25
Gilman	....	....	....	T	T	T	.30	.47	.27	.08	....	.18	.01	.40	.16	...	T	....	....	....	....	....	....	....	....	.07	....	....	.07	.20	....	2.21
Grand Meadow	....	....	....	....	06	.08	...	1.29	.10	....	....	.38	...	.66	.10	....	T	....	....	....	....	..	....	....	....	.06	....	....	.05	1.49	....	4.27
Greene	....	....	....	....	.06	.15	.15	.13	.12	.07		.23	....	.35	16	..	...	....	....	....	....	....	....	....	....	.14	....	....	...	.25	....	1.81
Greenfield	....	..	....	T	.43	.02	.02	....	.23	09	.08	.62		35	.20	....	....	....	....	....	....	....	....	....	....	.02	....	....	.07	.02	..	2.15
Grinnell (near)	....		....	.02	.12		.30	.95	.63	.05	....	.53	T	.25	.15	....	T	....	....	....	....	..	...	..	....	.15	....	....	.20	.28	..	3.63
Grundy Center	...	T	..	T	....	1.42	.41	.68	.12	.12	....	.60	T	.56	.03	....	.01	...	....	..	....	....	..	..	....	.06	....	....	T	.22	....	4.23
Guthrie Center	....	..	...	....	....	1.22		.31	....	....	.09	.63	....	.33	T	T	..	....	....	....	....	....	....	....	....	.19	....	....	.11	T	....	2 88
Hampton	....	....	....	.03	.52	.07	.28	.	.14	....	....	.33	.14	.13	....	.07	.04	....	....	....	....	....	....	....	....	.09	..	....	.15	.10	..	2.09
Hanlontown	....	.03	T	.50	.08	.54	.03	.01	.05	....	.31	.39	.75	.69	.11	T	....	....	..	....	....	....	....	....	....	....	....	....	..	.54	..	4.03
Harlan	...	....	....	T	.02	T	.36	....	.44	....	.01	.50	T	.40	.05	.11	T	...	....	..	....	....	....	....	....	.08	....	...	.01	.03	....	1.90
Hopeville	....	....	....	....	.74	....	.67	.66	.58	.	...	...	....	.64	.30	....	....	....	....	....	....	....	....	....	....	.14	....	..	.20	.04	..	3.97
Humboldt	....	....	....	....	....	.68	.11	...	.08	....	2.70	.25	.88	.32	.04	....	....	....	....	..	..	....	....	..	....	...	....	....	....	.17	....	5.23
Independence	....	...	....	.10		.30	1.50	T	.18	...	....	.25	....	.25	T	....	....	....	....	....	....	....	....	..	....	T	....	..	02	.45	...	3.05
Indianola	....	..	....	T	.07	T	.53	2.00	.51	.10	...	T		.52	.16	...	.01	....	....	....	....	....	....	....	....	.16	....	..	.09	.08	..	4.23
Iowa City	....	..	....	....	...	.12	....	.46	.10	.98	...	....	.71	.72	.42	.12	....	.15	....	..	..	....	....	....	....	....	.28	....	....	.32	....	5.38
Iowa Falls	..	...	....	....	T	.74	T	.11		.06	....	T	.15	.17	.03	.03	.06	T	....	....	....	....	....	....	....	....	.05	....	....	.05	....	1.45
Jefferson	..	....	..	..	....	....	1.83	....	.37	...	.02	.68	.01	.33	.22	....	.15	....	....	....	....	....	....	....	....	.20	....	....	.10	.33	..	4.24
Keokuk	....	....	..	....	.53	....	....	.44	.93	1.86	...	T	.10	1.47	.46		....	....	....	....	....	....	....	....	....	.87	.06	....	....	.44	....	7.16
Keosauqua	...	....	....	....	.17	.07		.36	.45	2.98	...	T	.22	..	1.14	.23		T	....	..	....	..	....	....	....	....	.70	....	....	.18	....	6.50
Lacona	....	.....	....		.30		1.02	.33	.68	....	....	.25	...	.50	.25	.15	.07	..	..	....	....	....	....	....	....	.30	....	....	.30	...	....	4.15
Larchwood	....	....	....	T	...	.30	.15	....	....	....	.10	.83	.05	.02	T	T	....	..	..	..	..	....	....	....	..	.06	..	....	T	.41	....	1.92
Larrabee	..	..	....	.01	.15	.30	.67	...	....	....	3.35	.74	2.91	.03	.04	T	T	....	....	....	....	....	....	....	..	.12	....	....	.05	.42	..	8.79
Le Claire	....	....		..	T	.09	.02	.49	2.07	1.93	....	.	.11	.30	2.43	.32	T	T	..	....	....	....	....	....	....	...	.47	....	...	....	....	..	8.23
Le Mars	....	...	..	.05	....	1.35	.50		T	....	.85	.30	.65	.10	...	T	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....	3.80
Lenox	..	...	..	T	1.20	..	.55	.20	.58	....	...	.25	....	.33	.20	..	.05	..	....	....	....	....	....	....	....	.06	..	....	.25	.03	....	3.70
Logan	....	....	....		.10	....	...	....	.35	....	..	.95		....	.20	....	....	....	....	....	....	....	....	....	....	....	.06	..	...	...	....	1 66
Maquoketa	....	....	..	....	....	....	.20	.42			...	....	1.48	.62	.07	.22		...	....	....	..	....	..	..	....	..	.32	....	....	.15	....	3.48
Marshalltown	...	....	.	.01	02	.35	...	.97	.01	.31	....	.08	.73	.27	.05	.03	.03	.01	....	....	....	....	....	....	....	....	.07		....	.13	....	3.07
Monticello	..	....	...	T	T	.60	.55	...	1.17	T	T	.17	1.00	.69	.04	.10	T	....	....	....	....	..	....	....	....	.15	....	T	.10	T	....	4.57
Mason City	....	....	....	T	T	.60	.18	.04	.05	....	1.25	.37	.12	.96	.17	....	..	....		..	....	....	..	..	..	T	....	....	...	.30	....	4.04
Mount Ayr	..	....	....	T	1 80	..	.95	.42	1.00	.08	....	.80	....	.05	.40	....	....	....	....	....	....	....	....	..	..	.10	....	..	.25	.03	....	5.88
Mt. Pleasant	....	..	....	....	T	....		.15	2.70	.56	..	.02	.25	.60	.92	..	....	....	....	....	....	....	....	....	....	.55	....	....	..	.40	....	6.15
Mt. Vernon	..	..	...	.13	.01	.17	.13	.50	1.00	.39	....	.25	.76	.05	.67	....	.01	..	....	....	....	....	..	....	....	26	....	....	...	.31	..	4.64
New Hampton	....	....	....	..		.29	.03	.40	..	..	....	.25	..	.38	....	..	....	..	....	..	....	..	....	....	....	.22	....	.	...	.09	...	1.66
Newton	....	....	....	....	....	....	....	.29	.74	.34	....	....	.40	...	.28	.10	....	.	...	....	....	....	....	....	....	.15	....	.11	....	...	....	2.41
Northwood	..	.12	T	.04	.06	.55	.04	T	T	....	.48	.43	1.17	.74	.11	.02	T	...	....	....	....	....	....	....	....	.02	....	....	T	.68	....	4.46
Odebolt	..	....	....	....	....	.10	T	....	.30	...	.95	.84	1.65	.60	....	....		..	....	....	....	....	....	....	....	.12	....	....	T	.12	....	4.68
Ogden	....	....	....	....		T	T	.90	...	.3	....		.33	.20	.04	. ..	.12	....	....	....	....		....	....	....		....	....	....	.20	....	2.10
Olin	....	..	..	T	....	.20	.a2	1.45	....	....	..	1.10	....	....	....	....	..	....	....	....	....	....	....	....	....	.15	...	....	....	.10	...	3.42
Omaha, Neb	.	....	....	T	.23	..	.01	....	.43	..	.02	1.08	T	.58	.03	T	.01	..	..	....	....	....	....	....	....	.01	....	....	.02	.08	....	2.50
Onawa	....	....	T	....	.02	.	.02	....	.50		.65	1.08	.13	.97	.07	.02	.02	....	....	....	....	....	....	....	....	T	..	..	T	.82	....	4.30
Osage	..	.02	T	.10	.08	.45	.07	.40	.07	.03	.61	.34	T	1.21	.05	T	....		....	....	....	....	....	....	....	.04	..	..	T	.39	....	3 86
Osceola	..	....	..	....	.52	.25	....	.65	.69	.57	....	.	.25	.30	.05	.25	T	....	....	....	....	....	....	..	....	....	....	....	....	.08	..	3 61
Oskaloosa	....	....	..	....	.47	....	....	.47	1.25	....	.02	.16	..	.25	.24	T	T	..	....	....	....	....	....	....	....	.10	..	..	.06	.10	...	3.12
Pacific Junction	....	...	..	..	.16	....	...	....	35	....	....	.40	....	1.35	.05	....	.08	....	....	....	....	....	....	....	....	...	....	....	.10	.	....	2.49
Perry	....	....	....	....	...	....	.76	....	.29	....	....	.30	T	.25	.12	....	.02	..	....	....	....	....	....	....	..	.22	....	....	.12	T	....	2 08
Plover	....	..	..	....	...	.77	.09	....	.03	..	1.51	.32	.67	1.52	. .	....	.04	....	....	....	....	....	....	....	....	....	....	....	....	.70	....	5.65
Primghar	...	....	T	T	....	.35	.40		T	....	.56	1.00	.38	.77	...	..	T	..	....	....	....	....	....	....	....	T	....	....	....	.39	....	3.79
Red Oak	....	....	....	....	1.12	....	.01	..	.40	.11	T	.38	...	.41	.10	..	T	....	....	....	....	....	....	....	....	.03	....	..	.28	T	....	2.84
Ridgeway	...	.01	T	.34	.05	.25	.27	.05	.06	...	.48	.16	.03	1.00	.05	03	.01	...	..	....	....	....	....	....	....	.06	....	....	.20	.08	....	3 13
Rockwell City	....	....	....	..	...	2.85	....		.15	....	.52	.60	.62	.30	.05	....	....	....	....	....	....	....	....	....	....	.05	....	....	T	.12	...	5.26
Ruthven	..	..	T		....	.80	T	....	....	....	1.10	.95	.46	.80	.20	....	T	....	..	..	..	....	....	....	....	T	..	....	T	.60	....	4.91
Sac City	....	....	.02	T		1 00	.10	...	.13	....	1.02	.39	.59	.48	.12	..	.22	..	....	....	..	....	....	....	....	T	....		.01	.14	....	4 22
St. Charles	....	....	..	T	.25	.02	.60	.40	.47	.03	.04	.05	...	.68	.10	...	.01	....	....	....	....	....	....	....	..	....	....	....	.03	.02	....	2.70
Sheldon	....	....	....	....	.01		.50	....	....	....	.10	.77	.05	.10	.20	T	....	....	....	....	..	..	....	....	....	.05	..	....	T	.06	....	1.84
Sibley	...	....	....	T	.05	.31	.20	.25	....	....	....	.66	.58	.59	.09	....	07	..	..	....	....	....	....	....	....	T	.05	....	.	.05	....	2.80
Sigourney	....	..	....		T	..	T	1.15	2.26	....	....	.05	.03	1.17	.35	....	T	....	....	..	....	....	....	....	....	.25	....	..	.60	1.00	....	6 86
Sioux Center	....	....	....	.06		.18	.19	....	...	....	.02	.40	.05	.16	....	T	...	....	..	....	....	....	....	....	....	T	....	....	T	.45		1.51
Sioux City	....		T	T	T	T	.41	....	T	.	.76	.74	.53	.16	.08	.11	....	...	....	....	....	....	....	....	....	.02	....	.	T	.25	....	3.06
Stockport	...	...	...	....	.12		...	.38	2.29	.40	....	T	.84	2.25	.17	T	T	..	...	....	.	....	....	....	....	.70	..	....	T	.19		7.34
Storm Lake	....	....	..	T	T	2.66	.04	T	.01	.06	..	1.02	1.13	.05	.03	.12	.01	....	....	....	..	....	....	....	....	.02	...	....	...	.01	..	6.49
Stuart	....	..	....	....	....	....	.95	..	.50	....	.45	.90	..	.50	.12	....	....	....	....		....	....	....	....	....	T	..	....	.31	T	....	2 87
Thurman	...	....	....	..	.10	...	....	....	1.02	.04	..	.83	.02	.38	.08	..	.09	. .	....	....	....	....	....	....	....							

DAILY AND MONTHLY PRECIPITATION FOR SEPTEMBER, 1903—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	
Tipton	....	....	....	....	....	.16	....	.50	1.30	.81	....	.04	.84	.70	.38	....	.11	....	....	..	..	....	..	...	....	.30		....	....	.22	....	5.36
Toledo	....	....	....	..	.50	..	.72	...	.30	..	....	.25	.02	.20	.20	....	....	....	.		..	....	....	....	....	.10	....	....	.10	.25	....	2.64
Vinton	....	....	....	....	....	.85	1.01	.63	.44	....	..	....	.32	.57	.07		....	....	....	..	....	....	....	.	....	.10	....	....	.27	.16	....	4.42
Wapello	....	....	....	....	....	....	....	.31	2.15	.60	...	....	.13	.54	.83	T	.02	....	....	....	....	....	....	....	....	.56	....	....	....	.33	....	5.47
Washington	....	..	....	....	....	....	....	.36	1.35	1.55	....	.04	.55		.24	..	..	....	..	....	....	....	....	....	....	.32	....	....	....	.35	....	4.76
Washta	....	..	T	T	T	1.25	.25	T	.10	....	1.05	.50	.25	.88	.08	T	.10	....	....	....	....	....	....	....	....	T	....	....	T	.73	....	5.19
Waterloo	....	....	..	....	..	.62	....	.66	T	.18	....	T	.37	.53	.12	.01		T	....	....	....	....	....	....	..	....	.04	....	....	.22	....	2.75
Waukee	...	....	....		....	....	.23	.02	.14	.05	T	.35	....	.39	.14	..	T		....	....	....	....	....	....	..	....	.10		....	T	T	....	1.42
Waverly	....	....	....	....	.07	.28	.09	.18	.05	....	...	.41	....	.28	T	....	....	...	....	....	....	....	....	..	....	.11	..	....	....	.29	....	1.76
West Bend	....	....	.02	.02	....	.87	1.12	..	.04	..	1.05	.3	....	1.48	.05	....	.04	....	..	..	....	....	..	....	....	T	....	....	T	.43	...	5.47
Whitten	....	....	..	T	....	1.82	.10	.10	.17	....	..	....	.37	.20	.06	....	T	....	....	....	..	....	..	....	....	T	....	....	T	T	....	2.82
Wilton Junction	....	....	....	T	....	.26	.48	.09	2.48	....	....	.29	....	.62	.16	T	.08	....	....	.	....	....	..	....	....	.47	....	....		T	.. .	4.93
Woodburn	....	....	....	...	.84	...	1.16	T	1.20	..	....	.47	..	.75	.19	....	.02	..	...	....	....	....	..	....	....	.10		....	.29	T	....	5.02

Precipitation Chart September 1903.



OCTOBER, 1903. No. 10.

CONTENTS.

CENTRAL STATION, DES MOINES, IOWA.

J. R. SAGE,
DIRECTOR.

GEO. M. CHAPPEL,
LOCAL FORECASTER,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

DES MOINES:
BERNARD MURPHY, STATE PRINTER
1903.

THE IOWA WEATHER AND CROP SERVICE

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

STATE BOARD OF AGRICULTURE,

CONSTITUTED AS FOLLOWS:

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C. E. CAMERON, VICE-PRESIDENT, Alta.
G. D. ELLYSON, TREASURER, Des Moines.
JOHN C. SIMPSON, SECRETARY, Des Moines.

EX-OFFICIO DIRECTORS.

ALBERT B. CUMMINS, Governor of Iowa.
H. R. WRIGHT, Dairy Commissioner.
DR. J. I. GIBSON, State Veterinarian.

DISTRICT DIRECTORS.

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Second District—C. W. PHILLIPS, Maquoketa.
Third District—W. C. BROWN, Clarion.
Fourth District—R. T. ST. JOHN, Riceville.
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Sixth District—T. C. LEGOE, What Cheer.
Seventh District—M. J. WRAGG, Waukee.
Eighth District—JOHN LEDGERWOOD, Leon.
Ninth District—M. MCDONALD, Bayard.
Tenth District—J. W. WADSWORTH, Algona.
Eleventh District—H. L. PIKE, Whiting.

METEOROLOGICAL STATIONS AND OBSERVERS.

From the following, weekly and monthly reports of Metorological data are received by the Iowa Weather and Crop Service.

Afton	Hon. N. W. Rowell
Albia	E R. Reeve
Algona	C. D. Pettibone
Allerton	Rex Shriver
Alta	D. E. Hadden
Alta (near)	W. J. Minard
Amana	Conrad Schadt
Ames	Exp. Station
Atlantic	J. W. Love
Audubon	Geo. E. Kellogg
Baxter	W. T Thorp
Bedford	E. E. Healy
Belknap	A. W. Rankin
Belle Plaine	S. P. Vandike
Bonaparte	Hon. B. R. Vale
Britt	G. P. Hardwick
Buckingham (Traer P. O.)	Dr. W. A. Daniel
Burlington	I. S Shoutz
Carroll	Moses Simon
Cedar Rapids	Electric Light and Power Co.
Chariton	C C. Burr
Charles City	C H. Priebe
Chester	C. H. Meredith
Clarinda	A. S. Van Sandt
Clear Lake	John Cobb
Clinton	Luke Roberts
College Springs	A. M. Finley
Columbus Junction	J. B. Johnston
Corning	Jerome Smith
Corydon	Miss May Miller
Council Bluffs	Agent C., R I. & P. R'y
Cresco	J. E. Doolittle
Cumberland	Agent C., B. & Q. R'y
Davenport	*J. M. Sherier
Delaware	Wm Ball
Decorah	F. H. Baker
Denison	Prof. W. C. Van Ness
Des Moines	*Geo. M Chappel
De Soto	R. D. Minard
Dows	A. C. Fuller
Dubuque	*Orin Parker
Earlham, R. F. D.	Geo. Phillips
Eldon	T. Madden
Elkader	Chas. Reinecke
Estherville	Earle W Peterson
Fairfield	Prof. W. W. Mendenhall
Fayette	R. Z. Latimer
Forest City	J. A. Peters
Fort Dodge	Tobin College
Ft. Madison	Miss L. A. McCready
Galva	D. W. Farnsworth
Gilman	Jas. L. Wylie
Grand Meadow (Postville P.O.)	F. L. Williams
Greene	J. L. Cole
Greenfield	J. G. Culver
Grinnell	Prof. J. S. Buck
Grinnell (near)	A. O. Price
Grundy Center	Ed King
Guthrie Center	D. G Beardsley
Hampton	E. C. Grenelle
Hanlontown	Miss G. M. Paschen
Harlan	C. A. Reynolds
Hopeville	M. T. Ashley
Humboldt	H. S. Wells
Independence	E F. Wulfke
Indianola	Prof. L. Tilton
Iowa City	Prof. A. A. Veblen
Iowa Falls	J. B. Parmelee
Jefferson	Isaac Young
Keokuk	*Fred Z. Gosewisch
Keosauqua	Prof. J. A. Landes
Knoxville	Casey & Belville
Lacona	Agent C., B. & Q. R'y
Lansing	J. Ackerman
Larchwood	Rev. Geo. A. Wickwire
Larrabee	H B. Strever
Lenox	J. L. Hurley
Le Mars	Dr. T. E Cole
Leon	Millard F. Stookey
Logan	Mrs. M. B. Stern
Maquoketa	Frank Keeney
Marshalltown	Branch S. Jones
Mason City	J. S. Mills
Monticello	C. E. Heisey
Mount Vernon	Rev. J. W. Hubbard
Mt Ayr	A. F Beard
Mt. Pleasant	Dr. Frank T. Stevens
New Hampton	R. H. Gurley
Newton	Hon. J. P. Beatty
Northwood	Dr. J. H. Darey
Odebolt	E. Starner
Ogden	E Sayre
Onin	Hon. Nathan Potter
Omaha, Neb	*L. A. Welsh
Onawa	C G. Perkins
Osage	G. D. Pattingill
Osceola	Mrs. S. Lewis
Oskaloosa	Jos. Boyd
Ottumwa	Dr W. B. La Force
Pacific Junction	Agent C., B & Q. R'y
Pella	L. L. Davenport
Perry	J. A. Harvey
Plover	J. S Smith
Primghar	Jasper N. Marsh
Red Oak	J S. Cole
Ridgeway	Arthur Betts
Rockford	J R. Waller
Rockwell City	C. M Randall
Ruthven	F. M. Fitzgerald
Sac City	J. A Sodestrom
St. Charles	C. W. Minard
Scranton	Willis E. Lamb
Sheldon	J. B. Frisbee
Sibley	H. G Doolittle
Sigourney	Mrs. R. F. Ashbaugh
Sioux Center	Jacob de Ruyter
Sioux City	*U. G Pursell
Spencer	S. Gillespie
Spirit Lake	W. C. Drummond
Stockport	C. L. Beswick
Storm Lake	L. E. Burdick
Stuart	Hon John Herriott
Thurman	C. R. Paul
Tipton	F. K. Gregg
Toledo	Herbert Giger
Vinton	T F. McCune
Villisca	C. E. Matteson
Wapello	Geo. W. Schofield
Washington	Wm A Cook
Wa hta	H L. Felter
Waterloo	M. L. Newton
Waverly	H S Hoover
Whitten	Dr. Frank P Butler
Wilton Junction	J. M. Rider
Winterset	B. L. Sprinkle
West Bend	Phil Dorweiler
West Union	J M. Lisher
Woodburn	C. B. McDonough

*U. S. Weather Bureau.

WEATHER-CROP OBSERVERS.

Reporting for the Weekly Bulletin.

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Allerton	James Piper
Alta	Jonas Cushman
Blairstown	T. H. Weil
Burt	R Jain
Cedar Rapids	Hon. A. J. Fuhrmeister
Charles City	W. B. Towner
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Clarksville	F. M Russell
Correctionville	Hon. W. B. Chapman
Corwith	Wm. Oxley
Council Bluffs	L. Prouty
Creston	M. V. shby
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Emerson	D. B. Nims
Fort Dodge	R. W Blaine
Fruitland	R. T. Hummel
Goldfield	D. M. Stephens
Geneva	Wm. H. Thompson
Hartwick	Fred McCulloch
Harlan	H. B. Kees
Hesper	G. E. Dillingham
Humeston	Hon S H. Moore
Independence	Geo. H. Wilson
Indianola	H D. Guthrie
Ireton	J. M. Sherman
Lake City	C. B. Hamilton
Le Mars	Hon. Henry Schrooten
Manson	J. D. Skinner
Marshalltown	Hon. S. B. Packard
Mapleton	A. Lamb
Mt. Pleasant	W S. Wright
Milton	Hon. E. C. Holland
Monroe	J. A Dibel
Nevada	Geo. C. White
Northwood	T L Bolton
Orange City	H. J. Vande Waa
Pella	J. H. Ver Steeg
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Red Oak	Hon. C. L. Stratton
Rock Rapids	D E. F. Merrill
Rossville	T. B. Wiley
Seymour	L. B Sager
Shenandoah	Reuben Mullison
State Center	E. P. Thompson
Stuart	W. W. Bailey
Toledo	W G. Malin
Van Horne	Spencer Smith
Waukee	E. J. Leonard
Weldon	Ed Worden
Winterset	H A. Kinsman
West Branch	Wrigley Smith
West Union	H B. Blackman
Wilton	Thos. Boot
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Woodward	Geo. Swisher

U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

VOLUME XIV. OCTOBER 1903. No. 10.

WEATHER AND CROP CONDITIONS.

October was an ideal autumn month. The mean temperature was slightly above and the rainfall below the normal, and the percentage of sunshine was higher than usual. The bulk of the rainfall came in the first seven days, and generally with but little disturbance of the elements. No trace of snow was reported during the month. The first general killing frost occurred on the 18th, at which time there was practically very little of value exposed to damage by freezing temperature. The greater portion of the late planted corn was fairly well matured before the middle of the month, and the percentage of soft and chaffy corn will be but little more than is found at the close of average seasons. Reports are received of very many fields planted as late as June 15th which were well ripened by October 10th and ready to be cribbed before the close of the month. The amount of fall plowing in the state at large is much greater than in recent years. A limited acreage of fall wheat and rye has been sown, and the conditions have been favorable for germination and growth, insuring a good stand. The fall pasturage was never better, being very green and succulent at the close of October. The dry weather was favorable for harvesting potatoes, apples, and all late maturing crops. The potato crop is generally light, with considerable damage by rot, though some localities report a fair yield. The yield of winter apples has been much below the average. Forage crops and garden truck have made excellent yield. As a whole October has been a remarkably fine month, making an exceptional record in view of the adverse weather conditions of the preceding season.

NOTES.

In the noted case of Frost vs. Corn, called for trial in the September term, the Clouds appeared as intervenors, causing postponement of the issue till the October term. And that "saved the bacon."

An interesting feature of Iowa's dairy exhibit at the World's Fair will be a statue in butter of John Stewart, the pioneer creamery man of this state. It will be life size, and will be kept frozen in a glass case throughout the summer.

The New York Sun estimates the value of the staple farm crops of America this year to be, in round numbers, $2,500,000,000. These figures do not include the large increment of value in the use of grain and forage for the production of beef, pork, mutton, dairy and poultry products, etc.

According to statistics compiled by the U. S. Commissioner of Education, the total enrollment of pupils in the common schools of the United States during the year was 15,925,887, or over 20 per cent of the entire population. The grand total of all educational institutions, public and private, is over 18,000,000 pupils. These astounding figures show the real greatness of this nation.

EXTRACTS FROM NATIONAL BULLETIN.

October, 1903, was warmer than usual in the Pacific coast and Rocky Mountain districts and over the northern and central portions of the country to the eastward, the average daily temperature excess ranging from 3° to 6° over the northern portion of the Lake region, in the upper Missouri Valley, over the western portions of the middle and northern Plateau districts and on the central and north Pacific coast. Nearly normal conditions prevailed in the Southern States, there being slight deficiencies in the south Atlantic and west Gulf districts.

There was less than the usual rainfall over the greater part of the Lake region, central Mississippi Valley, South Atlantic and east Gulf States, southern and western Texas, upper Missouri Valley, and generally throughout the Rocky Mountain and Pacific coast districts, the month being without appreciable rainfall in western North Dakota and in portions of New Mexico, Arizona, and southern California. The deficiency over a large part of the Lake region, east Gulf, and South Atlantic States ranged from 1 to more than 2 inches, while over the Florida Peninsula it was from 2 to more than 7 inches. In eastern Texas, portions of Kansas, southern Missouri, eastern Nebraska, Minnesota, the upper Ohio Valley, and in the middle Atlantic coast districts the rainfall was much heavier than usual, most of the districts named receiving from 4 to 6 inches, while in northern New York and the middle Atlantic coast districts amounts ranging from 6 to more than 12 inches are reported.

As a whole the month averaged mild and was generally favorable for farming operations, although plowing and fall seeding were delayed on account of dry soil, in portions of the central Mississippi and Ohio valleys, and late crops in the central and east Gulf States suffered from drought. The Middle Atlantic States experienced heavy rains and very high winds during the latter part of the first decade, causing damaging freshets in northern New Jersey and southeastern New York. Heavy and killing frosts occurred in the central and east Gulf and south Atlantic States from the 25th to the 28th, with freezing temperatures as far south as the northern portions of Mississippi, Alabama, Georgia and South Carolina.

SUN SPOTS AND ELECTRICAL STORMS.

British as well as American scientists attribute the electrical storms of October 31st to sun spots. The effect on the telegraph and telephone service was as noticeable in Great Britain, France and Switzerland as in the United States, and there were striking displays of aurora borealis in parts of Europe, as there were in Chicago on Saturday and Sunday nights.

Since the appearance of the great sun spot of February, 1892, the theory as to the relation of such spots to the earth has changed somewhat. In most particulars, however, the theories then advanced have been accepted. For example, it is conceded that during the prevalence of sun spots the earth's magnetism is intensified, and that auroral phenomena are more numerous.

The immense size of a sun spot which appeared in September, 1891, surprised astronomers. The enormous dimensions of the sun spot of February, 1892, were a still greater surprise, and there was that year greater interest in solar physics among scientists and students than in any previous year.

This sun spot, or aggregation of sun spots, was 148,500 miles in length and 87,750 miles in breadth, and covered an area of 10,000,000,000 square miles. It was visible to the naked eye for several days, and disturbed the people as greatly as it interested the astronomers.

There never was a better opportunity for observation, and then as now there was very general agreement that large spots on the sun were coincident with electric and magnetic disturbances on the earth. Since then experiments with the cathode ray and radium have led scientists to a better understanding of the relations between light and electrical phenomena.—*The Inter Ocean.*

THE RELATION BETWEEN BACTERIA AND SOIL.

An account of some interesting experiments made at the Agricultural Institute of Bonn-Poppelsdorf upon the nitrifying bacteria is contributed by Dr. Wohltmann to the last number of the Journal fur Landwirthschaft (Am. Mo. Rev. of Rev.)

All plants require nitrogen; but although an abundant supply exists free in the atmosphere, most of them are unable to use it, and depend upon what is found in chemical combination with other substances in the soil. If the soil is poor in nitrogenous compounds, there can not be a luxuriant growth of vegetation upon it. But peas, beans, and others of the family of leguminous plants contrive to form partnerships with certain kinds of bacteria which, in some way, act upon free nitrogen and change it chemically into compounds that can be used by the plants, and also change nitrogen compounds that are not available into compounds that can be used. These bacteria form nodules about as large as pin heads on the roots of the plants. On account of this characteristic, poor soil is often planted with peas, beans, etc , in order to enrich it by the compounds of nitrogen formed in this way.

Since 1898, the author has been making observations upon the appearance of these bacteria in the most varied soils of temperate, sub-tropical, and tropical climates, and has found that they are not constantly associated with plants of this family, but may either be present or entirely absent. For example, at the experiment station of Kwai, in East Africa, at an altitude of 1,650 meters above sea level, in a soil rich in humus and nitrogen, he found peas growing luxuriantly and blossoming, but without a single nodule on their roots. From these observations it seemed worth while to find out how the formation of root nodules varies in the most important cultivated plants according to the different soils and fertilizers used, and for this purpose about three hundred experiments were made with seedlings planted in eleven different kinds of soil common in the valley of the Rhine, and in soils mixed with three kinds of fertilizers.

In determining the effect of soil on the formation of nodules, the chief things considered were the condition of the plants, the amount of humus present, the amount of nitrogen, and the mineral constituents of the soil.

In general, the results supported the well-known rule that crude, uncultivated ground is poor in nodule-forming bacteria or lacks them entirely, and that the improved condition and productiveness of soil is correlated with increase of the bacteria, although there were some exceptions to this. With regard to the humus constituent of the soil, its warming and loosening properties act favorably for the development of nodule-forming bacteria, and the effect can be detrimental only when the amount of humus is very great. This is shown by certain chalky earths of the highlands, which, on account of their antiseptic properties, due to humus, may be free from bacteria.

The soils used for experimentation were made to vary greatly in the amount of nitrogen present, but, except for certain kinds of soil from the moors, it seemed that the amount of nitrogen made no difference with the presence or absence of these bacteria unassociated with plants. Rich nitrogenous earth formed by the decay of basaltic rocks was specially poor in them, and they were also lacking in poor alluvial soil and in red clay. Calcium carbonate and potassium phosphate in the soil exert a favorable influence upon the growth of the bacteria.

The author concludes that when the soil is rich in nitrogenous fertilizers, preferably ammonium nitrate, leguminous plants may be free from nodule-forming bacteria. Apparently, their association with the bacteria is not a necessity, but an expedient, and whenever there is a supply of nitrogenous matter in the soil they dispense with the bacteria and with the free nitrogen which the bacteria make available, and instead, use the nitrogen found in chemical combination in the soil. In that case, the plants would not make the soil richer in nitrogen, but would impoverish it like other cultivated plants. The presence or absence of nodules on the roots varies with the amount of nitrogen in available compounds in the soil, and the value of a fertilizer may be estimated from the number and size of the nodules upon the roots of the plants.—*Medical Herald.*

PROFESSOR PARVIN'S EARLY WEATHER RECORD.

The late Prof. Theo. S. Parvin was the pioneer voluntary meteorological observer in Iowa, and the records of his observations cover a full third of a century. He began the scientific study of the climate in 1839, at Muscatine, and continued the service at Iowa City after his removal to the latter place in 1860 to accept a professorship in the State University. In relation to his work in that line the *Cedar Rapids Republican* recently published the following interesting narration, by permission of Mr. Joseph Morcombe, who is engaged in writing the biography of Mr. Parvin:

"The journals to which reference is made and from which the best information is derived, reveal many new lines in which Mr. Parvin employed his industry. February 4, 1893, he notes revision of his meterological journal. This recalls to mind the fact that from his first residence in Iowa he made careful, daily observations of weather conditions. Several of the books containing these records are before us ruled into appropriate columns, containing several daily readings of the thermometer and barometer, direction and velocity of wind, hours of cloudiness and sunshine, etc. This was a purely voluntary labor, begun and kept up primarily for the benefit of the community and to disprove by actual figures the absurd stories current in the East of intense summer heat and arctic winters in the new territory beyond the Mi-sissippi. The government had not then adopted the wise policy of stationing trained observers over the country to collect data and to forecast general conditions. The

Masonic Poet, Rob Morris, of genial memory, somewhere in his reminiscent writing, tells of visiting his friend Parvin at his Iowa home and gives a humorous account of the enthusiastic devotion which led his host, clad only in the robes of the night, and in a frigid temperature, through the guest chamber and into the freezing air outside that he might not neglect reading his instruments.

"But this unique meteorological record had a use and value of which its compiler had no idea when reading his observations day by day. Copies of these records, with summaries and averages, were regularly furnished to and carefully preserved by the Smithsonian Institution at Washington. These constituted the only accurate and available data of the kind. When the southerners at the outbreak of the civil war destroyed Harper's Ferry and captured the arsenal at that place, it was determined by the federal government to create a depot for war supplies, which would be secure alike from foreign and domestic foes. The island in the Mississippi between the cities of Davenport and Rock Island, formerly the site of Fort Armstrong, was the chosen spot. But this selection brought out opposition from other interested localities and for a time threatened the plans of the government with congressional disapproval. The strong argument of those opposed to Rock Island was that the Mississippi was closed by ice for nine months of the year. But it fortunately occured to some friends of the new location that Parvin's records were at hand and could not be gainsaid and accordingly these were procured from the Smithsonian institution. The truth triumphed and the present great arsenal was located at a point evidently designed by nature for such an institution. Among the letters preserved among Mr. Parvin's papers, and dating from those early years are several received from leading scientists of the time, testifying to the value of these observations."

VALUABLE CORN TESTS.

A news special from Ames states that the I. S. C. Department of Agronomy has begun some experimental work to test the shrinkage of corn stored in cribs, and also the germinating qualities of seed corn under various conditions as to selection, storage, temperature and humidity. In the most important test as to shrinkage, the corn will be in the average condition of the crop when placed in farmers' cribs. A crib having capacity to hold 6,000 pounds will be built upon scales; and will be weighed daily at the time of filling, and weekly thereafter for a full year. The object of the seed corn experiment is to determine the effect of artificial heat, the effect of cold, and the common methods in use among corn producers,

Corn in three stages of development will be used in the tests—mature, immature and mediumly developed corn. Each class of corn will be stored in different storage conditions. Corn will be stored in the corn cribs, the attic, seed rooms, closed oat bins, under artificial heat, in the green house, the cellar, buried in the ground and sealed in air tight glass jars. Some will be hung by the husks, some shelled and stored in sacks, some taken in the spring from the shock, and some that has been left on the surface of the ground. In all these ways seed corn is kept by different men. It is the plan to determine what is the best and most practical way for Iowa farmers. The producing value of the seed is what counts. In the spring the value of the seed will be tested.

CLIMATOLOGY OF THE MONTH OF OCTOBER, 1903.

BAROMETER.—Mean pressure, 30.08 inches; highest observed, 30.58 inches, at Dubuque, on the 26th; lowest observed, 29.19 inches, at Sioux City, on the 6th; range for state, 1.39 inches.

TEMPERATURE.—The monthly mean temperature for the state, as shown by records of 105 stations, was 52.2°, which is 0.3° above normal. By sections the mean temperatures were as follows: Northern section, 50.7°; Central section, 52.1°; Southern section, 53.8°. The highest monthly mean was 57.7°, at Belknap; lowest monthly mean, 47.2°, at Belle Plaine. The highest temperature reported was 90°, at Chariton, on the 3d; lowest temperature reported, 16°, at Earlham, on the 27th. The average monthly maximum was 80.4°; average monthly minimum, 25.4°. Greatest daily range, 57°, at Carroll; average of greatest daily ranges, 39.7°.

PRECIPITATION.—Average precipitation for the state, as shown by records of 115 stations, was 1.95 inches, which is 0.49 of an inch below normal. The averages by sections were as follows: Northern section, 2.12 inches; Central section, 1.78 inches; Southern section, 1.95 inches. The largest amount reported was 4.50 inches, at Harlan; least amount reported, 0.32 of an inch, at St. Charles. The greatest daily rainfall reported was 2.90 inches, at Ruthven, on the 6th. Average number of days on which .01 of an inch or more was reported, 5.

WIND AND WEATHER.—Prevailing direction of the wind, south; highest velocity reported, 58 miles per hour, from the west, at Sioux City, on the 7th. Average number of clear days, 19; partly cloudy, 6; cloudy, 6.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES. Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	30.07	30.54	27	29.45	7
Des Moines	30.12	30.57	26	29.34	6
Dubuque	30.10	30.58	26	29.39	6
Omaha, Neb	30.08	30.53	26	29.26	6
Keokuk	30.03	30.55	27	29.40	6
Sioux City	30.06	30.56	26	29.19	6
Means	30.08	30.58	26	29.19	6

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	5197	34	W	6
Des Moines	6281	42	SW	3
Dubuque	4546	30	NW	17
Keokuk	5107	36	W	6
La Crosse, Wis.	5519	36		6
Omaha, Neb	6503	34	NW	7
Sioux City	9628	58	W	7

OBSERVERS' NOTES.

ALLERTON.—*Rex Shriver.* Heavy frosts of 18th, 24th and 27th killed vegetation generally, but corn was too well matured to be injured.

ALTA.—*David E. Hadden.* First week in October was wet and changeable; during balance of month this county enjoyed ideal Indian summer weather, clear, mellow and warm, which came opportunely for maturing corn and finishing fall work.

AMANA.—*Conrad Schadt.* Weather fine and pleasant, and corn had ample time to ripen; large part of crop husked and better than expected.

BONAPARTE.—*B. R. Vale.* Rain 3.78; a severe local storm and wind on night of 6th; warm weather since; much plowing done; pastures good; corn husking begun.

BRITT.—*Geo. P. Hardwick.* First half of month changeable but last half pleasant; corn being cribbed after 25th; pastures better than usual; potatoes scarce.

CLINTON.—*Dr. Luke Roberts.* Rainfall 1.85 inches, 0.55 below normal; temperature normal; sunshine in excess of normal; a good month for hardening corn and securing the crop and general outdoor work.

EARLHAM.—*Geo. Phillips.* The corn crop is 50 per cent be'ter than was thought possible sixty days ago.

CARROLL.—*Moses Simon.* A fine month; geraniums and other tender flowers still in bloom on 31st.

GRAND MEADOW.—*F. L. Williams.* First killing frost of season on 18th; corn ripened well and potatoes were fine; month was ideal for farm work.

GRUNDY CENTER.—*E. S. King.* More fall plowing than for years. Last half of month made fine corn; only about ten per cent soft.

HANLONTOWN.—*Miss G. M. Paschen.* Began husking corn on 23d, but some began about 14th; corn well dried out and promises a good yield.

JEFFERSON.—*Isaac Young.* Last half of month fine; considerable plowing and husking corn done.

OLIN.—*Nathan Potter.* October has been an ideal fall month; cribbing corn begun about 20th, and mostly in good condition.

PERRY.—*J. A. Harvey.* Total rainfall 2.35 inches; month very fine for the farmer.

RIDGEWAY. *Arthur Betts.* No rain after 17th, 241 hours of sunshine, or 72 per cent; second season of roses from 12th to 24th; roads dry and dusty; much hazy weather.

WAUKEE.—*E. J. Leonard.* Weather unusually fine, over two-thirds of the days absolutely cloudless; first killing frost here was on 9th and late corn was injured.

WEST BEND.—*Ph. Dorweiler.* An ideal month, the finest October on record.

WHITTEN.—*Frank P. Butler, M. D.* Twenty-one clear days, and the warmest October for years; this section has an immense corn crop and quality good; being rapidly harvested.

WILTON.—*J. M. Rider.* Last half of month very favorable for curing corn and farm work.

GRINNELL.—*A. O. Price.* Last half of month perfect; 90 per cent of fall plowing done; corn husking well advanced.

ERRATA IN AUGUST REVIEW.

BEDFORD.—Total precipitation recorded 7.46 inches on pages 8 and 11, should have been 9.46 inches.

CARROLL.—Mean temperature recorded 68.6° on page 7, should have been 68.7°.

COUNCIL BLUFFS.—Total precipitation recorded 13.09 inches on pages 8 and 11, should have been 15.09 inches.

EARLHAM.—Mean temperature recorded 67.8° on page 8, should have been 68.0°.

Mean minimum temperature recorded 56.2° on page 9, should have been 56.5°.

GUTHRIE CENTER.—Total precipitation recorded 5.65 inches on pages 7 and 11, should have been 5.05 inches.

WEST UNION.—Total precipitation recorded 6.19 inches on pages 7 and 12, should have been 6.14 inches.

BELATED REPORTS.

BELLE PLAINE.—September. Mean temperature, 58.8°, highest 84°, on the 3d; lowest 36°, on the 24th; greatest daily range 30°. Total precipitation, 3.79 inches; greatest in 24 hours, .90 inch. Number of clear days, 11; partly cloudy, 12; cloudy, 7; rainy, 10. Prevailing direction, southeast.

CHESTER.—September. Mean temperature, 57.8°; highest 82°, on the 3d; lowest 29°, on the 18th; greatest daily range, 33°. Total precipitation, 4.46 inches; greatest in 24 hours, 1.00 inch; prevailing direction, southwest. Number of clear days, 16; partly cloudy, 5; cloudy, 9; rainy; 14.

DENISON.—September. Mean temperature, 60.6°; highest 84°, on the 25th; lowest, 32°, on the 27th; greatest daily range, 38°. Total precipitation, 1.87 inches; greatest in 24 hours, .55 inch; prevailing direction, south. Number of rainy days, 8.

LEON.—September. Mean temperature, 62.4°; highest, 82°, on the 6th, 7th, 8th and 11th; lowest, 37°, on the 18th; greatest daily range, 32°. Total precipitation, 4.45 inches; greatest in 24 hours, 2.35 inches; prevailing direction, south. Number of clear days, 17; partly cloudy, 2; cloudy, 11; rainy, 11.

CLIMATOLOGICAL DATA FOR OCTOBER, 1903.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	PRECIP., IN INCHES. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).	Number rainy days	SKY. Number clear days.	Number partly cloudy days.	Number cloudy days.	Prevailing direction of wind.	DATES OF THUNDER STORMS.
Algona	Kossuth	1,213	28	52 0	†3.6	76	3, 19	26	26	32	1.40	- .73	.50	....	3	17	9	5	SE	3, 6
Alta	Buena Vista	1,513	11	51.6	†0.9	79	19	28	26	39	1.12	-1.14	.92	....	5	17	11	3	S	3, 6
Alta (near)	Buena Vista										1.16		1.04	....	3					
Britt	Hancock	1,236	5	50.1	-1.9	77	3	25	¶	43	1.76	- .62	.90		7	14	12	5	SW	
Charles City	Floyd	1,012	11	49.0	-1.5	79	3	22	27	43	1 84	- .29	.72	...	9	....	....	....	SW	7
Clear Lake	Cerro Gordo	1,241	....	50.2		75	3	26	26	36	3.08	.....	1.15		5	18	7	6	SW	
Decorah	Winneshiek	857	8	50.0	-0.6	77	3	23	27	37	2 13	- .37	1.24	...	6	....	....	....	.....	
Dows (a)	Wright	1,142	....	52.6		84	17	25	26, 27	49	1.63	.....	.76	....	5	22	3	6	S	
Elkader	Clayton	727	21	50.2	†0.8	78	3	20	27	41	1 46	-1.54	.60	....	6	17	11	3	SE	3, 6, 14
Forest City	Winnebago	1,226	8	48.6	-0.6	80	3, 19	27	27	48	1.76	- .81	.78	..	6	20	4	7	S	
Grand Meadow	Clayton	1,180	11	50 3	†0.3	77	2	28	26	30	2.11	- 58	1.10	..	4	15	8	8	SW	3, 6
Greene	Butler	924	5	50 3	-3.8	78	3	23	27	34	1.85	- .44	81	....	6	16	7	8	SW	
Hampton	Franklin	1,155	12	52.5	†2.2	80	3, 19	28	26	40	1.82	- .92	.80		5	16	9	6	SW	2, 3, 6
Hanlontown	Worth			49 8		77	19	24	27	42	2.17		1.00		7	24	1	6	SE, SW, NW	2, 3, 6
Humboldt	Humboldt	1,095	10	51.8	†2.3	79	19	24	26, 27	44	2.41	† .63	1.14	....	5	25	4	2	NW	
Larchwood	Lyon			51.6		79	19	28	16, 26, 27	44	2.16	.....	.80	....	4	19	10	2	S	3
Larrabee	Cherokee	1,366		51.3		78	2	26	27	39	2.05	.....	1.73	....	5	21	7	3	SW	6, 30
Le Mars	Plymouth	1,224	6	51.0	-1.6	79	2, 19	25	26	43	.....	.....	.....	....	...	16	13	2	S	
Mason City	Cerro Gordo	1,132	...	51.6		74	3	31	26	34	3.25	.....	1.40	....	5	13	9	9	S, SE	6, 15
New Hampton(a)	Chickasaw	1,169	....	49.4		77	3	24	24	38	1.48	.....	.70	....	6	20	4	7	S	
Northwood	Worth	1,222	6	49.8	-1.2	75	3, 19	23	24, 27	39	2.13	- .43	1 04	....	6	22	3	6	SW, NW	3, 6, 7
Osage	Mitchell	1,184	11	48.8	†2 1	75	3	25	26	37	2.99	† .48	1.25	..	5	18	5	8	S	3, 6
Plover	Pocahontas	1,190	5	51.0	-1.9	78	3	24	28	40	1.43	-1.02	1 29	....	2	21	7	3	S	
Primghar	O'Brien			50.6		77	3	28	25, 26	37	3.22	.....	2.30	....	4	20	0	11	NW	
Ridgeway ‡	Winneshiek	1,215	....	53.2		82	3	28	18, 24, 26	38	2 02	... .	1.13	....	8	19	7	5	S	3, 6
Ruthven (b)	Palo Alto			53.8		89	19	30	16, 26	52	3.30		2.90	....	2	19	3	9	S	
Sibley (c)	Osceola	1,512	8	48.8	-2 0	73	2	27	27	36	3.98	†2.18	1.14	....	7	17	10	4	N, SE	
Sioux Center	Sioux			50.7		78	19	27	27	40	3.75		2.82	...	4	15	10	6	S	3, 6
Storm Lake	Buena Vista	1,440	7	50.0	-4.2	78	19	20	26	43	1 32	- .36	.79	....	4	19	6	6	SE	
Washta	Cherokee	1,157	....								1.93	.....	1.47	....	3	23	7	1	S	
Waverly	Bremer	942	6	50.8	-2.8	79	3	23	27	41	1.87	- .97	.64	....	7	15	10	6	S	3, 6, 15
West Bend	Palo Alto	1,197	8	50.8	†2.1	79	3	23	26	42	1 05	- .79	.47	....	4	18	7	6	SE	
Average				50 7	-0.4	78 1	.....	25.4	...	40.1	2.12	- .42			5	18	7	6	S	

¶ 18, 24, 26, 27.

CENTRAL SECTION.

Amana	Iowa	721	25	51.6	†1.7	81	3	23	27	35	2.15	- .55	.85	....	7	20	7	4	NW	3, 6
Ames	Story	926	20	51.6	†0.7	80	19	23	27	41	1.07	-1.45	.46	..	5	23	5	3	SW	
Audubon	Audubon	1,301	8	51.8	†0.9	83	2	18	27	44	2.72	† .43	1 42	...	6	17	6	8	SE	3, 6
Baxter	Jasper	998	...	51.8	.....	80	3	25	¶	40	1 23		.65	....	2	23	2	6	SW	
Belle Plaine	Benton	828	12	47.2	-3 2	75	3	22	27	37	1.34	- .89	.90	..	5	21	6	4	SE	
Buckingham	Iowa		....								1.45	.....	1.25		4	19	10	2	.....	
Carroll	Carroll	1,265	12	53.8	†2.7	84	18	26	26	57	1.39	- .07	.54	....	5	22	3	6	.. ..	2, 3, 6
Cedar Rapids	Linn	733	19	52.0	†0.7	80	3	26	27, 28	41	1.48	-1.10	.66	....	7	11	13	7	NW	
Clinton	Clinton	609	34	51.4	†1.0	83	3	21	27	40	1.85	- .56	1.41	...	8	17	2	12	SW	3, 6, 14
Davenport	Scott	606	31	54.2	†2.1	82	3	32	25	27	2.27	- .35	1.52	..	7	15	9	7	SW	3, 6, 7
Delaware	Delaware	1,033	11	49.8	†1.0	79	3	25	27	35	1.69	- .60	.75	..	4	20	7	4	S, NW	6, 7
Des Moines	Polk	881	24	53 8	†1.6	82	3	29	24	39	1.32	-1.72	.60	....	6	13	10	8	SW	2, 6
De Soto	Dallas	866	....	54.0	.....	86	19	20	27	43	.55	.....	.22	....	5	23	2	6	SW	
Dubuque	Dubuque	655	29	52.4	†1.8	81	3	28	27	30	1.72	- .99	.90	....	5	18	9	4	NW	3, 6
Fort Dodge (a)	Webster	1,126		53.0	.....	80	20	31	5, 9, 27	38	2.02	... .	1.10	.	4		....	....	.....	6
Galva (b)	Ida	1,290	8	50.8	-0.5	79	19	24	26	46	.93	- .83	.93	.	1	..	..	..	SW	
Gilman	Marshall	1,052		.....	.....	.....	.....	.....	.....	.....	1.72	. .	.79	....	5	21	4	6	S, NW	
Grinnell	Poweshiek	1,023	9	52.2	†5.0	73	3	28	26	33	1.45	- .92	.65	....	5	20	4	7	SW, W	
Grinnell(near)	Poweshiek		....	52.0	.....	79	3	28	18, 26	26	1.35	.....	.88		6	18	4	9	SW	2, 3, 7, 14
Grundy Center	Grundy	976	11	51.6	†0.3	80	3	25	24	39	1.05	-1.72	37	....	7	22	0	9	NE	14
Guthrie Center(a)	Guthrie	1,077	6	55.8	†3.4	83	22	22	27	46	2.75	† .53	2.00	....	5	16	3	11	NW	6
Harlan	Shelby	1,192	....	52.1		81	2	25	26	37	4.50	.....	2.80	...	6	17	7	7	S	2, 3, 6
Independence	Buchanan	921	38	50.6	†1.7	80	3	23	27	33	1.85	- .52	.50	....	4	21	6	4	SW	14
Iowa City	Johnson	685	43	51.9	†0.9	81	3	21	28	46	3.60	† .81	1.95	..	6	8	13	10	W	
Iowa Falls	Hardin	1,170	9	48.4	-1.8	78	3	21	27	46	1.72	- .66	.68	...	6	20	3	8	S	4, 7
Jefferson	Greene	1,052	....	.....	.....	.....	..	.....	.....	.....	2.52	.....	1.28	...	6	12	16	3	SE	6
LeClaire	Scott	576	....	....	.....	.....	.....		.....	.....	3.17	. .	1.99		8			....	N	
Logan	Harrison	928	35	51.8	-0.5	81	2	23	19, 28	38	1.60	- .86	.40	....	6	18	4	9	NW	
Maquoketa	Jackson	688	9	50.2	-4.3	81	3	18	27, 28	46	2.24	- .59	1.15	..	6	18	6	7	NE	
Marshalltown	Marshall	947	9	51 8	-1.1	83	3	21	27	47	1.61	- .92	1.32	....	7	....	....		NW	
Monticello	Jones	925	48	50.4	†1.0	85	2	20	27	46	2 20	- .54	.95	..	5	20	3	8	SW	
Mt. Vernon	Linn	847	35	51 5	†1.2	79	3	25	24	37	1.16	-1.12	.49		8	23	3	5	W	
Newton	Jasper	944	14	52.0	†0.3	79	3	26	27	37	1.08	-1.41	.72	....	3	24	4	3	S	
Odebolt	Sac	1,356	5	51.9	-4.5	78	2, 19	25	27	40	.79	-1.71	.52	....	4	21	6	4	.. ....	
Ogden	Boone	1,088	8	51.8	-1.3	84	3	25	18, 27	49	1.80	- .86	.82	....	6	25	0	6	SE	
Olin	Jones	760	....	51.4	....	81	3	21	24, 27	34	1.87	.....	1.20	...	5	18	8	5	SW	6
Onawa	Monona	1,053	.	50.2	.....	84	19	30	27	44	1.71	.....	1.14	....	7	23	3	5	SE	2, 3, 6, 12
Perry	Dallas	975	....	52.8	....	82	3	25	27	41	2.35	.....	1.12	.	5	...	...	...	.....	
Rockwell City	Calhoun		...	53.0	.....	80	19	27	26	39	1.70	.....	.65	....	4	21	7	3	.....	
Sac City	Sac	1,278	22	53.2	†1.3	80	19	25	27	42	.82	-1.57	.34	..	4	22	3	6	S	2, 6
Sioux City	Woodbury	1,165	13	53.6	†2.6	84	19	31	26	40	3.24	†1.54	2 02	..	6	16	7	8	SE	
Stuart(b)	Guthrie	1,216	5	49.2	-7.2	80	2, 3	18	27	44	1.03	-1.95	.43	....	6	....	....	..	.....	
Tipton	Cedar	807	...	53.8	.....	81	3	28	24	34	1.67	.....	.71	.	5	20	6	5	SW	
Toledo	Tama	856	.8	52.5	†0.1	81	3	20	27	43	1.37	- .59	.90	....	3	18	7	6	SW	
Vinton*§	Benton	810	12	51.0	†0.6	80	3	22	27	....	1.67	- .80	1.46	..	4	25	2	4	NW	
Waterloo	Black Hawk	862	15	51.6	†2.1	82	3	23	27	41	2.05	- .28	1.34	..	6	22	5	4	SE	6, 15
Waukee	Dallas	1,039	....	.....	.....	.....	.....	...	.....	...	1.22	.	.50	..	4	21	3	7	NW	2, 3, 6, 14
Wilton Junct. (d)	Muscatine	683	7	53.0	†0.4	82	3	22	27	36	2.85	†1.06	1.45	..	3	....	....	....	NW	6, 7
Whitten	Hardin	1,036	..	51.0	.....	80	3	24	24, 27	38	1.24	.....	.50	..	4	21	6	4	SE, SW	3, 6, 15
West Branch	Cedar	718	..	.....	.....	...	.....	.....	.....	.....	.....	.....	.....	..	..	...	....	....	.....	
Average			...	52.1	†0 9	80.8	.....	24.3	.....	39.8	1.78	-.72	.....		5	19	6	6	SW	

¶18, 24, 25, 27.

MONTHLY REVIEW OF THE

CLIMATOLOGICAL DATA FOR OCTOBER, 1903—CONTINUED.

SOUTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted)		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Afton	Union	1,212	7	53.2	-0.6	82	2,3	26	27	36	1.96	- .84	89		4	17	8	6	SW	
Albia	Monroe	957	...	52.8	.....	80	3	23	26	43	2.26	.....	1.10	...	7	21	0	10	NW	
Allerton	Wayne	....	....	54.2	.....	81	2	28	24,27	38	2.22	.....	.95	..	7	22	6	3	NW	2,3,6
Atlantic	Cass	1,164	11	52.6	†0.7	83	2	21	27	49	2.12	- .53	1.48	...	5	17	4	10	NW	6
Bedford	Taylor	.....	..	53.4	.....	81	2,3,27	25	18	45	1.78	.....	.74	...	5	20	4	7	SE	
Belknap	Davis	877	7	57.7	†2.0	83	3	34	18,27	40	2.32	† .45	.92	....	6	24	4	3	S	
Bonaparte	Van Buren	.....	10	53.3	-2.4	85	3	26	24,25	37	3.78	†2.15	2.13	....	5	...	...	...	.....	
Burlington	Des Moines	541	..	55.6	.....	83	3	29	27	33	2.74	.....	1.23	....	5	23	1	7	S	6,7
Chariton	Lucas	1,042	7	53.4	-1.3	90	3	26	24	41	2.10	- .48	1.10	..	4	16	8	7	SE, SW	
Clarinda	Page	1,069	12	54.8	†0.4	88	2	26	27	56	1.17	-1.49	.36	....	5	19	8	4	SE	
Columbus Jct.	Louisa	595	....	53.4	.....	81	3	26	27	39	3.28	.....	1.35	..	6	22	7	2	S	6
Corning	Adams	1,127	10	53.2	-0.9	80	2,3,19	28	18,27	38	.84	-1.63	.34	....	5	18	8	5	SE	2,6
Corydon	Wayne	992	9	54.0	-1.0	81	3,19	26	24,26	41	1.74	- .94	.59	..	7	19	6	6	S	
Cumberland	Cass	.....	...	.....	.....	.....	.....	.....	.....	.....	2.15	.....	1.20		5	24	0	7	S	
Earlham	Madison	.....	..	51.2	.....	82	3	16	27	42	.90	.....	.42	..	4	23	0	8	S	2,6
Fort Madison	Lee	516	51	.....	.....	.....	.....	....	.....		2.75	† .02	2.58		3	15	10	6	SW, NW	3,6,14
Glenwood	Mills	....	15	54.8	-1.1	83	3	31	27	36	1.25	-1.30	.50	...	3	15	12	4	SW	
Greenfield	Adair	.....	11	53.3	-0.3	82	3	29	26,27	37	1.52	- .73	.33	....	7	22	3	6	S	1,2,6
Hopeville	Clarke	....	11	54.3	-0.3	81	2,3	30	18,24	36	1.45	- .78	.60	....	5	20	5	6	NW	
Indianola	Warren	969	11	53.6	-0.5	81	3	27	24,26	38	1.27	- .78	.51		5	...	...		NW	2,6
Keokuk	Lee	619	31	55.6	†1.5	84	3	32	27	28	3.23	†1.07	1.89	....	5	19	8	4	SW	2,3,6,14
Keosauqua	Van Buren	664	10	52.1	-4.1	82	3	22	27	33	3.42	†1.70	1.63	....	5	...	...	...	.....	
Lacona	Warren	.....	1	.....	.....	.....	.....	.....	.....	.....	2.13	.....	.74	....	6	13	12	6	.....	
Lenox	Taylor	1,250	7	51.8	-2.5	81	3	29	18	37	1.13	†1.84	.55	....	5	23	4	4	S	
Leon	Decatur	1,120		53.9	...	80	2,3	29	27	35	1.27	.....	.58		5	22	5	4	S	
Mt. Ayr	Ringgold	1,236	8	55.0	-0.3	83	2	20	18	39	1.03	-1.37	.35	..	8	15	9	7	SE	
Mt. Pleasant	Henry	720	20	52.4	‡0.0	82	3	23	27	34	2.72	† .96	1.58	..	8	19	10	2	SW	3,6
Omaha, Neb.	Douglass	1,113	52	56.4	†3.5	85	19	36	27	37	1.19	-1.28	.54	....	9	15	9	7	S	2,3
Osceola‡	Clarke	1,130	6	55.0	†0.4	84	2	29	27	40	.88	-2.09	.60		4	20	1	10	NE	
Oskaloosa	Mahaska	843	18	53.0	†1.2	80	3	23	27	36	1.68	- .59	1.02		6	23	1	7	SW	
Ottumwa (a)	Wapello	649	8	55.4	-0.1	83	3	26	27	38	2.49	- .15	1.33	....	2	16	7	8	W	
Pacific Junction	Mills	960	...	53.5	...	85	2	27	26	48	1.69	.....	1.05		5	17	8	6	N & S	
Red Oak	Montgomery	1,033	..	54.4	.....	80	2	29	27	32	1.21	.....	.52		6	16	11	4	S	6
St. Charles	Madison	1,070	..	55.6	...	83	19	28	27	45	.32	.....	.18	....	5	21	4	6	NW	
Sigourney	Keokuk	787	....	52.8	.....	82	4	24	27	44	1.13	.....	.60	....	3	23	7	1	NW	6,7,14
Thurman	Fremont	.....	....	54.1	.....	84	2	25	27	43	2.78	.....	1.20		5	20	3	8	SW	
Washington	Washington	769	20	51.7	-0.4	83	3	25	24,27	39	2.98	†1.46	1.40	....	4		...	...	NW	
Woodburn	Clarke	961	...	.....	...	.....	.....	.....	.....	.....	1.53	- .	.72	....	5	20	3	8	NW	6
Average	.....	.....		53.8	-0.3	82.3	.....	26.5	.....	39.1	1.95	- .27	.....	....	5	19	6	6	S	
Average for state	.....	...	....	52.2	-0.1	80.4	.....	25.4	.....	39.7	1.95	- .47	...		5	19	6	6	S	

*Means determined from 7 A. M., 2 P. M. and 9 P. M. observations, and maximum and minimum are taken from eye readings. †Above normal.
† Received too late to be computed with means. (a) One day missing; (b) two days, etc. § Not supplied with self-registering instruments.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR OCTOBER, 1903.

STATIONS.		DATE.																															MEAN.
		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.	Max	70	82	82	70	70	69	61	59	63	65	64	66	64	58	59	61	54	64	77	70	71	60	54	64	64	54	57	66	64	68	63	64.9
	Min	59	68	63	44	37	56	46	42	34	36	38	37	45	50	48	35	36	28	46	43	44	44	34	28	40	29	26	33	37	38	52	41.5
Albia.	Max	67	75	80	72	69	72	63	61	61	62	66	65	67	59	60	62	51	64	79	76	76	55	54	61	66	56	59	68	67	68	68	65.5
	Min	58	58	63	46	38	40	50	44	34	36	39	38	45	46	47	36	37	31	33	43	43	43	33	30	31	23	28	30	39	40	45	40.2
Algona.	Max	65	72	76	67	63	66	54	59	59	63	70	65	59	61	65	60	57	70	76	70	65	60	49	61	67	52	58	60	65	69	62	63.6
	Min	53	55	58	43	36	52	44	42	34	41	42	41	47	43	46	33	35	32	46	41	37	38	34	30	41	26	29	34	41	40	39	40.4
Allerton.	Max	71	81	80	72	72	70	67	6	64	63	67	67	67	64	60	62	64	64	79	75	77	62	55	62	65	59	59	68	65	68	65	66.9
	Min	61	58	66	45	39	57	48	42	34	40	41	37	47	51	44	34	34	29	41	44	42	42	31	28	38	29	28	32	36	43	50	41.6
Alta.	Max	57	76	74	65	65	65	58	56	62	64	64	61	64	66	59	62	46	69	79	71	69	56	62	65	64	54	58	68	65	64	60	63.3
	Min	53	58	47	43	34	54	44	41	33	41	41	40	44	44	38	30	31	30	42	44	40	36	32	32	42	28	30	38	43	42	41	39.8
Amana.	Max	68	69	81	67	63	70	63	58	57	59	62	62	65	65	60	59	53	61	69	66	66	56	51	54	65	51	54	63	63	63	62	62.1
	Min	61	58	62	44	38	52	50	44	36	33	37	40	46	50	52	43	42	30	36	45	41	42	29	25	32	30	23	28	36	42	48	41.1
Ames	Max	65	71	79	70	64	64	60	59	63	61	64	62	65	63	59	62	53	62	80	71	70	59	50	63	64	55	58	68	65	64	61	63.8
	Min	57	57	59	49	34	52	25	44	33	37	39	34	45	49	49	35	37	30	39	42	42	40	32	26	35	29	23	31	37	39	45	39.5
Atlantic.	Max	65	83	82	72	72	73	62	60	67	65	67	67	64	54	57	64	57	69	81	75	75	62	57	67	67	60	61	71	67	66	57	66.8
	Min	57	58	56	40	33	56	46	40	28	40	45	35	44	50	46	29	35	25	32	34	35	39	31	24	30	22	21	32	40	42	49	38.5
Audubon.	Max	67	83	80	76	72	72	61	60	66	66	67	63	61	62	55	64	59	68	81	75	74	60	55	68	65	58	62	69	66	65	60	66.5
	Min	55	58	56	40	31	51	45	42	27	36	43	32	45	49	45	28	33	24	31	36	35	36	32	22	29	28	18	29	33	36	45	37.0
Baxter.	Max	69	70	80	71	65	67	63	60	62	62	64	66	65	67	62	63	56	65	78	72	70	59	54	60	54	56	57	67	66	65	61	64.5
	Min	56	55	61	42	33	53	47	42	32	37	3	36	45	49	48	32	37	25	39	43	40	39	31	25	25	26	25	30	37	40	42	39.1
Bedford.	Max	72	81	81	73	73	72	62	62	68	65	67	66	63	59	55	63	55	66	80	81	78	59	52	65	66	59	59	68	64	63	58	66.3
	Min	59	60	61	40	40	55	48	40	29	41	48	39	47	53	49	29	37	25	37	36	43	41	30	27	35	29	30	34	36	38	49	40.6
Belknap.	Max	72	80	83	70	82	72	65	65	69	62	69	65	65	62	68	60	53	50	81	76	75	66	60	75	65	68	70	74	74	74	80	69.4
	Min	65	62	69	49	45	60	51	47	42	41	45	44	47	53	49	40	41	34	37	48	49	44	36	35	45	37	34	37	37	50	55	46 1
Belle Pl.	Max	65	72	75	53	60	63	63	60	58	60	63	65	65	66	60	62	51	64	47	43	42	53	42	44	40	35	36	40	47	50	50	55.0
	Min	57	58	60	40	37	40	50	43	33	39	40	41	45	48	48	38	40	47	38	40	39	40	29	25	35	28	22	27	35	35	47	39.5
Bonapar'e	Max	70	73	85	72	68	73	66	62	61	61	64	66	69	62	60	63	54	62	75	72	76	56	55	58	66	55	59	66	65	66	70	65.5
	Min	60	57	67	46	45	56	50	44	34	36	37	39	44	51	43	40	40	28	39	44	43	43	30	26	26	28	27	29	33	44	46	41.1
Britt.	Max	63	70	77	68	64	68	57	57	58	61	67	66	66	64	58	60	49	68	77	66	65	56	47	60	61	51	55	64	64	64	62	62.4
	Min	54	56	54	39	30	59	44	39	31	40	37	47	48	48	46	29	34	25	32	37	33	36	28	25	35	25	25	30	37	39	37	37.8
Burling'n	Max	70	74	83	75	72	73	66	60	66	64	67	69	71	65	64	64	51	61	73	74	75	61	57	57	65	55	58	66	66	66	71	66.4
	Min	63	62	62	50	47	58	52	45	38	42	42	44	47	52	52	47	40	31	42	42	45	46	31	31	41	33	29	33	40	48	52	44.7
Carroll	Max	83	81	65	72	71	67	63	65	66	68	65	66	67	56	64	59	71	84	77	78	75	60	65	67	60	64	72	68	68	64	64	68.2
	Min	54	53	52	40	32	53	42	40	28	40	38	35	42	46	45	28	33	27	53	40	46	37	30	30	36	26	28	35	42	45	43	39.5
Cedar R.	Max	67	71	80	71	65	71	62	58	60	61	64	65	65	65	60	61	52	62	73	70	71	53	51	58	63	51	57	66	65	65	63	63.4
	Min	57	58	58	46	39	40	53	45	37	37	38	40	49	49	51	47	43	32	32	39	43	43	34	28	29	32	26	26	50	40	41	40 7
Chariton.	Max	68	81	90	74	70	68	62	60	64	63	65	65	64	60	59	63	54	68	80	75	70	54	54	61	65	59	58	67	60	67	65	65.7
	Min	59	56	65	44	38	56	46	43	32	39	39	37	46	50	43	34	38	27	39	42	39	40	32	26	39	27	30	32	37	42	60	41.2
Charles C.	Max	60	69	79	70	72	67	58	56	56	60	62	65	64	67	56	59	50	63	73	65	66	50	50	59	62	50	56	65	65	63	67	62.1
	Min	56	56	56	41	30	32	46	42	30	35	40	37	40	42	49	35	35	29	30	33	35	35	26	25	26	25	22	23	30	37	36	35.9
Clarinda.	Max	74	88	86	76	77	76	67	68	74	70	72	67	65	62	55	60	57	71	87	80	76	60	61	71	68	65	70	74	69	63	..	70.3
	Min	57	60	64	41	46	46	45	42	30	40	42	40	41	48	50	33	36	28	31	37	38	36	31	28	33	28	26	32	36	35	39	39.3
Clear L.	Max	64	70	75	65	65	65	56	57	69	60	63	64	64	65	58	59	51	62	73	67	66	57	47	59	60	52	58	63	62	64	62	62.0
	Min	54	55	55	45	31	44	44	37	33	37	37	35	48	42	45	35	33	32	33	40	35	37	31	27	39	26	28	35	42	35	38	38.5
Clinton	Max	75	67	88	69	66	78	64	59	59	62	64	68	68	67	65	60	54	59	68	68	68	55	49	53	66	50	54	63	63	65	69	63.8
	Min	62	56	55	43	43	51	51	44	34	33	35	38	45	47	50	43	35	28	35	40	36	39	29	23	28	28	21	23	30	35	45	39 0
Colum. J.	Max	69	73	81	69	64	74	65	58	58	61	63	66	68	60	59	59	52	59	69	68	70	58	53	55	66	52	55	64	63	65	70	63.6
	Min	60	57	66	48	42	58	52	43	36	38	39	42	45	49	49	45	39	30	39	44	46	41	31	27	44	33	26	30	38	46	51	43.0
Corning.	Max	68	80	80	71	69	71	68	67	63	63	64	64	62	57	54	62	54	66	80	71	74	60	54	64	65	56	57	68	64	63	58	65.1
	Min	60	59	61	40	38	56	46	41	30	41	42	38	41	52	50	32	35	28	52	41	39	40	30	31	35	29	28	36	39	41	49	41.3
Corydon.	Max	72	80	81	76	72	69	62	61	68	64	66	67	67	64	59	63	55	64	81	77	78	63	60	62	69	60	60	63	65	67	64	67.1
	Min	60	57	66	45	37	58	45	41	33	39	39	39	46	50	43	29	37	29	40	41	42	42	40	26	39	26	27	33	33	40	50	41.0
Davenpo't	Max	72	68	82	69	65	74	62	57	60	61	63	64	68	64	60	59	51	58	68	72	70	57	51	54	65	52	55	64	64	64	69	63.3
	Min	62	58	61	50	46	55	52	45	38	42	42	43	47	48	52	49	39	34	45	47	47	40	38	33	41	32	33	37	43	49	52	45.0
Decorah.	Max	68	66	77	68	62	63	58	53	57	63	63	65	67	66	57	58	63	60	72	67	65	70	42	52	60	50	57	64	62	66	63	62.1
	Min	54	55	60	43	31	41	44	42	33	33	38	37	33	39	50	42	36	29	35	42	36	30	24	33	27	23	32	38	37	40	38.0	
Delaware	Max	68	65	79	67	62	69	64	54	56	60	61	62	63	58	56	62	51	64	47	43	42	53	42	44	40	35	36	40	47	50	50	55.0
	Min	59	52	59	41	35	47	46	40	32	34	34	38	42	45	49	42	40	28	45	36	46	37	28	26	31	26	25	27	36	39	45	39.0
Des M.	Max	66	75	82	73	66	70	63	61	61	62	64	63	65	62	61	62	51	66	81	71	72	61	53	62	66	55	59	68	66	66	58	64 9
	Min	58	59	55	46	39	56	48	43	35	41	40	41	48	52	46	36	35	31	42	48	46	42	35	29	41	34	29	34	40	45	49	42.7
De Soto.	Max	66	80	82	73	70	71	62	61	66	64	67	65	65	60	61	65	57	70	86	76	77	61	55	65	66	56	62	71	68	69	61	67.0
	Min	53	57	64	43	35	56	48	44	31	39	38	36	48	51	49	35	37	29	43	42	43	40	36	25	41	26	20	32	38	40	45	40.9
Dows.	Max	78	80		78	68	78	68	62	60	60	67	65	65	66	68	67	84	75	80	72	68	68	61	60	73	59	55	66	64	65	6	68.3
	Min	55	56	57	41	32	51	42	41	30	37	38	38	45	45	48	32	35	28	35	38	34	36	32	26	32	25	25		38	37	39	36.8
Dubuque.	Max	69	65	81	70	62	72	60	57	58	59	62	64	65	63	56	58	51	59	70	68	68	56	46	54	63	50	55	65	65	64	64	61.9
	Min	60	54	56	46	42	51	48	45	38	36	41	41	42	43	52	48	40	34	43	47	43	40	35	32	38	33	28	35	42	47	47	42.8
Earlham.	Max	65	81	82	73	79	71	61	65	63	65	65	65	60	59	63	56	54	66	81	75	73	61	54	64	66	58	58	69	65	65	60	65.9
	Min	55	52	61	37	30	52	39	27	37	35	30	39	49	47	30	34	33	24	40	34	38	37	30	26	37	21	16	29	36	37	40	36.4
Elkader	Max	65	62	78	73	67	69	65	55	60	54	51	63	65	65	58	59	53	62	75	71	68	55	50	58	65	55	53	67	68	66	67	62.8
	Min	60	58	62	41	33	42	47	43	32	30	33	34	38	38	52	45	41	27	39	38	32	40	27	22	31	23	20	26	38	37	39	37.7
Forest C'y	Max	64	71	80	70	65	68	56	52	61	62	65	67	66	63	54	56	54	66	80	67	67	49	60	61	63	57	56	66	67	65	64	63 1
	Min	44	45	67	40	32	40	44	40	33	36	40	39	45	44	43	32	33	27	32	42	35	37	30	29	38	29	27	28	34	36	38	34.2
Ft. Dodge	Max	64	72	78	..	69	65	60	58	62	65	66	64	65	55	62	68	72	70	76	80	70	60	51	58	60	55	59	68	66	65	69	65.1
	Min	57	55	60	..	31	48	45	44	31	43	39	42	47	47	35	41	40	37	35	42	41	39	35	32	32	33	31	35	42	40	51	41 0
Galva	Max	60	78	76	53	65	70	60	57	62	64	60	61	65	66	57	..	63	67	79	70	69	60	52	64	59	54	..	..	65	60	60	63.5
	Min	56	54	52	40	30	51	44	40	28	40	42	40	45	46	45	..	27	29	33	34	31	35	29	28	26	24	..	32	40	40	41	38.0
Grand M.	Max	64	63	77	67	59	65	64	54	56	59	61	68	67	63	59	59	48	56	70	65	63	57	48	56	60	49	55	62	63	63	65	60.7
	Min	58	56	62	44	34	45	45	42	34	35	36	38	41	44	50	41	39	29	40	42	45	35	29	26	37	28	27	35	40	41	40	39.9
Greene	Max	63	68	78	70	66	66	57	56	59	62	64	65	65	65	58	58	55	61	74	68	68	56	48	60	61	51	57	61	61	65	64	62 3
	Min	58	57	61	43	32	48	46	42	32	36	37	35	43	44	51	35	36	29	34	39	35	39	29	26	33	25	23	29	37	37	38	38.4
Greenfi'ld	Max	67	80	82	69	72	72	65	58	62	65	65	65	65	58	55	62	55	62	78	73	74	68	54	65	65	60	60	65	67	68	60	65.7
	Min	57	58	63	44	46	58	45	40	33	39	41	39	46	50	47	32	34	31	41	43	41	41	34	32	30	29	29	34	42	40	45	40.9
Grinnell.	Max	65	69	73	68	63	68	65	58	56	59	62	62	64	64	59	59	57	64	71	66	66	62	49	57	63	55	54	54	63	62	61	61.9
	Min	58	57	63	47	37	54	50	43	36	40	39	41	46	50	49	37	38	31	43	45	43	40	33	31	39	28	32	35	42	44	50	42.6
Grinnell (near)	Max	65	70	79	69	67	68	65	59	56	59	61	63	64	65	58	58	53	62	71	62	66	60	49	57	63	55	54	54	64	65	63	62.1
	Min	58	57	56	43	35	53	48	43	34	40	39	40	42	56	48	35	35	28	57	45	40	39	33	31	39	28	32	35	38	43	50	41.9
Grundy C	Max	65	68	80	72	65	67	62	60	61	60	63	65	65	66	57	62	54	64	77	71	70	58	52	60	61	54	58	62	66	65	60	63.7
	Min	56	58	61	43	35	51	46	41	31	38	36	33	44	45	50	33	36	27	38	41	37	38	27	25	36	26	28	33	40	41	46	39.5
Guthrie C	Max	66	75	..	70	78	78	78	76	..	66	64	66	67	65	64	58	62	74	82	80	79	83	78	65	69	60	68	73	68	67	65	70.3
	Min	58	57	54	51	41	46	54	54	30	42	40	42	54	49	51*	32	43	23	40	38	40	41	32	27	38	24	22	34	42	40	40	41.4
Hampton.	Max	65	69	80	73	68	68	58	57	65	66	67	68	70	68	55	61	51	61	80	74	72	58	50	67	64	59	60	68	68	66	68	65.3
	Min	56	57	58	43	33	49	45	41	34	37	36	35	45	44	48	34	36	30	40	38	37	30	32	29	40	28	29	35	41	42	41	39.7
Hanlont'n	Max	65	68	75	68	62	65	65	54	58	60	62	64	63	65	54	58	49	64	77	68	66	55	46	66	60	54	57	66	66	66	61	62 2
	Min	54	55	51	40	30	50	44	40	30	35	38	35	46	41	46	32	34	29	35	37	34	35	28	28	38	26	24	32	40	32	39	37.4
Harlan	Max	68	81	80	69	68	73	62	59	64	63	64	62	63	55	63	55	68	78	70	70	60	54	66	64	55	58	66	69	64	65	60	64.9
	Min	56	58	55	42	35	56	46	42	30	42	39	47	50	45	30	35	27	36	40	38	39	32	27	35	27	25	30	32	35	39	47	39.3
Hopeville.	Max	68	81	81	73	71	69	62	60	66	63	65	63	63	58	56	62	51	65	79	77	76	60	59	64	65	57	59	69	65	66	62	66.3
	Min	60	59	61	45	39	56	46	46	34	40	41	38	47	51	48	35	37	30	43	44	42	40	34	30	40	32	29	34	38	41	51	42.3
Humboldt	Max	78	65	73	68	64	66	60	59	60	64	66	66	66	67	59	60	50	70	79	66	68	58	50	64	63	54	58	66	66	66	66	64 0
	Min	58	57	55	44	34	52	48	45	30	42	41	36	45	47	48	32	33	30	35	38	38	38	32	30	37	24	24	32	38	38	41	39.5
Indep'nce	Max	64	66	80	69	64	67	58	54	58	68	62	64	65	66	56	57	53	59	72	67	66	55	48	55	63	51	55	66	64	62	59	61.7
	Min	59	55	58	66	33	48	48	41	33	35	35	38	43	45	51	40	39	27	35	41	39	39	27	25	32	24	23	27	35	39	46	39.5
Indianola.	Max	65	78	81	73	69	70	62	61	62	62	64	63	65	59	60	62	55	65	80	73	74	61	55	62	66	55	59	69	66	62	60	65.1
	Min	58	49	53	44	38	56	49	44	34	39	39	44	48	52	50	35	35	29	42	43	43	41	33	27	46	27	28	34	40	54	58	42.0
Iowa City	Max	71	71	81	70	76	70	63	58	66	63	67	68	69	68	59	61	51	63	73	73	72	53	52	58	66	56	59	67	65	68	69	65.4
	Min	52	59	59	45	40	40	53	45	36	35	35	40	40	44	50	46	43	29	30	37	38	38	29	24	22	31	23	21	26	35	45	38.4
Iowa Falls	Max	66	71	78	70	65	68	60	58	58	60	64	66	65	66	56	61	49	66	76	67	68	50	48	60	63	52	56	65	65	64	63	61.1
	Min	57	57	61	40	30	31	45	40	30	31	38	33	34	44	46	32	33	26	30	33	38	38	26	22	27	25	21	30	31	38	41	35.7
Keokuk	Max	70	72	84	66	69	73	63	61	58	61	63	65	69	65	61	60	52	60	72	70	75	56	55	56	64	53	56	66	66	67	70	64.5
	Min	64	63	68	53	49	58	54	47	40	41	40	45	46	54	51	46	43	34	46	50	47	46	33	33	46	34	32	38	40	50	53	46.6
Keosa'qua	Max	70	74	82	65	69	73	64	61	60	62	64	65	68	63	61	61	51	62	74	70	72	55	53	57	65	54	55	65	65	68		64.3
	Min	53	58	64	47	43	44	55	45	37	34	36	36	39	47	47	39	43	30	41	42	40	46	33	25	28	27	22	21	31	34	45	39.9
Larchw'd	Max	67	77	74	56	65	62	59	58	63	67	64	56	63	66	59	62	52	73	79	70	67	58	57	70	70	65	59	70	61	58	60	64.1
	Min	46	53	55	46

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR OCTOBER 1903—CONTINUED.

STATIONS.		DATE.																													MEAN.
		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	
Lenox....	Max..	68	80	81	71	69	72	61	60	63	62	64	62	61	57	54	61	52	65	78	72	74	64	54	64	85	55	57	68	64	64	59	64.9
	Min .	59	59	63	45	38	56	46	41	35	40	42	39	48	51	48	34	36	29	41	44	42	40	30	30	38	31	30	34	38	40	48	41.8
Leon.....	Max..	70	80	80	70	63	69	69	60	61	62	63	65	64	64	59	61	56	63	77	72	72	63	54	60	59	60	56	66	63	66	62	64.9
	Min .	60	58	62	47	40	57	48	43	36	41	42	39	46	52	46	36	38	30	42	46	44	43	36	30	41	31	29	35	38	43	52	42 9
Logan....	Max..	70	81	80	67	68	75	68	62	60	65	66	66	65	64	67	68	59	65	61	75	64	67	56	65	60	56	65	67	65	64	60	65.9
	Min ..	48	54	50	47	36	45	50	37	35	44	44	44	40	45	40	38	34	30	23	37	36	35	32	31	30	28	32	23	24	32	42	37.6
Maquo'ta.	Max..	78	68	81	72	67	73	62	60	63	62	65	63	68	64	65	60	60	54	70	74	72	56	52	55	68	54	56	66	66	67	68	64 9
	Min ..	55	55	55	41	38	39	55	44	43	30	30	34	35	43	47	47	42	38	28	28	33	33	26	20	20	22	18	18	20	28	39	35.6
Marshlt'n	Max.	66	72	83	75	69	68	68	62	63	64	66	67	70	69	66	64	53	66	70	73	73	54	54	62	68	56	59	69	68	66	61	66.2
	Min ..	57	57	60	44	34	36	47	42	32	34	37	37	39	46	48	34	34	28	35	38	41	40	28	23	29	26	21	22	32	38	41	37.4
Mason C..	Max..	63	67	74	67	62	65	56	56	57	60	62	62	64	66	60	57	57	61	73	66	65	57	49	60	60	53	57	64	65	64	62	61.6
	Min ..	57	57	60	45	36	50	46	42	35	40	40	40	48	44	50	35	37	33	39	44	39	43	33	32	40	31	33	36	43	40	42	41.6
M'nticello	Max..	75	85	82	75	65	62	60	69	65	65	64	65	62	64	70	75	72	70	65	60	64	62	65	65	63	68	65	62	67	65	67	67.2
	Min ..	60	68	52	33	37	39	40	31	32	33	37	30	40	37	26	29	33	32	29	26	27	28	24	26	25	22	20	23	34	37	35	33.7
Mt. Ayr..	Max.	70	83	82	75	74	70	62	63	69	60	69	65	63	63	59	63	54	67	81	78	78	67	58	65	65	57	61	70	65	65	59	67.1
	Min ..	59	59	64	46	39	55	45	42	39	39	41	41	49	51	49	36	37	29	42	46	46	41	34	32	40	33	30	36	40	40	50	42.9
Mt. Pl'snt	Max..	72	73	82	75	67	75	64	60	57	65	61	65	68	60	60	58	51	58	70	68	68	58	52	52	63	55	52	61	63	66	69	63.5
	Min .	59	56	60	46	42	53	51	44	36	36	35	39	43	50	46	41	41	26	36	45	40	44	32	25	33	31	23	28	35	43	46	41.4
Mt. Ver'n	Max.	67	67	79	69	72	65	58	52	58	65	69	65	69	62	58	60	57	58	71	73	68	53	52	55	62	57	57	63	61	59	67	62.8
	Min ..	60	55	60	42	35	52	49	40	33	36	37	35	44	47	51	44	40	27	37	42	42	40	30	25	33	27	27	28	34	44	48	40.2
New H. ..	Max.	63	64	77	76	60	..	59	52	55	58	60	62	63	64	60	56	54	60	73	66	64	56	47	57	61	51	55	64	64	63	65	61.0
	Min	55	53	59	42	38	40	43	..	30	38	36	37	42	42	42	44	35	25	35	35	34	38	38	24	33	26	25	29	45	37	38	37.9
Newton..	Max.	67	70	79	69	64	67	67	60	58	60	63	65	65	64	60	60	57	65	75	68	68	63	52	59	63	53	56	65	63	65	62	63.6
	Min ..	57	57	57	45	36	53	42	42	35	38	38	40	46	46	48	35	37	28	40	44	41	39	32	27	38	29	26	31	39	43	43	40.4
Northw'd	Max	63	67	75	66	60	65	55	53	55	59	61	63	64	65	56	57	50	64	75	67	64	56	47	60	60	51	56	64	65	64	62	60 9
	Min .	54	55	53	42	33	48	42	42	32	38	39	37	48	42	46	48	34	28	36	45	36	33	30	26	38	27	24	29	35	35	40	38.8
Odebolt ..	Max..	65	78	75	66	66	69	62	58	63	64	66	64	65	68	56	64	54	70	78	71	70	61	51	65	65	55	69	74	65	65	62	64.6
	Min .	55	55	51	41	32	52	44	41	29	42	44	38	43	48	46	32	34	38	38	39	34	35	31	30	33	26	25	36	38	41	45	39.2
Ogden.. .	Max..	65	78	84	72	70	71	68	65	65	66	68	67	65	69	67	65	50	70	85	75	73	55	55	68	68	60	65	71	70	68	..	67.9
	Min ..	44	54	59	41	31	37	42	36	27	34	37	36	37	44	49	27	29	25	34	35	35	35	26	26	27	30	25	28	36	36	39	35.6
Olin	Max..	72	67	81	70	67	72	65	57	56	64	60	62	65	64	60	64	53	58	68	66	65	55	50	53	63	53	53	63	62	67	64	62.2
	Min ..	62	56	63	40	42	52	50	43	34	32	40	44	45	48	52	46	44	28	34	43	44	41	27	21	31	27	21	23	32	37	44	40.5
Omaha, N	Max..	66	85	78	70	71	82	63	62	68	66	67	58	61	60	55	66	51	70	85	74	75	65	56	70	66	59	61	69	66	61	57	66.5
	Min ..	58	61	55	48	44	60	49	45	40	47	50	47	51	52	47	38	38	39	48	47	46	43	37	40	44	37	36	42	46	48	48	46.2
Onawa....	Max.	65	82	76	63	69	73	67	65	66	68	66	60	64	63	59	68	56	73	84	75	74	65	62	70	71	59	62	72	66	66	59	67.4
	Min ..	57	58	60	47	39	57	47	43	36	46	47	50	47	49	48	33	36	35	40	42	41	40	33	34	39	31	30	36	42	46	45	43.0
Osage.....	Max..	65	65	75	67	61	65	55	51	54	59	60	63	62	65	57	55	55	60	71	64	62	56	45	57	53	48	53	63	63	63	61	59.8
	Min .	55	55	57	40	31	47	45	42	32	36	38	35	45	41	50	35	35	29	34	38	34	39	28	26	33	25	26	31	38	37	38	37.9
Osceola...	Max..	72	84	83	70	76	71	65	65	66	66	66	70	65	57	67	64	61	80	81	76	74	54	65	70	66	63	65	69	69	70	66	68.9
	Min	58	57	63	37	35	39	47	43	35	40	37	42	36	47	48	34	37	30	45	44	42	50	36	30	40	30	29	32	39	43	45	41.0
Oskaloosa	Max..	67	74	80	69	66	70	62	60	58	62	65	65	65	61	58	60	54	64	76	70	71	61	53	60	65	54	58	63	67	66	65	64.2
	Min ..	60	54	66	45	40	56	50	45	34	40	39	40	45	51	48	37	39	29	43	42	43	40	30	24	39	29	23	31	40	45	53	41.9
Ottumwa	Max..	68	76	83	75	73	72	65	62	62	63	66	67	70	62	60	66	..	65	80	80	78	..	56	62	68	60	60	70	67	70	70	68.1
	Min .	58	60	66	47	40	56	49	44	35	35	40	40	44	51	48	38	42	32	44	43	48	43	32	28	42	30	26	32	36	48	53	42.8
Pacific J'n	Max..	69	85	80	74	70	79	70	62	66	65	69	60	63	58	46	64	57	67	79	70	72	55	57	67	66	52	61	68	65	60	55	65.5
	Min ..	58	61	60	44	37	59	48	41	31	43	46	44	49	51	52	30	37	30	36	36	36	40	28	31	35	27	31	34	40	42	50	41.5
Perry.....	Max..	66	78	82	71	67	71	62	59	61	63	65	65	66	66	59	62	53	68	80	71	70	59	52	65	65	54	59	69	68	65	62	65.4
	Min .	58	58	59	46	36	54	47	44	33	39	33	38	47	50	48	33	32	29	39	41	40	40	34	28	37	28	25	30	36	37	48	40.2
Plover....	Max..	62	75	78	69	66	66	63	60	61	63	62	67	64	65	56	55	60	66	77	70	73	75	62	50	60	53	56	58	67	66	59	64.0
	Min ..	53	59	68	40	31	59	43	38	29	34	33	35	43	43	38	36	28	26	38	44	38	43	26	30	29	26	28	24	32	37	40	37.9
Primghar	Max..	62	74	77	60	61	63	56	56	61	64	64	58	62	66	53	60	49	61	76	67	66	55	53	60	52	57	61	67	67	59	58	61.5
	Min ..	53	54	51	41	41	33	36	39	33	43	44	56	48	48	43	32	33	32	39	58	36	35	31	40	28	28	31	37	41	43	40	39.6
Red Oak..	Max..	68	80	79	70	68	73	63	59	63	63	63	64	63	60	56	63	55	61	74	66	68	62	54	63	64	60	57	64	63	62	58	64.1
	Min ..	61	62	59	49	44	61	48	44	36	48	50	46	51	53	50	37	39	34	42	41	40	42	37	35	39	31	29	36	42	45	53	44 6
Ridgeway	Max..	70	68	82	68	67	69	57	56	63	62	64	68	70	74	60	60	56	66	77	71	70	58	53	64	69	59	61	70	71	70	72	66 0
	Min ..	59	55	54	43	32	50	45	43	33	40	38	40	49	45	51	38	38	28	39	42	37	39	31	28	38	28	29	33	40	41	43	40.3
Rockw'l C	Max .	61	76	74	75	70	70	60	58	61	63	64	61	65	65	56	62	59	69	80	70	68	69	67	64	60	63	58	67	65	65	66	65.5
	Min ..	55	54	55	56	35	52	45	43	35	40	40	38	45	46	48	33	32	33	41	40	38	37	35	30	38	27	28	33	38	38	43	40.4
Ruthven .	Max..	64	71	74	68	63	63	..	52	60	62	63	62	63	65	..	62	..	68	89	73	71	64	58	64	62	58	59	70	65	63	66	65.1
	Min ..	52	54	55	45	35	52	44	42	33	42	43	39	46	55	43	30	41	32	37	59	48	54	32	34	39	30	32	38	43	40	44	42.4
Sac City..	Max..	68	78	73	67	66	69	59	59	62	64	66	64	64	66	61	62	58	71	80	77	70	60	53	64	64	63	59	69	65	65	62	65.4
	Min ..	50	55	54	44	59	59	44	41	31	41	40	37	44	46	46	32	34	29	43	42	38	37	34	30	39	32	25	34	42	49	40	41.0
St. Cha'les	Max..	65	82	82	82	72	68	62	64	68	65	67	66	64	58	62	64	55	66	83	79	79	62	58	76	68	56	65	72	69	69	60	68.0
	Min ..	59	58	65	46	37	57	48	42	36	40	39	37	48	51	50	36	38	32	46	45	45	41	36	31	44	30	28	37	41	44	49	43.1
Sibley	Max..	59	73	70	65	60	59	40	58	66	66	64	57	55	68	62	62	49	..	68	68	67	..	62	63	52	44	59	46	46	40	..	58.9
	Min ..	50	50	58	40	32	51	43	39	30	43	43	44	45	42	42	28	..	30	..	35	32	35	..	32	40	28	27	34	34	44	36	38.8
Sigourn'y	Max..	79	75	80	82	69	70	64	60	60	67	66	70	70	65	59	81	57	63	75	72	72	60	54	60	65	59	58	68	68	67	69	67.0
	Min ..	39	44	43	45	39	51	50	44	34	35	35	38	38	49	48	37	37	28	40	44	44	40	29	27	28	28	24	29	35	44	48	38.5
Sioux C'r.	Max.	59	77	74	58	65	60	55	57	62	66	65	57	60	66	53	62	49	68	78	68	67	60	53	66	63	55	57	67	67	59	59	62.5
	Min ..	50	53	52	41	32	52	39	40	34	43	45	47	44	44	45	30	31	28	39	39	36	35	32	32	38	28	27	34	37	43	36	38.9
Sioux C'y.	Max..	59	83	78	62	66	68	62	59	65	66	66	54	63	66	58	69	46	74	84	73	71	51	56	72	65	56	60	70	65	60	60	64.8
	Min ..	51	57	52	40	36	56	49	42	33	46	49	48	46	48	44	34	34	37	44	40	39	37	37	36	42	31	35	39	44	46	42	42.4
Storm L..	Max..	60	75	64	65	66	50	57	60	62	64	61	63	66	57	60	50	68	78	70	68	58	53	60	60	55	58	68	64	63	62	..	62.2
	Min ..	53	53	53	39	35	53	45	41	31	42	40	40	42	46	42	30	34	35	40	27	30	36	31	29	31	20	28	35	38	36	34	37.8
Stuart. ..	Max..	70	80	80	70	66	71	61	72	61	62	63	65	64	61	57	61	57	..	76	68	68	62	50	61		63	56	60	64	82	61	65.4
	Min ..	57	59	42	46	35	44	47	42	23	29	34	26	34	38	38	23	26	..	32	32	31	28	25	20	..	19	18	25	19	28	38	33.0
Thurman.	Max.	69	84	80	70	68	78	70	62	68	64	67	62	61	58	53	62	58	67	81	69	73	65	56	68	67	57	59	67	64	58	55	65.8
	Min ..	60	62	62	41	39	60	52	47	38	45	47	41	49	52	47	30	37	28	38	38	35	42	44	28	35	27	25	31	42	40	52	42.4
Tipton....	Max..	75	67	81	72	70	72	63	57	63	62	67	66	64	65	62	60	53	60	70	71	70	58	54	55	65	56	57	65	65	65	68	64.5
	Min ..	64	58	63	48	43	55	52	44	36	40	39	41	47	49	51	47	42	30	40	46	44	43	32	28	37	33	30	31	39	33	51	43.1
Toledo....	Max..	66	70	81	73	67	68	63	59	63	62	66	68	70	69	60	62	55	66	78	73	72	59	55	60	67	56	59	69	68	66	62	65.5
	Min ..	58	57	62	42	34	51	49	42	31	37	38	36	46	48	50	36	38	27	35	42	41	39	27	21	34	26	20	29	38	43	48	39.5
Washi'ton	Max..	74	83	71	63	70	64	60	60	62	66	68	65	63	53	62	53	62	74	72	74	57	55	58	67	56	59	67	66	67	74	..	65.1
	Min	57	55	48	43	39	50	48	41	33	35	34	39	41	42	40	39	33	26	36	42	39	34	27	25	32	28	25	28	35	43	50	38.3
Waterloo.	Max..	65	70	82	74	66	68	62	57	61	61	65	67	68	70	68	61	52	63	76	72	69	55	52	62	65	52	59	69	68	65	66	64.8
	Min ..	55	57	57	44	33	40	49	42	33	34	37	38	42	44	47	38	36	30	35	41	38	35	28	24	33	25	23	28	36	41	45	38.3
Waverly..	Max..	64	66	79	70	70	66	58	55	56	60	62	64	65	67	56	59	55	60	75	67	66	54	48	58	62	51	56	65	65	64	64	62.2
	Min .	59	56	61	44	34	50	48	42	33	38	40	39	45	45	50	37	37	29	34	42	37	40	28	25	33	25	23	30	39	40	43	39.5
W.Bend..	Max.	59	73	79	67	64	64	60	57	61	63	65	66	66	66	56	62	49	70	78	68	65	57	50	63	62	54	58	68	66	66	66	63.3
	Min .	49	55	56	43	32	52	43	42	31	39	40	36	45	44	46	30	34	30	36	40	34	33	31	30	37	23	27	31	41	38	39	38.3
Whitten..	Max.	66	70	80	69	64	68	62	59	58	60	62	64	65	65	59	60	55	64	74	66	66	54	48	58	63	54	55	65	63	65	63	62.9
	Min	56	57	61	42	33	53	45	40	30	38	38	38	55	45	49	33	35	26	37	42	37	38	27	24	35	25	24	30	37	40	45	39.1
Wilton J.	Max.	75	80	82	70	65	73	65	58	59	63	64	66	65	67	63	..	.	..	63	..	67	68	53	53	65	56	54	63	62	66	70	65.9
	Min	57	57	64	44	42	52	53	45	34	37	37	37	45	47	47	..	..	..	37	..	42	40	27	23	33	25	22	27	36	42	50	41.0

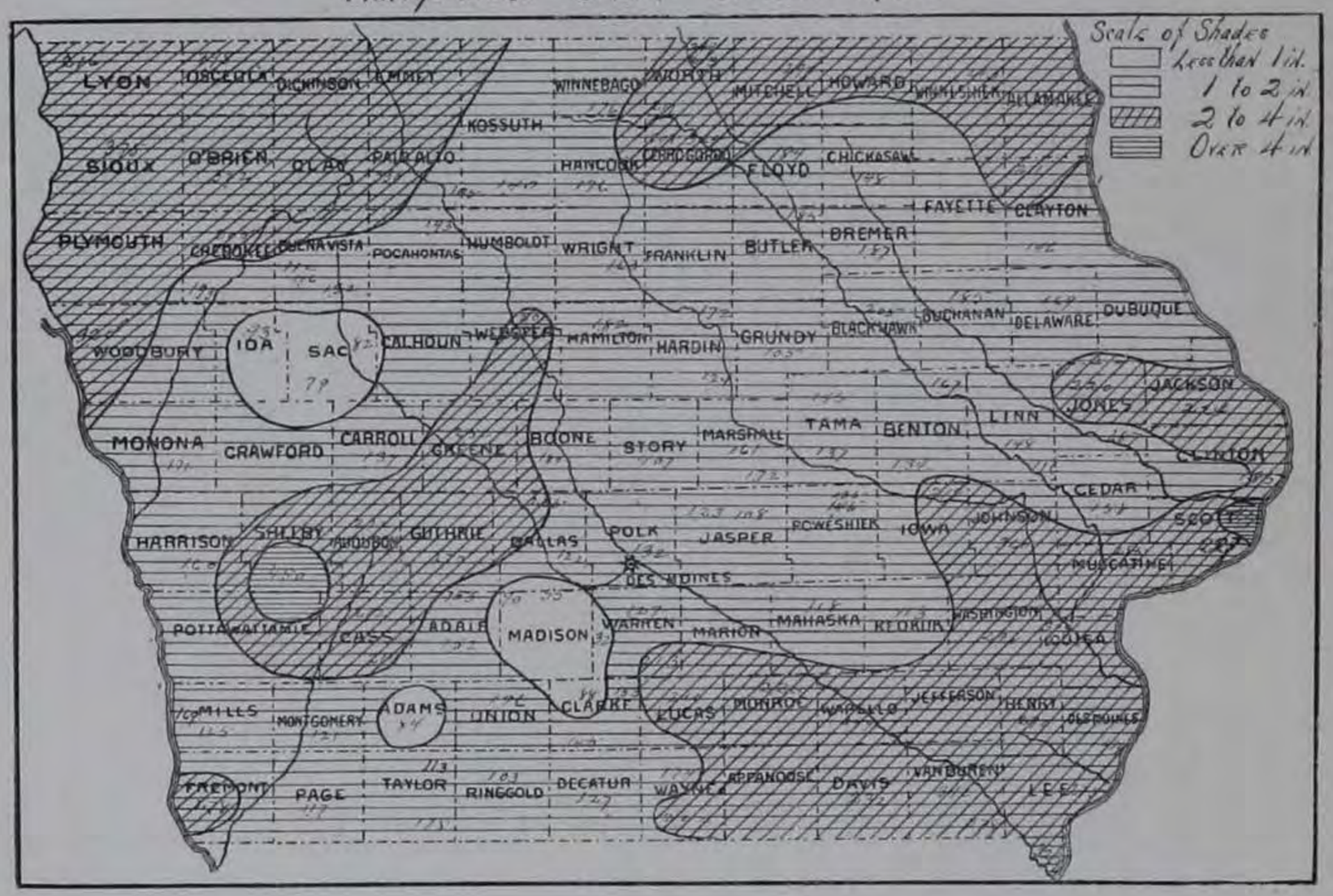
DAILY AND MONTHLY PRECIPITATION FOR OCTOBER, 1903.

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	....	.89	....	....	....	.81	....	....	....	....	....	....	..	.11	.15	....	....	..	....	....	....	....	....	....	..	....	....	..	....	T	T	1.96
Albia	.02	.02	1.10	.13	....	....	.65	....	....	....	..	....	..	....	.12	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2.26
Algona	....	....	.60	....	....	.45	....	....	....	....	....	....	....	....	.45	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.10	1.40
Allerton	T	.95	.35	....	..	.29	.45	....	..	....	....	....	....	.06	.02	....	..	....	....	....	....	....	..	....	....	..	....	....	....	....	....	2.22
Alta	.03	....	.08	....	..	.92	....	....	....	....	....	....	....	....	.09	....	..	....	..	....	....	....	....	....	....	....	....	....	....	....	....	1.12
Alta (near)	....	.05	.07	....	....	1.04	....	....	....	....	....	....	....	....	T	....	..	....	..	....	....	....	....	....	....	....	....	....	....	.02	.12	1.16
Amana	.18	.22	.85	....	..	.21	.55	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	T	..	2.15
Ames	.35	.17	.05	....	....	.46	T	....	....	....	....	....	....	.04	....	..	....	..	..	....	....	....	....	....	....	....	....	....	....	.26	.18	1.07
Atlantic	....	T	..	....	....	1.48	....	....	....	....	..	....	T	.05	.15	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.22	2.12
Aububon	....	.60	.27	....	....	1.42	....	..	....	....	....	....	....	.04	.17	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2.72
Baxter	...	.58	....	....	....	.65	....	..	..	....	....	....	....	.28	T	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.16	.12	1.23
Bedford	...	.74	T	....	....	.48	T	....	....	.	....	....	....	.33	T	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.07	1.78
Belknap	...	.92	.10	....	....	.33	.57	..	..	....	....	....	....	T	.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.01	.02	2.32
Belle Plaine	.11	T	.30	..	....	.90	....	....	....	....	....	....	.09	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.34
Bonaparte	....	1.27	.29	....	....	1.63	.50	....	.	....	....	....	....	T	.19	....	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	3.78
Britt	.02	12	.44	..	....	.90	.01	.08	....	....	....	....	....	.02	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.76
Buckingham	....	.13	.02	..	....	1.25	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	T	....	1.45
Burlington	...	.47	.06	....	..	.80	1.23	....	....	....	..	....	....	T	.12	....	....	....	..	....	....	....	....	....	....	....	....	....	....	.08	....	2.74
Carroll	...	.54	.09	....	....	.48	....	....	.	....	....	....	....	.20	.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.08	1.39
Cedar Rapids	.19	....	.14	.26	....	.02	.66	..	....	....	....	....	..	....	....	.13	....	.	....	....	....	....	....	....	....	....	....	....	....	....	.50	1.48
Chariton	....	1.10	T	....	.30	.20	T	....	..	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2.10
Charles City	.12	.04	.25	.52	....	.10	.72	.04	.	.	....	....	....	.35	.20	.05	....	....	....	..	....	....	....	....	....	....	....	....	....	....	.11	1.84
Clarinda	.	.36	.	....	....	....	.35	....	....	....	.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.17
Clear Lake	.55	.28	.35	....	.	1.15	T	.	....	....	....	..	....	....	.75	....	.	....	..	....	..	....	....	....	....	....	....	....	....	.02	09	3.68
Clinton	....	.05	.11	....	....	....	1.44	....	....	....	....	....	....	....	.17	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.05	1.85
Columbus Junct'n	...	.53	.39	....	....	1.35	.90	.	....	....	....	....	..	..	.06	.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.22	3.28
Corning	....	.21	....	....	..	.34	T	.	.	....	....	....	....	.02	.05	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....	.15	.84
Corydon	...	.59	.03	....	....	.21	.49	....	....	.	....	....	T	.22	.05	....	..	.	....	....	....	....	....	....	....	....	....	....	....	....	.15	1.74
Cumberland	.20	.	....	..	....	1.20	....	....	..	....	....	....	T	T	.40	....	....	....	....	....	....	....	....	....	....	....	....	....	....	T	.06	2.15
Davenport	.	.25	.45	..	....	.30	1.22	....	....	....	..	.	....	....	.02	.01	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	2.27
Decorah	.03	.02	.46	....	.	1.24	.04	....	.	....	....	....	....	.	0.34	....	....	....	....	....	....	....	....	....	....	....	....	....	....	T	.	2.13
Delaware	.	....	.30	....	....	.75	.42	.	.	....	..	....	....	....	.22	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.01	1.69
Des Moines	T	.59	.04	....	....	.60	T	....	....	.	.	....	....	.07	.01	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	T	1.32
De Soto	....	.22	.04	..	....	.20	.04	.	.	.	....	....	....	.05	T	....	.	..	....	....	....	....	....	....	....	....	....	....	....	....	.	.55
Dows	..	.30	.22	..	....	.30	.05	....	.	....	....	....	....	....	.76	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.63
Dubuque	T	.01	.74	....	.	.24	.60	T	....	....	.	....	....	.	.07	T	T	..	..	....	....	....	....	....	....	....	....	....	....	T	T	1.72
Earlham	.	.42	.	.	....	.36	.	....	..	....	.	....	.06	.06	....	....	.	....	.	....	....	....	.	....	....	....	....	....	....	.	T	.90
Elkader	.05	.02	.50	....	....	.60	T	.	....	.	..	....	....	.05	.24	.	....	....	....	....	....	....	....	....	....	....	....	....	....	.	.	1.46
Forest City	.05	25	.	.26	....	.	.78	T	....	.	....	....	.	.	.30	.12	....	.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.76
Fort Dodge	....	.32	.15	....	....	1.10	....	..	.	....	....	.	T	.45	....	..	.	....	....	..	..	....	....	....	....	....	....	....	....	T	....	....	2.02
Fort Madison	T	....	.12	....	....	2.58	T	..	....	....	....	..	.	.05	.	..	....	....	....	..	..	....	....	....	....	....	....	....	....	....	....	....	2.75
Galva	....	....	.	....	....	.93	.	..	....	....	....	..	....	T	T	....	....	....	....	..	....	....	....	....	....	....	....	....	....	T	....	.93
Gilman	.19	.60	T	....	..	.79	T	....	..	....	....	....	....	.03	T	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.11	....	1.72
Glenwood	.	.	.	.	.	.50	T	..	....	....	..	....	....	T	.25	.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.50	1.25
Grand Meadow	....	.10	.55	..	....	1.10	.	..	....	.	.	..	....	.	.36	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2.11
Greene	.10	.24	.22	.	.	.81	.04	....	....	....	....	..	....	.	.45	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.85
Greenfield	30	.33	....	....	....	.30	T	.	.	....	....	....	....	.03	.30	.01	....	....	....	....	....	....	....	....	....	....	....	....	....	....	23	1.52
Grinnell	.14	.41	.10	.	.	.65	.	....	.	....	....	.	....	.15	.	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	T	1.45
Grinnell (near)	.07	.15	.15	....	....	.60	.28	....	....	..	....	..	....	.10	.	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	T	1.35
Grundy Center	.03	.21	.06	....	....	.37	.22	....	..	.	.	....	....	.04	.12	....	.	....	..	....	....	....	....	....	....	....	....	....	....	....	....	1.05
Guthrie Center	....	.17	.	....	....	2.00	.	....	....	....	....	..	....	.05	.14	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.39	2.75
Hampton	....	.24	.28	....	..	.80	T	.	.	.	....	....	.	.45	.05	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.82
Hanlontown	.03	.08	.60	.	...	1.00	.04	.02	.	....	.	.	....	.	.40	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2.17
Harlan	.	2.80	.07	....	..	1.25	T	.	....	T	....	T	.01	.06	....	.	.	....	....	....	....	....	....	....	....	....	....	....	....	T	.31	4.50
Hopeville	.	.60	T	....	....	.57	T	.	....	....	....	....	.	.17	.08	.	.	....	....	....	....	....	....	....	....	....	....	....	....	....	.03	1.45
Humboldt	.34	.10	.22	....	.	1.14	.	..	....	....	....	....	....	.	.61	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2.41
Independence	....	.40	.45	....	....	.50	T	....	.	.	.	.	.	.	.50	....	....	..	....	....	....	....	....	....	....	....	....	....	....	T	....	1.85
Indianola	T	.49	T	.	.	.51	T	....	.	....	..	..	.	.19	.03	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.05	1.27
Iowa City	63	.	54	.34	..	....	1.95	T	....	.	....	....	....	....	T	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.05	3.60
Iowa Falls	.19	T	.11	.19	....	T	.53	T	....	..	....	....	.	....	.68	.02	..	....	....	..	....	....	....	....	....	....	....	....	....	....	....	1.72
Jefferson	.	.45	.27	.	....	1.28	.	.	....	.	....	.	.	.	.20	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.32	2.52
Keokuk	...	1.21	.01	....	....	.97	.92	.	....	....	..	..	.	.12	.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	T	T	3.23
Keosauqua	.	.	1.22	.40	.	.	1.65	....	....	.	.	.	.	.	15	.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.02	3.42
Lacona	...	74	.	....	....	.47	.41	..	.	....	....	....	.21	.17	.13	....	....	....	.	....	....	....	....	....	....	....	....	....	....	....	T	2.13
Larchwood	...	T	.76	....	....	.8	.	....	....	....	....	10	.50	....	T	....	....	.	....	....	....	....	....	....	....	....	....	....	....	....	....	2.16
Larrabee	....	....	.17	.	....	1.73	T	....	....	....	....	.10	.	.02	T	.	....	....	....	....	....	....	....	....	....	....	....	....	....	.02	08	2.05
Le Claire	.09	.	.09	.81	..	.	1.99	02	.	....	....	....	....	....	.14	T	....	....	..	....	.	....	....	....	....	....	....	....	....	....	.02	.01	3.17
Lenox	....	.35	....	.	....	.55	.	....	.	....	....	....	....	T	05	.	....	.	....	....	....	....	....	....	....	....	....	....	....	....	.05	.13	1.13
Leon	.	.45	.08	....	....	.18	.40	....	..	.	....	.	.	.16	....	..	....	....	.	....	....	....	....	....	....	....	....	....	....	....	.	.	1.27
Logan	.08	.40	....	....	.30	....	.	....	....	....	....	....	....	.15	.	T	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.37	.30	1.60
Maquoketa	.34	.	.06	.80	....	..	1.15	.06	.	....	....	....	.	.	.03	T	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.	T	2.24
Marshalltown	.03	.04	.13	....	....	.	1.32	.	....	....	.	.	....	.	05	.02	..	.	....	....	....	....	....	....	....	....	....	....	....	....	.02	.02	1.61
Monticello	T	.10	.90	.20	.05	T	.95	T	.	....	....	....	....	T	.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	T	T	2.20
Mason City	.50	.45	.33	.	....	1.40	....	.	....	.	....	....	....	.	.57	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.	.	3.25
Mount Ayr	.	.22	.03	.	....	.35	.03	..	....	....	.	.	.	.17	.05	....	..	..	....	....	....	....	....	....	....	....	....	....	....	....	.09	.09	1.03
Mt. Pleasant	.	.15	.51	.01	....	40	1.58	.	....	....	....	.	....	.	.04	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.01	.02	2.72
Mt. Vernon	.08	.07	.2	....	....	. 5	.49	.	.	....	.	....	.	T	.02	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.02	.02	1.16
New Hampton	.02	.	.52	....	.	70	.03	....	....	....	.	....	....	.02	.19	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.	.	1.48
Newton	.	72	.	.	..	.3	.	....	.	.	....	....	.	05	.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.	.	1.08
Northwood	..	05	.49	.	....	1.04	.03	.	....	.	....	....	....	.	.52	.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.	.	2.13
Odebolt	..	.14	.03	.	..	.52	....	..	..	....	....	.	....	.10	.	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....	.12	.79
Ogden	.50	T	.30	.16	....	.	82	.	....	.	.	....	....	.	.	.10	....	....	....	....	....	....	T	....	....	....	....	....	....	....	.01	.05	1.80
Olin	....	.30	..	....	.	1.20	T	....	....	....	.	....	....	T	.31	.	....	.	....	....	....	....	.	....	....	....	....	....	....	....	.22	.42	1.87
Omaha, Neb	....	.02	.01	..	..	.31	T	....	....	....	T	.05	03	.06	07	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.02	1.19
Onawa	.	1.14	03	.	.	.10	.	.	....	....	T	31	....	.03	.08	..	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	.02	1.71
Osage	.39	.34	.47	....	....	1.25	T	....	..	....	.	.	....	.	54	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	T	..	2.99
Osceola	..	.20	..	..	..	.	60	..	.	.	....	....	....	.05	.03	.	.	..	.	....	....	....	....	....	....	....	....	....	....	....	.	.	.88
Oskaloosa	..	1.00	02	.	....	.5	....	.	....	....	....	..	....	.02	T	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.05	.03	....	1 68
Ottumwa	.	1.16	....	....	....	1 3	.	....	....	....	....	.03	.03	T	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.	.	2.49
Pacific Junction	.	.	....	....	.	.4	.	....	.	....	....	....	....	.18	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	T	1.05	1.69
Perry	T	.40	.50	.	.	1.1	.	....	....	....	....	....	....	.09	T	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.24	2.35
Plover	.	.	.14	.	....	1.29	....	....	..	....	....	.	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.43
Primghar	.	.07	.50	..	.	2.30	.	....	....	....	....	.35	T	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	T	.52	3.22
Red Oak	.03	.04	..	....	....	.51	T	.	....	....	....	.	....	.03	.08	....	....	....	....	....	....	....	.	..	....	....	....	....	....	....	....	1.21
Ridgeway	.11	.15	.33	.	....	1.13	.01	..	....	....	.	....	..	.12	.16	....	.01	....	....	.	....	..	.	....	....	....	....	....	....	....	T	2.02
Rockwell City	..	.15	.20	....	....	.65	.	..	....	....	....	....	....	T	.60	...	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....	1.70
Ruthven	....	.40	.	.	....	2.90	.	....	.	....	.	....	....	..	.	....	....	.	....	..	.	....	....	....	....	....	....	....	....	....	....	.	3.30
Sac City	...	24	.10	.	.	.34	.	...	....	....	....	....	....	....	.14	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.82
St. Charles	.	.	.18	.	.	T	.02	.	....	....	..	....	....	.06	.05	.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.01	.32
Sibley	.55	T	02	.59	.	1.07	1.14	.01	.	....	.	.60	T	.	.	.....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	3 98
Sigourney	.	....	.	.25	..	.2	.60	....	.	....	.	.	....	T	.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	T	T	1.13
Sioux Center	.	....	46	.	.	2.82	.	....	....	.	T	.45	....	..	T	....	....	....	....	....	....	....	....	....	....	....	....	....	....	02	.	.	3.75
Sioux City	T	02	.44	..	..	2 02	.	..	....	.	.01	.74	.01	.	T	....	....	.	....	....	....	....	....	....	....	....	....	....	....	.	....	....	3.24
Storm Lake	.79	.	.07	..	..	.43	.	.	....	....	....	....	.	.	.03	.	..	....	.	....	..	....	....	....	....	....	....	....	....	....	....	....	1.32
Stuart	.	.19	.	....	....	.43	.01	....	.	....	.	T	.08	.04	.15	.	.	....	.	....	....	....	....	....	....	....	....	....	....	....	.21	....	1 03
Thurman	.	....	.	....	.	1.20	....	T	..	....	....	T	.08	1.10	T	.	....	....	....	....	....	....	....	....	....	....	....	....	....	.10	.3	2.78

DAILY AND MONTHLY PRECIPITATION FOR OCTOBER, 1903—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	
Tipton	....	.36	.16	..	....	.34	.71	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	.	....	....	....	..	....	....	.10	1.67
Toledo	....	.32	....	....	....	.90	....	....	....	....	....	....	....	T	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.	.15	1.37
Vinton	..	.09	T		....	1.46	....	....	..	....	....	....	....	.06	....	..	....	-	....	....	....	....	....	....	....	....	....	....	....	06	. .	1 67
Washington		1.40	.28	..	...	1.22		.	.	....	....	....	....	....	.05		..	....	....	....	.	...	. ..	....	....	....	....	..	....	....	.03	2.98
Washta	T	T	.36		....	1.47			....		T	.10	...	T	..	....		....		....	....	....	....	....	....	..	....	....	....	....	.	1.93
Waterloo	.05	....	.07	.08	...	.01	1.34	T	....	...	....	....	....	...	.50		..		....	....	....	....	....	....	...		....	....	....	....	...	2.05
Waukee	T	50	.30	....	....	.32	T	....	....	....	-	....	....	.10	T	....	....	....	..		....	....		....	..	-	....	....	....	....	T	1 22
Waverly	.05	.10	.33	....	....	.64	.10	...	....	..	....	....	....	.02	.63	....	..	....		....	....	....	..	....		....	..	....	....	....		1.87
West Bend	....	.04	.25	...	....	.47	....	....		....	....	....	....	T	.29	....	....	....	..	....	....	....	....	..	..		....	....		....	....	1.05
Whitten	T	.35	.22	....	..	.17	T	....	..	..	....		....	T	.50		....	....		..	..	....		....	....	....		....	..	....		1.24
Wilton Junction	....	...	1.20	..		1.45	.20		....	....	....	....	....	...	..	....	....	....	....		....			....	....	....	....	....	....	T	T	2.85
Woodburn	....	.54	T	....	..	72	.02					..	....	.17	---	....	....			....			....	....	....		....	....		....	.08	1.53

Precipitation Chart October 1903.



Area 6 Sub-Area A

Don

10,000
9,00
8,00
7,00
6,00
5,00
4,00
3,00
2,00
1,00
90
80
70
60
50
40
30
20
10

Madison

Adair

Union

Adams

1903 5 7 9 11 13 15 17 19 21 23 25 27 29 31 1932

KEUFFEL & ESSER CO., N.Y. NO. 359-62
Semi-Log rithmic, 2 Cycles x 12 to the inch.

NOVEMBER 1933 No. 11

KEUFFEL & ESSER CO., N. Y. NO. 359-52
Semi-Logarithmic, 1 Cycle × 12 to the inch.

omitted

Corn.
Area 2. Sub-Area A.
Percent Acreage Changes 1903-1932.

Dade

275
200
150
125
100
90
80
70
60
50
40
30

Lyon.

Hancock

Osceola.

Clay

Dickinson.

1903 5 7 9 11 13 15 17 19 21 23 25 27 29 31 1932

NOVEMBER, 1903. No. 11.

CONTENTS.

CENTRAL STATION, DES MOINES, IOWA.

J. R. SAGE,
DIRECTOR

GEO. M. CHAPPEL,
LOCAL FORECASTER,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

ALLIED PRINTING TRADES UNION LABEL COUNCIL DES MOINES, IA.

DES MOINES:
BERNARD MURPHY, STATE PRINTER
1903.

THE IOWA WEATHER AND CROP SERVICE

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

STATE BOARD OF AGRICULTURE,

CONSTITUTED AS FOLLOWS:

OFFICERS.

W. W. MORROW, PRESIDENT, Afton.
C. E. CAMERON, VICE-PRESIDENT, Alta.
G. D. ELLYSON, TREASURER, Des Moines.
JOHN C. SIMPSON, SECRETARY, Des Moines.

EX-OFFICIO DIRECTORS.

ALBERT B. CUMMINS, Governor of Iowa.
H. R. WRIGHT, Dairy Commissioner.
DR. J. I. GIBSON, State Veterinarian.

DISTRICT DIRECTORS.

First District—R. S. JOHNSTON.
Second District—C. W. PHILLIPS, Maquoketa.
Third District—W. C. BROWN, Clarion.
Fourth District—R. T. ST. JOHN, Riceville.
Fifth District—S. B. PACKARD, Marshalltown.
Sixth District—T. C. LEGOE, What Cheer.
Seventh District—M. J. WRAGG, Waukee.
Eighth District—JOHN LEDGERWOOD, Leon.
Ninth District—M. McDONALD, Bayard.
Tenth District—J. W. WADSWORTH, Algona.
Eleventh District—H. L. PIKE, Whiting.

METEOROLOGICAL STATIONS AND OBSERVERS.

From the following, weekly and monthly reports of Metorological data are received by the Iowa Weather and Crop Service.

Afton	Hon. N. W. Rowell
Albia	E. R. Reeve
Algona	C. D. Pettibone
Allerton	Rex Shriver
Alta	D. E. Hadden
Alta (near)	W. J. Minard
Amana	Conrad Schadt
Ames	Exp. Station
Atlantic	J. W. Love
Audubon	Geo. E. Kellogg
Baxter	W. T. Thorp
Bedford	E. E. Healy
Belknap	A. W. Rankin
Belle Plaine	S. P. Vandike
Bonaparte	Hon. B. R. Vale
Britt	G. P. Hardwick
Buckingham (Traer P. O.)	Dr. W. A. Daniel
Burlington	I. S. Shontz
Carroll	Moses Simon
Cedar Rapids	Electric Light and Power Co.
Chariton	C. C. Burr
Charles City	C. H. Priebe
Chester	C. H. Meredith
Clarinda	A. S. Van Sandt
Clear Lake	John Cobb
Clinton	Luke Roberts
College Springs	A. M. Finley
Columbus Junction	J. B. Johnston
Corning	Jerome Smith
Corydon	Miss May Miller
Council Bluffs	Agent C., R. I. & P. R'y
Cresco	J. E. Doolittle
Cumberland	Agent C., B. & Q. R'y
Davenport	*J. M. Sherier
Delaware	Wm. Ball
Decorah	F. H. Baker
Denison	Prof. W. C. Van Ness
Des Moines	*Geo. M. Chappel
De Soto	R. D. Minard
Dows	A. C. Fuller
Dubuque	*Orin Parker
Earlham, R. F. D.	Geo. Phillips
Eldon	T. Madden
Elkader	Chas. Reinecke
Estherville	Earle W. Peterson
Fayette	R. Z. Latimer
Forest City	J. A. Peters
Fort Dodge	Tobin College
Ft. Madison	Miss L. A. McCready
Galva	D. W. Farnsworth
Gilman	Jas. L. Wylie
Grand Meadow (Postville P.O.)	F. L. Williams
Greene	J. L. Cole
Greenfield	J. G. Culver
Grinnell	Prof. J. S. Buck
Grinnell (near)	A. O. Price
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Guthrie Center	D. G. Beardsley
Hampton	E. C. Grenelle
Hanlontown	Miss G. M. Paschen
Harlan	C. A. Reynolds
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Indianola	Prof. J. L. Tilton
Iowa City	Prof. A. A. Veblen
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Jefferson	Isaac Young
Keokuk	*Fred Z. Gosewisch
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Larrabee	H. B. Strever
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Leon	Millard F. Stookey
Logan	Mrs. M. B. Stern
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Mason City	J. S. Mills
Monticello	C. E. Heisey
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Osceola	Mrs. S. Lewis
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Perry	J. A. Harvey
Plover	J. S. Smith
Primghar	Jasper N. Marsh
Red Oak	J. S. Cole
Ridgeway	Arthur Betts
Rockford	J. R. Waller
Rockwell City	C. M. Randall
Ruthven	F. M. Fitzgerald
Sac City	J. A. Sodestrom
St. Charles	C. W. Minard
Sheldon	J. B. Frisbee
Sibley	H. G. Doolittle
Sigourney	Mrs. R. F. Ashbaugh
Sioux Center	Jacob de Ruyter
Sioux City	*U. G. Pursell
Spencer	S. Gillespie
Spirit Lake	W. C. Drummond
Stockport	C. L. Beswick
Storm Lake	L. E. Burdick
Stuart	Hon John Herriott
Thurman	C. R. Paul
Tipton	F. K. Gregg
Toledo	Herbert Giger
Vinton	T. F. McCune
Villisca	C. E. Matteson
Wapello	Geo. W. Schofield
Washington	Wm. A. Cook
Washta	H L. Felter
Waterloo	M. L. Newton
Waukee	E. J. Leonard
Waverly	H S Hoover
Whitten	Dr. Frank P. Butler
Wilton Junction	J. M. Rider
Winterset	B. L. Sprinkle
West Bend	Phil Dorweiler
West Union	J M. Lisher
Woodburn	C. B. McDonough

*U. S. Weather Bureau.

WEATHER-CROP OBSERVERS.

Reporting for the Weekly Bulletin.

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Albia	Wm. Mercer
Allerton	James Piper
Alta	Jonas Cushman
Blairstown	T. H. Weil
Burt	R. Jain
Cedar Rapids	Hon. A. J. Fuhrmeister
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Chariton	C C. Burr
Clarksville	F. M. Russell
Correctionville	Hon. W. B. Chapman
Corwith	Wm. Oxley
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Fruitland	R. T. Hummel
Goldfield	D. M. Stephens
Geneva	Wm. H. Thompson
Hartwick	Fred McCulloch
Harlan	H. B. Kees
Hesper	G. E. Dillingham
Humeston	Hon. S. H. Moore
Independence	Geo. H. Wilson
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Red Oak	Hon. C. L. Stratton
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Toledo	W. G. Malin
Van Horne	Spencer Smith
Weldon	Ed Worden
Winterset	H A. Kinsman
West Branch	Wrigley Smith
West Union	H. B. Blackman
Wilton	Thos. Boot
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Woodward	Geo. Swisher

U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

VOLUME XIV. NOVEMBER 1903. No. 11.

IOWA CROPS—FINAL REPORT, 1903.

AVERAGE YIELD PER ACRE; TOTALS FOR THE STATE; CURRENT FARM PRICES, DEC. 1, 1903.

Following is a summary of crop reports from correspondents of the Iowa Weather and Crop Service, showing the average yield per acre and totals of staple soil products, and the average prices at the farms or nearest stations December 1, 1903. In this showing of the value of the season's output of grain, forage, etc, no reckoning is made of the increment in value gained by consumption of soil products on the farms in the production of beef, pork, mutton, horses, butter, poultry, eggs, etc. Usually the prices obtainable for the crops at the close of the season do not express more than two-thirds of the actual value of the staple products of the soil.

THE CORN CROP.—In estimating the output of this crop the most difficult problem is to determine the extent of loss of acreage caused by floods and adverse weather conditions in the season of planting and cultivating. As a result of inquiry and careful computation it appears that the corn area actually cultivated and harvested this season is approximately 7,398,320 acres. The returns of township assessors show that the area planted in 1902 was 8,925,068 acres, and by comparison it is shown that the reduction this season amounted to about 1,526,748 acres. The average yield per acre for the state this year was 31 bushels, and the aggregate product is estimated at 230,511,310 bushels. The average farm price on December 1st was 36 cents per bushel, making the aggregate value $82 984,071. Last year the product was much inferior in quality though much larger in amount, and the value was computed at $83,000,000. The yearly average for 13 years has b en $69,633,000.

In respect to quality of the grain and actnal commercial value, the corn crop of this season is fully 20 per cent better than the output of 1902.

WHEAT.—Winter wheat acreage harvested 84,934 acres; yield per acre, 16 9 bushels. total yield, 1,435,380 bushels; average price 70 cents per bushel; total value $1,004,766. Spring wheat area harvested 752,488 acres; average yield 12.6 bushels per acre; total product 9,481,350 bushels; price per bushel 65 cents; total value $6,162,877. Aggregate value of wheat $7,167,643. Last year the value was $7,062,640. Average yearly value for past thirteen years, $10,524,000.

OATS.—The oats crop this season has been below the average in yield per acre and weight per bushel, as a result of adverse conditions. The area harvested was 3,822,882 acres; average yield 25.9 bushels per acre; total product, 99,012,660 bushels; aggregate value, at 30 cents per bushel, $29,703,798. Last season the product was 92,907,000 bushels, valued at $22,907. The average yearly output for thirteen years has been 117,118,000 bushels, and the value $25,420,000.

BARLEY.—Area harvested, 493,108 acres; yield per acre, 24 7 bushels; total product, 12,179,790 bushels; average price, 37 cents per bushel; total value, $4,506,522. The yield and value are about the thirteen-year average.

RYE.—Area harvested, 123 273 acres; average yield 15.6 bushels per acre; total product, 1,923,060 bushels; current price, 44 cents per bushel; total value, $846,146.

FLAX.—Area harvested, 40,823 acres; yield per acre, 8.7 bushels; total yield, 355,160 bushels; current farm price, 78 cents per bushel; total value, $277,024.

POTATOES —Area harvested, 113,433 acres; average yield, 5.38 bushels per acre; total product, 6,082,694 bushels; average farm price, 75 cents per bushel; value of product, $4,562,020. The total yield is about half the 13 year average; total value about the average of the 13 year period.

HAY.—(Tame). Average yield per acre, 1.9 tons; total product, 5,216,404 tons; current farm price, 5.75 per ton; value of crop, $29,994,323

HAY.—(Wild). Yield per acre, 1.3 tons; total product, 1.191,345 tons; average price, $4.95 per ton; total value, $5,-897,157. The hay crop as a whole (tame and wild) is nearly 900,000 tons in excess of the 13 year average.

PASTURAGE.—This most important soil product has been at its best in the recent wet seasons, when the cereal crops have suffered much detriment from excessive moisture. It is not measurable by the ton or bushel, and its value can only be estimated approximately by considering it as the basis of stock growing and dairying. From this point of view it will be a conservative estimate to figure the output of pastures and all other grazing lands at an average of $300 per farm. This makes a total value of $68,000,000 for the state.

Corn fodder in shock and fields is worth at least $10,000,000.

Sorghum, broom corn and sweet potatoes are worth about $750,000.

TABULATED CROP SUMMARY.

Crops.	Total Products.	Farm Values Dec. 1.
Corn	230,511,310 bus.	$ 82,984,071
Wheat	10,916,730 bus.	7,167,643
Oats	99,012,660 bus.	29,703,798
Barley	12,179,790 bus.	4,506,522
Rye	1,923,060 bus.	846,146
Flax	355,160 bus.	277,024
Potatoes	6,082,694 bus.	4,562.020
Hay (tame)	5,216,404 tons	29,994,323
Hay (wild)	1,191,345 tons	5,897,157
Pasturage (estimated)	.....	68,000,000
Timothy and Clover Seed	.....	1,225,000
Corn Fodder	.....	10,000,000
Sorghum, Broom Corn and Sweet Potatoes	.....	750,000
Fruits and Vegetables	.....	10,500,000
Total Value		$256,413,704

FINAL CROP REPORT, 1903.

AVERAGE PER ACRE AND TOTAL YIELD BY COUNTIES.

Counties.	Corn.		Winter Wheat.		Spring Wheat.		Oats.		Rye.		Barley.		Flax.		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 bushels.	Bushels per acre.	Total bushels.	Bushels per acre.	Total bushels.	Bushels per acre.	Total bushels.	Tons per acre.	Total tons.	Tons per acre.	Total tons.
Adair	25	2,299,400	8	2,720	12	118,200	25	741,250	15	3,900	24	14,210	....	.....	38	44,460	1.5	72,480	1.2	3,210
Adams	25	1,605,000	20	25,220	11	35,320	21	268,170	20	10,860	20	20,400	....	.....	40	30,560	1.8	52,500	1.0	1,500
Allamakee	40	1,641,200	15	15,600	12	38,320	30	1,388,300	10	14,200	30	209,760	8	3,240	40	43,680	2.0	78,520	1.0	2,310
Appanoose	25	1,160,250	15	23,250	....	.....	27	283,950	10	23,910	....	.....	....	.....	25	28,300	1.7	71,740	2.0	1,640
Audubon	30	2,141,100	16	640	12	235,320	22	708,340	18	2,970	25	58,100	....	.....	45	41,710	2.0	51,860	2.0	8,460
Benton	32	3,682,810	....	.....	15	25,720	30	1,939,350	12	10,080	25	339,600	....	.....	60	107,340	1.5	58,740	1.0	7,920
Black Hawk	34	2,752,200	20	940	12	5,760	28	1,502,480	16	27,840	29	107,010	....	.....	80	110,640	1.9	58,050	1.6	18,930
Boone	26	2,081,110	....	.....	11	34,310	24	1,100,640	11	5,412	20	5,400	....	.....	45	49,000	2.0	40,900	1.5	24,300
Bremer	25	1,351,420	....	.....	12	5,040	24	1,229,520	20	27,700	24	36,680	....	.....	62	82,460	1.8	31,050	1.2	18,720
Buchanan	40	2,439,200	....	.....	15	7,680	25	1,326,870	18	12,610	25	33,000	....	.....	80	76,320	2.0	71,680	1.5	18,550
Buena Vista	33	2,699,080	....	.....	15	54,660	24	1,255,680	16	6,720	22	68,640	....	.....	60	78,640	2.0	37,200	1.5	24,000
Butler	28	2,514,540	....	.....	12	4,830	25	1,819,000	13	22,100	20	16,400	....	.....	80	100,320	1.9	33,420	1.5	19,420
Calhoun	20	1,312,140	....	.....	9	40,410	23	1,391,310	10	2,790	21	80,010	....	.....	30	25,200	2.0	32,840	1.4	16,250
Carroll	40	2,950,720	....	.....	12	198,600	25	1,363,620	18	4,680	20	65,420	....	.....	50	86,150	2.0	42,360	2.0	30,740
Cass	28	2,831,360	....	.....	14	269,080	25	755,250	20	9,120	22	23,760	....	.....	45	69,750	1.8	62,290	1.5	4,110
Cedar	41	3,805,210	22	18,260	16	21,120	32	1,095,680	17	30,460	30	365,300	....	.....	80	89,280	2.5	97,950	1.5	1,240
Cerro Gordo	31	2,302,060	....	.....	11	10,560	28	1,836,520	16	8,128	25	52,250	6	10,460	80	104,800	1.8	41,770	1.3	14,180
Cherokee	38	3,370,220	....	.....	11	240,790	31	1,494,510	15	1,650	26	135,460	....	.....	40	49,600	2.0	40,090	1.5	19,590
Chickasaw	27	1,554,170	....	.....	15	15,150	26	1,780,640	15	11,670	24	63,120	13	66,430	72	87,264	1.9	46,380	1.5	16,270
Clarke	21	1,010,520	20	9,600	.....	.....	21	332,910	15	7,690	.....	.....	.....	.....	45	21,010	1.6	72,430	1.0	610
Clay	24	1,677,360	....	.....	10	62,300	25	1,290,250	15	15,300	22	391,730	8	13,640	52	41,020	1.5	28,630	1.4	29,270
Clayton	41	2,929,450	16	28,416	13	75,730	28	1,831,760	16	80,720	30	188,600	....	.....	82	63,960	2.0	91,620	1.5	4,980
Clinton	35	3,873,100	18	9,450	12	32,480	24	817,040	15	48,150	22	113,410	....	.....	70	81,970	2.0	88,640	1.5	6,310
Crawford	33	3,484,470	....	.....	10	424,270	25	952,750	14	9,870	20	56,360	....	.....	50	98,556	2.0	65,020	1.3	12,240
Dallas	35	3,157,700	20	38,080	14	53,760	30	1,094,280	20	15,200	30	25,200	....	.....	50	43,750	2.0	49,390	1.5	14,130
Davis	25	1,028,050	13	23,530	.....	.....	23	350,060	10	24,480	....	.....	....	.....	30	19,500	1.8	84,020	1	160
Decatur	24	1,427,280	16	24,690	.....	.....	25	398,500	12	8,940	....	.....	....	.....	40	46,080	1.6	86,970	1.0	670
Delaware	32	2,645,760	20	1,220	16	20,960	28	1,352,540	20	38,200	33	168,960	....	.....	50	58,150	1.6	60,360	1.0	7,910
Des Moines	22	938,520	18	63,180	15	7,200	26	653,120	16	15,680	.....	.....	.....	.....	58	46,790	1.8	35,800	1.0	590
Dickinson	25	916,250	.....	.....	10	52,500	22	581,680	12	4,200	20	362,600	10	14,600	45	22,950	1.8	13,960	1.5	22,140
Dubuque	42	2,563,260	15	2,370	15	55,590	24	1,256,400	20	41,920	33	83,820	....	.....	60	115,200	2.0	91,65	1.4	3,940
Emmet	33	1,848,710	....	.....	12	31,680	33	1,145,800	10	2,730	30	246,300	10	14,760	58	23,890	2.2	23,910	1.8	20,770
Fayette	35	2,895,200	18	3,240	12	36,360	35	1,660,250	20	23,200	30	152,700	9	17,820	70	114,00	2.0	97,240	1.5	10,780
Floyd	28	2,069,760	....	.....	12	5,240	26	1,636,700	17	23,290	31	119,040	8	20,080	45	85,050	1.8	31,950	1.4	10,220
Franklin	33	2,887,830	....	.....	12	21,720	29	1,908,390	12	10,080	25	25,550	....	.....	50	51,450	2.0	40,260	1.0	17,190
Fremont	30	3,116,100	12	90,480	11	22,770	25	222,550	20	10,820	.....	.....	.....	.....	60	38,400	2.0	28,170	1.0	5,710
Greene	20	1,355,700	....	.....	12	27,720	22	867,240	12	1,800	24	53,040	....	.....	51	32,380	2.0	36,410	1.2	14,520
Grundy	40	3,428,560	....	.....	12	27,780	25	1,565,720	5	1,870	22	233,080	....	.....	70	106,750	2.0	43,480	1.0	8,100
Guthrie	28	2,231,480	20	8,800	13	122,330	26	900,920	20	4,940	30	31,200	....	.....	52	28,080	2.2	62,890	1.3	9,210
Hamilton	25	1,564,500	....	.....	12	37,080	22	1,047,420	14	980	20	15,600	7	5,740	53	69,960	1.8	33,400	1.5	33,150
Hancock	30	1,567,800	....	.....	13	61,490	25	1,837,000	20	5,800	24	62,640	9	12,780	40	36,480	1.5	26,110	1.5	28,510
Hardin	31	2,706,610	....	.....	11	49,610	27	1,402,110	16	3,680	21	15,330	....	.....	62	87,180	1.8	37,130	1.5	22,140
Harrison	35	3,653,650	15	4,350	12	367,680	25	383,750	15	18,330	30	31,830	....	.....	65	90,450	2.2	21,750	1.5	19,920
Henry	30	1,737,600	15	32,400	12	840	25	563,000	15	67,800	22	40,370	....	.....	70	35,420	2.0	44,250	1.0	140
Howard	25	1,146,250	....	.....	15	10,120	30	1,694,400	18	2,340	28	161,640	10	61,800	48	44,160	1.8	53,280	1.2	14,010
Humboldt	36	1,554,840	....	.....	12	53,160	32	1,200,640	16	2,240	30	60,900	10	11,220	80	35,640	2.4	35,400	1.5	21,340
Ida	28	2,555,020	....	.....	10	189,860	23	792,350	15	5,400	22	97,460	....	.....	40	36,880	2.0	41,420	1.2	5,410
Iowa	39	2,678,910	30	7,500	19	25,080	30	1,029,600	20	13,800	28	122,920	....	.....	70	86,100	2.2	97,370	2.0	2,100
Jackson	33	2,337,720	17	6,630	15	61,560	22	787,380	18	60,100	30	104,200	....	.....	75	87,000	1.8	77,390	1.5	6,070
Jasper	35	3,604,150	15	16,200	13	99,600	27	1,168,830	16	19,680	30	.....	.....	.....	58	118,610	1.8	62,570	1.2	2,410
Jefferson	31	1,465,990	14	34,440	12	840	27	511,920	16	93,280	20	46,120	....	.....	65	31,850	1.7	51,612	.....	.....
Johnson	38	3,421,520	15	12,300	14	17,220	27	1,081,620	15	52,020	28	176,120	....	.....	71	91,590	2.0	87,260	1.5	2,380
Jones	35	2,696,400	....	.....	12	15,360	26	901,300	16	33,320	30	186,600	....	.....	70	52,570	2.0	90,420	1.5	1,500
Keokuk	28	2,383,080	14	22,540	12	9,840	25	785,500	18	57,780	24	79,440	....	.....	55	46,750	1.5	59,800	1.0	370
Kossuth	22	2,464,220	.....	.....	13	197,380	24	1,591,380	15	3,300	25	139,250	9	28,980	35	55,780	1.5	34,660	1.0	56,670
Lee	30	1,530,900	15	109,650	.....	.....	21	439,340	15	90,090	20	2,420	....	.....	50	58,050	1.6	60,360	1.0	210
Linn	2	2,793,920	18	1,800	12	25,320	30	1,413,900	16	23,370	25	23,570	....	.....	65	99,480	1.5	60,430	1.0	5,210
Louisa	28	1,335,320	15	45,600	13	910	28	617,080	15	60,450	20	18,800	....	.....	58	28,520	2.0	32,070	1.5	710
Lucas	27	1,193,980	20	25,400	.....	.....	30	412,800	14	25,760	.....	.....	.....	.....	25	12,250	1.5	63,550	1.0	350
Lyon	28	1,975,120	....	.....	11	379,390	27	1,295,190	15	2,550	25	1,063,000	7	1,540	58	70,180	2.0	16,720	1.5	20,070
Madison	35	2,486,750	15	21,150	12	43,680	27	510,030	20	13,800	30	51,600	....	.....	45	27,000	2.0	77,020	1.5	4,470
Mahaska	32	3,020,150	15	24,750	12	20,520	30	952,500	15	31,560	25	70,250	....	.....	40	35,600	2.0	61,880	1.0	940
Marion	31	2,706,920	15	46,200	12	44,120	20	569,600	16	31,040	22	20,240	....	.....	58	48,720	2.0	51,220	1.0	1,190
Marshall	42	4,178,160	....	.....	15	91,750	24	1,294,080	20	11,020	25	64,350	....	.....	58	66,120	1.8	50,580	1.0	2,200
Mills	31	2,179,610	17	36,720	10	71,200	23	264,100	16	8,480	20	8,400	....	.....	45	38,250	1.8	29,510	1.2	4,910
Mitchell	25	1,379,250	....	.....	10	23,000	23	1,399,300	14	8,540	25	324,000	8	38,120	22	27,060	1.5	36,780	1.0	3,290
Monona	32	2,882,240	20	18,400	11	646,200	30	541,920	10	11,070	25	132,250	....	.....	50	60,500	2.0	8,680	1.5	42,840
Monroe	25	1,175,250	12	3,840	12	1,320	28	284,640	11	10,450	20	6,400	....	.....	40	22,400	2.0	61,760	1.0	420
Montgomery	32	2,738,560	13	30,230	12	128,510	25	348,000	15	7,400	20	6,600	....	.....	50	34,590	2.0	64,880	1.0	1,510
Muscatine	35	2,398,600	20	49,800	15	23,100	28	602,560	18	96,380	23	149,730	....	.....	65	130,650	2.2	52,820	1.0	3,070
O'Brien	30	2,420,800	....	.....	15	267,150	30	1,672,200	15	4,200	20	522,600	8	3,040	50	61,150	2.0	35,620	1.5	20,370
Osceola	21	844,620	....	.....	8	97,680	20	692,600	18	2,160	17	494,870	6	4,690	32	20,160	1.7	18,130	1.5	12,420
Page	28	2,886,520	18	164,750	13	65,540	22	269,940	20	26,200	25	28,000	.....	.....	70	62,370	1.8	34,890	1.5	4,680
Palo Alto	28	1,726,720	....	.....	11	30,470	26	1,187,680	10	3,500	28	173,740	7	23,120	40	32,360	1.7	16,670	1.0	31,960
Plymouth	33	3,597,660	....	.....	12	858,360	25	1,028,000	15	7,350	22	225,060	8	1,680	50	96,250	2.0	35,840	1.0	27,910
Pocahontas	30	2,903,500	....	.....	12	25,720	25	1,053,000	20	9,440	22	68,420	8	20,960	40	43,560	1.8	21,920	1.2	38,650
Polk	38	3,794,900	16	20,360	15	61,650	31	1,107,940	18	14,760	20	2,620	....	.....	55	108,680	2.0	43,670	1.8	17,850
Pottawattamie	32	5,735,360	12	12,120	12	469,320	23	690,230	16	12,960	22	221,010	....	.....	48	117,120	2.0	67,080	1.5	19,660
Poweshiek	35	3,169,460	15	1,300	13	34,190	26	1,008,860	16	8,960	30	130,200	....	.....	72	76,320	2.1	91,490	1.2	770
Ringgold	25	1,730,600	14	13,020	10	130	23	490,360	12	10,080	25	4,520	....	.....	30	13,590	2.2	53,960	1.4	890
Sac	36	3,432,600	.....	.....	13	118,820	31	1,617,580	20	5,800	28	145,880	11	1,210	70	71,750	1.9	47,530	1.3	15,880
Scott	41	3,005,710	21	46,620	16	115,440	25	559,970	17	37,500	25	714,600	....	.....	85	364,650	2.0	53,580	1.5	6,930
Shelby	30	3,218,700	....	.....	13	415,870	22	591,140	16	5,920	21	133,770	....	.....	50	65,300	2.0	55,860	1.5	12,910
Sioux	33	4,033,480	....	.....	12	756,720	28	1,422,680	15	1,620	26	876,660	10	4,200	42	58,800	1.7	18,156	1.6	37,120
Story	30	2,652,300	22	3,520	14	21,940	26	1,363,180	18	8,820	23	11,730	....	.....	60	48,840	2.0	44,980	1.5	22,360
Tama	34	2,902,080	....	.....	13	93,860	26	1,252,160	13	6,630	22	398,640	....	.....	70	113,750	2.0	81,780	1.4	7,120
Taylor	28	1,615,600	15	70,810	.....	.....	22	355,740	13	13,780	19	20,330	....	.....	52	33,390	2.0	69,480	1.6	810
Union	25	1,223,000	18	2,880	12	1,320	22	409,600	16	4,320	21	8,610	....	.....	52	41,860	2.0	85,426	1.2	1,290
Van Buren	28	1,123,080	16	44,160	.....	.....	22	260,260	12	54,060	.....	.....	.....	.....	50	20,750	1.8	65,440	1.5	45
Wapello	31	1,552,170	20	50,140	12	2,160	25	366,000	15	73,650	23	24,960	....	.....	53	48,760	1.7	54,890	1.5	180
Warren	31	2,517,820	20	24,200	14	3,240	27	618,560	17	31,620	24	48,720	....	.....	51	40,290	1.8	73,950	1.5	2,490
Washington	35	2,296,350	18	27,180	14	4,480	23	749,910	14	42,280	30	115,200	....	.....	70	48,370	2.0	52,430	1.0	180
Wayne	22	1,150,160	15	2,370	.....	.....	30	447,120	12	13,320	.....	.....	.....	.....	43	17,630	1.8	107,540	1.5	330
Webster	25	2,263,500	....	.....	15	78,950	30	1,986,930	15	3,900	26	30,160	8	6,480	55	57,210	2.2	42,520	1.5	50,070
Winnebago	20	818,800	....	.....	12	99,840	22	882,420	.....	.....	23	25,760	8	18,200	50	30,400	2.0	23,370	1.5	23,610
Winneshiek	33	2,098,860	18	1,980	13	92,560	25	1,756,300	19	6,840	26	268,060	10	72,130	30	35,280	1.8	85,670	1.5	9,020
Woodbury	35	2,366,230	18	10,080	12	516,120	30	914,225	13	10,530	30	222,360	9	2,250	45	65,250	2.0	25,860	1.5	22,780
Worth	32	1,157,440	....	.....	12	48,120	31	990,140	15	2,550	30	54,990	11	63,910	45	33,300	2.0	33,520	1.5	15,640
Wright	25	1,861,000	....	.....	15	62,700	24	1,388,640	15	2,625	24	39,120	8	12,080	40	29,280	2.0	38,440	1.6	29,100
Total for state		230,511,310	....	1,435,380	....	9,481,950	....	99,012,660	....	1,923,060	....	12,179,790	....	355,160	....	6,082,694	....	5,216,404	....	1,191,345
Av. per acre	31	.....	16.9	.....	12.6	.....	25.9	.....	15.6	.....	24.7	.....	8.7	.....	53.8	.....	1.9	.....	1.3	.....

NOVEMBER WEATHER AND CROPS.

November was unusually dry and seasonably warm, with less than the average amount of atmospheric disturbance. Conditions were favorable for farm operations, and excellent progress was made in cribbing the corn crop in good condition. The cobs contained more than the usual amount of moisture, but the dry weather and freezing temperature prevented damage by heating in the cribs. The small acreage of fall wheat and rye suffered no material injury from dry weather and freezing. The weather was highly favorable for stock feeding and pastures afforded good feed throughout the month. The supply of water for stock is ample for the winter.

NOTES AND COMMENTS.

All that is known about sun spots is that their appearance is due to terrific disturbances in the solar photosphere and that they are coincident with magnetic storms in the terrestrial atmosphere. To say that the latter are caused by the former is a very loose way of stating the case. The two phenomena are evidently connected, and both are probably caused by an identical and still undiscovered force of nature.—*Philadelphia Record.*

A San Francisco special dated November 7th, says: All hands stood aghast on the American bark Oregon while a tremendous waterspout, the mightiest ever reported, passed two miles astern of the vessel. The Oregon was then, September 12th, in south latitude 15 49 and longitude west 152.06 on her way from Newcastle, N. S. W., to this port with coal.

Captain Parker says there was a moderate breeze from the north and the air had a queer "feel" when the water two miles away was rushing and foaming up to an astounding height. This water eruption crossed the wake of the Oregon, and as it did so, rose higher and formed the spiral waterspout to the sky overhead. It was at least two miles high. Captain Parker estimates that in its most slender part the waterspout was six feet through. He says that for fully a mile around the base of the waterspout there was a frightful surf, higher by far than any breakers seen on the beaches. "If it should have happened to pass over the ship," says Captain Parker, "it would have torn masts and yards out of her and finally swamped her." Members of the crew were badly frightened during the progress of the unusual phenomenon.

Mr. Fred. M. Taylor, postmaster, Titusville, Fla., reports that on September 17th, during a thunderstorm shortly after sunset, each electrical discharge was accompanied by small typical strokes of only a few inches in length between neighboring rain drops. These were synchronous with the main discharge, and when they struck the hands or face produced a sharp stinging ensation.—*U. S. Weather Review, September 1903.*

Cablegrams from Europe, dated Nov. 30th, brought reports of damaging storms of rain, snow and sleet, covering Italy, Belgium and Great Britain. The barometric depression at Rome was the lowest recorded at the government station for the past twenty-five years. The disturbance extended to the coast of Algiers, where torrential rains, lasting thirty-four hours, caused great damage on land and sea.

In its insular possessions the United States has volcanoes to burn. The Philippines are abundantly supplied with them. Mayon, 8,970 feet high, has had twenty-two violent eruptions since 1776, destroying thousands of human lives and much property. One eruption, in 1897, continued nine months, and was quite destructive. Manila is frequently shaken by earthquakes radiating from volcanic centers.

What is the value of the product of the pastures and other grazing lands of the state? This is a problem to be solved by experts who have made a study of farm statistics. Our great herds of live stock obtain a large percentage of their living and growth in flesh by grazing in the pastures in spring and summer and in meadows and grain fields in other seasons of the year. This enormous output of the soil cannot be expressed in tons or bushels; it is marketed in form of beef, pork, mutton, wool, dairy products, etc. How much of the total value of the live stock industry should be credited to the grasses which are transformed into flesh? This is not an easy question.

THE AGRICULTURAL REPORT.

Secretary Wilson has submitted to the President his annual report of the Department of Agriculture for the year 1903, this being the seventh report made by Mr. Wilson since his acceptance of that office.

Secretary Wilson reviews at length the production and exports of American agricultural products. The increase in the exports of farm products for the half century ended in 1901, was from $147,000,000 at the outset to $952,000,000 in the closing year of the period. For the year 1903 the exports amounted to $878,000,000, an amount second only to the total for 1901.

Of grain and grain products, the export exceeded in value $221,000,000, and in the supply of animals, meats and meat products the value of exportation was $211,000,000.—Discussing the balance of trade, the secretary shows that the favorable balance to the credit of this country is due entirely to the farmers. The balance of trade in favor of farm products during the last fourteen years, no year excepted, aggregated $4,806,000,000. In products other than those of the farm during the same period, the balance of trade was adverse to this country to the extent of $865,000,000. Our farmers not only canceled this immense obligation, but placed $3,940,000,000 to the credit of the nation when the books of the international exchange were balanced. He concludes that "it is the farmers who have paid the foreign bond-holders."

Reviewing the magnitude of agricultural production, after giving the figures of the most important crops, Mr. Wilson states that the value of all farm products, not fed to live stock, for 1903 considerably exceeded their value in the census year, when it was given as $3,742,000,000.

According to the department's inventory of farm animals for January 1, 1903, the value of horses was over $1,000,000,000 and of mules nearly $200,000,000. The value of cattle of all kinds considerably exceeded $1,300,000,000, of sheep $168,000,000, and of hogs $365,000,000.

The secretary reports a gratifying extension in public education along meteorological lines. Regular courses of lectures or classes have been conducted by weather bureau officials in not less than twenty colleges and universities. Many of the representatives of this bureau have, moreover, delivered occasional addresses in other classes or colleges, and to teachers of schools. The demand for instruction on these subjects increases rapidly.

A distinct advance by the weather bureau is noted in the preparation of daily weather charts at their different levels, i. e., the sea level, and at the 3,500-foot and 10,000-foot planes. So far this improvement is confined to the barometric pressure, but it is most important to secure charts of the temperature on the two upper planes as well, and unfortunately these can be secured only by means of balloon and kite ascension.

PHYSIOLOGICAL EFFECTS OF DIMINISHED AIR PRESSURE.

In a communication published in *Science* for November, 1901 (page 696), Mr. H. H. Clayton, of Blue Hill Observatory, gives some observations on the number of his pulse-beats, noted during a recent ascent of Pike's Peak by railroad. The pulse increased from 78 beats per minute at Manitou (6,662 ft.) to 92 at the summit of the mountain (14,147 ft.). Mr. Clayton's note recalls some similar observations made by the writer in Peru in 1897, during two ascents of El Misti (19,200 ft.), then the site of the highest meteorological station in the world, established by Professor S. I. Bailey, and operated by the southern station of the Harvard College Observatory at Arequipa. Both ascents were made on mule back, so that no physical exertion was necessary. The first ascent was on October 7th, the start being from the Observatory (8,050 ft.) on October 6th. Although provided with clinical thermometers and with a sphygmograph, the writer suffered so severely from mountain sickness that he made very little use of his instruments. His temperature at 5:30 P. M., October 5th, twelve hours before leaving Arequipa, was 98°.4; his respiration 24, and his pulse 90. On the summit of El Misti the body temperature was 96°.4; the respiration 34, and the pulse 110. Twelve hours after arrival at Arequipa the figures were 98°.0, 24 and 85 respectively. A rather unsatisfactory sphygmograph curve was obtained on the summit.

The second expedition to El Misti was made on November 9, 1897, and on this trip the writer suffered much less from mountain sickness than on the previous one. At an altitude of 15,700 feet a short walk of about 100 yards was taken to the instrument shelter. Two stops were necessary on the way, to get breath. An hour after this exercise, the pulse was 128, the body temperature 97.°.0 and the respiration 30. The corresponding figures twelve hours before leaving Arequipa were 91, 98°.6 and 20. The night was spent at 15,700 feet. The body temperature immediately after waking in the morning was 96°.2; the pulse 112, and the respiration 30. Twenty minutes after reaching the summit, the temperature was 97°.2, the pulse 120, and the respiration 32. In an hour and a half the respiration was 35, the pulse and temperature remaining the same. In two hours the temperature was 96°.8, the pulse 112, and the respiration 34. Three fairly good sphygmograph curves were obtained on the summit. These curves possess some interest as being, so far as I have been able to learn, the first, with possibly one exception, to be secured at so great an altitude as 19,200 feet. At any rate, no curve from so great an altitude was reproduced until a copy of one of these tracings from the Misti summit was printed in an article by the writer in the *Journal of the Boston Society of Medical Sciences* for June, 1898.

On the second expedition to El Misti the descent was begun two hours and a half after reaching the top. At the hut at the base of the mountain (15,700 ft.), after walking to and from the shelter, the pulse was 130, but the respiration had decreased to 30 One hour after arriving at Arequipa the temperature was 98° 2, the pulse 116, and the respiration 22, and twelve hours after arrival the pulse had fallen to 82—about the writer's normal at the Observatory—and the respiration to 22, the normal being 20.

In counting the pulse on the summit it was quite unnecessary to place the finger on the wrist. The heart-beats could plainly be *heard*.—*R. DeC. Ward, in Science*.

MISSOURI RIVER CLOSED DECEMBER 1.

The channel of the Missouri river at Sioux City was closed by ice December 1st, which date is about four days earlier than the average closing at that point for the past twenty-six years. The earliest date in that period is December 12, 1896, and the latest January 20, 1889. The following table, compiled from local records by the Journal of that city, is of interest:

YEAR.	DATE OF CLOSING.
1878	December 12
1879	November 30 and December 8
1880	November 18
1881	December 30
1882	November 21
1883	November 30
1884	November 22
1885	December 5
1886	November 19
1887	November 27
1888	January 20, (1889)
1889	November 21 and January 1 (1890)
1890	January 4 (1891)
1891	November 25 and December 25
1892	December 17
1893	November 29
1894	December 28
1895	November 29
1896	November 12
1897	November 27
1898	November 22
1899	December 20
1900	November 20
1901	December 17
1902	December 5
1903	December 1

CLIMATOLOGY OF THE MONTH.

BAROMETER.—Mean pressure, 30.14 inches; highest observed, 30.65 inches, at Dubuque, on the 20th; lowest observed, 29.38 inches, at Dubuque, on the 11th; range for state, 1.27 inches.

TEMPERATURE.—The monthly mean temperature for the state, as shown by records of 105 stations, was 34.2 degrees, which is 0 1 below normal. By sections the mean temperatures were as follows: Northern section, 32 2 degrees; Central section, 34.0 degrees; Southern section, 36.3 degrees. The highest monthly mean was 39.0 at Osceola and Red Oak; lowest monthly mean, 30.0, at Estherville. The highest temperature reported, was 76°, at Pacific Junction, on the 1st; lowest temperature reported, 5° below zero, at Carroll and Audubon, on the 18th and 26th. The average monthly maximum was, 68.3; average monthly minimum, 3.1. Greatest daily range, 43, at Osceola; average of greatest daily ranges, 30.9.

PRECIPITATION.—Average precipitation for the state, as shown by records of 116 stations, was 0 52 of an inch, which is 0.85 of an inch below normal. The averages of sections were as follows: Northern section, 0.17 inch; Central section, 0.57 inch; Southern section, 0.82 inch. The largest amount reported was 1.74 inches, at Allerton; least amount reported, Trace, at Algona, Charles City, Forest City, Mason City, Northwood and Whitten. The greatest daily rainfall reported was 1.38 inches, at Washington, on the 10th and 11th. Average number of days on which .01 of an inch or more was reported, 3.

WIND AND WEATHER.—Prevailing direction of the wind, northwest; highest velocity reported, 43 miles per hour, from the northwest, at Sioux City, on the 9th. Average number of clear days, 13; partly cloudy, 8; cloudy, 9.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES. Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	30.11	30.62	20	29.39	11
Des Moines	30 16	30 63	19	29.43	12
Dubuque	30.13	30.65	20	29.38	11
Omaha, Neb	30 14	30.67	18	29.49	10
Keokuk	30.13	30.62	20	29.55	11
Sioux City	30.14	30.61	18	29 43	12
Means	30.14	30.65	20	29.38	11

WIND MOVEMENT. -

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	5.796	30	W	9
Des Moines	6.769	35	W	9
Dubuque	5 613	32	NW	23
Keokuk	5.867	34	SW	12
La Crosse, Wis	6.155	27	W	9
Omaha, Neb	7.145	37	NW	9
Sioux City	10.059	43	NW	9

OBSERVERS' NOTES.

ALLERTON—*Rex Shriver*. Corn is nearly all in crib. The yield is fairly good but the quality is generally poor.

ALTA—*David E. Hadden*. November was comparatively dry and pleasant. The first snowfall of the season was on the 24th—amount one inch. Light aurora was noticed on the evening of 18th.

AMANA—*Conrad Schadt*. The weather was dry, affording sufficient time for the soft corn to dry out. Husking is about finished. Cold weather in the middle of month put a stop to plowing.

AUDUBON—*Geo. E. Kellogg*. First snow of the season fell on the 13th.

BONAPARTE—*B. R. Vale*. A dry and pleasant month. No storms and not excessively cold. Farm work progressed finely.

BRITT—*Geo. P. Hardwick*. Precipitation for the month, .05 inch, the least of any November during past seven years. Ground frozen after the 12th. The dry weather during the past weeks has been beneficial for unripe corn, nearly all of which has been gathered.

CHARLES CITY—*C. H. Priebe*. Unusually fine weather. Only a trace of snow during entire month.

CLINTON—*Luke Roberts* Rainfall, 0.78 inch, being a deficiency of 1.12 inches as compared with the normal. The mean and minimum temperature and the number of clear days were above normal. The first snow of the season fell on the 28th.

EARLHAM—*Geo. Phillips*. No snow on ground at close of month. Ten per cent of corn still in fields.

GRAND MEADOW (Postville P. O).—*F. L. Williams*. The month was very dry and favorable for farm work. Stock pastured all the month

GRUNDY CENTER—*E. S. King*. Corn all husked and fall work was never in better shape.

HANLONTOWN—*Miss G. M. Paschen*. The yield of corn averaged from 50 to 60 bushels per acre. Many farmers had finished husking by 21st.

JEFFERSON—*Isaac Young*. The ground froze on the 16th.

LEON—*M. F. Stookey*. The first snow of the season fell on the 13th.

MOUNT AYR—*A. F. Beard*. Thunder on the nights of 3d and 8th, and during the day of 4th.

OGDEN—*E. Sayre*. The first snow of the season fell on the 24th, amount 1.00.

RIDGEWAY—*Arthur Betts*. Thunder showers on the 9th. Ground frozen since the 22nd.

WASHINGTON—*Wm. A. Cook*. The first snow fell on the 13th.

WHITTEN—*Dr. Frank P. Butler*. The first month in over six years that there has been no precipitation to record.

ERRATA IN SEPTEMBER REVIEW.

AUDUBON.—Total precipitation recorded 2.78 inches on page 8 and 11, should have been 2.79 inches.

COLLEGE SPRINGS.—Mean temperature recorded 62.7° on page 8, should have been 62.1°.

DOWS.—Total precipitation recorded 2.00 inches on page 7 and 11, should have been 2.02 inches.

ROCKWELL CITY.—Mean temperature recorded 65.6° on page 7, should have been 60.6°.

TIPTON —Total precipitation recorded 5.30 inches on page 7, should have been 5.36 inches.

OMAHA, NEB.—Mean temperature recorded 63.2° on page 8, should have been 63 0°. Mean maximum temperature recorded 73.2° on page 10, should have been 73 0°.

BELATED REPORTS.

DENISON.—October. Mean temperature 51.0°; lowest 22° on the 18th; greatest daily range 49°; total precipitation .89 inch; greatest in 24 hours .63 inch on the 6th; number of rainy days 2.

ESTHERVILLE.—October. Mean temperature 50.2°; highest 79° on the 20th; lowest 24° on the 27th, greatest daily range 45°; total precipitation 2.49 inches; greatest in 24 hours 1.70 inches on the 7th; prevailing direction, southeast; number of clear days 16, partly cloudy 5, cloudy 10, rainy 8.

FAYETTE.—October. Mean temperature 49.4°; highest 79° on the 3rd; lowest 18° on the 27th; greatest daily range 41°; total precipitation 1.73 inches; greatest in 24 hours .90 inch on the 6th; preyailing direction, southeast; number of clear days 20, partly cloudy 3, cloudy 7, rainy 5.

SHELDON.—October. Mean temperature 51.0°; highest 79° on the 19th; total precipitation 3.31 inches; greatest in 24 hours 2.35 inches on the 6th; number of rainy days 3.

SPIRIT LAKE.—October. Mean temperature 51.2°; lowest 28° on the 26th; total precipitation 4.00 inches; greatest in 24 hours 4.00 inches on the 5th and 6th; number of rainy days 1.

STOCKPORT.—October. Total precipitation 3.47 inches; greatest in 24 hours 1.40 inches on the 2nd; prevailing direction, northwest; number of clear days 20, partly cloudy 5, cloudy 6, rainy 4.

VILLISCA.—October. Mean temperature 50.6°; highest 82° on the 2nd; lowest 25° on the 25th; greatest daily range 38°; total precipitation 1.27 inches; greatest in 24 hours .60 inch on the 6th; prevailing direction, northwest; number of clear days 20, partly cloudy 9, cloudy 2, rainy 4.

WAPELLO.—October. Mean temperature 53.0°; highest 79° on the 3rd; lowest 27° on the 26th; greatest daily range 27°; total precipitation 2.05 inches; greatest in 24 hours .80 inch on the 6th; prevailing direction, southwest; number of rainy days 4.

CLIMATOLOGICAL DATA FOR NOVEMBER, 1903.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				SKY.				Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).	Number rainy days.	Number clear days.	Number partly cloudy days.	Number cloudy days.		
Algona	Kossuth	1,213	28	33.8	†1.7	70	2	4	26	31	T	-1.22	T	T	0	9	11	10	NW	
Alta	Buena Vista	1,513	11	32.2	†1.3	68	2	2	26	26	.62	- .41	.50	1.0	4	10	13	7	NW	
Alta (near)	Buena Vista										.79		.62	1.5	3					
Britt	Hancock	1,236	5	31.4	- .9	68	1	0	26	29	.05	- .67	.03	T	2	3	23	4	NW	
Charles City	Floyd	1,012	11	30.5	- .2	69	1,2	0	26,27	33	T	-1.34	T	T	0	12	5	13	E, NW	
Decorah	Winneshiek	857	8	32.2	†0.7	68	1,2	3	26	29	.18	-1.36	.18		1					
Dows	Wright	1,142		32.4		68	2	- 1	26	29	.10		10	T	1	17	0	13	NW	
Elkader	Clayton	727	21	32 4	†0 3	72	1,2	2	26	36	.21	-1.47	.16	T	2	11	12	7	NW	
Estherville	Emmet	1,298	7	30.0	†0.9	69	2	0	26	37	.06	-1.11	.02		3	15	2	13	NW	
Fayette	Fayette			31.0		69	1,2	- 1	26	42	.06		06	T	1	15	9	6	NW	
Forest City	Winnebago	1,223	8	31.0	†0.1	73	2	0	25	31	T	-1.09	T	T	0	15	4	11	W	
Grand Meadow	Clayton	1,180	11	31.2	-0.3	68	2	2	26	32	.28	-1.26	.14	.5	5	8	10	12	NW	
Hampton	Franklin	1,155	12	33.3	†1.9	72	2	2	26	32	.19	-1.37	.14	T	3	8	20	2	NW	
Hanlontown	Worth			31.2		68	1,2	- 1	26	32	.08		04	.4	2	20	2	8	NW	
Humboldt	Humboldt	1,095	10	34.6	†1.7	69	1,2	2	26	28	.08	-1.31	.06		2	24	4	2	NW	
Larchwood	Lyon			31.1		70	2	1	17	35	.17		.10	1 6	2	15	11	4	N	
Larrabee	Cherokee	1,306		32.4		69	1	- 1	26	30	.26		.14	1.8	2	12	12	6	NW	
LeMars	Plymouth	1,224	6	33.4	† .5	68	2	3	17	31										
Mason City	Cerro Gordo	1,182		33 4		68	1	4	26	24	T	-1,00	T		0	6	17	7	NW	
New Hampton	Chickasaw	1,169		30 4		70	2	- 2	26	30	.05		.05	.5	1	13	6	11	NW	
Northwood	Worth	1,222	6	31.8	† .8	69	2	2	26	24	T	-1.43	T	T	0	16	9	5	NW	
Osage	Mitchell	1,184	11	31.2	†2.8	66	1,2	0	26	26	.06	-1.36	.06	.6	1	11	9	10	NW	
Plover	Pocahontas	1,190	5	32 2	-1.3	69	2	3	26	39	.04	-1.41	.04	T	1	18	2	10	NW	
Primghar (*b*)	O'Brien			33.5		66	2	1	17	29									NW	
Ridgeway	Winneshiek	1,215		34.6		73	2	1	26	34	.11		.05		4	12	12	6	NW	9.
Ruthven‡	Palo Alto			32.6		70	8	- 4	17	34	T		T		0	12	2	16		
Sibley	Osceola	1,512	8								02	- .89	.02	.2	1	9	12	9	N	
Sioux Center	Sioux			31.8		67	1,2	2	17	30	.10		.10	1.0	1	8	8	14	S	
Storm Lake	Buena Vista	1,440	7	31.8	-1.7	68	3	0	26	32	.52	- .30	.51	.1	2	15	6	9	NW	
Washta	Cherokee	1,157									.70		.55	1.5	2	14	11	5	NE	
Waverly (*a*)	Bremer	942	6	31.8	-1.7	69	1	2	25	29	.08	-1.26	.05	T	2	8	11	11		
West Bend	Palo Alto	1,197	8	33.9	†3.8	69	1	1	26	32	.03	-1.30	.02	T	2	11	9	10	S	
Average				32.2	†0.6	69.0		1.1		31.1	0 17	-1.13		0.4	2	13	9	8	NW	

CENTRAL SECTION.

Amana	Iowa	721	25	33 5	†0.7	66	1	5	26	25	.60	-1.15	.35	T	3	11	14	5	NW	
Ames	Story	926	20	35 2	†2.3	68	1	5	26	28	.14	-1.03	.10		2	28	1	1	NW	
Audubon	Audubon	1,301	8	34.5	†0 5	66	1,4	- 5	26	30	.94	- .50	.60	2.2	6	8	11	11	S	
Baxter	Jasper	998		34.2		70	1	2	26	31	.20		.20		1	14	6	10	SW	
Buckingham	Iowa										.29		.28	T	2	8	19	3		
Carroll	Carroll	1,265	12	34.4	†1.6	73	4	- 5	18	35	.44	- .59	.30	3 0	3	18	4	8		
Cedar Rapids	Linn	733	19	33.8	-1 5	67	1	7	27	34	.48	- .94	.36		3	10	8	12	NW	
Clinton	Clinton	609	34	35 0	-0 1	67	1,2	8	26	28	.78	-1.10	.71	.3	6	9	7	14	NW	
Davenport	Scott	606	31	36.2	-0.6	68	1	9	26	24	.70	-1.36	.53	T	3	10	11	9	W	11.
Delaware	Delaware	1,083	11	31.4	†0 2	67	1,2	1	26	28	.36	-1.20	.29	.5	3	13	13	4	NW	
Denison	Crawford	1,180	8	35.1	†1.3	67	1	- 1	26	32	.46	- .39	.36	1.0	2	19	2	9	N	
Des Moines	Polk	841	24	36.2	-0.2	69	1	10	17	25	.31	-1.40	.25	0.1	2	9	10	11	NW	
De Soto	Dallas	866		35.4		67	1	3	26	29	1.04		.60	1.0	5	15	4	11	NW	
Dubuque	Dubuque	655	29	34.4	-0.6	70	2	7	26	26	.75	-1.35	.69	.4	4	11	12	7	NW	
Fort Dodge	Webster	1,126		33 0		68	3	5	26	35	.41		.39		2					
Galva	Ida	1,200	8	31.6	-0.6	69	2	- 3	26	32	.05	-1.10	.05	.5	1				NW	
Gilman	Marshall	1,052									.18		.18	T	1	13	6	11	NW	
Grinnell	Poweshiek	1,023	9	33 9	-0.6	64	1,3	3	26	25	.24	-1.29	.23	T	2	10	10	10	W	
Grinnell (near)	Poweshiek			33.4		66	1	2	26	27	.25		.25	T	2	13	10	7	SW	
Grundy Center	Grundy	976	11	33.3	†1.2	68	1,2	0	26	30	.21	- .97	.15	T	2	15	6	9	W, NW	
Guthrie Center	Guthrie	1,077	6					0	26	36	1.32	† .41	.65	1.2	7	10	10	10	SE	1.
Harlan	Shelby	1,192		35.0		66	1	1	26	31	1.02		.34	7.2	8	6	16	8	SE, S	4.
Independence	Buchanan	921	38	32 1	-0.8	69	2	1	26	29	.16	-1 20	.15	T	2	16	9	5	NW	
Iowa City	Johnson	685	43	34.2	-1.1	72	1	6	26	38	.97	-1.36	.72		2	5	12	13	W, NW	
Iowa Falls	Hardin	1,170	9	31.0	-0 4	68	1	0	26,27	28	.09	-1.12	.09	T	1				NW	
Jefferson	Greene	1,052									.23		.15	.8	3	4	16	10	NW	
LeClaire	Scott	578									.70		.47	T	3				NW	
Logan	Harrison	928	35	35 5	†0.0	65	1,4	6	19	34	1.54	† .30	.40	5.8	7	12	6	12	NW	
Maquoketa	Jackson	688	9	32.8	-3 6	68	1	4	27	39	1.13	- .25	.87		5	12	7	11	NE	
Marshalltown	Marshall	947	9	33.1	-1 7	70	1	3	26	38	.40	- .76	33	T	4	10	7	13	NW	
Mt. Vernon	Linn	847	35	32.6	-1.6	67	1,3	2	26	30	.93	- .35	.72	.4	8	15	4	11	N W	
Newton	Jasper	944	14	34.6	†0.7	67	1	2	25	27	.16	-1 59	.16	T	1	19	4	7	S	
Odebolt	Sac	1,356	5	33.7	-2.1	70	1	0	26	32	.36	- .63	.15	1.8	4	17	3	10		
Ogden	Boone	1,088	8	33.3	-0.9	69	3	- 1	26	37	.25	- .74	.15	1.0	2	17	0	13	NW	
Olin	Jones	760		33 8		66	1	4	26	22	1.01		1.00	T	2	11	7	12	NW	
Onawa	Monona	1,053		36.6		69	1	7	17	24	1.34		.50	5.7	7	17	1	12	SE	
Perry	Dallas	975		35.6		69	1	4	26	30	.36		.24	1.0	4					
Rockwell City	Calhoun			33.6		66	4	1	27	36	.50		.45	.5	2	12	10	8		
Sac City	Sac	1,278	22	34.3	†0.6	68	2	3	26	30	.26	- .89	.14	1.0	2	10	12	8	NW	
Sioux City	Woodbury	1,165	13	34.8	†0.5	68	2	5	17	26	.96	† .14	.45		4	7	9	14	NW	
Stuart (*a*)	Guthrie	1,216	5	34.0	-0.8	65	2	6	26	32	.84	- .04	.69	1.5	3				NW	
Tipton	Cedar	807		35 4		70	1	8	26	30	1.53		1.17		1	11	14	5	SW	
Toledo	Tama	856	8	33.8	-1.4	70	1	1	26	29	27	-1.14	.20	T	2	14	8	8	NW	
Vinton*§	Benton	810	12	33 4	-0.4	69	10	3	26		.20	- 90	.20	T	1	23	3	4	NW	
Waterloo	Black Hawk	862	15	34.0	-0.7	70	1,2	2	26	30	.19	-1.19	.08	T	3	13	9	8	W	
Waukee	Dallas	1,039									.98		.72	0.5	5	12	13	5	NW	
Wilton Junction	Muscatine	683	7	34 6	-1.8	69	1	5	26	30	1.67	† .56	.96	T	2	22	3	5	NW	
Whitten (*b*)	Hardin	1,036		32 2		67	1	0	26	32	T		T	T	0				NW	
West Branch	Cedar	718																		
Average				34 0	-0.3	68.0		2.9		30.3	0.57	-0.83		1.0	3	13	8	9	NW	

CLIMATOLOGICAL DATA FOR NOVEMBER, 1903—CONTINUED.

SOUTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted)		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Afton	Union	1,212	7	36.3	†1.3	67	1	4	26	27	.88	-.13	.27	4.0	4	9	11	10	NE, NW	
Albia	Monroe	957		36.2	.....	70	9	8	26	42	.64	.....	.40	T	4	16	1	13	SE	
Allerton	Wayne		....	36.1		70	1	3	26	30	1.74	.....	.67	2.0	6	16	5	9	NW	11
Atlantic	Cass	1,164	11	36.2	†2.2	67	1	....	.....	34	1.24	+.54	.60	6.0	4	6	4	20	S	3
Bedford	Taylor	...	....	36 9	.....	67	1	5	19	38	.87	....	.57	1 2	6	9	6	15	NW	
Belknap‡	Davis	877	7	41.0	†1.4	75	3,4	9	26	38	1 51	-.21	1.00		4	...	..	....	N, E, S, NW	
Bonaparte	Van Buren	.....	10	35.6	-2.0	68	1	8	26	31	.94	-.95	.80	5.0	3	....	..	....	.....	
Burlington	Des Moines	544	....	37.2	...	72	1	9	26	28	.84	.....	.50	T	4	13	9	8	SW	
Chariton	Lucas	1,042	7	36 0	-1 8	69	1	4	26	26	.11	-1.09	.10	.1	2	10	12	8	NW	
Clarinda	Page	1,069	12	37.5	†0.5	73	1	7	18, 19	42	1.13	†.18	.71	.8	7	5	15	10	SE	
College Springs	Page		10	37.6	-0.3	64	1,8	8	18	27	.34	-.54	.23	.3	3	18	3	9	SE	
Columbus Jct	Louisa	596	....	36.1		70	1	7	26	32	.74	.....	.65	.2	3	18	9	3	NW	
Corning	Adams	1,127	10	35 9	-0 9	65	1	-1	26	28	.85	- 01	.25	3.5	6	7	15	8	NW	
Corydon	Wayne	992	9	36.2	-1.2	68	1	2	26	32	1.26	-.13	.72	1.8	6	14	5	11	NW	
Council Bluffs	Pottawattmie	9.0	5	....	.....	....	.....	8	17		.92	-.15	.57	....	4	11	12	7	.....	
Cumberland	Cass	.....	...	....	....	....	.....	.....	.....	.....	.78	.....	.70	7.0	2	17	6	7	N	
Earlham (a)	Madison	.....		33.6		68	1	-3	26	32	.76	.	.46	1.2	4	11	6	13	S	
Fort Madison	Lee	516	51			....	.....	.....	.....	.....	1.34	-.81	.51	....	4	7	11	12	SW	
Glenwood	Mills	...	15	37.2	-1 2	67	4	7	17	26	.35	-.50	.25	1.0	2	5	16	9	NW	
Greenfield	Adair	....	11	35.8	†0.5	68	1	1	26	40	.65	-.37	.32	2.8	5	15	9	6	NW	1
Hopeville	Clarke	...	11	35 2	-0.3	69	1	1	26	26	.78	-.11	31	...	5	9	12	9	S	
Indianola	Warren	969	11	35.9	-1 6	69	1	3	26	26	.73	-.45	.48	1.2	5	11	8	11	NW	
Keokuk	Lee	619	31	37.5	-1.3	67	3	11	26	28	.87	-1.25	.44	2.8	5	12	11	7	NW	
Keosauqua	Van Buren	664	10	34.5	-4.1	68	1	9	26, 27	36	.74	-.73	.62	.3	3	7	7	16	.....	
Lacona	Warren	.....		....		.....	.....	.....	.....	....	.94	.....	.37	1.0	6		...	....	.....	
Lenox	Taylor	1,250	7	35.9	-0 9	66	1	2	26	30	43	-.64	.16	1.7	5	12	11	7	NW	
Leon	Decatur	1,120		37.1	....	68	1	6	26	27	.84	.....	.54	5.4	3	17	2	11	E	
Mt. Ayr	Ringgold	1,236	8	37.1	-0.2	67	1	6	26	30	.63	-.56	.25	2.0	5	12	4	14	NW	3
Mt. Pleasant	Henry	729	20	34.8	-2 1	70	1	6	26	29	.99	-.57	.70	T	4	14	10	6	SE	
Omaha, Neb.	Douglass	1,113	32	38.2	†1.6	65	8	8	17	24	1.01	-.05	.61	1.8	9	7	12	11	S	1,3
Osceola	Clarke	1,130	6	39.0	†2.4	69	1	5	26	43	.58	-.59	.35	2.0	3	12	6	12	N	
Oskaloosa	Mahaska	843	18	35.3	-0.9	70	1	4	26	36	.57	-.97	.35	T	2	16	3	11	W, NW	
Pacific Junction	Mills	960	..	37.4	.....	76	1	8	21	29	.19	.	.05	.9	5	5	15	10	N	
Red Oak	Montgomery	1,033		39.0	.....	65	1	10	17	33	.36	.	.15	2.0	6	7	15	8	S	
St. Charles	Madison	1,070	....	36.9	.....	68	1,8	4	26	30	.63	.....	.21	2.1	7	12	12	6	NW	
Stockport	Van Buren	.....	..	.....	.....	.....	.....	...	.....	.....	.85	.....	.75	T	3	11	7	12	NW	
Thurman	Fremont	.....	....	37.3		62	1,3	7	18, 19	31	1.05	.	.30	.2	5	15	3	12	NW	
Villisca	Montgomery	1,058	8	34.5	-1 7	62	1	7	17	35	.99	+.06	.32	3.0	6	16	9	5	NW	
Wapello	Louisa	588		37.0	.....	68	1	9	26	25	.79	.	.60	0.8	3	15	7	8	NW	
Washington	Washington	769	20	34 2	-1.4	70		3	26	31	1.46	†.13	1.38	...	3	....			NW	
Winterset (f)	Madison	1,129	11	35.4	†0.0	66	8	1	26	34	.....	.....	....	1.0	...		....	..	.....	
Woodburn	Clarke	961		.....	..	.....	....	.....	.....	....		..	1.04	.	.50	1.5	3	12	7	11	NW	
Average	.....	.....	.....	....	36.3	-0.6	67.9	.....	5.3	.....	31.4	0 82	-.40		1.8	4	12	8	10	NW	
Average for state	.....			....	34.2	-0.1	68.3	.....	3.1		30.9	0.52	-.79	....	1.1	3	13	8	9	NW	

*Means determined from 7 A. M., 2 P. M. and 9 P. M. observations, and maximum and minimum are taken from eye readings. ‡Received too late to be computed with means. a, One day missing; †, two days, etc. §Not supplied with self registering instruments. †Above normal.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR NOVEMBER, 1903.

STATIONS.		DATE. 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	MEAN.
Afton. ...	Max..	67	62	65	62	55	45	55	64	59	53	50	50	45	47	50	46	24	22	36	40	46	51	46	31	29	24	36	38	35	33	..	45.4
	Min ..	48	47	57	48	38	23	28	42	41	27	32	30	26	29	31	24	8	8	10	23	25	26	30	20	19	4	12	25	23	18	..	27 2
Allia.	Max..	67	66	66	55	48	46	66	63	70	54	48	54	42	42	48	32	20	25	36	41	45	51	36	31	31	24	36	35	29	..	..	45 1
	Min .	48	48	53	52	42	23	24	32	52	25	27	32	28	22	32	31	11	9	10	14	24	27	34	21	13	8	15	26	25	11	..	27.3
A'gona. ..	Max.	64	70	67	65	54	44	65	62	62	49	48	45	44	34	40	42	24	24	38	39	51	45	40	25	25	24	34	40	39	24	..	43.9
	Min ..	46	39	45	39	28	23	30	43	36	26	30	31	25	19	26	17	6	8	8	24	25	18	17	9	15	4	18	27	21	9	..	23.7
Allerton .	Max..	70	61	67	58	53	46	55	65	58	54	52	53	41	46	51	50	26	25	39	40	45	50	43	29	30	27	34	37	35	29	..	45 6
	Min ..	48	54	44	45	38	24	30	40	39	26	34	30	27	27	34	24	10	8	9	21	23	27	28	19	20	3	10	23	24	10	..	26 6
Alta.	Max..	68	68	62	58	44	45	58	62	57	49	44	42	42	36	36	34	14	22	31	40	50	45	37	23	23	23	32	37	33	25	..	41.0
	Min ..	48	44	51	44	29	23	31	46	31	26	26	26	24	22	25	13	3	6	6	26	25	20	16	12	10	2	15	27	18	7	..	23.4
Amana. .	Max..	66	61	63	56	53	42	49	63	55	49	48	52	42	39	46	45	25	23	31	38	41	45	44	28	29	22	33	34	36	28	..	42.8
	Min ..	48	47	54	46	35	25	27	38	39	26	36	31	26	26	30	25	11	9	7	25	25	24	24	14	16	5	12	22	21	11		26.2
Ames	Max..	68	64	65	65	57	45	55	65	57	52	48	49	45	44	40	40	22	23	30	40	49	46	44	27	28	24	33	38	35	25		44.1
	Min ..	49	48	55	47	34	22	27	38	35	25	32	31	25	36	27	21	8	8	10	26	24	22	23	14	26	5	15	25	23	10	.	21.4
Atlantic..	Max..	67	60	64	65	52	47	59	65	59	55	50	50	48	48	45	40	21	25	35	42	47	54	39	26	30	25	37	40	36	30	.	45.4
	Min ..	49	50	52	41	33	21	32	45	36	26	31	28	21	29	30	22	9	9	4	28	28	24	25	16	20	..	16	25	25	18	..	27.0
Audubon.	Max..	66	59	63	66	52	47	59	65	58	53	48	48	45	41	40	38	20	23	34	41	47	50	45	25	27	22	34	39	35	27	..	43.9
	Min ..	48	49	51	41	31	19	29	44	32	24	29	29	20	23	28	19	6	7	25	27	25	23	19	15	19	5	16	23	22	16	..	25 1
Baxter. ..	Max.	70	62	68	63	55	44	54	65	58	53	43	53	43	39	41	42	22	24	33	39	46	45	44	25	32	25	34	34	34	25	..	44 2
	Min .	47	47	46	50	34	20	27	38	35	22	34	28	24	22	26	20	8	7	6	24	23	20	23	11	16	2	11	23	23	8		24.2
Bedford ..	Max..	67	62	64	61	59	47	53	64	61	61	55	51	46	43	53	50	23	24	36	40	52	51	45	30	36	39	30	38	36	28	..	46.8
	Min ..	51	53	48	46	30	23	23	42	39	23	32	34	25	25	34	24	9	8	5	23	25	25	27	21	8	18	22	24	25	18	..	27.9
Belknap..	Max..	64	66	75	75	65	55	68	67	65	65	62	58	60	66	67	60	32	30	35	40	40	50	50	40	40	25	36	35	30	30	..	5 .7
	Min ..	53	55	55	53	42	29	30	42	43	29	35	32	32	36	32	13	10	13	26	26	26	36	20	22	9	10	27	25	15	..	..	30.4
Bonepar'e	Max..	68	61	66	61	51	44	53	67	58	52	52	54	40	43	51	48	26	25	35	41	43	50	45	24	33	24	34	37	34	29	..	45.0
	Min .	45	53	52	48	36	23	26	36	36	28	35	29	26	28	30	26	14	10	9	21	22	25	23	16	20	8	11	22	23	12	..	26.3
Britt. ...	Max.	68	65	66	58	48	43	53	63	55	49	46	44	46	32	43	36	16	22	30	40	48	40	35	25	25	23	34	38	34	25	..	41.7
	Min ..	45	44	38	35	28	22	29	40	31	41	30	25	19	16	24	15	4	6	1	9	25	17	15	8	12	0	14	21	17	2	..	21.1
Burling'n	Max..	72	62	71	58	52	48	56	66	59	53	56	55	41	43	59	52	29	21	34	40	43	51	42	27	28	22	31	37	33	33	..	45.8
	Min ..	51	55	54	50	37	29	30	38	38	29	37	34	30	31	34	29	15	11	12	21	25	28	25	17	15	9	15	24	23	15	..	28 7
Carroll ..	Max..	70	64	69	73	57	50	63	62	51	53	50	49	46	40	39	28	26	32	38	42	51	50	36	23	27	26	36	39	26	27	..	44.8
	Min ..	46	44	53	42	30	18	28	45	40	27	29	32	23	24	26	20	5	-5	1	27	26	21	20	12	18	-3	12	18	21	14	..	24.1
Cedar R..	Max.	67	65	68	57	45	42	27	26	30	39	27	27	33	30	28	27	34	13	11	10	12	12	24	24	15	18	8	7	17	25	12	41.9
	Min ..	49	49	50	47	42	27	26	30	39	27	27	33	30	28	27	34	13	11	10	12	12	24	24	15	18	8	7	17	25	12	..	25.8
Charlton .	Max.	69	61	58	57	52	45	55	65	61	54	51	54	43	45	47	50	25	24	37	40	45	51	47	29	33	26	33	37	35	21	..	45.9
	Min ..	49	51	48	43	39	24	25	40	42	45	33	30	26	28	32	24	10	9	7	18	24	25	27	18	20	4	12	24	24	11	..	27.1
Charles C.	Max.	69	69	59	64	44	42	51	65	54	50	46	49	40	31	41	33	17	20	27	37	45	41	25	27	21	21	33	40	28	25	..	40.5
	Min ..	36	38	42	40	30	22	22	28	38	23	23	26	23	20	19	29	7	6	7	9	2	17	16	12	11	0	0	18	25	7	..	20.5
Clarinda..	Max..	70	60	67	58	53	51	61	65	50	60	50	52	45	51	52	32	20	27	49	40	49	53	41	27	39	25	43	42	40	34	..	46.9
	Min ..	50	52	46	45	41	24	26	36	43	27	32	32	30	26	29	26	10	7	7	13	23	29	29	25	22	16	17	20	32	29	.	28 1
Clinton...	Max.	67	67	64	66	53	45	52	62	58	52	51	53	44	39	49	47	30	23	32	37	43	43	43	31	30	24	28	33	33	31	.	44.3
	Min ..	44	47	53	49	29	31	25	34	36	23	33	31	35	25	28	28	14	11	9	16	23	19	27	15	14	8	9	28	19	7	..	25 7
Col. Sp'gs.	Max..	64	60	63	56	53	47	58	64	56	57	53	54	45	46	57	47	24	26	38	40	48	53	45	28	28	27	41	37	35	29	.	46 0
	Min ..	55	54	44	47	40	26	32	3	33	29	33	33	29	28	35	25	10	8	12	26	25	26	28	25	22	18	20	28	25	17	..	19 2
Colum. J.	Max..	70	61	67	64	53	44	51	63	53	51	51	54	42	40	49	50	29	24	40	40	42	49	45	27	30	25	32	36	33	30	..	44.8
	Min ..	48	52	50	50	38	26	27	31	43	26	31	31	33	28	32	28	13	9	11	28	26	26	23	16	8	7	15	20	21	14	..	27.4
Corning ..	Max..	65	59	62	61	57	45	58	62	57	59	51	51	45	47	50	44	24	24	35	40	46	51	43	26	28	24	34	38	36	29	..	45 0
	Min .	50	53	48	45	36	23	32	48	33	27	32	32	23	25	33	23	8	7	7	23	27	24	24	21	19	-1	15	28	23	17	..	26.8
Council B.	Max..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
	Min .	47	42	44	48	42	44	35	42	35	36	35	41	40	41	31	21	8	9	12	12	12	12	17	25	23	21	23	21	25	17	..	28.7
Corydon..	Max	68	60	65	58	56	46	56	61	58	55	53	54	45	48	51	51	27	26	40	41	46	51	46	31	32	29	34	37	35	28	..	46.3
	Min ..	48	52	45	45	40	23	28	40	39	25	33	30	27	26	32	24	9	7	8	20	21	26	30	16	19	2	10	23	23	9	..	26.0
Davenpo't	Max..	68	60	65	63	51	42	49	63	58	54	56	54	41	40	50	47	24	22	32	37	43	45	46	32	31	24	28	33	33	30	..	44.0
	Min ..	48	52	53	50	35	27	29	40	37	30	36	35	32	30	31	24	14	12	13	24	27	28	23	17	18	9	17	28	19	4	..	28.4
Decorah. .	Max..	68	68	58	67	52	48	52	63	57	53	44	48	35	42	41	18	18	26	35	42	38	37	32	29	25	24	29	35	35	30	..	41.6
	Min ..	43	39	38	47	30	24	37	40	34	36	33	26	22	25	16	8	7	9	8	25	21	20	14	6	9	3	13	24	19	9	.	22 8
Delaware.	Max..	67	67	64	64	50	40	49	61	54	48	45	48	35	44	40	40	24	20	19	34	40	40	36	26	26	20	28	30	32	29	..	40.9
	Min ..	46	43	50	44	29	19	22	39	35	22	31	25	22	20	25	20	7	7	6	11	22	20	20	16	11	1	8	21	16	6	.	22.1
Denison..	Max..	67	64	64	56	56	47	59	64	59	52	49	45	41	41	41	37	21	24	36	42	48	49	46	28	25	25	35	40	35	26	..	44.1
	Min ..	49	45	54	42	32	21	34	46	35	28	28	33	33	30	27	20	6	7	4	27	27	22	24	14	19	-1	12	27	23	15	..	26.1
Des M....	Max..	69	59	65	62	49	45	56	66	58	54	48	52	44	39	45	38	18	25	35	40	49	50	43	27	30	24	33	40	35	25	..	44.1
	Min ..	51	52	55	49	34	27	32	45	34	29	34	31	29	31	32	18	10	10	10	28	28	23	25	18	18	10	16	28	23	14	..	28.2
De Soto...	Max	67	60	64	63	54	47	58	66	58	56	50	52	46	41	42	41	21	26	40	43	46	51	45	25	29	28	28	33	24	18	..	44.1
	Min .	50	51	55	44	36	21	29	42	34	27	33	32	23	30	29	21	8	9	12	27	28	24	24	16	19	3	14	24	24	12	..	26.7
Dows. ...	Max	66	68	62	65	59	43	53	64	59	49	45	46	45	38	38	32	21	20	30	38	47	41	39	24	26	22	33	39	36	24	..	42.4
	Min	47	41	48	37	30	21	28	41	34	22	30	27	22	18	25	20	5	7	7	23	24	17	17	10	11	-1	13	22	20	4	..	22.3
Dubuque.	Max	69	70	63	58	54	41	48	63	56	50	46	53	44	39	44	42	24	20	29	35	41	41	37	29	28	22	26	34	34	30	..	42 3
	Min .	47	44	49	46	34	26	29	39	36	27	34	33	29	26	29	24	11	10	10	17	26	27	24	21	14	7	17	26	20	14	..	26.5
Earlham .	Max..	68	59	65	62	55	45	58	..	65	54	50	48	45	40	44	40	22	24	39	40	49	51	40	34	27	22	37	36	34	25	..	44.1
	Min ..	44	47	48	40	35	15	26	..	36	23	30	22	18	23	25	21	5	6	9	18	24	24	21	13	18	-3	22	23	22	16	..	23.1
Elkader ..	Max.	72	72	64	65	48	45	51	65	45	51	45	50	45	34	40	33	15	22	30	33	42	38	29	32	31	26	29	32	27	26	.	41.2
	Min .	42	36	41	44	33	20	23	37	36	24	37	27	23	19	23	23	8	9	6	9	28	18	22	19	14	2	9	25	25	24	..	23.5
Esthervil	Max.	68	69	61	64	44	45	58	63	43	48	43	40	38	30	37	23	15	24	31	42	53	38	27	24	25	27	36	39	26	23	..	40.1
	Min .	40	37	36	40	26	16	21	35	40	23	28	28	23	15	22	15	3	4	7	9	25	17	15	9	11	0	6	18	22	4	..	19.8
Fayette ..	Max..	69	69	61	65	53	43	63	64	55	50	44	49	45	40	41	36	18	18	27	35	43	40	33	27	26	27	29	32	30	28	..	42.0
	Min ..	45	37	41	38	28	18	21	31	35	20	31	33	20	18	21	16	6	7	5	9	23	15	18	15	6	-1	5	20	16	6	..	20.1
Forest C'y	Max .	72	73	60	44	44	44	55	65	43	50	45	44	42	34	40	25	15	23	37	38	51	40	26	20	24	4	32	34	39	24	26	..	40.3
	Min .	42	42	45	37	32	23	29	34	41	23	28	26	20	16	23	21	4	4	6	25	26	11	15	8	0	4	21	22	21	4	..	21 8
Ft. Dodge	Max..	65	59	68	54	57	52	58	65	61	51	50	46	45	41	39	39	22	22	31	40	50	43	42	28	26	24	33	38	37	25	..	43.4
	Min ..	32	28	33	20	26	23	30	35	35	28	30	33	25	24	30	29	7	9	10	21	26	21	20	13	15	5	18	26	23	8	..	22.5
Galva.....	Max.	59	69	64	..	48	46	..	63	59	50	45	30	44	44	38	37	34	17	4	22	30	34	19	22	35	42	50	48	42	27	25	24	..	41.6
	Min ..	48	42	38	..	29	20	..	31	34	25	25	30	19	23	48	47	39	23	30	39	43	50	51	49	32	27	27	43	44	35	26	..	21.7
Glenw'd .	Max..	66	60	63	67	56	50	61	66	47	39	42	29	39	29	29	38	20	7	8	13	29	27	28	27	23	20	18	28	32	27	15	..	47.3
	Min .	51	52	48	47	38	27	33	49	63	56	46	39	48	39	33	38	35	25	18	26	33	41	38	35	26	25	22	25	31	26	28	..	27.0
Grand M.	Max	67	68	62	64	54	40	49	63	56	46	39	48	39	33	38	35	25	18	26	33	41	38	35	26	25	22	25	31	26	28	..	40.0
	Min ..	45	49	45	32	30	20	26	36	33	25	25	27	24	19	23	25	7	7	8	10	25	18	20	16	12	2	10	23	19	8	..	22.3
Greenfi'ld	Max..	68	58	65	64	65	57	58	60	57	60	51	50	47	45	45	44	21	24	35	41	47	50	45	45	40	24	35	37	35	33	..	46.9
	Min .	47	50	51	49	32	28	29	33	29	20	29	32	25	28	29	21	6	6	8	7	24	23	23	15	17	1	13	23	22	17	..	24.6
Grinnell .	Max..	64	60	64	56	53	42	50	63	56	49	45	51	41	38	42	41	23	22	30	32	44	45	42	28	27	20	33	32	33	28	..	41 8
	Min ..	48	49	54	48	35	25	28	38	40	26	36	32	28	24	28	23	10	8	8	22	23	21	24	15	16	3	9	24	24	10	.	26.0
Grinnell (near)..	Max.	66	60	62	58	53	42	50	63	58	48	45	50	43	38	42	40	24	22	28	38	44	45	43	28	27	22	35	32	32	25	..	42.1
	Min ..	48	50	53	47	35	25	27	36	37	24	35	29	24	24	28	24	8	7	5	23	20	21	23	12	15	2	10	22	22	7	..	24.8
Grundy C	Max.	68	68	63	66	56	44	51	65	56	49	48	52	45	42	41	38	25	23	32	39	44	42	40	25	29	24	35	35	35	27	..	43.6
	Min ..	47	43	54	41	32	21	26	39	36	22	34	22	20	18	26	23	7	7	4	23	24	18	21	13	9	0	10	21	24	4	..	23.0
Guthrie C	Max.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
	Min ..	49	50	49	45	36	20	29	45	37	28	31	30	24	29	28	22	7	8	7	28	28	23	26	16	19	0	10	25	24	17	..	26.3
Hampton	Max.	71	72	60	68	52	45	54	66	56	56	46	47	46	35	39	37	16	21	33	41	48	41	35	26	28	27	34	37	36	29	..	43.7
	Min .	46	41	50	38	30	22	28	42	33	24	32	27	25	20	24	16	6	7	8	21	26	19	17	10	12	2	15	23	18	6	..	22.9
Hanlont'n	Max..	68	68	57	67	48	43	54	64	58	50	47	40	42	31	40	37	16	24	30	37	50	38	35	27	24	24	34	38	35	27	..	41.8
	Min .	45	43	40	38	28	18	28	32	31	21	28	26	21	11	22	14	4	4	6	11	26	26	15	7	10	-1	13	21	20	2	..	20.7
Harlan ...	Max	66	59	64	63	50	46	57	62	58	52	45	47	45	44	42	35	19	23	36	40	48	51	42	29	29	24	37	40	35	31	..	44.0
	Min .	51	49	52	45	34	25	32	43	33	25	29	30	24	29	30	19	6	8	5	28	24	24	22	18	20	1	15	24	23	16	..	26.1
Hopeville.	Max.	69	60	66	48	53	45	56	66	56	54	53	52	44	47	57	40	20	20	24	41	46	49	43	25	27	27	35	39	34	29	..	44.2
	Min .	48	53	46	39	33	24	31	39	33	26	33	32	28	28	33	20	9	8	9	23	23	27	22	20	18	1	11	24	23	18	..	26.1
Humboldt	Max..	69	69	64	66	58	44	58	65	60	52	47	45	48	40	40	40	20	24	30	40	52	40	38	25	27	24	34	39	40	24	..	44.1
	Min ..	49	41	50	40	30	20	30	45	36	26	31	31	24	20	28	20	6	8	8	24	42	20	20	11	15	2	18	25	24	6	..	25.0
Indep'nce	Max.	67	69	60	62	52	42	50	64	55	48	44	49	44	37	40	38	23	20	26	34	42	39	36	27	27	22	29	32	34	27	..	41.3
	Min .	45	41	52	42	32	20	24	35	38	20	36	23	25	22	26	26	8	8	7	16	20	18	21	13	10	1	10	19	20	7	..	22.9
Indianola.	Max..	69	60	65	61	53	45	57	63	57	54	50	52	45	39	45	43	23	24	35	41	46	48	50	46	28	31	24	33	38	36	26	..	44.7
	Min ..	50	52	53	48	36	24	29	43	34	26	34	33	26	34	30	22	10	9	9	26	26	24	26	15	18	3	14	25	24	10	..	27.1
Iowa City	Max..	72	62	69	58	46	47	52	67	51	54	47	54	41	39	47	38	20	24	33	39	43	46	33	27	30	24	30	35	30	32	..	43.0
	Min ..	49	49	51	48	43	25	24	29	37	24	23	31	25	26	25	35	13	9	8	9	24	26	25	15	16	6	7	19	26	12	..	25.3
Iowa Falls	Max..	68	67	64	65	45	43	52	64	54	50	46	48	45	41	39	28	16	21	30	33	42	38	29	32	31	26	29	32	27	24

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR NOVEMBER, 1903—CONTINUED.

STATIONS.		DATE.																														MEAN.
		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	
Larchw'd	Max..	..	70	65	58	44	46	57	61	58	49	43	43	39	34	35	32	16	21	28	43	52	42	37	24	24	37	..	..	37	25	..	41.5
	Min ..	..	..	40	44	26	20	35	44	30	26	24	26	30	16	23	18	1	5	2	26	22	19	12	12	16	2	..	..	20	5	..	20.7
Larrabee.	Max..	69	68	61	60	43	48	59	64	57	51	44	42	44	39	43	34	16	22	33	44	52	44	36	24	24	26	35	38	36	28	..	42 8
	Min ..	45	42	48	37	27	19	33	43	29	22	26	28	20	18	25	15	4	5	3	26	25	20	15	10	10	-1	18	28	18	4	..	21,9
LeMars ..	Max..	64	68	60	60	50	45	57	64	58	48	44	42	44	39	42	32	19	23	35	43	50	44	39	25	23	25	39	40	35	27	..	42.8
	Min	43	42	47	40	29	25	35	43	35	23	26	31	22	24	27	16	3	8	6	25	25	22	17	14	19	10	17	21	20	13	..	23.9
Lenox....	Max..	66	60	62	60	55	46	58	64	53	51	53	50	45	47	50	47	25	23	37	40	46	50	43	26	26	24	36	38	35	30	..	45,1
	Min ..	50	52	48	47	37	24	30	41	37	26	31	33	27	26	32	24	7	6	7	22	23	25	25	20	18	2	14	27	23	17	..	26.7
Leon.....	Max..	68	61	65	60	58	45	55	59	60	54	53	52	44	45	53	53	26	23	35	39	44	50	46	33	28	26	35	38	35	27	..	45.7
	Min ..	50	54	46	48	40	25	31	43	40	27	34	34	28	29	34	24	11	9	12	22	25	28	32	21	20	6	12	27	25	18	..	28.5
Logan....	Max..	65	64	62	65	48	47	50	62	64	58	56	54	48	45	42	38	24	20	31	42	46	48	45	35	33	38	40	38	26	27	..	45.4
	Min ..	40	38	36	35	35	23	18	38	30	30	28	34	35	30	33	20	7	8	6	29	27	25	20	21	21	19	27	22	18	14	..	25.6
Maquo'ta.	Max..	68	67	67	67	49	45	50	64	56	52	46	55	47	37	45	39	22	24	35	36	42	44	34	33	33	28	29	34	30	34	..	43.7
	Min ..	39	40	42	44	40	20	19	25	35	22	23	27	23	24	24	30	12	10	9	8	15	17	20	16	13	5	4	17	24	10	..	21.9
Marshlt'n	Max..	70	67	65	66	48	45	53	66	55	51	47	51	47	36	41	31	18	23	32	39	46	46	31	24	29	29	35	36	29	26	.	42.7
	Min .	46	45	46	47	34	22	24	23	44	23	24	33	26	24	24	30	9	8	8	9	24	21	22	14	14	3	4	18	24	8	.	23.5
Mason C..	Max..	68	68	62	64	55	44	51	63	55	49	44	44	42	37	40	36	22	22	29	37	45	42	33	28	24	22	32	39	34	24	..	41.9
	Min	46	42	46	40	33	26	29	39	35	27	34	34	26	21	26	22	8	8	9	23	27	20	20	12	14	4	16	25	24	8	..	24.8
M'nticello	Max.	66	65	66	65	63	64	62	52	49	47	50	48	52	..	..	..	..	..	..	..	..	..	..	..	--	..	..	..	..	..	..	....
	Min ..	33	37	36	27	25	23	21	20	27	24	20	18	18	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Mt. Ayr..	Max.	67	59	64	57	53	49	59	65	59	57	54	53	29	50	52	49	25	25	40	42	46	51	43	31	30	28	38	40	35	28	..	46.5
	Min	50	53	45	48	37	26	31	43	36	27	32	33	29	29	33	23	9	7	10	22	25	28	27	21	20	6	14	26	23	18	..	27.7
Mt. Pl'snt	Max.	70	62	65	63	53	41	50	62	58	51	53	53	46	43	52	50	29	23	32	39	42	49	45	29	31	26	32	36	33	32	..	43.1
	Min ..	46	51	54	49	36	22	24	38	40	22	37	29	25	27	30	28	13	9	8	22	23	25	29	16	20	6	11	21	22	12	..	26.5
Mt. Ver'n	Max	67	62	67	60	52	45	50	65	50	54	45	51	40	42	44	35	18	22	35	34	38	39	36	28	28	24	25	31	28	31	..	41.6
	Min	46	48	55	47	36	21	25	35	34	22	33	28	25	23	23	18	8	6	7	21	21	21	21	13	8	2	11	20	17	9	..	23.5
New H. ..	Max	69	70	63	63	59	42	50	64	57	49	44	..	44	29	35	36	14	19	26	35	43	39	35	28	26	22	31	36	34	25	..	40.9
	Min	45	43	46	40	29	19	25	34	33	21	33	..	16	16	22	..	4	5	4	13	13	17	17	9	9	-2	10	19	17	4	..	20.0
Newton..	Max..	67	61	63	62	57	43	52	64	60	50	50	51	43	41	43	43	25	23	30	39	45	45	45	30	30	26	35	34	35	27	..	44.0
	Min ..	47	47	54	49	35	23	27	37	38	24	34	29	23	24	28	22	7	7	6	24	22	23	25	13	17	2	13	23	22	10	..	25.3
Northw'd	Max..	68	69	59	64	50	41	51	63	55	49	44	43	40	32	46	39	16	22	28	39	50	40	36	29	25	23	33	38	35	26	..	41.8
	Min .	45	43	41	42	29	22	23	34	33	23	31	26	25	18	24	15	5	5	8	16	25	17	16	9	12	2	17	21	19	6	..	21.9
Odebolt ..	Max..	70	68	64	64	50	46	59	63	59	51	48	45	39	40	35	36	19	26	35	41	51	49	37	26	26	25	35	37	34	26	..	43.5
	Min ..	49	45	54	41	31	18	30	36	33	31	27	27	20	22	25	19	5	6	3	23	21	22	20	12	19	0	15	27	22	10	..	23.9
Ogden....	Max	68	68	69	68	49	43	60	68	49	56	49	52	50	40	41	31	20	29	39	45	50	50	36	26	32	27	35	35	29	28	..	44.7
	Min ..	41	47	47	43	32	19	25	31	40	22	25	36	20	20	24	21	4	5	4	20	22	24	20	10	13	-1	2	15	21	5	..	21.9
Olin	Max..	66	64	65	58	55	41	48	63	55	49	48	52	43	40	44	44	29	19	29	35	40	41	43	29	29	24	28	33	33	29	..	42.5
	Min .	49	48	48	47	38	24	26	33	40	22	37	28	25	25	29	29	10	9	7	20	22	19	25	14	14	4	10	21	20	9	..	25.1
Omaha, N	Max..	62	58	61	61	46	48	61	65	60	56	49	49	48	48	43	32	17	27	36	43	52	52	44	28	27	27	45	46	38	27	..	45.2
	Min	52	53	52	46	37	33	37	43	37	35	32	37	33	32	32	17	8	10	15	31	30	31	28	23	23	22	25	34	24	18	..	31.2
Onawa....	Max..	69	62	67	59	53	48	60	65	60	51	49	44	45	43	43	35	20	29	34	44	49	46	41	29	32	27	40	40	36	26	..	44.9
	Min ..	51	48	52	45	33	27	36	44	38	31	29	36	27	29	31	19	7	8	10	28	26	25	23	21	22	19	20	26	24	16	..	28.4
Osage.....	Max..	66	66	58	63	53	40	49	62	57	47	44	42	40	33	41	36	21	19	25	36	45	40	34	27	23	19	31	36	33	23	..	40.3
	Min ..	45	42	43	41	29	21	28	33	35	23	33	26	23	18	24	21	5	5	7	14	25	17	18	10	11	0	12	20	22	6	..	22 0
Osceola...	Max..	69	58	63	64	47	66	67	66	50	56	50	54	57	43	40	48	50	40	41	46	51	47	45	30	25	33	38	36	27	..	..	48.6
	Min ..	48	36	50	48	39	23	26	47	44	27	33	33	28	30	32	32	40	8	8	30	23	26	40	..	10	5	13	25	23	15	..	29.3
Oskaloosa	Max..	70	60	67	58	50	46	58	66	57	62	48	54	41	38	47	44	22	23	34	41	45	49	42	25	31	24	37	35	33	26	..	44.4
	Min	48	52	53	48	37	22	28	38	34	26	37	33	24	26	30	23	10	8	8	25	23	23	24	14	20	4	12	22	25	10	..	26.2
Pacific J'n	Max..	76	60	63	61	53	47	59	64	59	57	47	49	48	47	49	35	21	25	38	41	50	50	43	28	31	28	42	40	35	28	..	45.8
	Min ..	52	54	49	45	35	26	34	45	35	29	31	35	26	29	34	21	8	9	9	30	24	27	25	25	23	23	23	28	25	15	..	29.1
Perry.....	Max..	69	62	65	65	55	45	57	65	58	53	44	50	46	42	41	40	22	24	34	40	49	48	44	46	30	25	34	38	35	28	..	44.8
	Min ..	49	50	55	46	36	23	31	44	34	28	32	32	26	27	29	21	8	9	9	28	26	23	24	16	13	4	12	23	23	10	..	26.4
Plover....	Max..	68	69	64	68	52	45	59	61	51	49	46	43	41	31	40	28	20	16	31	41	53	41	28	29	27	22	36	39	30	26	..	41.7
	Min ..	39	43	50	50	30	20	38	42	30	19	29	25	20	18	26	13	4	6	4	25	30	18	20	8	10	3	10	19	20	8	.	22.6
Primghar	Max..	65	66	60	53	41	45	57	61	55	55	46	39	41	32	33	32	17	20	28	40	51	41	35	22	24	32	32	37	..	..	..	41 8
	Min ..	43	42	43	39	28	42	33	44	25	30	44	36	21	20	26	15	1	5	5	25	24	20	14	11	15	12	15	28	..	..	..	25.2
Red Oak..	Max .	65	62	62	62	55	54	59	61	59	56	49	49	47	47	49	44	24	24	36	40	46	50	44	30	30	31	27	39	37	29	..	45 6
	Min ..	54	55	53	50	39	31	37	49	40	34	33	37	32	33	38	23	10	11	14	30	30	32	27	26	24	24	23	32	27	22	..	32.3
Ridgeway	Max .	71	73	61	70	59	49	54	70	62	54	52	54	47	35	44	40	25	25	32	38	49	43	37	36	36	29	33	39	35	35	..	46.2
	Min ..	47	45	46	44	30	21	27	36	35	24	36	26	24	16	22	25	7	6	10	12	25	18	20	13	13	1	13	24	18	10	..	23.1
Rockw'l C	Max..	60	60	65	66	58	45	60	63	58	50	50	50	47	42	40	38	20	19	40	53	55	56	45	26	27	25	35	38	35	33	..	45.3
	Min ..	43	42	43	45	30	23	35	38	30	26	28	30	28	23	26	19	6	8	9	10	11	21	19	14	9	2	1	2	23	11	..	21.8
Ruthven .	Max..	68	67	63	62	47	45	57	70	58	50	47	40	40	32	40	36	25	22	28	39	40	52	36	24	30	28	33	40	39	30	..	42 9
	Min ..	40	44	43	37	27	20	31	40	34	34	30	28	24	20	20	14	-4	7	10	24	20	18	15	9	11	2	16	25	20	9	..	22.3
Sac City..	Max..	67	68	63	63	54	46	59	63	57	49	49	45	45	42	39	35	21	23	32	40	50	45	49	29	27	24	33	40	35	25	..	43.9
	Min ..	47	40	53	44	31	21	30	45	35	27	28	31	24	24	25	18	5	7	8	27	26	22	19	14	17	3	15	25	21	9	..	24.7
St.Cha'les	Max..	68	60	65	64	60	49	60	68	58	56	51	54	46	39	46	45	22	28	40	41	49	54	49	26	33	32	35	37	28	30	..	46.5
	Min ..	49	51	53	48	35	23	30	42	35	29	33	33	28	30	30	22	9	8	10	26	26	26	25	17	20	4	14	26	24	12	..	27 3
Sigourn'y	Max	67	68	69	66	68	48	53	66	59	55	48	55	41	38	47	46	27	24	32	..	..	..	.	..	..	..	..	..	..	..	..	....
	Min ..	47	48	49	47	44	22	25	37	39	24	37	32	25	25	29	26	11	8	8	..	..	..	..	..	..	..	..	..	..	..	..	....
Sioux C'r.	Max..	67	67	58	57	42	45	57	62	57	48	42	39	42	36	38	32	14	20	30	40	51	41	33	23	23	22	36	38	35	25	..	40 8
	Min ..	44	42	43	41	28	22	34	42	31	26	25	29	22	20	26	14	2	6	6	15	21	21	14	12	18	8	15	26	19	8	..	22.7
Sioux C'y.	Max..	66	68	60	56	45	46	60	64	58	50	48	42	41	39	41	30	14	23	32	42	52	45	41	24	25	24	37	40	36	25	..	42.4
	Min ..	48	45	51	42	32	28	37	47	32	31	30	30	25	25	30	14	5	10	8	29	29	24	18	19	22	18	19	33	19	12	..	27.1
Storm L..	Max..	67	53	68	50	50	58	62	58	49	45	42	43	37	37	34	18	22	32	40	51	45	41	23	23	23	32	38	35	25	24	..	40.8
	Min ..	46	35	48	36	26	24	32	45	34	23	25	34	25	20	22	15	3	6	9	25	26	20	15	12	11	0	15	25	20	5	..	22.8
Stuart....	Max..	..	65	62	63	57	46	56	62	51	49	49	49	45	42	40	41	25	29	33	40	47	49	41	31	37	23	32	37	36	32	..	43.8
	Min ..	..	35	42	33	25	24	29	37	28	31	31	32	28	30	27	23	7	8	11	27	27	26	28	19	20	6	16	15	24	13	..	24.2
Thurman	Max..	62	60	62	59	55	47	58	63	60	58	49	49	47	45	50	36	23	25	35	40	49	50	46	29	29	28	41	42	36	38	..	45.7
	Min ..	53	53	46	44	34	28	35	47	35	27	31	37	25	26	34	22	8	7	7	30	27	24	25	24	24	22	22	28	26	15	..	28.9
Tipton....	Max..	70	61	67	58	54	47	50	64	58	55	49	54	42	38	46	46	18	25	34	36	41	43	43	30	34	28	27	32	34	32	..	43.8
	Min ..	48	50	55	50	30	27	27	36	38	25	36	36	28	28	28	28	12	10	11	22	24	24	23	15	17	8	12	23	20	12	..	27.1
Toledo....	Max..	70	69	66	57	53	46	52	67	57	51	47	52	46	39	42	41	20	23	33	39	45	44	43	26	30	24	35	34	36	28	..	43.8
	Min	45	45	51	43	32	22	27	39	34	22	36	30	24	22	27	21	9	7	7	23	24	20	19	14	12	1	10	22	21	8	..	23.9
Villisca...	Max..	62	56	58	60	48	51	48	50	50	52	40	42	42	46	32	12	18	28	36	48	55	60	55	26	32	36	38	36	35	38	..	43.0
	Min ..	50	52	50	43	24	24	26	31	32	25	30	27	28	24	25	8	7	13	18	22	24	25	22	21	10	10	28	24	24	32	..	26.0
Wapello..	Max..	68	61	64	61	53	46	49	63	59	50	53	52	41	39	49	48	29	29	38	38	41	47	44	28	27	29	29	37	32	36	..	44.7
	Min ..	50	55	55	51	39	29	28	38	39	28	37	34	28	31	32	29	15	13	13	25	27	26	26	19	21	9	15	25	24	16	..	29.2
Washi'ton	Max..	70	59	69	65	50	45	53	66	57	53	48	55	40	38	48	37	22	25	35	39	42	47	35	27	33	24	33	36	30	31	..	43.8
	Min ..	46	48	48	45	29	22	24	35	31	23	29	28	24	24	28	19	9	7	6	22	21	21	17	12	12	3	11	19	16	8	..	24.6
Waterloo.	Max..	70	70	63	66	46	44	51	67	55	51	49	51	46	36	44	40	29	23	33	38	45	41	40	28	30	24	35	35	36	30	..	43.9
	Min ..	48	42	44	43	33	23	26	37	34	23	37	33	25	23	27	22	8	9	8	20	23	20	20	15	10	2	15	21	21	9	..	24.0
Waverly..	Max..	69	68	59	63	56	43	50	65	53	49	45	47	46	35	41	36	20	20	29	37	44	39	35	27	22	..	33	35	35	26	..	40.9
	Min ..	49	41	47	41	31	23	23	36	33	23	34	28	23	21	26	20	7	7	7	20	25	20	19	11	2	..	11	20	19	8	..	22 7
W.Bend..	Max..	69	63	66	65	43	44	58	64	58	50	46	44	45	34	40	37	17	23	29	39	58	41	38	24	24	23	34	39	39	25	..	44.1
	Min ..	47	41	48	47	23	20	30	43	34	24	33	29	21	19	24	17	4	6	6	24	30	18	17	17	13	1	16	28	22	4	..	23.7
Whitten..	Max.	67	66	63	..	63	42	51	64	60	..	49	49	47	41	41	41	23	20	30	38	42	43	39	27	27	21	34	36	35	25	..	42 3
	Min .	47	45	54	..	31	22	25	37	35	..	23	27	22	20	26	20	6	7	4	22	22	19	20	10	11	..	11	22	22	5	..	22.0
Wilton J.	Max..	69	60	65	62	53	42	50	62	58	52	50	52	42	39	49	40	30	23	31	38	42	47	43	30	32	25	35	30	32	30	..	43.9
	Min ..	48	50	51	50	37	23	20	35	40	24	38	29	30	25	28	23	13	9	8	24	22	22	23	13	14	5	15	10	22	12	..	25.4
Wintres't	Max..	..	..	..	..	..	52	58	66	60	56	50	53	59	50	47	40	40	35	41	42	52	56	51	48	42	35	38	46	35	..	..	47.6
	Min ..	..	..	..	..	..	20	32	40	36	27	32	30	22	20	27	22	7	6	30	31	36	22	20	15	21	1	15	23	22	..	..	23.2
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DAILY AND MONTHLY PRECIPITATION FOR NOVEMBER, 1903.

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	....	.27	....	.21	....	....	...	....	....	....	.40	....	T	..	....	T	....	....	....	....	..	....	....	.30	.10	....	..	....	...	...	....	.88
Albia	....	T	.20	.01	....	..	....	....	....	....	....	....	T	..	....	.03		..		....	....	..	..	....	T	...	....	....	T	..	....	.64
Algona	....	....	....	....	....	..	....		T	...	....	...	T	...	T	....	..	....	....	....	....	....	....	....	....	...	....	...	T	....	...	T
Allerton	T	.10	.45	.67	..	.	....		....	...	.33		T	...	....	....	..	....	....	....	....	....	....	.17	.02	....	..	....	T	T	..	1.74
Alta	.01	....	.60	....	..	..	..	....	.02	....	....	T	....	...		....		..	..	....	..	....	....	.09	....	....	..	..	T	....	....	.62
Alta (near)	....	.	.02	....	....	..	....	.02	..	...	....	...	.	..	....		....	....	....	....	..	....	....	.15	....	....	....	....	....	....	....	.79
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Forest City	....	....	....	....	....	..	....		T	..	..	....	....	T	..	T	....	....	..	....	....	....	....	....	..	..		....	....	....	....	T
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Greenfield	.06	.32	.01	...	....	..	..	..	..		....	....	T	....	T	T	..	....	..	....		....	....	.15	.11	....	..	....	T	....	....	.65
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Harlan	.09	.34	.01	.12		..	..	....	.05	....	....	....	.10	...	T	T	....	....	....	....	..	....	....	.27	.01	..	....	....	T	T	..	1.02
Hopeville	.01	.10	.16	.3	....	..	.	..	T	..	..		T	..	..		..		..	....	..	..	..	.20	....	....	..	....	T	T	....	.78
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Odebolt	.10	....	.08	....	....	....	....	....		..	..		.03	....	T	..	....	....	....	....	....	....	....	.15	....	....	....	....	T	....	....	.36
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Sac City	T	....	.14		....	....	....	....	T	....	....	....	....	....	.02	..	..	....	....	....	....	....	....	.10	..	..	....	..		....	....	.26
St. Charles	.06	.12	.03	.21	.	....	....	....	T	..	T	...	.01	T	T	T	...	..	....	....	....	....	....	.12	.08	....	....	....	T	T	....	.63
Sibley	....		T	....	..	....	....	....		....	....	T	....	T	....	....	T	....	....	....	....	....	....	T	.02	..	....	....	T	T	..	.02
Sigourney	...	T	....	T	...	....	....	....	....	....	1.26	....	.09	....	T	T	.....	....	..	....	..	....	....	.	..		....	....	....	....	....	
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Stuart	....	.69	..	..	....	..	....	....	....	....	.	....	.	..	....	....	....	....	..	....	..	..	....	.10	.05	....	....	....	....	.....	....	.84
Thurman	.30	.28	.15	.30	..	....	....	....	T	....	....	....	....	....	....	T	.	....	....	....	....	..	....	T	T	T	...	....	....	.02	....	1.05

DAILY AND MONTHLY PRECIPITATION FOR NOVEMBER, 1903—CONTINUED.

STATIONS	DAY OF MONTH. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTAL
Tipton	.16	.16	.04								1.17																					1 53
Toledo			.20	T						.07			T		T	T													T			.27
Villisca	.32	.05	.10	.22									T			T								.10	.20					T		.99
Vinton		.20									T				T	T													T			.20
Wapello		.11									.60		.08		T																	.79
Washington		.04									1.38		.04											.15		T						1.46
Washta	T		.55						T			T	T																			.70
Waterloo	T		.04						T		.03		T		.08	T								.05					T			.19
Waukee	.05	.72	T	.15					T				.01		T														T			.98
Waverly			T	T					T				.05	T	.03	T												T				.08
West Bend			T						T			T	.02		T	.01		T						T	T			T			.03
Whitten		T	T						T					T	T	T													T			T
Wilton Junction		.71									.96				T													T	T			1.67
Woodburn		.50	.40						T							T								.14						T		1.04

DECEMBER, 1903. No. 12.

MONTHLY REVIEW OF THE IOWA WEATHER AND CROP SERVICE

CONTENTS.

AND ANNUAL SUMMARY, 1903

CENTRAL STATION, DES MOINES, IOWA.

J. R. SAGE,
DIRECTOR

GEO. M. CHAPPEL,
LOCAL FORECASTER,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

DES MOINES:
BERNARD MURPHY, STATE PRINTER
1903.

THE IOWA WEATHER AND CROP SERVICE

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

STATE BOARD OF AGRICULTURE,

CONSTITUTED AS FOLLOWS:

OFFICERS.

W. W. MORROW, PRESIDENT, Afton.
C. E. CAMERON, VICE-PRESIDENT, Alta.
G. D. ELLYSON, TREASURER, Des Moines.
JOHN C. SIMPSON, SECRETARY, Des Moines.

EX-OFFICIO DIRECTORS.

ALBERT B. CUMMINS, Governor of Iowa.
H. R. WRIGHT, Dairy Commissioner.
DR. J. I. GIBSON, State Veterinarian.

DISTRICT DIRECTORS.

First District—R. S. JOHNSTON, Columbus Junction.
Second District—C. W. PHILLIPS, Maquoketa.
Third District—W. C. BROWN, Clarion.
Fourth District—R. T. ST. JOHN, Riceville.
Fifth District—S. B. PACKARD, Marshalltown.
Sixth District—T. C. LEGOE, What Cheer.
Seventh District—M. J. WRAGG, Waukee.
Eighth District—JOHN LEDGERWOOD, Leon.
Ninth District—M. MCDONALD, Bayard.
Tenth District—J. W. WADSWORTH, Algona.
Eleventh District—H. L. PIKE, Whiting.

METEOROLOGICAL STATIONS AND OBSERVERS.

From the following, weekly and monthly reports of Metorological data are received by the Iowa Weather and Crop Service.

Afton	Hon. N. W. Rowell
Albia	E. R. Reeve
Algona	C. D. Pettibone
Allerton	Rex Shriver
Alta	D. E. Hadden
Alta (near)	W. J. Minard
Amana	Conrad Schadt
Ames	Exp. Station
Atlantic	J. W. Love
Audubon	Geo. E. Kellogg
Baxter	W. T. Thorp
Bedford	E. E. Healy
Belknap	A. W. Rankin
Belle Plaine	S. P. Vandike
Bonaparte	Hon. B. R. Vale
Britt	G. P. Hardwick
Buckingham (Traer P. O.)	Dr. W. A. Daniel
Burlington	I. S Shontz
Carroll	Moses Simon
Cedar Rapids	Electric Light and Power Co.
Chariton	C. C. Burr
Charles City	C. H. Priebe
Clarinda	A. S. Van Sandt
Clear Lake	John Cobb
Clinton	Luke Roberts
College Springs	A. M. Finley
Columbus Junction	J. B. Johnston
Corning	Jerome Smith
Corydon	Miss May Miller
Council Bluffs	Agent C., R. I. & P. R'y
Cresco	R. H. Doolittle
Cumberland	Agent C., B. & Q. R'y
Davenport	*J. M. Sherier
Delaware	Wm Ball
Decorah	F. H. Baker
Denison	Prof. W. C. Van Ness
Des Moines	*Geo. M. Chappel
De Soto	R. D. Minard
Dows	A. C. Fuller
Dubuque	*Orin Parker
Earlham, R. F. D.	Geo. Phillips
Eldon	T. Madden
Elkader	Chas. Reinecke
Estherville	Earle W. Peterson
Fayette	R. Z. Latimer
Forest City	J. A. Peters
Fort Dodge	Tobin College
Ft. Madison	Miss L. A. McCready
Galva	D. W. Farnsworth
Gilman	Jas. L. Wylie
Grand Meadow (Postville P.O.)	F. L. Williams
Greene	J. L. Cole
Greenfield	J. G. Culver
Grinnell	Prof. J. S. Buck
Grinnell (near)	A. O. Price
Grundy Center	Ed King
Guthrie Center	D. G. Beardsley
Hampton	E. C. Grenelle
Hanlontown	Miss G. M. Paschen
Harlan	C. A. Reynolds
Hopeville	M. T. Ashley
Humboldt	H. S. Wells
Ida Grove	J. E. Conn
Independence	E. F. Wulfke
Indianola	Prof. J. L. Tilton
Inwood	Geo. M. Larsen
Iowa City	Prof. A. A. Veblen
Iowa Falls	J. B. Parmelee
Jefferson	Isaac Young
Keokuk	*Fred Z. Gosewisch
Keosauqua	Prof. J. A. Landes
Lacona	Agent C., B. & Q. R'y
Lansing	J. Ackerman
Larrabee	H B. Strever
Lenox	J. L. Hurley
Le Mars	Dr. T. E Cole
Leon	Millard F. Stookey
Logan	Mrs. M. B. Stern
Maquoketa	Frank W. Keeney
Marshalltown	Branch S. Jones
Mason City	J. S. Mills
Monticello	C. E. Heisey
Mount Vernon	Rev. J. W. Hubbard
Mt. Ayr	A. F. Beard
Mt. Pleasant	Dr. Frank T. Stevens
New Hampton	R. H. Gurley
Newton	Hon. J. P. Beatty
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Odebolt	E. Starner
Ogden	E. Sayre
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Osage	G. D. Pattingill
Osceola	Mrs. S. Lewis
Oskaloosa	Jos. Boyd
Ottumwa	Dr W. B. La Force
Pacific Junction	Agent C., B. & Q. R'y
Pella	L. L. Davenport
Perry	J. A. Harvey
Plover	J. S Smith
Primghar	Jasper N. Marsh
Red Oak	J. S. Cole
Ridgeway	Arthur Betts
Rockford	J. R. Waller
Rock Rapids	W. C. Wyckoff
Rockwell City	C. M. Randall
Ruthven	F. M. Fitzgerald
Sac City	J. A. Sodestrom
St. Charles	C. W. Minard
Sheldon	J. B. Frisbee
Sibley	H. G. Doolittle
Sigourney	Mrs. R. F. Ashbaugh
Sioux Center	Jacob de Ruyter
Sioux City	*U. G. Purssell
Spencer	S. Gillespie
Spirit Lake	W. C. Drummond
Stockport	C. L. Beswick
Storm Lake	L. E. Burdick
Stuart	Hon. John Herriott
Thurman	C. R. Paul
Tipton	F. K. Gregg
Toledo	Herbert Giger
Vinton	T. F. McCune
Villisca	C. E. Matteson
Wapello	Geo. W. Schofield
Washington	Wm. A. Cook
Washta	H L. Felter
Waterloo	M. L. Newton
Waukee	E. J. Leonard
Waverly	H S Hoover
Whitten	Dr. Frank P. Butler
Wilton Junction	J. M. Rider
Winterset	B. L. Sprinkle
West Bend	Phil Dorweiler
West Union	J M. Lisher
Woodburn	C. B. McDonough

*U. S. Weather Bureau.

WEATHER-CROP OBSERVERS.

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Allerton	James Piper
Alta	Jonas Cushman
Blairstown	T. H. Weil
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Charles City	W. B. Towner
Chariton	C C. Burr
Clarksville	F. M. Russell
Correctionville	Hon. W. B. Chapman
Corwith	Wm. Oxley
Council Bluffs	L. Prouty
Creston	M. V. Ashby
Danville	Sherman Matthews
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Fruitland	R. T. Hummel
Goldfield	D. M. Stephens
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Hartwick	Fred McCulloch
Harlan	H. B. Kees
Hesper	G. E. Dillingham
Humeston	Hon. S. H. Moore
Independence	Geo. H. Wilson
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Lake City	C. B. Hamilton
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Toledo	W. G. Malin
Van Horne	Spencer Smith
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Winterset	H. A. Kinsman
West Branch	Wrigley Smith
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Wilton	Thos. Boot
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Woodward	Geo. Swisher

U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

VOLUME XIV. DECEMBER 1903. No. 12.

WEATHER AND CROPS—DECEMBER, 1903.

December, 1903, was extremely dry, the average precipitation for the state being .88 of an inch below normal, and in some localities the precipitation was little more than a trace. The mean temperature for the state, 19.6 degrees, was 3.9 degrees below the normal, but the month as a whole was very favorable for farm operations usual to the season, and for stock feeding. The dry weather was especially favorable for finishing husking and cribbing corn and also for drying the portion of the crop which contained more than the usual amount of moisture. The fields afforded good forage for grazing cattle, horses and sheep. The bare ground and freezing weather, however, caused some detriment to fall wheat and rye; but the acreage of these crops is very small. The month was generally favorable for the health of the people and all kinds of live stock.

THE CORN CROP.

The Bureau of Statistics of the Department of Agriculture, in its final report for 1903, estimates the total yield of the corn crop for the United States at 2,244,176,925 bushels. Iowa is credited with a total yield of 229,218,220 bushels, which amount is very close to the estimate made by the state crop service. In the state report, however, the area harvested was materially less than the estimate of the government bureau. This accounts for the difference in the average yield per acre as shown by the two reports.

The total value of the corn crop of the United States is estimated at $952,868,000. If the value of the corn fodder is included, the whole crop is worth more than a billion dollars.

AS TO WEATHER PREDICTIONS.

Cedar Rapids Republican, December 25, 1903: The weather predictions for Thursday were rain or snow, with colder in the northwestern portions of the state.

But yesterday morning there was hardly a cloud in the sky, the sun shone with the genial warmth that has characterized so many of the December days this year. This may lead some people to believe that the weather predictions do not amount to much after all.

Many people still believe that the weather predictions sent out by the government service partake of the mysterious and the uncanny work of so-called prophets. But such is not the case. The governmment observers simply take note of the trend of lows and highs, of storm areas and clearings. When a storm is formed in the northwest and sweeps onward toward the southeast, the government observers wire the information to Washington and the Washington scientists send warnings to the sections which are likely to be covered by the storm area, and estimate the time in which the storm may be expected. If a runaway engine starts from Belle Plaine it is possible to wire to Cedar Rapids to be on the lookout for it and to have the tracks cleared for the monster. That is what the weather service does. Nothing more. Of course before the engine gets to Cedar Rapids the steam may be exhausted and the fire in the firebox burned out. So it often happens with storms that are scheduled to arrive. They may be rained out or snowed out before they reach all the people in the territory in their track. Or a contrary current of air may swerve them out of the usual course. There are many things which may interfere. Or, when clear weather is predicted a local storm may be made out of local atmospheric conditions. But this does not invalidate the predicdictions as a whole.

IOWA WEATHER IS ALL RIGHT.

One rarely picks up a paper but what he notes the departure of citizens to some distant point to spend the winter. Like birds of passage many seek winter resorts to avoid the approach of severe weather. To find a dwelling place where blizzards come not and the flowers forever bloom has attractions for human beings as well as for birds. But then the most of us have to remain behind to keep our corner of the world moving, and keep it in some semblance of shape for ourselves and to welcome the return of the weary wanderers. What matters it though our faces are bronzed and the sand creeps into our bodies, we have the pleasure of conquering the elements and witnessing the most beautiful of contrasts. Human nature tires of the evenness of things be it ever so mild or enticing. We have in Iowa pleasant weather, fair weather, disagreeable weather, but weather that is generally moderate. It's the kind of weather that spices life. It helps to cool the over-arduous, tempers the fitful, cheers the despondent, moves the laggard along, and buries those who will not move with the greatest of all coverings that of oblivion. Iowa weather is as we want it; we wouldn't change it if we could.—*Estherville Enterprise.*

WORK OF A HAILSTORM.

Nature gets on an ugly fit once in awhile, and we have lately had an experience which showed her at about her worst. It was September and harvest time, when most of her cranky fits are supposed to be over, when, having given us all the summer programme of excessive heat, spiteful winds, a deluge of water and lightning wreck, we have come to regard her as satiated

and tired and rid of her beligerent moods, but just when the apples were hanging all ready for the pickers, when the corn was just right to cut up, when the beans were ready to pull and onions pulled and drying prior to sacking, along came a hailstorm one afternoon, not an ordinary sprinkle of hail, say the size of marbles, but a regular cleaning out of the weather clerk's ice box upstairs, great ragged, three cornered chunks of ice big and hard enough to make a dent a quarter of an inch deep in a pine board, and then, sure enough, it was all day with the nice crops—corn stripped clean all save the ears, making the field look like an army of Shanghai roosters plucked clean all save their tail feathers; apples smashed into cider pulp, and beans thrashed clean, and onions left as though they had been struck with a baseball bat. Five minutes did the business, and the writer of these notes knows just how a fellow feels who is dead sure that he has a good thing and finds after all that he has not got it. We expect hail in June, July and rarely in August, but the September hailstorm is the clipper when it comes. Being an optimist, however, we look on the bright side and have been figuring up how much we have saved by not having the corn to cut up and the other crops to harvest, and then we feel thankful that the hail did not shell the corn and leave us nothing but cobs and that it could not reach the potatoes. The prize acre of onions, yielding over 600 bushels, was the sorriest sight of the wreckr Practicing what we preach, we are not going to fret, but just try it again.—*J. S. Trigg in Rockford Register*

RECENT SOLAR RESEARCHES.

Two papers by French meteorologists, dealing with the suspected parallel between the eleven-year sunspot period and fluctuations in terrestrial temperatures, have recently been made accessible to American readers by "The United States Monthly Weather Review." In one of them M. Nordmann follows up a comparison made many years ago by Koeppen. He confines his inquiry to the interval between 1870 and 1900, and to stations lying within about twenty degrees of the equator. Taking the average of the annual temperatures for thirteen points, he finds a slight excess at the minimum stage of solar activity, and a deficit at the time of greatest sunspot abundance. Although the fluctuation is slight, it seems to be systematic, and it corresponds to that which Koeppen thought he had detected. The other paper translated for *The Monthly Weather Review* is a review of M. Nordmann's work by Professor Alfred Angot. Although objection is made to some of his compatriot's methods, the second writer reaches substantially the same conclusions as the first.

Much work has been done in the last thirty years by other meteorologists which points to a similar periodicity. Chambers found it in the drouths which afflict India. Some of his associates believed that they detected long range variations in the prevailing atmospheric pressure, which were related to temperature and rainfall. Meldrum showed that tropical cyclones in the Indian Ocean were more numerous at and near sunspot maxima, and Bigelow did the same for West India hurricanes. The latter investigator, who is attached to the Washington bureau, has presented a good deal of evidence to indicate that other features of the weather, outside of the tropics as well as inside, undergo a fairly regular alternation. These various statements have their vulnerable points. The more recent ones have not yet been thoroughly threshed by critics, nor fully verified. The mechanism by which terrestrial weather is influenced, if at all, is not made altogether clear. Yet as the matter stands to day there is increased reason for thinking that fluctuations occur in solar radiation, and that such changes are influential on the earth. The practical importance of further research, therefore, may be said to grow more apparent daily.

A line of inquiry has been pursued by Professor Langley for more than ten years which is exceedingly promising, He seeks to discover the variations in question by direct observation of the sun. Having obtained a telescopic image of that body, he examines it with a spectroscope and an instrument of his own invention whereby differences of temperature as small as a hundred-millionth of a degree can be detected. Various difficulties have beset this work. The apparatus is so delicate that a number of local influences interfere with its operation. Its testimony is also obscured by variable conditions in the earth's atmosphere, notably the presence of water vapor. Most of these sources of error and uncertainty have been slowly eliminated, however. In the latest report of the Smithsonian Institution Professor Langley intimates that it may be necessary to transfer the work to a mountain top, but he takes an encouraging view of the possibility of getting accurate results at the astro-physical observatory in Washington. After he is fully satisfied with the working of his instruments, which, by the way make records automatically, he should soon be in a position to say whether they give him clear indications of substantial changes in the sun's thermal output.

When once it has been proved that the bolometer will give unmistakable evidence of variations in heat emission, the next step will be to find out whether it can be utilized practically in weather forecasting. An investigation of colossal proportions will be necessary to determine whether perceptible consequences ensue at the earth's surface, and how much time intervenes between the observed cause and effect. These questions cannot be settled in a day. Possibly it may be found that the behavior of the magnets in well regulated observatories, or even that of simpler instruments of an allied nature which can be used at ordinary meteorological stations, will be more significant. At any rate, it is not incredible that better means of gaining an insight into coming weather changes will be available before the first quarter of the twentieth century has elapsed.—*New York Tribune.*

CLIMATOLOGY OF THE MONTH, DECEMBER, 1903.

BAROMETER.—Mean pressure, 30.12 inches; highest observed, 30 68 inches, at Des Moines, on the 14th; lowest observed, 29.60 inches, at Davenport on the 25th; range for state, 1.08 inches.

TEMPERATURE.—The monthly mean temperature for the state, as shown by records of 103 stations, was 19.6°, which is 3.9° below normal. By sections the mean temperatures were as follows: Northern section 16.0°; central section 19.7°; southern section 23.0°. The highest monthly mean was 26.2° at Glenwood; lowest monthly mean, 12.5° at Sibley. The highest temperature reported was 58°, at Hopeville, Mt. Ayr, Osceola and St Charles on the 31st; lowest temperature reported, 27° at Sibley on the 13th. The average monthly maximum was 48.8°; average monthly minimum, 15.3°. Greatest daily range 56° at Whitten; average of greatest daily ranges 40.5.°

PRECIPITATION.—Average precipitation for the state as shown by records of 118 stations, was 0.41 of an inch, which is 0.88 of an inch below normal. The averages by sections were as follows: Northern section, .49 of an inch; central section, .37 of an inch; southern section. 38 inches. The largest amount reported was 1.96 inches at Ridgeway; least amount reported, trace, at Storm Lake. The greatest daily rainfall reported was .68 of an inch at Ridgeway on the 25th. Average number of days on which .01 of an inch or more was reported, 4.

WIND AND WEATHER.—Prevailing direction of the wind, northwest; highest velocity reported, fifty miles per hour, from the northwest, at Sioux City, on the 28th. Average number of clear days, 11; partly cloudy, 9; cloudy, 11.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES. Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	30.09	30.60	14	29.60	25
Des Moines	30 14	30.68	14	29.69	9
Dubuque	30.09	30.58	14	29.63	21
Omaha, Neb	30 14	30.70	14	29.67	18
Keokuk	30.12	30.64	14	29.62	12
Sioux City	30.11	30.66	14	29 75	9
Means	30.12	30.68	14	29.60	25

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	6,461	29	N	25
Des Moines	7.223	36	NW	25
Dubuque	5.803	26	NW	29
Keokuk	6,630	42	NW	25
La Crosse, Wis	5.811	27	NW	21
Omaha, Neb	7.912	43	N	25
Sioux City	10.576	50	NW	28

OBSERVERS' NOTES.

ALLERTON.—*Rex Shriver.* Generally pleasant and dry; blizzard on 12th; good sleighing from 12th to 17th.

ALTA.—*David E. Hadden.* Very cold during the middle decade of the month; only two inches of snow, which soon disappeared; roads excellent.

ATLANTIC.—*J. W. Love.* A remarkably mild December, with no rain and very little snow; roads fine.

BONAPARTE.—*B. R. Vale.* A dry, cool month; roads good; fields in good condition and husking done. For 1903 the precipitation was 39.34 inches, as against 47.61 inches in 1902, and 16.34 inches in 1901.

BRITT.—*Geo. P. Hardwick.* Temperature below normal; no severe storms; live stock healthy and feeding in the fields; excess of surface water disappeared; corn all gathered, and about half a crop.

CARROLL.—*Moses Simon.* Cold wave 13th to 15th; balance of month fine; roads good.

CHARITON.—*C. C. Burr.* Month more like October than December; roads dry and smooth.

CLINTON.—*Dr. Luke Roberts.* A cold December and erratic in its high and low temperatures; mean, 5.5° below normal; maximum, 9.6° below normal; minimum, 9.9° below normal; rainfall also below normal.

ELKADOR.—*Charles Reinecke.* Mean temperature for 1903 was 46.3°; total precipitation for 1903 was 40.70 inches; total snowfall for 1903 was 32.5 inches; highest temperature for 1903 was 93° July 9th; lowest temperature, 19° December 13th.

GRAND MEADOW.—*F. L. Williams.* A drop of 40° in temperature occurred between 11 A. M. on the 12th and 4 A. M. on the 13th; month cold and dry; stock doing well.

GREENFIELD.—*J. G. Culver.* Temperature fell 45° in the 24 hours following 6 A. M. of the 25th.

GRINNELL.—*A. O. Price.* Month cool and dry; fine for stock; ground bare of snow except in patches; snow fall, 1.5 inches; or .15 of an inch melted.

HANLONTOWN.—*Miss G. M. Paschen.* Snow of first part of the month melted about the 20th; later snow nearly all melted on 31st; month colder than last year.

HOPEVILLE.—*M. L. Ashley.* A beautiful month; roads dry and dusty; stock wintering finely to date.

HUMBOLDT.—*H. S. Wells.* Weather very fine, and roads never better; stock healthy.

IDA GROVE.—*J. E. Conn.* Month very fine; clear with continued cold weather.

JEFFERSON.—*Isaac Young.* Snow all gone and ground freezing deep. This will remedy the soggy condition the fields were in during the past season.

MT. AYR.—*A. L. Beard.* An ideal month; very fine winter weather.

OLIN.—*Nathan Potter.* A good month for feeding stock; roads fine.

OSKALOOSA.—*Jos Boyd.* Month all that could be desired for feeding stock.

PACIFIC JUNCTION.—*H. H. McCartney.* Latter part of month characterized by N. N. W. winds; extremely warm for time of year; were they estray chinook winds?

RIDGEWAY.—*Arthur Betts.*—Coldest December on record at this station; good wheeling all the month; bright lightning on the 19th; 151 hours of sunshine, or 54 per cent; most of the warm waves culminated at night.

WASHTA—*H. L. Felter.* Corn husking about completed by December 10th.

WAUKEE.—*E. J. Leonard.* An excellent month; tempera ture reached zero on only five days; fine roads.

BELATED REPORTS.

CLEAR LAKE—November—Mean temperature 30.5° on the 1st; lowest—2 on the 26th; greatest daily range 29; total precipitation, Trace; greatest in 24 hours, Trace; prevailing direction, northwest; total snowfall, Trace; number of clear days 14, partly cloudy 11, cloudy 5, rainy 0.

OTTUMWA—November—Mean temperature 37.7°; highest 74° on the 1st; lowest 10° on the 26th; greatest daily range 30°; total precipitation .65 inch; greatest in 24 hours .61 inch on the 10th; total snowfall, Trace; prevailing direction, southeast. Number of clear days 5, partly cloudy 16, cloudy 9, rainy 3.

BELLE PLAINE—November—Mean temperature 31.9; highest 54° on the 12th; lowest 2° on the 26th; greatest daily range 27°; total precipitation .39 inch; greatest in 24 hours .18 inch on the 2nd; total snowfall 0.2 inch; prevailing direction, northwest. Number of clear days 12, partly cloudy 12, cloudy 6, rainy 5.

ERRATA IN OCTOBER REVIEW.

BELKNAP—Mean temperature recorded 57.0° on page 8 should have been 57.8°.

CLEAR LAKE—Mean maximum temperature recorded 62.0° on page 9, should have been 61.9°.

LENOX—Mean temperature recorded 51.8° on page 8, should have been 53.2°. Mean maximum temperature recorded 64.9° on page 10, should have been 64.5°.

OGDEN—Total precipitation recorded 1.80 inches on pages 7 and 11, should have been 2.00 inches.

ONAWA—Mean temperature recorded 50.2° on page 7, should have been 55.2°.

ERRATA IN NOVEMBER REVIEW.

AMANA—Mean temperature recorded 33.5° on page 8, should have been 34 5°.

ATLANTIC—Mean temperature recorded 36.2° on page 9, should have been 36.4°.

Mean minimum temperature recorded 27.0° on page 10, should have been 27.3°.

DELAWARE—Mean temperature recorded 31.4° on page 8, should have been 31.5°.

MT. PLEASANT—Mean temperature recorded 34.8° on page 9, should have been 35.8°.

Mean maximum temperature recorded 43.1° on page 11, should have been 45.1°.

WAVERLY—Mean temperature recorded 31.8° on page 8, should have been 32.8°.

Mean maximum temperature recorded 40.9° on page 11, should have been 42 3°.

Mean minimum temperature recorded 31.8° on page 11, should have been 32.8°.

CLIMATOLOGICAL DATA FOR DECEMBER, 1903.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Algona	Kossuth	1,213	28	18.2	-1.6	47	6	-18	13	40	.20	- .81	.05	1.5	3	4	17	10	NW	
Alta	Buena Vista	1,513	11	17.9	-3.4	47	6	-20	13	48	.19	- .75	.05	2.0	6	11	12	8	NW	
Alta (near)	Buena Vista										.20		.05	2.0	4					
Britt	Hancock	1,236	5	15.3	-1.8	48	6	-25	13	43	.36	- .20	.12	3.4	8	5	16	10	NW	
Charles City	Floyd	1,012	11	13.3	-7.1	44	7	-20	13	44	.21	- .98	.11	4 0	3	12	4	15	W	
Clear Lake	Cerro Gordo	1,241	..	14.4		42	6	-21	13	39	.60		.20	6.0	7	6	12	13	NW	
Cresco	Howard							-19	26							14	0	17	NW	
Decorah	Winneshiek	857	8	13.7	-6.9	40	23	-22	18	34	.80	- .88	.30	9.5	6					
Dows	Wright	1,142		16.6		48	6	-17	13	38	.42		.20	4.2	4	18	0	13	NW	
Elkader	Clayton	727	21	14.8	-6.9	48	23	-19	13	37	.51	-1.40	.23	9.5	5	11	7	13	NW	
Estherville	Emmet	1,298	7	14 5	-3.9	47	6	-22	13	52	.43	† .04	.10		6	11	5	15	NW	
Forest City	Winnebago	1,226	8	13.8	-5.5	49	7	-26	13	32	.65	† .05	.30	6.5	5	9	1	21	NW	
Grand Meadow	Clayton	1,180	11	14.8	-7.1	41	23	-21	13	32	.75	- .73	.25	7.5	5	6	14	11	NW	
Hampton	Franklin	1,155	12	16.6	-4.5	50	6	-17	13	41	.34	- .88	.18	3.0	4	5	21	5	NW	
Hanlontown	Worth			14.5		48	6	-26	13	43	1.08		.50	3.2	7	14	1	16	NW	
Humboldt	Humboldt	1,095	10	19.3	-3.9	51	6	-16	13	40	.22	- .48	.12	2 2	2	21	4	6	NW	
Larrabee	Cherokee	1,366	11	18.4	-3 9	49	6	-21	13	51	.18	- .80	.09	1 9	4	6	20	5	NW	
LeMars	Plymouth	1,224	6	19.8	-2.3	46	6	-15	13	45	.25	- .49	.25	3.0	1	15	9	7	S	
Mason City	Cerro Gordo	1,132		16.4		45	6	-19	13	34	.53		.20	5.3	4	7	10	14	NW	
New Hampton(b)	Chickasaw	1,169		13.4		41	6,23	-24	13	39	.85		.50	8.5	4	10	6	15	NW	
Northwood	Worth	1,222	6	16.0	-3.4	45	6	-21	13	41	.75	† .00	.30	7.5	5	15	3	13	NW	
Osage	Mitchell	1,184	11	14.3	-5.0	40	6	-21	13	36	.90	- .31	.50	9.0	8	8	10	13	NW	
Plover	Pocahontas	1,190	5	16.6	-3.8	51	6	-21	13	43	.17	- .52	.10	1.8	3	14	9	8	NW	
Primghar (d)	O'Brien			16.7		47	7	-23	13	48										
Ridgeway	Winneshiek	1,215		16.3		44	23	-24	13	43	1.96		.68	12 7	14	11	1 2	8	NW	
Sibley (c)	Osceola	1,512	8	12.5	-7.1	39	23	-27	13	43	.35	- .40	.20	3.5	4				NW	
Sioux Center	Sioux			17.8		46	6	-21	13	49	.35		.10	3.5	5	14	5	12	S	
Spirit Lake	Dickinson	1,458	8	16.2	-4.0	45	3	-23	13	52	.50		.25	5.0	4	13	5	13	NW	
Storm Lake	Buena Vista	1,440	7	19.2	-1.7	48	5	-19	13	47	T	- .86	T	0.1	0	19	5	7	NW	
Washta	Cherokee	1,157									.20		.05	2 0	4	16	8	7	NW	
Waverly	Bremer	942	6	15.4	-5.6	43	23	-17	13,30	41	.55	- .37	.22	5.5	5	3	13	15	NW	
West Bend	Palo Alto	1,197	8	18.1	-2.1	50	6	-22	13	41	.34	- .49	.10	3.2	7	8	12	11	NW	
West Union	Fayette										.30		.20	3.0	2	13	0	18	NW	
Average				16.0	-4.4	45.8		-20.9		41.9	.49	- .54		4.7	5	11	8	12	NW	

CENTRAL SECTION.

Amana	Iowa	721	25	19.2	-2.8	48	6	-15	13	38	.50	- .58	.25	4 4	5	7	17	7	NW	
Ames	Story	926	20	20.2	-1.8	49	6	-13	13	40	.18	- .86	.10	.5	3	25	2	4	N W	
Audubon	Audubon	1,30	8	20.7	-2.7	49	31	-13	13	39	.12	-1.07	.07	1.5	2	10	15	6	NW	
Baxter	Jasper	998		21.0		50	6,31	-13	13	48	.10		.10	1.0	1	20	3	8	NW	
Belle Plaine	Benton	828	12	16 4	-7 9	40	31	-15	13,26	40	.59	- .82	.16	4.9	6	8	16	7	NW	
Buckingham	Iowa										.20		.08	2.8	4	1	26	4		
Carroll	Carroll	1,265	12	20.4	-3.0	53	23	-15	13	48	.10	- .85	.10	1.0	1	13	6	12		
Cedar Rapids	Linn	733	19	17.9	-7.5	49	6	-15	13,14	45	.68	- .91	.14	3.5	5	8	11	12	NNW	
Clinton	Clinton	609	34	19.0	-3 3	43	6,23	-20	13	41	1.00	- .82	.40	19 0	5	8	9	14	W	
Davenport	Scott	606	31	20.4	-7.4	44	6	-15	13	34	.78	- .95	.43	6 9	5	7	9	15	W	
Delaware	Delaware	1,083	11	15.8	-5.6	43	6	-21	13	35	.39	-1.06	.15	4.2	7	11	13	7	NW	
Denison	Crawford	1,180	8	21.7	-0.7	48	31	-13	13	39	.17	- .33	.10	1.8	3	22	1	8	N	
Des Moines	Polk	861	24	22.6	-4.2	55	31	- 9	13	42	.09	-1.35	.04	1.6	3	5	9	17	NW	
Dubuque	Dubuque	655	29	18.4	-7.5	46	23	-17	26	33	.85	- .96	.26	9 2	11	12	9	10	NW	
Fort Dodge	Webster	1,126		20.6		50	6	-15	13	41	.02		.02	0.2	1	14	14	3		
Galva (a)	Ida	1,290	8	19.0	-3.4	49	6	-17	13	41	.09	- .59	.05	0.9	3				NW	
Gilman	Marshall	1,052									.10		.10	1.1	1	11	12	8	NW	
Grinnell	Poweshiek	1,023	9	19.8	-5.0	47	31	-10	13,26	37	.17	- .83	.08	1.5	5	7	15	9	W	
Grinnell (near)	Poweshiek			19.6		47	31	-12	13,26	39	.15		.10	1.5	2	8	8	15	NW	
Grundy Center	Grundy	976	11	17.6	-4.9	50	23	-21	13	40	.24	- .97	.11	1.7	4	6	12	13	NW	
Guthrie Center	Guthrie	1,077	6	25.5	-6.0	55	31	-12	13	47	.13	- .98	.08		2	13	7	11	NW	
Harlan	Shelby	1,192		22.0		47	31	-12	13	38	.14		.08	4.0	3	3	22	6	S	
Independence	Buchanan	971	38	16.6	-4.9	47	23	-18	13	43	.63	- .71	.26	6.3	5	12	10	9	W	
Iowa City	Johnson	685	43	18.2	-6.0	49	7	-18	13	48	1 27	- .41	.60		6	7	11	13	W	
Iowa Falls (a)	Hardin	1,170	9	15.7	-5.1	47	7	-17	13	48	.45	- .60	.25	4.5	3				NW	
Jefferson	Greene	1,052									.18		.10	2.0	5	2	13	16	NW	
LeClaire	Scott	576									.76		.22	8.5	6				NW	
Logan	Harrison	928	35			48	31			35	.30	-1.02	.20	3.0	2	13	11	7	NW	
Maquoketa	Jackson	688	9	15.6	-10.1	46	6	-22	13	50	.62	- .91	.18		6	14	3	14	SW	
Marshalltown	Marshall	947	9	20.0	-3.6	49	6	-13	13,26	49	.12	-1.40	.08	1.4	2	7	7	17	NW	
Monticello	Jones	925	48	16.4	-5.9	48	7	-20	13	38	.32	-1.88	.20	8.5	4	5	11	15	SW	
Mt. Vernon	Linn	847	35	17.2	-5.6	47	6	-20	13	40	.85	- .66	.27	9.7	5	11	6	14	SW, NW	
Newton	Jasper	944	14	20.3	-1.7	48	6,31	-13	13,26	39	.22	-1.11	.15	2.5	2	11	12	8	NW	
Odebolt	Sac	1,356	5	20.9	-1.0	50	6	-15	13	38	.10	- .72	.05	1.2	2	19	9	3		
Olin	Jones	760		18.3		44	6	-22	13	33	.99		.50	4.5	5	9	9	13		
Onawa	Monona	1,053		26.4		53	6	- 7	13	44	.42		.25	4.2	4	20	5	6	NW	
Perry	Dallas	975		21.4		49	6	-11	13	38	.30		.15	3.0	3					
Rockwell City	Calhoun			21.3		50	6	-14	13	41	.10		.10	1.0	1	9	8	14		
Sac City	Sac	1,278	22	20.8	-2.3	49	6	-16	13	39	.15	-1.05	.08	1.5	3	16	5	10	NW	
Sioux City	Woodbury	1,165	13	21.4	-6.4	48	6	-13	12	55	.21	- .67	.10		5	8	11	12	NW	
Stuart	Guthrie	1,216	5	23.0	-2.2	48	31	-10	13	32	.20	- .53	.10	2.0	3	13	0	18	NW	
Tipton	Cedar	807		19.6		45	6	-16	13	30	.95		.40	8.5	5	8	15	8	W	
Toledo	Tama	856	8	18.6	-5 0	48	6	-14	13	41	.15	- .94	.10	1.5	2	7	14	10	NW	
Vinton	Benton	810	12								.40	- .79	.20	4.0	3	18	2	11	NW	
Waterloo	Black Hawk	862	15	18.7	-2.5	48	7,24	-16	13	41	.37	- .90	.15	2.5	4	8	11	12	NW	
Waukee	Dallas	1,039		22.5		54	31	-11	13	40	.32		.15	3.0	4	11	9	11	NW	
Wilton Junction	Muscatine	683	7	19.7	-6.4	45	6	-19	13	38	.43	- .95	.15	9.5	4	16	0	15	NW	
Whitten (b)	Hardin	1,036		17.4		46	6	-20	13	56	.25		.20	2.5	2				NW	
Average				19.7	-4.5	48.1		-15.2		41.0	0.37	- .88		3.7	4.4	.11	.10	.11	NW	

CLIMATOLOGICAL DATA FOR DECEMBER, 1903—CONTINUED.

SOUTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted)		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Afton	Union	1,212	7	23.4	-1.8	54	31	-10	13	38	.20	-.95	.10	2.0	3	14	9	8	NW	
Albia	Monroe	957	...	21.3		53	31	-13	13	48	.40		.40	4.0	1	21	9	1	SW	
Allerton	Wayne		...	23.0		55	31	-12	13	39	.63		.33	5.0	5	16	8	7	NW	
Atlantic	Cass	1,164	11	23.0	-1.6	51	31	-10	13	35	.25	-1.01	.15	2.5	2	8	11	12	NW	
Bedford	Taylor		...	24.1		56	31	-11	13	41	.13		.13		1	16	1	14	NW	
Belknap	Davis	877	7			50	31				1.16	-.77	.60	6.8	5	14	14	3	NW	
Bonaparte	Van Buren		10	22.1	-6.0	53	31	-9	13	42	.81	-.60	.65		2	...	...	...		
Burlington	Des Moines	544	...	22.7		50	31	-9	13	36	.70		.48	...	4	10	9	12	NW	
Chariton	Lucas	1,042	7	22.4	-3.6	55	31	-12	13	42	.23	-1.20	.25	T	2	15	0	16	NW	
Clarinda	Page	1,069	12	23.1	-3.8	48	18,23	-10	13	38	.17	-.96	.12	1.6	2	15	8	8	NW	
College Springs	Page		10	25.0	-2.4	56	31	-9	13	34	.22	-1.11	.20	...	2	17	8	6	NW	
Columbus Jct.	Louisa	596	...	21.5		47	6,31	-15	13	37	.95		.61	7.0	5	12	11	8	SW, NW	
Corning	Adams	1,127	10	23.2	-4.7	54	31	-11	13	39	.17	-.89	.10	1.8	2	13	13	5	NW	
Corydon	Wayne	992	9	22.2	-4.0	56	31	-13	13	45	.26	-1.27	.15	6.6	4	13	10	8	NW	
Council Bluffs	Pottawattamie	990	5																	
Cumberland	Cass										.20		.20	2.0	1	19	6	6	NW	
Earlham	Madison		...	21.5		55	31	-13	13	47	.05		.03	1.2	2	...	...	...		
Fort Madison	Lee	516	51								.64	-1.34	.42	...	3	10	8	13	W	
Glenwood	Mills		15	26.2	-2.9	54	31	-10	13	35	.20	-.61	.20	2.0	1	3	23	5	NW	
Greenfield	Adair		11	21.6	-3.3	50	31	-13	13,14	40	.12	-1.08	.06	1.3	3	17	7	7	SW	
Hopeville	Clarke		11	22.6	-2.9	58	31	-11	13	39	.07	-.98	.03	7	3	7	18	6	NW	
Indianola	Warren	969	11	22.4	-3.1	55	31	-10	13	41	.12	-1.29	.05	1.5	3	12	6	13	NW	
Keokuk	Lee	619	31	24.6	-5.2	53	31	-7	13	35	.86	-1.10	.52	2.2	8	12	11	8	NW	
Keosauqua	Van Buren	664	10					-7	13,14		.66	-.80	.66	1.0	2	9	6	16		
Knoxville‡	Marion	920	6	22.8	-2.5	56	31	-10	13	41	.35	-1.01	.10	3.5	5	11	3	17	NW	
Lacona	Warren										.80		.20	8.0	7	9	17	5		
Lenox	Taylor	1,250	7	22.8	-1.9	54	31	-13	13	37	.08	-1.14	.06	.8	3	17	8	6	NW	
Mt. Ayr	Ringgold	1,236	8	23.8	†0.8	58	31	-10	13	40	.62	-.56	.20	6.0	5	13	7	11	NW	
Mt. Pleasant	Henry	729	20	21.8	-5.0	50	31	-14	13	32	.19	-1.03	.17	0.2	2	12	12	7	SW	
Omaha, Neb.	Douglass	1,113	32	26.0	-0.7	51	31	-7	13	49	.15	-.86	.12	1.5	4	8	12	11	NW	
Osceola	Clarke	1,130	6	23.0	-1.7	58	31	-11	13	39	.10	-.99	.10	1.0	1	6	16	9	SW	
Oskaloosa	Mahaska	843	18	20.2	-5.7	52	31	-15	13	42	.32	-.96	.18	2.5	4	14	1	16	NW	
Ottumwa‡	Wapello	649	8	25.0	-2.6	57	31			36	.81	-.65	.46	4.6	2	6	14	11	W	
Pacific Junction	Mills	960	...	23.8		49	31	-8	13	38	.17		.13	1.7	3	17	10	4	NW	
Red Oak	Montgomery	1,033		26.0		48	19,31	-6	13	28	.13		.11	1.8	2	3	25	3	N	
St. Charles	Madison	1,070	...	23.6		58	31	-10	13	43	.53		.50	1.0	2	14	10	7	NW	
Stockport	Van Buren		...								.46		.35	1.5	2	12	7	12	NW	
Thurman	Fremont		...	26.4		51	31	-9	13	41	.52		.27	5.2	2	14	4	13	NW	
Villisca	Montgomery	1,058	8	24.2	-0.6	45	7,27	-10	13	30	.23	-.96	.15	1.5	2	19	9	3	NW	
Wapello	Louisa	588		22.4		45	3,6	-12	13	28	.70		.51	6.5	3	13	10	8	W	
Washington	Washington	769	20	18.4	-6.3	51	31	-19	13	41	.60	-.75	.28	3.5	5	...		...	SW	
Winterset	Madison	1,129	11					-12	13,36											
Woodburn	Clarke	961									.15		.08	2.0	2	12	3	16	NW	
Average				23.0	-3.4	52.5		-10.9		38.7	0.38	-.97		2.8	3	12	9	9	NW	
Average for state				19.6	-4.1	48.8		-15.3		40.5	0.41	-.80		3.7	4	11	9	11	NW	

*Means determined from 7 A. M., 2 P. M. and 9 P. M. observations, and maximum and minimum are taken from eye readings. †Means determined from 7 A. M., and 7 P. M. observations. ‡Received too late to be computed with means. *a*, One day missing; *b*, two days, etc.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR DECEMBER, 1903.

STATIONS.		DATE.																															MEAN.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	7	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Afton. ...	Max..	30	33	36	28	25	46	40	34	31	22	34	26	15	17	27	26	29	41	43	37	40	36	46	40	36	25	43	40	34	33	54	33.9
	Min ..	10	10	25	14	14	13	24	17	15	2	12	3	-10	-2	3	10	11	20	26	21	30	12	26	20	5	-4	24	17	15	2	16	12.9
Albia.	Max..	20	37	25	24	25	40	37	28	28	27	32	19	8	19	26	25	27	45	29	35	39	37	45	43	38	38	42	39	26	42	53	32.2
	Min ..	10	10	28	10	15	15	15	17	15	2	2	19	-13	-8	-5	3	6	7	22	23	22	11	17	22	12	-8	13	15	22	-2	5	10.4
Algona. ..	Max..	20	30	37	27	27	47	40	22	26	23	23	20	8	10	23	22	25	36	40	35	35	30	40	31	29	25	36	30	29	27	32	28.5
	Min ..	8	10	29	11	8	12	18	11	10	1	0	-10	-18	-7	1	9	5	17	32	20	17	6	20	12	-7	-15	17	15	-3	4	12	7.9
Allerton .	Max..	27	31	39	31	30	49	41	30	29	24	30	29	12	19	25	26	28	41	43	33	43	38	46	42	34	21	45	43	35	36	55	34.0
	Min ..	10	10	25	15	16	13	22	19	16	2	10	2	-12	-5	-2	8	8	19	22	22	28	11	24	22	6	-3	20	16	13	0	16	12.1
Alta.	Max..	26	30	28	15	22	47	33	23	25	17	24	19	8	12	26	22	28	39	33	39	35	37	42	35	10	37	38	32	25	32	43	28.4
	Min ..	8	12	15	9	10	12	19	12	7	-4	15	-16	-20	-10	-1	8	7	8	15	25	10	6	22	8	-8	-11	24	18	-2	-2	15	7.4
Amana. ..	Max..	27	32	38	29	22	48	38	27	27	21	29	24	8	15	21	24	23	37	38	32	38	30	42	40	31	15	37	32	30	27	42	29.8
	Min ..	7	5	29	16	14	9	20	19	16	4	7	-1	-15	-7	-9	10	-4	16	26	26	25	8	22	21	-4	-12	15	6	0	-8	9	8.7
Ames	Max..	22	30	37	30	26	49	40	22	28	20	31	16	10	14	26	26	29	40	45	37	37	34	46	38	36	24	39	33	32	32	45	31.4
	Min ..	7	6	10	14	12	12	19	16	15	10	14	-10	-13	11	-3	10	4	12	21	21	21	5	25	12	-1	-10	19	12	5	-8	10	9.0
Atlantic..	Max..	29	38	36	27	23	49	41	33	32	19	32	25	6	20	30	27	32	47	47	42	38	40	47	42	35	32	45	39	35	41	51	34.8
	Min ..	6	12	25	15	16	8	22	16	16	-1	5	-3	-10	-2	-1	7	14	21	24	22	25	9	15	18	3	-3	23	16	11	5	15	11.2
Audubon.	Max..	28	34	36	27	24	46	39	30	29	19	30	23	10	15	27	23	30	44	45	40	33	38	46	39	32	29	41	36	32	35	49	32.5
	Min ..	7	8	25	12	13	9	19	13	14	-3	8	-5	-13	-5	-6	5	9	21	20	21	22	6	13	11	0	-6	25	13	9	0	10	8.9
Baxter. ..	Max..	24	28	37	29	26	50	43	27	28	20	33	25	10	20	25	25	28	38	45	34	38	33	44	43	32	20	40	34	32	33	50	32.1
	Min ..	6	7	27	12	11	10	18	17	14	-2	11	-2	-13	-8	-3	8	3	17	21	21	24	4	19	14	-3	12	18	8	0	-10	8	10.0
Bedford ..	Max..	28	34	39	32	27	49	43	35	32	25	34	29	20	19	28	29	31	45	49	40	33	39	44	41	36	29	45	43	36	39	56	35.8
	Min ..	7	13	23	15	15	8	25	17	14	-5	9	3	-11	-5	-1	14	13	23	25	20	31	8	22	20	5	3	24	15	18	5	16	12.4
Belknap..	Max..	32	55	35	30	30	36	35	30	25	23	30	23	15	25	30	29	30	30	34	35	50	42	52	45	25	20	35	35	30	40	50	33.6
	Min ..																																
Belle P...	Max..	25	33	38	21	23	47	27	21	29	19	30	22	12	15	22	25	24	32	29	25	26	22	37	20	-3	25	33	30	15	22	40	25.4
	Min ..	5	4	5	13	12	18	17	18	14	-2	10	15	-15	-7	-5	10	0	14	23	20	23	5	20	12	-5	-15	12	4	13	-12	7	7.5
Bonapar'e	Max..	28	33	43	31	26	48	36	24	27	22	33	31	9	16	26	25	25	39	43	37	40	35	42	39	35	17	42	33	32	32	53	32.5
	Min ..	17	9	24	17	16	13	23	15	12	6	10	5	-9	0	1	11	4	18	26	22	25	10	21	28	2	-6	17	11	6	-2	11	11.7
Britt. ..	Max..	23	30	34	23	19	48	32	21	25	19	25	18	7	11	24	21	23	38	41	36	34	28	40	33	18	24	35	30	28	27	35	27.4
	Min ..	6	6	23	7	6	5	16	10	8	-5	3	-13	-25	-12	-11	4	1	11	22	20	13	2	13	7	-10	-16	12	14	-9	-15	6	3.2
Burling'n	Max..	33	34	45	33	28	46	37	27	27	21	32	31	9	18	24	27	29	40	42	40	41	33	43	40	34	17	17	35	31	30	50	32.1
	Min ..	15	15	28	19	15	14	25	17	15	10	12	6	-9	0	2	14	7	20	27	24	27	13	25	31	2	-6	14	11	6	0	14	13 3
Carroll ...	Max..	32	34	32	21	23	50	40	28	27	24	30	5	11	15	26	24	32	40	35	42	36	39	53	41	15	39	21	32	20	39	50	31.3
	Min ..	5	10	22	12	13	10	18	15	12	-3	6	5	-15	-7	-3	12	6	14	18	20	25	5	20	13	7	-9	24	15	18	-2	13	9.6
Cedar R..	Max..	26	35	40	22	22	49	28	27	27	17	23	23	6	13	18	22	24	42	44	34	37	31	44	41	17	38	38	31	21	26	40	29.3
	Min ..	12	9	10	18	15	12	12	20	17	7	4	13	-15	-15	-7	-7	-3	-3	24	22	26	9	8	22	9	-13	-12	5	12	-8	-5	6.5
Chariton .	Max..	22	32	39	30	28	50	47	30	29	25	30	27	10	19	25	20	26	40	29	34	31	40	37	45	43	21	44	40	34	37	55	32.9
	Min ..	12	9	19	14	16	12	24	16	15	2	9	10	-12	-5	0	8	6	19	22	21	20	27	9	24	20	-5	10	14	14	-1	13	11.7
Charles C.	Max..	22	33	31	17	18	44	20	22	24	20	19	16	-3	-3	19	20	23	40	23	34	33	29	41	32	5	31	43	31	7	25	30	24.2
	Min ..	5	4	10	12	9	9	13	10	10	-2	-3	7	-20	-16	-10	-1	-5	-4	22	20	23	3	5	14	3	-18	-12	-3	6	-18	2	2.4
Clarinda..	Max..	30	37	39	33	29	34	45	25	34	21	34	20	16	22	28	31	32	43	33	43	44	42	48	44	15	36	46	44	30	42	58	34.9
	Min ..	10	11	18	16	14	16	20	24	13	1	0	11	-10	-3	2	6	14	14	24	21	22	10	12	18	15	-2	0	18	19	7	11	11.3
Clear L. ..	Max..	21	27	33	23	16	42	37	20	24	12	25	17	4	8	28	20	27	34	40	33	34	25	40	30	15	19	34	27	28	25	32	25.8
	Min ..	3	4	20	7	5	5	14	8	9	-5	5	-14	-21	-10	-7	8	-3	10	19	19	14	4	16	11	-11	-20	14	3	-6	-11	7	3.1
Clinton ...	Max..	31	33	42	32	26	43	35	27	27	22	24	40	4	12	19	22	22	37	38	35	38	27	43	38	26	20	37	24	28	23	37	23.4
	Min ..	22	13	31	18	14	11	25	23	16	6	5	-1	20	-9	-11	3	-6	11	30	22	22	9	17	25	-5	-14	10	1	-2	-8	10	8.6
Col. Sp'gs.	Max..	28	36	38	28	28	50	51	35	34	24	34	23	15	20	29	29	32	42	49	44	44	40	47	42	37	32	47	43	34	42	56	35.2
	Min ..	13	15	25	17	14	15	26	18	15	2	10	1	-9	-1	6	15	15	25	24	20	30	12	27	20	6	-2	27	20	18	11	22	14.7
Colum. J.	Max..	29	34	43	33	23	47	37	26	29	29	32	28	9	15	25	25	27	39	40	33	39	31	43	39	36	16	39	34	31	26	47	32.1
	Min ..	13	15	30	16	16	12	23	18	15	7	10	3	-15	-6	-4	10	-1	17	28	22	26	10	24	27	-1	-9	12	10	4	-3	13	11.0
Corning ..	Max..	29	34	38	27	23	48	41	33	32	21	31	27	13	17	27	27	30	44	46	40	42	38	41	42	35	29	45	42	35	39	54	34.7
	Min ..	8	13	25	13	13	12	23	15	13	-2	5	-3	-11	-5	8	12	13	23	23	21	26	9	27	19	3	-4	25	18	15	4	15	11.7
Corydon..	Max..	29	31	38	32	31	50	44	35	29	25	31	29	11	19	24	29	27	40	44	34	44	44	44	37	17	22	47	49	35	38	58	34.4
	Min ..	9	8	24	14	14	11	21	16	14	0	9	5	-13	-7	-1	6	5	15	21	20	27	24	20	5	5	-4	15	11	7	-4	11	9.9
Davenpo't	Max..	29	32	40	28	24	44	36	29	26	18	25	25	3	10	18	24	22	39	41	33	40	29	42	39	23	22	36	32	30	24	43	20.2
	Min ..	21	19	28	17	17	15	26	22	17	10	12	-2	-15	-2	-1	12	4	18	27	22	22	10	25	22	-5	-12	11	8	-1	-4	16	11.6
Decorah. .	Max..	22	23	32	23	17	38	28	26	23	15	20	18	0	5	18	18	22	32	38	33	32	25	40	32	17	17	33	18	24	22	31	23.9
	Min ..	5	4	22	12	5	4	17	19	14	6	2	-12	-22	-8	-10	-2	-10	8	23	20	12	3	17	13	-9	-17	0	-5	-3	-12	12	3.5
Delaware.	Max..	27	28	32	27	19	43	33	24	25	19	23	19	7	9	20	20	21	32	37	31	33	26	42	36	22	10	33	19	27	22	34	25 8
	Min ..	12	5	24	11	11	11	20	15	13	5	3	0	-21	-9	8	5	-1	10	24	16	20	3	16	15	-7	-19	3	-3	-3	-13	9	5.9
Denison..	Max..	28	35	37	28	28	47	38	32	29	17	24	24	10	14	27	25	32	42	43	42	38	41	49	39	35	33	40	35	33	38	48	33.0
	Min ..	13	15	26	13	13	12	21	14	12	-2	10	-6	-13	-6	-7	4	12	23	20	21	25	7	17	16	0	-6	25	15	11	2	15	10.4
Des M....	Max..	27	31	37	24	29	50	37	26	29	19	31	25	13	18	25	28	29	48	47	37	39	37	44	44	34	39	41	37	32	36	55	33.8
	Min ..	13	11	24	15	14	15	21	15	11	5	15	-6	-9	0	3	14	10	21	22	22	20	10	25	18	-3	-3	18	16	3	-1	16	11.4
Dows. ...	Max..	18	28	35	22	18	48	39	21	25	18	22	20	8	10	22	24	25	36	42	36	32	28	44	37	30	20	35	29	29	22	38	27.8
	Min ..	3	7	24	12	7	8	19	11	10	-4	8	-7	-17	-7	-4	8	3	15	22	18	20	2	15	10	-8	-16	14	8	-3	-12	4	5.5
Dubuque.	Max..	32	31	37	28	22	46	38	25	24	19	21	20	8	10	16	20	20	38	40	34	37	28	46	39	17	14	38	22	29	25	37	27.6
	Min ..	20	13	28	16	15	17	23	21	17	10	9	-4	-16	-6	-3	10	-3	13	27	22	18	8	25	17	-6	-17	7	4	0	-8	9	9.2
Earlham .	Max..	26	33	36	26	30	50	40	29	27	22	30	22	15	20	27	25	30	43	40	42	38	40	45	42	....	35	43	40	33	34	55	33 9
	Min ..	4	11	17	12	13	10	15	12	14	-3	10	0	-13	-6	-5	5	4	20	19	20	25	4	21	11		-7	22	10	13	-5	8	8.7
Elkader ..	Max..	31	30	32	28	18	44	26	22	23	18	20	14	8	10	19	19	25	32	30	35	30	26	43	35	6	13	32	17	13	20	37	24.5
	Min ..	8	3	26	15	14	12	20	17	17	4	0	-5	-19	-8	-10	5	-6	13	27	19	20	3	12	14	-7	-18	5	-9	-5	-17	6	5.0
Esthervil	Max..	25	36	25	12	24	47	20	25	24	22	21	-1	4	10	23	19	25	38	30	37	23	36	38	30	4	38	33	30	15	28	37	25.1
	Min ..	2	6	17	9	6	9	16	10	10	-2	2	-4	-22	-10	-8	1	-2	3	13	18	22	4	9	12	0	-14	0	16	-3	-9	10	3.9
Forest C'y	Max..	18	34	28	13	25	49	21	18	24	22	18	6	4	14	20	23	24	41	25	35	25	27	40	31	5	36	31	28	8	25	34	24.2
	Min ..	6	7	6	10	6	5	15	10	10	-6	-2	5	-26	-10	-10	11	1	12	19	20	21	8	7	10	1	-17	-6	5	4	-14	6	3.5
Ft. Dodge	Max..	23	35	36	28	22	50	43	28	25	18	29	28	10	12	26	25	28	41	44	39	37	33	47	40	32	30	39	33	31	31	44	31.9
	Min ..	9	12	27	12	11	12	18	14	13	0	15	-3	-15	2	-2	10	6	20	20	21	15	7	20	15	-2	-11	14	16	2	-5	11	9.2
Galva.....	Max..	27	33	36	25	23	49	35	27	20	28	23	....	10	11	28	23	30	39	40	39	36	36	43	36	31	31	39	35	31	34	33	30.0
	Min ..	4	13	23	10	11	9	12	12	4	13	10	....	-17	-11	-6	4	8	18	18	20	18	5	15	11	-4	-10	24	16	5	-1	11	7 9
Glenw'd .	Max..	29	35	37	30	35	52	47	36	32	20	30	29	19	24	28	32	32	47	42	45	42	42	44	47	42	37	47	42	39	45	54	37.5
	Min ..	15	17	27	9	8	16	27	11	11	-4	10	0	-10	0	8	15	14	22	25	17	29	17	34	17	25	4	30	21	18	10	22	15 0
Grand M.	Max..	24	28	32	24	17	38	34	23	23	19	20	19	4	7	18	27	21	30	38	34	33	24	41	34	22	8	32	16	15	21	31	24 7
	Min ..	9	7	22	12	10	7	18	9	10	6	3	-5	-21	-9	-8	5	-2	9	25	18	19	2	20	13	-8	-20	8	-5	-5	-11	11	4,8
Greenfi'ld	Max..	30	33	36	23	34	45	40	32	33	20	33	21	12	16	27	26	30	44	44	38	37	33	46	46	34	26	44	45	34	38	50	33.9
	Min ..	9	13	17	11	14	10	20	14	13	13	6	-3	-13	-13	0	9	10	19	20	21	25	7	19	16	-2	-11	11	13	7	-2	16	9.3
Grinnell.	Max..	23	28	37	28	23	46	39	25	26	20	30	24	9	13	21	25	24	37	43	31	36	31	40	40	29	18	37	33	30	29	47	29.7
	Min ..	9	10	27	13	12	12	20	18	16	2	12	-2	-10	-3	1	9	6	16	25	21	24	7	24	18	-3	-10	18	11	0	-4	10	10.0
Grinnell	Max..	22	28	37	28	23	41	40	24	22	20	32	26	10	13	24	25	26	37	44	31	36	31	41	40	30	17	38	34	30	30	47	29.9
(near)..	Min ..	8	7	28	11	11	10	18	17	10	-1	10	2	-12	-5	-2	9	5	16	22	16	25	4	20	16	-3	-12	16	9	2	-9	10	8.3
Grundy C	Max..	21	28	34	28	20	48	40	28	26	20	26	25	9	10	22	24	23	35	41	32	35	31	50	41	31	17	36	31	28	27	41	29.3
	Min ..	24	4	27	14	13	8	7	16	15	-3	6	0	-21	-10	-7	8	0	14	24	20	24	2	18	13	-5	-16	15	3	0	-13	4	5.9
Guthrie C	Max..	32	38	45	36	33	53	49	38	37	39	35	35	13	18	30	33	32	50	45	45	45	37	53	45	48	32	54	43	46	42	55	39.9
	Min ..	8	10	28	14	15	12	22	17	15	0	10	0	-12	-5	-3	8	8	20	21	22	28	8	23	17	1	-7	26	16	12	-2	13	11.1
Hampton .	Max..	19	27	30	22	18	50	36	21	25	18	20	19	8	10	24	27	27	36	42	37	34	32	42	36	15	22	35	30	27	27	38	27 5
	Min ..	7	6	22	11	6	9	18	13	12	-2	10	-10	-17	-7	-3	10	0	13	22	21	16	4	22	13	-10	-16	10	7	-6	-11	9	5 8
Hanlont'n	Max..	18	30	34	23	11	48	34	20	24	18	20	17	0	10	20	20	23	34	40	34	34	27	41	32	15	22	34	29	29	25	36	25.9
	Min ..	4	12	21	9	6	5	14	7	10	12	1	-12	-26	-10	-18	0	-5	14	20	20	15	2	16	10	-9	-18	8	1	-2	-16	6	3.1
Harlan....	Max..	28	35	36	26	23	45	38	31	30	21	33	24	18	16	29	26	31	43	43	39	35	39	43	40	34	33	42	37	33	39	47	33.3
	Min ..	11	13	25	13	13	8	23	15	15	-1	6	-8	-12	-5	-1	9	13	21	22	22	24	8	16	15	0	-5	26	17	11	5	14	10.7
Hopeville.	Max..	24	29	37	26	26	49	40	32	30	17	31	20	14	18	26	23	29	42	45	39	41	39	44	43	34	25	45	40	29	37	58	33.4
	Min ..	9	10	25	14	15	12	24	16	15	1	16	-1	-11	-3	2	10	10	21	23	21	26	10	24	20	0	-5	24	17	8	0	17	11.9
Humboldt	Max..	23	30	36	26	22	51	42	22	28	21	27	26	10	11	25	24	28	40	46	40	36	34	43	40	32	26	24	30	29	44	25	30.4
	Min ..	5	10	26	12	10	11	20	12	14	17	13	6	-16	-9	-6	6	2	18	24	20	18	4	15	20	-4	-12	16	0	-9	10	0	8.2
Ida Grove	Max..	..	..	..	..	..	..	..	..	..	....	....	....	10	15	23	20	30	38	40	40	38	40	40	48	30	30	36	36	30	30	40	....
	Min ..	..	..	..	..	..	..	..	..	..	....	....	....	-13	-8	-6	-4	10	10	10	24	24	5	10	8	0	5	32	28	12	5	3	....
Indep'nce	Max.	24	28	33	25	16	45	36	25	22	21	20	17	6	7	17	20	21	31	39	30	33	28	47	37	37	11	33	20	20	23	38	26.1
	Min ..	10	5	25	13	10	9	18	15	12	0	7	-2	-18	-8	13	7	17	12	25	18	20	4	16	15	-6	-17	7	-2	-2	-13	7	7.0
Indianola.	Max..	27	32	37	29	29	51	39	28	29	18	32	24	12	18	26	29	29	44	47	36	39	38	45	44	..	25	42	38	33	37	35	33.7
	Min ..	10	10	28	14	11	12	24	24	15	2	11	0	-10	-2	2	9	9	9	21	22	28	8	24	18	0	-6	21	15	4	-2	14	11.1
Iowa City	Max..	29	38	39	21	25	49	28	28	27	22	28	23	7	13	20	23	25	40	40	35	39	32	44	40	31	37	37	33	30	26	46	30.5
	Min ..	12	6	8	17	15	9	16	19	16	6	5	15	-18	-15	-12	-10	-7	-6	23	23	27	13	8	22	9	-13	-11	6	13	- 9	0	6.0
Iowa Falls

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR DECEMBER, 1903—CONTINUED.

STATIONS.		DATE.																														MEAN.
		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	
Larrabee.	Max..	28	37	37	18	23	49	33	26	28	23	27	23	10	12	28	23	29	39	37	40	36	39	42	34	13	38	35	33	28	32	41	30.4
	Min ..	3	12	18	9	10	11	18	12	10	-4	18	-15	-21	-12	-5	-5	7	16	17	20	15	4	18	13	-10	-13	25	22	2	-3	12	6.4
*LeMars ..	Max..	27	28	27	25	23	46	39	34	31	21	26	24	9	12	27	25	30	37	37	38	36	39	37	35	32	38	40	35	28	32	40	30.9
	Min .	5	15	-5	12	8	15	22	12	11	-3	14	-10	-15	-7	-6	5	12	22	17	17	17	9	17	15	-7	-7	27	25	15	5	17	8.8
Lenox....	Max..	26	35	38	29	27	47	40	33	30	22	30	26	14	17	26	26	30	44	46	40	41	38	46	41	35	28	44	41	35	38	54	34.4
	Min ..	11	12	25	13	14	11	22	15	14	-3	8	0	-13	-5	2	12	11	21	23	20	21	19	20	17	3	-6	10	17	14	2	17	11.2
Leon.....	Max..	25	32	38	32	26	47	40	35	20	26	31	28	11		25	26	27	41	44	35	42	36	44	41	38	23	45	42	35	37	53	34.2
	Min ..	12	11	25	15	16	13	26	19	12	3	11	5	-9	-1	3	11	10	21	24	22	31	14	26	23	7	-3	22	18	17	3	18	13 7
Logan....	Max..	29	35	36	30	23	46	39	34	35	25	32	25	13	19	35	23	32	42	41	41	37	41	44	41	34	36	41	37	34	41	48	34.3
	Min ..	..	..	..	..	..	..	..	..	..	....	..	....	....	....	....	..	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Maquo'ta.	Max..	34	32	40	22	25	46	30	25	24	18	23	21	4	10	16	25	22	33	37	36	39	27	45	38	12	34	37	28	21	22	39	28.1
	Min ..	11	4	5	18	15	11	17	20	14	9	1	9	-22	-20	-18	-15	-12	-12	18	20	24	6	5	20	7	-17	-6	-3	0	-11	-6	3.0
Marshlt'n	Max..	21	34	35	19	22	49	30	26	27	21	30	20	10	13	24	26	27	43	27	35	36	33	47	41	30	36	37	33	19	29	45	29.8
	Min ..	6	5	28	15	11	11	20	19	16	0	12	17	-13	-5	-5	10	1	16	23	22	27	6	21	16	7	-13	18	10	17	-8	7	10.2
Mason C..	Max..	12	27	34	22	17	45	35	22	23	18	20	17	4	8	19	21	23	32	39	33	30	26	40	32	16	17	33	27	24	24	32	25.2
	Min ..	10	11	22	12	9	11	17	12	15	-2	10	-5	-19	-7	-5	11	3	16	23	21	20	6	22	14	-6	-15	13	9	0	-8	12	7.5
M'nticello	Max..	33	30	35	37	42	45	48	40	27	28	33	18	8	10	27	28	37	33	30	31	38	39	37	39	25	13	18	20	10	15	11	28.5
	Min ..	6	4	6	8	10	13	18	20	14	8	2	0	-20	-8	-11	-2	-7	0	4	10	13	20	23	20	-2	-17	-8	1	-1	-11	10	4.2
Mt. Ayr..	Max..	27	34	39	29	30	51	43	33	22	22	25	25	14	20	27	26	30	44	43	42	44	40	48	43	35	27	45	42	36	40	58	35.0
	Min	13	13	23	15	14	11	19	18	15	1	11	1	-10	-2	5	13	12	20	23	20	28	11	27	21	4	-4	23	17	12	3	18	12.7
Mt. Pl'snt	Max..	29	32	44	34	25	45	38	29	28	26	33	32	11	16	25	24	27	47	40	34	39	33	44	38	35	17	42	35	34	29	50	32.7
	Min ..	11	11	25	16	16	10	24	16	13	6	8	10	-14	-7	-7	8	-1	15	25	27	26	11	20	28	3	-8	19	10	11	-2	11	11.0
Mt. Ver'n	Max .	27	33	36	28	25	47	34	27	24	17	23	18	4	10	16	23	25	32	35	33	35	29	41	39	33	10	33	27	22	22	44	27.5
	Min .	17	9	20	13	12	10	21	17	12	3	6	-5	-20	-9	-7	8	0	13	24	19	20	4	19	20	-7	-17	10	2	0	-11	10	6.9
New H. ..	Max..	22	26	33	25	13	41	37	23	23	18	18	18	3	6	17	20	22	31	38	32	32	26	41	36	22	....	34	20	27	23	30	25.2
	Min ..	11	3	..	10	5	7	15	10	13	-3	-4	-7	-24	-10	-12	-7	-1	12	21	17	....	0	14	11	-7	-21	....	-5	-3	-16	5	1.7
Newton ..	Max..	25	30	37	32	25	48	45	30	27	23	32	32	10	20	25	26	27	37	44	33	37	32	40	41	37	20	38	35	31	31	48	32.2
	Min ..	7	7	27	12	11	10	20	18	15	-1	11	2	-13	-5	-3	9	4	16	16	19	21	5	20	16	-2	-13	16	10	3	-9	10	8.4
Northw'd	Max..	29	27	33	22	18	45	36	22	24	18	22	17	2	8	18	23	23	34	38	34	35	37	31	19	12	24	35	28	18	25	34	25.5
	Min ..	9	7.	20	8	6	6	14	10	11	-4	8	-12	-21	-8	-8	8	-1	14	21	19	8	3	11	10	-9	-17	7	5	-4	-10	10	6.5
Odebolt ..	Max..	27	34	37	25	25	50	41	30	27	20	30	24	10	12	27	25	30	40	42	40	37	40	47	36	32	32	40	35	32	35	45	32.5
	Min ..	5	11	19	12	13	12	20	13	12	-1	13	-7	-15	-7	-3	7	7	21	19	21	23	6	18	13	0	-8	24	18	9	0	13	9.3
Olin	Max..	28	32	38	32	22	44	38	27	26	..	25	23	8	11	18	22	22	35	39	32	37	33	43	38	34	13	36	25	29	23	37	29.0
	Min .	14	5	28	17	15	9	22	20	18	6	3	8	-22	-11	-12	3	-7	12	23	21	23	15	17	22	-2	-16	6	-1	2	-10	7	7.6
Omaha, N	Max..	27	33	40	26	27	50	40	33	35	26	33	25	14	22	34	28	33	48	36	46	39	46	42	44	37	47	44	40	32	44	51	36.2
	Min	15	18	26	16	14	21	29	16	14	8	17	-6	-7	2	11	15	17	26	26	20	22	18	28	20	-1	-2	30	27	17	13	24	15.9
Onawa....	Max..	31	32	38	28	29	53	40	34	30	21	30	21	17	22	30	26	32	41	41	42	36	46	45	37	31	42	41	36	35	38	47	34.6
	Min ..	11	17	26	14	12	16	24	16	16	5	10	-6	-7	-3	3	9	14	21	23	20	24	14	21	15	1	-2	31	20	17	10	19	18.2
Osage.....	Max..	20	26	32	24	14	40	27	21	22	17	19	16	1	6	17	19	22	32	38	30	32	26	37	30	18	13	34	24	26	24	30	23 8
	Min ..	6	6	24	12	6	6	16	8	12	-4	7	-6	-21	-8	-10	8	-2	15	22	20	19	2	17	12	-7	-18	10	1	-2	-12	9	4.8
Osceola...	Max..	38	41	38	45	50	48	35	29	20	18	30	18	5	18	26	26	28	45	33	38	40	30	46	42	.	34	45	43	36	38	58	34.7
	Min ..	14	15	16	19	20	14	24	18	0	-1	0	-2	-11	5	1	9	12	19	21	22	21	11	26	20	24	5	10	16	6	-1	20	11.4
Oskaloosa	Max..	28	30	39	19	27	50	37	28	28	20	34	18	10	16	27	23	25	38	27	33	39	35	43	42	32	20	42	36	10	32	52	30.3
	Min ..	12	5	28	14	14	11	32	16	15	2	11	0	-15	-11	-8	10	0	15	22	21	27	8	26	20	0	-9	19	10	3	-4	10	10.0
Pacific J'n	Max..	29	34	35	26	24	48	40	33	33	22	33	24	13	22	33	28	32	45	41	43	40	42	45	44	35	35	45	40	33	44	49	35 2
	Min ..	14	15	21	15	15	11	21	15	12	2	6	-3	-8	-1	4	12	15	23	25	15	27	20	19	15	3	-3	23	13	15	10	18	12.5
Perry.....	Max..	25	32	35	27	28	49	37	27	29	19	33	24	12	14	27	26	29	45	45	39	36	33	44	40	32	27	39	36	32	35	48	32.4
	Min ..	11	11	21	13	15	11	22	16	15	2	10	-4	-11	-6	-1	8	8	19	20	22	23	9	23	16	-2	-6	20	17	5	-1	13	10.3
Plover....	Max..	26	36	32	18	22	51	36	20	26	21	20	20	8	11	23	22	24	41	33	40	34	31	43	31	33	28	37	35	28	30	40	28.1
	Min ..	20	10	16	11	10	10	12	10	10	-5	12	-20	-21	-8	-10	-5	0	19	22	20	17	4	12	13	-10	-15	16	16	-6	-9	5	5.0
Primghar	Max..	..	..	..	..	37	41	47	25	24	20	35	22	-2	7	24	21	25	35	36	37	35	35	37	30	30	36	36	36	27	32	36	29.1
	Min ..	..	..	..	..	11	11	13	12	10	-4	12	-14	-23	-9	-4	-2	6	18	14	16	6	5	15	12	-8	-12	8	18	4	-2	4	4.3
Red Oak..	Max .	28	36	36	31	26	43	40	37	32	21	31	28	14	19	30	30	33	47	48	39	39	38	45	42	36	31	43	43	35	41	48	35.2
	Min ..	15	20	29	16	16	16	26	19	18	16	14	1	-6	4	7	15	17	27	26	24	27	16	22	21	8	3	28	23	17	13	22	16.8
Ridgeway	Max .	33	30	33	22	19	38	35	31	30	22	20	25	3	8	21	26	27	37	42	34	40	29	44	35	12	20	32	30	33	25	34	28.1
	Min ..	16	8	22	14	10	6	19	10	16	2	6	-11	-24	-9	-10	4	0	12	22	19	12	1	20	12	-10	-18	0	-2	-10	-13	12	4.4
Rockw'l C	Max..	23	35	36	26	26	50	40	30	28	21	30	25	11	15	30	25	30	40	41	40	38	38	48	40	16	31	38	36	32	34	40	32.1
	Min ..	11	11	25	13	13	20	20	14	15	1	13	-3	-14	-6	1	8	5	19	19	21	21	8	23	23	-5	-10	24	16	5	-2	16	10.5
Sac City..	Max..	25	33	36	26	25	49	39	30	27	19	28	25	9	12	27	25	29	38	43	40	38	38	46	43	30	30	38	35	30	34	33	31.6
	Min ..	8	11	24	11	12	11	20	12	12	-1	12	6	-16	-7	-3	8	6	15	19	21	25	7	22	16	-1	-9	26	17	10	-2	14	9 9
St. Cha'les	Max..	30	33	37	29	33	53	45	31	31	21	33	21	16	18	29	27	31	44	32	41	42	41	50	46	33	26	46	39	33	41	58	35.2
	Min ..	10	10	27	14	16	15	25	17	15	3	12	0	-10	-1	-1	9	8	20	22	21	26	10	28	19	0	-5	23	15	6	-2	16	11.9
Sibley	Max..	18	24	..	18	16	16	12	23	..	20	24	-2	-5	8	22	20	25	35	34	34	....	20	39	36	10	37	....	32	12	29	....	21.4
	Min ..	4	4	18	8	8	7	7	11	11	-5	2	-5	-27	-14	-12	7	5	11	17	19	19	2	13	10	-7	-14	0	....	4	-5	10	3.6
Sigourn'y	Max	..	..	..	..	..	..	..	..	..	..	....	..	20	11	26	28	.	37	44	31	39	33	42	40	35	22	42	35	32	32	51	....
	Min ..	..	..	..	..	..	..	..	..	..	....	....	....	-16	-7	-6	8	1	15	25	19	25	17	7	21	3	9	18	10	7	-6	11	....
Sioux C'r.	Max..	25	28	38	18	21	46	37	29	28	20	25	22	4	10	24	21	27	34	34	36	35	35	35	31	32	38	38	34	29	29	36	29 0
	Min ..	5	14	18	8	6	12	18	10	10	-4	12	-15	-21	-14	-4	5	8	18	15	14	12	6	20	11	-8	-11	25	20	5	1	12	6.7
Sioux C'y.	Max..	26	33	40	18	22	48	35	30	34	20	28	24	10	13	27	24	31	39	33	41	41	42	39	35	37	48	40	38	28	33	42	32.2
	Min ..	9	19	18	13	6	19	26	11	10	3	17	-13	-13	-8	-1	4	15	23	23	14	14	13	20	13	-7	-7	24	24	10	9	21	10.6
Spirit L..	Max..	30	29	45	20	29	34	32	32	22	20	22	17	7	9	25	21	20	35	36	36	36	36	25	27	29	37	35	30	28	27	25	27.6
	Min ..	2	25	18	9	7	10	9	10	9	-2	9	-15	-23	-12	-8	6	9	17	13	12	14	1	12	10	-10	-15	17	17	-4	-9	8	4.7
Storm L..	Max..	30	34	24	22	48	37	29	25	16	25	24	9	10	25	23	27	38	40	40	37	36	45	85	32	31	38	33	30	33	44	25	30.5
	Min ..	4	2	22	10	10	12	19	12	11	-3	13	-2	-19	-10	0	5	5	15	16	20	20	1	23	18	-5	-12	20	19	5	-3	15	7.8
Stuart. ..	Max	23	32	35	29	25	44	40	33	29	21	31	27	12	18	30	25	30	42	44	37	37	34	43	40	35	26	41	37	34	36	41	33.1
	Min ..	11	11	27	14	14	15	23	17	14	2	12	2	-10	-4	4	9	14	20	22	21	32	11	26	19	4	-5	24	18	13	0	16	12.8
Thurman	Max..	28	33	37	29	25	49	41	34	33	23	33	25	12	20	33	28	32	49	47	42	38	44	44	44	38	35	45	41	35	45	51	35.9
	Min ..	12	12	25	17	15	8	24	15	12	4	4	-3	-9	-4	-1	11	15	18	27	17	29	21	22	18	3	-2	27	15	17	12	16	12.8
Tipton....	Max..	30	32	39	30	22	45	37	27	25	22	24	23	5	10	17	24	24	35	39	34	38	28	40	38	33	16	34	25	28	22	40	28.6
	Min ..	12	13	28	15	15	15	22	20	12	7	9	2	-16	-5	-5	11	4	14	28	20	24	8	20	25	-2	..	13	4	0	-8	12	10.6
Toledo..	Max..	24	31	36	28	21	48	40	28	26	19	28	23	9	12	22	25	25	37	43	32	37	32	47	41	29	18	39	32	30	29	45	30.2
	Min ..	3	1	26	15	11	8	19	18	16	0	10	-3	-14	-5	-6	9	-3	16	23	21	22	5	21	17	-6	-13	13	6	-3	-12	5	7.1
Villisca...	Max..	34	33	28	34	30	42	45	35	38	32	27	18	20	24	26	30	26	28	30	35	38	40	41	42	28	26	45	37	38	29	26	32 7
	Min ..	26	22	14	18	22	30	20	15	17	19	17	-2	-10	-3	3	26	17	20	18	20	22	27	24	17	2	-3	23	17	29	5	12	15.6
Wapello..	Max..	30	23	45	33	29	45	38	26	27	25	30	29	12	15	20	27	23	37	40	32	44	35	41	43	34	18	39	33	30	23	24	31.2
	Min ..	13	15	31	19	17	13	25	21	16	11	12	6	-12	-7	-6	12	-2	15	29	24	28	13	28	31	12	7	16	12	8	1	13	13.6
Washi'ton	Max..	29	33	42	22	24	49	34	29	27	29	31	24	7	15	25	28	25	42	38	35	40	33	41	39	32	20	40	34	23	29	51	31.0
	Min ..	6	9	22	12	9	7	15	11	11	2	7	-8	-19	-12	-9	5	-2	11	21	20	20	6	19	20	-9	-12	6	8	-3	-7	8	5.9
Waterloo.	Max..	24	30	35	24	20	48	40	26	27	16	23	21	12	13	21	24	25	34	41	43	35	32	48	40	17	15	38	25	31	27	40	28.9
	Min ..	5	5	24	15	12	12	20	16	13	0	9	7	-16	-6	-5	11	-1	15	20	19	22	5	18	18	5	-5	14	1	12	-10	10	8.5
Waukee..	Max .	27	32	38	26	29	50	41	29	29	19	32	24	14	19	28	26	29	44	45	39	38	36	36	43	37	25	41	36	33	37	54	33.5
	Min ..	12	10	29	13	15	12	21	19	15	1	10	1	-11	-3	0	18	2	20	22	22	29	8	25	17	0	-6	0	15	6	-3	14	11.5
Waverly..	Max..	22	27	35	25	17	33	33	23	24	17	20	20	8	10	20	20	23	33	39	31	33	28	43	35	23	15	33	24	27	24	34	25.8
	Min ..	7	4	25	12	10	9	17	14	14	-1	7	-7	-17	-6	-8	10	-2	15	21	19	17	4	15	14	-8	-16	7	-2	-5	-17	6	5.1
W.Bend..	Max..	25	28	35	24	22	50	38	20	25	22	24	23	8	10	23	23	26	37	42	39	36	39	43	33	30	27	38	32	28	29	40	29 6
	Min ..	5	9	23	11	8	10	17	13	11	-6	8	-2	-22	-10	-7	7	2	15	22	20	20	3	17	12	-7	-14	15	15	-2	-8	9	6.6
Whitten..	Max..	20	28	34	28	20	46	40	38	25	20	29	26	9	10	24	24	25	37	41	32	34	30	45	....	39	....	35	33	30	27	39	28.0
	Min .	2	5	26	12	7	6	16	14	13	-3	18	-4	-20	-9	-6	9	0	14	23	20	13	3	16	....	19	....	16	8	-1	-13	5	6.8
Wilton J.	Max..	30	33	41	32	25	45	36	27	27	20	28	24	10	13	18	23	25	35	48	34	39	28	42	38	35	15	37	32	32	24	42	30.3
	Min .	13	7	29	15	15	9	24	20	15	8	6	7	-19	-8	-8	10	-5	13	28	20	25	8	19	27	-8	-13	12	5	2	-9	10	9.1
Wintres't	Max..	..	.	..	..	..	..	..	..	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
	Min ..	8	16	15	8	9	20	22	16	15	6	12	0	-12	-4	5	7	10	22	22	20	27	2	23	16	1	-12	21	21	8	-3	17	10.9

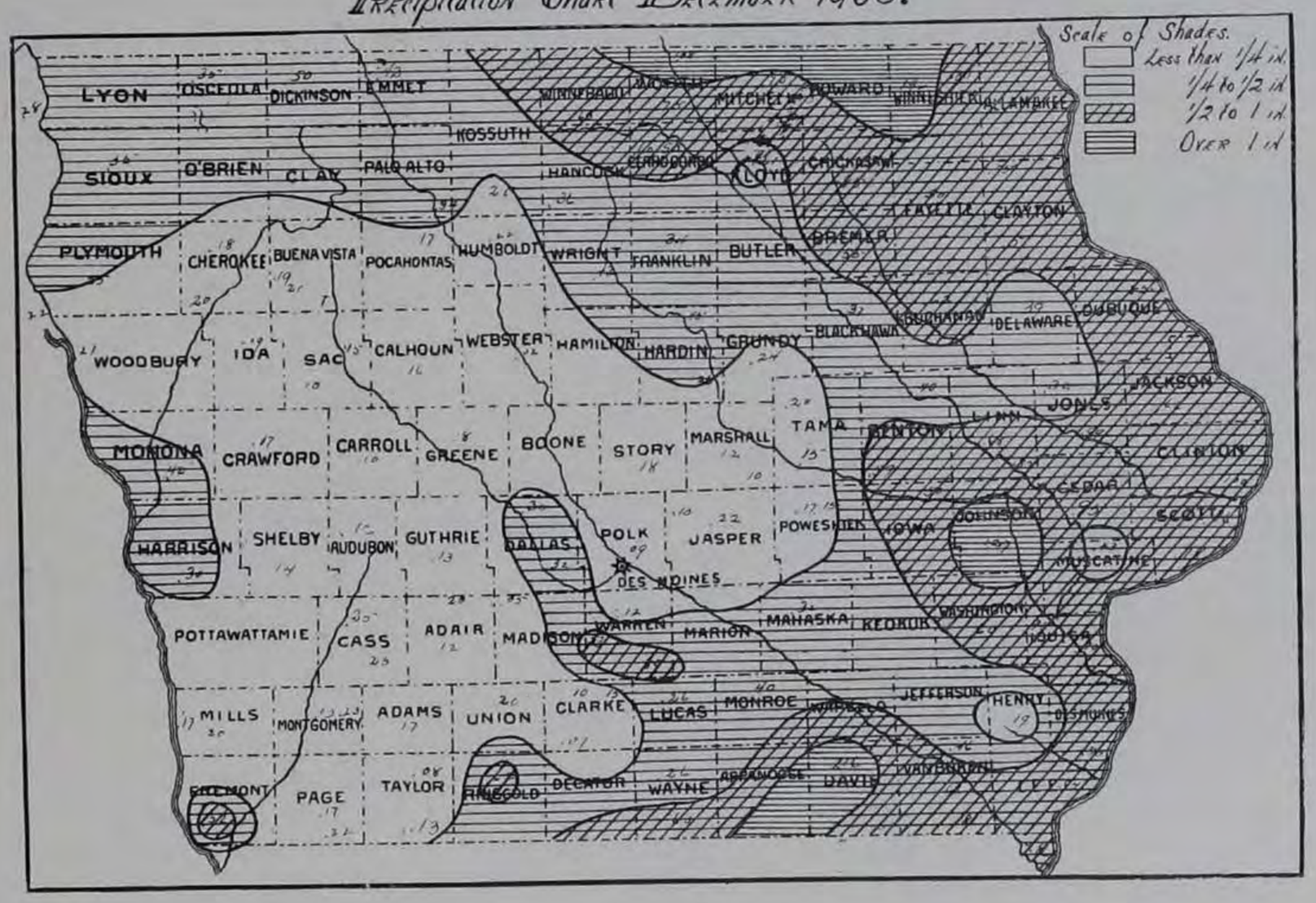
DAILY AND MONTHLY PRECIPITATION FOR DECEMBER, 1903.

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	....	..	....		....	..	....	.05	.05	.10		T	....	..	....	....	....	T	....	...	....	....		....		....		....	....	....	....	.20
Albia	....		....	..	...		....	....	T	....	T	.40	....	....	....	....			...	....	....	..	..		..	....	....	....	...	....	....	.40
Algona	....	...	05	T	...		....	....	.05	....	T		....	....	....	....	...	....	T	....	....	...	...	....	.05	....	...	.05	....	....	....	.20
Allerton	....		....		...	....	....	.03	.06	.08	T	.33	....	..	....	....	....	..	....	....	....	....	..	.13	....	....	....	T	T	....	....	.63
Alta	....	.03	....	.01	....	...	....	.03	.05	.03	...		....	....	....	....	..	..	..	....	....	....	....	....	T	....	....	.04	....	....	....	.19
Alta (near)	....	.05	...		..	..	.05	.05		..	....	....	....	....	....	....	....	....	....	....	..	....	....	....	....	....	....	.85	....	....	....	.20
Amana		....		T	..	..		....	.02	..	....	.25		....	....	....		....	...	....	...			.06	.09	....	..	.08	....	...	....	.50
Ames		..	....		....		..	.03	....	.05	....		....	....			...	....	....	..	....	....	....	....		....	...	.10	...			.18
Atlantic	....	....	....		....	....	....		.15	.10		....	....	....	....	...	....	....		....	....	..	....	..			...	...	....		...	.25
Aububon	....	....	T	T	....	....		.05	....	.07	..	...	T	....	....		....	T	....	....	....	....	....	....	T		....	....	....		....	.12
Baxter	....	....	...	....	....	....	....	....	....	....	....		....	....	....	..	...	T	...	....	....	....	....	....		....	..	....	.10	....		....	.10
Bedford	....	....	...		....	..	...	....	T	.13	...	....		..			....	T	....	....	....	.....	T	....			..		....	..	....	.13
Belknap		....	....	..	....	....	....	.02	02	.02	.	.60	...	..	....		....	....	....	....	....	....	..	.50	T	...		....	....	...	....	1.16
Belle Plaine	....		....	.01		....	....		.15	....	...	.02		....	....	....	....	.10	....	....	....	....	..	....	.15	....	.	.16	....	....	....	.59
Bonaparte		....					..	....	T	....	....	.65	....	....	....	....	....	....		....	..	....	...	16	T	....	..		....		....	.81
Britt	T		.01	.02	....	....		T	.03	...	.06	.02		....	....		....	.02	....	....	....	....	....	....	.08	....	....	.12		....	....	.36
Buckingham	....	..	T	T				....	.03		.06			....	....	....	....	T	....	....			....	....	.03	..	....	.08	....	....	....	.20
Burlington	..	....			....	.	....		.07	....	....	.48	.03	....	..			....	T	....	...	....	....	.12	T		....				...	.70
Carroll	....			....	....	....	....	....	.10				T	....	....	....		..	....	....	....	.	....		T		T	....	T	....	....	.10
Cedar Rapids	....		T	....	T	..	....	....		.05		.08	.30	....	....	....	....	....	T	....	..	....	....	T	....	.14			.11	T	....	.68
Chariton	....	....	....	....	....	....	.01	....		....	.25	T		....	....	....	....	....		....	....	....	....	....	....	..	....	....	....	....	....	.26
Charles City	..	....	T	....	T	....	....	T	T	02		T	....	....	....	....	....	....		....	....	....	....	....	....	....	..		....	....	....	.21
Clarinda				....	....	....	....		.12	.05	....		....	....	....	....	....	....	T	....	....	..		....	T	..	....	.11	....	....	....	.17
Clear Lake	.02	....	T	.03	T	....		T	08		.10	.02	....		....	....		T	....	....	....	....	....	....	.15	....	....	20	....	....	....	.60
Clinton		T	.	...	..	....	....	....	.09			.40	....	....	..	..	..	....	....	....	....	....	.16	..	.20	..	....	.15	....	....	....	1.00
College Springs	....			....	....	....		.02		.20			....	....	....	....	..	T	....	....	....	....	....	....	....		....	....	....	....	....	.22
Columbus Junct'n	..		..	T	...		..	T	.03	....		.61		..	..		....	....	....	....	....		....	.12	.10	....	..	.09	....		..	.95
Corning	....		....	T		....		.07	T	.10	...	T	....	....	....		....	....	....	..	.	.	T	....	T	....		T	....	....	....	17
Corydon	..	...	....	....	....	....		.05		.03	.15	....	....	....	....		....	....	....	....	....		.03	....	....	....	....	T	T	....	....	.26
Cumberland	....	....	...	....	....	..		.20	....	....	....	....	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	.20
Davenport	T	T	T	T	T	....		T	.02	T	..	.43	....	....	....	....	....	....	T	....	....	....	....	.18	.11	..	T	04	T	....	....	.78
Decorah	T	T	T	.04	....		....	.04	30	....	....			....	....	.04		....	....	....	....	....	....	....	.14	....	....	.24	....	....	....	.80
Delaware	....	...	.05	.02		...	...		.03			.05	....	....	....	....	....		.03	....	....	..	....	....	.06	....	....	.15	....	....	....	.39
Denison	....	....	....			..		.05	.02	10			....	....	....	....	....	....		---		..	..	..		....	....	....	....	....	....	.17
Des Moines	..	...	T	T	T			T	.04	.02	T	T	T	...			..	T	T		..	....	....	....	T	....	....	.03	T			.09
Dows	T		....	.02	T	...			....	.10		T	....	....			....	T		....	....	....	....	.10		....	....	.20	....	...	....	.42
Dubuque	...	.01	T	04	T	T	.02	.12	.03	01	.14		....	T	T		T	01		....	....	....	....	....	.26	....	.01	.20	T	T	...	85
Earlham	..	....	T	T	....	..	.02	.03	T	T		T	....	....	....	..		T	....	....	....	....	....	....	....	....	....	T	T	....	..	.05
Elkader		....	.01	T	....		....	T	.10	....	....	T	....	....	.	....	....	....	02		....	....	....	....	.15	..		.23	....	....	....	.51
Estherville			.06	.02		T		T	.10		T	.10	....		....	..	..	....	....	....	....	....	....	..	.05	....	....	....	.10		....	.43
Forest City	....	T	T	.05	T	...	....	....	.10	T		.10	....	...	..	....	....			....		....	....	..	.10	..		....	.30	....	....	.65
Fort Dodge	....	....	T	T	....	....		T	T	..	..	..	T	....	....	....		....		....	....	....	....	....	T	....	..	.02	....	....		.02
Fort Madison	T		....	....	....	..	....	T	T	....		.42	..	....	....	....	....	....	.05	....	....	....	.17	....	T	..	....	T		....	....	.64
Galva	....	T	....	....	....	..	05	.02	.02			..	....	....	....	....	....	....		....	....	....	..	....	..	....	....	....	....	....	....	.09
Gilman	....	....	...	T	T	..		T	.10	....	....		....	...	....	..	....	T	T	...		..	....	..	T	....	....	T	....	....	....	.10
Glenwood	..	....	T	T	....	....	..	T	.20	T			....	....	..	..	..	....	....	....		....	....	....	T	....	..	T	....	....	....	.20
Grand Meadow	...	....	.05	.05	....	....	T	....	.25		....	T		....	T	....	....	T	....	....	..	...	....	....	.20	....	....	.20	....	....	....	.75
Greenfield	....	....	T	T	....	....	....	.06	.04	.02	..	....	....	..	....	....	....	T	T	....	....	....	....	....	....	....	....	T	T	....	....	.12
Grinnell		....	....	.05		....	....	....	.04		..	....	.01	....		..	....	....	.02	....		....			T	....	....	.25	....	....	....	.37
Grinnell (near)	..	....	....		....	....			.05	....	....	....	....	....		..	....	....	....	....	....		....	....	....		....	.10	....	....	....	.15
Grundy Center	T	....	....	T	....	....		T	.05		....	....		....	....	....	....	.02	T	....	....	....	....	....	....	.06	....	....	.11	....	....	....	.24
Guthrie Center	....	....	T	T	....	....		.08	T	.05			T	....	....	....	....	T	....	....		..	....	..	T	....	....	T	T	....	....	.13
Hampton	....	....	.03	....	....	....		.02	....		....	....	....	....	....	....	....	....	....	....	....	..	....	.11	....	....	....	.18	....	....	....	.34
Hanlontown	T	....	.02	.02	.12	...	....	T	.12		.50	...		....	....	....	....	T	....			....	....	....	.10	....	....	.20	....		....	1.08
Harlan	T	T	T	T	T	....	....	.01	.08	.05	T	T	T	....	....	....	....	T	T	....	....	.	..	....	T	....	....	T	T	....	....	.14
Hopeville	....	....		T	....	....	....	.02	.02	.03	T	T	...	....			....	....	....	....	....	....	....		T	....	....	....	T	....	....	.07
Humboldt	....	T	...	T	....	..	....	....	.12	....	..	...		....	....		....	..	....		....	....	....	....	....	....	.10		....	....	....	.22
Independence	....	.03	....	04	....			.10	....	T	....	....	....	....	....	....	....	....	....	....	....	....	....	.20	....	....	.26	....		....	....	.63
Indianola	....			T		....	....	T	.05	.05	....	T	T	....						....	....	....	....	T	....	....	.02	T	....	....	....	.12
Iowa City	....	....	T	T	T	....	....	....	T	.02	.	.15	.60	T	....	....	....	T		....	....	....	.11	T	.20		.19	T	....	1.27	
Iowa Falls	....	T	....	T	T	T	....	....	T	.10	....	T	T	T	....	....	....	T	T	....		....	....	....	.10	....	....	.25	....	....	.45	
Jefferson	....	....	..	.02			....	T	.03	.02	....	....	.01	....	....	....	..	....	....	....	....	....	....	....	....	..	.10				.18	
Keokuk	T	....	..	T	....		..	T	.01	..	....	.52	....			...	....	...	.19	....	....	T	.13	T	....	....	.01	T	....	....	.86	
Keosauqua		...		....	....	....	....	....	T	T	T	.61	.05	....	....	.	.	....	T	T	....	..		T	....	....	T	T	T	.66	
Lacona	T			T	....		....	.10	10	.10	....	.20	....	..	....	....	....	..	....	....	....	....	....	.10	....	....	.10	.10	....	....	.80	
Larrabee	..	.01	T	T	T	....	..	T	.09	.07	T		....	.	....	....	....	....	....	....	....	....	....	T	....	....	.01	....	....	....	.18	
Le Claire	....	....	T	T	T	T	....	....	T	.07	T	.18	.22	...	..	..	....	....	....	T	....	....	.08		.10	....	....	.11	....	....	.76	
Le Mars	...	T	....	T	....	....	....	T		.25	....	..	..	....	..	....	....	....		....	....	....		....	....	....	....	....	....	....	.25	
Lenox	..	....	....	..	..		....	.03	03	.02	....	....	....	....	..	....	....	T	....	....	....	....	....	....	....	....	....	....	....	..	..	.08
Logan		....	....	..	..		....	.20	.10	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.30
Maquoketa	....	....	T		...	....			....	.06	....	.10	.15	....		....	....	....	.04	....	....	....		..	T	.18	....	....	.09	..		.62
Marshalltown	....	....	....	..	T	....	....	....	T	.04	.	T	....		....	....	....	.	T	....	..	....	....	....	....	T	....	....	.08	....	....	.12
Monticello	T	T	T	T	..	T	T	T	.20	T	T	.05	....	..	....	....	....	....	T	....	..	....	....	....	.02		.05	T	T	...		.32
Mason City	....	...	T	T	..	....	..	....	.08	....	.07	....	....	....	....		T	....	....	....	....	....	....	....	.18	....		.20	....	....	....	.53
Mount Ayr	....	....		....	....	....		.20	.20	.10	....	.10	....	....	....	....	....	T	....	....	....	....	....	.02	T	....	....	....	....	....	....	.62
Mt. Pleasant	....	....		T	....	....	....	T	.02	....	....		....	....	....	....	....	....	....	....	....	....	....	.17	T	....	....	T	....	....	....	.19
Mt. Vernon	T	T	T	T	....	..	....	T	.20	..	T	.27	....	....	....	....	....	.01	....	....	....	....	T	....	.20	T	....	.17	....	....	....	.85
New Hampton	T	....	T	T	.05	...		....	....	.10	....	T	....	....	..	....	....	T	..	....	....	..	....	....	..	.50	....	.20	....	..	....	.85
Newton	....			T		....	....	....	.07	....		....	T	....	....	....	....	....	....	....	....	....	....	....	..	....	....	.15	....		....	.22
Northwood	T	T	.05	T	T	...	T	T	.10	..	.10	....	....	....	....	....	....	T	....	....	....	....	....	....	.30	....	....	.20	....	....		.75
Odebolt	....	....	...		....	..	...	05	....	....	....	....	....	....		....	....		....	....	..	....	....	....	....	...	.05	....	....	....	....	.10
Olin	....	....	....	....	....	....		.50	....	....		.20	....	..	....	....	....	T	....	....	..	....	...	.02	.15	.	....	.12	....		....	.99
Omaha, Neb	.01	....	T	T	....	....	....	.01	.11	.02	....	T	....	....	....	....	....	....	....	....	....	....	....	....	T	....	....	....	....	....	....	.15
Onawa	....	....	T	.02	T	....	....	.05	.25	.10		....	T	....	..	....	....	....	....	....	....	....	..	....	....	..	....	T	....	....	....	.42
Osage	.01	....	.06	.02	T		....	T	.15	..	.01	.05	....		....	....	....	....	....		....	....	....	....	.50	....	....	.10	....	....	....	.90
Osceola	....		....			....	....	T	....	....	..	10	...	...	....	....	....	....	....	....	....	....	....	..	T	....		T	T	...	....	.10
Oskaloosa		....		T	....	....	....	....	.02	T	.18	T		..		....	....	....	....	....	....	..	.10	....	T		....	.02	....	....	....	.32
Pacific Junction	...	..	T	T	....	....	....	.02	13	.02	....	....	..	..	..	....	....	....	....	....	....	...	....	....	T	....	....	....	....	..	....	.17
Perry	....		T	....	....	..	T	T	.10	.15	....	....		....	....	....	....	....	....	....	....	....	....	....	T	....	.05	....	....	....	....	.30
Plover	...	....	T	T	T	....		.02	10	T	..	....	....	....	....	....	....	....	....	....	....	....	....	....	T	....		.05	..	....	....	.17
Red Oak	T	....				....	....	T	.11	.02	....	....	..		....	....	....	T	....	....	....	....	....	....	T	....	....	T	..	....		.13
Ridgeway	.01	T	.05	.03	.01	....	.03	T	.44	...	.20	.01	....	....	.03		..	.22	T	....	T	...	....	T	.68	....	.01	.23	....	.01	....	1.96
Rockwell City	..	.		....	....	....	....	....	....	.	....	....	....	....		....	....		.	....	....	....	....	....	....	....	....	.10	....	....	...	.10
Sac City	....	T	T	T		....	....	.08	.05	T	....	T	T	....	....	....	.....	....	..	....	....	....	....	....	....	....	....	.02	....	....	....	.15
St. Charles	....	....	T	T	T	....	....	.50	T	.03	....	....	....	....	....	....	....	T	....		....	....	....	....	T	....	....		T	...		.53
Sibley	....	....	.05	T	T	....	....	.05	.65		T	.20	..		....	....	..		....	....		....	....		T	....	....	....	....	..	..	.35
Sioux Center	....	.05	T		....	....	....	.10	.05	.10	.05	....	....	....	....	....	....	....	....	....	....	....	....		T	....	....	....	....	..	..	.35
Sioux City	....	T	T	T	....		....	.05	.10	.03	....	.01	.02	....	....	....		....		....	..	....	....	T	T	..	T	....	....	..	.21
Spirit Lake	....	.05	....		....	....	....	....	.10	T	.25			....	...	....	....	....	....	....	....	....	....	....	....	....	.10	....	....	....	.50
Stockport	....	....	....	....	....	....	....	....	T	....	..	35	T	....	....	....		T	....	....	....	....	T	.11	T	....	..	T	T	....	....	.46
Storm Lake		T	T	T	....	....	....	T	T	T	....	....		....	..	....	....	..	....	....	....	....	.	...	T	..	....	T	..	....	....	T
Stuart	....		....		....	....	....	.05	.05	.10	....	....	....	....	....	....	....		....	....	....	....	....	....		..	....	....	....	....	....	.20
Thurman	....	....	....	T	T	T	..	....	T	.25	27	....	T	....	....		....	....	....	....	..	....	..	....	....	T	....	....	....	....	....	....	.52
Tipton	....	....	T	T		....	....	....	.10	....	....	.40	....	....	....	....	....	....	....	....	....	....	....	.10	.20	....	....	.15	....	....	....	.95
Toledo		....	T	T	T	....		....	.05	. ..	....	....	T	....	....	....	....	T	....	....	....	....	....	.10	....	....	T	T	T	....	....	.15
Villisca	....	T	T	....	....	....	.08	.15	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.23

DAILY AND MONTHLY PRECIPITATION FOR DECEMBER, 1903--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	
Vinton	..	....	....	T	....	....	....	....	.10		....	....			....	....	....	....	....	....	....	....	....	.10	....	....	.20	....	....	..	.40
Wapello	....		....		....	....	....	....	.05	....	....	.57	..	....	....	....	....	....	....	....	....	....	....	.08	....	....	..	T	T	....	....	.70
Washington	....	....	....	....	....	....	....	....	.03	.02	....	.28	....	....	....	....	....	..		....	....	....	.. .	.16	.11	....	....	....	....	....	....	.60
Washta	....	.05	....	....		..	....	.05	.05	.05	....	....	....	....	....	....	..	....	....	....	....	....		..	T	....	..	T	....			.20
Waterloo	T	....	T	.06	....	....	....		.03		....		....	.	....	....	....	T	....	....		....	....	....	.15		....	.13	....		....	.37
Waukee	....	....	T	T	....	....	....	.05	.15	.10		T	T	....	....	....	..	T	....	....		..	..	....	T	....	....	.02	T	....	....	32
Waverly	....	..	.01	.02	....		....	....	.10		....	....		....	..	....		.02	....	..	....	..	....	....	.20	....		.22		....	..	.55
West Bend	....	....	.03	T		....	....	.02	.05	....	.07	....	....	....		....		....	....	....	....	....	....	....	.05	T	....	.10	....	....		.34
West Union	T	....	....	T		....	....		....	..	....	T	T	....	....	....	....	T	....	....	....	....	....	....	....	.10		.20	....	....	....	.30
Whitten	T	....	T	T	T	....	....	T	.05	..	....	.15	....	....	....	....	....	T	T	....	....	....	....	....	.10	....	....	.20	..	....	....	.25
Wilton Junction	....	....	..		...	....		T	.05	...	....	.15	....	..	....	....	....	T	...	....	....	....		....	T	....	....	.13	T	....	....	.43
Woodburn			....		....			T	.08	T	T	.07		...	....	....				....	....	....		....	T	....	....	T	T		....	.15

Precipitation Chart December 1903.



APPENDIX--ANNUAL SUMMARY, 1903.

CLIMATOLOGY OF THE YEAR 1903.

BAROMETER—The mean pressure for the year was 30.04 inches. The highest observed pressure was 30.68 inches on February 18th and December 14th at Des Moines; lowest pressure, 29.19 inches, on October 6th at Sioux City. Range for the state 1.49 inches.

TEMPERATURE—The mean temperature for the state was 47.3°, which is 0.3° below normal. The highest temperature reported was 101° on Aug. 24th at Logan. The lowest temperature reported was 27° below zero on December 13th at Sibley. Range for the year 128°.

PRECIPITATION—The average amount of rain and melted snow for the year, as shown by complete records of 95 stations, was 35.66 inches, which is 4.75 inches above the normal, and 8.65 inches below the average amount for 1902. The greatest amount recorded at any station for the year was 50.53 inches at Onawa. Least amount recorded 26.41 inches at Ames. The greatest monthly rainfall was 17.74 inches at Woodburn in August; least monthly amount, a trace at Afton and thirteen other stations in January, November and December; the greatest amount in any consecutive twenty-four hours was 11.22 inches at Cherokee, August 27th. The average number of days on which .01 inch or more of rain fell was 92.

WIND AND WEATHER—The prevailing direction of wind was northwest. Highest velocity reported, seventy-two miles an hour, in Sioux City, from the northwest and southeast on January 6th and May 21st. Average daily wind movement 210 miles. There were 156 clear days, 100 partly cloudy, and 109 cloudy days; as against 145 clear days, 111 cloudy and 109 partly cloudy in 1902.

CLIMATE AND CROP REVIEW.

COMPARATIVE DATA OF THREE ABNORMAL SEASONS, AND SUMMARY OF 1903.

The first three crop seasons of the new century—1901–1902–1903—may be classed as radically abnormal in respect to seasonal rainfall and temperatures, their records serving as striking illustrations of possible climatic extremes of this section. The season of 1901 was notable for extreme heat and aridity of air and earth, breaking all records of daily averages and maximum temperatures in the midsummer period. The droughty conditions continued until about May 1, 1902; then came heavy downpours, with streams bankfull and overflowing, and continued excess of precipitation for a period of about seventeen consecutive months, or until September 15, 1903. For reference and comparison the following table is appended, showing the average precipitation and mean temperatures for the state, for the six crop months—April 1st to September 30th—in the last three years; also the monthly normals for the same period.

PRECIPITATION, INCHES.

Years.	1903	1902	1901	Normal
April	2.98	1.71	1.79	2.89
May	8.55	5.39	2.35	4.13
June	2.86	7.16	3 17	4.50
July	4.83	8.67	2 34	4.23
August	6.64	6.58	1.29	3.43
September	3.81	4.35	4.77	3.30
Total for six months	29.67	33.86	16.25	22.48
Total for the year	35.39	43.82	24.41	31.42

MEAN TEMPERATURES—DEGREES.

April	49.8	48.2	49.9	49.3
May	61.6	63.8	60.7	60.4
June	64.6	65 2	72.3	69.6
July	72.9	73.1	82.4	74.2
August	69.1	69.1	73.8	71.8
September	60.8	59.1	63.3	63.6
Means	63.1	63.0	67.0	64.8

The records of the four critical crop months—May 1st to September 1st—show the marked difference in the rainfall and temperature of 1901 in comparison with the two following seasons. The total amounts for the four months were as follows: In 1901, 9.69 inches; in 1902, 27.80 inches; in 1903, 22.88 inches. The normal for the four months is 16.29 inches. The most favorable showing in these records is the fact that the rainfall in the crop season of 1903 was nearly 5.00 inches less than in the same period in 1902, indicating a return towards normal conditions.

The winter of 1903 was generally about normal and favorable for live stock and the usual farm operations of the season. The soil was very wet, and the ponds and streams were more than usually filled with water and ice. Fall wheat and rye wintered fairly well, though the covering of snow was generally light. March was warmer than usual, with somewhat less than the normal precipitation; but the excessive cloudiness and humidity retarded farm work except in dry, sandy soil. While the spring opened earlier than usual, the fields were too wet to allow an early start in farm work.

April was about normal in temperature and rainfall, but the prevalence of cloudy, misty and humid weather during the larger part of the month retarded the necessary drying of the surface. The usual farm operations were pursued under these adverse conditions, causing material reduction of the acreage of spring wheat, oats and barley. Pastures and meadows made an early start and the grain crops germinated readily, making a fairly good stand. A snowstorm with freezing temperature, at the close of the month, checked crop growth and injured the earlier varieties of apples, cherries and plums.

May was the wettest and most unfavorable month of the season. The soil at the outset was supersaturated, and the average rainfall for the state for the month was 8.55 inches. The distribution of this excessive amount of rainfall was variable, ranging at local stations from 2.88 to 15.45 inches; but the averages of each section was above 8 inches. The best conditions as to dryness of soil were in the Mississippi river districts. The great interior basins of the Des Moines, Iowa and Cedar rivers were subjected to very heavy floods about the close of the month, causing much delay in farming operations and damage to all crops. From about the 3d to the 18th conditions were at their best, and during that part of the month the plowing, planting and other farm operations were in progress on the drier lands, with only occasional interruption by showers. Most of the corn that was planted was put in during that period. The protracted and very heavy storms during the last decade rendered field work impracticable in more than four-fifths of the state. At the close of the month not more than two-thirds of the usual corn area had been planted. The germination was generally quick and satisfactory in the stand, but the fields soon became very foul from the lack of cultivation, and much more than the usual amount of replanting was necessitated as a result of washing and flooding the fields. The general condition of wheat, oats, rye, barley and meadows was better than seemed to be possible during prevalence of the storms.

June was unseasonably cool, but generally dry and more favorable for field work and crops than the preceding month. The mean temperature was about 5° below normal, and the rainfall was 1.52 inches below the average. The surface dried off slowly, and the cool weather was more favorable for small grain than for the rapid germination and growth of the belated corn. Good progress was made in replanting the washed out corn fields and in cultivating the early planted corn on the dry upland. Seasonable temperature about the close of the month caused a marked improvement in the appearance and prospects of this important staple, and in size and color it was much nearer the normal condition than was deemed possible at the outset. Clover-cutting was begun near the middle of the month, and haymaking was quite general at the close, the output being above the average.

July was characterized by frequent and sudden alternations from high to low temperatures. The daily mean for the month was about 2° below normal, the first decade being unusually warm, the second decade unseasonably cool, and the third decade bringing the two extremes of temperature. The average rainfall for the state, 4.83 inches, was .91 of an inch above the July normal. The distribution was very unequal, the average of the northern section being 6.49, the central section 5.28, and the southern section 2.73 inches. The heaviest amounts of rainfall were reported at stations in the N. E. district. The most destructive storm of the month occurred on the afternoon of the 20th, sweeping across the state on a direct line from Lyon and Osceola southward to Adams, Taylor and Ringgold, its pathway varying in width from one to eight miles. At numerous points along this line the storm was accompanied by high winds and very heavy hail, causing almost total loss of growing crops within an area of more than three hundred square miles. In portions of the southern section drouthy conditions prevailed for many days, causing some detriment to growing crops; but the closing week brought generous showers. On the whole the month was favorable to haymaking and harvesting of wheat, oats, barley and rye. The hay crop proved to be one of the best ever produced in the state, and the greater part of it was secured in excellent condition. Wheat and oats were generally harvested in good condition, but on account of the rust and blight the yield has been disappointing, though the quality of the grain will be greatly superior to the output of last year. The corn crop made fairly good progress during the month, though the temperature was somewhat unfavorable about half of the time. The early planted portion of the crop reached the earing stage while the late planted corn was generally small and unpromising. The outlook for the crop as a whole was not encouraging at the close of July.

August was cooler than usual with a large excess of rainfall, humidity and cloudiness. The mean temperature was 3.1° below normal, and the average rainfall, 6.64 inches, was 3.43 inches above normal. The southern section received the larger amount, an average of 8.74 inches, the bulk of it falling in the last week of the month (State Fair week). It was the wettest August of which we have records for the state. There were nineteen cloudy or partly cloudy days. During the fair weather periods considerable progress was made in threshing and other farm operations. Haymaking was continued throughout the month, when the weather permitted, securing a large amount of aftermath, wild hay, and second crop of clover for seed and fodder. More than the usual amount of plowing was done, with generally favorable conditions of soil for this work. Threshing returns indicated generally light and unsatisfactory yield of wheat, oats and barley; the yield of timothy seed has been unusually heavy. The development of the corn crop was all that could be expected under the prevalent weather conditions. At the close of the month the early planted corn, about forty per cent of the whole area, had reached the roasting ear stage, or a little beyond, giving promise of reaching maturity within twenty days, under favorable conditions. The balance of the crop was in various stages of growth, indicating need of very good ripening weather for a full month or more to place the bulk of it beyond danger of harm or frost. The outlook for the crop as a whole was at that time unsatisfactory. The late potato crop made fair growth in dry and sandy soil, but there were reports of damage by rot in many localities. The crop of early and fall apples gave good returns, especially in the northern half of the state; but winter apples were unpromising. Pasturage made a heavy growth, giving assurance of abundant fall feed for stock.

September was cooler than usual, the mean temperature being 3.4° below normal. Frosts occurred at numerous stations on the 16th, 17th, 18th, 24th and 27th, but little damage resulted to corn and other crops, except in limited areas on low ground. The main detriment caused by the cold and frosty period was the delay in bringing belated corn to full maturity. The period of most unfavorable weather and heaviest rainfall was from the 4th to the 16th. In the last half of the month there were about twelve days of ideal weather for maturing crops, harvesting, threshing and plowing. During this time corn made very good progress, and at the close of the month fully eighty per cent of the crop was well matured, the balance requiring two weeks of frostless weather and generally favorable conditions to make it safe. There was but little expectation of bringing all of the belated portion of the crop to maturity, as some of it was green and soft at the close of September. A considerable amount of the early corn was cut and put into shocks after the first appearance of frost. Fall pasturage was never better, and seldom as good at this time of year. Fair progress was made in harvesting the minor crops, and a good deal of second crop hay was secured. Fall plowing was well advanced, much more than the usual acreage having been done with the soil in excellent condition. The potato harvest showed a very light yield, and much damaged by rotting. The fall apple crop was fair, but winter apples were inferior in size and quality. On the whole September was a fairly satisfactory month, though below normal in temperature and sunshine. The adverse features of the month were the natural sequence of the preceeding abnormal spring and summer.

October was an ideal autumn month. The mean temperature was slightly above and the rainfall below the normal, and the percentage of sunshine was higher than usual. The bulk of the rainfall came in the first seven days, and generally with but little disturbance of the elements. No trace of snow was reported during the month. The first general killing frost occurred on the 18th, at which time there was practically very little of value exposed to damage by freezing temperature. The greater portion of the late planted corn was fairly well matured before the middle of the month. Reports were received of very many fields planted as late as June 15th which were well ripened by October 10th. The amount of fall plowing in the state at large was much greater than in recent years. A limited acreage of fall wheat and rye was sown, and the conditions were favorable for germination and growth, insuring a good stand. The fall pasturage was never better, being very green and succulent at the close of October. The dry weather was favorable to harvesting potatoes, apples, and all the late maturing crops. The potato crop was generally light, with considerable damage by rot, though some localities report a fair yield. The yield of winter apples was much below the average. Forage crops and garden truck made excellent yields. As a whole October was a remarkably fine month, making an exceptional record in view of the adverse weather conditions of the preceding months.

November was unusually dry and seasonably warm, with less than the average amount of atmospheric disturbance. Conditions were favorable for farm operations, and excellent prog-

ress was made in cribbing the corn crop. The cobs contained more than the usual amount of moisture, but the dry weather and freezing temperature prevented damage by heating in the cribs. The small acreage of fall wheat and rye suffered no material injury from dry weather and freezing. The weather was highly favorable for stock feeding and pastures afforded good feed throughout the month. The supply of water for stock was ample for the winter.

On the whole the crop season of 1903 was materially better than the preceding season, the quality of the output of the soil being much superior. The forage crops have been exceptionally heavy, and the fall months were favorable for securing the full benefit of the abundant yield of pasturage and fodder. There is much cause for congratulation and thankfulness that, under such unusual conditions, the yield of all staple crops has been sufficient to afford a liberal reward for the labor of the tillers of the soil of this most fertile state.

ERRATA IN 1902 ANNUAL.

CHARLES CITY.—Monthly mean temperature for June recorded 56.8° on page 19, should have been 64.0°. Mean annual temperature recorded 46.6° on pages 15 and 19, should have been 46.4°.

DE SOTO.—Monthly mean temperature for December recorded 22.2° on page 19, should have been 22.5°. Mean annual temperature recorded 22 2° on pages 15 and 19, should have been 22.5°.

GALVA.—Monthly mean temperature for December recorded 15.8° on page 19, should have been omitted.

GUTHRIE CENTER.—Monthly mean temperature for July recorded 73.0° on page 19, should have been 72 4°. Mean annual temperature recorded 48.9° on pages 15 and 19, should have been 46.8°.

MT. AYR.—Monthly mean temperature for December recorded 19.4° on page 19, should have been 21.1°. Mean annual temperature recorded 48.7° on pages 15 and 19, should have been 48.8°.

MT. VERNON.—Monthly mean temperature for July recorded 74.0° on page 10, should have been 73.9°.

SHELDON.—Monthly mean temperature for November recorded 36.8° on page 19, should have been 37.°0. Mean annual temperature recorded 45.4° on pages 15 and 19, should have been 45.5°.

GILMAN.—Monthly precipitation for February recorded .87 inches, on page 21, should have been .89 inches. Annual precipitation recorded 42.00 inches on pages 15 and 21, should have been 42.02 inches.

LACONA.—Annual precipitation recorded 54.17 inches on pages 15 and 21, should have been 53.97 inches.

LE CLAIRE.—Annual precipitation recorded 46.86 inches on pages 15 and 21, should have been 45.86 inches.

RED OAK.—Monthly precip'tation for December recorded 2.32 inches on page 21, should have been 2 52 inches. Annual precipitation recorded 47.36 inches on pages 15 and 21, should have been 47.56 inches

SAC CITY.—Monthly precipitation for October recorded 1.56 inches on page 21, should have been 1.16 inches. Annual precipitation recorded 42 77 inches on pages 15 and 21, should have been 42.37 inches.

CLIMATOLOGICAL DATA FOR THE YEAR 1903.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record years.	TEMPERATURE, IN DEGREES FAHRENHEIT.						PRECIPITATION, IN INCHES.				MONTH.	SKY.				
				Annual mean.	Highest.	Date.	Lowest.	Date.	Length of record years.	Total for the year.	Greatest monthly.	Month.	Least monthly.		Total snowfall, unmelted.	Number rainy days.	Number clear days.	Number partly cloudy days.	Number cloudy days.	Prevailing direction of wind.
Afton	Union	1,212	9	49.1	97	July 10	-14	Feb. 18	10	39.58	12.34	Aug	T	Jan	18.0					
Albia	Monroe	957		49 0	96	July *11	-14	Feb. 17	6	37.34	9.13	May	.40	Jan. Dec						
Algona	Kossuth	1,213	28	46.3	92	July *7	-20	Feb. 20	31	29 24	8 05	May	T	Nov	12.2	71	109	166	90	SE
Allerton	Wayne			49.2	95	Aug. 23	-16	Feb. 17		44.39	11.58	May	.48	Jan	17.8	107	185	105	75	NW
Alta	Buena Vista	1,513	11	44.9	89	July *7	-20	Dec. 13	13	38.42	7.05	Sept	.16	Jan	12.0	115	141	150	74	S
Alta (near)	Buena Vista				94					39 34	7.83	Sept	.20	Jan. Dec.	12.0					
Amana	Iowa	721	25	47.9		July 9 / Aug. 23	-15	Dec. 13	28	31.67	7.31	Aug	.28	Jan	19.1	108	240	134	91	NW
Ames	Story	926	20	47.4	93	July *9	-14	Feb. *16	26	26.41	9.46	May	.14	Jan, Nov.						SE
Atlantic	Cass	1,164	11	48.3	97	July 9	-15	Feb. 5	13	39.58	12.37	May	T	Jan	27.0	83	94	103	168	S, N W
Baxter	Jasper	998			94	July 9	-15	Feb. 18	4	29.55	11.70	May	.10	Jan. Dec	16.2	71	162	84	119	SW
Bedford	Taylor				94	July *10	-17	Feb. 17		33.59	9.83	May	.05	Jan			157	70	138	SE
Belknap	Davis	877	7		96	July 8														
Belle Plaine	Benton	828	12	46.3	93	July 9 / Aug. 23	-15	Dec. *13 / Feb. *17	14	34.33										
Bonaparte	Van Buren		10	49 6	98	Aug. 23			12	37.08	7.53	Aug	.43	Jan		67				
Britt	Hancock	1,236	5	44.8	93	July 9	-25	Dec. 13	7	28 46	6.89	May	.05	Nov.	9.7	119	66	204	95	SW, NW
Buckingham	Iowa								4		7.57	May	.08	Jan	12.1					
Burlington	Des Moines	544	6	51.0	95	Aug. *23	-18	Feb. 17	8	34.97	7.63	Aug	.58	Jan		91	183	73	109	SW
Carroll	Carroll	1,265	12	47.0	95	July 9	-18	Feb. *16	14	34 48	9.54	May	T	Jan	14.5	85	180	74	111	
Cedar Rapids	Linn	733	19	48.3	97	Aug. 24	-15	Dec. *13	21	28 48	6.12	Aug	.11	Jan	15.8	91	119	116	130	NW
Centerville	Appanoose	1,013	7																	
Chariton	Lucas	1,042	7		93	July 10 / Aug. 23	-14	Feb. 17	9		14.05	Aug	.11	Nov.	8 7					
Charles City	Floyd	1,012	11	44.8	93	July 10	-20	Dec. 13	13	32.63	9.15	May	T	Jan. Nov.	11.4	99	158	72	135	NW
Chester	Howard				90	July *25														
Clarinda	Page	1,069	12	49.7	98	July 9	-14	Feb. 18	14	33.94	9.97	May	.14	Jan	18.1	98	155	119	91	S
Clear Lake	Cerro Gordo	1,241		45.4	98	July 8	21	Feb. *16 / Dec. 13	5		9.59	Aug	T	Nov.	14 6	77	160	123	82	NW
Clinton	Clinton	609	34	48.2	96	July *8	-20	Dec. 13	36	36.33	5.45	May	.78	Nov.	27.8	102	127	88	150	NW
College Springs	Page		10	50.0	96	July *10	-14	Feb. 18	12	31.24	9.10	May	.20	Jan		83				NW
Columbus Junction	Louisa	595	2	49.1	96	Aug. 23	-15	Feb. 17 / Dec. 13	3	38.79	9.10	Aug	.28	Jan	25 9	94	175	117	73	NW
Corning	Adams	1,127	10	48.2	93	July *9	-15	Feb. 18	11	40.04	13.80	Aug	.07	Jan	22 6	85				SW
Council Bluffs	Pottawattamie	990	5				-13	Feb. 18	23		15.09	Aug	.03	Jan						
Corydon	Wayne	992	9	48.6	95	Aug. 23	-15	Feb. 17	11	39.79	10.14	Aug	.26	Dec		104	163	91	111	SW, NW
Cumberland	Cass									35.82	9.32	Aug	T	Jan	25.0	64				S
Davenport	Scott	606	31	49.4	95	July 9	-15	Dec. 13	32	35.73	5.52	May	.70	Nov.	12.7	102	128	113	124	W
Decorah	Winneshiek	875	8	44.7	90	July 7	-22	Dec. 13	10	38.94	8.14	July	.18	Nov.	28.2	93				
Delaware	Delaware	1,083	11	45.2	90	July 7	-21	Dec. 13	13	34.68	10.52	July	.07	Jan	10.4	93	145	148	72	NW
Denison	Crawford	1,180	8		88	Aug. 23	-13	Dec. 13	9	34 55	9.92	May	.10	Jan	13.8	76				N
Des Moines	Polk	861	24	48.9	94	July 9	-13	Feb. 18	26	31.43	10.64	May	.09	Dec	21.0	109	90	150	125	SW
De Soto	Dallas	886			92	July 9			4											
Dows	Wright	1,142		45.5	91	July 9	-20	Feb. 17	4	37.18	9.50	July	.10	Nov	20.2	85	201	51	113	NW
Dubuque	Dubuque	655	29	47 4	91	July 9	-17	Dec. 26	31	31.79	7.10	July	17	Jan	19 9	126	129	102	134	NW
Earlham	Madison			46.7	91	July *9	-15	Feb. 18		35.62	11.60	May	.03	Jan	21.9	87				S
Eldon	Wapello	630					-20	Feb. 16	6											
Elkader	Clayton	727	21	46.2	93	July 9	-19	Dec. 13	24	40.76	12.72	July	.16	Jan	32.5	93	154	127	84	NW
Estherville	Emmet	1,298	7	43.3	90	July *8	-22	Dec. 13			10.69	May				110				NW
Fayette	Fayette				91	July *9	-17	Feb. 18	14		10.71	July								
Forest City	Winnebago	1,220	8	43 6	91	July *8	-26	Dec. 13	10	31.08	10.17	May	T	Nov	11.5	76	179	33	153	W
Fort Dodge	Webster	1,126			89	July 9 / Aug. 4	-21	Feb. 5												
Fort Madison	Lee	516	51						54	33.81	6.37	Sept	.64	Dec		77	101	117	147	SW
Galva	Ida	1,290	8	45.2	94	July 9	-20	Feb. 16	10	34.30	10.07	May	.05	Nov	8.4	60				
Gilman	Marshall	1,052							5	30.31	8.24	May	.10	Dec. Jan.	11.1	77	144	121	100	S
Grand Meadow	Clayton	1,080	11	44.7	87	June 8 / July 7	-21	Dec. 13	13	47.64	10.85	July	.28	Nov.	27.0	97	119	128	118	NW
Greene	Butler	924	5		92	July 27	-16	Feb. 18	7		8.90	July								
Greenfield	Adair		11	47.8	92	July 9	-16	Feb. 18	13	38.59	13.50	May	.09	Jan	19.4	108	182	89	94	S, SW
Grinnell	Poweshiek	1,023	9				-13	Feb. 18					.34	Jan	18.7					
Grinnell (near)	Poweshiek				94	July 9 / Aug. 23	-15	Feb. *17					.15	Dec						
Grundy Center	Grundy	976	11	47.3	92	July 9	-21	Dec. 13	13	34.75	11.04	May	.12	Jan	18.8	108	149	95	121	S, NW
Guthrie Center	Guthrie	1,077	6		95	July 9	-17	Feb. 18	8	40.42	14.16	May	T	Jan		84	128	150	87	NW
Hampton	Franklin	1,155	12	46.5	93	Aug. 23	-17	Feb. *17 / Dec. 13	14	36.51	9.70	July	.18	Jan	22.6	100	109	175	81	NW
Hanlontown	Worth			44.0	89	July 7	-26	Dec. 13									199	70	96	NW
Harlan	Shelby	1,192		47.2	95	July 9	-18	Feb. *17	5	39.73	10.43	May	.05	Jan	23.0	103	88	183	94	S
Hopeville	Clarke		11		95	July *8 / Aug. 23			13	36.12	12.24	Aug	.07	Dec						
Humboldt	Humboldt	1,095	10	46.9	92	July *9	-17	Feb. 18	15	34.92	7.50	May	.07	Jan		87	219	63	83	NW
Ida Grove	Ida	1,220			92	July 9	-20	Feb. 17												
Independence	Buchanan	921	38	45.4	90	July 9	-18	Dec. 13	36				.16	Nov.	21 5					
Indianola	Warren	969	11	49 2	94	July 9	-13	Feb. 18					.09	Jan	18.9					
Iowa City	Johnson	685	43	48.2	97	Aug. 23	-18	Dec. 13	41	34.95	6.90	May	.67	Jan		97	81	137	137	S, W, NW
Iowa Falls	Hardin	1,170	9	44 6	92	July 10	-17	Dec. 13	11	28.43	7 17	May	.09	Nov	22.2	100				NW
Jefferson	Greene	1,052							5	42.88	14.23	May	.18	Dec	15.4	102				NW
Keokuk	Lee	619	31	51.4	96	July 10 / Aug. 28	-13	Feb. 13	32	33.28	7.16	Sept	.77	Jan	25.4	103	148	132	85	SW
Keosauqua	Van Buren	664	10		98	Aug. 24	-15	Feb. 17	12	37.89	6.50	Sept	.66	Dec		96				
Lacona	Warren								5	42.35	11.35	May	.80	Dec	27.4	115				
Larchwood	Lyon				94	July 25					8.33	May								
Larrabee	Cherokee	1,366		45.5	94	July 9	-21	Dec. 13	14	44.07	10.52	May	.11	Jan	16 2	84				
Le Claire	Scott	576								36.81	8.23	Sept	.70	Nov.	19.1	109				
LeMars	Plymouth	1,224	6	45.7	92	June 30 / July *25	-19	Feb. 18	8		9.89	May	.01	Jan						S
Lenox	Taylor	1,250	7	48.5	92	July *8 / Aug. 4	-17	Feb. 18	9	37.11	10.60	Aug	.03	Jan	13.3	90	213	68	84	S
Leon	Decatur	1,120		49.7	96	July 10	-12	Feb. *17			10 48	Aug	.31	Jan		101	224	63	78	S
Logan	Harrison	928	35		101	Aug. 24	-17	Feb. 17	4	34.45	11.6	Aug	.30	Dec	28.8	82	195	57	113	NW
Maquoketa	Jackson	688	9	46 5	95	Aug. 24	-22	Dec. 13	11	36 71	7.68	July	.30	Jan		109	176	71	118	NE
Marshalltown	Marshall	947	9	47.7	96	July 10	-14	Feb. 18	11	30 90	8 46	May	.12	Dec		129				NW
Monticello	Jones	925	48		95	Aug. 23	-20	Dec. 13			8.40	July								SW
Mason City	Cerro Gordo	1,132			93	July 7	-19	Dec. 13			7.57	May	T	Nov.						
Mt. Ayr	Ringgold	1,236	8	49.4	94	July *8	-16	Feb. 17	10	36.43	8.90	May	.24	Jan	28.3	117	122	109	134	NW

CLIMATOLOGICAL DATA FOR YEAR 1903—CONTINUED.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.						PRECIPITATION, IN INCHES.				MONTH.	SKY.					Prevailing direction of wind.
				Annual mean.	Highest.	Date.	Lowest.	Date.	Length of record, years.	Total for the year.	Greatest monthly.	Month.	Least monthly.		Total snowfall, unmelted.	Number rainy days.	Number clear days.	Number partly cloudy days.	Number cloudy days.	
Mt. Pleasant	Henry	729	20	....	....	....	--16	Feb. 17	10	.....	....	....	.15	Jan.	9.2	....	....	....	....	
Mt. Vernon	Linn	847	35	47.4	96	July 8	--20	Dec. 13	8	30.59	7.05	May.	.29	Jan.	24.2	122	168	64	133	
New Hampton	Chickasaw	1,169	....	....	91	July 9	--24	Dec. 13	7	31.23	8.08	July.	.05	Nov.	25 0	81	160	89	116	NW
Newton	Jasper	944	14	47.3	93	July 9	--17	Feb. 18	....	39.63	13.07	May.	.16	Nov.	35.3	87	172	108	90	S
Northwood	Worth	1,222	6	44.6	87	July 7	--21	Dec. 13	8	34.19	6.95	May.	T	Nov.	21.0	102	165	104	96	NW
Odebolt	Sac	1,356	5	47.3	97	July 9	--16	Feb. *16	6	31.84	7.93	May.	.10	Dec.	10 3	83	214	68	83	
Ogden	Boone	1,088	8	....	95	July 10	--17	Feb. *16	9	.....	10.95	May.			....	....	....	....	....	SE
Olin	Jones	760		47.2	93	July 28	--22	Dec. 13	5	35.53	7 50	July	.31	Jan.	16.6	87	....	....	....	NW
Omaha, Neb	Douglas	1,113	32	50.2	98	July 9	--15	Feb. 18	33	33.43	12.50	Aug.	.07	Jan.	15.0	117	117	132	116	S
Onawa	Monona	1,053	...	49.3	96	July 9	--15	Feb. *17	4	50.53	11.62	Aug.	.06	Jan.	25 1	....	....	....	....	SE
Osage	Mitchell	1,184	11	44.0	90	July 7	--21	Dec. 13	16	36 27	8.23	May.	.06	Nov.	26.8	114	124	99	142	
Osceola	Clarke	1,130	6	49.4	95	July 11	--15	Feb. 18		35.19	11.30	Aug.	.10	Dec.	....	88	....	....	....	SE
Oskaloosa	Mahaska	843	18	48.5	94	July *9 / Aug. 23	--15	Dec. 13	26	28 01	9.68	May.	.22	Jan.	16 5	....	....	....	....	
Ottumwa	Wapello	649	8	....	99	Aug. 4	-- 9	Feb. 17	10	.....	...	.....			.....	....	....	....	....	
Pacific Junction	Mills	960	....	49.5	97	July 9	--15	Feb. 18	5	31.61	12.43	May.	.05	Jan.	13.2	85	123	164	78	S
Pella	Marion	877	....	....	....	.....	--14	Feb. *17	....	.....	.....	.....			.....	....	....	....	....	
Perry	Dallas	975	....	48.1	94	July 28	--14	Feb. *16	....	36.43	11.41	May.	.30	Dec.	16.8	84	....	....	....	
Plover	Pocahontas	1,190	5	45.2	93	July 9	--21	Dec. 13	7	31.97	8.01	May.	.04	Nov.	7.8	83	198	52	115	S, NW
Primghar	O'Brien	.....	....	....	89	June 30	--23	Dec. 13	..		7.62	May.			.....	....	....	....	....	
Red Oak	Montgomery	1,033	....	50.2	94	July 9	--10	Feb. 18	7	37 67	11.74	May.	.05	Jan.	23.5	89	87	216	62	SE
Ridgeway	Winneshiek	1,215	...	46.9	98	July 7	--24	Dec. 13	6	40.81	8.70	May.	.11	Nov.	38.1	158	158	120	87	S
Rockwell City	Calhoun		....	47.2	95	July 9	-18	Feb. 16	8	40.99	11.09	May.	.10	Dec.	7.5	85	183	72	110	
Sac City	Sac	1,278	22	46.8	95	July 9	--17	Feb. *16	23	36.24	8.85	May.	.15	Dec.	....	....	....	....	....	
St. Charles	Madison	1,070	....	49.4	95	July 10	--13	Feb. 18	3	37.64	10.28	May.	.17	Jan.	19.4	115	179	104	82	NW
Scranton	Greene	1,172	....	....	96	July 6	--15	Feb. 16	....	.....	12.06	May.	....		....	....	....	....	....	
Sheldon	O'Brien	1,422	..	....	90	July 25	--20	Feb. 17	5	.....	9.00	May.	....		....	....	....	....	....	
Sibley	Osceola	1,512	8	....	89	July 8	--27	Dec. 13	10	35.38	9 00	May.	.02	Nov.	....	96	....	....	....	
Sigourney	Keokuk	787	....	....	100	July 27	--14	Feb. 17 / Dec. 13	8	....	8.69	May.	.56	Jan.	....	....	....	....	....	
Sioux Center	Sioux	.....	....	44.5	90	July 25 / Aug. 4	--21	Feb. 17	5	23.81	7.73	May.	.05	Jan.	15.0	83	150	99	116	S
Sioux City	Woodbury	1,165	13	47.0	93	June 30 / July 7	--18	Feb. 18	15	41.10	11.78	May.	.06	Jan.	....	102	113	115	137	NW
Spirit Lake	Dickinson	1,458	8	....	....	.....	--23	Dec. 13	..	....	.....	.....			.....	....	....	....	....	
Stockport	Van Buren	.....	..	....	....	.....	..	.....		2	34.81	7.34	Sept.	.39	Jan.	14.5	98	166	82	137	NW
Storm Lake	Buena Vista	1,440	7	45.1	....	.....	--20	Feb. 16	15	36.80	7.65	Aug.	T	Dec.	5.2	91	....	....	....	SE
Stuart	Guthrie	1,216	5	....	96	July 27 / Aug. 25	...	.....	....	.....	10.54	May.	...		.....	....	....	....	....	
Thurman	Fremont	.....	....	49.2	100	July 9	--15	Feb. 18	7	40.89	15.45	May.	T	Jan.	....	79	182	63	120	SW
Tipton	Cedar	807	....	49.5	97	July 9	--16	Dec. 13	6	31.47	6.36	July.	.35	Jan.	....	85	....	....	....	SW
Toledo	Tama	856	8	47.2	92	July 9 / Aug. 23	--14	Feb. 18 / Dec. 13	....	27.49	8.78	May.	.15	Dec.	16.3	88	147	111	107	NW
Villisca	Montgomery	1,058	8	...	....	.....	--15	Feb. 18	....	...	13.66	May.	.05	Jan.	27.5	....	....	....	....	
Vinton	Benton	810	12	...	...	.....	.....	.....	14	.....	5.30	May.	.12	Jan.	16.2	84	....	....	....	NW
Wapello	Louisa	588	...	49.6	96	Aug. 23	--12	Dec. 13	6	33.30	5.60	Aug.	.65	Jan.	23.8	75	...	....	....	
Washington	Washington	769	20	47.1	98	Aug. 23	--19	Dec. 13	13	30.75	5.12	May.	.38	Jan.	....	84	....	....	....	NW
Washta	Cherokee	1,157	....	....	...	.....	....	.....	6	39.86	10.80	May.	.05	Jan.	....	65	191	112	62	S
Waterloo	Black Hawk	862	15	46.7	95	July 10	--16	Dec. 13	23	35.20	9.08	July.	.17	Jan.	26.0	105	158	93	114	NW
Waukee	Dallas	1,039	....	....	....	.....	...	.....	...	36.09	10.78	May.	.32	Dec.	24.0	102	137	108	120	NW
Waverly	Bremer	942	6	45.7	91	July 9	--17	Dec. *13	8	29 90	7.50	July.	.08	Nov.	27.2	114	....	....	....	
West Bend	Palo Alto	1,197	8	45 8	92	July 9	--22	Dec. 13	10	.....	8.69	May.	03	Nov.	7.0	93	....	....	....	S
West Union	Fayette	.....	..	....	....	.....	....	....	....	....	8.28	May.			.....	....	....	....	....	
Whitten	Hardin	1,036	..	46.4	93	July *7 / Aug. 23	--20	Dec. 13	6	30.60	10.44	May.	T	Nov.	28.5	74	....	....	....	NW
Wilton Junction	Muscatine	683	7	48.9	97	July *8	--19	Dec. 13	9	38.29	6.35	July.	.43	Dec.	27.0	71	....	....	....	NW
Winterset	Madison	1,129	11	....	96	July 28	--14	Feb. 18	13	....	9.20	May.	....		.....	....	....	....	....	NW
Woodburn	Clarke	961	...	....		....	..	.....	5	44.95	17.74	Aug.	.05	Jan.	18.7	85	166	85	114	
Average		.....	...	47.3	...	..... .	..	.....	....	35.66	.....	.....	....		....	92	156	100	109	NW
Extremes and date		.....	..	....	101	Aug. 24	--27	Dec. 13	....	.....	17.74	Aug.	T	Jan. / Nov. / Dec.						

* And other dates.

MONTHLY MAXIMUM AND MINIMUM TEMPERATURES FOR 1903, WITH DATES.

STATIONS.		Jan		Feb.		March.		April.		May		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
		Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.
Afton	Max	47	*15	50	1	74	*17	81	11	84	22	94	30	97	10	94	23	84	3	82	* 2	67	1	54	31
	Min	- 4	12	-14	18	12	1	26	4	27	1	38	12	48	31	48	31	34	18	26	27	4	26	-10	13
Albia	Max	51	1	53	1	76	18	80	* 1	85	*17	89	29	96	*11	95	4	87	* 7	80	3	70	9	53	31
	Min.	- 5	12	-14	17	13	1	27	4	30	*1	38	12	49	*30	50	11	31	24	23	26	8	26	-13	13
Algona	Max	42	31	40	*23	67	18	74	11	83	*16	91	29	92	* 7	91	4	85	2	76	* 3	70	2	47	6
	Min.	- 8	11	-20	17	11	1	24	4	31	1	41	12	49	31	47	*30	36	24	26	26	4	26	-18	13
Allerton	Max	52	15	55	1	75	*17	78	* 1	83	22	90	30	94	10	95	23	85	7	81	2	70	1	55	31
	Min.	- 8	12	16	17	13	1	26	4	28	* 1	36	12	50	31	49	*10	35	17	28	*24	3	26	-12	13
Alta	Max	45	6	40	*10	65	31	72	11	79	*16	87	30	89	* 7	88	4	81	25	79	19	68	2	47	6
	Min.	- 9	11	-19	16	9	1	22	30	31	* 1	38	11	45	31	47	8	32	16	28	26	2	26	-20	13
Amana	Max	46	26	49	1	73	18	78	* 1	85	20	93	30	94	9	94	23	84	* 7	81	3	66	1	48	6
	Min.	- 3	*11	-13	*17	11	1	27	4	29	1	36	12	51	*14	50	* 7	33	18	23	27	5	26	-15	13
Ames	Max	48	31	47	22	73	19	80	11	83	22	90	30	93	* 9	92	23	82	* 2	80	19	68	1	49	6
	Min.	- 4	12	-14	* 6	13	25	24	13	29	1	37	12	50	31	49	31	34	18	23	27	5	26	-13	13
Atlantic	Max	49	15	45	22	73	17	83	11	83	22	93	30	97	9	92	' 4	87	8	83	2	67	1	51	31
	Min.	- 3	12	-15	5	13	23	21	4	25	3	36	11	44	31	44	31	30	27	21	27	....	....	-10	13
Audubon	Max	....	....	43	22	71	18	....	....	83	21	90	30	....	....	....	....	86	8	83	2	66	1	49	31
	Min.	....	....	17	18	11	1	....	....	....	....	38	11	....	....	....	....	30	*16	18	27	- 5	26	-13	13
Baxter	Max	47	31	45	* 1	73	18	80	1	83	22	89	30	94	9	93	23	83	8	80	3	70	1	50	* 6
	Min	- 6	*11	-15	18	6	1	24	4	27	1	36	12	50	*30	46	30	33	24	25	*18	2	26	-13	13
Bedford	Max	50	31	52	1	74	17	79	11	81	22	90	*29	94	*10	90	25	83	25	81	* 2	67	1	56	31
	Min	- 5	11	-17	17	10	23	23	4	24	* 1	38	12	48	13	45	31	32	27	25	18	5	19	-11	13
Belknap	Max	60	1	....	....	....	....	....	....	....	....	....	....	96	8	95	24	87	19	83	3	75	* 3	50	31
	Min.	- 6	12	....	....	....	....	....	....	....	....	....	....	55	30	53	20	40	17	34	*18	9	26	....	....
Belle Plaine	Max	45	31	48	1	76	18	81	1	83	*16	90	30	93	9	93	23	84	3	75	3	54	12	40	31
	Min	- 6	12	-15	*17	11	1	26	4	30	* 1	38	12	50	31	50	* 7	36	24	22	27	2	26	-15	*13
Bonaparte	Max	50	1	49	1	78	18	80	* 1	84	*16	93	30	96	8	98	23	84	3	85	3	68	1	53	31
	Min.	- 7	12	-17	17	13	1	28	4	28	1	38	12	53	14	48	7	36	18	26	*24	8	26	- 9	13
Britt	Max	42	6	43	26	71	18	76	11	82	22	90	30	93	9	90	4	85	2	77	3	68	1	48	6
	Min.	-10	11	-19	*16	13	1	22	4	27	1	36	12	46	31	43	31	32	24	25	*18	0	26	-25	13
Burlington	Max	58	28	50	27	79	18	80	*11	85	16	91	30	94	* 9	95	*23	88	7	83	3	72	1	50	31
	Min.	- 5	12	-18	17	13	1	28	4	31	1	40	12	55	14	51	11	40	*18	29	27	9	26	- 9	13
Carroll	Max	48	6	44	*22	71	18	83	11	85	22	90	*29	95	9	92	23	86	25	84	18	73	4	53	23
	Min.	- 9	11	-18	*16	11	1	23	4	29	3	36	*11	44	31	42	9	30	24	26	26	- 5	18	-15	13
Cedar Rapids	Max	45	*26	48	1	78	18	80	11	87	16	96	30	96	* 7	97	24	86	* 8	80	3	67	1	49	6
	Min	- 2	*11	-12	18	15	1	30	30	33	* 1	41	11	52	30	51	*30	37	18	26	27	7	27	-15	*13
Chariton	Max	51	15	53	1	75	17	....	....	83	*22	90	30	93	10	93	23	87	2	90	3	69	1	55	31
	Min.	- 5	12	-14	17	13	1	....	....	28	1	37	12	50	31	43	31	35	17	26	24	4	26	-12	13
Charles City	Max	49	31	44	* 1	74	18	72	* 8	83	22	86	*16	93	10	89	25	83	2	79	3	69	* 1	44	6
	Min.	- 5	12	-17	18	11	* 1	28	* 4	31	3	34	12	44	31	46	7	32	*18	22	27	0	*26	-20	13
Clarinda	Max	51	*15	52	1	76	17	84	11	84	*16	93	*29	98	9	95	23	88	* 3	88	2	70	1	48	*18
	Min.	- 4	12	-14	18	13	1	26	4	27	1	41	*12	48	31	47	31	35	*16	26	27	7	*18	-10	13
Clear Lake	Max	40	31	42	26	68	18	77	11	91	22	95	26	98	8	91	2	87	2	75	3	68	1	42	6
	Min.	-12	11	21	*16	6	1	24	30	29	3	37	12	45	31	46	30	38	24	26	26	- 2	26	-21	13
Clinton	Max	46	31	52	27	78	18	82	29	91	20	94	34	96	* 8	93	23	86	7	83	3	67	* 1	43	* 6
	Min.	- 6	12	-16	17	14	1	28	26	28	1	37	12	51	14	48	* 7	32	18	21	27	8	26	-20	13
College Springs	Max	50	31	51	1	75	17	81	11	82	22	91	*15	96	*10	95	2	84	* 3	81	3	64	* 1	56	31
	Min.	- 6	12	-14	18	14	1	28	30	28	1	42	12	50	31	52	*12	35	16	31	*18	8	18	- 9	13
Columbus Junction	Max	29	* 2	47	27	78	18	80	11	87	*15	91	30	85	9	96	23	84	* 7	81	3	70	1	47	* 6
	Min.	- 4	12	-15	17	10	1	28	* 4	31	1	40	12	53	*13	50	*11	37	*18	26	27	7	26	-15	13
Corning	Max	48	15	48	1	71	17	78	8	81	22	89	30	93	* 9	90	23	81	* 3	80	* 2	65	1	54	31
	Min.	- 5	*12	-15	18	7	23	24	4	30	1	40	*11	47	31	45	31	34	24	28	18	- 1	26	-11	13
Corydon	Max	53	15	54	1	75	17	78	* 1	82	22	88	30	93	10	95	33	84	7	81	* 3	68	1	56	31
	Min.	- 9	12	-15	17	12	1	24	4	27	* 1	37	12	50	31	49	31	36	*17	26	*24	2	26	-13	13
Davenport	Max	49	1	50	27	76	18	78	11	85	20	91	30	95	9	94	23	86	7	82	3	68	1	44	6
	Min.	- 2	12	-13	17	13	1	31	30	35	3	41	12	55	13	53	31	40	18	32	26	9	26	-15	13
Decorah	Max	41	31	43	*10	70	18	73	27	87	23	83	*15	90	7	84	4	81	22	77	3	68	* 1	40	23
	Min	- 8	13	-18	18	7	1	27	30	32	3	39	12	47	31	48	* 7	32	18	23	27	3	26	-22	13
Delaware	Max	41	*26	46	26	71	18	73	11	83	22	87	31	90	7	88	23	82	7	79	3	67	* 1	43	6
	Min.	- 8	12	-16	18	7	1	26	* 4	28	1	38	12	46	31	47	* 7	33	18	25	27	1	26	-21	13
Denison	Max	50	*15	50	1	71	17	72	1	81	22	86	30	86	* 9	88	23	84	25	80	4	67	1	48	31
	Min.	- 6	*11	....	....	13	* 1	21	4	29	3	30	4	49	13	43	31	32	27	22	18	- 1	26	-13	13
Des Moines	Max	49	31	46	22	74	18	78	11	83	22	92	30	94	9	92	23	84	25	82	3	69	1	55	31
	Min	- 3	11	-13	18	15	1	29	30	31	3	43	12	55	31	50	31	39	18	29	24	10	17	- 9	13
De Soto	Max	....	....	....	....	74	18	77	* 8	82	22	89	30	92	9	91	23	84	25	86	19	67	1	....	....
	Min.	....	....	....	....	15	1	28	4	31	1	42	12	50	31	48	31	36	*16	20	27	3	26	....	....
Dows	Max	44	31	42	1	72	18	75	11	80	*16	88	30	91	9	89	4	83	2	84	17	68	2	48	6
	Min.	- 9	11	-20	17	10	1	22	4	29	* 1	37	12	47	31	44	31	33	18	25	*26	- 1	26	-17	13
Dubuque	Max	45	31	49	26	75	18	75	29	83	16	87	30	91	9	90	24	84	7	81	3	70	2	46	23
	Min.	- 5	12	-14	18	11	1	28	30	33	1	40	12	53	31	51	7	35	18	28	27	7	26	-17	26
Earlham	Max	49	*15	46	* 1	74	17	79	1	81	22	88	30	91	* 9	90	* 4	83	8	82	3	68	1	55	31
	Min.	- 5	*11	-15	18	12	23	20	4	24	3	34	12	42	31	43	31	31	18	16	27	- 3	26	-13	13
Elkader	Max	47	31	52	26	76	18	76	1	88	16	90	7	93	9	91	24	86	* 2	78	3	72	* 1	48	23
	Min.	- 6	12	-15	17	10	1	25	4	30	1	34	12	46	31	47	*12	31	18	20	27	2	26	-19	13
Estherville	Max	42	31	40	26	66	12	74	1	86	23	86	30	90	* 8	89	* 5	84	2	79	20	69	2	47	6
	Min.	-10	11	-21	17	9	1	23	* 4	29	3	38	*11	43	31	43	31	32	24	24	27	0	26	-22	13
Fayette	Max	43	*29	47	26	72	18	....	....	88	22	88	30	91	* 9	89	24	....	....	79	3	69	* 1	....	....
	Min.	- 9	12	-17	18	7	1	....	....	28	3	30	* 1	42	31	44	*12	....	....	18	27	- 1	26	....	....
Forest City	Max	40	* 1	40	26	69	18	73	11	82	21	85	*29	91	* 8	90	4	84	26	80	* 3	73	2	49	6
	Min.	-10	11	-20	16	7	1	23	4	30	1	38	12	45	31	48	* 9	31	28	27	27	0	25	-26	13
Fort Dodge	Max	....	....	47	* 1	....	....	....	....	82	22	87	30	89	9	89	4	84	22	80	20	68	3	50	6
	Min.	....	....	-21	5	....	....	....	....	31	1	37	12	45	31	46	30	31	24	31	* 5	5	26	-15	13
Galva	Max	45	6	43	1	64	18	74	11	80	21	89	30	94	9	89	23	84	3	79	19	69	2	49	6
	Min.	- 9	11	-20	16	13	2	21	4	27	2	34	12	44	31	44	30	31	*16	24	26	- 3	26	-17	13
Grand Meadow	Max	41	31	44	10	75	18	72	1	82	*16	87	8	87	7	86	4	79	2	77	3	68	2	41	23
	Min.	-10	12	-18	18	7	1	25	* 4	30	3	38	12	48	31	48	*30	35	*17	28	26	2	26	-21	13
Greene	Max	44	31	44	26	70	18	75	11	84	*16	90	30	92	27	90	4	84	2	78	3	....	....	....	....
	Min.	- 7	11	-16	18	9	1	25	4	30	* 1	36	12	45	31	45	30	33	18	23	27	....	....	....	....
Greenfield	Max	46	31	47	1	72	17	78	* 1	80	22	89	30	92	9	89	23	82	* 2	82	3	68	1	50	31
	Min.	- 6	11	-16	18	10	1	24	4	28	3	40	12	48	* 5	48	*11	33	16	29	*26	1	26	-13	*13
Grinnell	Max	45	* 2	45	1	74	18	78	1	81	22	....	....	....	....	....	....	....	....	73	3	64	* 1	47	31
	Min.	- 4	*11	-13	18	12	1	26	4	30	1	....	....	....	....	....	....	....	....	28	26	3	26	-10	*13
Grinnell (near)	Max	45	2	46	1	....	....	....	....	....	....	92	30	94	9	94	23	83	* 3	79	3	66	1	47	31
	Min.	- 5	*11	-15	*17	....	....	....	....	....	....	37	12	49	5	49	30	34	18	28	*18	2	26	-12	*13
Grundy Center	Max	45	31	45	10	72	18	78	11	82	*22	88	30	92	9	91	23	82	* 2	80	3	68	* 1	50	23
	Min.	-10	12	-15	*17	9	1	23	4	29	3	38	12	46	31	46	30	34	*18	25	24	0	26	-21	13
Guthrie Center	Max	47	6	44	22	73	18	81	11	84	22	91	30	95	9	93	4	87	7	83	22	81	3	55	31
	Min.	- 6	11	-17	18	13	1	22	4	29	3	38	*11	47	31	44	31	32	16	22	27	0	26	-12	13
Hampton	Max	48	31	46	1	72	18	80	11	83	*16	88	30	92	7	93	23	86	* 2	80	* 3	72	2	50	6
	Min.	- 9	11	-17	*17	10	1	25	4	31	* 1	39	12	46	31	48	30	36	*18	28	26	2	26	-17	13
Hanlontown	Max	41	31	45	28	70	18	70	* 1	80	* 4	88	30	89	7	88	21	82	* 1	77	19	68	* 1	48	6
	Min.	-10	11	-20	16	9	1	23	4	30	1	35	12	43	31	45	31	32	24	24	27	- 1	26	-26	13

MONTHLY MAXIMUM AND MINIMUM TEMPERATURES FOR 1903, WITH DATES—CONTINUED.

STATIONS.		Jan.		Feb.		March.		April.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
		Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.
Harlan	Max	47	31	43	10	73	17	83	11	83	*22	91	30	95	9	92	23	84	* 3	81	2	66	1	47	31
	Min.	- 6	12	-18	*17	10	1	24	4	26	1	37	11	46	31	44	31	31	16	25	26	1	26	-12	13
Hopeville	Max	....	....	....	....	78	18	78	* 1	86	22	93	30	95	* 8	95	23	83	* 6	81	* 2	69	1	58	31
	Min.	....	....	....	....	16	25	26	4	29	* 1	39	12	49	31	49	31	36	*16	30	*18	1	26	-11	13
Humboldt	Max	44	31	58	11	72	18	77	11	89	23	89	30	92	* 9	91	4	90	21	79	19	69	* 1	51	6
	Min	- 7	11	-17	18	10	1	22	4	30	3	40	*11	48	31	45	31	35	24	24	*26	2	26	-16	13
Ida Grove	Max	47	7	48	2	67	*17	76	11	81	*16	91	30	92	9	....	....	....	....	....	....	....	....	....	....
	Min	- 8	*11	-20	17	10	1	23	4	31	* 1	38	11	46	31	....	....	....	....	....	....	....	....	....	....
Independence	Max	43	31	45	26	72	18	75	11	81	22	87	30	90	9	....	....	81	* 3	80	3	69	2	47	23
	Min	- 5	*11	-15	18	10	1	26	4	28	1	35	12	47	31	46	30	32	18	23	27	1	26	-18	13
Indianola	Max	48	*16	49	1	75	17	79	11	83	22	90	30	94	9	93	23	84	* 3	81	3	69	1	55	31
	Min.	- 4	12	-13	18	19	1	27	4	30	1	41	12	52	31	51	*13	56	*18	27	*24	3	26	-10	13
Iowa City	Max	47	31	49	1	79	18	80	* 1	90	22	89	29	96	10	97	23	87	7	81	3	72	1	49	6
	Min.	- 3	12	-13	*17	11	1	28	4	29	1	39	12	53	13	51	* 7	34	18	21	28	6	26	-18	13
Iowa Falls	Max	45	31	42	*22	72	18	75	11	82	23	86	30	92	10	89	4	83	8	78	3	68	1	47	6
	Min.	- 8	11	-16	18	10	1	24	4	28	3	34	12	45	31	45	31	31	*18	21	27	0	*26	-17	13
Keokuk	Max	51	26	51	27	77	17	79	11	85	22	91	30	96	10	96	28	89	7	84	3	67	3	53	31
	Min	- 5	12	-13	17	15	1	31	3	32	1	44	12	57	13	52	31	41	24	32	27	11	26	- 7	13
Keosauqua	Max	50	* 1	50	1	79	18	80	11	87	23	89	30	97	* 9	98	24	86	8	82	3	68	1	....	....
	Min.	- 5	12	-15	17	14	1	27	4	29	1	36	12	53	31	49	* 7	37	18	22	27	9	*26	- 7	*13
Larchwood	Max	....	....	....	....	70	12	75	27	86	4	91	29	94	25	89	* 2	85	22	79	19	70	2	....	....
	Min.	....	....	....	....	8	1	17	30	28	3	35	11	45	31	45	30	28	16	28	*16	1	17	....	....
Larrabee	Max	47	* 6	45	22	64	*12	72	11	84	*20	93	28	94	* 9	92	4	86	2	78	2	69	1	49	6
	Min.	-10	11	-20	*16	9	1	20	* 4	30	* 1	34	11	44	31	46	*30	29	16	26	27	- 1	26	-21	13
LeMars	Max	45	15	44	27	65	12	73	23	80	*16	92	30	92	*25	89	4	84	* 1	79	* 2	68	2	46	6
	Min.	- 8	*11	*19	18	9	1	21	30	31	* 1	36	11	45	31	45	*11	32	16	25	26	3	17	-15	13
Lenox	Max	47	15	44	*10	73	17	80	11	80	22	89	30	92	* 8	92	4	83	25	81	3	66	1	54	31
	Min.	- 7	12	-17	18	10	1	27	* 4	30	1	40	12	49	31	49	31	35	16	29	18	2	26	-13	13
Leon	Max	48	15	52	1	74	17	79	11	84	22	91	30	96	10	93	* 5	82	* 6	80	* 2	68	1	53	31
	Min.	- 5	12	-12	*17	14	1	29	* 4	29	1	39	12	49	31	50	12	37	18	29	27	6	26	- 9	13
Logan	Max	48	31	45	10	74	17	82	10	84	23	93	29	....	....	101	24	94	1	81	2	65	* 1	48	31
	Min.	- 4	12	-17	17	13	1	25	30	29	1	38	11	47	31	48	*11	34	16	23	*19	6	19	....	....
Maquoketa	Max	45	31	49	1	76	18	78	11	86	17	87	8	93	10	95	24	86	7	81	3	68	1	46	6
	Min.	- 5	12	-15	17	11	1	26	26	27	1	33	12	48	31	46	12	30	18	18	*27	4	27	-22	13
Marshalltown	Max	47	31	49	10	74	18	80	11	85	23	90	30	96	10	94	* 5	87	21	83	3	70	1	49	6
	Min.	- 5	*11	-14	18	12	1	27	4	29	* 1	36	12	46	31	47	30	33	18	21	27	3	26	-13	*13
Mason City	Max	....	....	44	26	74	19	78	1	82	*16	87	30	93	7	90	4	82	* 2	74	3	68	* 1	45	6
	Min.	....	....	-15	*16	12	1	26	30	32	3	42	12	49	31	47	30	38	18	31	26	4	26	-19	13
Monticello	Max	45	26	47	9	75	18	78	9	85	*22	89	30	93	* 9	95	23	....	....	85	2	....	....	48	7
	Min.	- 6	13	-15	18	15	21	25	*17	29	3	36	12	46	30	46	12	....	....	20	27	....	....	-20	13
Mount Ayr	Max	50	15	53	1	74	17	79	11	83	22	85	*18	94	* 8	98	23	85	25	83	2	67	1	58	31
	Min.	-10	12	-16	17	12	1	27	* 4	27	1	38	12	50	*12	50	31	36	16	29	18	6	26	-10	13
Mount Pleasant	Max	52	16	55	11	82	17	....	....	....	....	94	30	....	....	98	4	87	14	82	3	70	1	50	31
	Min.	- 5	12	-16	17	10	9	....	....	35	* 3	40	1	....	....	48	31	33	*17	23	27	6	26	-14	13
Mount Vernon	Max	45	15	52	1	73	*17	86	11	87	16	91	30	96	8	93	* 4	84	7	79	3	67	* 1	47	6
	Min.	- 5	*11	-15	*17	8	1	26	4	27	1	38	12	49	31	47	30	33	*18	25	24	2	26	-20	13
New Hampton	Max	40	31	43	26	70	18	71	11	79	*16	....	....	91	9	85	24	80	* 2	77	3	70	2	41	* 6
	Min.	-10	*11	-19	18	7	1	24	30	29	3	37	12	45	31	45	30	31	18	24	24	- 2	26	-24	13
Newton	Max	45	31	45	1	70	*18	75	* 8	82	22	90	30	93	9	92	23	81	2	79	3	67	1	48	* 6
	Min.	- 8	12	-17	18	12	1	21	4	28	1	38	13	51	31	50	*30	37	*18	23	27	2	26	-13	*13
Northwood	Max	41	* 6	42	26	66	18	71	27	80	22	81	*15	87	7	84	* 4	80	22	75	* 3	69	2	45	6
	Min.	-10	11	-19	16	9	1	24	4	31	* 1	38	12	46	31	47	30	34	18	26	*24	2	26	-21	13
Odebolt	Max	45	31	44	1	77	31	79	*11	83	*20	94	29	97	9	92	4	85	* 1	78	* 2	70	1	50	6
	Min.	- 7	11	-16	*16	11	1	23	4	29	3	37	11	44	31	43	31	32	24	25	27	0	26	-15	13
Ogden	Max	50	31	46	* 1	73	18	80	1	84	29	88	30	95	10	91	23	90	* 4	84	3	69	3	....	....
	Min.	-12	13	-17	*16	9	1	22	4	26	3	36	11	45	31	41	31	30	27	25	*18	- 1	26	....	....
Olin	Max	48	27	48	1	73	18	77	11	87	22	90	30	93	28	92	23	85	8	81	3	66	1	44	6
	Min.	- 3	*11	-15	18	10	1	28	*23	27	1	35	12	51	31	49	*11	32	18	21	*24	4	26	-22	13
Omaha, Nebraska	Max	51	15	47	22	74	17	82	10	84	20	95	30	98	9	92	23	87	25	85	19	65	8	51	31
	Min.	- 3	12	-15	18	14	1	27	30	35	1	48	1	56	31	54	31	36	16	36	27	8	17	- 7	13
Onawa	Max	49	31	48	22	69	31	79	10	83	*20	93	30	96	9	91	4	86	25	84	19	69	1	53	6
	Min.	- 4	12	-15	*17	13	1	23	30	31	* 1	43	11	52	31	51	31	35	16	30	27	7	17	- 7	13
Osage	Max	40	31	43	26	67	18	71	*11	81	*16	85	30	90	7	85	* 2	81	2	75	3	66	* 1	40	6
	Min.	-10	11	-18	18	8	1	24	30	30	3	38	12	45	31	45	30	32	18	25	26	0	26	-21	13
Osceola	Max	50	*15	52	1	75	17	79	1	83	23	88	30	95	11	94	24	86	* 8	84	2	69	1	58	21
	Min.	- 5	12	-15	18	18	20	27	4	28	1	37	12	49	31	50	*12	35	16	29	27	5	26	-11	13
Oskaloosa	Max	49	1	49	1	73	17	81	11	80	22	91	30	94	* 9	94	23	84	7	80	3	70	1	52	31
	Min.	- 5	13	-14	17	12	1	24	4	30	1	38	12	53	*22	52	31	36	*17	23	27	4	26	-15	13
Ottumwa	Max	50	*26	50	1	76	18	....	....	87	17	91	30	98	27	99	4	....	....	83	3	....	....	....	....
	Min	- 1	12	- 9	*17	17	1	....	....	36	1	45	12	51	21	42	30	....	....	26	27	....	....	....	....
Pacific Junction	Max	48	30	44	22	73	17	81	10	83	*22	93	30	97	9	91	*24	84	* 6	85	2	76	1	49	31
	Min.	- 4	12	-15	18	13	1	25	4	28	3	41	11	50	31	48	31	33	16	27	26	8	21	- 8	13
Perry	Max	48	31	45	*22	72	*17	80	1	85	22	87	30	94	28	93	23	84	* 6	82	3	69	1	49	6
	Min.	- 6	11	-14	*16	14	1	25	4	30	* 1	40	12	50	31	48	31	33	18	25	27	4	26	-11	13
Plover	Max	43	6	41	*22	68	18	75	11	83	16	90	30	93	9	90	4	86	2	78	3	69	2	51	6
	Min	-10	11	-20	*16	8	1	24	4	30	* 2	38	*11	44	31	44	31	33	24	24	28	3	26	-21	13
Primghar	Max	....	....	....	....	62	18	72	11	78	*16	89	30	88	* 5	88	* 3	83	1	77	3	66	2	47	7
	Min	....	....	....	....	12	20	24	3	32	3	37	11	41	31	43	11	35	*24	28	*25	1	17	-23	13
Red Oak	Max	45	25	44	1	70	17	72	* 1	79	*16	91	30	94	9	88	4	82	7	80	2	65	1	48	*19
	Min.	1	12	-10	18	17	1	29	30	33	* 1	46	11	55	31	52	31	39	16	29	27	10	17	- 6	13
Ridgeway	Max	46	31	48	26	70	18	73	8	86	16	89	30	98	7	90	* 4	85	25	82	3	73	2	44	23
	Min.	- 9	12	-18	*17	7	1	25	4	30	* 1	41	*11	50	31	48	30	32	18	28	*18	1	26	-24	13
Rockwell City	Max	45	31	45	1	72	18	82	11	83	*16	90	30	95	9	94	5	85	2	80	19	66	4	50	6
	Min.	- 6	11	-18	16	12	1	25	4	32	1	41	*11	48	31	48	30	34	16	27	26	1	27	-14	13
Sac City	Max	44	* 6	41	* 1	69	18	78	11	85	16	91	30	95	9	90	* 4	84	3	80	19	68	2	49	6
	Min.	- 8	11	-17	*16	10	1	25	30	30	3	39	*11	46	31	47	31	32	16	25	27	3	26	-16	13
St. Charles	Max	52	* 1	51	1	74	17	80	* 1	87	20	91	30	95	10	93	23	84	3	83	19	68	* 1	58	31
	Min.	- 4	11	-13	18	14	1	27	4	31	1	41	12	50	31	50	31	36	16	28	27	4	26	-10	13
Scranton	Max	44	6	42	22	71	18	80	11	83	16	94	29	96	6	94	3	....	....	....	....	....	....	....	....
	Min.	- 6	11	-15	16	14	21	25	4	31	3	....	....	47	31	50	*11	....	....	....	....	....	....	....	....
Sheldon	Max	47	6	42	26	65	12	....	....	79	*16	86	* 7	90	25	89	4	84	* 2	79	19	....	....	....	....
	Min	-10	*11	-20	17	9	1	....	....	30	1	37	11	43	31	45	*11	30	16	27	27	....	....	....	....
Sibley	Max	43	6	42	*22	63	12	72	27	82	21	87	30	89	8	88	* 4	84	22	73	2	66	1	39	23
	Min.	-10	11	-18	*16	10	* 1	19	30	9	3	36	11	45	31	44	*29	30	16	27	27	1	26	-27	13
Sigourney	Max	48	*26	51	1	78	18	82	1	88	*15	96	30	100	27	98	*22	88	* 3	82	4	....	....	51	31
	Min.	- 5	12	-14	*17	11	1	26	3	29	1	35	12	50	31	49	* 7	34	18	24	27	....	....	-16	13
Sioux Center	Max	45	6	40	*22	63	12	73	*23	80	17	89	30	90	25	90	4	83	* 1	78	19	67	* 1	46	6
	Min.	-10	12	-21	17	8	1	20	30	30	1	38	11	45	31	45	30	30	16	27	27	2	17	-21	13
Sioux City	Max	51	6	45	22	67	12	76	23	81	17	93	30	93	7	90	4	86	25	84	19	68	2	48	6
	Min.	- 6	12	-18	18	11	20	22	30	34	1	40	11	51	31	47	31	33	16	31	26	7	17	-13	12
Storm Lake	Max	47	6	40	22	61	*12	73	11	78	22	87	29	89	9	86	* 4	82	4	78	18	68	3	48	5
	Min.	-10	11	-20	16	9	1	23	30	34	1	38	11	46	31	46	30	32	16	20	26	0	26	-19	13

MONTHLY MAXIMUM AND MINIMUM TEMPERATURES FOR 1903, WITH DATES—Continued.

STATIONS.		Jan.		Feb.		March.		April.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
		Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date.	Deg.	Date	Deg.	Date.	Deg.	Date.
Stuart	Max	....	....	....	....	72	18	79	11	88	* 9	90	30	96	27	96	25	85	* 3	80	* 2	65	2	48	31
	Min.	....	....	....	....	....	....	20	28	20	3	40	1	50	31	48	31	34	16	18	27	6	26	-10	13
Thurman	Max	47	* 6	44	*22	70	18	81	11	83	22	94	30	100	9	90	* 4	85	25	84	2	62	* 1	51	31
	Min.	- 4	12	-15	18	12	1	23	29	29	3	41	11	47	31	46	31	32	27	25	27	7	*18	- 9	13
Tipton	Max	45	31	48	26	75	18	77	*11	87	16	92	30	97	9	96	23	87	7	81	3	70	1	45	6
	Min.	- 3	12	-12	18	11	1	30	30	32	1	40	12	52	30	52	*30	35	18	28	24	8	26	-16	13
Toledo	Max	46	31	45	* 1	74	18	81	1	82	16	89	30	92	9	92	23	83	21	81	3	70	1	48	6
	Min.	- 5	12	-14	18	12	1	25	4	29	* 1	34	12	46	31	48	* 7	31	18	20	27	1	26	-14	13
Villisca	Max	50	*15	48	11	75	18	84	11	82	19	91	30	....	....	90	23	....	....	82	2	62	1	45	* 7
	Min.	- 5	12	-15	18	12	1	23	* 4	27	* 1	42	10	....	....	48	31	....	....	25	25	7	17	-10	13
Wapello	Max	45	*15	47	27	75	18	79	11	85	20	89	30	94	9	96	23	82	7	79	3	68	1	45	* 3
	Min.	- 1	*11	-11	17	17	1	31	4	33	3	42	12	56	13	52	11	38	18	27	26	9	26	-12	13
Washington	Max	49	1	47	1	77	18	80	1	86	16	92	30	96	9	98	23	87	7	83	3	70	1	51	31
	Min.	- 7	12	-17	17	9	1	23	4	27	1	35	12	50	*13	48	31	34	*18	25	*24	3	26	-19	13
Waterloo	Max	44	31	47	1	75	18	78	11	84	17	85	* 8	95	10	90	25	85	2	82	3	70	* 1	48	6
	Min	- 5	11	-15	18	11	1	26	4	30	1	37	12	46	31	46	30	33	18	23	27	2	26	-16	13
Waverly	Max	45	31	45	10	73	18	73	11	82	22	87	30	91	9	88	24	82	*21	79	3	69	1	43	23
	Min.	- 6	11	-16	18	9	1	21	30	30	* 1	37	12	47	31	49	* 7	34	24	23	27	2	25	-17	*13
West Bend	Max	43	6	43	10	69	18	77	13	84	22	88	30	92	9	90	4	84	2	79	3	69	1	50	6
	Min.	- 8	11	-19	16	10	15	24	4	31	3	39	11	48	30	45	30	30	27	23	26	1	26	-22	13
Whitten	Max	45	31	44	22	72	18	77	11	82	25	90	29	93	* 7	93	23	82	* 2	80	3	67	1	46	6
	Min.	- 8	11	-18	18	9	1	24	4	27	1	35	12	47	31	45	30	33	*18	24	*24	0	26	-20	13
Wilton Junction	Max	48	25	47	1	77	18	78	* 1	88	22	94	30	97	* 8	96	23	85	* 7	82	3	69	1	45	6
	Min.	- 4	12	-16	17	10	1	28	4	29	1	36	12	53	*14	48	7	34	18	22	27	5	26	-19	13
Winterset	Max	50	31	52	1	74	19	....	....	85	7	92	30	96	28	95	23	....	....	....	....	66	8	....	....
	Min.	- 6	12	-14	18	20	* 2	....	....	27	3	39	12	45	31	47	*11	....	....	....	....	1	26	-12	*13

* Other dates.

MONTHLY AND ANNUAL MEAN TEMPERATURES FOR 1903, WITH DEPARTURES.

Stations.	Jan.		Feb.		March.		April.		May.		June.		July.		August.		Sept.		Oct.		Nov.		Dec.		Annual.	
	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.	Tem.	Dept	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.	Tem	Dept.	Tem.	Dept.
Afton	26.0	* 2.7	21.6	- 0.7	40.0	* 5.5	52 2	* 0.7	63.6	* 0.9	66.1	- 6.1	74.8	- 1.5	71.0	- 3.3	61.0	- 4.9	53.2	- 0.6	36.3	* 1.3	23.4	- 1.8	49.1	- 0.7
Albia	25.8	.....	23.4	.....	42.6	.....	52.6	.....	61.2	.....	64.4	.....	75.0	.....	70.8	.....	62.0	.....	52.8	.....	36 2	.....	21.3	.....	49.0	.....
Algona	20.8	* 8.2	17 0	- 0.2	36.6	* 9.1	50.9	* 3.7	61.4	* 1.6	65 4	- 4.6	72.2	- 1.7	68.1	- 3.1	60.2	- 1.7	52.0	* 3.6	33 8	* 1.7	18.2	- 1.6	46.3	* 1.2
Allerton	26.0	.....	23.0	.....	41.9	.....	51.6	.....	62.6	.....	64.8	.....	74.0	.....	71.0	.....	62 4	.....	54.2	.....	36.1	.....	23.0	.....	49.2	.....
Alta	21.6	* 5.1	15.9	- 0 7	35.4	* 6.7	47 2	- 0.6	59 4	* 1 1	63.3	- 5.7	69.6	- 3.3	66.5	- 4.6	57.9	- 5.7	51.6	* 0 9	32.2	* 1.3	17.9	- 3.4	44.9	- 0.7
Amana	23 5	* 8.0	21.7	* 1 6	40.7	* 9.5	50.8	* 2.1	62.8	* 3 0	64 9	- 5.0	73 5	- 0 5	69.4	- 1.4	61 8	- 0.4	51.6	* 1.7	34.5	* 1.7	19 2	- 2.8	47.9	* 1.5
Ames	24.0	* 7.1	19.6	- 2.3	38 4	* 6.5	49.8	* 0 5	62.3	* 2.9	64.8	- 5.3	73.4	- 1.8	69.4	- 3.0	60.5	- 3.1	51 6	* 0.7	35 2	* 2 4	20.2	- 1.8	47.4	* 0.2
Atlantic	25.3	* 5.2	20 3	- 0.7	38.8	* 5.9	50.8	* 1.5	62.0	* 2.8	64.4	- 5 6	74.2	* 0.4	70.1	- 1.8	61.5	* 2.4	52.6	- 0.7	36.4	* 2.2	23 0	- 1.6	48.3	* 1.0
Audubon	...	.....	17.4	- 1.8	37.6	* 5.0	.....	.....	64.2	* 4 3	64.6	- 4.7	.....	.....	.....	.....	60 2	- 3.7	51.8	* 0.9	34.5	* 0 5	20 7	- 2.7	.....	.....
Baxter	23.2	.....	20.8	.....	39.4	.....	51.4	.....	62.2	.....	64.4	.....	73 1	.....	69.2	.....	60 6	.....	51 8	.....	34.2	† 1.8	21.0	.....	.....	.....
Bedford	26.5	.....	20 8	.....	40.1	.....	51.6	.....	61.8	.....	64.6	.....	74 0	.....	70 4	.....	61.9	.....	53.4	.....	36.9	.....	24.1	.....	.....	.....
Belknap	26 7	* 1.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	76.0	- 0.2	73.2	- 1.4	66.2	- 1.6	57 8	* 2.1	.....	.....	.....	.....	.....	.....
Belle Plaine	21.9	* 3.6	20 0	- 0.8	39.2	* 7.2	50 8	* 5.2	62.8	* 3.8	64.1	- 6.2	72.6	- 1.0	69.8	- 1.0	58.8	- 5.3	47 2	- 3.2	31.9	- 1.8	16.4	- 7.9	46.3	- 0.6
Bonaparte	24.9	* 1.4	23.1	- 0.2	43.2	* 6.3	52 6	* 0.7	63.6	* 1.1	65 8	- 7. 1	75.4	- 1.2	71 5	- 3 8	63.7	- 4.6	53.3	- 2.4	35.6	- 2.0	22.1	- 6.0	49.6	- 1.5
Britt	18.7	* 1.2	16.6	- 0.6	35 0	* 8.7	46.6	- 0.4	61.6	* 3.1	64.9	- 3.6	71.0	- 2.0	67.2	- 3.2	58.7	- 3.8	50.1	- 1.9	31.4	- 0.9	15 3	- 1.8	44.8	- 0.4
Burlington	26.5	.....	25 0	.....	44.8	.....	53.8	.....	65.2	.....	66.2	.....	75.6	.....	72 8	.....	66 1	.....	55.6	.....	37 2	.....	22.7	.....	51.0	.....
Carroll	23 4	* 4.0	19.0	† 0.0	38.5	* 7.8	49.0	† 0.0	59.8	* 0.7	64.0	- 5.9	72.3	- 1 8	68.7	- 2.6	60.2	- 3.2	53.8	* 2 7	34 4	* 1.6	20.4	- 3.0	47.0	0.0
Cedar Rapids	23.9	* 5.8	22.4	* 1.6	42.6	*10.2	52.1	* 2.0	64.1	* 4.4	65.4	- 5.5	73.8	- 1 3	69.7	- 3.2	61.8	- 2.0	52.0	* 0.7	33.8	- 1.5	17.9	- 7.5	48.3	* 0.3
Chariton	25 4	- 0.2	22.5	- 0.2	41.3	* 6 3	.....	.....	61.4	* 0.3	64.0	- 7.1	72.9	- 2.4	69.9	- 4.3	62.0	- 4.5	53.4	- 1.3	36.0	- 1.8	22.4	- 3.6	.....	.....
Charles City	20.8	* 5 3	18.8	* 3.9	38.2	* 8.9	48.2	* 0.8	60.5	* 2.2	62.6	- 6.1	71.0	- 2.8	65 9	- 5.5	57.3	- 5 8	49.0	- 1.5	30.5	- 0.2	13.3	- 7.1	44.8	- 0.7
Clarinda	27.2	* 4.7	22.4	- 0.9	40.7	* 6.1	52.4	* 0.4	63.0	* 1.7	66.3	- 5.9	75.6	- 0.8	71.6	- 3.0	61.4	- 5.8	54.8	* 0.4	37.5	* 0.5	23.1	- 3.8	49.7	- 0.5
Clear Lake	17.8	.....	16.0	.....	36.2	.....	47.8	.....	62.6	.....	67.4	.....	73.1	.....	68.6	.....	59.9	.....	50 2	.....	30.4	.....	14 4	.....	45.4	.....
Clinton	22.6	* 3.2	23.4	* 1.3	41.1	* 8.5	51 0	* 2.3	64.2	* 4.2	65.6	- 4.3	73 6	- 0 2	69.4	- 1.9	62.2	- 1.1	51.4	* 1.0	35.0	- 0.1	19.0	- 3.3	48.2	* 0.8
College Springs	27.2	† 3.2	22.0	- 1.8	40.5	* 4.4	53.0	* 2.1	62.8	* 1.4	67.0	- 4.5	76.4	* 1 0	72 2	- 2.2	62.1	- 6.0	54.0	- 2.7	37 6	- 0.3	25 0	- 2.4	50.0	- 0.6
Columbus Junction	24.5	.....	22 5	.....	41.6	.....	51.8	.....	64.2	.....	65.7	.....	74.2	.....	70.4	.....	63.2	.....	53.3	.....	36.1	.....	21.5	.....	49.1	.....
Corning	25 7	* 3.4	20.9	- 1.9	38.8	* 3.4	51.6	* 0 6	61.5	* 0 9	64.2	- 6.7	73.6	- 1.0	69.4	- 3.6	60.7	- 5.1	53.2	- 0.9	35.9	- 0.9	23.2	- 4.7	48 2	- 1.4
Council Bluffs	26.8	- 0.4	23.1	* 0.5	36.3	* 1.5	52 5	* 0.5	58.2	- 4.5	66.4	- 7.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Corydon	26 2	* 2.4	23.5	* 1.4	41.9	* 6 3	51.9	* 0.1	61.8	* 0.3	64 4	- 7.0	73.3	- 2.8	65.9	- 8.8	62.4	- 4.8	54 0	- 1.0	36 2	- 1.2	22.2	- 4.0	48.6	- 1 6
Davenport	24.9	* 4.9	20.6	- 1.7	42.6	* 7.7	51 7	* 2.0	64 2	* 3.5	66.1	- 4 8	74.4	- 0.6	70.7	- 2 1	63 8	- 0.9	54.2	* 2.1	36.2	- 0.6	20 4	- 7.4	49.4	* 0.2
Decorah	17.8	* 3.4	18.1	* 3 1	37.1	* 7.6	49.1	* 0.1	61.4	* 1.5	63.2	- 5.5	71.5	- 1.3	65.8	- 5.2	59.4	- 3.0	50.0	- 0.6	32.2	* 0.7	13.7	- 6.9	44.7	- 0.5
Delaware	19.4	* 4 0	19.2	* 2.8	38.8	* 9.1	48.0	* 2 0	60.6	* 2 2	63 2	- 5.8	70 8	- 1.9	66.7	- 3.4	59.0	- 2.8	49 8	* 1.0	31.5	* 0.3	15.8	- 5.6	45.2	* 0.2
Denison	23.8	* 2.7	.....	.....	38.5	* 6.6	48.4	- 0 9	58.8	- 1.8	61.4	- 7.5	70.8	- 3.0	67.8	- 4.3	60.6	- 2.8	51.0	* .05	35 1	* 1.3	21.7	- 0.7	.....	.....
Des Moines	25.4	* 7.9	22.0	- 1.1	40.6	* 5.9	51.2	* 0.7	62 8	* 2.4	65.8	- 4.3	74.3	- 0.2	70.2	- 1.8	61.9	- 2.2	53.8	* .16	36.2	. 0.2	22.6	- 4.2	48.9	* 0.4
De Soto	.....	.....	.....	.....	38.6	.....	51.6	.....	62.5	.....	64.9	.....	73 0	.....	69 0	.....	62.4	.....	54.0	.....	35.4	.....	.....	.....	.....	.....
Dows	20.0	.....	18.0	.....	37.8	.....	48.0	.....	60.4	.....	63 4	.....	70.2	.....	67 0	.....	59.6	.....	52.6	.....	32.4	.....	16.6	.....	45.5	.....
Dubuque	22.4	* 5.1	22.4	- 0.2	39.6	* 6.7	49.6	* 1.0	62.8	* 2.9	64.6	- 4.9	72 4	- 1.9	68.4	- 3.2	61.8	- 1.4	52.4	* 1.8	34.4	- 0.6	18.4	- 7.5	47.4	- 0.2
Earlham	24.6	.....	18.1	.....	39.6	.....	49.4	.....	60.6	.....	62 6	.....	71.4	.....	68.0	.....	59.8	.....	51.2	.....	33.6	.....	21.5	.....	46.7	.....
Elkader	20 4	* 6.3	20.6	* 2.3	39.4	* 8.8	48.1	- 0.2	62 1	* 1.3	64.0	- 5.7	72.4	- 1 6	68 7	- 2.3	61 6	- 0 6	50.2	* 0.8	32.4	* 0.3	14.8	- 6.9	46.2	* 0.2
Estherville	18 2	* 2.4	14.2	- 1.5	34 2	* 8.4	46.4	- 2.6	55.2	- 3 0	62 9	- 5 7	70.9	- 2.3	66.2	- 4.8	57.2	- 4.4	50.2	* 1.1	30.0	* 0 9	14.5	- 3.9	43.3	- 1.3
Fayette	19.3	* 2.1	18.1	* 0.3	36.5	* 6.8	.....	.....	60 0	* 2.5	61.8	- 6.8	70.6	.....	65.4	- 4.4	.....	.....	49.4	- 0.5	31.0	- 0.9	.....	.....	.....	.....
Forest City	17.9	- 0.3	15.7	* 0.7	33.6	* 5.2	44.9	- 4.9	59.6	† 0.0	63.6	- 4.5	71.2	- 1.6	66.8	- 4.7	56.9	- 5.7	48.6	- 0.6	31.0	* 0.1	13.8	- 5.5	43.6	- 1.8
Ft. Dodge	.....	.....	16 8	.....	.....	.....	.....	.....	60.0	.	61.8	.....	70.0	.....	67 2	.....	61.4	.....	53.0	.....	33.0	.....	20.6	.....	.....	.....
Galva	21.0	* 2.8	16.9	- 1.0	35.9	* 4.2	47.6	- 1.9	60.2	- 0.2	63.6	- 5.8	70.6	- 3.8	67.1	- 4.7	58.6	- 6.7	50.8	- 0 5	31.6	- 0.6	19.0	- 3.4	45.2	- 1.8
Grand Meadow	18.4	* 2.8	18.8	* 1.5	36 8	* 7.1	47.8	* 0.2	61.0	* 3 0	63.8	- 3.8	68.8	- 2.2	65.2	- 4.0	59.0	- 2 1	50 3	* 0.3	31.2	- 0.3	14.8	- 7.1	44.7	- 0.4
Greene	20.0	- 0.3	19.1	* 2.5	37.2	* 7.5	48.4	- 0.2	61 8	* 1.7	64.4	- 5.8	71.9	- 3.6	67 8	- 5.5	60.4	- 4.8	50.4	- 3.7	.....	.....	.....	.....	.....	.....
Greenfield	24.8	* 3.4	20.6	- 0.7	38.6	* 5 2	50.8	‡ 0.0	60.7	* 0.5	64.1	- 7.0	73.0	- 1.7	69.0	- 4.0	61.4	- 4.1	53 3	- 0.3	35.8	* 0 5	21.6	- 3.3	47.8	- 1.0
Grinnell	22.9	* 3.1	20.8	- 0.3	40.0	* 7.3	50.4	‡ 0 0	61.7	* 1.8	.....	.....	.....	.....	.....	.....	.....	.....	52.2	* 5.0	33.9	- 0 6	19.8	- 5.0	.....	.....
Grinnell (near)	22.6	.....	20 4	.....	.....	.....	.....	.....	.....	.....	65.3	.....	73.3	.....	68.8	.....	60.6	.....	52 0	.....	33.4	.....	19 6	.....	.....	.....
Grundy Center	21.4	* 4.9	19.8	* 2.0	38 5	* 7.6	49 3	* 1.6	61 0	* 2.7	60.6	- 5.9	71.4	- 1.0	68 7	- 2.3	60 4	- 2 9	51.6	* 0.3	33.3	* 1.2	17.6	- 4.9	47.3	* 1.2
Guthrie Center	24.9	* 0.4	20.0	- 0.2	38.8	* 6.1	51.1	- 0.2	62.4	* 1.2	65 6	- 4.7	72.8	- 1 4	68 2	- 4 9	60.6	- 3.7	55.8	* 3.4	.....	.....	25.5	- 6.0	.....	.....
Hampton	20.6	* 5.7	19.0	* 2.3	37.6	* 9.8	49.0	* 1.4	62.0	* 3.9	65.0	- 3.5	72.3	- 0.5	69.0	- 1.4	61.0	- 1.2	52.5	* 2.2	33.3	* 1.9	16.6	- 4.5	46.5	* 1.3
Hamlontown	17.8	.....	16.4	.....	36.0	.....	46.0	.....	60.4	.....	61.0	.....	69 6	.....	66.3	.....	58.4	.....	49.8	.....	31.2	.....	14.5	.....	44 0	.....
Harlan	23.6	.....	18.1	.....	37 8	.....	49.8	.....	61.3	.....	65.0	.	73.3	.....	69.2	.....	59.7	.....	52.1	.....	35.0	.....	22.0	.....	47.2	.....
Hopeville	.....	.....	.....	.....	42.3	* 8.0	51.7	* 1.5	62.2	* 1.8	64.3	- 6.2	74 1	- 0.3	71.1	- 2.0	61.6	- 5.0	54.3	- 0 3	35.2	- 0.3	22 6	- 2,9	.....	.....
Humboldt	21.6	* 5.4	18.2	* 1 2	37.4	* 8.8	49 2	- 0.1	61.8	* 1.7	64 8	- 5.6	72 6	- 1.5	70.6	* 1 3	61.0	- 1.6	51.8	† 2.3	34.6	* 1.7	19.3	- 3.9	46.9	* 0.8
Ida Grove	23.4	.....	17 9	.....	38.4	.....	49.8	.....	61.2	.....	65.6	.....	72.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Independence	20.2	* 5 1	19 0	- 1.0	37.6	* 6.3	47.6	- 0.3	60.8	* 1.5	62 8	- 6.1	70.5	- 2.8	76 6	- 2.7	59.4	- 2.3	50.6	* 1.7	32.1	- 0.8	16.6	- 4 9	45.4	- 0.4
Indianola	25 8	* 6.3	22.5	- 0.3	41.3	* 6.7	52.2	* 0.6	63.1	* 2.5	65.2	- 5.6	75 0	- 0.8	71 8	- 1.2	62.1	- 3.9	53.6	- 0.5	35.9	- 1.6	22.4	- 3.1	49.2	- 0.1
Iowa City	23.8	* 4.7	22.2	- 0.9	41.9	* 8.4	51 6	* 3.0	63 8	* 3.6	64.8	- 4.6	74.8	* 0.5	70.0	- 1 7	61 8	- 1.7	51 9	* 0.9	34.2	- 1.1	18 2	- 6.0	48 2	* 0.4
Iowa Falls	19.7	* 4.6	17.0	* 1.7	36 8	* 6.7	47.6	‡ 0.0	60.6	* 1.1	62.2	- 6.8	71.2	- 2 0	66.6	- 3.9	57.8	- 4.3	48 4	- 1.8	31.0	- 0.4	15.7	- 5.1	44.6	- 0.8
Keokuk	26 5	* 3.3	26.4	- 1.9	44.4	† 6 8	53.5	* 1.5	64.9	* 2.3	67.0	- 5.5	77.4	* 0.5	73.6	- 0.9	65 6	- 0.8	55.6	* 1.5	37.5	- 1.3	24.6	- 5.2	51.4	0.0
Keosauqua	25.4	* 1.7	23.0	- 1.6	43.8	* 6.2	53.2	* 0.3	64 2	* 1.4	65.0	- 8.5	75.6	- 1 3	73 0	- 2 3	63.1	- 4.9	52.1	- 4.1	34.5	- 4.1	....	.....	.....	.....
Larchwood	.....	.....	.....	.....	34.6	.....	47.4	.....	59.6	.	64.6	.....	71.0	.....	68.0	.....	60.0	.....	51 6	.....	31.1	.....	.....	.....	.....	.....
Larrabee	21.4	* 8.8	16.4	- 1.8	34.8	* 6.2	47.2	- 1.2	59.6	* 1.5	65.4	- 3.9	72.1	- 0.9	68 2	- 3.2	58.8	- 4.8	51 3	* 0.8	32.4	* 0.9	18.4	- 3.9	45.5	- 0.5
LeMars	22 1	* 1.2	15.8	- 1.3	35 5	* 4.6	48.6	- 1.6	59 2	- 1,1	64.8	- 4.8	71.4	- 2.8	67.5	- 5 1	57.8	- 5.8	51.0	- 1.6	33.4	* 0 5	18.8	- 2.3	45.7	- 1.7
Lenox	25.3	* 0.2	20.4	- 2.4	39.4	* 5.4	52.2	* 0.7	61.9	* 0.2	64.5	- 6.3	73.8	- 1.2	70.6	- 3.1	61.8	4.3	53.2	- 1.1	35.9	- 0.9	22.8	- 1.9	48.5	- 1.2
Leon	26 6	.....	23.2	.....	41 8	.....	53 1	.....	63.3	.....	64.2	.....	75 5	.....	71.6	.....	62.4	.....	53.9	.....	37 1	.....	24.0	.....	49.7	.....
Logan	24.1	† 5.1	20.2	- 3.5	38.2	* 4.3	51 4	* 1.4	62.0	* 1.0	65.4	- 4.8	.....	.....	75.0	- 2 2	61.8	- 2.4	51.8	- 0.5	35.5	‡ 0.0	.....	.....	.....	.....
Maquoketa	21.6	* 1.7	22.2	* .0	41.0	* 7.6	49.7	* 0 7	61.2	* 0.6	62.7	- 8.0	72.2	- 3.1	68.6	- 3.7	60.5	- 3.7	50.2	- 4.3	32.8	- 3.6	15.6	-10.1	46.5	- 2.2
Marshalltown	23.6	* 3.1	22.0	* 1 7	40.4	* 8.9	51.2	* 1.5	62.5	* 2.9	64.1	- 5.6	73.8	* 0.1	69.4	- 2.8	60.6	- 4.1	51 8	- 1.1	33.1	- 1.7	20.0	- 3.6	47.7	- 0.1
Mason City	.....	.....	20 4	* 5 5	39.4	*11.5	48.9	- 0.5	61.6	* 2.6	65 6	- 2.0	72.4	* 1.0	67.8	- 1.8	60.4	- 2.6	51.6	* 2.2	33 4	* 4.0	16.4	- 4.0	.....	.....
Monticello	18.8	* 2.9	21.4	* 0.4	41.3	* 9.5	48.4	* 0.4	62.2	* 2.8	65.6	- 3.0	74 1	* 1 2	72.0	- 1.8	.....	.....	50.4	* 1.0	.....	.....	16.4	- 5.9	.....	.....
Mt. Ayr	25.6	* 1 8	22 8	* 0 3	40.1	* 5.1	51.6	- 0.2	61.7	- 0.4	64 6	- 6.7	74 8	- 1.1	72 2	- 1.9	62.9	- 4.5	55.0	- 0.3	37.1	- 0.2	23 8	* 0.8	49.4	- 0.6
Mt. Pleasant	24.2	* 3.5	24.3	* 0.7	44.1	* 8.5	.....	.....	.....	.....	66.3	- 5 9	.....	.....	73 2	- 0.1	62.6	- 2 3	52.4	‡ 0.0	35 8	- 1.1	21.8	- 5.0	.....	.....
Mt. Vernon	21.9	* 4.4	21.6	* 0.3	40.5	* 8.6	51.4	* 2.1	62.3	* 1.6	66.1	- 4.7	73.8	- 1.0	69.1	- 2.4	61 5	- 1.2	51.5	* 1.2	32 6	- 1.6	17.2	- 5.6	47.4	* 0.1
New Hampton	17.6	.....	17.2	.....	35.8	.....	47.0	.....	59.8	.....	.....	.....	68.5	.....	63.8	.....	57.0	.....	49.4	.....	30.4	.....	13.4	.....	.....	.....
Newton	22.6	* 5.3	20.6	‡ 0.0	39 4	* 5 8	50.0	* 1.0	61.4	* 0.5	63.6	- 7.1	72.9	- 2.3	69.0	- 3.4	61.1	- 2,1	52.0	* 0.3	34.6	* 0.7	20.3	- 1.7	47.3	- 0.2
Northwood	18.8	* 2 2	17.8	* 2.8	36.3	* 8.4	47.2	* 0 8	60 2	* 1.6	63.4	- 4.1	69.6	- 2 8	66.0	- 4.3	58.0	- 2 8	49.8	- 1.2	31.8	* 0.8	16.0	- 3.4	44.6	- 0.3
Odebolt	22.9	* 0.3	18.2	* 0.6	38 9	* 5.9	49.6	- 0.1	61.5	- 0.4	65.2	- 5.6	73.4	- 2.7	70.8	- 3.8	60.6	- 2.5	51.9	- 4.5	33.7	- 2.1	20.9	- 1.0	47.3	- 1.3
Ogden	23.7	* 2.4	20.0	* 0.3	38.2	* 5.9	50.0	- 0.9	60 0	- 1.1	59.4	-10.4	71.5	- 3 5	68.0	- 5.0	60.2	- 5.0	51 8	- 1.3	33.3	- 0.9	.....	.....	.....	.....
Olin	22.2	.....	21.5	.....	39 8	.....	50 0	.....	62 0	.....	63.8	.....	72 3	.....	68.7	.....	62.0	.....	51 4	.....	33.8	.....	18.3	.....	47.2	.....
Omaha, Nebraska	27.1	* 7.9	21.1	- 3.9	39.6	* 4.1	52.8	* 1 8	62.9	* 1.2	67 6	- 3.9	76.4	* 0.2	71.6	- 2.1	63.0	- 1.8	56.4	* 3.5	38.2	* 1.6	26.0	- 0.7	50.2	* 0.6
Onawa	24.8	.....	20.0	.....	38 4	.....	51.6	.....	62.2	.....	67.2	.....	75.0	.....	70.9	.....	63.5	.....	55.2	.....	36.6	.....	26.4	.....	49 3	.....
Osage	18.0	* 4.4	17.6	* 3.2	36.0	* 9.4	46.8	* 1.2	60 2	* 3.4	63 1	- 3.7	69.9	- 0.9	64.1	- 3.6	58.0	- 1.5	48.8	* 2.1	31 2	* 2.8	14.3	- 5.0	44.0	* 1.0
Osceola	25.0	* 2.9	21.6	* 1.1	41.6	* 7.8	52.8	* 1.8	61 6	- 0.4	64.2	- 7.3	74.4	- 1.9	70.6	- 4.1	63.8	- 2.1	55.0	* 0.4	39 0	* 2 4	23.0	- 1 7	49.4	- 0 1
Oskaloosa	24.3	* 5.6	21.4	‡ 0.0	41.2	* 7.3	51.4	* 1.0	62.8	* 2 5	64.7	- 5.4	74.8	- 0.3	70.6	- 1.3	61.9	- 2.6	53.0	* 1.2	35.3	- 0.9	20 2	- 1.7	48.5	* 0.1
Ottumwa	27.0	* 2.3	25.0	* 1.9	43.4	* 6.3	.....	.....	63.2	- 0.9	66.6	- 6.5	75 2	- 1 8	71.8	- 3.6	.....	.....	55.4	- 0.1	.....	.....	25.0	- 2.6	.....	.....
Pacific Junction	25.6	.....	20.8	.....	39.4	.....	52.4	.....	62.8	.....	66.6	.....	75.2	.....	70.6	.....	61.3	.....	53 5	.....	37.4	.....	23.8	.....	49.5	.....
Pella	24.4	.....	21 8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	48 1	.....
Perry	24 2	.....	20.2	.....	39.3	.....	50.4	.....	63.0	.....	65 2	.....	73.8	.....	70.0	.....	61.4	.....	52.8	.....	35.6	.....	21.4	.....	45.2	- 1.9
Plover	18.9	- 2.1	16.0	- 0.7	35 9	* 6.8	46.6	- 2.2	61.3	* 1.2	64.8	- 5.0	71 0	- 4.3	67.9	- 4.0	59.6	- 5.3	51.0	- 1.9	32.2	- 1.3	16.6	- 3.8	.....	.....
Primghar	.....	.....	.....	.....	34.4	* 6.8	47.4	- 2.8	59.0	- 1.4	63.9	- 5.5	70.0	- 4.7	66.8	- 6.3	58.5	- 4.3	50 6	‡ 0.0	33.5	- 1.8	16.7	.....	.....	.....
Red Oak	27.8	.....	23.2	.....	40.6	.....	51.8	.....	62.8	.....	66.3	.....	76.2	.....	71 3	.....	63.0	.....	54.4	.....	39 0	.....	26 0	.....	50 2	....
Ridgeway	20.6	.....	19.8	.....	38.1	.....	48.2	.....	62.8	.....	66.3	.....	73.5	.....	68.5	.....	61.0	.....	53.2	.....	34.6	.....	16.3	.....	46.9	.....
Rockford	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rockwell City	23.6	* 4.7	19.2	* 2.6	37.7	* 7.3	49.3	* 0.8	61.4	* 1.1	65.8	- 4.0	72.2	- 2.9	69.2	- 3.0	60 6	- 3.6	53 0	* 0 3	33.6	* 0.2	21.3	* 0.1	47.2	* 0.3
Ruthven	.....	.....	.....	.....	37.0	.....	47.8	.....	61.0	.	.....	.....	.....	.....	.....	.....	60.6	.....	53 8	.....	32.6	.....	.....	.....	..

MONTHLY AND ANNUAL MEAN TEMPERATURES FOR 1903, WITH DEPARTURES—Continued.

Stations.	Jan.		Feb.		March.		April.		May.		June.		July.		August.		Sept.		Oct.		Nov.		Dec.		Annual.	
	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.	Tem.	Dept.
Sigourney	24.4	* 0.3	23.3	* 1.5	42.6	* 8.7	52 2	- 0.5	64 1	* 0.3	66.2	- 7.3	76.0	- 2.1	71.8	- 3.0	63.0	- 3.0	52.8	- 2.7	....	.....	.....	.....	.....	.....
Sioux Center	20.5	.....	15.0	.....	33.2	.....	46.6	.....	57.8	.....	64.0	.....	70.4	.....	67.5	....	59.0	.....	50.7	.....	31.8	.....	17.8	.....	44.5	...
Sioux City	22 8	* 2.5	16.1	- 2.9	36.0	* 4 4	49 3	- 1.3	60 8	* 2.4	66.0	- 4.3	72.5	- 1.8	69.3	- 2.3	60 8	- 4.4	53 6	* 2 6	34.8	* 0 5	21.4	- 6.4	47.0	- 0.6
Spirit Lake	19.2	- 3.6	14.6	- 1.3	....	.....	....	.....	60.7	* 1.6	64.2	- 4.6	....	....	....	....	....	....	....	....	....	....	16.2	- 4.0	....	.....
Storm Lake	21 2	* 2.0	16.5	* 1.5	36 0	* 7.9	48.2	* 1.8	59.4	* 1.4	63.8	- 4.2	70 2	- 2.9	67.0	- 4.5	57.6	- 5.9	50.0	- 4.2	31.8	- 1.7	19 2	- 1.7	45.1	- 0.9
Stuart	....	.....		.....	40.6	* 8.9	50.3	* 1.1	62.5	* 1.0	64.4	- 7.0	75.4	- 1.2	70.5	- 4.1	60.8	- 6.6	49.2	- 7.2	34.0	- 0 8	23.0	* 2.2	....	.....
Thurman	26.4	.....	20.0	.....	39.6	.....	51.6	.....	62 7	.....	66.2	.....	76.0	.....	70 5	....	62.2	.....	54.1	.....	37.3	.....	24.4	.....	49.2	.....
Tipton	24.2	.....	23.3	.....	41.6	.....	52.5	.....	64.6	.....	67 8	.....	75.8	.....	71.8	.....	64 1	.....	53.8	.	35.4	.....	19.6	.....	49.5	....
Toledo	22.6	* 2.9	20.9	* 1.3	40.0	* 6.8	50.4	* 0.5	61.1	- 0.7	64.0	- 6.7	72.4	- 2.5	69.2	- 3.7	61.0	- 3.6	52.5	* 0.1	33 8	- 1.4	18 6	- 5.0	47.2	- 1.1
Villisca	26.4	* 3.6	21.0	- 1.5	40.6	* 5.2	51.4	- 0.4	59.5	- 2.6	67 0	- 4.8	....	.....	69.6	- 3.1	....	.....	50 6	- 2.2	34.5	- 1.7	24.2	- 0.6	....	.....
Wapello	25 6	.....	23 6	....	42.6	....	53 2	.....	64.0	.....	64.8	.....	74.8	.....	71.4	.....	62.9	.....	53.0	.....	37.0	.....	22.4	.....	49.6	.....
Wa-hington	22 3	* 4.0	20 7	- 2 3	40.6	* 7 1	50 3	- 0.7	62.0	* 1.0	63 8	- 8.7	72.9	- 4.2	67.8	- 5.6	61.0	- 3.7	51.7	- 0.4	34 2	- 1.4	18.4	- 6.3	47.1	- 1.8
Waterloo	21.5	* 3 7	20.2	* 2.0	38.2	* 8.0	49.2	* 2.0	61.4	* 1 4	63.2	- 5.5	72.7	- 1.3	68.0	- 2.8	60 2	- 2.2	51.6	* 2.1	34 0	- 0.7	18.7	- 2.5	46.7	* 0.4
Waverly	20.6	* 1.0	18.9	* 0.4	37.5	* 7.0	48.4	* 0.7	61.0	* 0.1	63.6	- 6.0	71.3	- 2.9	67.6	- 4.6	60.7	- 2.5	50.8	- 2.8	32.8	- 0 7	15.4	- 5.6	45.7	- 1.4
West Bend	20.4	* 3.2	16.4	* 0.1	36.6	* 8.4	48.0	* 1.2	61.0	* 2.0	65.7	- 2.5	72.2	- 0.9	67.0	- 2.9	59 1	- 2.1	50 8	* 2.1	33 9	* 3 8	18.1	- 2.1	45.8	* 0.9
Whitten	21.4	...	19.3	.....	38.2	.....	49 2	.....	62.0	.....	65.0	.....	72.8	.....	68.8	....	59.4	.....	51.0	.....	32.2	....	17.4	.....	46.4	.....
Wilton Junction	23.9	* 1.1	22 3	* 2.0	42 6	* 9.0	52.8	* 1.6	63 8	* 1.7	66.0	- 5.6	74.1	- 1.4	70.4	- 2.8	63.6	- 1.2	53.0	* 0.4	34.6	- 1.8	19.7	- 6.4	48.9	- 0.3
Winterset	26.0	* 4.8	21.6	- 0.3	42.9	* 9 4	....	.....	64.0	* 3.0	65.4	- 5.4	74.4	‡ 0.0	71.2	- 1.5	...	.....	....	.....	35.4	‡ 0 0	....	.....	.....	.....

MONTHLY AND ANNUAL PRECIPITATION FOR 1903, WITH DEPARTURES FROM NORMAL.

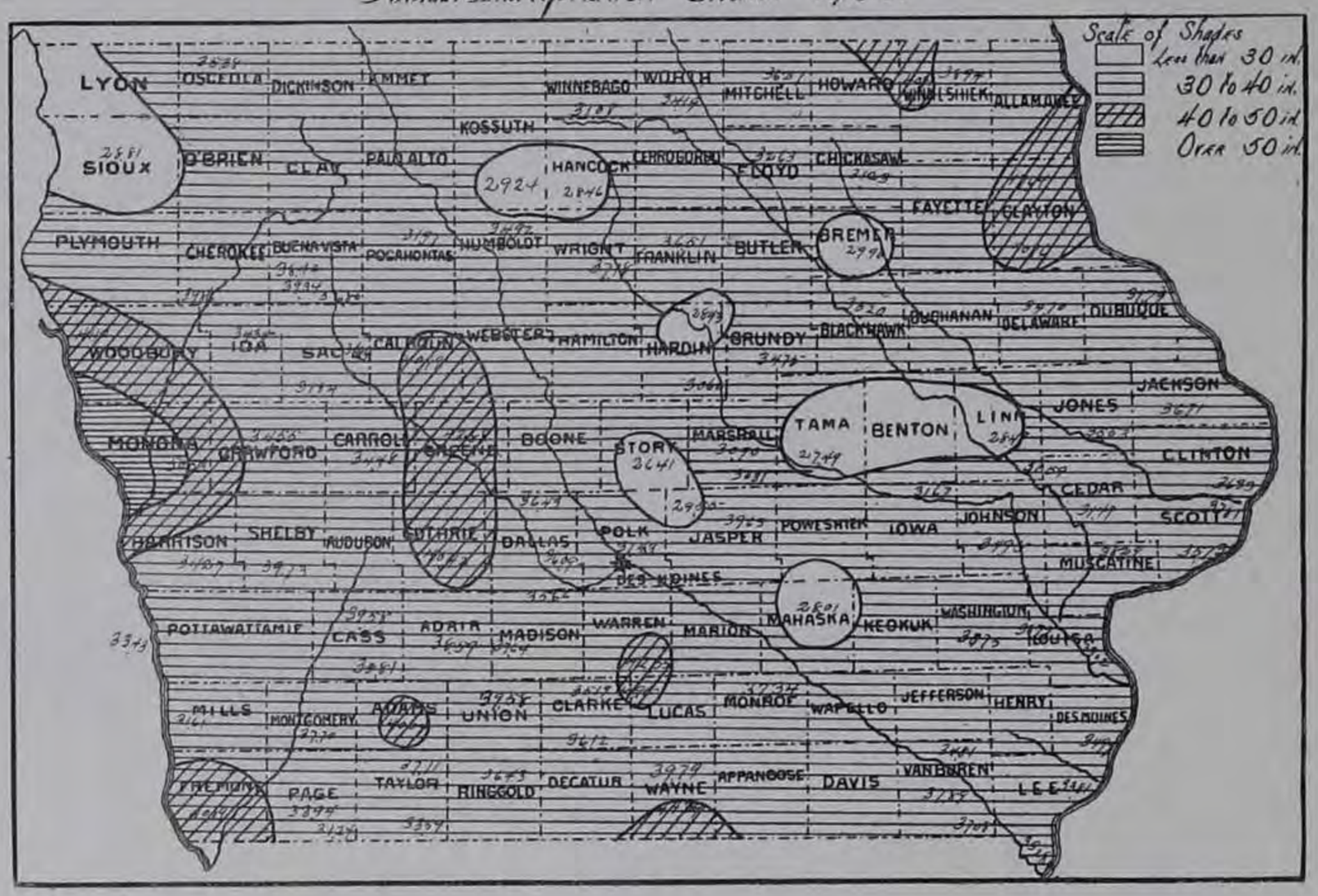
STATIONS.	Jan.		Feb.		March.		April.		May.		June.		July.		August.		Sept.		Oct.		Nov.		Dec.		Annual.	
	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.	Prec.	Dept.
Afton	T	- .74	.96	- .17	.71	- 1.82	1.45	- 1.48	11.90	†7.56	2.97	- 1.26	2.83	- 1.49	12.34	† 9.11	3.38	- .06	1.96	- .84	.88	- .13	.20	- .95	39.58	† 7.73
Albia	.40	.....	1.46	.	1.87	....	2.53	.	9.13	.	3.93	.....	2.21	.....	7.49	.....	5.02	.....	2.26	.....	.64	.	.40	....	37.34	
Algona	.30	- .49	.95	- .38	.60	- 1 01	2 91	† .29	8.05	†4.67	4.26	- .14	2.77	- .20	3.90	† .32	3.90	† .81	1.40	- .73	T	- 1.22	.20	- .81	29 24	† 1.11
Allerton	.48	.....	1.17	.....	1.85	.....	1.80	.....	8.20	.	3.90	....	3.92	..	11 58		6.90	.....	2.22	.....	1.74		.63	.....	44.39	
Alta	.16	- .46	.93	† .14	.80	- 1.11	2 65	- .74	6.96	†2.75	4.85	- .68	6.81	†2.78	6.28	† 2.66	7.05	†4.49	1.12	- 1.14	.62	- .41	.19	- .75	38.42	† 7.52
Alta (near)	.20	.	.90	.....	.98	.....	2 49	.	7.27	.....	5.25	.	6 23	.	6.04	...	7.83	.....	1.16	.....	.79	.	.20	.....	39.34	.....
Amana	.28	- 1.18	1.47	† .19	1.44	- .58	2.39	- .53	7.30	†3.05	1.33	- 3.07	2.47	- 1.66	7.31	† 3.96	4.43	†1 19	2.15	- .55	.60	- 1.15	.50	- .58	31.67	- .91
Ames	.14	- .82	94	† .07	.61	- .82	1.97	- .80	9.46	†5.32	1.97	- 2.58	4.77	† .33	3.70	† .31	1.46	- 2 15	1.07	- 1.45	14	- 1.03	.18	- 86	26.41	- 4 48
Atlantic	T	- .67	2 10	†1.11	1.11	- .81	2.26	- .93	12.37	†8 23	3 84	- 2.23	3.68	- .22	9.10	† 6 20	2.01	- .49	2.12	- .53	1.24	† .54	.25	- 1.01	39.58	† 9.19
Audubon	....	.	.49	- .31	.47	- 1 32	....	.....	...	.....	3 33	- .18	..	.	.....		2 79	† .01	2.72	† .43	.94	- 50	.12	- 1.07	.	..
Baxter	.10	.....	1.05	.....	.90	.....	2.12	....	11.70	.	1.42	.....	3.61	.....	5.35	...	1 77	...	1.23	.....	.20	.....	.10	....	29.55	.....
Bedford	.05	.....	1.13	.....	.83	.....	1.53	.....	9.83	. .	1.50	.....	2.48	.....	9.46	.....	4.00	.	1.78	.....	.87	.....	.13	.....	33.59	.....
Belknap	1 00	- 1.10		.....		.....		.....	.	.	.....	.....	.94	- 3.43	6.72	† 2.87	5.08	†1.65	2.32	† .45	1.51	- .21	1.16	- .77	.	.....
Belle Plaine	.70	- .85	2.32	†1.11	2.00	- .52	2.75	- .95	7.53	†3.31	2.81	- 1.18	4.47	†1.05	5.46	† 1.97	3.97	†1.30	1.34	- .89	.39	-1.33	.59	- .82	34.33	† 2.20
Bonaparte	.43	- 1.24	1.92	† .61	2.23	- .53	4.15	† .90	4.30	† .14	2.30	- 1.42	2.74	- .45	7.53	† 4.13	5.95	†1.89	3.78	†2.15	.94	- 95	.81	- .64	37.08	† 4.59
Britt	.39	- .21	.63	- 24	.73	- .78	2.69	† .40	6.89	†3.73	2.58	- 2.02	3.45	- .16	4 50	† 1.54	4.43	† .75	1.76	- .62	.05	.67	.36	- 20	28.46	† 1.02
Buckingham	.08	.....	.61	.....	1.08	.....	....	.....	7.57	.	2.40	.	2.41	....	7.11		2.19	.	1.45	.....	.29	.....	20	.....	.....	
Burlington	.58	- 1 04	1.98	- .15	2.32	- .59	3.97	† .97	4.83	† 35	1.75	-2.78	1.82	- 0.80	7.63	† 3.67	5.81	†3.44	2.74	† .32	.84	- .78	.70	- 71	34 97	† 1.90
Carroll	T	- .82	1.29	† .14	.70	- 1.65	2.70	1.00	9.54	†4.98	4.99	† .53	5.59	†2.24	6.00	† 2.98	1.74	- 1.19	1.39	- .97	.44	- .59	.10	- .85	34.48	† 3.20
Cedar Rapids	.11	- 1.36	.74	- .85	.65	- 1.56	1 97	- 1.10	6.11	†1.59	1.14	- 2.69	4.94	†1.28	6.12	† 3.24	4.06	†1.28	1.48	- 1.10	.48	- .94	.68	- .91	28.48	- 3.12
Chariton	.25	- .92	1.14	† .11	.86	- .69	..	.....	7.75	†3.67	3.61	- .25	4.43	- 1.26	14.05	†10.77	2.78	- .18	2.10	- .48	.11	- 1.09	.26	- 1.20	.	
Charles City	T	- 1.16	.50	- .81	1.65	- .06	3.55	† .48	9.15	†5.52	1.93	- 2 86	7.36	†4 55	4 38	† 1.80	2.06	- .82	1.84	- .29	T	- 1.34	.21	- .98	32.63	† 4.03
Chester	....	.....	.....	.....	..	.	..	.....	9.44	....	2 28	.....	4.15	....	8 41		4.46	.....	...	.....	...	.....	...	.....	...	.....
Clarinda	.14	- .81	1.18	† .10	.99	- .99	1.92	- 1.51	9 97	†5.39	3.29	- 1.38	2.02	- 2.40	9 50	† 6.04	2.46	† .08	1.17	- 1.49	1.13	† .18	.17	- .96	33.94	† 2.25
Clear Lake	25	....	.62	.....	.50	....	2.35	.....	7.54	.....	1.60	..	4 95	....	9.59	.....	5.10	.	3.08	....	T	.....	.60	.....	.	.....
Clinton	.83	- 1.06	1.29	- .85	2.36	- .72	4.93	†1.92	5.45	†1.02	1.66	- 2.80	5 27	†1.30	4.79	† 1.44	6.12	†3.02	1.85	- .56	.78	- 1.10	1.00	- 82	36.33	† .79
College Springs	.20	- .30	.96	† 06	1.07	- .77	1.86	- 2.06	9.10	†4 43	1.44	- 2.52	2.34	- 3.91	8 36	† 5.18	2.99	† .64	2 36	- .69	.34	- .54	.22	- 1.11	31.24	- .69
Columbus Junction	.28	.....	1.42	.....	2.40	.....	5.54	....	5.33	.....	2.69	....	1.58	.	9.10		5.48	....	3 28	....	.74	.	.95	.	38.79	.....
Corning	.07	- .61	1.05	† .22	1.34	- .47	1.88	- 1.37	10.68	†6.06	3 38	- .66	2.51	-1.49	13.80	†10.84	3.47	†1.27	.84	- 1.63	.85	- .01	.17	- .89	40.04	†11.26
Council Bluffs	03	- .64	3.23	....	.50	- 1.08	2.72	† .16	10.01	†5.51	1 83	- 3.34	....	.....	15 09	†11.63	1 71	- 1.64	.....	.	.92	- .15	.....	.....		
Corydon	.32	- 1.26	1.55	† .09	1.97	- .22	2.44	- 0 88	7.70	†3.83	4.31	† .17	2.94	- .66	10.14	† 6.64	5.16	†1.72	1.74	- .94	1.26	- .13	.26	- 1.27	39.79	† 7.09
Cumberland	T	.....	1.00	.....	1.10	.....	1.65	.....	8.27	.	2.96	.....	6.69	.....	9.32	.....	1.70	.....	2.15	.....	.78	.	.20	.....	35.82	. . .
Danville	1.20	.	3.35	....	1.55	.....	3.80	.....	....	....	3.64	.....	1.75	....	5.97	....	....	.	....	.....	....	.....	....	.....	.	.....
Davenport	.71	- .88	1.67	† .10	2.06	- .10	3.42	† .64	5.52	†1.20	2.28	- 2.11	4.47	† .81	4.68	† 1.10	7.09	†3.91	2.27	- .35	.70	- 1.36	.78	- .95	35.73	† 2.01
Decorah	.31	- .77	1.09	† .16	1.58	- .41	5.38	†2.48	6 75	†3 42	1.57	- 2.55	8.14	†5.51	8.07	6.39	2.94	- .45	2.13	- .37	.18	- 1.36	.80	- .38	38.94	†11.67
Delaware	.07	- .98	.77	- .09	1.74	- .09	4.35	†1.13	4 77	† .96	2.12	- 1.94	10 50	†7.03	4.14	† 1.36	3.78	† .56	1.69	- .60	.36	- 1 23	.39	- 1.06	34.68	† 5 09
Denison	.10	- .46	1.45	† .81	.15	- 1.48	4.51	† .55	9.92	†6.32	3.17	- 41	5 28	† .96	6.58	† 3.20	1.87	- 1.34	.89	- 1.75	.46	- .37	.17	- 33	34.55	† 5.70
Des Moines	.20	- 1.14	1.12	- .16	1.09	- .37	1.64	- 1.15	10.64	†5.94	3.06	- 2.30	3.62	† .09	6.72	† 3.46	1.62	- 1.58	1.32	- 1.72	.31	- 1.40	.09	- 1.35	31.43	- 1.68
De Soto	....	.....	....	.....	74	.....	2.39	.....	8.38	.. .	3.82	.	4.44	.....	6.40	.....	1.81	.....	.55	....	1.04	.	.....	.....	.....	.....
Dows	.20	.	1.45	.	.95	....	4.04	....	9 33	.	3.07	.....	9 50	.....	4.47		2 02	.. .	1.63	.....	.10	.	.42	....	37.18	.....
Dubuque	.17	- 1.51	1.19	- .27	1.84	- .43	3.29	† .50	4 25	† .26	2.16	- 3.04	7.10	†2.82	5.27	† 2.12	3 20	- .89	1.72	- .99	.75	- 1.35	.85	- 96	31.79	- 3.74
Earlham	.03	.....	1.57	....	1.05	....	1.73	.....	11.60	. .	4.20	.....	3.62	.....	8.20		1.91	.	.90	. . .	.76	.....	.05	.....	35.62	.....
Eldon	...	.....	1.14	...	.71	.	2.03	...	...	.....	.	...	....	.....	.	.....	.....	.....	.	.	...	.	...	.	.	...
Elkader	.16	- 1.22	1.46	† .35	2.07	† .25	4 98	†2.07	5.89	†2.16	1.50	- 2 33	12 72	†8.55	7.18	† 4.37	2.67	- 1.12	1.46	- 1.34	.21	- 1 47	.51	- 1.40	40.76	† 8.87
Estherville	.09	- .32	1.01	† .34	....	.....	3.04	† .51	10.69	†7 87	3.36	† .27	8.70	†5.17	3.26	- .04	3.83	† .73	2.49	† .87	.06	- 1.11	.43	† .04	....	.....
Fayette	.04	- 1.24	1.22	† .08	1.70	- .56	...	.....	6 65	†2.70	1.91	- 3 70	10 71	†6.45	4.75	† 2.01	....	.....	1.73	- 1 20	.06	- 1.55	....	.	.....	
Forest City	.10	- .62	.80	† .00	.73	- .90	3.33	† .89	10.17	†6 86	1.70	- 3.49	3.79	† .03	4.38	† 1.02	3.67	- .61	1.76	- .81	T	- 1 09	.65	† .05	31.08	† 1.33
Fort Dodge	....	....	.83	.	....	.	....	.....	...	.....	...	.....	.....	.....	.....	.....	.....	.	2.02	.	.41	.....	.02	...	.....	.....
Ft. Madison	1 46	- .49	1.03	- .94	2.25	- .53	4.81	†1.61	2.88	- 1.63	3.49	- .76	1.70	- 2.15	5 09	† 1.50	6.37	†2.55	2.75	† .02	1.34	- .81	.64	- 1.34	33.81	- 2 97
Galva	.30	- .03	.30	- .20	.16	- 1.38	3.65	† .73	10 07	†6.67	4.07	† .19	4.32	†1.01	6.11	* 2.97	4.25	†1.35	0.93	- .83	.05	- 1.10	.09	- .59	34.30	† 8.79
Gilman	.10	....	.83	....	1.37	....	3.66	.....	8.24	.	2.56	.....	4.49	.	4.85	.....	2.21	...	1.72	. .	.18	....	.10	.....	30.31	.....
Grand Meadow	.40	- .82	1.18	† .16	2.05	† .00	6.00	†2 71	8.33	†4.35	1.90	- 3 23	10.85	†7.11	9.52	† 6.98	4.27	†6.23	2.11	- .58	.28	- 1 26	.75	- .73	47.64	†15.92
Greene	.12	- .46	.81	- .17	1.59	† .01	3.77	†1.68	6.37	†2.88	2.56	- 1.39	8.90	†5.63	5 16	† 3.02	1.81	- 1.40	1.85	- .44	....	.....	....	.....	.....	.....
Greenfield	.09	- 81	1.13	† .03	1.03	- 1.27	2.27	- 1.03	13.50	†9.10	4 83	- .17	2.43	- 1 92	8 87	† 6 34	2.15	- .85	1.52	- .73	.65	- .37	.12	- 1 08	38.59	† 7.24
Grinnell	.31	- .82	1.92	†1.09	1.21	- .68	2.04	- 1.48	2.69	†8.06	.....	...	.....	.....	.....	.....	.....	.....	1.45	- .92	.24	- 1.29	.37	- .83	.....	.....
Grinnell (near)	.22	...	1.55	....	....	....	....	....	....	...	1.90	....	3.97	.	7 13	.....	3.63	.....	1.35	.	.25	...	15	.....	.....	.....
Grundy Center	.12	- 54	.90	† .19	1.91	† .30	1.69	- 1.84	11.04	†6.32	3.14	- 1.77	6.19	†2.43	4.03	† 1.03	4.23	†1.03	1.05	- 1.72	.21	- .97	24	- .97	34 75	† 3.49
Guthrie Center	T	- .38	1.19	† .44	.95	- .37	3.02	† .28	14.16	†9.38	3.62	- .02	5.35	†1.48	5.05	† 86	2.88	- .29	2 75	† .53	1.32	† 41	.13	- .98	40.42	†11 34
Hampton	.18	- .38	1.52	† 39	1.33	- .88	3.62	- .01	7.95	†4.05	2 49	- 2.48	9.70	†6.12	5.28	† 2.36	2.09	- 1.31	1.82	- .92	.19	- 1.37	.34	- .88	36 51	† 4.19
Hanlontown	....	.....	....	...	.73	....	2.91	... .	7.67	.....	1.23	....	3.89	....	6.15	.....	4.03	.....	2.17	...	.08	.....	1.08	.....	.....	.....
Harlan	.05	....	1.27	.....	.83	.....	2.32	... .	10.43	...	2.83	.....	5.05	...	9.39	.....	1 90	...	4.50	.....	1.02	...	.14	.....	39.73	.....
Hopeville	.12	- .81	.77	- .11	1.14	- .60	1.72	- 1.88	8 59	†3 82	3.06	- 1.16	2.21	- 2 11	12.24	† 9 41	3.97	† .90	1 45	- .78	.78	- .11	.07	- .98	36 12	† 5.59
Humboldt	.07	- 59	.43	- .22	.85	- .65	3.49	† .64	7 50	†3.59	6 04	†1.63	5.39	†1.80	3.21	† .40	5.23	†1.76	2 41	† .63	.08	- 1.31	.22	- .48	34.92	† 7.20
Ida Grove	.10	- .72	1.37	....	1.96	.....	2.73	.....	8.40	....	3.45	.....	4.41	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Independence	27	- .97	.82	- .20	.80	- .84	2.67	† 20	6.78	†2.83	3.32	- 1.41	....	....	.....	.....	3.05	- 1.07	1.85	- .52	.16	- 1 20	.63	- .71	--	.....
Indianola	.09	- 1.21	2.58	†1.83	1.21	† .01	2.38	- 1.08	8 39	†3 76	4.51	† .58	.....	.....	7.54	† 3.52	4.23	†1.19	1.27	- .78	.78	- .45	12	- 1 29	.	.....
Iowa City	.67	- 1.09	1.03	- .50	1.86	- .65	3.11	- .07	6.90	†2.54	1.95	- 2.62	4.76	† .32	3.45	- .65	5.38	†1.55	3.60	† .81	97	- 1.36	1.27	- .41	34.95	- 2.13
Iowa Falls	.20	- .56	1.35	† .39	1.35	- .20	3.15	- .25	7.17	†3.88	2.15	- 2.04	6.58	†3.56	2.77	- .15	1.45	- 1.85	1 72	- .66	.09	- 1.12	.45	- .60	28.43	† 0.42
Jefferson	.27	.	98	....	1.40	.....	4.13	.....	14 29		4.58	....	3.89	....	6.17	.....	4.24	....	2.52	.....	.23	..	.18	.....	42.88	.....
Keokuk	.77	- .95	1.42	- .29	3.03	† .85	4.91	†1.70	3.56	- .51	1.40	- 3.14	1.27	- 2.83	4.80	† 1.97	7.16	†3.64	3.23	† .47	.87	- 1 25	0.86	- 1.10	33.28	- 1.44
Keosauqua	.84	- .12	2.09	† .60	3.00	† .46	4.49	† .59	4.84	† .28	2.41	- 1.15	2.72	- 1.00	6.18	† 3.06	6.50	†1.99	3.42	†1.70	.74	- .73	.66	- .80	37.89	† 4 48
Lacona	.85	...	1.04	.....	2.49	.	2.85	....	11.35	.....	4.60	.....	1.99	.. .	9.16	.....	4.15	....	2.13	....	.94	. .	.80	.....	42.35	.....
Lansing	...	....	.	....		.....	4 90	....	7.30	.....	2.08	.....	5.25	....	.....	.....	...	....	.	.	...	. .	....	...	.....	.....
Larchwood	....	.....	....	.....	2 11	.....	2.12	.....	8 33	.....	3.34	... .	5.83	.....	4.87	.....	1.92	.....	2.16	. .	.17	.....	...	...	.....	.....
Larrabee	.11	- .43	1.13	† .36	1.02	- .71	2.92	- .27	10 52	†6.52	3.02	- 2.97	8.24	†3.79	5.83	† 2.79	8.79	†5 95	2.05	† .04	.26	- .67	.18	- .80	44.07	†13.60
Le Claire	.73	....	1.04	.....	2.61	.....	3.46	.....	4.27	.....	3.04	.....	4.54	.....	4 26	.....	8.23	.....	3.17	.....	0.70	.....	.76	.....	36.81	.....
LeMars	.01	- .62	....	.....	3.90	†1.41	2.48	- 1.30	9.89	†5.95	3.80	- .11	5.46	† .92	5.79	† 3.24	3.80	† .85	....	.....	.....	.....	.25	- .49	.	.....
Lenox	.03	- .58	.98	† .23	.79	- 1.23	1.91	- 1.45	10.58	†5.87	2.65	- 1.22	4.23	- .61	10.60	† 7.46	3.70	† .91	1.13	- 1.84	.43	- .64	.08	- 1.14	37.11	† 5.81
Leon	.31	....	1.03	.....	1.86	.....	1.69	.....	7.25	.....	2 64	. .	1.88	.....	10.48	.....	4.45	.....	1.27	.....	.84	.....	.....	.....	.....	.....
Logan	.70	- .42	1.46	† .24	.23	- 1.66	.79	- 2.14	5 77	†1 55	3.73	- 1 92	4.96	† .23	11.66	† 7.84	1.66	- 1.44	1.60	- .86	1 54	† .21	.30	- 1.02	34.45	† .79
Maquoketa	.30	- 1.09	.82	- .70	1.83	- .47	4.72	†2.10	6.55	†2.17	2.10	- 3.25	7.68	†4.11	5.24	† 2.49	3.48	† .62	2.24	- .59	1.13	- .25	.62	- .91	36.71	† 4.23
Marshalltown	.29	- .63	1.14	† .35	1.55	- .43	2.17	- 1.05	8.46	†4 01	2.74	- 1.46	6.12	†1.99	3 23	† .09	3.07	† .70	1.61	- .92	.40	- .76	.12	- 1.40	30.90	† .49
Monticello	.28	- 1.36	1.50	- .17	2.25	- .15	4.65	†1.96	6.30	†2.43	4.03	.....	8.40	†4.32	4.54	- .01	4 57	† .66	2 20	- .54	.....	.	.32	- 1.88	.....	.....
Mason City	...	....	1.11	† .55	1.07	- .27	2 78	- .56	7.57	†3.62	1.42	†5.62	5 94	†3.15	6 23	† 3.57	4.04	†2 19	3 25	†1.24	T	- 1.00	.53	- .13	.....	.....
Mt. Ayr	.24	- .73	1.08	†. 00	1.38	- .75	2.11	- 1.15	8.90	†3.47	3.38	- .64	4.33	- .52	6.85	† 4.18	5.88	†3.17	1 03	1.37	.63	- .56	.62	- .58	36.43	† 4.54
Mt. Pleasant	.15	- 1.20	.32	- .74	1.15	- 1.23	...	.....	3.82	- .60	1.05	- 2.31	..	.....	5.32	† 2 52	6.15	†2.98	2.72	† .96	.99	- .57	.19	- 1.03	.....	.....
Mt. Vernon	.29	- 1.16	1.05	- .11	1.66	- .60	2.97	- .35	7.05	†2 37	1.17	- 2 88	4.10	† .12	4.72	† 2 24	4.64	†1 96	1.16	- 1.12	.93	- .35	.85	- .66	30.59	- .54
New Hampton	.06	....	.60	.....	1.68	.....	3.47	.....	8.08	...	2.09	...	4.75	.....	1.66	.	1.48	. .	.05	.....	.85	.....	31.23	.....		
Newton	65	- .24	1.65	† .61	1.41	- .18	2.79	- .63	13 07	†8.61	1 87	- 2.82	5 30	†1.71	9 02	† 5.88	2.41	- .70	1.08	- 1.41	.16	- 1.59	.22	- 1.11	39.63	† 7.63
Northwood	.40	- .22	1.12	- .12	.95	- .86	3.84	†1 35	6.95	†3 37	3 24	- 1.21	3.41	† .17	6 94	† 3.69	4.46	† .80	2.13	- .43	T	- 1.42	.75	† .00	34.19	† 5.12
Odebolt	.28	- .04	.79	† .04	.54	- 1.45	2.36	- .35	7.93	†5 16	2 70	- 1.61	4.87	- .25	6.44	† 2.75	4.68	†1.53	0.79	- 1.71	.36	- .63	.10	- .72	31.84	† 2.72
Ogden	.18	- .33	.95	† .30	1.09	- .38	2.58	- .62	10 95	†5.00	5.42	.....	5 09	.. .	5.47	.....	2.10	.....	2.00	.....	.25	.....	.....	.....	.....	.....
Olin	.31	.....	1.64	.....	3.52	.....	3.28	.....	5.55	.....	1.42	.....	7.50	.	5.02	.....	3.42	.....	1.87	.....	1.01	...	.99	.....	35.53	.....
Omaha, Neb	.07	- .62	1.12	† .33	.58	- .92	2.01	- 1 12	8.32	†3.95	1.31	- 4.36	2.67	- 2 08	12.50	† 9 16	2.50	- .41	1.19	- 1.28	1.01	- .05	0 15	- .86	33.43	† 1.74
Onawa	.06	.....	1.62	....	1.08	...	2.56	....	14.76	.....	3.85	.....	7.21	.....	11 62	.....	4.80	....	1.71	.....	1.34	.	.42	....	50.53	.....
Osage	.31	- .60	1.05	- .15	2.02	† .42	3.93	†1.25	8.23	†4.38	2.10	- 2.20	6.39	†3.06	4.43	† 1.51	3.86	† .26	2.99	† .48	- .06	- 1.36	.90	- .31	36.27	† 6.74
Osceola	.57	- .69	.90	- .18	1.41	- .47	2,12	- 1.72	7.16	†2.32	4.13	- .01	2.45	- 1.95	11.30	† 8.61	3.61	- .11	0.88	- 2.09	.56	- .59	.10	- .99	35.19	† 2.13
Oskaloosa	.22	- .69	.79	- .29	.90	- 1.04	1.67	- .66	9.68	†6.12	1.73	- 2.28	1.61	- 2.23	5 72	† 2.76	3.12	† .10	1.68	- .59	.57	- .97	.32	- .96	28.01	- 0.73
Ottumwa	.47	- 1.24	2.51	†1.43	.95	- 1.05	2.36	- .72	7.90	†2.37	2.37	- .84	1.78	- 2.13	7.53	† 4.20	...	.....	2.49	- .15	.65	- .96	....	.....	.....	.....
Pacific Junction	.05	....	1.04	...	.58	.....	2.11	.....	12.43	....	1.70	.....	2.88	.....	6.28	.....	2.49	....	1.69	.....	.19	.....	.17	.....	31.61	.....
Pella	....	.....	...	.....	...	.....	...	.....	10.16	....	....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Perry	.65	.....	1.10	.....	.80	....	2.34	.....	11.41	.....	3.09	. .	3.64	.....	8.31	.....	2.08	.	2.35	.....	.36	....	.30	.....	36.43	.....
Plover	.11	- .38	.57	- .09	.50	- 1.05	2.44	† .59	8.01	†5.03	3.50	† .00	5.30	† .98	4.25	† 1.16	5.65	†1.64	1.43	- 1.02	.04	- 1.41	.17	. .52	31.97	† 4.93
Primghar	..	....	....	.....	1.15	- 1.18	2.64	- .42	7.62	†4.43	3.22	- 1.41	4.52	- .57	5.35	† 3.13	3.79	†1.57	3.22	†1,34	.....	.....	.....	.....	.....	.....
Red Oak	.05	.....	1.70	.....	.88	.....	1.56	.....	11.74	.....	3.25	.....	2.34	.....	11.61	.....	2.84	...	1.21	.....	.36	... .	.13	... .	37.67	.....

MONTHLY AND ANNUAL PRECIPITATION FOR 1903, WITH DEPARTURES FROM NORMAL.—CONTINUED.

STATIONS.	Jan.		Feb.		r.		April.		May.		June.		July.		August.		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.
Ridgeway	1.14	.	2.05	.	2.81	.....	5.68	.	8.70	.	1.22	....	6.12	.....	5.87	.....	3.13	...	2.02	.....	.11	.....	1.96	.....	40.81	.....
Rockwell City	.40	-.11	.60	+.04	.40	-2.05	3.44	+.90	11.09	†8.01	5.93	†1.70	6.64	†4.32	4.93	+ 2.10	5.26	†2.33	1.70	-1.07	.50	-.22	.10	-.93	40.99	†15.02
Ruthven	....	....	....	.	.15	.....	3 25	.	5.78	.	.....	.	.....	.	.....	.	4.91	.....	3.30	.	.....	.	.	.	.	.....
Sac City	.20	-.82	1.10	+.13	.57	-1.05	2.55	-.63	8.85	†4.86	4.20	-.85	7.26	†3.32	6.16	+ 2.66	4.22	+ .91	0.82	-1.57	.16	-.99	.15	-1.05	36.24	+ 4.92
St. Charles	.17	.....	1.15	....	1.92	.....	3.11	.....	10.28	.....	5.21	....	4.19	.....	7.43	....	2.70	.....	0.32	.....	.63	.. .	.53	.....	37.64	.....
Scranton	.12	....	1.37	.....	.55	.....	2.98	.....	12 06	.....	4.24	.. .	4.88	.....	7.99	.....		...	.....	.....	.....	.....	.	.....	.	.....
Sheldon	.05	.	1.57	.. .	2.23	.....		.....	9.90	.....	2.32	.....	6 22	.....	4 87		1.84	.	3.31	.....	... .	.	.	.....	.....	.....
Sibley	.27	-.30	.50	+.02	2.52	†1.26	2.28	- 55	9.00	†5.56	3.82	-.56	5.93	†2.20	3 91	+ 1.33	2 80	-.26	3.98	†2.18	.02	- 89	.35	-.40	35.38	+ 9.59
Sigourney	.56	-.82	1.40	-.03	1 85	-.68	2.26	-1.30	8.69	†4.75	1.72	-.99	2.71	- .69	6.37	+ 3.26	6.86	†4.02	1.13	-1.63	.....	.....	.....	.....	.....	.....
Sioux Center	.05		.90	.....	2.68	.	1.72	...	7.73	.....	2.99	....	2 70	...	4.33	....	1.51	.....	3.75	.	.10	.	.35	.	28.81	.....
Sioux City	.06	-.57	.66	+.11	1.85	+.61	2 39	-.63	11.78	†8.11	5.65	†1.85	5.57	†2.20	5.67	+ 2.48	3.06	+.97	3.24	†1.54	.96	+ .14	0.21	-.67	41.10	†16.14
Spirit Lake	.40	.	1.00	....		.....		....	13 03	.....	3.27	.	.....	.....	.....	.....		.....	.....	.	.	.....	.50	.....	.	.....
Stockport	.39	.....	1.56	.....	1.91	....	3.66	.	5.31	.	1 42	.....	2.53	.....	5.91	....	7.34	....	3.47	.....	.85	....	.46	.....	34.81	.....
Storm Lake	.06	-.64	1.11	+ 46	.64	- 74	3.61	†1.31	4.72	†1 20	4 85	-.03	5.83	†1.55	7 65	+ 4.73	6 49	†3.47	1.32	- 36	.52	-.30	T	-.86	36.80	+ 9.79
Stuart	....	....	.....	....	.....	.....	1.99	-1 22	10 54	†6.09	4 09	+.12	3.18	41 79	5.23	+ 2.67	3.54	†1.68	1.03	-1.95	.84	-.04	.20	-.53	.	.....
Thurman	T	.....	2.45	.....	1.23	.	3.49	....	15 45	.....	1.62	.	3.06	....	6.37		2.87	.	2 78		1.05	.....	.52	.	40.89	.....
Tipton	.35		1.17	.	1.57	....	2.76	....	6.20	.	.98	.....	6 36	.	2.57		5 36	...,	1.67	....	1.53		.95	.....	31.47	.....
Toledo	.46	-.35	97	+.28	1.07	-.68	2.73	-.44	8.78	+5 07	2 07	-1.53	4.43	†1.20	2.55	- 60	2.64	-.30	1.37	-.59	.27	-1.14	.15	-.94	27.49	-.02
Villisca	.05	-.57	1.62	+.57	1.65	- 65	2.75	- 84	13.06	†9 63	3.82	-.88	.	.	12.02	+ 8.20		.....	1 27	.....	.99	+ 06	.23	- 96	...	.....
Vinton	.12	-.95	.78	-.22	1.27	- 53	...	.	5 30	†1.89	1 91	-1.71	4.71	†6.76	3.94	+ 1.38	4.42	†1.67	1.17	-.80	.20	-.90	.40	- 79	....	.....
Wapello	.65	.	1.56	.	1.38	....	3.93	. .	5 59	....	2.99		2.59	.....	5 60		5.47	.	2.05	.	.79	....	.70	.	33 30	.....
Washington	38	-1.22	1.43	+.34	2.25	+.14	3.79	†1.17	5.12	†1.56	1 70	-1.28	1.52	-1.71	4.76	+ 2.40	4.76	†2.38	2.98	†1.46	1.46	+ .13	.60	-.75	30.75	+ 4.62
Washta	.05	.	1.20	..	.90	.	1.95	...	10.80	.	4.72	.	7.14	....	5.08		5.19	....	1.93	.....	.70	....	20		39.86	.....
Waterloo	.17	-.93	1 37	+.23	1.60	-.03	2 67	+.29	7.85	†4.11	1.93	-2.03	9.08	+4 80	5.17	+ 1.50	2 75	-1.39	2.05	-.28	.19	-1.19	.37	-.90	35 20	+ 4.18
Waukee	.35	....	1.38	...	.84	....	2.04	.	10 78	....	3.11	...	4.32	.....	9.33		1.42		1.22	.	98		32	...	36 09	.....
Waverly	.19	-.75	1.49	+.41	1.59	-.35	3 29	-.10	6 66	+2 85	1 86	-2.40	7.50	+4 20	3.06	+ 70	1.76	-1 26	1.87	- 97	.08	-1.26	.55	-.37	29.90	+ .70
West Bend	.38	-.23		....	.92	-.90	3.47	+ 66	8.69	†5.87	3.03	-.70	4 55	†1 21	3.61	+ .42	5 47	†2.26	1.05	-.79	.03	-1.30	.34	-.49	..	.....
Whitten	.15	....	1.25	.	1.77	.	1.18	....	10.44	.	3.45	..	4.63	....	3.42	.....	2.82	. ..	1.24	.	T	.....	25	.	30 60	.....
Wilton Junction	1.02	-.4.	1.90	+ 44	2.91	+.19	4.78	†1.80	5 89	†1.64	2.04	-.53	6.35	†1.53	3.52	-.22	4.93	†1 86	2.85	†1.06	1.67	+ .05	.43	-.95	38.29	+ 6.43
Winterset	T	-.94	95	+.02	.66	-1.48		.....	9.20	†1.68	4.23	-1 52	4.34	-1.13	8.44	+ 5.33		.	.....	.	.....	.	.....	.	.	.....
Woodburn	.05	1	1 72	.	1.19	.	2 10	. .	7 23	....	3 77		3.41	....	17.74	.....	5.02	.....	1.53	.....	1.04	.	.15	.	44 95	.....

†Signifies plus. All over 10.00 inches above normal. -Minus.

Annual Precipitation Chart 1903.



JANUARY, 1904. No. 1.

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CENTRAL STATION, DES MOINES, IOWA.

J. R. SAGE,
DIRECTOR.

GEO. M. CHAPPEL,
LOCAL FORECASTER,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

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U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

VOLUME XV. JANUARY 1904 No. 1.

WEATHER AND CROPS—JANUARY, 1904.

The month was colder than usual, with some excess of precipitation. The mean temperature for the State, 14 degrees, was 4.2 degrees below normal, and the average precipitation, 1.18 inches, was 0.21 of an inch above normal. During the first and second decades the temperature was seasonable, and the general weather conditions were very favorable for feeding stock and the usual farm operations of the winter season. The last decade brought wide-spread storms of snow, rain, sleet and ice, followed by extremely low temperature which continued through the balance of the month. The heavy coating of ice damaged fruit trees, vines, timber, telegraph and telephone wires and poles; also caused much suffering to farm animals, and great inconvenience to stock feeders. It was one of the worst storms of sleet and ice ever experienced in this State. The extent of damage to fruit cannot as yet be determined. Fall grain and the grasses were undoubtedly somewhat damaged by ice and extreme cold, but the covering of snow beneath the ice afforded some measure of protection.

EDITORIAL NOTES.

Farmers are being warned to test their seed oats very carefully before seeding this season. The average oats crop in this State last season was much below the standard in weight, and reports of numerous experiments indicate that the grain is generally very deficient in germinating power. Careful tests should be made at once; and no seed should be sown that is below the standard in weight and fertility.

The Cincinnati *Price Current* recently compiled from reports of the U. S. Department of Agriculture a table showing the production of corn in the United States, by states, for the past seven years. This table shows Iowa in the lead in corn production, with a margin of about 2,000,000 bushels better than the next best corn state, which is Illinois. Returns for the past ten years show a larger excess credited to Iowa.

In Great Britain, 1902 was the wettest twelve months for more than half a century. In London rain fell on 205 days, against an average of 166 days for previous years.

The United States now stands at the head of the list of exporting nations. For the calendar year 1903 the exports of domestic products from this country amounted to $1,457,565,783, exceeding the output from the United Kingdom by about $32,000,000. This foremost rank as an exporting nation has been attained within the last six years, and the products of agriculture have been the means whereby it has been achieved.

Efforts are being made to develop sugar beet production in Woodbury county the coming season. A local company will pay $4.50 per ton for the beets at the factory. The soil and climate of that section are well adapted to the industry.

The palace of agriculture at the St. Louis world's fair is double the size of the agricultural building at the Chicago exposition in 1893 It covers an area of eighteen acres, and it will be none too large for the display of farm products of this country.

A Maine paper mill is making from Illinois cornstalks a quality of paper that sells as high as eight cents a pound. That s heme seems likely to conserve the timber that is being consumed so rapidly in the pulp mills.

SEASONAL FORECASTS FOR A YEAR.

In his annual report for 1903, the Chief of the Weather Bureau, Prof. Willis L. Moore, briefly discusses the difficulties involved in the problem of seasonal forecasts for a year. We copy the following extract from this excellent report: It is a very difficult piece of science that is involved in the attempt to place the forecasts of the seasons for a year in advance upon a reliable basis, because it will be necessary to take account of several interrelated processes in nature, which depend upon the circulation of the atmosphere of the sun and of the earth. The science of meteorology is not to be confined to the atmosphere of the earth; because the changes in the action of the atmosphere of the sun precede the variations in the earth's air, which finally culminate in a certain type of season. Thus, wet and dry seasons, warm and cold summers and winters, and all the other climatic differences first depend upon the persistence of special high and low areas of pressure in one locality or another; these go back to the circulation of the great currents in the atmosphere, which seem to surge back and forth from one side of the earth to the other, or from the oceans to the continents; finally, these currents are probably due to the solar radiation, which itself changes with the output of energy from the interior of the sun. Thus, meteorology is really a very closely allied but difficult branch of solar physics, and it ought to be studied with the aid of a fully equipped observatory devoted especially to such researches. On the sun we count up the number of hydrogen flames or prominences seen on the edge of the disc from day to day, and, from a discussion of the thirty years' record in hand, they are known to vary strongly from year to year. Similarly, the faculæ and spots have their fluctuations in synchronous cycles, and these have been studied for

many years. Furthermore, the sun emits energy in the form of radiant light and invisible heat, and by means of suitable spectrum observations the variable amount of this light, and especially the invisible heat, can be registered from day to day and from year to year. The result of these records is to indicate that the sun is in fact a great, variable star, and that terrestrial weather changes in close synchronism with it. There is yet another register of the energy emitted by the sun to be found in the variations of the earth's electrical and magnetic fields, which is perhaps the most sensitive of all, and certainly the most accessible to our measures. The newly discovered action of ions in the atmospheres of the sun and the earth, respectively, which are now believed to be the basis of the electrical and magnetic manifestations, is affording much information upon this obscure subject, and it is full of promise in practical investigations. Langley has announced that the invisible radiant heat energy, as measured in his bolographs, varies from season to season and from year to year. The passage of an eclipse shadow through the atmosphere changes the atmospheric magnetism and electricity in the same way that day and night modify them—by cutting out the sun's rays. In short, the entire field of cosmical processes forms a complex problem which especially concerns the meteorologist, and by him should be studied out for the benefit of mankind, whose life and happiness depend so largely upon the weather. The Weather Bureau is so far convinced of the importance of finding out the laws of this cosmical physics, by which alone the problem can be conclusively solved, that it has been thought proper to found a research observatory at Mount Weather, on the crest of the Blue Ridge Mountains, about six miles from Bluemont, Va., and equip it suitably for these investigations. Professor Bigelow has recently been placed in charge of supervising the plans for its construction and development upon the best modern principles. It is evident that such an institution, having its beginning in the early years of the twentieth century, will have an increased usefulness as the years go by, if it is organized according to the demands of the best science. It will require fine instruments and able students if it is to command the respect of the scientific world. * * * * * *

Specifically, the plan in mind contemplates the development of an observatory as indicated in the following statement:

(1) An observatory building is in process of erection at Mount Weather, which is well adapted as a school of instruction and for making observations of the ordinary kind with the common meteorological instruments, barometers, thermometers, wind and rain gauges, nephoscopes, theodolites, and actinometers. The first floor is for administration, the second for living quarters, the third for laboratories, and the roof for observing.

(2) Plans are being prepared for a plant adapted to generate large quantities of hydrogen, for balloon ascensions, including a shop for the construction of balloons and kites. The ascensions will be limited to about four miles in height, our immediate purpose being to measure the temperatures and thermal gradients, which will e able us to construct daily isothermal charts on the two upper planes already described, so as to provide isotherms as well as isobars on the high levels. It is proposed to make a complete series of ascensions first at Mount Weather, and afterwards in different portions of the United States, in order to observe the temperature conditions in all classes of cyclones and anticyclones. We may attempt some high ascensions, up to ten or twelve miles from the ground, when our experience and other conditions warrant, but, since storm movements are practically limited to the strata within four miles of the ground, the first group of ascensions will be to moderate elevations.

(3) It seems important to install a high-grade bolometer for measuring the invisible solar radiation, which is thought by some students to be largely responsible for the actual temperature of the upper atmosphere. Also, a first-class spectro-heliograph is required for keeping a record of the solar prominences, faculæ, and spots prevailing at the time of making our weather forecasts. These two instruments are the essentials of an efficient solar physics observatory, and would require the services of an able student of physics to bring out the best results and discuss them efficiently in suitable reports.

THE MOON AND THE WEATHER.

Meteorologists in Russia have recently been annoyed by the systematic issue of long range weather forecasts by a civil engineer named Demtschinsky. The man has a periodical of his own for the promulgation of his theories, the most important of which is that the moon exercises a considerable influence upon temperature changes, air pressure and rainfall. His predictions appear in that publication and also in a number of newspapers. Though Demtschinsky may be honest in his beliefs, he does not appear to be averse to notoriety. He has allowed a rumor to go uncontradicted that there is a prospect of his being put in charge of the United States Weather Bureau at Washington! One effect of these predictions and stories is to puzzle volunteer observers for the established meteorological service and to paralyze their enthusiasm. In other ways, also, no doubt, the cause of science is hurt by Demtschinsky's utterances.

Professor Klossovsky, of the University of Odessa, has thus been impelled to undertake an elaborate review of the forecasts in question and the principles on which they are founded. He undermines the system itself at a number of points, and finally shows that only about 50 per cent of the predictions are verified. In other words, there is no more certainty of their fulfillment than about the result of tossing up a coin. Demtschinsky is virtually playing a game of "heads and tails." Of course, when the chances are even that he may be right or wrong, his assurances are valueless. Under the auspices of the American government the rate of verification is fully four out of five, or over 80 per cent. Professor Klossovsky has done valuable service in thus exposing the worthlessness of Demtschinsky's work. Not the least commendable feature of his review is a challenge with which it ends. The pseudo meteorologist is invited to consent to a plan whereby his system and his predictions shall be considered by a commission of experts. If he declines, his hesitation will be a significant confession of lack of confidence in his own divinations.

The truth is, Demtschinsky is far behind the times. In Europe and America the idea that the moon controls the weather has been suggested repeatedly during the last twenty or thirty years. The possibility has been investigated by numerous meteorologists of good reputation, and has been practically discarded. If the Russian engineer who has recently entertained the theory had read the books of Sprung, Van Bebber and Hann, he would have had his eyes open to his mistake. Several excuses for a short-lived faith in the hypothesis can be found, but it will not stand the test of application to all countries alike and for all periods of time. The matter has probably never been summed up more accurately than by Professor William C. Davis, of Harvard University. He says in his "Elementary Meteorology" that whatever slight excess of one weather element or another there may be at certain times of the lunation, it has no sufficient value for prediction. In his judgment, forecasts based upon the influence of the moon or planets "are no better than the forgotten predictions of astrology." Long range forecasts of practical value are likely to come before many years, but the moon does not promise any help in formulating them.

A discussion of this kind raises the question, What constitutes a trustworthy authority in science? Official position and university degrees count for something, but they are not vital. Neither does a fondness for studying natural phenomena--weather, disease, the movements of the stars or the habits of insects—make a man a true scientist. Education is important, careful and prolonged observation is needful, but the one great essential is the right method of testing theories which suggest themselves to fertile minds. The process calls for the exercise of a logical faculty possessed by comparatively few. No matter how distinguished the original discoverer of a new fact or the author of a new theory—be he Faraday, Pasteur, Schiaparelli or Ramsay—science demands independent corroboration before accepting the alleged revelation. It will approve no so-called law of nature that does not yield in the hands of others, properly trained, the same results as its earliest advocates announce. If the doctrine that the moon seriously influences the weather will not stand this test, it may be guesswork or superstition, but it is not science.—*New York Tribune.*

A FIVE-YEAR CENSUS PERIOD.

The decennial census, based as it is in the United States on constitutional requirement, is so firmly established that it will probably seem to many people at first glance like a great innovation to suggest that census statistics be collected, even in a limited way, every five years. Senator Hopkins' bill providing for an agricultural census every five years will therefore be apt to meet with much discussion. The proposal seems, nevertheless, an excellent one, and the work could probably be done under the newly created permanent census bureau with an expenditure small in comparison with that which such work has required in the past.

In some of the European countries, notably Germany and France, a complete enumeration of the population is had every five years. These countries feel, no doubt, greater need of accurate knowledge as to their growth, or possibly decline, in numbers, than we do in this country.

Though several of the European countries are much more accurate in their statistics of many social phenomena than we are, the United States holds a recognized position at the forefront for commercial and industrial statistics. An Englishman who recently published a book on American industry spoke, for example, of the great advantages Americans derive from their statistics "in competition with nations like our own (England), whose commercial statistics are half a century or more out of date." As our best farming lands fill up with settlers, and as closer figuring on our crops with reference to our position in the world's grain markets becomes necessary, the value of full agricultural statistics will increase.—*Chicago Record Herald.*

CLIMATOLOGY OF THE MONTH, JANUARY, 1904.

BAROMETER.—Mean temperature, 30.12 inches; highest observed, 30.66 inches, at Sioux City, on the 25th; lowest observed, 29.59 inches, at Davenport and Dubuque on the 7th and 22nd; range for state, 1.07 inches.

TEMPERATURE.—The monthly mean temperature for the State, as shown by records of 111 stations, was 14.0°, which is 4.2° below the normal. By sections the mean temperatures were as follows: Northern section, 10.1°; Central section, 14.1°; Southern section, 17.8°. The highest monthly mean was 21.6° at Red Oak; lowest monthly mean, 6.6° at Charles City. The highest temperature reported was 57°, at Red Oak, on the 19th; lowest temperature reported, 32° below, at Elkader and Fayette, on the 27th. The average monthly maximum was 45.4°; average monthly minimum, 23.2°. Greatest daily range, 49°, at Atlantic and Villisca; average of greatest daily ranges, 34.2°.

PRECIPITATION.—Average precipitation for the State, as shown by records of 122 stations, was 1.18 inches, which is 0.21 of an inch above the normal. The averages by sections were as follows: Northern section, 0.49 of an inch; Central section, 1.06 inches; Southern section, 2.00 inches. The largest amount reported was 3.68 inches, at Lacona; least amount reported, .02 of an inch, at Storm Lake. The greatest daily rainfall reported was 2.45 inches, at Belle Plaine, on the 20th. Average number of days on which .01 of an inch or more was reported, 6.

WIND AND WEATHER.—Prevailing direction of the wind, northwest; highest velocity reported, 50 miles per hour, from the southeast, at Sioux City, on the 18th. Average number of clear days, 12; partly cloudy, 8; cloudy, 11.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES. Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	30.11	30.55	25	29.59	22
Des Moines	30.15	30.62	25	29.73	9
Dubuque	30.14	30.62	25	29.59	7
Omaha, Neb	30.12	30.66	25	29.58	9
Keokuk	30.10	30.49	4	29.65	22
Sioux City	.....	30.66	25	29.69	9
Means	30.12	30.66	25	29.59	7, 22

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	5,979	26	E	20
Des Moines	6,291	28	SE	18
Dubuque	5,239	34	SE	19
Keokuk	5,673	24	N	3
La Crosse, Wis	5,340	25	NW	7
Omaha, Neb	7,618	34	N	1
Sioux City	9,396	50	SE	18

OBSERVERS' NOTES.

AFTON.—*N. W. Rowell.* The 25th and 29th, 18° below zero the coldest in ten years by one degree. Sleet that fell on 20th remained till after Feb. 1. Effect on fruit will be seen later.

ALLERTON.—*Rex Shriver.* Sleet on 20th damaged fruit and shade trees; remained over two weeks.

ALTA.—*David E. Hadden.* Intensely cold last decade of the month. Fine solar halo with brilliant parhelia and upper contact arch all forenoon of the 23rd.

AUDUBON.—*Geo. E. Kellogg.* Coldest day of the season was the 24th; temperature did not rise above 14° during the day.

BEDFORD.—*E. E. Healy.* Heavy sleet on the night of 20th did much damage to trees.

BELKNAP.—*A. W. Rankin.* Sleet storm on 20th caused much damage to trees and shrubbery.

BONAPARTE.—*B. R. Vale.* Cold at each extreme, but mostly a pleasant month. The rain on 20th did not freeze much.

BRITT.—*Geo. P. Hardwick.* Coldest January in eight years; about average snowfall.

CHARITON.—*C. C. Burr.* Sleet did great damage to trees and telegraph lines; some telephone plants destroyed.

CLARINDA.—*A. Van Sandt.* Sleet on 19th and 20th did some damage to trees.

CLINTON.—*Luke Roberts.* Mean temperature 3.8° below normal. Snowfall 7 inches, with 4 inches to commence on: Sleigh could be used every day in the month. There have been nine colder Januaries in the last 26 years. Nine days with temperature below zero.

CORYDON.—*Mrs. Clara Miller.* Ice formed on trees half to three-fourths inch thick, causing damage to fruit and shade trees.

GRAND MEADOW.—*F. L. Williams.* Last nine days of the month were bitter cold; roads good and stock doing well.

HOPEVILLE —*M. L. Ashley.* The sleet storm of the 20th was very bad, and difficult to estimate as to amount of precipitation.

HUMBOLDT.—*H. S. Wells.* Coldest January in ten years.

INDIANOLA.—*John L Silton.* Storm on 20th left a sheet of ice 1.3 inches, coating trees and vines with heavy layer, remaining firmly till end of month.

JEFFERSON.—*Isaac Young.* Grey circle tinged with crimson around the moon on night of 27th.

LEON.—*Millard F. Stookey.* Thunder and lightning on 20th; fruit and shade trees much damaged by sleet.

MT. AYR.—*A. F Beard.* Sleet on 20th caused much injury to trees, telephone wires and poles.

MT. VERNON —*Jos. W. Hubbard.* The ice on 20th caused much damage to trees and great peril to pedestrians.

RIDGEWAY.—*Arthur Betts.* Coldest January on record here, but a pleasant month; 61 per cent of sunshine.

VILLISCA.—*C. E. Matteson.* A fair and pleasant month up to 23rd; hail, snow and sleet the last week injured the peach crop.

WAUKEE.—*E. J. Leonard.* Month favorable till 20th; sleet and ice with zero weather balance of month.

WILTON.—*J. M. Rider.* Very heavy sleet on 20th, covering trees and wires with ice and icicles, making a beautiful scene; sleet remained until end of month.

ERRATA IN DECEMBER REVIEW.

ATLANTIC.—Mean temperature recorded 11.2° on page 8, should have been 11.3°.

BELKNAP.—Maximum temperature recorded 50° on the 31st, page 7, should have been 55° on the 2nd.

BELLE PLAINE.—Mean maximum temperature recorded 25.4° on page 8, should have been 25.5°. Mean temperature recorded 16.4° on page 6, should have been 16.5°.

CHARITON.—Mean temperature recorded 22.4° on page 7, should have been 22.3°.

CHARLES CITY.—Maximum temperature reported on the 7th, page 6, should have been the 6th.

COLLEGE SPRINGS.—Mean temperature recorded 25.0° on page 7, should have been 25.6°. Mean maximum temperature recorded 35.2° on page 8, should have been 36.5°.

COLUMBUS JUNCTION.—Mean temperature recorded 21.5° on page 7, should have been 21.6°.

CORNING.—Mean temperature recorded 23.2° on page 7, should have been 23.4°. Mean minimum temperature recorded 11.7° on page 8, should have been 12.1°.

EARLHAM.—Mean temperature recorded 21.5° on page 7, should have been 21.2°.

FOREST CITY.—Mean temperature recorded 13.8° on page 6, should have been 13.9°. Mean maximum temperature recorded 24.2° on page 8, should have been 24 3°. Maximum temperature recorded on the 7th, page 6, should have been the 6th.

GALVA.—Mean temperature recorded 19.0° on page 6, should have been 19.1°. Mean minimum temperature recorded 7.9° on page 8, should have been 8.2°.

GRINNELL [Near].—Mean temperature recorded 19.6° on page 6, should have been 19.1°.

HANLONTOWN.—Total snowfall recorded 3.2 inches on page 6, should have been 3.5 inches.

IOWA CITY.—Maximum temperature recorded on the 7th, page 6, should have been the 6th. Maximum temperature recorded 30° on page 8, on the 29th, should be 20°.

IOWA FALLS.—Maximum temperature recorded on the 7th, page 6, should have been the 6th.

MONTICELLO.—Total snowfall recorded 8 5 inches on page 6, should have been 9.5 inches.

OLIN.—Total precipitation recorded .99 inch on pages 6 and 10, should have been 1 09 inches. Total snowfall recorded 4.5 inches on page 6, should have been 8 0 inches.

ONAWA.—Mean temperature recorded 26.4° on page 6, should have been 24.0°. Mean minimum temperature recorded 18.2° on page 9, should have been 13.3°.

OSKALOOSA.—Mean temperature recorded 20.2° on page 7, should have been 19.0°. Mean minimum temperature recorded 10.0° on page 9, should have been 9.5°. Daily precipitation recorded .18 inch on the 11th, page 10, should have been .20 inch. Total precipitation recorded .32 inch on pages 7 and 10, should have been .34 inch.

PRIMGHAR.—Mean temperature recorded 16.7° on page 6. should have been 17.0°. Mean maximum temperature recorded 29.1° on page 9, should have been 29.8°.

RIDGEWAY.—Mean temperature recorded 16.3° on page 6, should have been 16.2°.

WATERLOO.—Maximum temperature recerded on the 7th and 24th, page 6, should have been 6th and 23d.

WHITTEN.—Mean temperature recorded 17.4° on page 6, should have been 17.8°. Mean minimum temperature recorded 6.8° on page 9, should have been 5.7°. Minimum temperature recorded 19° on the 25th, page 9, should have been 19°.

CLIMATOLOGICAL DATA FOR JANUARY, 1904.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				SKY.				Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).	Number rainy days	Number clear days.	Number partly cloudy days.	Number cloudy days.		
Algona	Kossuth	1,213	28	10.6	- 5 9	41	7	-28	24,25	48	.40	† .10	.20	4.0	4	15	3	13	NE, NW	
Alta	Buena Vista	1,513	11	11.1	- 5.7	41	7	-26	25	26	.37	- .28	.17	4.0	10	8	16	7	NW	
Alta (near)	Buena Vista										.50		.20	5 0	5					
Britt	Hancock	1,236	5	8.9	- 8.8	40	7	-28	24,25	33	.46	- .13	.12	3.6	10	9	15	7	NW	
Charles City	Floyd	1,012	11	6.6	- 9.7	31	15	-31	27	33	.44	- .67	.14	7.2	5	12	4	15	W	
Clear Lake	Cerro Gordo	1,241		9 8	- 5.4	49	1	-30	24,25	45	.62		.20	6.2	6	14	10	7	NW	
Decorah	Winneshiek	857	8	8.4	- 8 1	38	7	-31	27	37	.64	- .45	.41	12.0	5					
Dows	Wright	1,142		10.3	- 9.0	42	7	-27	24,26	31	.70	† .16	.20	7.0	5	15	1	15	NW	
Elkader	Clayton	727	21	10.4	- 4 2	42	19	-32	27	35	.51	- .84	.33	5.8	6	17	8	6	NW	
Estherville	Emmet	1,298	7	7 5	- 8.8	40	7	-31	27	39	.43	† .08	.12		7	13	1	17	NW	
Fayette	Fayette		13	8.4	- 8.5	40	7	-32	27	42	.08	-1.15	.05		3					
Forest City	Winnebago	1,226	8	8.7	- 9.5	40	7	-29	24	37	.40	- .24	.20	4.0	3	13	3	15	W	
Grand Meadow	Clayton	1,180	11	10.0	- 5.9	40	7	-29	25	25	.60	- .58	.25	6.2	5	12	9	10	NW	
Hampton	Franklin	1,155	12	10.5	- 5.0	41	7	-27	24	31	.80	- .30	.48	7.5	5	6	21	4	NW	
Hanlontown	Worth			8.7		41	7	-31	27	43						15	6	10	NW	
Humboldt	Humboldt	1,095	10	11.5	- 6.0	46	7	-28	24	30	.29	- .36	.10	2.9	4	19	4	8	NW	
Inwood	Lyon			11 2		38	7	-26	24	27	.40		.20	4.0	3	7	2	22	NW	
Larrabee	Cherokee	1,366	11	12.2	- 5.7	41	7,8	-27	24	33	.16	- 41	.08	1.8	5	8	14	5	NW	
LeMars	Plymouth	1,242	6	14 3	- 6.7	43	7,8	-23	24,25	31	.35	- .34	.20	3.5	3	10	13	8	NW	
Mason City	Cerro Gordo	1,182	6	11.2	- 4.2	38	7	-26	24	24	.62	- .57	.32	6.2	2	6	12	13	NW	
New Hampton(d)	Chickasaw	1,169	6	7.8	-12 5	39	7	-29	24	27	.50	- .33	.20	5.0	5	13	11	7	NW	
Northwood	Worth	1,222	6					-28	27		.80	† .15	.40	8.0	4	15	5	11	NW	
Osage	Mitchell	1,184	11	9.6	- 4.4	39	7	-28	24	27	.53	- .35	.25	5.3	8	9	10	12	NW	
Plover	Pocahontas	1,190	5	9.9	-11.1	42	9	-30	25	36	.60	† .09	.20	6.0	4	15	3	13	NW	
Primghar	O'Brien			10.3	- 9.9	38	7	-25	24	29						15	0	16	NW	
Ridgeway	Winneshiek	1,215		11 3	-11 0	41	7	-28	24,25	32	1.29	- .41	.95	8.1	11	13	12	6	NW	
Rock Rapids	Lyon		6	11.0	- 3.8	40	7,8	-24	24	37	.30	- .33	.20	3.0	2				S	
Rockford	Floyd	1,021																		
Sheldon	O'Brien	1,422	4	10.5	-11.3	39	7	-27	24	41	.21	- .18	.10	2.1	7	10	7	14	NW	
Sibley (a)	Osceola	1,512	8	7 5	- 9.1	35	8,9,14	-28	24	38	.37	- .17	.25	2.2	6				NW	
Sioux Center	Sioux		4	12.2	- 9.4	40	7,8	-25	24	29	.50	† .23	.10	5 0	7	11	7	13	NW	
Spirit Lake	Dickinson	1,458	8	10.8	- 5.3	40	9	-28	24,25	37	.55	† .04	.25	5.5	4	18	2	11	NW	
Storm Lake	Buena Vista	1,440	7	11.3	- 7.9	41	7	-30	24,25	38	.02	- .68	.01	.4	2	14	1	16	NW	
Washta	Cherokee	1,157									.35	- 06	.15	3.5	3	15	13	3	N	
Waverly	Bremer	942	6	9.8	- 9.9	39	7	-27	27	34	.78	- .15	.25	7.8	12	9	14	8	SE	
West Bend	Palo Alto	1,197	8	11.0	- 6.6	42	7	-29	24	27	.59	- .03	.20	5.9	8	8	12	11	NW	
West Union	Fayette										.34		.25	3.4	2	18	0	13	NW	
Average				10.1	- 7.3	40.3		-28 1		33.8	0.49	- .32		5.1	5	12	8	11	NW	

CENTRAL SECTION.

Amana	Iowa	721	25	15.4	-0.4	45	7	-18	25,26,29	28	1.73	† .29	1.21	7 4	7	9	15	7	NW	
Ames	Story	926	20	14.0	-3 1	46	7	-24	26	34	.50	- .47	.26	7.0	6	17	10	4	N W	
Audubon	Audubon	1,30	8	14.0	-5.4	48	7	-23	29	38	.33	- .33	.20	3.6	3	10	6	15	NE	
Baxter	Jasper	998		14.7		49	7	-21	24,25	32	1.35		.80	3.5	5	14	8	9	NW	
Bell Plaine	Benton	828	12	14.1	-4.3	44	7	-22	26	30	3.42	†1.90	2 45	11.2	8	7	18	6	NW	
Buckingham	Iowa										.75		.52	7.6	4	7	20	4		
Carroll	Carroll	1,265	12	13 0	-6.6	49	8	-25	25	36	.50	- .36	.30	5.0	3	16	7	8		
Cedar Rapids	Linn	733	19	12 8	-5.5	45	7	-19	25	39	1.01	- .43	.52		5	13	11	7		
Clinton	Clinton	609	34	15.0	-4.2	44	19	-17	3	32	2.25	† .40	1.53	6.8	9	6	9	16	NW	
Davenport	Scott	606	31	16.4	-3.6	46	19	-13	25	24	2.20	† .53	1 83	3.6	7	10	12	9	NW	
Delaware	Delaware	1,083	11	11.2	-4.6	41	19	-25	25	29	.57	- .44	.47	5.0	5	15	9	7	NW	
Denison	Crawford	1,180	8	14.6	-6.5	47	7	-23	26	32	.53	- .03	.22	5.3	7	26	3	2	N	
Des Moines	Polk	861	24	15.6	-1.9	50	7	-18	25	31	1.22	- .12	.97	5.0	8	7	6	18	NW	
Dubuque	Dubuque	655	29	13.4	-3.9	45	19	-23	25	29	.51	-1.17	.30	4.8	8	14	8	9	NW	
Fort Dodge	Webster	1,126		12.4		43	7	-25	24,26	31	.30		.15	3.0	3	16	8	7	S	
Galva (b)	Ida	1,290	8	11.8	-6.7	42	8	-27	24	36	.55	† .20	.25	3.2	3				NW	
Gilman	Marshall	1,052									.85		.83		3	14	8	9	N	
Grinnell	Poweshiek	1,023	9	14.9	-2.6	46	7	-20	24	28	1 52	† .36	1.00	5.2	10	9	10	12	N	
Grundy Center	Grundy	976	11	12.6	-4.3	43	7	-26	24,26	31	.78	† .07	.43	5.5	5	12	9	10	NW	
Guthrie Center	Guthrie	1,077	6	18 5	-3.5	59	7	-23	29	42	.91	† .38	.48		10	18	2	11	NW	
Harlan	Ida	1,192		16.5		49	7	-20	25	40	.93		.30	5.8	9	6	14	11	NW	
Ida Grove	Shelby	1,220		14.5		47	7	-26	24,25	36	.46		.26	4.6	2	14	15	2		
Independence	Buchanan	971	38	10.4	-4 8	40	7	-26	27	26	.63	- .74	.30	6.4	7	16	9	6	NW	
Iowa City	Johnson	685	43	13.7	-5.4	47	20	-21	29,30	35	1.74	‡ .00	.62		6	6	9	16	N	
Iowa Falls	Hardin	1,170	9	9 6	-5.8	38	8	-26	3,24,25	33	.67	- .17	.25	6.2	7	12	5	14	NW	
Jefferson	Greene	1,052									.91		.60	7.4	9	5	7	19	NW	
LeClaire	Scott	576									1.48		.72	3.2					NW	
Logan	Harrison	928	35	17.4	-1.8	50	7	-17	25	39	1.20	† .08	.30	12.0	8	12	5	14	NE	
Maquoketa	Jackson	688	9	11.8	-8.3	45	20	-22	3	40	1.31	- .01	.70	4 0	7	12	5	14	NE	
Marshalltown	Marshall	947	9	13 1	-7.0	45	7	-22	26,29	34	1.04	† .10	.65	5.1	9	7	9	15	NW	
Monticello	Jones	925	48	13.9	-2.1	45	13,19	-22	3,29	36						15	4	12	SW	
Mt. Vernon	Linn	847	35	14.0	-2.7	43	7	-19	25,26,27	29	1.20	- .11	.55	7.5	9	16	6	9	N, S	
Newton	Jasper	944	14	15.0	-2 7	47	7	-23	25	30	1.53	† .61	1.05	6.0	5	14	9	8	N	
Odebolt	Sac	1,356	5	14.8	-8.8	44	7	-25	24	32	.40	† .08	.32	3.2	3	17	4	10		
Ogden	Boone	1,088	8	11.8	-9.7	51	7	-30	26	38	.80	† .21	.30	8.0	7	15	0	16	NW	
Olin	Jones	760	5	13.0	-8.6	41	7	-23	29	32	1.57	† .49	1.00	7.2	11	9	14	8	NW	
Onawa	Monona	1,053		18.3		50	7	-16	25	27	.82	- .32	.25	8.0	10	20	5	6	NE	
Perry (a)	Dallas	975		14.4		48	7	-23	24	36	.66		.25	6.6	6					
Rockwell City	Calhoun		7	12 8	-8.4	43	7,8	-28	24	34	.80	† .17	.40	8.0		12	7	12		
Sac City	Sac	1,276	22	13.2	-3.3	43	7	-26	24	34	.67	- .28	.52	6.8	2	15	4	12	NW	
Sioux City	Woodbury	1,165	13	15 1	-1.2	46	7	-21	25	29	.09	- .54	.02		6	7	11	13	NW	
Stuart	Guthrie	1,216	5	16 9	-5.1	54	8	-19	25	31	1.17		.30	11.2	8				NW	
Tipton	Cedar	807		15.7		45	19	-18	3	28	1.89		.94	7.0	8	12	12	7	SW, NW	
Toledo	Tama	856	8	13.8	-5 9	46	7	-23	29	35	.97	† .16	.75	5.5	5	10	12	9	NW	
Vinton	Benton	810	12								1.04	- .11	.32	7.2	7	23	2	6	NW	
Waterloo	Black Hawk	862	15	12.6	-5.2	42	7	-25	29	35	.71	- .24	.41	6 0	7	11	14	6	NW	
Waukee	Dallas	1,039		17.6		49	7	-19	26	32	2.25		1.28	9.5	13	11	4	16	NW	
Wilton Junction	Muscatine	683	7	16.4	-6.4	47	18	-18	3,29	37				5.0		16	1	14	NW	
Whitten	Hardin	1,036		11.6	-8.7	43	7	-28	26	36	.75		.50	2.5	3	14	8	9	NW	
Average				14 1	-4.4	45.9		-22.2		34.0	1.06	† .03		6.1	6	13	8	10	NW	

CLIMATOLOGICAL DATA FOR JANUARY, 1904—CONTINUED.

SOUTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted)		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Afton	Union	1,212	7	18.4	-5.0	50	9	-18	25	29	2.02	†1.21	1.42	6.0	6	9	15	7	NW	
Albia	Monroe	957		15.8		50	7	-19	25,26	39	3.01		.42	8.5	8				NW	
Allerton	Wayne			18.8		51	19	-21	29	35	2 60		1.53	6.1	10	14	6	11	NW	
Atlantic	Cass	1,164	11	17.6	-2.6	52	7	-31	29	49	1.36	† .60	.71	3.5	4	6	9	16	N	
Bedford	Taylor			19.0		52	7	-23	23	42	2 87		1.54	6.1	9	10	9	12	SE	
Belknap	Davis	877	7								2 57	† .79	.60	19.1	5	6	8	17	N	
Bonaparte	Van Buren		10	16.6	-7.0	45	19	-21	3,29	34	2.61	†1.04	1.92	6 0	4					
Burlington	Des Moines	541		18.7		46	19	-15	26	28	3.10		2.05		9	13	6	12	NW	
Chariton	Lucas	1.042	7	17.4	-8.0	50	7	-20	26	33	2.15	†1.04	1.90		5	12	10	9	N	
Clarinda	Page	1,069	12	17.8	-4.9	54	7	-17	29	37	2 12	†1.15	1.18	8.0	12				NW	
Columbus Jct.	Louisa	596		17.6		49	19	-14	3, 26, 29	29	1 95		1.50	5.2	6	12	12	7	NW	
Corning (a)	Adams	1,127	10	17 6	-4.7	52	7	-24	29	41	2.29	†1 54	1.03	9.8	8				NW	
Corydon	Wayne	992	9	17 2	-4.3	51	7	-23	29	40	2.33		1.30	8 2	7	14	4	13	NW	
Council Bluffs	Pottawattamie	9.0	5								.53	- .16	.25	.5	5	17	13	1	S	
Cumberland	Cass										2.10		1.40	9.0	6	15	2	14	N	
Earlham	Madison			14.0		49	7	-22	26	35	1.31		.89	8 7	5	20	2	9	NW	
Fort Madison	Lee	516	51								3 15	†1.26	2.25	9.0	6	8	8	15	SW	
Glenwood	Mills		15	20.7	-2.0	55	7	-18	25	36	.55	- .39	.20	4.0	5	7	18	6	NW	
Greenfield	Adair		11	16.8	-4.9	47	7	-20	25, 26	30	1 71	† .81	.91	9.8	12	17	4	10	NE, NW	
Hopeville	Clarke		11	18.0	-3.8	51	7	-20	29	35	2.43	†1.53	1.75		10	7	13	11	S	
Indianola	Warren	969	11	16.8	-2.2	51	7	-19	26, 29	34	2.69	†1 54	1.63	9.3	12	6	10	15	NW	
Keokuk	Lee	619	31	18.6	-4 6	47	19	-13	22	25	2.70	† .98	1.86	8.8	11	15	6	10	NW	
Keosauqua (b)	Van Buren	634	10	15.9	-8.8	47	9	-24	29, 30	32	2.64	†1.72	2.02	9.3	9	15	3	13		
Lacona	Warren										3.68		1.94	11.0	13	4	21	6		
Lenox	Taylor	1,250	7	17.6	-7.1	51	7	-21	25	37	1.82	†1.19	1.30	4.3	7	18	4	9	NW	
Leon	Decatur	1,120		19.2		50	7	-17	26	34	.72		.30	8.1	9	15	6	10	N	
Mt. Ayr	Ringgold	1,236	8	19.4	-4.5	53	7	-18	26	35	2.91	†1.88	1.80	14 0	8	9	10	12	NW	
Mt. Pleasant	Henry	729	20	17.4		47	19	-20	29	32	1.79	† .56	1.63		3	17	6	8	SE	
Omaha, Neb.	Douglass	1,113	32	19.8	†0.6	54	7	-17	25	26	.62	- .07	.14	4.9	13	6	12	13	N	
Osceola	Clarke	1,130	8	17.0	5.1	42	19	-19	26	39										
Oskaloosa	Mahaska	843	18	15.6	-3.4	49	7	-23	29	37	1.58	† .70	1.30	5 0	7	12	4	15	NW	
Ottumwa	Wapello	649	8								2.40	† .81	2.05	3.6	6	9	11	11		
Pacific Junction	Mills	960		18.7		52	7	-16	25	30	.59		.12	3.7	8	10	15	6	N	
Red Oak	Montgomery	1,033		21 6	-4 5	57	19	-14	25	33	.97	† .25	.56	11.0	8	5	18	8	N	
St. Charles	Madison	1,070		17.7		53	7	-18	25, 26	33	2.31		1.39	8.5	12	12	9	10	NW	
Sigourney	Keokuk	787		16.8	-7.3	48	7	-20	29	31	2.21	† 97	1.68		11					
Stockport	Van Buren										2.52		1.75	6 5	10	10	7	14	NE	
Thurman	Fremont			19.2	-7.0	53	7	-20	29	41	.42	- .29	.22	7.0	9	9	8	14	NW	
Villisca	Montgomery	1,058	8	18.6	-3.5	49	8	-21	29	49	1.75	1.13	1.20	.6	4	12	12	7	NW	
Wapello	Louisa	588		18.3	-8.7	41	7	-12	3, 29	27	1.71	†1.00	1.60		3	17	6	8	W	
Washington	Washington	769	20	14.7	-6.5	50	19	-20	29	35	2.28	† .83	1.98		5				NW	
Winterset	Madison	1,129	11	18.2	-3.3	52	8,9	-19	25	39	.12	- .82	.05	1.2	3	10	3	18	SE, NW	
Woodburn	Clarke	961									2.70		1.58	6.7	13	11	6	14	NW	
Average				17.8	-5.0	50.0		-19.3		34.9	2.00	† .94		7.2	8	11	9	11	NW	
Average for state				14.0	-4.2	45.4		-23 2		34.2	1.18	† .21		6.1	6	12	8	11	NW	

*Means determined from 7 A. M., 2 P. M. and 9 P. M. observations, and maximum and minimum are taken from eye readings. †Above normal. ‡Received too late to be computed with means. *a*, One day missing; *b*, two days, etc. § Not supplied with self-registering instruments.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR JANUARY, 1904.

STATIONS.		DATE. 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	MEAN.
Afton.	Max..	44	16	15	21	34	36	50	46	41	36	33	31	27	32	40	35	36	33	37	30	27	20	14	7	-8	10	14	10	17	28	23	27.4
	Min	14	-1	-10	-1	11	16	21	24	22	26	25	21	10	21	19	13	17	15	29	21	19	12	-1	-13	-18	-16	-4	-3	-18	8	8	9.3
Albia.	Max..	26	5	12	24	35	38	50	46	36	27	31	16	13	19	37	38	28	32	45	32	33	20	9	-6	-8	...	2	..	17	25	23	24.3
	Min	14	-1	-16	-15	3	18	22	24	22	23	22	22	7	7	10	10	12	10	16	28	30	15	0	-8	-19	-19	5	-15	...	-13	7	7.4
Algona. ..	Max	21	-3	2	18	25	29	41	37	37	30	29	30	24	29	35	27	23	28	28	20	20	16	6	20	12	-4	2	1	11	16	20	19.8
	Min	4	-10	-18	5	5	4	20	17	15	23	21	16	4	17	18	4	11	8	17	9	11	5	-10	-28	-28	-24	-27	-17	-17	-2	-5	1 5
Allerton .	Max..	43	23	10	21	32	40	50	49	40	35	29	29	23	34	40	35	41	37	51	32	32	24	18	8	-6	7	18	10	14	27	24	28.2
	Min ..	15	-1	-17	0	9	13	18	23	24	25	24	23	10	19	20	13	18	15	31	27	22	14	0	-9	-15	-20	-3	-3	-21	12	7	9.5
Alta. . ..	Max..	18	3	8	19	27	28	41	40	37	30	33	28	28	24	36	26	28	32	27	15	14	13	0	-13	-6	-2	4	4	12	26	21	19.4
	Min ..	3	-12	-16	2	9	12	22	21	20	22	27	12	5	13	17	6	10	14	15	8	10	0	-15	-25	-26	-21	-17	-17	-14	5	-4	2.8
Amana. ..	Max..	30	16	9	17	33	35	45	40	35	30	31	32	25	29	35	32	25	29	42	33	32	23	16	-1	-5	-1	7	5	10	25	19	23.6
	Min ..	16	-3	-16	-6	8	13	19	25	17	25	21	25	4	11	14	10	14	11	25	27	22	15	-3	-17	-18	-18	-12	-7	-18	8	7	7.1
Ames	Max	31	14	10	21	31	37	46	42	41	34	29	29	24	25	35	26	29	30	30	27	27	20	12	-3	-11	-4	5	2	12	23	22	22.5
	Min ..	12	-2	-18	0	6	12	22	23	12	25	19	21	13	15	15	8	11	11	23	16	19	10	4	-22	-21	-24	-21	-7	-22	7	6	5.6
Atlantic..	Max..	30	14	15	23	34	38	52	48	42	34	32	33	30	36	40	35	39	38	39	26	21	19	11	5	-3	13	19	9	18	27	23	27.0
	Min ..	14	-3	-13	0	14	6	24	24	18	27	27	20	11	18	23	14	20	18	26	17	17	11	0	-12	-19	-14	-4	-8	-31	1	7	8.2
Audubon.	Max	23	10	12	22	32	35	48	45	42	32	31	30	28	35	40	35	34	35	37	23	17	15	8	-3	-10	10	9	4	15	28	22	24.0
	Min ..	10	-8	-16	-8	11	3	22	21	14	24	25	17	7	17	12	9	13	14	22	13	13	7	-5	-19	-22	-19	-10	-18	-23	4	2	3.9
Baxter. ..	Max..	30	13	12	20	33	38	49	43	40	32	27	30	23	24	35	33	27	30	38	32	35	23	14	2	8	0	7	7	10	27	21	24.6
	Min ..	10	-3	-20	0	8	11	20	20	15	25	18	20	5	9	15	7	10	9	25	18	19	12	-8	-21	-21	-20	-17	-7	-19	5	3	4.8
Bedford ..	Max..	42	23	14	15	34	39	52	50	43	39	32	33	27	34	42	37	41	40	39	34	28	22	13	10	-5	13	20	8	19	34	25	28.9
	Min	15	-1	-13	0	7	10	19	19	22	28	26	23	10	23	21	14	21	20	32	24	19	13	0	-7	-15	-20	-3	-11	-23	6	3	9.0
Belle P. ..	Max..	20	15	10	18	34	35	44	34	34	27	32	33	22	32	38	34	24	29	42	35	28	26	10	4	-15	1	9	7	12	28	15	23.1
	Min ..	14	-2	-17	-4	0	17	21	20	17	24	16	20	2	10	15	8	11	9	16	23	25	10	-5	-20	-21	-22	-17	-3	-18	8	5	5.1
Bonapar'e	Max..	37	19	9	20	33	33	43	40	35	31	30	31	26	28	36	32	28	30	45	35	33	27	20	6	-5	6	11	8	12	28	22	25 5
	Min .	16	-5	-21	-5	5	12	13	23	19	24	23	26	6	14	16	12	14	19	26	29	27	19	2	-9	-13	-17	-11	-7	-21	8	-1	7.8
Britt.	Max	15	3	6	17	27	29	40	33	36	33	32	28	21	33	35	22	26	30	28	17	20	13	2	-11	-14	-3	5	-2	12	28	18	18.7
	Min ..	3	-15	-25	-3	-1	0	14	15	12	22	17	15	2	5	16	4	12	9	13	10	12	0	-17	-23	-28	-27	-26	-19	-21	4	-2	-0 9
Burling'n	Max	42	21	13	21	32	35	43	40	39	33	31	32	28	32	38	33	29	30	46	40	35	29	21	6	1	6	15	8	14	31	26	27.4
	Min	18	0	-4	1	9	15	19	25	22	25	25	26	7	14	17	14	13	15	25	31	22	20	4	-6	-11	-15	-8	0	-14	9	3	10.0
Carroll ...	Max..	20	5	14	23	32	39	47	49	47	34	32	24	32	35	42	30	3.	35	31	18	17	16	5	-10	-9	1	5	6	20	30	20	22.8
	Min ..	12	-5	-20	-2	5	10	22	21	19	17	24	13	5	16	12	6	10	11	19	11	12	9	-8	-24	-25	-22	-20	-16	-16	5	0	3.3
Cedar R..	Max	21	7	7	16	31	34	45	38	35	28	26	30	20	20	6	5	10	13	12	13	15	26	26	19	-1	-16	-19	-18	-18	-14	-18	-18	5	4.8
	Min ..	15	5	-15	-16	-2	13	20	26	17	18	20	20	6	5	10	13	12	13	15	26	26	19	-1	-16	-19	-18	-18	-14	-18	-18	5	4.8
Chariton .	Max	44	14	11	20	34	38	50	48	40	39	29	29	26	30	38	35	34	30	45	32	32	22	17	-5	-6	-7	12	10	14	30	24	26.1
	Min ..	14	0	-16	0	10	13	20	23	22	25	23	24	8	12	11	10	13	13	28	26	22	15	0	-10	-16	-20	-5	-2	-19	10	14	8.6
Charles C.	Max	12	-3	4	14	26	29	40	32	33	29	26	23	17	26	34	16	19	19	32	25	22	19	3	-17	-10	-5	0	0	-7	23	16	16.1
	Min ..	8	-8	-25	-20	0	2	4	19	9	10	6	17	2	3	16	6	6	9	12	13	16	15	-10	-30	-30	-27	-31	-30	-27	-21	3	-2.9
Clarinda..	Max..	32	9	13	23	33	40	54	52	46	30	33	33	33	40	44	33	43	40	38	26	25	16	13	0	-8	-16	-16	-16	-4	-17	-10	7	7.8
	Min ..	10	3	-9	-6	0	13	13	22	22	28	27	21	11	26	34	14	13	21	22	20	21	16	13	0	-8	-16	-16	-16	-4	-17	-10	7	7.8
Clear L. ..	Max	49	10	5	16	24	30	38	35	33	30	27	28	18	29	34	29	24	30	28	19	26	15	4	-12	-12	0	8	-1	10	24	14	19.7
	Min ..	4	-11	-22	-7	5	4	20	12	12	19	9	15	0	14	16	4	9	15	15	9	12	1	-12	-30	-30	-26	-26	-17	-22	4	-2	-9.2
Clinton...	Max..	28	15	6	15	32	33	40	38	34	28	30	31	29	25	34	31	26	27	44	33	35	28	21	-3	-2	5	8	10	13	25	21	23.9
	Min ..	14	-4	-17	-10	0	13	10	22	13	24	22	24	3	3	7	13	13	13	19	31	27	20	-5	-12	-15	-11	-10	-5	-15	5	0	6.2
Colum. J.	Max..	35	19	9	19	32	33	45	40	39	34	33	32	28	31	39	33	29	31	49	33	39	27	24	4	-2	3	12	9	15	27	22	26.5
	Min ..	15	-1	-14	-2	9	17	18	24	19	25	22	24	4	12	13	11	15	13	25	29	26	19	1	-11	-13	-14	-8	-3	-14	2	6	8.7
Corning ..	Max..	39	17	14	20	34	37	52	44	42	38	32	33	29	34	40	...	38	39	38	33	33	23	18	12	9	-7	12	12	7	17	27	24	26.9
	Min .	13	-1	-12	-2	10	10	23	22	22	26	26	21	10	21	23	...	20	19	28	19	17	10	-2	-12	-18	-15	-3	-15	-24	8	4	8.3
Corydon..	Max .	50	25	13	21	34	40	51	50	42	36	30	30	26	35	37	30	39	34	49	35	33	24	20	8	-3	8	22	15	13	27	26	29.0
	Min	10	-4	-19	-4	7	11	15	17	20	22	19	20	5	11	10	8	13	10	25	23	17	11	-4	-11	-19	-22	-3	-4	-23	8	2	5.3
Davenpo't	Max	27	15	8	16	30	33	44	37	35	29	31	30	27	26	36	31	24	26	46	34	35	25	16	-1	0	2	10	8	12	23	18	23.6
	Min .	15	-5	-12	-3	11	20	20	23	20	24	23	25	7	14	13	14	13	13	23	31	25	16	-1	-13	-13	-12	-8	-3	-10	9	2	9.2
Decorah. .	Max..	20	2	6	13	23	31	38	32	33	27	22	28	15	24	32	16	20	27	36	26	27	25	-2	-18	-8	-4	3	3	10	22	8	17.3
	Min ..	2	-11	-23	-17	0	4	17	15	8	17	15	19	2	5	6	8	9	7	20	18	17	2	-13	-27	-28	-26	-31	-12	-27	5	-2	-0.6
Delaware.	Max..	23	12	5	14	28	32	39	35	30	26	25	29	26	24	34	29	20	26	41	28	28	24	16	-9	-9	-3	3	3	9	24	16	20.3
	Min ..	10	-7	-22	-14	-1	13	22	20	12	20	16	21	0	5	9	6	9	6	17	21	20	10	-9	-23	-25	-24	-23	-9	-20	-1	4	2 0
Denison..	Max..	33	10	11	21	31	33	47	46	44	28	...	36	31	31	43	35	35	38	38	23	16	15	9	-2	-9	9	7	6	15	28	22	24.3
	Min ..	10	-5	-19	2	12	15	23	23	21	25	.	16	8	20	21	10	15	2	20	12	11	8	-3	-22	-22	-23	-11	-14	-12	5	3	5.0
Des M....	Max..	24	9	12	21	36	37	50	48	39	31	28	30	28	26	39	28	30	32	38	30	30	20	8	0	-7	2	5	5	13	26	20	23.8
	Min ..	9	-5	-14	5	12	16	22	26	2.	27	24	15	11	15	15	12	13	13	23	20	19	7	-1	-17	-18	-17	-9	-9	-18	11	-1	7.3
Dows. ...	Max..	26	19	7	12	26	33	42	37	34	31	28	28	20	26	31	28	22	27	29	22	23	16	6	-9	-13	-8	0	-3	8	20	18	18.9
	Min ..	9	-10	-24	-3	9	2	21	18	14	23	12	17	4	15	17	5	10	7	20	11	15	6	-10	-27	-26	-27	-25	-14	-20	6	-2	1.7
Dubuque.	Max	20	11	9	13	29	35	40	39	30	28	29	29	26	26	35	33	18	25	45	30	30	25	14	-6	-5	-2	5	9	10	24	18	21.6
	Min	11	-9	-18	-16	8	14	14	26	14	23	20	24	5	14	10	13	10	13	20	29	24	14	-6	-19	-23	-20	-19	-5	-15	4	1	5.2
Earlham .	Max..	28	16	15	15	38	.	49	42	39	34	29	29	33	40	41	31	35	31	35	25	24	19	9	0	-13	10	9	0	10	25	22	24.0
	Min	18	5	-20	-4	8	5	19	11	15	24	22	18	9	8	12	8	9	9	24	15	15	9	-4	-20	-20	-22	-9	-9	-20	-2	5	4.1
Elkader ..	Max	17	10	10	15	27	34	41	36	30	25	29	26	26	29	33	27	19	26	42	30	28	25	4	-10	-3	-3	3	9	12	24	20	20.7
	Min ..	7	-7	-25	-20	7	7	8	22	7	19	22	3	3	3	4	9	10	-3	20	23	20	13	- 0	-22	-25	-24	-32	-15	-26	0	-4	-0.2
Esthervil.	Max..	7	-3	10	18	28	32	40	36	38	33	33	21	27	25	35	17	22	28	23	14	16	11	0	-17	-13	-3	2	4	14	25	13	17.3
	Min ..	4	-13	-21	-20	5	1	2	19	18	18	23	17	6	1	15	2	4	7	12	4	3	6	-10	-28	-28	-27	-31	-25	-19	-14	3	-2.3
Fayette...	Max.	23	7	4	21	26	34	40	34	34	29	24	28	22	22	33	25	20	24	32	32	28	26	19	-18	-7	-4	3	3	9	20	13	19 3
	Min	5	-15	-29	-21	3	4	13	13	5	16	15	18	0	6	7	6	6	6	..	20	18	19	-18	-27	-27	-27	-32	-18	-29	1	-10	-2 4
Forest C'y	Max	18	27	7	16	23	31	40	34	34	29	27	22	21	29	32	15	22	27	27	21	20	13	-3	-21	-14	-5	2	-2	10	22	21	17.4
	Min ..	3	-10	-3	-12	4	7	8	15	15	20	13	17	2	3	19	5	5	8	13	10	10	10	-10	-29	-28	-27	-24	-16	-19	-10	2	0.0
Ft. Dodge	Max..	21	10	8	20	27	32	43	40	36	31	30	31	25	26	34	28	26	30	32	22	20	18	3	-5	-12	-4	5	3	11	20	20	20.5
	Min ..	9	-3	-23	2	9	9	21	22	20	25	23	19	5	15	18	6	11	10	21	13	14	1	-7	-25	-14	-25	-23	-15	-14	5	5	4.2
Galva.....	Max .	26	10	11	21	...	27	34	42	41	35	33	33	..	23	37	28	30	33	34	18	16	12	9	-7	-27	-25	-25	-17	-18	-18	0	1	1.8
	Min .	6	-14	-24	-2	...	8	19	19	21	24	26	13	...	12	15	6	11	11	18	9	8	3	-7	-27	-25	-25	-17	-18	-18	0	1	1.8
Glenw'd .	Max..	45	24	13	21	36	35	55	51	48	41	34	33	33	41	43	39	42	41	43	27	17	21	20	9	-1	22	18	14	27	29	26	30 5
	Min ..	16	-1	-10	2	15	10	25	24	27	28	26	20	10	25	25	13	21	21	26	15	12	10	1	-10	-18	-14	-3	-6	12	7	9	10.9
Grand M.	Max..	25	8	4	12	25	30	40	35	30	26	23	28	24	24	33	22	19	25	37	28	25	21	14	-12	-5	-3	1	3	8	24	18	19.0
	Min ..	8	-8	-20	-15	4	11	19	19	10	20	13	18	0	6	6	6	7	5	17	18	18	14	-12	-27	-29	-26	-23	-11	-21	0	0	0.9
Greenfi'ld	Max..	37	14	16	19	37	57	45	47	40	35	38	40	28	33	43	35	36	37	37	31	29	20	10	0	-9	9	12	4	19	30	25	26.9
	Min .	12	-5	-14	-2	10	9	20	19	20	23	26	17	8	19	17	11	15	12	25	23	15	10	-3	-17	-20	-20	-11	-11	-17	9	5	6.6
Grinnell.	Max..	29	14	13	17	31	35	43	39	35	31	27	30	23	27	32	32	24	28	38	30	30	22	18	2	-8	-1	4	1	10	23	19	22 6
	Min ..	14	-3	-15	1	9	13	22	21	19	25	21	23	5	13	17	9	11	10	24	22	22	15	-4	-20	-19	-18	-12	-5	-13	8	8	7.2
Grundy C	Max..	31	14	8	19	31	37	43	40	35	31	29	29	23	30	35	31	22	27	36	28	28	22	13	-6	-10	-1	2	3	10	23	18	21.9
	Min .	12	-7	-22	-6	8	15	22	20	17	24	12	21	3	13	16	7	12	6	20	18	20	11	-9	-26	-24	-26	-25	-13	-21	5	-1	3.3
Guthrie C	Max..	55	41	15	25	36	43	59	56	49	45	39	40	32	40	41	24	37	42	40	35	26	26	20	5	-10	11	9	6	17	30	34	31.2
	Min ..	13	-4	-17	-1	13	9	22	23	17	21	24	19	9	16	14	11	14	13	27	15	15	12	-4	-21	-22	-19	-10	-12	-23	2	5	5.8
Hampton	Max	20	6	11	19	29	37	41	36	34	30	29	29	22	31	34	23	25	28	30	22	24	17	3	-12	-9	-2	0	2	11	22	15	19.5
	Min ..	6	-10	-19	-7	9	8	22	20	15	23	12	13	3	17	17	7	12	6	20	13	16	3	-12	-27	-25	-24	-23	-11	-20	6	-2	2.2
Hanlont'n	Max	22	6	10	16	26	32	41	37	34	29	24	27	21	27	33	27	20	26	28	19	23	15	3	-9	-14	-7	-1	1	9	25	12	18.1
	Min ..	4	-10	-25	-8	4	0	16	17	10	20	8	18	1	17	19	5	9	3	17	9	13	2	-14	-29	-29	-27	-31	-19	-25	5	-2	-0 7
Harlan....	Max	30	9	14	22	34	34	49	45	41	35	34	31	30	32	41	37	36	39	37	26	18	16	12	2	-8	12	11	8	21	31	25	25.9
	Min ..	9	-4	-14	0	8	8	18	20	23	26	27	19	10	20	24	11	17	18	25	15	12	9	-2	-16	-20	-16	-7	-12	-19	10	2	7 1
Hopeville.	Max	30	14	13	20	34	40	51	48	41	34	30	30	28	32	42	33	43	37	41	31	29	21	12	6	-8	14	22	6	15	27	21	27.0
	Min ..	14	0	-12	0	9	14	22	23	25	25	24	21	10	18	16	13	19	14	27	25	18	12	-1	-11	-17	-19	-4	-3	-20	9	9	8.9
Humboldt	Max..	21	8	8	20	19	30	46	39	36	32	30	30	25	26	34	29	26	39	30	20	20	18	9	-8	-12	-5	4	1	12	26	20	20.4
	Min	8	-8	-23	-2	2	4	32	19	17	26	24	18	5	15	18	3	10	9	20	12	14	8	-3	-28	-26	-27	-17	-16	-18	3	-2	2.6
Ida Grove	Max	35	7	12	20	30	30	42	40	40	40	40	35	30	35	40	35	35	33	30	22	15	12	8	0	-6	5	4	15	20	25	25	24 3
	Min .	10	-8	-24	0	10	15	25	22	20	26	28	16	8	12	20	10	14	10	8	0	8	3	-7	-26	-26	-16	-16	-15	3	15	0	4.7
Indep'nce	Max..	22	10	-2	12	26	32	40	35	32	28	24	27	23	24	32	30	22	26	38	27	27	19	7	-10	-10	-10	0	2	6	19	14	18.5
	Min	8	-8	-23	-12	4	15	16	21	11	22	14	22	2	12	13	8	10	9	20	21	16	8	-10	-24	-24	-23	-26	-10	-25	1	3	2.3
Indianola.	Max..	35	15	13	21	38	28	51	45	42	31	28	30	25	25	38	34	29	32	37	30	30	20	13	2	-3	7	7	6	15	26	30	25.1
	Min ..	18	-5	-14	2	12	15	26	21	23	26	24	23	14	11	13	11	13	12	27	23	19	12	-2	-16	-18	-19	-7	-6	-19	12	21	8.6
Inwood..	Max	25	10	7	18	23	28	38	37	35	31	35	28	30	28	35	22	24	35	33	15	13	12	1	-11	-10	-5	5	6	16	25	22	19.7
	Min .	3	-12	-17	7	4	6	25	19	21	21	25	11	4	14	14	4	14	14	13	1	7	-8	-11	-26	-24	-15	-17	-18	-11	10	2	2.6
Iowa City	Max..	23	7	10	19	35	37	46	38	38	28	31	31	20	31	35	31	29	30	47	32	30	24	5	-11	-3	0	9	9	14	24	18	23.1
	Min ..	13	4	-17	-17	-1	8	11	23	17	19	21	22	5	4	13	11	13	15	21	30	20	0	-15	-17	-16	-16	-11	-21	-21	4	4	4.3
Iowa Falls	Max..	14	...	7	17	27	34	32	38	37	30	28	29	23	30	33	19	18	29	30	25	23	16	-4	-20	-12	-6	4	0	10	23	17	18.6
	Min ..	10	-4	-26	-5	6	5	3	10	11	16	11	18	3	15	16	6	6	6	12	13	15	14	-9	-26	-26	-25	-26

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR JANUARY, 1904—CONTINUED.

STATIONS.		DATE.																															MEAN.
		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	
LeMars ..	Max..	27	4	12	22	22	30	43	43	41	41	37	34	34	32	39	29	30	40	35	20	15	13	6	-5	-8	3	9	7	19	32	25	23.6
	Min ..	2	-15	-19	8	5	4	24	21	24	25	27	14	24	17	21	8	12	14	15	5	5	-1	-5	-23	-23	-13	-8	-14	-9	6	5	5.0
Lenox....	Max..	40	20	13	20	35	37	51	48	42	36	31	31	28	33	40	35	38	40	36	32	25	19	14	9	-8	12	12	10	18	25	23	27.3
	Min	18	-2	-12	-2	8	14	20	20	23	25	24	20	10	20	22	13	18	17	28	20	17	11	-3	-14	-21	-18	-6	-8	-19	6	2	7.9
Leon.....	Max..	49	25	8	18	32	34	50	46	40	33	30	30	26	32	30	37	36	39	44	33	32	22	17	9	-8	-7	14	9	15	28	24	27.6
	Min ..	15	1	-12	1	11	10	19	25	25	26	24	22	11	22	21	14	21	17	31	27	21	14	1	-9	-16	-17	-3	1	-16	14	12	10.7
Logan....	Max..	30	23	15	21	32	33	50	46	41	38	34	35	37	38	43	35	38	42	38	24	18	19	12	-4	-6	-7	15	11	22	32	25	26.8
	Min ..	12	4	8	3.	10	9	22	21	24	28	10	15	10	20	25	11	18	20	23	14	11	7	0	-14	-17	-14	-12	-13	-11	-7	15	8.1
Maquo'ta.	Max..	19	9	8	15	29	38	41	37	32	28	28	30	21	32	18	26	24	25	45	33	31	27	5	-4	5	5	4	12	14	22	20	22.2
	Min ..	13	6	-22	-18	-11	-11	8	21	10	10	20	21	9	8	2	0	11	7	15	22	27	21	-3	-15	-20	-19	-15	-15	-21	-4	-10	1.4
Marshlt'n	Max..	20	5	10	19	31	37	45	40	37	29	29	30	24	28	36	23	26	30	38	29	26	22	3	-12	-8	-2	4	5	12	26	21	21.4
	Min ..	15	-2	-18	-1	9	17	22	21	16	24	19	20	5	13	17	9	11	9	24	20	19	14	-7	-22	-21	-22	-20	-8	-22	-16	5	4.8
Mason C..	Max..	23	11	7	15	22	32	38	34	30	30	26	28	22	27	32	30	22	26	23	22	23	20	8	-8	-9	-7	0	2	9	22	21	18.9
	Min	11	-10	-17	-5	10	8	24	20	14	20	14	22	4	15	18	8	12	10	22	12	17	8	-8	-23	-25	-22	-24	-12	-17	2	3	3.5
M'nticello	Max..	10	13	-3	12	30	38	42	45	33	30	28	42	45	38	38	38	40	41	45	40	30	22	18	8	-5	-1	-1	10	12	30	18	25.2
	Min	-1	0	-22	-16	-6	5	8	20	25	22	25	18	16	5	3	10	12	18	20	25	18	10	-5	-19	-21	-20	-19	-15	-22	-10	-2	2.6
Mt. Ayr..	Max.	41	18	11	22	45	38	53	51	42	42	30	30	30	38	39	35	42	40	41	33	29	21	14	9	-5	12	16	11	16	22	23	28.7
	Min ..	15	-1	-12	0	11	15	18	22	35	25	25	22	10	23	22	14	20	18	31	26	19	12	-1	-11	-17	-18	-2	-7	-14	9	7	10.2
Mt. Pl'snt	Max..	42	21	7	18	32	32	44	41	40	34	32	33	31	30	37	34	28	31	47	42	34	29	23	2	-1	6	13	10	12	31	24	27.1
	Min	16	3	-17	-6	7	10	13	22	16	25	22	26	5	12	11	12	11	13	24	29	28	20	2	-10	-13	-16	-12	-5	-20	7	3	7.6
Mt. Ver'n	Max.	28	13	11	17	28	36	43	36	30	23	28	27	22	29	30	29	24	26	42	32	31	24	18	-3	-2	0	9	10	13	22	22	22.5
	Min ..	13	-5	-18	-5	4	18	17	25	16	23	16	22	2	10	12	8	10	10	20	27	23	18	-3	-19	-19	-19	-5	-2	-16	5	0	5.5
New H. ..	Max	27	10	3	11	23	31	39	35	32	31	26	26	24	22	31	...	20	23	33	24	. .	...	..	-10	-8	-5	1	2	6	18	14	18.1
	Min	7	-8	-24	-10	1	8	13	17	12	12	12	12	-1	7	..	4	6	5	5	14	...	...	-12	-29	-28	-26	-25	-14	-23	...	-2	-2.5
Newton..	Max	38	17	9	19	33	35	47	48	38	35	29	27	26	24	33	32	23	29	38	30	34	25	20	5	-7	0	5	6	11	23	24	24.3
	Min	12	-4	-19	0	9	14	19	20	17	25	21	23	4	9	15	7	10	10	24	20	23	13	-6	-12	-23	-21	-14	-6	-19	6	4	5.8
Northw'd	Max..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	....
	Min ..	4	-10	-18	-4	5	5	23	20	14	20	20	13	2	14	19	5	10	-5	-15	-20	-11	-10	-10	-27	-26	-25	-28	-15	-17	15	-2	-1 7
Odebolt ..	Max.	27	9	11	21	30	32	44	42	42	35	37	32	29	28	38	34	32	34	35	22	16	14	6	-6	-8	3	1	5	17	32	21	23.3
	Min .	9	-7	-19	-2	12	13	22	21	21	25	26	15	6	15	15	8	12	12	20	11	12	6	-3	-25	-23	-23	-14	-17	-15	4	1	4.4
Ogden. ...	Max..	22	3	15	23	35	40	51	47	46	30	33	28	30	26	43	28	22	36	30	26	21	22	-3	-9	-9	-12	7	3	16	31	21	23.7
	Min .	5	-3	-18	-13	5	8	9	17	16	16	11	15	-1	1	11	1	6	7	19	11	12	8	-12	-29	-25	-30	-21	-16	-22	3	-3	-0.2
Olin	Max..	32	16	5	14	28	32	41	40	33	30	28.	30	30	27	34	30	20	26	42	32	31	27	20	-3	-3	2	6	6	9	25	21	22.9
	Min .	16	1	-20	-13	1	18	14	25	13	24	19	23	4	4	4	11	12	10	20	28	25	20	-3	-16	-20	-17	-15	-10	-23	2	0	5.1
Omaha, N	Max..	28	9	14	24	31	36	54	52	45	35	36	31	34	41	44	32	38	44	44	23	16	20	12	9	-7	16	17	11	18	28	26	27.8
	Min	9	-3	-4	6	16	17	23	28	31	28	29	18	14	27	27	14	24	24	23	15	12	8	2	-12	-17	-10	-2	-7	-4	15	9	11.8
Onawa....	Max..	31	14	15	25	29	37	50	49	40	36	40	35	34	37	40	33	34	42	39	23	18	18	12	7	-6	11	13	13	20	32	25	27.3
	Min ..	14	-3	-7	5	11	15	23	23	24	26	28	19	11	23	24	11	20	19	23	12	10	4	0	-15	-16	-14	-3	-9	-7	10	8	9.3
Osage.....	Max..	22	7	8	11	21	29	39	35	35	30	23	25	21	24	32	30	20	25	29	21	23	17	6	-11	-11	-5	0	0	7	21	17	17.6
	Min	7	-10	-20	-7	6	8	18	19	12	21	10	21	2	10	19	6	9	6	20	12	13	6	-11	-28	-26	-24	-26	-15	-20	5	1	1.5
Osceola...	Max..	38	8	13	19	33	40	38	40	39	30	30	28	32	34	33	34	36	39	42	32	29	15	-1	-2	-5	20	-5	10	25	18	20	24.7
	Min ..	22	-1	-13	1	7	14	23	20	21	25	24	20	0	21	16	11	11	13	23	27	20	20	9	-13	-17	-19	-4	-3	-13	10	-1	9.3
Oskaloosa	Max..	32	5	9	20	35	35	48	42	37	32	29	29	23	25	35	28	28	29	43	32	31	24	16	2	-7	5	9	4	14	28	22	24.0
	Min	15	-6	-19	0	9	15	20	22	16	24	22	23	5	13	15	7	12	11	25	26	24	15	-2	-15	-17	-16	-9	-5	-23	10	5	7.2
Pacific J'n	Max	35	15	15	23	33	33	52	48	44	38	36	31	34	38	43	34	38	41	38	25	17	20	15	-2	-3	18	17	11	22	31	29	28.1
	Min ..	15	-2	-8	2	9	12	22	19	25	30	29	19	9	22	24	12	19	21	25	15	14	10	2	-9	-16	-14	-1	-11	-12	6	1	9.3
Perry.....	Max..	28	14	11	21	34	36	48	45	40	31	32	30	28	27	39	32	34	34	...	26	25	20	9	-5	-10	4	8	1	14	30	20	23.5
	Min..	13	-6	-15	2	10	10	22	20	19	27	23	20	9	11	14	11	12	24	...	16	12	8	-6	-23	-20	-22	-14	-10	-22	6	4	5 2
Plover....	Max..	22	8	11	20	30	29	41	38	42	32	31	30	24	29	36	25	29	24	26	17	20	18	5	-16	-17	-5	4	3	9	18	18	19.5
	Min ..	8	-12	-25	0	5	4	10	18	16	18	24	14	5	15	20	4	7	9	8	8	10	5	-16	-27	-30	-23	-25	-17	-20	0	-3	0.3
Primghar	Max..	20	10	9	6	29	27	38	32	31	32	31	32	28	27	34	25	25	30	30	21	12	11	4	-13	-13	-3	7	4	17	27	21	19.2
	Min .	4	-19	-16	-4	-4	4	13	18	21	25	26	12	4	9	18	4	11	6	11	12	5	4	-18	-25	-24	-15	-17	-19	-11	6	2	1.4
Red Oak..	Max	37	25	15	24	36	34	48	47	45	41	37	34	32	35	39	40	39	45	57	32	23	22	20	12	-2	13	13	13	21	29	29	30.2
	Min	18	0	-2	5	16	16	25	25	27	23	31	23	13	26	28	15	24	24	29	2	16	14	3	-5	-14	-8	3	7	-12	14	11	13.1
Ridgeway	Max	18	10	13	16	25	35	41	36	36	32	26	31	21	28	33	28	21	25	39	27	30	30	2	-14	2	0	5	9	13	30	18	21.5
	Min	8	-10	-17	-10	10	12	18	20	11	17	13	21	1	10	10	6	8	4	18	16	17	2	-17	-28	-28	-25	-20	-11	-19	5	-8	1.1
Rock R..	Max	12	-2	10	20	21	32	40	40	38	34	34	25	33	29	38	24	26	34	34	14	16	14	-3	-5	-5	0	10	5	19	27	22	20.2
	Min	5	-11	-22	8	3	2	20	20	20	24	24	15	5	9	18	4	6	4	18	4	2	0	-7	-24	-23	-11	-20	-16	-10	-10	2	1.9
Rockw'l C	Max	28	10	11	23	30	30	43	43	40	34	35	32	30	28	38	32	26	30	30	17	20	18	8	-13	-13	0	7	4	15	30	20	22.1
	Min ..	8	-7	-16	1	9	20	20	23	19	23	21	16	7	8	15	6	10	10	16	10	13	6	-7	-28	-25	-20	-19	-18	-19	6	2	3.5
Sac City..	Max	33	8	10	20	29	29	43	42	40	37	34	34	29	28	34	35	28	33	31	23	18	16	10	-4	-7	-4	4	3	14	28	24	22.4
	Min ..	8	-7	-21	0	11	10	22	23	20	24	26	15	7	15	17	7	10	11	21	10	12	9	-5	-26	-24	-22	-17	-14	-20	3	3	4.1
St.Cha'les	Max	40	18	20	24	38	43	53	51	41	32	31	30	30	38	41	35	31	31	39	33	30	24	12	1	-9	14	12	11	14	27	26	27.6
	Min ..	13	-3	-13	10	11	16	23	23	20	25	24	20	10	13	9	11	14	11	25	22	18	12	-2	-16	-18	-18	-3	-5	-17	11	10	7 8
Sheldon..	Max	20	0	8	16	24	28	39	39	35	31	33	32	28	28	34	28	27	34	31	23	20	14	10	-10	-10	-5	6	4	15	26	14	20.1
	Min ..	4	-14	-22	-10	-17	-2	22	19	19	24	26	12	5	11	18	5	12	12	16	3	8	1	-10	-27	-25	-17	-20	-20	-12	4	2	0.9
Sibley	Max..	6	0	8	16	17	28	30	35	35	31	33	23	29	35	26	24	25	32	20	14	16	11	16	-18	-11	-15	-11	2	17	...	11	17.3
	Min ..	4	-14	-22	-13	0	0	0	17	17	19	19	12	2	1	9	1	1	10	16	0	1	6	-10	-28	-27	-25	-20	-22	-21	3	..	-2.3
Sigourn'y	Max	33	24	12	18	32	34	48	42	37	33	33	33	26	32	38	32	24	32	47	33	33	27	20	4	-2	6	11	8	12	33	25	26.6
	Min ..	14	-2	-17	-1	7	12	19	21	16	16	21	24	2	14	14	7	12	16	24	27	24	17	-1	-14	-16	-17	-11	-7	-20	8	2	6.9
Sioux C'r.	Max..	24	4	9	19	29	29	40	40	36	32	36	30	30	29	37	28	28	35	33	15	13	12	2	-12	-11	-2	8	5	17	28	23	20.8
	Min ..	3	-11	-17	6	5	7	22	22	21	26	26	12	5	13	19	5	14	14	15	3	8	-4	-10	-25	-24	-16	-13	-16	-12	7	2	3.5
Sioux C'y.	Max..	22	5	13	25	26	33	46	42	42	32	34	30	33	33	38	28	32	42	37	17	14	12	4	-4	-7	4	7	6	17	29	20	23.1
	Min	5	-13	-16	7	10	6	31	25	29	25	29	15	10	21	19	10	16	20	16	7	8	1	-4	-21	-21	-10	-5	-14	-6	14	6	22.0
Spirit L..	Max..	24	1	19	14	23	30	30	36	40	32	34	27	27	27	36	22	27	28	27	12	14	12	0	-12	-11	-1	1	7	14	23	20	19.8
	Min ..	-5	-13	-18	4	12	17	17	17	17	23	27	16	16	10	10	0	14	9	9	2	8	0	-10	-28	-28	-20	-25	-20	-15	2	0	1.7
Storm L..	Max..	25	9	7	20	26	26	41	40	36	34	31	33	28	27	36	31	29	32	34	20	15	15	6	-3	-10	-1	3	3	12	20	22	20.7
	Min ..	5	-8	-18	0	10	5	20	20	19	18	20	14	5	10	12	5	10	10	18	8	10	5	-9	-30	-30	-20	-20	-19	-16	3	1	1.9
Stuart. ..	Max	41	16	13	20	36	35	47	54	41	35	33	31	26	32	37	36	38	28	34	29	24	20	13	4	-11	11	7	5	14	28	25	25.7
	Min ..	15	-2	-12	0	15	14	24	23	21	26	24	19	9	15	13	11	10	12	27	21	17	11	-2	-18	-19	-16	-7	-7	-14	14	10	8.1
Thurman.	Max..	38	17	13	22	34	35	53	49	44	39	34	30	33	38	40	35	40	40	44	29	18	19	28	8	-7	15	15	13	21	28	28	28.8
	Min ..	16	0	-9	-1	11	10	23	20	24	30	28	22	11	25	30	15	21	23	28	16	13	11	3	-9	-16	-17	-1	-12	-20	8	-2	9.7
Tipton....	Max..	34	18	10	16	30	34	43	39	35	30	28	30	28	28	33	32	27	28	45	33	33	27	20	0	1	2	7	10	13	21	11	24.1
	Min ..	16	2	-18	-4	1	16	18	25	18	23	20	18	5	10	11	10	12	12	21	28	24	17	0	-15	-15	-15	-12	-4	-13	4	5	7.3
Toledo....	Max..	29	13	11	20	32	33	46	40	37	30	27	31	22	29	37	32	25	30	40	29	30	21	10	-5	-7	-2	5	6	12	28	21	23.1
	Min	13	-7	-19	-4	8	13	22	22	14	24	17	22	4	10	17	9	11	8	24	22	17	10	-3	-21	-20	-22	-20	-9	-23	5	3	4.6
Villisca...	Max..	34	23	10	13	26	37	51	49	48	33	28	27	29	35	45	41	44	47	34	30	26	20	12	4	2	4	9	22	28	31	24	28.0
	Min ..	14	-3	-10	0	8	11	23	22	21	27	25	29	10	20	24	18	34	34	32	18	14	9	-2	-9	-17	-15	-3	-8	-21	7	-1	9.1
Wapello..	Max..	31	20	15	17	29	35	41	40	36	33	32	31	29	29	35	33	26	27	47	36	34	30	24	6	6	9	9	10	11	24	24	26.1
	Min ..	19	2	-12	-2	10	15	20	27	20	26	24	26	8	12	15	14	14	16	25	32	24	22	4	-3	-10	-11	-7	0	-12	8	4	10.5
Washi'ton	Max.	27	11	11	20	32	36	48	40	37	28	30	32	21	30	37	26	28	29	50	34	32	24	18	-3	-1	-1	9	10	15	26	22	24.0
	Min ..	12	-10	-18	-4	5	9	14	20	18	21	19	19	1	12	9	7	10	9	22	27	19	14	-3	-15	-16	-18	-12	-10	-20	6	-1	5.4
Waterloo	Max..	24	10	9	17	30	33	42	37	34	31	26	30	21	28	35	32	26	30	40	29	31	24	0	-10	-5	-4	2	7	10	25	20	21.4
	Min ..	10	-5	-21	-9	9	12	18	22	14	21	15	22	2	15	14	9	12	11	20	20	14	13	-7	-23	-22	-24	-23	-10	-25	6	5	3.7
Waukee..	Max.	41	16	14	23	38	38	49	47	41	34	32	29	29	26	40	35	32	31	34	27	27	21	14	0	-3	6	11	10	15	32	30	26.5
	Min ..	12	-2	-17	2	10	13	23	22	21	21	24	20	18	18	20	10	14	12	27	22	18	14	-2	-11	-18	-19	-12	-5	-17	14	10	8.8
Waverly..	Max..	21	7	2	14	26	28	39	36	32	29	25	26	20	28	33	30	23	28	35	24	26	22	6	-11	-8	-3	1	2	8	23	17	18.8
	Min ..	7	-9	-26	-14	-3	9	16	15	11	22	14	20	2	10	14	7	11	8	21	17	15	6	-11	-25	-25	-25	-27	-11	-26	5	-1	0.9
W.Bend..	Max..	23	8	7	19	29	29	42	39	37	31	30	24	25	26	36	26	24	29	30	18	18	15	7	-9	-11	-3	5	3	10	26	19	19.9
	Min ..	6	-9	-21	1	5	5	23	18	17	24	23	15	4	18	18	2	9	7	17	9	12	6	-9	-29	-27	-23	-24	-19	-17	4	-1	2.1
Whitten..	Max.	31	10	7	18	30	34	43	40	36	33	28	30	28	30	36	33	24	35	36	24	28	19	6	-8	-10	-1	5	2	13	25	19	21.9
	Min .	9	-8	-23	-4	7	11	17	20	15	21	13	21	2	13	14	5	9	7	6	15	16	4	-10	-27	-26	-28	-24	-12	-23	4	0	1.4
Wilton J.	Max..	34	17	8	17	31	34	45	40	37	30	32	33	29	32	37	33	25	47	33	37	33	30	24	1	-2	6	10	8	12	26	23	26.0
	Min ..	14	-1	-18	-3	5	12	15	25	15	24	21	24	4	7	9	10	12	10	28	29	27	22	0	-13	-17	-14	-11	-8	-18	2	0	6.7
Wintres't	Max.	37	30	17	27	24	41	39	52	52	45	34	32	31	32	33	35	37	35	36	28	25	22	12	11	9	15	19	14	24	25	25	20.0
	Min ..	11	-2	-15	-12	-2	2	9	22	23	18	22	23	22	23	12	11	12	12	25	18	16	9	-2	-18	-19	-12	-12	7	7	7	8	7.3
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DAILY AND MONTHLY PRECIPITATION FOR JANUARY, 1904.

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	....	T	...	T	....	....	....	....	..	.10	....	..	....	....	....	....	....	....	..	1.42		....	....	....	.10	...	.10	.10	....	.20	....	2.02
Albia	....	T	....	....	....	....	....	....	....	.42	..	T	...	.09	..	..	....	....	....	1.76	.20	....	..	....	T	.20	.20	..	....	.04	.10	3.01
Algona	T	....	....	T	....	....	....	....	....	....	.10	....	....	.05	..	..	....	....	....	.20	T	....	....	....	....	.05	....	T	T	..	....	.40
Allerton	T	.10	...	....	....	....	....	....	T	.40	T	....	....	....	....	..	....	....	....	1.53	.06	.02	T	.03	.14	....	....	.05	T	.22	.05	2.60
Alta	.04	....	....	.01	....	....	..	..	T	....	....	....	.02	....	....	....	....	....	....	.17	.01	.02	....	....	....	.02	.03	...	.04	..	.01	.37
Alta (near)	.15	...	.05	..	....	....	....	..	....	....	....	....	T	..	....	....	..	....	....	.20	....	....	..	....	....	T	.05	....	.05	....	....	.50
Amana	....	.06	....	....	....	....	..	..	T	.29	.02	T	....	.02	..	....	....	..	....	1.21	.11	T	....	....	....	T	.02	T	....	T	T	1.73
Ames	....	.01	....	..	....	....	....	....	....	....	.05	....	....	.11	..	....	....	....	....	.26	....	..	....	....	....	.04	..	....	....	.03	....	.50
Atlantic	T	....	T	....	....	....	....	..	..	.71	....	....	....	....	....	..	....	..	T	.30	....	....	....	....	.10	...	.25	....	....	....	....	1.36
Aububon	....	T		....	..	..	....	....	T	.09	....	....	..	....	....	....	....	....	....	.20	..	....	....	..	....	....	.04	....	T	....	....	.33
Baxter	....	....	....	....	....	..	....	....	....	.10	.20	....	....	....	....	....	....	....	..	.80	.20	....	....	....	....	....	....	....	.05	....	....	1.35
Bedford	....	.01	....	.09	....	....	..	....	T	.51	....	.02	....	..	....	....	....	....	..	1.54	..	....	....	.14	.06	..	....	.11	....	.39	....	2.87
Belknap	....	.60	....	....	....	....	....	....	....	.50	T	T	..	..	..	..	....	....	..	1.00	..	.17	....	....	....	....	T	T	T	.30	T	2.57
Belle Plaine	....	..	....	....	....	....	..	...	25	.25	.20	....	....	.05	....	....	....	..	..	2.45	..	....	..	....	..	.10	.07	....	.05	....	T	3.42
Bonaparte	.21	....	...	....	....	....	....	....	....	.03	....	....	....	....	....	....	..	..	..	1.92	....	....	....	....	....	....	....	....	....	.40	....	2.61
Britt	.02	....	....	.03	....	....	....	..	....	....	.12	....	....	.09	....	....	....	....	....	.10	.03	.01	..	....	....	.02	....	....	T	.02	.02	.46
Buckingham	....	T	..	....	....	....	....	..	....	.04	.17	....	....	T	....	....	....	....	....	.52	T	T	....	....	..	.02	T	....	....	....	T	.75
Burlington	....	.25	....	....	....	....	....	....	T	.18	T	....	.04	....	....	..	....	....	....	2.05	.10	....	....	....	.18	...	T	.10	..	.14	.06	3.10
Carroll	....	.10	....	T	....	....	....	....	....	T	T	....	....	....	....	....	....	....	....	....	.30	T	..	....	....	....	.10	...	T	T	T	.50
Cedar Rapids	....	T	....	....	....	....	..	....	....	....	.11	T	....	.05	T	....	....	....	....	.52	.25	.08	....	..	..	T	....	....	..	..		1.01
Chariton	..	.02	....	....	..	....	..	....	.01	.01	..	....	....	....	....	....	....	....	....	1.90	T	....	....	....	....	T	T	T	T	T	.20	2.15
Charles City	....	T	....	....	T	....	.	....	....	.09	....	.14	..	....	.03	....	....	....		...	.13	T	T	....	....	....	T	....	....	.05	....	.44
Clarinda	....	T	.05	....	....	....	....	....	....	.40	..	..	....	....	....	....	....	....	....	1.18	.06	T	T	.04	.03	....	....	.08	...	.07	.21	2.12
Clear Lake	T	.05	....	....	....	....	....	....	....	T	.20	....	....	.05	....	....	....	....	....	.10	.20	T	....	....	....	T	....	T	T	.02	T	.62
Clinton	....	.14	..	..	....	....	....	....	....	.10	.10	....	....	.08	....	....	....	....	....	1.53	.07	....	....	....	....	.03	.10	....	....	.10	..	2.25
Columbus Junct'n	....	.11	....	....	....		....	....	T	.25	....	.05	..	T	....	....	....	....	....	1.50	T	T	T	....	T	....	..	.03	....	.04	T	1.98
Corning	....	T	....	T	....	....	..	....	T	.39	....	....	....	....	....	....	..	....	1.03		.05	T	.02	T	....	T	.20	.20	.25	.15	...	2.29
Council Bluffs	.25	....	...	....	...	....	..	..	....	.10	....	....	..	....	....	....	....	....	....	....	....	....	....	....	...	...	.15	.01	....	....	.02	.53
Corydon	..	.06	....	T	....	..	.	...	T	.62	...	T	....	T	....	....	....	....	....	1.30	T	T	....	.03	.14	....	....	.01	....	..	.17	2.33
Cumberland	..	....	T	...	....	..	....	....	..	.10	....	..	....	....	....	....	....	....	1.40	.10	....	....	....	....	....	....	.20	....	.20	....	.10	2.10
Davenport	....	.09	....	....	....	....	....	....	....	.16	....	.04	T	.02	....	....	.	...	T	1.83	.05	T	T	....	T	T	T	.01	....	T	T	2.20
Decorah	.10	...	....	..	..	....	.02	....	....	....	....	....	....	....	....	....	.41	.	....	.06	.05	..	....	....	....	..	....	....	....	....	....	.64
Delaware	....	....	..	....	....	....		....	....	T	....	.02	...	.03	....	....	....	....	....	.47	....	..	....	....	....	T	T	....	....	.02	.03	.57
Denison	.02	....	....	.	...	....	..	....	....	....	....	....	....	....	....	....	....	....	.05	.10	.10	..	....	....	....	T	..	.22	.02	.02	..	.53
Des Moines	..	.01	..	T	....	....	..	...	T	.04	.05	T	....	.06	....	....	....	....	....	.97	.01	T	....	....	T	T	.07	.01	T	T	T	1.22
Dows	....	.10	....	....	....	....	....	....	....	T	.20	....	....	.10	....	....	....	....	....	.20	....	....	....	....	....	..	....	....	....	.10	T	.70
Dubuque	....	.05	..	....	....	T	....	T	....	T	....	.07	T	.02	..	....	.05	T	....	.22	.08	T	....	....	..	T	T	.01	....	.02	T	.51
Earlham	T	....	..	T	....	....	....	....	T	.36	T	....	....	....	....	....	....	..	..	.89	T	T	..	....	.03	..	.02	.01	.06	T	T	1.31
Elkader	....	....	....	....	....	T	....	....	....	.05	.01	....	....	.02	....	....	.04	....	....	.33	T	..	..	....	..	T	T	....	....	.06	....	.51
Estherville	....	.06	....	.01	.01	..	..	....	....	T	T	.06	T	.12	....	....	....	....	T	....	.10	T	T	....	....	T	.07	T	....	T	T	.43
Fayette		....	....		....	..	..	....	....	.02	.05	....	..	.01	..	.	.		....	....	T	....	..	....	....	....	....	....	..	....		.08
Forest City	T	....	....	T	....	....	..		....	....	.	.10	.	.10		....	....	....	..	....	.20	T	..	....	....	....	....	....	T	....	T	.40
Fort Dodge	.10	....		....	....	.	....	....	....	T	.15	....	.	.05	....	....	....	....	....	....	T	....	....	..	..	..	..	..	..	..	T	.30
Fort Madison	...	.30	....	....	....	....	....		T	T	T	....	....	....	....	....	....	....	....	2 25	....	....	....	T	.20	.10	..	..	.10	.20	T	3.15
Galva	....	.10	....	..	.25	....	....	....	....	....	T	....	....	....	....	....	....	....	....	.20	T	....	....	....	..	T	....	....	....	....	....	.55
Gilman	..	T	....	....	....	....	....	....	T	.01	.01	T	..	T	.	....	....		....	.83	....	....	....	....	....	....	....	T	T	T	T	.85
Glenwood	....	....	T	....	....	....	....	....	.20			T	....		....		....	....	....	.10	T	T	....	.05	T	....	T	.10	.10	T	....	.55
Grand Meadow	....	....	....	T	..	....	....	....	....		.15	....	....	....		....	.10	....		.25	.05	T	....	....	....	T	T	....	....	.05	....	.60
Greenfield	....	.01	....	.02	..	....	..	..	T	.22	T	T	....	....	....	..	....	..	..	.91	.02	.01	....	T	.02	....	.12	.26	.03	.07	.02	1.71
Grinnell	....	.03	....		....	....			.01	.12	.11	....	....	.08	....	....	....	..	..	1.00	....	.01	....	..	....	.02	.10	....	.04	.	....	1.52
Grundy Center	....	.05	..	....	....	....	....	..	..	....	.04	.01	....	....	....	....	....	....	....	.43	.25	T	....	....	....	....	....	....	....	....	....	.78
Guthrie Center	....	.03	....	.03	....	..	..	..	.04	.18	T	....	....	....	....	....	....	....	....	.48	T	T	..	....	T	....	.09	.02	.02	.01	.01	.91
Hampton	.12	....		....		....	....	....			.16	.02	....	..	....	....	....	..	....	.48			....	....		.02	....					.80
Harlan	....	T	....	.03	....	..	....	....	.04	.13	....	....	....	....	....	....	....	....	....	.27	.02	T	....	T	T	....	.30	.10	T	.02	.02	.93
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Keokuk	T	.16	....	....	...	....	....	....	T	.26	T	.02	....	T	....		....	....	T	1.76	10	T	T	.01	.08	.02	....	.03	...	.22	.04	2.70
Keosauqua	....	.08	....	....	....	....	....	....	....	.13	T	.04	....	....		....	....	....	....	.67	1.35	T	....	T	.12	....	....	.05	T	.04	.16	2.64
Lacona	....	.10	....	.	.02		....	....	.08	.62	.05	..	....	....	....	....	....	....	....	1.94	.21	....	.06	....	.14	....	.24	....	.11	.09	.02	3.68
Larrabee	.08	...	T	.01		....	....	....	....	....	T	....	T	....	....	....	....	....	....	.04	.02	T	....	....	....	.01	T	....	....	....	T	.16
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LeMars	.20	....	T	.05	.	....	....	....	....		T	....	....	....	....	....	....	....	....	T	T		....	....	....	T	T	T	T	.10	....	.35
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Leon	..	....	....	.02	.	....	..	..	02	.06	T	...	....	....	....				....			.01	.01		.25	..			.03	.30	.02	.72
Logan	....	.10	....	.10	....	.		....	....	.10	....	....	....	.20	..	....	....	....	....	....	.10	....	....	....	....		.20	.30	.10	....	..	....	1.20
Maquoketa	....	....	.	....	....	....	..	....	....	....	.09	06	T	.02	....	....		....	....	.70	.36	.03	....	....	..	....	....	....	.05	....	....	....	1.31
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St. Charles	.02	....	....	.04	....	....		....	.01	.48	.10	....	....		....	....	....			1.39	01	T	....	....	....	T	.10	.05	.03	.05	.03	2.31
Sheldon	.10	....	.01	....		....	....	....		.01	....	..		.01	....		....	....	....	T	T		....	....	....	04	T	.01	.03	T	T	.21
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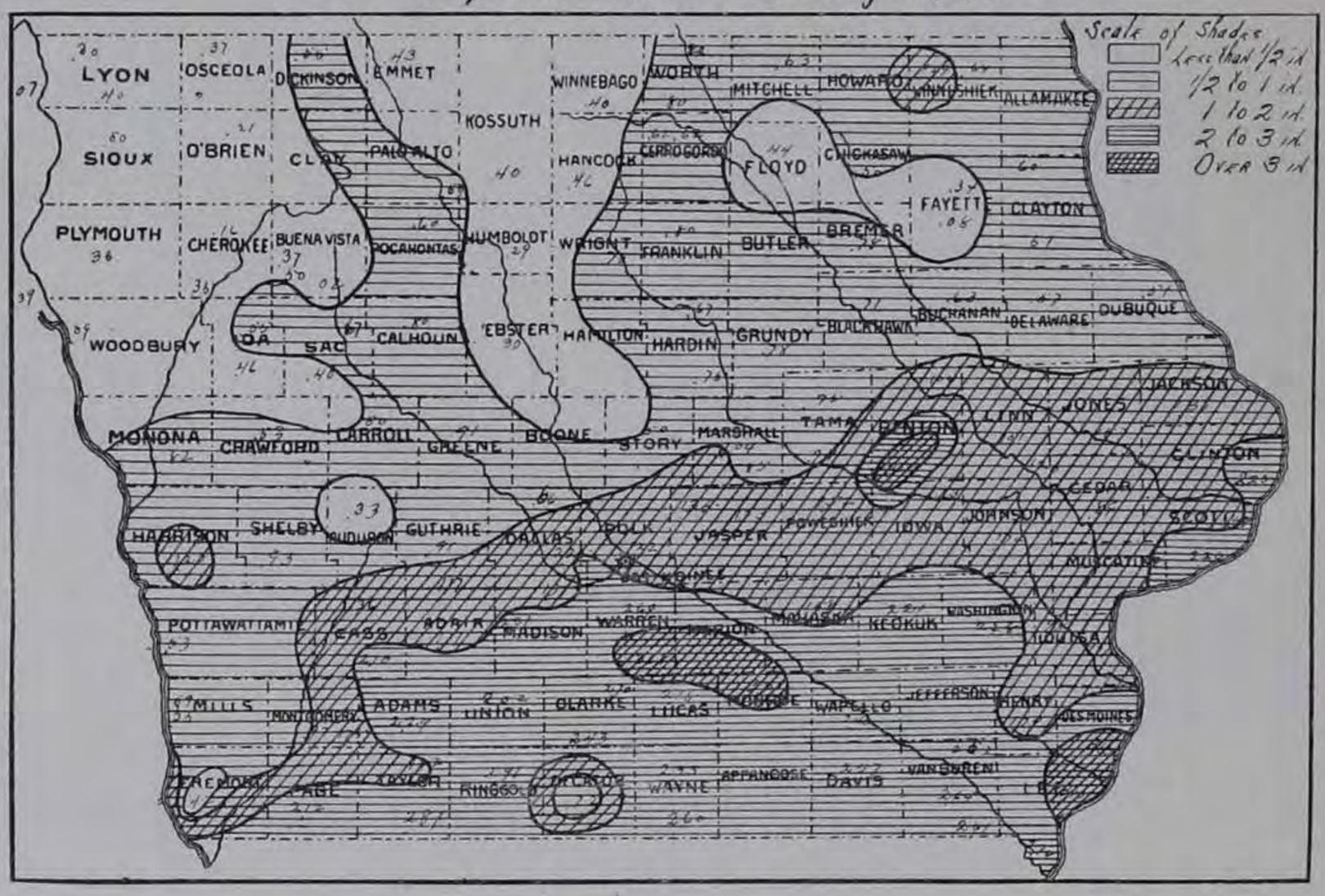
Stockport	....	.18	....	.	.	.	....	....	.02	.04	.03	....		.01		...				1.75	.05	T	....	T	.16	T	.10	T	T	.18	T	2.52
Storm Lake	T	.01	....	T	....	....	....	....	T	....	....	....	....	T	..		....			.01	T	T	....	....	....	T	....		T	...		.02

DAILY AND MONTHLY PRECIPITATION FOR JANUARY, 1904--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	
Stuart				.05						.80	.02									.20							.30	.10	.10	.10		1.17
Thurman		T	T	.01					T	.05		.05								.22	T	T	T	.02	T	T	T	.02	.01	.03	.01	.42
Tipton	.10									.20	.15		.10	.15						.94	.05						.20					1.89
Toledo		T								.10	.07	T		T						.75	T					T	.02			.03	T	.97
Villisca								1.20														T		.10			T		.20	.25		1.75
Vinton									.32	.20	.05			.05						.20	.02					T			.20			1.04
Wapello		.02								T		T								1.60	09					T	T	T				1.71
Washington		.03								.21				T						1.98								.03		.03		2.28
Washta	T	15									T									.10	T					.10			T		T	.35
Waterloo		.06								.03	.05			.03						.41	.10	T	T						T	.03		.71
Waukee		.05		.05					.03	.25	.05			.10						1.28	T	.02			.05	T	.20	.05	.10		.02	2.25
Waverly	.01	.09					T			.01	.12			.06						.25	.13	.01				.02	.01		.01	.01		.78
West Bend	.05			.05							.20									.10	.10	T				.05		.02	.02		T	.59
Whitten									T	05	.20									.50	T	T				T	T		T		T	.75
Woodburn		.09		.02					.29	.18	T	T								1.56	T	.06		.03	.10		.02	.20	.02	.11	.02	2.70

Precipitation Chart January 1904.



FEBRUARY, 1904. No. 2.

CONTENTS.

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DIRECTOR.

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LOCAL FORECASTER,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

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

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Wiota	I. S. Coomes
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U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

VOLUME XV. FEBRUARY 1904. No. 2.

NOTES AND COMMENTS.

Iowa leads the states in the production of eggs, the yearly product being 100,000,000 dozen. Ohio comes next with 91,000,000 dozen; Illinois is third with 86,000,000 dozen, and Missouri fourth, with 85,000,000 dozen. The value of the combined poultry and egg product would be nearly double that of the precious metals.

It has been suggested that the recent bulge in the price of wheat is likely to cause an increase in the acreage of spring wheat in Iowa and other parts of the northwest. Unquestionably the time is favorable for expansion in the production of that cereal in sections of this state best adapted to its growth, but it is wise to exercise due caution in this matter. The crop should be seeded early as possible and more than the usual amount of care should be taken this season in procuring seed. Spring wheat is an uncertain crop in this section, at the best.

The coming farmer in the corn belt will demand his silo as much as he will his barn. Recent experiments show that silage is a very superior ration for the fattening steer as well as being almost indispensable as a ration for the dairy cow. The fact is that corn put in the silo and fed is worth so much more and will go so much further than corn fed the old way that its use will become almost imperative—*J. S. Trigg.*

The moon and the weather
May change together;
But the change of the moon
Does not change the weather.
If we'd no moon at all,
And that may seem strange,
We still should have weather
That's subject to change.

From "Notes and Queries."

Milton T. Ashley, voluntary observer at Hopeville, Clarke county, writes as follows: "I have made several tests of home-grown seed corn, and find none fit for use. The best samples showed only 67 per cent germination. Some corn shipped into the county and advertised for seed I tested. Two samples showed one good and the other worse than bad. I fear that too many of our farmers will trust to old time methods of selection of seed and be bitterly disappointed. This trouble is probably not local, but quite general, and the farmers need good counsel as to where and how to procure good seed."

From many sources we hear similar complaints as to the germinating quality of seed corn. No time should be lost in making preparations for the planting season, which is close at hand.

In this latitude February 2d—Candlemas Day in the church calendar, and "ground hog day" in old folk lore—is usually about the middle of the period of severest winter weather. This is the basis of the old proverbs

"At Candlemas Day another winter is on its way."
"Candlemas Day! Candlemas Day!
Half our fuel, half our hay."

On an average we have about six weeks of winter temperature after the 2d of February. South of this state, however, the rule would not hold good.

The coldest region on earth inhabited by man is in northeast Siberia, above the Arctic Circle, where the temperature sometimes falls to 90° below zero. The hottest region is in the great Sahara Desert of Africa. The wettest spot on earth, according to Davis, is at Cherrapunji, at an elevation of 4,435 feet on the southern slope of the Himalaya Mountains, north of the Bay of Bengal, India. The average annual rainfall is 474 inches, of which over 400 inches fall in the five months from May 1st to October 1st.

IN MARCH.

To the north the sun returning
Clears the dimness from the blue,
Paints the white out of the landscape,
Gilds the willow boughs anew.

Wintry storms may still blow fiercely,
There are balmy hours between,
When the breezes dance and whisper,
"This will make the wheat fields green."

Longer days and shorter shadows,
Less of gloom and more of cheer,
There's a hint that's half a promise,
That the spring will soon be here.

—*Lizzie Ferris, in the Inter-Ocean.*

EVAPORATION BY WIND.

It is a well-known physical principle, in use in a number of ways, that evaporation takes place more rapidly from a moist surface when the air above that surface is in more or less rapid motion. This holds good when the moist surface is that of the cultivated field and the wind blows over it. Prof. T. Russell, Jr., obtained the following results from experiments designed to show relative rate of evaporation as affected by rate of wind motion. Compared with the evaporation from a water surface when covered by still air, the evaporation from the same surface when the wind showed different velocities was as follows: Wind 5 miles per hour, evaporation 2.2 times. Wind 10 miles per hour, evaporation 3.8 times. Wind 15 miles per hour, evaporation 4.9 times. Wind 20 miles per hour, evaporation 5.7 times. Wind 25 miles per hour, evaporation 6.1 times. Wind 30 miles per hour, evaporation 6.3 times. These experiments were made when the temperature of the air was 84 degrees F. and the humidity was 50 per cent.—*Murray's Price Current.*

TEST THE SEED CORN.

Seed corn should never be planted until it has been tested to determine what per cent will germinate. While this is always advisable, perhaps it is more necessary this year than common for the reason that corn was slow in drying out last fall and extremely cold weather came unusally early.

Examination of a good many samples of corn in different parts of the State, and of some lots of seed corn purchased in the west, leads the Ohio Experiment Station to believe that there will be considerable more trouble than usual this year in getting a satisfactory stand. The safe thing to do is to test the seed early and have plenty of time to look elsewhere for seed of greater vitality, if occasion demands.

The station has recently tested eight different lots of corn including five varieties. Three of these tests were made with the same variety of corn, the selected seed of which had been carried through the winter in different ways, viz: In a large crib of corn six feet wide; overhead in crib spread out in a thin layer on the floor; in a room where the temperature was from sixty to seventy-two degrees.

Of the crib corn (selected ears) only sixty kernels out of a hundred germinated; of a similar corn kept overhead in crib, eighty-one kernels germinated; of that subjected to artificial heat, ninety-five out of the hundred germinated. This for corn which seemed quite mature at husking time.

Of the other corn tested, choice ears sent to the station in the pink of condition (supposedly so until the kernels were examined) showed as low as eighty per cent germinated.

It is quite probable that the low temperature of the early winter, coming while kernels and cob yet contained much moisture, is responsible for this state of affairs.

A convenient way to test corn is between sheets of moist paper or cloth, placed in a box of suitable size. Several lots may be tested at once and examined much more easily and quickly than when planted in sand. Simply keep the paper moist and where the temperature does not fall below 55 degrees. It should all germinate in from four to eight days, depending upon the sort of corn weather furnished.

Handled in this way it is possible to examine it daily and note the progress of germination.

There are different degrees of vitality in corn that will germinate. Many of the weak, spindling stalks which produce a small nubbin, or nothing at all, spring from seed of barely enough vitality to get the plant above the ground. Seed that will grow fairly well when conditions are favorable at seeding time will rot if cold, damp weather happens to prevail.

If possible use only such seed as has large, bright looking germs. Wrinkled and dull-colored germs have likely been injured by freezing. Plumpness at the tip is an evidence of vitality. Thin, shrunken kernels having sharp pointed tips should be rejected, as well as those having an excess of soft, white starch at either crown or tip.

The Station hopes that its suggestions given last fall have been followed by the corn growers of the state and that all have supplied themselves with the best seed corn obtainable and have taken good care of it. Choice seed corn is worth much more than anyone thinks of asking for it. Poor seed should be classed with the luxuries (?) which no corn farmer can afford.—*Ohio Experiment Station; C. G. Williams, Agriculturist.*

SEASONABLE WEATHER PROVERBS.

The following lines and couplets are copied from "Weather Folk Lore," recently published by the U. S. Weather Bureau. Pick out the proverbs that suit you best. They are all good—when they are verified.

The month that comes in good will go out bad.
A favorable January brings us a good year.
January warm, the Lord have mercy!
If grass grows in January, it grows the worse for it all the year.
Always expect a thaw in January.
If there is no snow before January, there will be the more in March and April.
A warm January, a cold May.
There is always one fine week in February.

If February gives much snow,
A fine summer it doth foreshow.

February rain is only good to fill ditches.
Thunder in February or March, poor sugar (maple) year.
Winds in March and rains in April promise great blessings in May.
As it rains in March, so it rains in June.
A dry and cold March never begs its bread.
March flowers make no summer bowers.
March comes in like a lamb and goes out like a lion.
March comes in like a lion, goes out like a lamb.
March in January, January in March, I fear.
March damp and warm will do the farmer much harm.
When March has April weather, April will have March weather.
March winds and April showers bring forth May flowers.
A cold April the barn will fill.
Moist April, clear June.
'Till April's dead, change not a thread (of clothing).
Dry May brings nothing
May damp and cool fills the barns and wine vats.
A hot May brings a fat churchyard.
A dry May is followed by a wet June.
Wet May, dry June.
Calm weather in June sets corn in tune.
A late spring, a great blessing.
Better late spring and bear, than early blossom and blast.
A late spring never deceives.
If the spring is cold and wet, then the autumn will be cold and dry.
A dry spring, rainy summer.
Early thunder, early spring.
Who doffs his coat on a winter's day will gladly put it on in May.

WEATHER AND CROPS—FEBRUARY, 1904.

February was unseasonably cold and dry. The mean temperature for the State was 14.8°, which is 4.8° below the normal. There has been but one colder February within the past fifteen years, and that was in 1899, when the mean for the State was 12.2°. February, 1900, scored the same temperature record as the past month. The average precipitation was .41 of an inch, which is .63 of an inch below normal. There was less than the usual amount of wintry storms of sufficient force to interfere with farm operations, travel and transportation. The roads were generally in fine order, and conditions were favorable for feeding stock. The temperature at the close of the month was quite moderate and spring-like, and the first appearance of migratory birds and fowls was noted in many localities. The limited area of fall wheat and rye was generally without covering of snow during the period of lowest temperature, and these crops undoubtedly suffered some damage. The damage to fruit is as yet undetermined.

CLIMATOLOGY OF THE MONTH.

BAROMETER—Mean pressure, 30.21 inches; highest observed, 30.85 inches, at Sioux City, on the 10th; lowest observed, 29.37 inches, at Davenport, on the 6th; range for State, 1.48 inches.

TEMPERATURE—The monthly mean temperature for the State, as shown by records of 107 stations, was 14.8 degrees, which is 4.8° below normal. By sections the mean temperatures were as follows: Northern section, 10.7°; central section, 15.0°; southern section, 18.8°. The highest monthly mean was 21.6° at Keokuk; lowest monthly mean, 7.2° at Estherville.

The highest temperature reported was 70°, at Keosauqua, on the 6th; lowest temperature reported, 26° at Fayette, on the 1st. The average monthly maximum was 51.3°; average monthly minimum, 14.4° below zero. Greatest daily range, 60.0° at Denison; average of greatest daily ranges, 41.0°.

PRECIPITATION—Average precipitation for the State, as shown by records of 118 stations, was 0.41 of an inch, which is 0.63 of an inch below normal. The averages by sections were as follows: Northern section, 0 63 inch; central section, 0 35 inch; southern section, 0.25 inch. The largest amount reported was 1.99 inches at Ridgeway; least amount reported, trace at Osceola and Thurman. The greatest daily rainfall reported was 0.84 of an inch at Ridgeway, on the 17th and 18th. Average number of days on which .01 of an inch or more was reported, 4.

WIND AND WEATHER—Prevailing direction of the wind, northwest; highest velocity reported, 61 miles per hour, from the northwest, at Sioux City, on the 2d. Average number of clear days, 10; partly cloudy, 9; cloudy, 10.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES. Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	30.19	30.71	11	29.37	6
Des Moines	30 23	30.79	10	29.39	6
Dubuque	30.23	30.75	10	29.43	6
Omaha, Neb	30 20	30.81	10	29.38	6
Keokuk	30.18	30.71	11	29.39	6
Sioux City	30.22	30.85	10	29.43	6
Means	30.21	30.85	10	29.37	6

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	6,525	35	W	2
Des Moines	6,735	31	NW	2
Dubuque	5,719	32	NW	2
Keokuk	6,348	42	NW	2
La Crosse, Wis	5,286	31	N	2
Omaha, Neb	7,477	38	NW	2
Sioux City	10,115	61	NW	2

OBSERVERS' NOTES.

AFTON—*N. W. Rowell.* First robins appeared February 29th.

ALTA—*David E. Hadden.* Month cold and mostly cloudy; mean temperature, 5.2° below normal of past fourteen years.

AMANA—*C. Schadt.* Month cold, northwest wind prevailing. But little snow on ground and frost penetrated the ground, causing freezing in pipes several feet in depth. Ice formed on trees January 19th; did not melt until February 5th. Thunderstorm on 6th.

ATLANTIC—*J. W. Love.* A pleasant winter month and roads in good condition; lightning in southwest on morning of 29th, at 4 o'clock.

AUDUBON—*Geo. E. Kellogg.* On 29th observed wild geese flying northward.

BELKNAP—*A. W. Rankin.* Only half an inch of precipitation in February, and ground frozen two to four feet.

BONAPARTE—*B. R. Vale.* Uniformly solid month. Good roads, and conditions good for feeding stock. Thawing at close of month.

BRITT—No severe storms, and but little snow; roads fine and live stock wintering well.

CLINTON—*Luke Roberts.* Mean temperature 16.1°, or 5.9° below normal; rainfall, .95 of an inch, or 1.05 below normal. Wind, 5,000 miles; cloudiness, 60 per cent; first decade cold.

GRAND MEADOW—*F. L. Williams.* Mercury below zero fifteen days; dry and roads good most of month.

HANLONTOWN—*Miss G. M. Paschen.* Only a few drifts of snow remained at close of month.

HOPEVILLE—*M. L. Ashley.* Ducks flying northward on 29th; bluebirds here; but little of the frost thawed.

HUMBOLDT—*H. S. Wells.* No blizzards; month 2 degrees warmer than January.

IDA GROVE—*J. E. Conn.* Month very cold; the mean temperature, 13.7°.

LOGAN—*Mrs. M. B. Stern.* Month cold, with but little snow and no bad storms; fine winter weather.

OLIN—*Nathan Potter.* Good sleighing first half of the month.

RIDGEWAY—*Arthur Betts.* The month gave 170 hours of sunshine; rain on four dates; good month for the farmer; sleighing generally good. December, January and February gave thirty-five days below zero temperature, and twenty-five thawing days. January was the coldest month; mean for the winter, 13.5°.

TOLEDO—*H. P. Giger.* A curious thaw occurred on night of 22d-23d. The temperature at 7 P.M. of 22d was 29° and at 7 A.M. on 23d it was 25°. The maximum thermometer showed a rise of 11° and the minimum a fall of 15° during the night.

VILLISCA—*C. E. Matteson.* A dry and cold winter month; stock doing well; roads fine.

WASHTA—*H. L. Felter.* But little snow in patches at end of the month; zero or below on fourteen mornings; no bad storms.

CLIMATOLOGICAL DATA FOR FEBRUARY, 1904.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Algona	Kossuth	1,213	28	9.2	- 7.8	42	5	-19	1	36	.28	-1.02	.13	6.5	4	11	5	13	SE	
Alta	Buena Vista	1,513	11	11.6	- 7.6	53	5	-15	8	50	.76	† .01	.40	7.5	8	9	13	7	NW	
Alta (near)	Buena Vista										.55		.30	5.0	4					
Britt	Hancock	1,266	5	10.2	- 6.8	43	28	-22	1	38	.55	- .42	.20	4.4	9	2	19	8	NW	
Charles City	Floyd	1,012	11	8.2	- 7.5	41	6	-24	1	45	.57	- .65	.26	3.4	4	11	6	12	W	
Clear Lake	Cerro Gordo	1,241		9.8		40	6	-21	1	35	.60		.30	6.0	4	12	12	5	NW	
Cresco	Howard		32	11.2	- 3.9	40	28	-22	1	36	.30	- .63	.20	3.0	2	15	0	14	NW	
Decorah	Winneshiek	857	8	10.7	- 4.3	43	28	-23	1	40	.48	- .50	.30	5.0	4					
Dows	Wright	1,142		10.8	- 4.6	42	6	-21	1	40	.75	- .15	.40	7.5	5	14	4	11	NW	
Elkader	Clayton	727	21	12.0	- 6.1	47	28	-22	1	50	.65	- .47	.43	7.2	4	12	11	6	NW	
Estherville	Emmet	1,298	7	7.2	- 8.8	40	5	-20	11	41	.39	- .23	.20		4	13	1	15	NW	
Fayette	Fayette		13	10.8	- 6.6	49	6	-26	1	48	1.02	- .14	.50	5.6	4	5	12	12	NE	
Forest City	Winnebago	1,226	8	7.4	- 7.6	40	5,28	-19	1	37	.70	- .07	.50	7.0	2	11	7	11	SE	
Grand Meadow	Clayton	1,180	11	11.4	- 5.4	45	6,28	-20	1	32	.83	- .29	.40	7.5	7	6	13	10	NW	
Hampton	Franklin	1,155	12	11.9	- 5.6	44	28	-19	1	37	.95	- .16	.63	9.1	6	5	16	8	NW	
Hanlontown	Worth			8.4		39	5,6	-24	1	38	.53		.35	5.2	2	13	5	11	NW	
Humboldt	Humboldt	1,095	10	13.6	- 3.8	45	6	-21	1	36	.50	- 20	.30	5.0	2	18	2	9	NW	
Inwood	Lyon			11.0		48	5	-17	8	39	.30		.20	3.0	2	9	4	16	SE	
Larrabee	Cherokee	1,366	11	11.9	- 6.3	56	5	-17	8	54	.46	- .29	.24	4.6	3	9	14	6	NE, NW	
LeMars	Plymouth	1,244	6	13.6	- 3.7	54	5	-15	19	52	.80	† .19	.35	8.0	3	12	12	5	S	
Mason City	Cerro Gordo	1,132	6	11.5	- 3.4	38	6,28	-14	1	32	.77	† .21	.60	7.7	3	7	15	7	NW	
New Hampton	Chickasaw	1,169	6	9.9	- 4.0	41	6,28	-23	1	33	.70	- .37	.20	6.0	5				NW	
Northwood	Worth	1,223	6	11.0	- 4.4	46	28	-19	1	36	.88	- .28	.40	8.0	4	11	8	10	NW	
Osage	Mitchell	1,184	11	10.0	- 4.4	38	6,28	-20	1	32	.66	- .52	.30	6.2	7	10	8	11	NW	
Plover	Pocahontas	1,190	5	10.0	- 6.7	44	5	-18	1	51	.66	† .01	.30	6.0	3	13	3	13	NW	
Primghar	O'Brien		8	11.3	- 6.1	52	5	-13	11	37						13	0	16	SE	
Ridgeway	Winneshiek	1,215		13.0	- 4.1	46	28	-20	1	37	1.99	- .68	.84	10.6	14	8	11	10	NW	
Rock Rapids	Lyon		6	12.0	- 5.0	49	5	-15	8,10,11	34	.65	† .51	.25	4.0	3	13	7	9	N	
Sibley	Osceola	1,512	8	8.2	- 7.2	55	5	-19	8	49	.46	- .01	.20		4	10	2	17	NE	
Sioux Center	Sioux		5	11.7	- 3.9	51	5	-17	8	37	.28	- .50	.20		3	13	6	10	S	
Spirit Lake	Dickinson	1,458	8	11.2	- 4.7	45	5	-20	8	49	.55	† .00	.35	5.5	2	22	1	6	NW	
Storm Lake (a)	Buena Vista	1,440	7	11.9	- 3.1	53	4	-16	8	59	.08	- 57	.04	0.9	2				NW	
Washta	Cherokee	1,157	5								.40	- .22	.30	4.0	3	16	8	5	NE	
Waverly	Bremer	942	6	11.4	- 6.6	43	6	22	1	37	.78	- .34	.33	5.5	7	4	13	12	NW	
West Bend	Palo Alto	1,197	8	10.7	- 5.8	46	5	-19	1	47	.72	- .09	.40	7.0	6	7	11	11	N NW	
Average				10.7	- 5.8	45.5		-19.2		41.0	0.63	† .06		6.0	4	11	8	10	NW	

CENTRAL SECTION.

Amana	Iowa	721	25	16.4	-3.6	53	6	-11	1	32	.70	- .57	.16	6.2	8	5	17	7	NW	
Ames	Story	926	20	14.9	-6.7	47	23	-13	1	45	.40	- .44	.20	3.5	4	15	9	5	SW	
Audubon	Audubon	1,301	8	14.5	-4.7	47	5	-16	1	50	.15	- .65	.11	1.5	3	12	5	12	E	
Baxter (‡)	Jasper	998		15.4		49	6	-10	16	41	.34		.25	0.9	4	12	6	11	NW	
Belle Plaine	Benton	628	12	14.2	-6.4	46	6	-15	1	40	1.26	- 0.4	.40	12.5	7	4	18	7	NW	
Buckingham	Iowa										.47		.23	4.4	4	9	13	7		
Carroll	Carroll	1,265	12	14.6	-4.4	50	5	-14	1	43	.70	- .38	.25	7.0	4	12	3	14		
Cedar Rapids	Linn	733	19	14.2	-6.3	54	6	-12	2	42	.11	-1.44	.10		2	5	16	8	NW	
Clinton	Clinton	609	34	16.2	-5.8	57	6	-10	1,16	35	.95	-1.16	.31	7.0	5	4	10	15	NW	
Davenport	Scott	606	31	17.2	-8.1	61	6	- 8	1	34	.72	- .85	.31	6.8	8	4	11	14	NE	
Delaware	Delaware	1,083	11	11.7	-4.5	47	6	-20	1	33	.49	- .39	.20	4.3	7	10	11	8	NW	
Denison (a)	Crawford	1,180	8	16.8	-1.8	57	5	-12	19	60	.30	- .34	.10	3.0	5				N	
Des Moines	Polk	861	24	16.7	-6.4	47	6	- 9	1	41	.22	-1.11	.14	3.5	6	4	13	12	NW	
De Soto	Dallas	866		17.6		47	6	-11	1	36	.25		.10	2.5	3	12	5	12	NW	
Dubuque	Dubuque	655	29	14.4	-8.2	58	6	-11	1	34	.73	- .73	.28	6.2	8	10	13	6	NW	
Galva (a)	Ida	1,290	8	12.6	-5.2	54	5	-18	19	43	.50	† .03	.25		2	18	1	10	NW	
Gilman	Marshall	1,052									.55		.30	5.0	4	14	6	9	N	
Grinnell	Poweshiek			15.3	-5.8	49	6	-10	1	34	.73	- .14	.20	2.3	5	5	12	12	W	
Grundy Center	Grundy	976	11	13.0	-4.6	48	6	-23	1	38	.48	- .24	.20	5.5	5	4	15	10	NW	
Guthrie Center	Guthrie	1,077	6	18.4	-1.5	60	6	-15	1	51	.30	- .37	.16		5	13	6	10	SE	
Harlan	Shelby	1,192		17.0		51	5	- 8	11	47	.17		.10	1.7	3	5	16	8	NW	
Ida Grove	Ida	1,220		13.7		50	5	-12	8	45	.30		.25	3.0	2	16	3	10	E, SE	
Iowa City	Johnson	685	43	13.8	-9.1	63	6	-14	2	44	.84	- .67	.30	8.0	5	3	7	19	NW	
Iowa Falls	Hardin	1,170	9	13.0	-2.3	43	5	-23	1	43	1.03	† .08	.30	9.8	6	11	4	14	NW	
Jefferson	Greene	1,052									.83		.35	5.9	6	4	8	17	N	
LeClaire	Scott	576									.68		.18	6.0	7				NW	
Logan	Harrison	928	35	19.0	-4.6	58	5	- 8	11	49	.50	- .70	.20	5.0	4	15	4	10	NW	
Maquoketa	Jackson	688	9	12.1	-9.5	59	6	-14	1	46	.74	- .76	.24	6.5	5	7	3	19	NE	
Marshalltown	Marshall	947	9	13.1	-6.9	50	6	-17	1	44	.50	- .28	.24		3	7	5	17	NW	
Monticello	Jones	925	48	13.6	-9.3	55	6	-16	1	40	.95	- .65	.20	10.0	5	8	4	17	NW	
Mt. Vernon	Linn	847	35	15.2	-6.4	59	6	-14	1	38	.80	- .27	.20	8.2	7	10	5	14		
Newton	Jasper	944	14	15.4	-1.0	47	6	-15	1	40	.74	- .28	.21	9.5	6	16	7	6	NE	
Odebolt	Sac	1,356	5	15.1	-2.5	53	5	-12	1,19	39	.56	- .19	.27	5.2	5	20	4	5		
Ogden	Boone	1,088	8	11.5	-7.9	47	5,13	-22	1	53	.26	- .33	.12	5.8	4					
Olin (a)	Jones	760	5	15.2	-0.9	57	6	-14	1	36	1.18	- .15	.50	5.2	7	5	16	8		
Onawa	Monona	1,053		19.0		58	5	- 7	8	62	.29	- .66	.15	2.5	4	21	2	6	SE	
Perry	Dallas	975		15.4		46	5	-13	1	31	.55		.20	5.5	4	3	6	20		
Rockwell City	Calhoun		7	13.5	-3.3	47	5	-14	8	47	.45	- .06	.30	4.5	2	11	11	7		
Sac City	Sac	1,276	22	13.7	-3.9	49	5	-12	1,8	34	.57	- .25	.27	5.7	3	12	9	8	NW	
Sioux City	Woodbury	1,165	13	14.6	-4.4	58	5	-13	8	53	.33	- .22	.15	3.9	4	6	9	14	NW	
Tipton	Cedar	807		16.4		59	6	-10	1	35	.89		.19	7.2	7	7	12	10	NE	
Toledo	Tama	856	8	14.4	-5.2	52	6	-18	1	38	.53	- .16	.20	9.5	5	6	13	10	NW	
Vinton	Benton	810	12								.64	- .37	.15	5.6	8	13	4	12	NW	
Waterloo	Black Hawk	862	15	14.0	-4.2	49	29	-18	1	35	.48	- 50	.26	5 0	5	7	12	10	NW	
Waukee	Dallas	1,039		17.6	-2.2	50	5	- 7	19	49	.36		.20	3.5	4	4	10	15	NW	
Wilton Junction	Muscatine	683	7	17.4		60	6	-13	1	41	.50		.20	6.0	4	13	0	16	NW	
Whitten	Hardin	1,036		12.6	-2.5	46	6	-22	1	39	.60		.20	6.0	4	11	6	12	NE, NW	
Average				15.0	-5.3	52.4		-14.0		41.9	0.35	- .99		5.6	5	9	9	11	NW	

CLIMATOLOGICAL DATA FOR FEBRUARY, 1904—CONTINUED.

SOUTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Afton	Union	1,216	7	18.7	-3.1	47	6	-10	1	40	.15	- .89	.10	1.5	2	5	12	12	NE	
Albia	Monroe	957	..	16.2	.....	63	6	-12	1	46	.26	.....	.18	3.0	2	6	6	17	NW	
Allerton	Wayne	....	....	19.8	....	62	6	-16	1	40	26	.....	.10	2.3	6	16	11	2	NW	
Atlantic	Cass	1,164	11	17.9	-2.8	49	5	-12	1	48	.19	- .77	.10	1.5	3	7	6	16	S, NW	
Bedford	Taylor	.....	....	20.2	....	51	5	-11	1	45	.22	.....	.09	.5	3	10	7	12	NW	
Belknap	Davis	877	7	19.2	-2.3	60	6	-11	1	45	.50	-1.39	.30	4.0	5	....	....	....	N	
Bonaparte	Van Buren	.....	10	18.8	-4.1	63	6	-18	1	35	.23	-1.01	.13	2.0	2	....	....	....	.....	
Burlington	Des Moines	544	....	21.0	....	65	6	-13	1	38	.34	.....	.11	....	4	9	6	14	NW	
Chariton	Lucas	1,042	7	19.2	-3.0	61	6	- 6	1,4	40	.02	-1.02	.02	.2	1	10	9	10	NW	
Clarinda	Page	1,069	12	19.3	-3.7	67	24	- 6	1	49	.14	- .88	.06	T	3	7	15	7	NE	
Columbus Jct.	Louisa	596	....	19.0	.....	61	6	-11	1	41	.54	.....	.10	3.4	6	9	13	7	NE, NW	
Corning	Adams	1,127	10	18.6	-3.6	49	23	-12	1	32	.08	- .72	.04	.5	3	9	8	12	NW	
Corydon	Wayne	992	9	18.4	-3.4	63	6	-17	1	43	.12	-1.30	.12	.5	1	13	5	11	SW	
Cumberland	Cass	.....	....	.....	.....	.....	.....	.....	.....	.....	.10	.	.10	1.0	1	12	4	13	NW	
Earlham	Madison	.....	..	15.2	.....	46	28	-14	1	36	.37	.....	.26	2.0	2	16	6	7	NW	
Fort Madison	Lee	516	51	.....	.....	.....	.....	.....	.....	.....	.35	-1.61	.25	3.5	2	6	8	15	NW	
Glenwood	Mills	.....	15	20.0	-3.2	57	5	- 4	8,11	47	.02	- .66	.02	.2	1	5	18	6	NW	
Greenfield	Adair	.....	11	16.8	-4.5	45	22,28	-10	1	48	.20	- .84	.13	2.0	4	16	5	8	NE	
Hopeville	Clarke	.....	11	18.3	-3.6	52	6	-12	1	35	.04	- .73	.02	...	3	6	12	11	NE	
Indianola	Warren	969	11	17.2	-5.3	48	6	-11	1,2	38	.61	- .14	.25	3.5	6	7	8	14	NW	
Keokuk	Lee	619	31	21.6	-6.7	67	6	-11	1	30	.70	-1.01	.31	3.1	5	8	10	11	N	
Keosauqua	Van Buren	664	10	17.3	-6.8	70	6	-16	1	45	.52	- .90	.31	3.5	4	10	4	15	.....	
Lacona	Warren	.....	.....	.....	.....	.....	.....	.....	.....	.....	.63	.	.20	4.5	6	5	18	6	.....	
Lenox	Taylor	1,250	7	18.4	-4.4	45	6,23	- 7	1	44	.09	- .56	.05	.8	3	18	4	7	S	
Leon	Decatur	1,120	7	20.0	.....	55	6	- 3	4	30	.05	.....	.05	.5	2	19	8	2	S	
Mt. Ayr	Ringgold	1,236	8	20.2	-1.6	50	23	- 7	1	35	.24	- .92	.09	1.0	3	7	10	12	NE	
Mt. Pleasant	Henry	729	20	19.4	-4.4	61	6	-14	1	35	.37	- .67	.17	2.8	3	7	14	8	NW	
Omaha, Neb.	Douglass	1,113	32	19.8	-5.2	60	5	- 5	8	47	.10	- .69	.06	1.0	3	6	11	12	N	
Osceola	Clarke	1,130	8	20.8	†0.3	55	6	- 9	9	46	T	-1.08	T	....	0	9	17	3	N	
Oskaloosa	Mahaska	843	18	16.8	-4.5	60	6	-15	1	40	.19	- .88	.08	2.3	3	8	4	17	NW	
‡Ottumwa	Wapello	649	8	19.6	-3.3	66	6	- 8	1	36	.25	- .99	.16	2.6	3	3	10	16	NW	
Pacific Junction	Mills	960	...	19.5	.....	58	5	- 5	11	46	.07	.....	.04	....	2	9	12	8	N	
Red Oak	Montgomery	1,033	..	21.2	-1.6	47	5,6	- 1	11	34	.05	- .73	.05	.5	1	7	19	3	NE, S, NW	
St. Charles	Madison	1,070	....	18.1	.....	49	6	- 8	1	34	.33	.....	.18	4.2	6	12	8	9	SE	
Sigourney	Keokuk	787	....	18.4	-3.0	57	6	-14	1	38	.29	-1.06	.09	3.0	5	11	5	13	NE, NW	
Stockport	Van Buren	.....	...	.....	.....	.....	.....	.....	.....	.....	.44	.....	.32	3.0	2	5	6	18	.....	
Thurman	Fremont	.....	....	20.2	†0.0	54	5	- 8	4	38	T	-1.32	T	T	0	12	7	10	SW	
Villisca	Montgomery	1,058	8	21.3	-1.2	46	13,22,29	- 3	3,8,19	43	.26	- .79	.15	2.0	4	10	17	2	NW	
Wapello (*b*)	Louisa	588	5	18.8	-2.0	59	6	- 5	16	34	.19	-1.27	.19	1.2	1	....	....	....	NW	
Washington	Washington	769	20	13.7	-7.7	62	6	-16	1	50	.53	- .63	.20	3.0	6	....	..	...	NW	
Woodburn	Clarke	961		..	....	.....	.....	.....	.....	.....	.22	.....	.11	2.2	4	12	3	14	NW	
Average	.....	.....	....	18.8	-2.7	56.1	.....	-10.1	.....	40.4	0.25	- .89	.....	2.0	3	10	9	10	NW	
Average for state	.....	.....	....	14.8	-4.8	51.3	.....	-14.4	.....	41.0	0.41	- .63	.....	4.5	4	10	9	10	NW	

*Means determined from 7 A. M., 2 P. M. and 9 P. M. observations, and maximum and minimum are taken from eye readings. †Above normal. ‡Received too late to be computed with means. *a*, One day missing; *b*, two days, etc. § Not supplied with self-registering instruments.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR FEBRUARY, 1904.

STATIONS.		DATE.																															MEAN.
		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.....	Max..	16	28	18	25	44	47	31	12	17	17	15	28	43	40	15	15	13	17	27	32	28	43	44	38	27	25	40	42	39	.	..	28 5
	Min ..	-10	1	1	- 3	16	31	2	- 4	5	- 1	- 4	3	20	3	3	- 1	9	7	- 2	10	20	3	26	16	17	14	18	31	31	...	....	8.9
Albia.....	Max..	24	16	16	40	50	63	18	12	16	20	17	25	37	20	6	12	12	17	28	29	43	25	35	27	20	30	39	45	..	...	....	27.3
	Min .	-12	- 9	- 1	- 6	5	39	8	- 2	- 2	0	- 4	- 4	6	6	0	- 4	- 4	9	- 6	- 5	6	5	0	20	15	15	14	31	32	....	....	5.2
Algona....	Max	10	20	9	27	42	20	10	4	10	3	10	17	38	14	0	14	10	15	15	22	24	32	34	12	10	20	35	38	33	....	....	19.0
	Min ..	-19	- 8	- 5	- 9	14	17	- 7	-16	- 6	- 7	-10	- 3	13	- 3	-10	-14	6	- 3	-12	- 1	1	- 8	5	- 4	3	7	11	27	25	....	....	- 0.6
Allerton .	Max..	16	26	17	27	47	62	35	14	16	20	20	27	46	40	17	13	14	17	28	31	29	40	45	35	26	29	43	43	41	....	....	29.8
	Min ..	-16	1	0	- 5	17	35	6	- 1	7	2	- 2	3	20	6	2	- 1	9	9	- 4	9	20	0	31	20	19	15	21	32	31	....	....	9.9
Alta. . ..	Max..	26	28	6	27	53	44	8	5	8	10	10	23	41	10	3	11	9	15	23	26	19	42	39	23	11	16	36	39	32	....	....	22 2
	Min ..	-12	- 4	- 6	- 6	15	8	- 4	-15	- 8	- 7	- 6	0	8	- 3	6	- 9	5	- 2	- 2	6	- 1	- 8	10	0	4	7	14	27	23	....	..	0.9
Amana....	Max..	9	17	12	19	43	53	37	14	18	18	13	19	39	34	11	12	12	18	26	31	30	29	39	25	16	26	37	43	39	..	....	25.5
	Min ..	-11	2	0	- 6	12	37	10	0	4	2	- 4	- 6	16	5	- 3	- 9	8	10	- 6	0	13	- 2	24	7	7	12	21	33	32	....	....	7.2
Ames	Max..	12	23	13	27	43	43	25	9	13	15	12	20	41	35	15	16	12	16	24	26	25	41	47	42	15	22	35	42	39	....	...	25 8
	Min ..	-13	1	- 1	- 2	10	24	4	- 8	- 1	2	- 4	- 4	11	2	- 4	- 8	9	8	-12	1	12	- 4	6	3	7	11	13	23	31	....	....	4.0
Atlantic..	Max..	20	30	17	26	49	48	20	8	13	17	22	29	45	31	10	15	14	19	30	32	28	47	45	36	27	28	40	46	42	....	....	28 8
	Min ..	-12	3	3	- 2	16	20	2	- 4	1	- 3	-10	2	22	2	1	0	10	- 2	-11	- 2	13	- 1	27	19	17	13	20	27	31	..	..	7.0
Audubon.	Max..	18	28	13	24	47	45	20	15	10	13	15	17	45	31	10	12	12	18	27	30	23	45	42	32	22	23	37	45	39	...	....	26.2
	Min ..	-16	2	- 3	- 8	11	20	- 2	- 9	- 2	- 6	-11	- 2	20	- 1	- 3	- 4	- 8	- 6	-13	- 6	9	- 5	16	9	10	8	15	27	28	....	....	2.8
Baxter. ..	Max..	16	20	11	21	44	49	26	9	14	19	15	18	42	35	13	15	12	18	24	27	32	37	39	25	16	25	35	43	39	...	....	25.5
	Min ..	10	0	0	- 5	14	25	5	- 7	- 4	- 4	- 6	- 4	5	2	- 3	- 0	- 8	8	- 8	5	5	- 4	21	4	7	10	19	28	30	....	....	5.4
Bedford ..	Max..	21	30	20	31	51	50	29	12	12	18	23	30	47	39	15	16	13	14	23	30	30	46	48	40	34	29	42	43	45	....	..	30.6
	Min ..	11	3	- 3	- 9	20	27	3	- 2	6	0	- 4	6	24	3	3	1	11	7	- 3	13	19	1	30	26	22	15	22	28	32	....	...	9.7
Belknap ..	Max..	15	12	13	27	50	60	20	17	20	19	19	20	40	25	9	15	15	15	35	30	25	35	40	28	25	28	40	41	38	..	....	26.8
	Min ..	-11	3	5	2	15	15	10	3	8	5	4	7	20	7	4	- 1	15	12	- 1	- 1	..	3	37	22	18	17	25	30	33	....	..	11 7
Belle P....	Max..	16	12	12	21	44	46	17	13	17	19	15	17	40	15	5	11	12	20	24	30	34	35	28	16	15	27	32	41	36	...	..	23.1
	Min .	-15	0	0	- 8	12	32	6	- 5	1	- 3	- 6	- 5	12	0	- 5	-12	6	7	- 8	4	21	5	20	5	5	10	20	32	30	..	...	5.2
Bonapar'e	Max	15	20	12	20	46	63	41	18	18	21	29	22	43	36	14	14	14	17	26	30	30	32	43	29	22	26	40	43	35	....	....	28.1
	Min ..	-18	2	- 5	- 9	11	41	12	3	8	5	1	3	17	8	3	- 6	10	11	- 5	2	17	- 4	29	19	20	16	24	31	32	....	....	9.6
Britt. ..	Max	11	12	7	24	40	38	17	8	10	10	8	18	34	23	3	5	14	13	20	31	20	29	34	18	12	21	35	43	38	...	....	20.9
	Min ..	-22	3	- 7	-12	14	17	- 6	-17	- 5	- 5	-10	3	13	- 3	-10	-17	7	- 3	-13	0	0	- 9	6	- 5	3	7	13	28	25	....	....	- 0.6
Burling'n	Max..	16	18	20	20	47	65	53	19	23	19	24	21	42	36	15	21	15	20	30	32	31	32	45	31	24	28	40	46	37		....	30.0
	Min ..	-13	5	0	- 5	13	44	15	7	9	7	3	4	20	10	3	- 4	9	13	- 1	9	23	0	26	20	14	20	25	35	34	....		11.9
Carroll...	Max..	29	15	9	29	50	30	11	7	17	16	18	28	46	22	7	11	17	21	29	30	28	48	44	28	14	31	38	42	37	....	...	26.6
	Min ..	-14	- 3	0	- 8	14	30	- 2	- 4	- 8	- 5	- 6	- 2	9	- 2	- 5	- 5	3	5	-13	- 2	12	- 6	15	- 3	7	8	15	27	28	....	....	2.7
Cedar R..	Max..	17	10	13	20	49	54	16	17	17	17	14	22	38	16	3	14	16	20	20	31	29	50	39	17	20	26	39	46	37	...	....	24.7
	Min ..	-11	-12	2	- 4	1	19	14	2	2	4	- 3	- 6	- 2	7	- 2	- 8	- 9	8	- 4	- 5	4	- 2	2	13	13	13	12	24	33		..	3.6
Chariton .	Max.	21	20	16	25	43	61	34	15	15	12	14	25	46	38	15	12	13	17	27	28	28	40	42	45	33	29	43	46	41	..	....	29 3
	Min ..	- 6	0	- 1	- 6	15	33	6	- 2	5	0	- 3	3	6	6	2	- 2	11	9	- 5	4	20	1	26	28	15	14	19	31	32	....	....	9.0
Charles C.	Max..	21	9	4	20	39	41	10	6	12	14	12	20	31	10	0	12	10	12	20	24	28	32	40	9	10	23	34	38	34	....	..	19.7
	Min ..	-24	-15	5	-18	0	17	6	- 5	-10	4	- 5	- 9	0	- 1	-10	-16	16	5	-16	-18	- 1	- 8	- 3	- 3	- 2	3	10	22	28	-	...	- 3.2
Clarinda..	Max	31	20	18	36	51	44	16	10	17	19	24	30	49	20	12	17	15	18	33	30	30	48	67	42	32	32	42	44	44			30 7
	Min ..	- 6	2	0	- 5	2	35	3	0	- 1	1	- 2	- 2	20	4	3	3	3	5	0.	2	14	6	13	18	23	14	15	28	32	....	....	7.9
Clear L. ..	Max..	9	12	5	22	30	40	19	8	10	12	10	18	33	29	3	12	10	18	25	28	20	24	34	13	9	27	38	38	36	....	....	2..7
	Min ..	-21	3	- 7	- 10	9	18	- 5	-19	5	- 7	- 9	- 9	10	- 5	-13	-18	4	5	-10	- 4	1	-10	5	- 6	0	6	15	26	26	...	....	- 1.2
Clinton ...	Max..	9	11	15	21	45	57	38	12	20	20	20	22	37	32	9	11	15	21	26	31	32	26	39	25	15	28	35	44	37	....	....	26.0
	Min ..	-10	2	- 2	- 7	10	45	10	2	5	5	- 6	- 8	15	8	- 2	-10	5	9	- 6	- 4	10	- 5	15	12	5	11	7	34	32	...	..	6.3
Colum. J.	Max..	16	17	16	21	48	61	52	18	18	19	18	24	42	38	15	13	15	19	29	35	32	35	40	29	21	25	39	45	37	....	....	28.8
	Min ..	-11	0	- 1	- 4	14	41	11	3	6	4	- 1	- 2	18	7	0	- 7	7	13	- 1	12	17	- 2	24	13	9	13	22	32	32	....		9.3
Corning ..	Max..	17	29	29	26	47	46	26	10	14	15	16	27	43	32	13	15	15	17	28	29	28	44	49	33	30	25	40	44	44	...	....	28 8
	Min .	-12	0	- 1	- 5	15	25	2	- 4	5	- 1	- 5	4	22	2	1	- 1	9	3	- 3	7	15	2	20	22	18	13	20	33	32	....	....	8.3
Corydon..	Max	14	26	17	28	47	63	42	11	18	23	22	28	46	44	17	12	14	18	30	29	30	41	46	39	27	31	44	45	43	..	...	30.9
	Min ..	-17	- 4	- 5	-12	12	37	2	- 5	24	- 2	- 6	0	15	1	- 2	- 5	5	5	- 9	4	18	- 3	21	21	18	11	16	28	27	..	...	5.9
Cresco ...	Max..	10	10	23	18	38	32	32	..	13	13	12	15	20	8	13	15	20	15	26	24	5	28	20	18	20	20	33	40	35	...	...	22.4
	Min ..	-22	- 6	-11	-13	8	25	0	-12	- 4	- 5	- 7	5	10	5	0	0	4	0	-10	- 3	- 5	6	-12	-10	0	2	10	20	25	...	....	- 0.0
Davenpo't	Max..	9	14	14	18	47	61	38	14	19	18	16	22	39	34	8	12	12	20	25	29	29	29	40	23	16	26	36	43	36		....	25.8
	Min ..	- 8	4	- 2	- 4	13	38	11	5	7	5	0	- 1	19	8	- 1	- 7	6	10	0	3	10	- 1	23	13	6	14	14	34	34	....	....	8.7
Decorah. .	Max..	8	6	5	18	40	42	26	16	18	15	10	18	33	10	2	13	11	17	28	28	27	22	29	12	10	29	33	43	37	..	..	20 9
	Min ..	-23	- 0	- 9	-14	7	24	- 1	- 3	- 2	0	- 3	-10	14	0	-11	-12	3	3	-12	-12	0	- 7	11	- 3	2	9	12	24	27	...	....	0.5
Delaware.	Max..	5	9	9	18	41	47	37	10	14	14	11	15	33	28	6	10	9	15	26	26	31	24	33	19	10	23	32	41	37	....	..	21.8
	Min ..	-20	- 5	- 4	-14	0	27	8	- 4	0	0	0	- 8	11	3	- 9	-14	2	4	- 3	- 1	4	- 9	11	0	0	7	7	28	28	....	....	1.3
Denison..	Max..	23	32	13	27	57	51	19	5	11	14	16	..	45	30	10	14	13	16	28	31	27	49	44	36	23	25	39	46	39	....	....	28.0
	Min ..	-10	- 2	1	-10	13	29	- 2	-10	- 4	- 3	- 5	..	0	- 1	- 3	- 3	8	- 6	-12	5	9	-11	17	8	10	9	19	28	28	....	....	3 5
Des M....	Max .	13	27	17	25	47	47	19	11	15	17	14	22	44	19	8	12	12	19	24	27	28	42	46	30	18	24	40	45	40	....		25.9
	Min ..	- 9	2	0	- 2	16	19	4	- 4	5	3	0	2	19	4	0	- 4	10	7	- 5	6	7	1	21	9	10	14	19	32	32	....	....	7.5
De Soto ..	Max..	15	28	16	25	46	47	24	8	13	16	16	25	45	35	12	12	12	18	29	29	27	44	45	29	21	22	39	44	38	....	...	26.9
	Min .	-11	0	0	- 5	16	24	4	- 6	4	- 3	..	..	..	..	..	..	..	6	- 6	5	12	8	21	9	12	13	18	28	33	....	....	8.3
Dows. ...	Max..	6	9	10	21	41	42	21	7	11	12	8	15	37	33	6	11	10	12	21	25	22	32	35	20	10	19	34	38	35	....	....	20.8
	Min ..	-21	- 2	- 3	-10	12	20	0	-12	- 2	- 6	- 8	- 2	13	0	- 8	-14	5	0	-13	1	4	- 8	10	- 4	3	8	17	19	28		....	0.9
Dubuque.	Max..	7	12	12	18	44	58	33	10	16	15	13	17	34	31	3	11	12	18	24	28	29	23	36	19	11	23	35	45	37	..	...	23.2
	Min ..	-11	1	- 3	- 5	10	33	7	- 2	3	3	0	- 5	17	3	- 5	- 8	5	6	- 6	- 6	6	- 4	19	7	5	10	15	34	30	...	...	5.5
Earlham .	Max.	12	24	16	24	42	45	26	9	12	15	15	24	42	18	12	10	12	15	26	26	51	43	43	36	22	35	38	46	38	....	....	26,1
	Min .	-14	- 2	1	- 9	9	23	1	- 8	0	- 5	-10	- 4	1	8	- 2	- 4	8	3	-12	12	10	- 7	27	8	11	12	14	26	25	....	....	4.2
Elkader ..	Max..	4	10	8	22	41	53	11	10	20	19	17	17	33	25	5	14	10	20	30	28	30	23	26	16	10	25	29	47	38		....	22.1
	Min ..	-22	0	- 5	-15	4	36	5	- 5	2	- 1	0	-10	15	5	- 9	-13	5	8	-20	-20	7	- 8	17	2	4	10	6	29	29	....	....	1.9
Esthervil.	Max..	24	10	6	28	40	19	- 1	0	7	8	9	26	39	10	5	14	10	15	20	26	15	35	22	12	8	30	36	35	34	....		19.1
	Min ..	-17	- 6	- 5	- 6	6	18	- 3	-19	-18	-11	-20	-12	5	- 4	-11	-16	-12	- 5	-18	- 8	2	- 7	- 1	- 4	- 2	- 2	- 1	22	23	....	....	- 4.6
Fayette...	Max .	5	11	8	18	40	49	28	9	21	17	13	17	33	25	6	15	11	17	27	30	26	30	30	17	12	26	33	46	38	....	....	22 7
	Min ..	-26	- 2	- 8	-18	5	28	0	- 8	0	- 3	- 3	-12	9	0	-10	-16	4	- 8	-21	- 8	0	-10	8	- 2	1	7	19	17	26	....	....	- 1.1
Forest C'y	Max..	18	7	4	23	40	27	4	5	14	12	12	21	38	8	- 2	12	10	15	21	25	15	33	16	9	9	26	35	40	.	....	....	17.8
	Min ..	-19	-10	- 4	-11	3	15	1	-16	-15	- 6	-12	-12	4	- 4	-12	-16	- 9	5	-11	- 2	6	- 9	- 1	- 6	- 4	3	8	25	26	..	....	- 2.9
Ft. Dodge	Max.	23	10	13	25	47	45	20	7	12	13	11	20	51	23	10	15	16	17	23	29	23	39	38	16	11	20	35	41	36	....	....	23.4
	Min ..	-17	- 4	- 1	- 7	17	19	2	-12	- 2	- 4	- 4	0	16	0	- 6	-10	9	- 2	-11	- 2	9	- 6	12	0	0	9	18	28	31	....	....	2 7
Galva.....	Max..	..	29	13	26	54	44	15	6	10	11	12	25	44	22	9	12	11	14	23	29	24	43	41	22	16	32	37	40	35	....	....	25.0
	Min ..	..	-14	- 3	- 8	15	14	- 4	-15	- 8	- 6	- 7	- 7	19	- 3	- 6	- 7	7	-13	-18	3	7	-11	-10	0	6	7	16	25	23	..	..	0.1
Glenw'd .	Max.	24	32	22	29	57	56	21	12	12	15	18	29	48	30	13	17	14	18	29	25	28	52	46	45	34	28	39	46	48	....	....	30.6
	Min ..	2	3	5	0	22	20	2	- 4	2	- 2	- 4	7	25	2	0	2	12	3	- 2	10	15	5	18	22	22	12	23	24	29	..	...	9.5
Grand M.	Max..	5	9	6	18	37	45	37	5	14	9	10	16	32	27	4	10	10	16	24	24	31	22	31	18	9	24	29	45	28	....	....	20.9
	Min .	-20	- 1	- 5	-14	6	37	5	- 8	- 1	- 2	- 3	- 8	11	- 1	-11	-14	2	5	- 3	- 7	8	- 9	15	- 3	- 1	7	10	26	26	....	....	1.8
Greenfi'ld	Max..	16	26	16	27	44	44	26	8	15	16	15	28	42	35	10	13	13	17	27	35	28	45	42	36	24	24	37	45	39	....	....	27.3
	Min ..	-10	- 1	- 1	- 4	16	26	0	- 7	3	- 4	- 7	0	19	1	- 2	- 2	8	2	- 3	5	13	- 3	22	12	14	10	15	29	30	...		6.2
Grinnell .	Max.	15	11	11	19	44	49	32	14	13	14	11	17	39	33	12	13	11	15	27	16	20	33	39	24	16	21	35	41	38	...	..	23 9
	Min ..	-10	1	1	- 2	14	31	8	- 4	- 1	- 2	- 4	0	15	3	- 2	- 9	8	7	- 3	4	13	- 1	22	5	7	11	20	31	31	....	....	6.7
Grundy C	Max..	11	17	9	21	41	48	29	13	14	15	13	16	36	32	9	12	11	16	22	26	29	30	37	21	12	22	33	42	37	....	....	23.2
	Min ..	-23	0	- 5	-13	10	29	5	- 8	- 1	- 5	- 5	- 5	14	1	- 6	-15	6	7	- 9	0	11	- 8	17	0	4	10	18	23	30	....	....	2.8
Guthrie C	Max.	17	47	20	27	56	60	34	16	15	17	17	27	47	30	18	12	15	23	31	34	35	46	52	46	28	23	42	44	51	....	....	32 1
	Min ..	-15	- 1	3	- 1	17	24	1	- 8	- 1	- 5	- 7	- 1	20	1	- 2	- 3	9	- 1	-12	3	1	- 5	18	8	11	11	12	27	32	....	....	4.7
Hampton .	Max..	7	8	10	23	40	43	21	10	19	19	14	16	37	30	5	14	10	18	28	28	24	30	25	18	10	23	34	44	36	....	..	22.1
	Min ..	-19	- 6	- 6	- 8	10	21	- 2	-12	- 1	- 4	- 3	- 5	13	- 1	-10	-12	5	5	- 4	- 2	3	- 2	13	- 3	2	9	17	27	28	...	..	1.7
Hanlont'n	Max..	6	15	7	23	39	39	20	4	12	11	9	15	35	28	3	11	12	12	20	22	20	26	30	16	9	21	35	36	33	...	...	19.6
	Min ..	-24	- 5	-10	-15	2	18	- 6	-17	- 6	- 8	-18	-11	12	- 5	-12	-19	4	- 2	-16	- 5	0	- 9	1	- 6	0	7	15	25	25	..	...	- 2.8
Harlan....	Max.	19	30	15	25	51	43	20	7	12	15	17	28	46	29	11	15	13	17	27	32	27	47	43	39	28	28	39	47	41		..	28.0
	Min ..	- 7	1	2	3	17	20	- 1	- 7	- 2	- 4	- 8	4	21	0	- 2	- 1	9	- 3	- 7	5	10	0	21	14	14	10	19	26	29	....	....	6.1
Hopeville.	Max..	15	27	18	29	44	52	24	9	15	16	16	27	45	36	10	12	14	16	32	29	29	43	45	36	24	27	42	43	40	....	..	28.1
	Min ..	-12	0	- 1	- 4	17	24	4	- 4	5	0	- 4	3	21	5	1	- 1	9	8	- 3	10	14	2	23	17	17	14	19	31	32	..	..	8.5
Humboldt	Max..	12	23	12	28	44	45	20	8	10	12	11	20	42	30	8	16	16	22	38	24	40	37	24	11	20	35	39	37	36	....	....	24.8
	Min ..	-21	0	0	- 8	15	20	0	-13	- 4	- 6	- 6	0	15	0	- 8	-12	12	-14	- 7	6	- 6	9	- 2	5	8	15	22	22	30	....	..	2 5
Ida Grove	Max.	15	20	15	23	50	50	34	5	12	9	15	25	48	34	12	22	20	12	22	22	30	40	40	42	30	22	35	35	43	...	....	26.8
	Min .	-11	- 4	0	- 8	20	5	- 3	-12	- 5	- 4	- 6	0	8	- 3	- 7	- 3	5	- 8	-15	5	8	- 8	5	5	3	9	15	16	19	....	....	0 6
Indianola.	Max .	14	27	17	36	47	48	28	11	15	19	17	24	44	38	14	12	13	16	26	29	28	42	45	30	22	23	39	45	40	....	....	27.6
	Min .	-11	-11	1	- 4	12	26	5	- 5	2	- 2	- 5	2	19	5	0	- 3	10	2	- 6	8	13	0	23	11	13	13	19	31	32	....

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR FEBRUARY, 1904—CONTINUED.

STATIONS.		DATE.																														MEAN.
		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	
Keosa'qua	Max..	24	12	19	28	46	70	21	18	20	21	20	25	42	22	8	14	15	18	25	31	44	39	27	29	23	29	41	43	37	....	....	28.0
	Min ..	-16	-16	- 1	-10	0	28	13	4	4	6	1	0	7	8	4	- 3	- 3	12	- 4	- 5	- 1	1	26	18	20	18	18	29	34	....	....	6.6
Larrabee.	Max..	21	28	18	34	56	40	12	5	8	11	15	26	42	18	6	14	12	17	24	30	22	42	37	22	13	24	40	37	38	....	....	24.4
	Min ..	-12	- 4	- 6	-10	20	10	- 5	-17	-11	-10	-12	- 3	17	- 4	- 8	-11	- 8	- 8	-14	- 2	- 2	-12	- 8	- 3	4	6	15	26	20	....	....	- 0.6
LeMars ..	Max..	23	33	8	32	54	43	10	4	8	10	15	29	40	18	8	12	14	15	25	31	26	44	40	30	17	24	41	39	37	....	....	25.2
	Min ..	- 1	- 3	- 5	- 4	19	10	- 5	-14	- 9	- 8	- 3	3	18	- 2	- 5	- 4	10	-11	-15	5	4	- 8	10	4	5	5	19	26	22	....	....	1.9
Lenox	Max..	17	28	19	27	44	45	29	10	13	14	16	27	43	37	14	14	14	16	28	29	28	44	45	39	30	25	40	42	42	....	..	28.2
	Min ..	- 7	- 1	0	- 5	17	28	0	- 6	4	- 2	- 4	4	21	1	- 1	- 2	8	5	- 2	11	19	0	28	21	18	12	19	31	31	....	....	8.6
Leon	Max..	12	27	18	26	48	55	35	12	12	13	19	24	42	41	15	12	13	15	24	27	27	40	40	38	29	27	42	42	39	....	....	28.1
	Min ..	10	2	2	- 3	18	35	5	- 2	7	2	3	5	21	7	3	0	10	9	0	11	20	5	30	20	20	15	22	32	32	....	....	11.8
Logan	Max..	32	32	17	28	58	47	18	9	14	15	17	31	48	22	12	17	15	20	24	35	40	50	47	39	30	35	40	48	45	....	....	30.3
	Min ..	4	1	2	1	18	15	0	- 5	- 1	- 1	- 8	7	10	1	- 1	2	10	0	1	10	12	1	20	16	15	11	21	25	27	....	....	7.7
Maquo'ta.	Max..	14	11	15	19	43	59	18	15	19	21	19	21	36	20	5	14	12	12	30	29	30	36	35	24	15	29	36	46	....	....	....	25.1
	Min .	-14	-12	- 1	-10	0	17	12	1	0	0	- 7	-11	-10	8	- 5	-12	-12	6	-13	-12	-11	- 5	- 5	12	4	4	0	17	32	....	..	- 0.9
Marshlt'n	Max..	19	14	9	22	46	50	15	11	16	19	14	23	38	17	6	15	11	20	26	29	31	40	25	9	14	28	35	44	38	..	..	24.0
	Min ..	-17	14	0	- 5	2	20	6	- 7	- 6	- 2	- 5	- 5	0	2	- 4	-11	-10	7	- 9	- 6	4	- 3	0	3	3	8	11	25	28	..	....	2 2
Mason C..	Max..	6	15	8	20	33	38	22	7	12	15	11	14	34	30	7	13	11	15	22	24	20	26	32	12	11	21	33	38	35	....	....	20.2
	Min ..	-14	1	- 2	- 8	11	22	2	-13	0	- 3	- 5	- 4	12	0	- 9	- 9	5	7	- 6	- 2	8	- 6	10	- 2	3	9	17	28	29	....	....	2.8
M'nticello	Max..	10	14	12	20	42	55	40	12	17	19	15	25	33	12	15	20	25	20	22	28	30	32	30	19	12	32	30	38	45	..	....	25.2
	Min ..	-16	- 2	- 3	- 8	10	35	10	- 2	0	- 2	- 7	-10	- 2	- 6	-10	6	6	1	-13	- 9	- 2	- 8	8	6	4	18	17	25	26	....	....	2.1
Mt. Ayr..	Max..	20	28	19	30	46	46	28	8	11	18	21	32	49	41	15	16	17	20	34	31	30	47	50	42	31	30	45	45	45	....	....	30.8
	Min ..	- 7	1	- 1	- 5	19	28	3	- 3	5	0	3	5	22	3	2	0	9	8	0	11	18	3	29	23	20	14	20	29	31	....	....	9.5
Mt. Pl'snt	Max..	10	18	19	21	46	61	55	17	20	21	19	22	41	36	15	14	14	22	24	33	33	34	43	30	22	28	41	46	37	....	..	29.0
	Min ..	-14	3	- 1	- 6	11	41	12	3	6	4	- 1	1	17	14	1	- 7	8	12	- 3	4	20	- 2	15	18	13	16	23	32	33	....	....	9.8
Mt. Ver'n	Max..	11	9	8	19	43	59	39	15	18	21	14	19	36	20	7	18	14	18	32	29	25	27	35	20	13	26	35	44	35	....	..	24.4
	Min ..	-14	0	- 2	- 7	11	39	10	- 2	1	0	- 2	- 4	15	3	- 5	-10	4	8	- 6	2	11	- 4	20	6	4	9	13	31	29	....	....	5.9
New H. ..	Max..	3	11	6	18	36	41	..	7	14	15	11	15	33	30	5	23	9	14	23	24	19	21	31	17	8	20	31	41	36	....	..	19.7
	Min ..	-23	3	- 7	-15	..	29	2	- 8	- 2	4	- 5	- 8	9	3	-13	-15	3	4	- 5	- 5	3	-11	10	- 6	- 2	6	15	23	26	....	....	0.1
Newton ..	Max.	14	21	12	21	42	47	34	11	14	16	13	19	41	41	16	14	14	17	23	28	29	36	38	28	17	24	36	42	39	....	....	25.8
	Min ..	-15	- 1	- 1	- 6	13	33	5	- 7	- 1	- 3	- 5	- 5	10	1	- 4	-10	7	6	- 7	3	10	- 4	22	3	8	10	19	30	31	....	....	4.9
Northw'd	Max..	8	15	10	25	35	37	22	8	15	16	13	15	35	31	2	11	12	11	26	25	21	26	28	13	11	27	34	46	40	....	..	21.7
	Min ..	-19	- 1	- 8	-11	10	20	- 4	-15	- 4	- 6	- 8	- 6	12	- 3	-12	-15	5	6	- 5	- 2	1	- 7	6	- 5	2	8	15	28	28	....	....	0.3
Odebolt ..	Max..	17	31	15	27	53	49	19	7	12	13	18	25	43	31	7	13	11	16	27	31	27	46	43	30	18	25	38	43	36	....	....	26.7
	Min ..	-12	- 1	0	- 9	15	19	- 2	-11	- 5	- 1	- 4	2	20	1	- 4	- 4	10	- 4	-12	2	7	- 6	14	2	8	9	17	24	28	....	..	3.5
Ogden. ...	Max..	22	12	8	32	47	41	15	8	8	18	18	36	47	20	5	18	14	19	25	28	28	42	30	21	14	29	35	46	39	....	....	25.0
	Min ..	-22	- 8	- 7	- 5	- 3	27	- 2	-13	- 9	- 9	-10	- 5	1	- 3	- 8	-11	- 5	- 1	-15	- 1	4	-11	12	- 2	2	4	10	17	28	..	....	- 2.0
Olin	Max..	15	15	13	18	44	57	46	13	16	17	16	18	36	32	12	10	10	29	23	28	32	27	37	14	25	34	..	44	40	....	....	25.8
	Min ..	-14	2	0	- 8	9	37	13	0	3	1	- 7	-10	15	6	- 4	-11	1	7	- 8	- 8	18	- 5	9	5	10	5	..	33	31	..	....	4.6
Omaha, N	Max..	34	35	25	28	60	47	12	7	12	13	18	30	50	16	11	18	15	18	28	28	24	54	54	42	26	29	41	46	50	....	..	30.0
	Min .	6	3	4	5	25	10	0	- 5	2	1	3	10	10	2	1	2	13	2	3	15	9	7	28	20	16	12	25	28	29	..	....	9.6
Onawa. ...	Max..	26	32	13	32	58	51	14	12	16	16	22	31	41	21	17	18	16	18	33	32	28	52	49	41	28	34	42	49	51	....	....	30.9
	Min ..	4	0	3	0	18	14	- 1	- 7	- 2	- 5	- 2	7	19	0	- 1	2	11	- 2	- 5	10	12	0	21	13	14	10	22	25	27	....	....	7.1
Osage.....	Max..	3	12	6	20	36	38	23	6	13	15	10	13	32	31	3	18	10	11	20	25	24	21	30	14	9	21	32	38	34	....	....	19.1
	Min .	-20	- 1	- 5	-12	10	23	1	-14	- 3	- 4	- 6	- 5	12	- 2	-12	-15	6	7	- 6	0	4	- 7	7	- 5	1	8	16	24	27	....	....	1.0
Osceola ...	Max..	28	17	27	40	46	55	30	10	10	17	26	40	45	20	8	17	18	27	30	36	46	35	29	26	40	44	49	45	..	....	....	31.1
	Min ..	- 3	- 2	4	0	28	27	9	- 6	- 9	- 7	- 7	5	20	20	- 2	- 1	10	12	20	18	0	15	15	16	12	19	35	20	30	....	....	10.4
Oskaloosa	Max..	11	21	15	23	47	60	32	12	16	17	15	22	43	17	12	14	12	16	26	30	31	38	43	28	20	23	39	42	38	....	....	26.3
	Min ..	-15	0	0	- 6	14	32	8	- 3	3	1	- 4	0	16	4	0	- 7	10	8	- 8	4	15	- 2	27	10	12	12	21	31	31	..	....	7.4
Ottumwa	Max..	15	11	18	25	52	66	32	15	18	12	20	24	44	20	8	15	15	19	27	30	32	37	38	25	21	27	41	48	38	..	....	27.3
	Min ..	- 8	5	2	2	19	30	12	2	8	6	2	8	21	1	4	- 3	11	11	0	9	14	4	31	20	16	16	27	34	35	....	....	11.9
Pacific J'n	Max..	25	19	11	29	58	47	16	9	13	15	18	30	46	25	12	18	13	20	27	29	24	51	46	39	36	30	40	45	46	....	-	28.9
	Min .	0	3	2	- 1	21	16	2	- 3	7	- 4	- 5	9	25	3	3	4	13	3	- 3	13	17	5	29	24	20	18	23	24	30	....	....	10.1
Perry.	Max .	14	26	14	26	46	45	22	8	15	26	15	23	44	33	12	13	12	18	25	30	27	40	40	25	18	25	37	43	36	....	..	26.1
	Min ..	-13	0	- 3	- 7	16	21	3	- 7	1	- 5	- 6	0	19	3	- 2	- 4	9	4	-10	2	9	- 4	13	5	9	11	16	24	32	....	....	4.7
Plover.	Max .	20	20	14	20	44	42	16	5	6	7	10	22	42	28	5	10	10	8	14	30	22	38	35	15	10	22	34	36	38	....	..	21.1
	Min ..	-18	- 3	- 4	-10	0	16	- 2	-16	- 7	- 7	-10	- 1	15	- 4	-10	-16	8	- 5	-15	- 8	3	-13	12	- 6	- 1	8	8	26	27	....	....	1.1
Primghar	Max..	16	28	10	30	52	48	11	3	15	8	10	22	37	19	8	10	10	13	13	21	19	39	40	21	11	18	31	34	33	....	..	21.7
	Min .	-11	- 4	- 8	3	17	11	- 5	-17	-10	- 7	3	0	5	- 8	- 7	- 4	8	- 6	- 8	4	4	-10	7	- 3	3	6	21	26	31	....	..	0.9
Red Oak..	Max..	22	29	20	28	47	47	22	14	15	16	19	29	42	34	16	19	22	20	30	30	28	45	43	33	34	28	46	45	42	..	..	29.9
	Min ..	8	3	8	6	25	21	4	0	9	1	- 1	12	26	5	4	4	10	5	0	5	18	11	31	23	21	15	25	35	32	....	....	12.4
Ridgeway	Max..	4	8	7	21	40	44	35	23	16	23	20	25	34	32	9	14	13	25	31	31	28	25	31	15	17	31	40	46	41	....	..	25.2
	Min ..	-20	- 2	-13	-16	9	35	- 2	-11	- 2	- 5	- 6	-10	13	0	-12	-14	3	5	- 2	0	0	-13	13	- 5	1	8	15	26	28	....	....	0.9
Rock R...	Max	15	10	8	36	49	20	4	7	8	9	14	30	42	16	12	14	20	16	12	32	30	38	32	18	16	32	46	47	38	....	....	23.1
	Min ..	- 6	- 4	- 5	- 6	20	17	- 6	-15	-14	-15	-15	2	8	- 2	- 6	- 8	- 2	- 8	-12	10	12	- 6	10	0	7	5	16	26	20	....	....	0.8
Rockw'l C	Max..	15	28	13	28	47	45	20	8	11	15	13	22	30	25	10	15	14	15	23	30	24	40	40	25	15	20	41	38	46	....	..	24.7
	Min ..	-12	- 3	- 1	- 6	15	18	- 2	-14	- 5	- 5	- 5	1	10	- 2	- 6	-10	8	- 7	- 9	- 1	8	- 7	13	- 2	6	8	21	28	28	..	..	2.3
Sac City..	Max..	16	15	14	28	49	45	25	10	11	14	12	28	42	42	10	10	17	17	25	28	25	44	42	27	15	23	36	39	34	....	..	25.4
	Min ..	-12	- 3	- 1	- 6	15	18	2	-12	- 6	- 2	- 4	- 1	3	- 1	- 4	- 7	- 9	- 4	- 9	- 1	10	- 6	12	3	6	8	16	26	27	....	....	2.0
St. Cha'les	Max.	18	26	11	31	46	49	25	11	17	22	22	26	46	21	12	10	12	19	30	29	31	44	47	32	24	24	39	45	40	....	....	28.0
	Min ..	- 8	0	4	- 3	16	25	5	- 5	3	- 1	- 4	1	19	5	0	- 2	10	8	- 4	7	15	1	25	13	14	13	17	31	32	....	....	8.2
Sibley	Max..	20	7	33	55	18	2	10	5	6	13	28	43	48	6	11	11	20	23	28	15	38	23	17	9	27	36	35	..	31	....	....	20.9
	Min ..	-12	- 5	- 7	8	6	18	- 6	-19	-16	- 9	-13	-12	6	- 4	-10	-12	-10	-10	-11	- 8	7	-11	2	- 8	0	4	4	26	21	....	....	- 3.6
Sigourn'y	Max..	24	16	16	22	44	57	43	15	18	21	20	23	42	35	16	14	12	21	28	33	36	34	43	30	19	28	38	44	38	....	....	28.7
	Min ..	-14	3	- 2	- 7	7	42	10	- 2	2	2	- 5	- 1	15	5	- 1	-13	8	9	7	13	18	- 3	27	-12	10	12	21	32	31	....	....	8.2
Sioux C'r.	Max..	30	32	17	31	51	32	9	1	4	8	12	27	37	13	3	12	11	14	21	29	20	39	38	27	14	21	39	37	36	....	....	22 9
	Min ..	- 5	- 5	- 6	- 6	17	9	- 5	-17	- 9	- 8	- 9	0	12	- 3	- 7	- 8	8	- 7	- 9	2	0	- 8	8	0	1	5	17	27	20	....	....	0.5
Sioux C'y.	Max..	37	23	21	34	58	41	3	6	8	9	14	30	40	11	8	14	14	16	26	28	20	50	40	29	16	25	45	41	42	....	..	25.8
	Min ..	2	- 3	- 4	1	23	3	- 8	-13	- 6	- 7	2	7	4	- 2	- 4	- 4	5	- 5	-11	9	- 1	- 3	14	7	11	3	22	29	25	....	..	3.4
Spirit L..	Max	17	35	9	20	45	29	8	0	7	8	18	20	40	16	6	15	10	18	16	32	20	39	30	17	9	35	35	36	40	....	....	21.5
	Min ..	-17	- 5	- 7	9	14	7	-10	-20	-12	-10	-17	0	0	- 4	-13	-15	7	- 6	14	4	- 3	-10	5	- 7	4	4	32	25	35	....	....	0.8
Storm L..	Max..	28	21	26	53	48	15	5	10	..	11	11	26	42	13	3	10	8	5	23	25	20	42	20	18	10	27	35	39	33	....	....	22.4
	Min ..	-12	- 5	- 3	- 6	12	14	- 4	-16	-10	..	- 8	- 7	3	- 4	- 6	-10	- 5	- 8	-10	-10	8	-10	0	0	- 1	5	6	26	21	....	....	1.4
Thurman	Max..	26	34	21	30	54	53	19	12	15	15	18	30	44	26	14	17	15	18	26	28	25	49	47	37	33	28	39	44	44	....	..	29.7
	Min ..	- 3	4	- 3	- 8	20	19	3	- 2	8	- 2	- 4	9	26	- 3	3	4	14	5	- 2	14	12	6	35	34	23	13	24	27	30	....	....	10.8
Tipton	Max..	11	13	12	18	45	59	46	17	20	22	18	18	36	33	12	15	10	20	28	29	29	27	36	25	15	26	34	45	38	....	....	26.1
	Min .	-10	2	- 2	- 7	10	40	12	3	5	3	- 1	- 2	10	7	- 3	- 8	5	8	- 1	3	15	- 3	5	10	6	11	13	31	31	....	....	6.7
Toledo.	Max..	8	17	13	21	45	52	30	13	16	19	15	18	39	33	10	13	10	18	28	29	30	32	40	22	13	25	35	45	37	....	....	25.0
	Min ..	-18	1	- 2	- 9	10	26	- 8	- 6	1	- 3	- 5	- 8	15	3	- 4	-13	7	6	- 8	- 1	10	- 3	21	3	6	11	17	30	31	..	..	3.8
Villisca...	Max..	30	28	30	34	45	45	29	17	22	18	17	32	46	27	18	17	18	20	28	32	29	46	44	43	32	34	38	45	46	....	....	31.4
	Min ..	- 1	0	- 3	7	12	26	2	- 3	2	0	5	22	18	2	1	1	10	3	- 3	11	16	3	28	22	22	28	32	32	31	....	....	11.2
Wapello..	Max..	8	8	10	18	47	59	52	17	20	23	23	21	40	34	12	14	14	15	26	..	30	29	41	30	20	..	38	43	38	....	....	27 0
	Min ..	- 9	5	1	- 4	13	37	15	7	9	5	1	2	19	11	3	- 5	9	9	0	..	24	0	25	17	11	..	17	33	34	..	....	10.7
Washi'ton	Max..	8	11	16	21	48	62	19	16	20	21	19	21	41	20	6	15	13	20	23	32	32	40	39	23	19	25	38	45	36	..	....	26.0
	Min ..	-16	- 1	- 5	- 8	- 2	23	7	- 1	0	- 1	- 6	- 5	- 2	4	- 4	-10	- 9	5	- 6	- 5	2	- 5	- 2	10	6	7	12	24	30	....	.	1.4
Waterloo.	Max..	9	18	10	20	41	51	27	21	19	19	15	18	35	25	9	15	10	18	25	28	30	26	33	17	12	23	34	44	49	....	....	24.2
	Min ..	-18	0	- 2	-12	9	27	7	- 6	2	- 1	- 1	- 5	15	2	- 7	-11	6	4	-10	- 5	- 9	- 5	18	1	4	10	18	28	29	..	..	8.7
Waukee..	Max..	20	14	18	28	50	48	27	15	11	16	15	25	46	24	14	14	11	20	35	29	27	47	44	38	19	23	38	44	39	....	....	27.6
	Min ..	- 4	7	7	0	16	27	10	- 6	7	- 3	- 5	0	19	3	- 1	- 4	9	5	- 7	5	14	- 2	20	7	10	10	17	29	34	..	....	7.7
Waverly..	Max..	6	6	8	19	39	43	25	7	15	15	10	16	34	30	5	13	9	15	22	28	28	25	32	18	10	21	32	40	37	....	....	21.0
	Min ..	-22	0	- 5	-15	10	25	2	- 8	1	- 2	- 2	- 7	14	0	- 9	-13	5	6	-15	- 4	5	- 9	15	- 1	2	9	19	26	28	..	....	1.9
W.Bend..	Max.	11	24	12	27	46	43	17	4	9	12	12	20	41	25	6	16	11	14	21	29	22	5	11	7	4	4	8	8	26	27	....	21.7
	Min ..	-19	- 2	- 4	-10	15	17	- 3	-16	- 7	- 6	- 8	- 8	14	- 2	- 8	-15	7	- 8	-12	- 4	5	-11	7	- 4	4	8	8	26	27	....	..	- 0.3
Whitten..	Max..	10	11	10	22	41	46	27	11	13	15	10	19	37	33	12	14	11	15	23	30	28	32	37	22	12	24	34	40	37	....	..	23.3
	Min ..	-22	- 2	- 5	-12	10	26	2	-11	- 2	- 5	- 5	- 4	12	- 1	- 8	-14	5	5	-10	1	8	- 7	15	- 1	3	8	18	24	28	....	...	1.9
Wilton J.	Max.	17	14	16	19	47	60	54	16	20	18	20	23	40	36	13	12	13	19	25	32	32	30	39	31	16	28	38	40	38	....	....	27.8
	Min ..	-13	3	- 2	- 8	11	41	13	1	4	1	- 8	- 8	16	8	- 2	-12	6	10	- 5	0	22	- 7	22	13	6	12	11	33	32	....	....	6.9
.. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....
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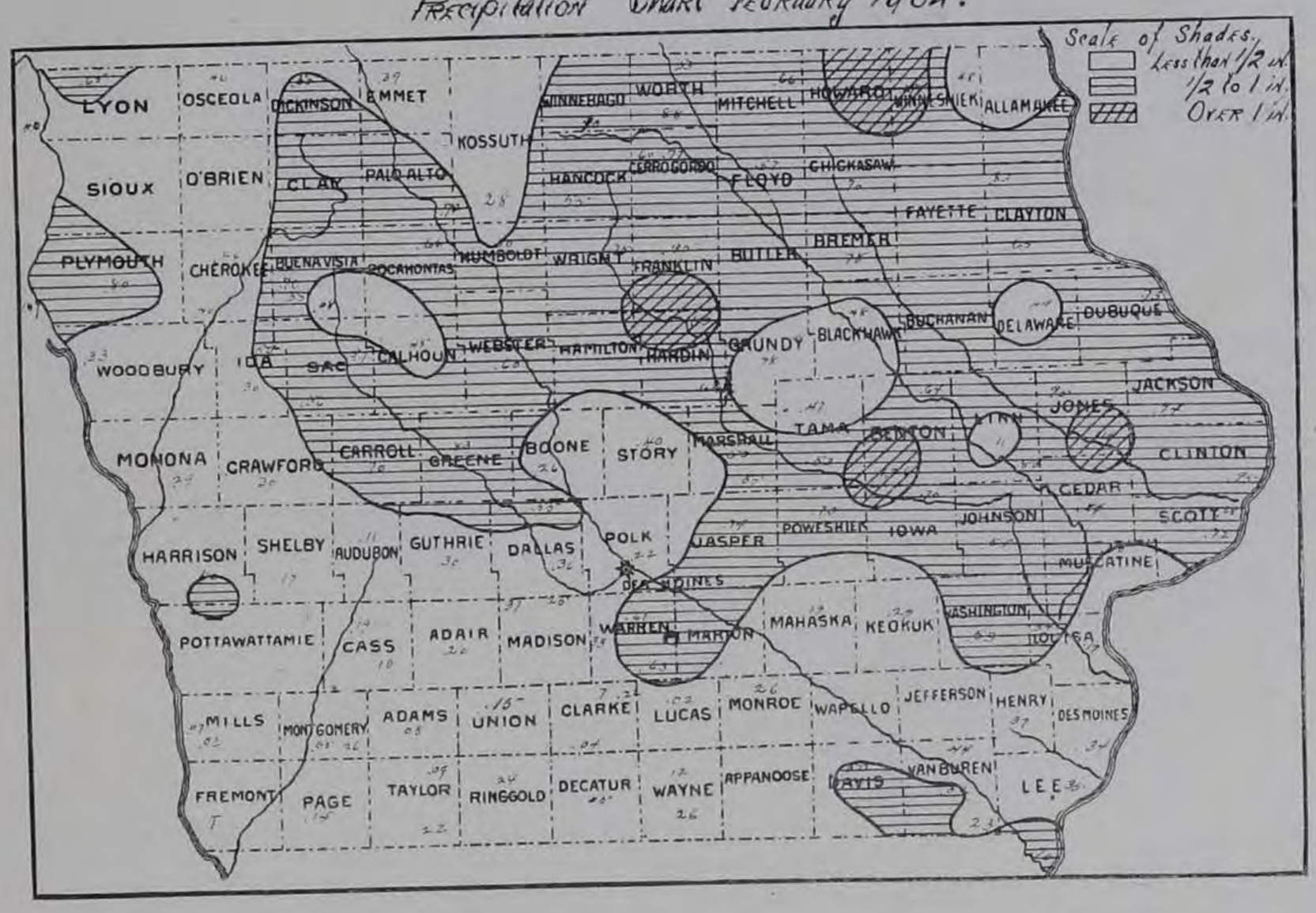
DAILY AND MONTHLY PRECIPITATION FOR FEBRUARY, 1904.

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							T	T		.10								.05			T											.15
Albia									T									.18			.08											.26
Algona									T												T		.03		.13				.02			.28
Allerton	T						T	.05	.03					T			.10	.02			.03							T	.03			.26
Alta						.03		.03					T				.40				T	.05	.02	.21	.01				.01			.76
Alta (near)						.05											.30						.10	.10	T							.55
Amana							.08	T	.10								.16	.08			.05		.02		.15				.06			.70
Ames						.03		.02									.20								.15							.40
Atlantic								.05									.10				T							.04	T			.19
Aububon								.04									.11	T		T						T	T		T			.15
Baxter									.03								.03								.03				.25			.34
Bedford								.09	T							T	.08	T		.05	T					T						.22
Belknap		T	T														.30				.10							.10				.50
Belle Plaine					T				.25								.10	.30				.10	.01		.40	.10			T			1.26
Bonaparte																	.13				.10								T			.23
Britt	T	T	T	.03	.04						.02						.20	.03			.02				.06		.02		.13			.55
Buckingham		T						.11									.23	T					T	T	.10				.08			.47
Burlington		T	T					T									.08	.08			.11							T	.07			.34
Carroll	T							.15										.20			T		.10		.25							.70
Cedar Rapids				T			T		T									.10			T			T	.01	T			T			.11
Chariton		T					T		T								.02											T	T			.02
Charles City			.02					.06			T							.26			T	T	T		.15	.05	T		.11			.57
Clarinda					T	T	T				T						.06				T											.14
Clear Lake																	.30	.10					T		.05	T			.15			.60
Clinton									.16								.31				.22		T		18				.08			.95
Columbus Junct'n									.10								.10	.07			.10				.07			.10				.54
Corning								.02	T								.04				.02					T	T					.08
Council Bluffs																																
Corydon								T									T	.12			T							T	T			.12
Cresco																	.20											.10				.30
Cumberland								.10								T																.10
Davenport		T	T				T		.09		T						.20	.11			.14		T		.10	.03		.01	.04			.72
Decorah							T												.30			.04			.03	T		.11				.48
Delaware						.02		.03									.07				.10	.20		.04				.03				.49
Denison									.08								.05	.05			.02	T	T	.10								.80
Des Moines			T				T	.01	.05								.12	.02			.01		T		T	T	T		.01			.22
De Soto								.05	.10								.10				T				T	T			T			.25
Dows									.10								40	.10					T		.10				.05			.75
Dubuque	T	T	T		T	T	.01		.03		T						.12	16		T	.01		.23		.14	T	T	T	.03			.73
Earlham			T					T	.11								.26	T									T		T			.37
Elkader	T					T			.02		T						.43				T		.13		.07	T						.65
Estherville		T					.05		T								T	.20			T	T	T		.10	.04			T			.39
Fayette	T							T	T								.50						.30			.02	T		.20			1.02
Forest City	T								T								.50					T		T	T				.20			.70
Fort Dodge									T								.40						T		.20	T						.60
Fort Madison			T					T									.25			.10	T				T			T	T			.35
Galva						T			.25								.25				T											.50
Gilman		T			T				.10								.10								.30			T	.05			.55
Glenwood								.02	T							T	T			T						T	T					.02
Grand Meadow					.02		.02		.02									.40					.15		.10				.12			.83
Greenfield							T	.03	.03					T			.13	T			.01		T					T	T	T			.20
Grinnell						.20		.11									.12								.20				.10			.73
Grundy Center					T	T		T	.10								.10	.15					T		.20		T	T	.03			.58
Guthrie Center		T	T			.03	T	T	.07								.16	T							T		.01		.03			.30
Hampton								.04									.63			.01				.20	.03	T		.04				.95
Hanlontown					T	T	T		T		T					.35					T	T	T		T	T		.18				.53
Harlan						T	T	T	.05	T				T			.10	.02					T		T	T	T		T			.17
Hopeville			T					.01	.01								.02				T											.04
Humboldt																.30								.20								.50
Ida Grove																	.25							.05								.30
Indianola					.02			.02	12					T			.15	.05			T				T		T	T	.25			.61
Inwood						T			T			T					.20					T	T	.10	T							.30
Iowa City	T	T	T			T		.20										30			.10	T	T	T	.19	T		T	.05			.84
Iowa Falls	T					T	T		.10								T	.30	T		.03		T		.20	.30	T	T	.10			1.03
Jefferson		.03				T		.12									.35				T		.05		.13		.15					.83
Keokuk		T	T				.04	T	T						T		.22	.04		T	.09							T	.31			.70
Keosauqua							.05		T									.31		.11									.05			.52
Lacona								.11	.10					.05			.20				.03							.14				.63
Larrabee						T			.02								.20				T		T		.24							.46
Le Claire		.04	T	T			T	T	.03	T								.12	T		.10	.10		T	T	.18			.11			.68
LeMars						T											.35				T		.10	.35								.80
Lenox								.05									.02				02											.09
Leon			T		T			.05	T						T		T				T						T	T	T			.05
Logan							.10	20								.10	.10															.50
Maquoketa									.08	T								.24			.14	T				.20			.08			.74
Marshalltown						T			.11								T	.24			T		T		.15	T	T					.50
Monticello		T	T	T			T		T								.15	.20				T	.20	.20	.20							.95
Mason City						T											.60						T		.11				.06			.77
Mount Ayr								.05									.09				T		T				T		.10			.24
Mt. Pleasant			T				T		T		T						.10	.17			.10				T			T	T			.37
Mt. Vernon		.01	.01		T			.11									.30			.18				.05		.20	T	T	T			.80
New Hampton					.10				T								.20	.20							.10	T			.10			.70
Newton									.11								.21	.08			.04		.10		.20							.74
Northwood	T				T	.08								T			.10					T	T		.30		T		.40			.88
Odebolt								.05									.27			T			.10		.12				02			.56
Ogden									.06									.12						.03	.05							.26
Olin					.25			.06									.20				.07	.02		.08				.50				1.18
Omaha, Neb	T					T	T	.04	.02	T						T	.01	T			T				T	T	T		T			.10
Onawa		T							.05								.15				T		.04						.05			.29
Osage	T		T						.01								.15	.30			T		.04	T	.05	.01			.10			.66
Osceola																T		T		T							T	T			T
Oskaloosa									.06								.08				.05							T				.19
Ottumwa		T						.02									.16				.07											.25
Pacific Junction						T		.04								T	.03										T	T				07
Perry							T	T	.15								.20	.10			T		T		.10	T			T			.55
Plover																	.30						.06		.30							.66
Red Oak						T			.05												T					T	T					.05
Ridgeway	.01	.07	.01		.08	.20	.03		.01								.48	.36			T	T	.03		.07	.07	.01		.56			1.99
Rockwell City																	.30						.15									.45
Rock Rapids										T							.20						.25		.20							.65
Sac City																	.27				T		.15		.15	T	T	T				.57
St. Charles					.03			.03	.06								.18	.01			T								.02			.33
Sibley							.05		T					T			T	.20			T	T	.01	20	T		T					.46
Sigourney			T				T	T	.05								.09				.08		T		T			.03	.04			.29
Sioux Center						.05											.20						.03									.28
Sioux City		T				T	T	T	.01		T						.15	T			T		.07		.10	T						.33

DAILY AND MONTHLY PRECIPITATION FOR FEBRUARY, 1904.—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	
Spirit Lake						T											.35								.20							.55
Stockport		T	T		T		T		T								.12				.32				.04	T		T	T			.44
Storm Lake								T			T							04								T		T				.08
Thurman				T		T		T	T								T				T					T	T					T
Tipton							.12		.12								.12	.11			.18				.19				.05			.89
Toledo								.13										.17			.03				.20			T				.53
Villisca	.15							.05									.04				.02											.26
Vinton		T	T		T			.1									.15	.14			.03		.03		.08		.06	T	.05			.64
Wapello																		.19				T			T							.9
Washington							03		.10									.20			.00				.03				.08			.53
Washta						T					T						.30						.05		.05							.40
Waterloo							T		.06								.26	T			T		.06		.07	T	T		.08			.48
Waukee			T		T		T	.05	.10								.20				T		1		.01		T		T			.36
Waverly			T				T		.07		T			T			.33	.10			T		.09		.01		.01		.17			.78
West Bend					T	T			.03								.40				.05		.02		.20	T			.02			.72
Whitten		T					T	T	.10								.20	.10					T		.20							.60
Wilton Juuction							T		.03								.20				.15				.12			T				.50
Woodburn								.04	.02						T		.11	T			.03					T		T	.02			.22

Precipitation Chart February 1904.



MARCH, 1904. No. 3.

CONTENTS.

CENTRAL STATION, DES MOINES, IOWA.

J. R. SAGE,
DIRECTOR.

GEO. M. CHAPPEL,
LOCAL FORECASTER,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

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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Gilman	Jas. L. Wylie
Glenwood	J. P. Jackson
Grand Meadow (Postville P. O.)	F. L. Williams
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Primghar	Jasper N. Marsh
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Rockford	J. R. Waller
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U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

VOLUME XV. MARCH 1904. No. 3.

NOTES AND COMMENTS.

During the eighteen months ended June 30, 1903, the amount of rainfall at the government laboratory in Georgetown, British Guiana, was 98.90 inches. The record includes not only the measurements of rainfall, but also the contents of chlorine and of nitrogen in the form of ammonia and nitric acid. The amount of chlorine was 244 pounds, equal to 402 pounds of common salt per acre, and 4.67 pounds of combined nitrogen.

The severe cold has no terrors for insect life. It has been shown by experiment that insects may be artificially or naturally frozen—subjected, indeed, to very low temperatures—without killing or even injuring them. Eggs, larvæ and pupæ, the stages in which most insects pass the winter, are perfectly immune to cold. One of the commonest evidences of this hibernation is to be seen when firewood is carried into the house and placed near the warm stove. It takes only a short time to bring out a swarm of ants that were sleeping in beetle borings, their common retreat.—*St. Nicholas.*

Many reports of correspondents from Illinois, Iowa and the Northwest indicate that the amount of plowing done last fall was much more than usual. An article in *Orange Judd Farmer*, describing Brookmont Farm, of 7,000 acres, in western Iowa says: Fall plowing is preferred for corn and all the land that can be prepared in the fall is plowed then. Fall-plowed ground becomes sufficiently warm for planting corn a week to ten days earlier than spring-plowed land. This means two weeks earlier maturing in the fall, an important difference in seasons of early frost. It requires a smaller number of teams to raise corn when the land is plowed in the fall, because then the hardest work of preparing the ground is not crowded into a few weeks in the spring. In a wet spring it is difficult to plow a large acre for corn without having to plow some of the land when too wet. In the thirty-one years that corn has been raised on Brookmont Farm it has been found that corn on fall plowed land has suffered less from the drought than that on land plowed in the spring. The past year (1903) corn has been planted in Brookmont Farm as follows: On fall plowing, 1,300 acres; on spring plowing, 2,560; listed, 140 acres; total, 4 000 acres.—*Murray's Price Current.*

Earthquake shocks occurred at various places in New England on the morning of March 21st. Professor Henry Shaler Williams, recently elected head of the department of geology at Cornell University, in discussing the phenomenon, said: "The earthquake undoubtedly was caused by a slip of a stratum on another, deep in the earth. One of the two faces moved, causing the jarring, although the faces moved only a few inches the earth's surface was disturbed for hundreds of miles. The earthquake caused a readjustment of the two faces. The tension was relieved, and probably there is no immediate danger of a recurrence."

The Minneapolis *Journal* says: "It is not unusual for the 'old residenter' to rise on cold winter mornings and speak contemptuously of the lack of severity of modern winters. He declares that the weaklings of this day and age would not be able to withstand the ravages of ancient winters. Now is he come to judgment. Away back in 1822 the weather attracted the attention of the authorities at Fort Snelling Accurate (for that time) records were kept, and have been tabulated by the Pioneer Fuel Company of Minneapolis. The months of December, January and February were grouped as representative winter months and the average mean temperatures were made up. They were classed as 'mild,' 'warm' and 'cold.' Warm winters were those showing an average mean temperature of 18 degrees above or more. Mild winters show an average mean temperature of between 12 and 18 degrees above zero, while the cold winters were those whose average for the three months was 12 degrees or below. Of a group of eighty-one seasons, brought down to date, twenty-five winters were classed as cold, thirty as mild, and twenty-six as warm."

FEEDING VALUE OF SOFT CORN.

Under the auspices of the animal husbandry section of the Iowa Experiment Station at Ames, some very valuable experiments have been made to determine the feeding value of soft corn for beef production. The results, as set forth in Bulletin No. 75, just issued, show a practical agreement between the chemical tests and the experimental tests, as to the composition and value of soft corn compared with the fully matured product. The following conclusions are deducted from the experimental work just completed:

1. That soft corn grown on the college farm in 1902, and containing 36 per cent of moisture at the beginning of the test, pound for pound, on a water free, or dry matter basis, was fully equal in feeding value to mature corn grown in 1900, when used for fattening cattle.

2. That cattle fed on such soft corn made nearly as heavy gains and finished equally as well as those fed on mature corn grown in 1900.

3. That when soft corn, similar to that used in this test, could be purchased for 30 cents per bushel, the prevailing mar-

ket price, gains on fattening cattle could be made at a cost of 3.03 cents per pound less than when mature corn, costing 50 cents per bushel, the prevailing market price, was fed under similar conditions.

4. That a study of the Chicago live stock market conditions, from January 1, 1903, to July 31, 1903, shows conclusively that the comparatively low price of beef cattle was not caused by an oversupply of half finished cattle. On the contrary, there was a larger number of well finished cattle marketed during that period for 1903 than for the corresponding period of any of the past ten years.

5. That the chemical analyses would indicate that the nutritive value of the corn grown in 1902 compares favorably with mature corn grown in other years when water free substance or dry matter serves as a basis of comparison.

6. That the amount of moisture present was the main difference so far as composition is concerned. That the amount of moisture depends mainly on the maturity of the corn when stricken by frost.

CONTROLLING SOIL TEMPERATURE.

With the winter's leave-taking we at once become vitally interested in the rapid warming up of the soil, because all persons that are concerned in crop production know that the growth of vegetation is dependent upon air, moisture and a certain amount of warmth. Early in the spring there is but little apprehension about the two first mentioned, warmth being the factor of first consideration.

It is scarcely necessary to say that the removal of water from the land by drainage is one of the quickest and most effective means of warming it. Unless provision has previously been made for the removal of free water the task of seeding will be an uphill one. However, under average conditions when the soil dries out with reasonable rapidity much may be done by the farmer to hasten a rise of temperature in the surface soil.

In his work on "Soils" King says that the thorough preparation of the seed bed is justified in a large measure by the warming effect which judicious, thorough tillage has. The development of a mulch over the ground lessens the loss of water from the surface by evaporation, and if by this means we can save the loss into the air of a few pounds of water per square foot we have avoided the withdrawal of an enormous amount of heat, owing to the fact that evaporation is a cooling process. Thorough tillage, therefore, not only saves moisture, but at the same time it permits the seed bed to warm up so that plant foods are freely liberated. The same warmth that liberates food also hastens germination, thus getting the plant into a condition to take advantage of the food being prepared.

It is not so important early in the spring that the ground should be warmed deeply, but better only so far as to provide ample available plant food for the start, and room enough for the first roots, and this is what early tillage does; the loose, open soil conducts neither the cold water up to become still colder by evaporation, nor the absorbed sunshine down where it is not yet needed. In effect this method converts the whole field into a hotbed or cold frame, and commences irrigation by saving water at the start. It does even more, for while it develops early a little soluble plant food, it holds in abeyance these processes in the deeper soil, which, by starting too early, would cause a needless loss by developing nitrates which may be leached away before the crop has its roots ready to use them.

In view of the importance of free surface tillage early in the spring as a means of warming up the soil it is impossible to urge with two much zeal the practice of freely discing or harrowing just as soon as the soil will work without puddling. Too many are inclined to let their old corn fields lie until they are inverted with the plow, which process often means a matter of a month or six weeks from the time plowing is started until it is finished. All this timesoil moisture is being evaporated at a rapid rate while the soil particles are not being raised to that temperature that brings about the most rapid germination after the crop is planted. Our advice is to start the harrows or discs just as soon as the land will work well, because when this is done time may be taken to plow properly, to cultivate thoroughly and to harrow well in the immediate preparation of the soil before planting. It is the duty of every corn grower to see to it that the first operation in the spring after tillage implements are taken from the sheds is to produce a mulch over the stubble, corn land or fall plowed fields.—*The Homestead.*

MARCH WEATHER AND CROPS.

The past winter was colder than usual, and the soil was very deeply frozen. March was a typical spring month in respect to temperature, though with less than the usual number and severity of wintry storms. There was a general prevalence of cloudiness, however, and the frost yielded very slowly, leaving the soil too wet for seeding operations, except in a few favored localities. Probably much less than the average percentage of March plowing and seeding was done in the State. The greater part of the precipitation came in the last decade of the month, which caused the principal hindrance to general field work. Farm stock wintered well, and there has been a great abundance of forage for cattle feeding.

CLIMATOLOGY OF THE MONTH.

BAROMETER.—Mean pressure, 29.98 inches; highest observed, 30.58 inches, at Sioux City, on the 3d; lowest observed, 29.30 inches, at Sioux City, on the 24th; range for State, 1.28 inches.

TEMPERATURE.—The monthly mean temperature for the State, as shown by records of 116 stations, was 34.8 degrees, which is 2.4 degrees above normal. By sections the mean temperatures were as follows: Northern section, 32.4 degrees, which is 2.8 degrees above normal; central section, 34.9 degrees, which is 2.7 degrees above normal; southern section, 37.0 degrees, which is 1.1 degrees above normal. The highest monthly mean was 38.6, at Burlington, Guthrie Center, Glenwood, Keokuk, Osceola and Ottumwa; lowest monthly mean, 27.0 at Cresco. The highest temperature reported was 78.0 degrees at Ottumwa on the 23d; lowest temperature reported 3 degrees at Columbus Junction on the 3d. The average monthly maximum was 62.9 degrees; average monthly minimum, 4 6 degrees. Greatest daily range, 55.0 degrees at Sioux City; average of greatest daily ranges 36.8 degrees.

PRECIPITATION.—Average precipitation for the State as shown by records of 127 stations, was 2.18 inches, which is 0.35 of an inch above normal. The averages by sections were as follows: Northern section, 1.74 inches, which is 0.12 of an inch above normal; central section, 2.05 inches, which is 0.17 inch above normal; southern section, 2.74 inches, which is 0 77 inch above normal. The largest amount reported was 4.57 inches at Bedford; least amount reported, 0 50 inch, at Ida Grove and Sioux City. The greatest daily rainfall reported was 2.35 inches at Bedford on the 30th. Average number of days on which .01 of an inch or more was reported, 7.

WIND AND WEATHER.—Prevailing direction of the wind, northwest; highest velocity reported, 68 miles per hour, from the northwest, at Sioux City, on the 2d. Average number of clear days, 8; partly cloudy, 8; cloudy, 15.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES.			
		Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	29.97	30.47	3	29.43	10
Des Moines	30 00	30.52	3	29.46	10
Dubuque	30.01	30.48	3	29.44	10
Omaha, Neb	29.97	30.62	3	29.26	9
Keokuk	29.98	30.54	3	29.47	10
Sioux City	29.98	30.58	3	29.30	24
Means	29.98	30.58	3	29.30	24

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	6.879	38	S	24
Des Moines	7.704	41	NW	2
Dubuque	6.370	34	NW	3
Keokuk	6.882	36	W	24
La Crosse, Wis	6.110	37	N	2
Omaha, Neb	8.049	46	NW	2
Sioux City	11.257	68	NW	2

OBSERVERS' NOTES.

AMANA—*Conrad Schadt.* No farm work done; hardly a vestige of growing vegetation; thunderstorm on 24th and 30th.

ATLANTIC—*J. W. Love.* Robins on the 1st; bluebirds and larks on 5th.

AUDUBON—*Geo. E. Kellogg.* Some wheat sown on 1st; heaviest snowfall of the winter on 13th.

BONAPARTE—*B. R. Vale.* Precipitation, 2.73 inches; muddy fields and bad roads; no farm work done; subsoil not very wet.

BRITT—*Geo. P. Hardwick.* First larks observed on 16th; robins, 18th; bluebirds, 29th; frogs croaking 31st; too cold for seeding; ground frozen deep.

CLINTON—*Luke Roberts.* Mean temperature normal, but was 7.6° colder than March, 1903; precipitation, 1.61 inches, or 2 inches above normal; 1.06 inches came in form of snow on 24th, with strong wind.

ELKADER—*Chas. Reinecke.* Ice went out of the Turkey river March 1st.

FOREST CITY—*J. A. Peters.* No seeding done in March; frost still in the ground.

GRAND MEADOW. *F. L. Williams.* Month very disagreeable and backward; no field work done; roads bad; stock doing well.

GRUNDY CENTER—*E. S. King.* Only five clear days; no farm work done; stock wintered well.

HANLONTOWN—*Miss G. M. Paschen.* Ducks seen on 6th; birds came first of the month.

HUMBOLDT—*H. S. Wells.* Rain, 1.19 inches; March came in warm and went out cold; roads bad last half of month.

JEFFERSON—*Isaac Young.* On 24th lightning struck residence of Thomas Lynch, of Cooper; badly damaged; no oats sown yet.

KEOSAUQUA—*J. H. Landes.* Thunderstorm and wind on 24th caused considerable loss in south part of county.

LOGAN—*Mrs. M. B. Stern.* Weather very changeable, but no bad storms; rather dry winter and spring.

OLIN—*N. Potter.* First half of month fine, up to 13th; last half changeable, with mud; spring backward, and no farm work done.

PACIFIC JUNCTION—*H. H. McCartney.* On the 2d, at 2 P.M., temperature was 68°; at 7 P.M. it had fallen to 20°; strong wind from southeast changed to gale from northwest, almost in a moment. Fall in temperature of 62° between 2 P. M. on 2d to 7 A.M. on 3d.

RIDGEWAY—*Arthur Betts.* Only 149 hours of sunshine; big snowstorm on 13th and 14th, but an agreeable month; wild geese and robins came early in the month.

ROCK RAPIDS—*W. C. Wyckoff.* Seeding began on 29th on ridges and up near State line; stopped by rain on 30th.

WAUKEE—*E. J. Leonard.* An inch more snow fell in March than in February; since January 1st have had 17.5 inches of snow; coldest day of winter was January 25th; temperature ranged 8° to 18° below zero.

BELATED REPORTS.

COLLEGE SPRINGS—February. Mean temperature 20.7°; highest 49° on the 5th and 22d; lowest -2° on the 4th; greatest daily range 32°; prevailing direction, northwest. Number of clear days 18, partly cloudy 4, cloudy 7.

INDEPENDENCE—February. Mean temperature 9.8°; highest 50° on the 6th; lowest -20° on the first; total precipitation 40 inches; greatest in 24 hours .35 inch on the 17th. Total snowfall 4 0 inches; prevailing direction, northwest; number of rainy days 2.

KNOXVILLE—February. Mean temperature 18.1°; highest 56° on the 6th; lowest -10° on the first; greatest daily range 38°; total precipitation .45 inch; greatest in twenty-four hours .20 inch on the 27th; total snowfall 3.0 inches. Number of clear days 10, partly cloudy 8, cloudy 11, rainy 4. Prevailing direction, northwest.

SHELDON—February. Mean temperature 12.6°; highest 54° on the 5th; lowest -18° on the 8th; greatest daily range 39° total precipitation .31 inch; greatest in 24 hours .25 inch on the 17th; prevailing direction, south; total snowfall 3.1 inches. Number of clear days 16, partly cloudy 6, cloudy 7, rainy 3.

WINTERSET—February. Mean temperature 18.3°; highest 45° on the 23d; lowest -7 on the 11th; greatest daily range 33°; prevailing direction, east; number of clear days 8, partly cloudy 7, cloudy 14.

ERRATA.

GREENFIELD—August, 1903. Daily precipitation of .53 inch recorded on the 27th, page 11, should have been 2.56 inches.

OTTUMWA—December, 1903. Mean temperature recorded, 25.0° on page 7, should have been 24.5°.

ERRATA IN JANUARY REVIEW.

AFTON—Mean temperature recorded 18.4° on page 8, should have been 18.2°. Mean maximum temperature recorded 27 4° on page 9, should have been 27.1°. Highest temperature recorded on the 9th, page 8, should have been the 7th.

BRITT—Total snowfall recorded 3.6 inches on page 7, should have been 4.6 inches.

CORYDON—Mean minimum temperature recorded 5.3° on page 9, should have been 5 4°.

EARLHAM—Total precipitation recorded 1.31 inches on pages 8 and 11, should have been 1.37 inches.

GILMAN—Total precipitation recorded .85 inch on pages 7 and 11, should have been 1.03 inches. Daily precipitation on 10th and 11th recorded .01 inch on page 11, should have been .10 inch.

GRAND MEADOW—Mean maximum temperature recorded 19.0° on page 9, should have been 19.1°.

GREENFIELD—Highest temperature recorded on the 7th, page 8, should have been on the 8th.

HAMPTON—Mean temperature recorded 10.5° on page 7, should have been 10.8°.

KEOSAUQUA—Mean temperature recorded 15.0° on page 8, should have been 14.8°.

LARRABEE—Mean temperature recorded 12.2° on page 7, should have been 11.9°. Mean maximum temperature recorded 22.5° on page 9, should have been 21.9°.

OLIN—Maximum temperature recorded 41° on the 7th, on page 7, should have been 42° on the 19th.

PRIMGHAR—Mean temperature recorded 10 3° on page 7, should have been 10.4°. Mean maximum temperature recorded 19.2° on page 10, should have been 19.3°.

STUART—Mean temperature recorded 16.9° on page 7, should have been 17.0°. Mean maximum temperature recorded 25.7° on page 10, should have been 25.8°.

WAPELLO—Maximum temperature recorded 41° on the 7th, on page 8, should have been 47° on the 19th.

WATERLOO—Total snowfall recorded 6.0 inches on page 7, should have been 5.0 inches.

ERRATA IN FEBRUARY REVIEW.

BELKNAP—Mean minimum temperature recorded 11.7° on page 8, should have been 11.3°. Mean temperature recorded 19.2° on page 7, should have been 19.0°.

CLARINDA—Maximum temperature recorded on the 24th, page 7, should have been 23rd.

GRUNDY CENTER—Total precipitation recorded .48 inch on page 6, should have been .58 inch.

IDA GROVE—Maximum temperature recorded on the 5th, page 6, should have been on the 5th and 6th. Minimum temperature recorded -12 on the 8th, page 6, should have been -15 on the 19th.

IOWA FALLS—Mean temperature recorded 13.0° on page 6, should have been 10.7°. Mean maximum temperature recorded 25.2° on page 8 should have been 20.5°.

KEOSAUQUA—Minimum temperature recorded on the 1st, page 7, should have been 1st and 2d.

NORTHWOOD—Mean temperature recorded 11.0° on page 6, should have been 10.8°. Mean maximum temperature recorded 21.7° on page 9, should have been 21.3°.

PRIMGHAR—Minimum temperature recorded -13° on the 11th, page 6, should have been -17° on the 8th.

SIBLEY—Mean temperature recorded 8.2° on page 6, should have been 8.6°.

SIOUX CENTER—Total snowfall omitted on page 6, should have been 2.5 inches.

THURMAN—Mean temperature recorded 20.2° on page 7, should have been 20.0°. Mean minimum temperature recorded 10.8° on page 9, should have been 10.3°.

WEST BEND—Mean temperature recorded 10.7° on page 6, should have been 11.0°. Mean maximum temperature recorded 21.7° on page 9, should have been 22.3°.

CLIMATOLOGICAL DATA FOR MARCH, 1904.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	PRECIP., IN INCHES. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).	Number rainy days.	SKY. Number clear days.	Number partly cloudy days.	Number cloudy days.	Prevailing direction of wind.	DATES OF THUNDER STORMS.
Algona	Kossuth	1,213	28	31.9	†1.9	59	23	0	3	35	1.34	- .22	.37	1.0	6	4	10	17	NE	21
Alta	Buena Vista	1,513	11	31.9	†2.5	60	23	0	3	48	1.50	- .32	.47	0.6	7	7	13	11	NW	21, 24
Alta (near)	Buena Vista										1.31		.50	1.5	6					
Britt	Hancock	1,236	5	32.4	†3.6	57	23	-1	3	35	1.63	† .26	.71	0.9	8	2	15	14		
Charles City	Floyd	1,012	11	31.2	†1.3	59	23	3	3, 4	32	1.67	- .08	.45	2.5	7	2	4	18	E	25
Clear Lake	Cerro Gordo	1,241		31.8		60	23	-2	3	32	1.20		.50	2.0	5	5	10	16	NW	
Cresco	Howard			27.0	†0.3	52	23	0	3	32						9	0	22	NW	
Decorah	Winneshiek	857	8	31.6	†1.3	57	23	0	3	26										
Dows	Wright	1,142		32.6	†2.7	59	23	2	3	32	2.22	† .26	1.30	4.5	6					
Elkader	Clayton	727	21	33.1	†2.2	57	23	1	3	35	1.55	- .44	.53	2.0	9	11	2	18	NW	21
Estherville	Emmet	1,298	7	30.0	†2.9	59	23	6	3	32	2.75	† .92	1.10	6.5	9	7	9	15	NW	21, 24
Fayette	Fayette			31.6	†1.4	58	23	-2	3	36	1.98	† .57	.65		6	10	3	18	NW	21, 24
Forest City	Winnebago	1,228	8	31.3	†2.9	59	23	2	3	31	3.64	†1.38	1.66	6.8	6	4	9	18	NW	21, 24
Grand Meadow	Clayton	1,180	11	32.2	†2.0	50	23, 24	-1	3	33	1.33	- .15	.48	1.0	6	10	4	17	SE	
Hampton	Franklin	1,155	12	33.1	†4.5	60	23	3	3	34	3.01	† .91	1.70	5.0	9	5	6	20	NW	24
Hanlontown	Worth			30.9		57	23	1	3	35	2.00	- .26	.60	4.5	8	3	14	14	NW	24
Humboldt	Humboldt	1,095	10	34.2	†4.5	60	23	-1	3	35	1.22		.50	1.2	5	11	1	19	NW	
Inwood	Lyon			32.3		59	23, 24	3	3	37	1.19	- .26	.42		4	18	4	9	SE	
Larrabee(a)	Cherokee	1,366	11	33.4	†4.2	61	29	1	3	36	.76		.53	2.0	4	5	6	20	E	
LeMars	Plymouth	1,224	6	34.2	†2.4	63	9	-1	3	34	1.18	- .47	.45	0.4	4	7	14	10	NW	21, 24
Mason City	Cerro Gordo	1,132		32.8	†4.9	56	23	0	3	43	1.40	† .03	.40	7.0	4	11	10	10	E	
New Hampton	Chickasaw	1,169		30.4	-0.2	55	23	2	3	26	1.56	† .22	.45	2.1	7	7	17	7	SE	24
Northwood	Worth	1,222	6	32.0	†2.6	56	23	1	3	30	2.18	† .53	1.30	4.0	7	6	8	17	NW	
Osage	Mitchell	1,184	11	31.6	†4.2	51	23	0	3	32	1.45	- .15	.56	2.0	5	9	8	14	NW	21
Plover	Pocahontas	1,190	5	32.8	†2.4	62	23	0	3	24	1.82	† .25	.59	3.3	9	5	6	20	SE	21, 24
Ridgeway	Winneshiek	1,215		33.2	†1.8	59	23	0	3	45	.97	- .41	.26	1.0	6	10	3	18	NW	
Rock Rapids	Lyon			33.0	†3.2	60	23, 30	0	3	30	2.95	† .55	.82	5.5	12	5	14	12	NW	21, 24
Ruthven	Palo Alto			28.2		55	23	3	3	40	.80	- .79	.50	3.0	2	13	11	7	S	
Sibley (b)	Osceola	1,512	8	30.4	†0.8	59	23	-2	3	33	2.25		1.00		3	8	0	23	NW	
Sioux Center	Sioux			32.4	-0.6	59	9	0	3	37	2.05	† .88	1.20	1.5	6					
Spirit Lake	Dickinson	1,458	8	30.2	-0.7	60	23, 24	-2	3	40	1.85	† .60	.70	8.0	6	6	9	16	S	21
Storm Lake	Buena Vista	1,440	7	30.6	†2.5	58	23	0	3, 4	34	1.39	† .59	.86	3.5	3	12	7	12	SE	
Washta	Cherokee	1,157								38	1.54	† .16	.80	0.1	5	13	1	17	NW	21, 24
Waverly (a)	Bremer	942	6	32.4	†1.2	58	23	4	3	30	.83	- .42	.50	T	4	12	13	6	SE	24
West Bend	Palo Alto	1,197	8	34.2	†5.0	60	23	0	3	31	2.05	† .09	.70	5.8	11	6	9	16		21, 24
West Union	Fayette										1.76	† .12	.56	2.0	6	5	9	17	SE	21
Average				32.4	†2.8	58.1		0.6		34.6	2.73		1.92	5.0	3	7	0	24	NW	
											1.74	† .08		3.0	6	8	7	16	NW	

CENTRAL SECTION.

Amana	Iowa	721	25	35.6	†4.2	56	23	10	3	24	2.83	† .83	1.41	7.5	10	5	9	17	NW	24, 30
Ames	Story	926	20	35.0	†2.5	62	2, 23	5	3	34	1.63	† .15	.77	1.5	10	16	3	12	NW	
Audubon	Audubon	1,301	8	34.5	†1.9	67	2	0	15	44	.81	- .97	.30	5.0	7	10	3	18	E, NW	
Baxter	Jasper	998		35.4		62	2	5	3	35	1.91		.86	2.0	7	7	4	20	NW	
Belle Plaine	Benton	826	12	33.2	†0.7	57	23	7	3	28	3.36	† .76	1.70	12.8	10	5	10	16	SE, W, NW	
Buckingham	Iowa										2.46		1.25	2.1	7					
Carroll	Carroll	1,265	12	34.4	†2.9	66	2	2	3	34	.96	-1.39	.35	3.5	6	9	4	18		24
Cedar Rapids	Linn	733	19	34.0	†1.2	59	23	10	3	34	2.07	- .11	1.48	.2	6	4	10	17	NE	
Clinton	Clinton	609	34	36.2	†3.4	60	24, 29	11	3	31	4.01	† .99	.99	11.0	9	4	6	21	NW	30
Davenport	Scott	606	31	36.0	†1.1	62	24	13	3	30	2.70	† .54	.67	7.9	11	4	8	19	NW	21, 22, 24, 30, 31
Delaware	Delaware	1,083	11	32.0	†1.7	55	23	6	3	29	2.82	† .99	1.07	10.0	11	6	16	9	NW	21, 24
Denison	Crawford	1,180	8	35.0	†3.1	68	2, 9	4	3	43	1.95	† .32	.75		7				N	24
Des Moines	Polk	861	24	36.2	†1.5	63	2	8	3	46	1.20	- .26	.32	4.5	10	4	13	14	NW	24, 31
De Soto	Dallas	866		36.8		66	2	7	3	39	1.64		.67	2.0	8	12	6	13	NW	
Dubuque	Dubuque	655	29	33.8	†0.9	56	24	8	3	27	2.86	† .59	.94	8.0	12	11	7	13	NW	2, 21, 24
Fort Dodge	Webster	1,126		34.2		61	23	3	3	43	1.08		.50	1.5	5	13	8	10	NE	
Galva	Ida	1,290	8	30.8	-1.7	60	2	0	3	41									NW	
Gilman	Marshall	1,052									1.74		1.00	0.6	7	10	3	18	N	
Grinnell	Poweshiek	1,023	9	34.8	†2.1	58	23	7	3	28	2.80	†1.01	1.10	4.3	8	5	7	19	N	24
Grundy Center	Grundy	976	11	30.9	-0.6	60	2	5	3	29	2.24	† .58	.88	4.5	10	5	4	22	NW	24, 29, 30
Guthrie Center	Guthrie	1,077	6	38.6	†5.0	77	2	5	3	51	1.54	† .14	.77		9	11	7	13	SE, NW	24
Harlan	Shelby	1,192		35.8		68	2, 9	4	3	46	1.38		.31	3.0	8	4	17	10	NW	24
Ida Grove (a)	Ida	1,220		34.3		62	9	3	3	39	.50		.50		1				SE	
Independence	Buchanan	921	38								2.51	† .72	1.25	8.1	9	8	9	14	NW	21, 24
Iowa City	Johnson	685	43	35.2	†1.6	62	23	10	4	44	2.73	† .25	1.47	8.0	7	3	7	21	NW	
Iowa Falls	Hardin	1,170	9	32.4	†1.6	59	23	1	3	30	2.28	† .67	.63	7.0	9	5	7	19	NW	21, 24
Jefferson	Greene	1,052									1.98		.60	3.0	7	2	12	17	SE, NW	24
LeClaire	Scott	576									2.99		.88	7.7	11				SE, S	
Logan	Harrison	928	35	37.4	†3.3	69	9	5	3	46	1.29	- .91	.45	3.0	4	17	4	10	SW	
Maquoketa	Jackson	688	9	36.3	†2.3	55	24	10	4	32	2.36	† .07	.32	2.8	10	9	4	18	SE, NW	
Marshalltown	Marshall	947	9	34.0	†1.8	61	23	5	3	32	1.75	- .18	.85	4.0	7	5	2	24	NW	21
Monticello	Jones	925	48	35.2	†3.3	55	21, 29	3	4	40	1.44	- .95	.53	10.0	5	1	19	11	NE	
Mt. Vernon	Linn	847	35	34.4	†4.5	61	23	7	3	33	2.34	† .31	1.00	11.6	11	6	4	21	N	24, 30, 31
Newton	Jasper	944	14	34.6	†1.4	58	2	5	3	28	1.95	† .39	1.15	4.0	5	11	9	11	S	
Odebolt	Sac	1,356	5	34.8	†1.8	65	2, 9	2	3	42	1.06	- .93	.40	1.8	5	15	5	11		
Ogden	Boone	1,088	8	33.3	†0.1	72	2	1	3	43	1.61	† .09	.50		6	10	0	21	NE, NW	
Olin	Jones	760	5	34.9	†1.9	58	3	9	3	36	3.22	† .77	2.00	8.2	8	4	10	17		21, 24, 31
Onawa	Monona	1,053		37.1		63	2	4	3	48	.87	- .70	.22	2.0	7	14	7	10	SE	24
Perry	Dallas	975		35.4		64	2	6	3	40	2.10		1.08		5	2	12	17		24
Rockwell City	Calhoun		7	34.0	†2.6	60	2, 23	2	3	37	1.75	- .55	.65	1.0	4	13	11	7		
Sac City	Sac	1,278	22	33.4	†3.6	60	23	3	3	31	.89	- .76	.36	2.0	3	13	6	12	NW	
Sioux City	Woodbury	1,165	13	35.0	†3.4	67	9	2	3	55	.50	- .74	.32	1.4	6	4	10	17	NW	24
Stuart (f)	Guthrie	1,316	5	38.4	†6.7						1.65		.82							
Tipton	Cedar	807		35.2		60	23	11	3, 4, 26	32	2.83		1.04	8.6	8	4	10	17	NW	24
Toledo	Tama	856	8	34.8	†2.6	60	2, 23	7	3	31	2.85	†1.10	1.35	7.0	8	7	8	16	NW	
Vinton	Benton	810	12	34.6	†2.5	58	23	8	3	34	2.86	†1.08	1.32	7.8	13	8	6	17	SE	24
Waterloo	Black Hawk	862	15	34.2	†4.0	58	23	6	3	31	2.84	†1.01	1.33	6.5	9	8	5	18	SE	21
Waukee	Dallas	1,039		36.8		67	2	6	3	38	2.23		.83	4.5	11	6	14	11	N, S, NW	24
Wilton Junction	Muscatine	683	7	36.3	†2.0	60	24	11	3	39	2.77	† .06	.78	6.0	5	10	3	18	SE	21
Whitten	Hardin	1,036		33.6	†2.6	61	2	2	3	36	2.64		1.00	6.0	7	7	8	16	SE	
West Branch	Cedar	718																		
Average				34.9	†2.7	61.8		5.7		36.6	2.05	† .17		5.1	8	8	8	15	NW	

CLIMATOLOGICAL DATA FOR MARCH, 1904—CONTINUED.

SOUTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Albia	Monroe	957	..	35.5	.....	68	21	8	3,4	35	2.55	.....	.90	7.0	7	9	0	22	NW	.....
Allerton	Wayne	.....	....	37.6	.....	72	21	8	3	37	3.13	.....	1.35	3.2	11	12	8	11	NW	24
Atlantic	Cass	1,164	11	36.4	†2.9	69	9	2	15	36	2.23	†.27	.62	4.5	7	4	8	19	N	24
Bedford	Taylor	.....	....	38.0	.....	68	9	8	3	36	4.57	.....	2.35	5.0	6	9	2	20	SE, NW	.....
Belknap	Davis	877	7	36.8	†0.5	65	21, 23	10	3	32	3.72	†2.16	1.25	10.0	10	....	....	....	NW	.....
Bonaparte	Van Buren	.....	10	36.9	-0.3	69	21	10	3	40	2.73	†.05	.89	4.0	9	....	....	....	.....	.....
Burlington	Des Moines	544	....	38.6	.....	67	21	13	3	31	3.05	.....	.98	....	12	8	5	18	NW	23, 24, 31
Chariton	Page	1,042	7	36.4	†0.7	71	21	7	3,4	56	3.23	†1.83	1.80	....	6	8	14	9	SE	24
College Springs	Page	.....	10	37.8	†1.7	66	2	8	3	34	2.16	†.31	.75	6.5	5	19	2	10	SE, NW	.....
Columbus Jct	Louisa	596	....	36.0	.....	66	21	-3	3	44	2.68	.....	.90	5.0	8	8	15	8	SE	21, 24
Corning	Adams	1,127	10	36.4	†0.7	68	9	1	15	34	2.91	†1.16	1.10	5.5	8	10	9	12	NW	24, 31
Corydon	Wayne	992	9	35.8	-0.3	71	21	3	3	39	3.24	†1.17	1.53	3.0	11	8	10	12	NW	.....
Clarinda	Page	1,069	12	36.0	†0.8	70	9	5	15	46	2.83	†.93.	1.08	8.0	7	7	10	14	NW	30
Cumberland	Cass	.....	....	.....	.....	.....	.....	.....	.....	.....	3.20	.	1.20	3.0	5	16	4	11	SW	.....
Earlham	Madison	.....	....	34.2	.....	63	2	5	3	35	1.69	.....	.84	3.0	7	12	4	15	NW	24, 31
Fort Madison	Lee	516	51	.....	.....	.....	.....	.....	.....	.....	3.73	†.75	1.10	2.0	9	3	9	19	N, NE	.....
Glenwood	Mills	....	15	38.6	†2.6	71	2,9	5	3	50	.75	-.51	.40	4.0	3	3	18	10	SE, NW	.....
Greenfield	Adair	.....	11	35.6	†1.7	68	9	5	3	46	1.96	-.28	.99	3.2	10	16	2	13	.....	24, 31
Hopeville	Clarke	.....	11	36.6	†2.3	68	21	8	3	36	2.74	†1.06	1.35	...	8	3	13	15	NW	24
Indianola	Warren	969	11	36.0	-2.0	63	23	12	3	33	2.55	†1.36	1.08	6.1	11	8	4	19	SE	2, 24
Keokuk	Lee	619	31	38.6	†1.0	74	21	14	3	36	3.46	†1.28	1.10	4.7	13	7	10	14	NW	13, 21, 24, 30
Keosauqua	Van Buren	664	10	36.7	-1.3	70	21	11	3,4	46	3.59	†1.11	.97	5.5	9	10	3	18	.....	24
Knoxville	Marion	920	6	37.4	†0.4	70	21	8	3	34	2.68	†1.18	1.50	....	8	5	8	18	SE	.....
Lacona	Warren	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.37	.	1.84	1.5	13	....	....	....	.....	.....
Lenox	Taylor	1,250	7	36.6	†1.7	67	9	6	3	35	2.49	†.64	1.10	3.0	8	13	7	11	NW	24
Leon	Decatur	1,120	....	36.6	.....	63	9,10	8	3	32	3.58	.....	1.50	5.5	7	18	11	2	N	.....
Mount Ayr	Ringgold	1,236	6	38.0	†1.5	72	21	7	3	44	3.20	†1.27	1.50	6.8	12	6	10	15	NW	.....
Mount Pleasant	Henry	729	20	37.4	†2.9	68	21	10	3	42	3.57	†1.24	1.00	4.3	11	7	11	13	NW	21, 24, 31
Omaha, Neb.	Douglass	1,113	32	38.2	†2.7	74	2	6	3	62	1.32	-.18	.39	4.8	9	6	10	15	N	24
Osceola	Clarke	1,130	6	38.6	†4.8	70	20	10	27	45	2.63	†.74	1.05	7.0	4	12	4	15	N	.....
Oskaloosa	Mahaska	843	18	36.1	†1.9	61	23	7	3	29	1.76	-.13	1.00	6.4	10	11	1	19	NW	24
Ottumwa	Wapello	649	8	38.6	†1.0	78	23	10	3	46	3.93	†2.02	2.00	7.8	7	4	9	18	NW	.....
Pacific Junction	Mills	960	..	37.6	.....	71	9	6	3	48	1.46	.....	.50	5.1	6	9	12	10	N	.....
Red Oak	Montgomery	1,033	....	38.1	†1.3	66	9	10	3	35	1.88	-.38	.66	4.0	6	2	21	8	S	24, 31
St. Charles	Madison	1,070	....	36.8	.....	64	2,9	7	3	34	1.00	.....	.31	5.7	8	10	10	11	SE	.....
Sigourney (a)	Keokuk	787	....	37.8	†1.9	65	21	8	3	45	3.42	†1.53	1.92	7.0	10	12	7	12	E	24, 31
Stockport	Van Buren	.....	...	.....	.....	.....	.....	.....	.....	.....	3.61	.	1.16	4.0	9	11	4	16	NW	21, 24, 30, 31
Thurman	Fremont	.....	....	36.0	-0.9	66	2	2	14	46	1.85	†.07	1.05	....	6	11	4	16	SE	24
Wapello	Louisa	588	....	37.2	†2.2	64	21	15	3	36	3.68	†1.16	1.00	6.5	9	6	11	14	W	21, 23, 29, 31
Washington	Washington	769	20	35.6	†1.0	60	23	7	3	29	2.70	†.57	.90	4.5	11	....	....	....	NW	.....
Winterset	Madison	1,129	11	37.1	†3.0	68	9	7	3	42	1.99	-.05	.90	2.0	5	17	2	12	SE	24
Woodburn	Clarke	961	....	.....		.....	.....	.....	.....	....	2.24	.....	.70	6.5	7	14	6	11	NW	.....
Average		.....	....	37.0	†1.1	67.9	.....	7.4	.....	39.1	2.74	†.77	.....	5.1	8	9	8	14	NW	.....
Average for state		.....	.....	34.8	†2.4	62.9	.....	4.6	.....	36.8	2.18	†.35	.....	4.4	7	8	8	15	NW	.....

*Means determined from 7 A. M., 2 P. M. and 9 P. M. observations, and maximum and minimum are taken from eye readings. †Above normal. ‡Received too late to be computed with means. *a*, One day missing; *b*, two days, etc. § Not supplied wth self-registering instruments.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR MARCH, 1904.

STATIONS.		DATE.																													MEAN.
		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	
Albia	Max	50	54	30	43	45	42	53	49	58	41	36	41	25	30	37	37	43	50	54	53	68	55	63	57	32	27	36	52	48	45	50	45.3
	Min	30	32	8	8	20	30	27	23	23	33	26	26	23	21	23	28	26	32	38	26	26	34	31	36	27	12	13	18	23	40	40	25.7
Algona	Max	40	50	30	33	40	44	38	39	47	44	27	33	31	25	37	40	37	45	47	40	44	47	59	52	35	25	53	40	55	43	49	40.3
	Min	28	15	0	12	31	21	28	21	30	26	19	23	24	20	14	22	30	27	27	19	32	31	31	42	16	6	6	24	31	32	36	23.5
Allerton	Max	53	59	45	39	42	45	55	50	63	57	41	39	34	32	38	35	37	55	53	43	72	56	61	57	55	29	36	51	47	47	49	47.6
	Min	28	36	8	16	30	32	24	22	30	27	25	26	22	16	20	27	32	33	36	26	36	33	38	45	26	13	13	25	36	40	40	27.6
Alta	Max	46	58	31	38	38	46	42	43	56	41	31	32	30	30	37	40	37	43	46	43	44	48	60	55	23	25	35	46	57	40	48	41.6
	Min	46	10	0	13	28	20	29	23	30	26	13	25	21	10	14	14	29	29	24	21	32	30	30	23	14	6	9	26	30	37	36	22.2
Amana	Max	28	53	34	39	40	41	49	43	46	47	35	39	30	31	37	36	39	42	50	41	53	52	53	55	54	29	31	50	49	46	50	43 3
	Min	46	33	10	17	31	34	26	26	31	31	29	28	22	20	23	21	34	32	36	26	33	34	30	43	28	11	13	24	34	40	39	28.0
Ames	Max	30	62	31	41	45	47	44	49	50	53	30	40	32	29	36	35	38	45	50	42	45	54	62	55	40	28	35	49	49	45	50	43.9
	Min	48	28	5	10	31	31	22	20	30	28	25	26	24	23	23	25	31	33	32	24	35	34	31	38	22	10	14	14	34	30	38	26.1
Atlantic	Max	53	65	32	40	47	53	57	53	69	60	39	36	34	34	33	37	41	62	52	40	47	57	62	61	37	30	39	51	53	46	49	47.5
	Min	29	24	7	18	31	28	21	18	32	29	16	27	27	10	2	26	31	30	33	25	35	31	31	37	22	13	13	26	32	40	39	25.3
Audubon	Max	52	67	34	39	46	49	52	51	66	58	38	34	32	30	40	34	38	59	59	44	46	57	61	60	36	28	37	50	53	43	46	41.3
	Min	24	23	3	12	28	23	18	17	30	24	17	25	22	6	0	25	29	29	31	23	33	30	35	36	19	5	9	25	29	38	37	22.7
Baxter	Max	49	62	34	40	42	44	49	47	52	49	35	40	35	30	35	34	39	43	54	42	49	54	61	54	53	29	35	49	47	45	50	44.5
	Min	27	27	5	14	30	30	22	21	29	26	25	30	30	22	23	24	30	32	34	23	34	32	31	43	24	9	9	23	32	38	38	26.4
Bedford	Max	56	65	23	40	46	51	58	55	65	64	43	40	36	31	40	34	40	63	56	43	65	60	63	58	44	30	37	49	52	48	49	49 0
	Min	28	30	8	16	30	31	21	20	35	28	21	27	24	10	..	29	32	32	36	25	35	30	35	42	25	14	11	20	39	40	39	27.1
Belknap	Max	40	40	29	35	..	40	45	45	45	40	35	35	..	28	38	40	40	40	50	45	65	60	65	55	35	30	13	17	28	36	41	41	29.6
	Min	30	32	10	20	30	32	30	27	27	30	27	30	26	22	25	30	32	35	38	28	38	35	33	45	30	13	17	28	36	41	41	29.6
Belle P.	Max	35	50	19	42	34	39	42	37	45	33	27	27	23	20	23	22	28	29	34	24	29	34	34	37	27	9	12	19	32	38	38	26.3
	Min	28	32	7	14	30	30	24	22	30	33	27	27	23	20	23	22	28	29	34	24	29	34	34	37	27	9	12	19	32	38	38	26.3
Bonapar'e	Max	50	62	50	40	43	39	53	46	53	51	35	41	30	30	34	34	37	45	51	43	69	60	60	60	51	29	35	52	52	47	48	46.1
	Min	27	33	10	15	28	31	27	24	29	29	28	29	23	17	23	25	32	32	36	26	36	34	29	43	29	13	16	23	33	40	40	27.7
Britt	Max	46	50	29	37	42	46	38	40	47	43	29	34	31	30	41	40	40	48	44	41	44	47	57	54	38	23	34	47	55	45	48	41.5
	Min	28	15	-1	12	30	23	27	0	30	26	23	25	23	19	20	27	32	30	26	25	18	32	31	30	36	16	6	5	24	32	36	35	23.4
Burling'n	Max	50	57	53	40	44	39	51	50	53	54	37	39	29	37	58	36	37	46	53	45	67	63	63	63	58	30	36	53	51	48	57	47.6
	Min	30	35	13	20	31	33	27	26	31	30	30	29	25	20	25	25	33	35	37	28	37	37	32	42	30	15	17	23	35	42	43	29.5
Carroll	Max	58	66	34	40	50	55	51	52	60	29	37	29	30	31	38	40	39	50	51	40	49	58	63	60	30	32	40	44	54	43	50	45.5
	Min	25	32	2	15	29	23	24	21	30	28	17	20	24	20	10	15	25	29	31	21	30	30	28	39	15	8	9	22	30	36	35	23.3
Cedar R.	Max	47	56	27	40	41	42	45	42	48	49	35	38	32	30	32	37	40	43	49	42	51	52	59	57	32	23	31	48	50	47	49	42.5
	Min	30	31	10	11	17	31	14	14	22	47	29	30	24	21	20	23	25	34	34	26	27	35	29	29	30	12	12	15	29	37	39	25.4
Chariton	Max	52	58	30	39	43	46	52	50	60	52	33	41	35	30	55	35	37	53	53	45	71	56	61	56	50	28	35	49	41	47	46	46.0
	Min	27	34	7	7	30	30	25	22	29	28	25	26	24	19	20	26	31	32	36	25	35	33	33	44	25	13	13	23	35	39	39	26.9
Charles C.	Max	42	59	26	37	42	41	38	38	45	45	32	34	28	29	32	35	37	41	41	43	37	47	59	55	33	22	32	39	44	45	47	39.2
	Min	27	29	3	3	19	29	22	22	23	26	25	26	23	20	21	19	23	29	33	20	25	32	27	36	21	8	9	16	31	37	36	23 2
Clarinda	Max	56	69	34	55	44	51	58	50	70	30	36	45	28	33	41	33	41	65	56	45	56	62	58	60	34	30	40	41	47	45	45	47.7
	Min	29	31	8	9	18	28	23	21	28	30	22	28	25	11	5	6	25	30	32	26	29	32	34	36	24	13	13	25	30	40	41	24.3
Clear L.	Max	46	45	30	32	40	47	37	41	42	41	35	35	32	30	40	39	40	43	39	40	41	48	60	50	45	22	33	48	54	45	49	40.7
	Min	27	13	-2	10	28	29	26	20	24	30	22	25	21	17	20	19	28	25	27	17	30	30	27	38	16	4	6	23	30	38	34	22 8
Clinton	Max	46	50	28	41	47	42	50	45	43	53	37	32	32	35	37	40	40	45	50	42	57	55	58	60	55	30	13	16	22	30	40	40	26.9
	Min	31	3	11	15	34	34	30	28	26	30	29	24	21	22	17	19	32	32	30	24	31	33	27	41	28	13	16	22	30	40	40	26.9
Col. Sprgs	Max	52	66	31	41	48	54	56	62	70	60	42	42	36	31	35	34	40	63	54	43	65	60	63	58	44	30	37	49	52	48	49	48.6
	Min	28	24	8	16	30	28	29	23	36	29	23	26	25	12	9	29	32	31	36	26	36	32	32	40	25	14	15	16	40	40	40	27.1
Colum. J.	Max	29	53	51	41	41	42	51	45	50	5	37	40	30	33	37	38	38	43	51	45	66	60	59	60	55	31	33	49	52	45	49	45 4
	Min	13	21	-3	17	29	32	23	26	29	30	29	23	23	21	21	24	34	33	35	26	35	35	32	45	28	12	15	24	34	41	40	26.6
Corning	Max	52	65	33	59	43	48	56	50	63	59	37	40	36	31	35	33	40	60	53	43	56	56	60	58	40	29	37	48	50	45	48	48.7
	Min	29	32	7	16	30	29	22	20	32	26	14	25	24	11	1	28	31	32	32	25	35	33	34	39	24	12	14	23	36	40	39	26.0
Corydon	Max	53	56	41	41	43	47	59	51	62	56	45	40	35	31	38	35	37	51	53	47	71	60	62	53	55	32	38	50	47	46	51	48.1
	Min	24	32	3	13	26	28	20	17	25	23	21	22	19	13	16	23	28	28	32	21	32	28	30	41	22	9	9	21	32	36	36	23.5
Cresco	Max	26	30	22	33	34	35	36	3	37	39	40	40	41	30	31	33	37	38	31	36	38	44	52	50	41	36	33	33	43	30	31	35.8
	Min	14	15	0	10	12	14	17	9	18	20	19	20	19	19	19	10	18	22	22	20	21	24	31	29	29	27	13	7	21	22	23	18.2
Davenpo't	Max	45	53	27	38	42	43	51	46	47	54	36	32	30	30	23	21	17	21	34	34	33	28	31	36	32	44	27	13	16	26	34	40	41	28.6
	Min	32	27	13	20	32	35	30	28	31	31	31	25	28	28	36	38	39	40	42	41	37	42	57	52	47	20	29	45	41	44	43	38.8
Decorah	Max	43	44	22	37	39	44	38	37	39	43	32	35	28	28	36	38	39	40	42	41	37	42	57	52	47	20	29	45	41	44	43	38.8
	Min	29	12	2	11	22	29	23	21	28	32	27	26	20	21	20	19	29	31	28	22	30	33	27	41	18	9	10	29	33	38	37	24.4
Delaware	Max	43	47	35	37	41	39	44	41	40	45	33	30	27	21	35	35	37	46	45	39	41	48	55	51	53	26	30	45	50	45	45	40.3
	Min	26	30	6	11	26	29	25	21	26	28	27	23	20	17	11	16	26	30	30	21	26	30	30	39	26	9	10	20	30	35	35	23 8
Denison	Max	55	68	35	40	47	52	42	50	68	..	64	35	32	29	37	37	39	59	51	40	47	48	57	63	54	34	23	37	..	45	45	46	46.2
	Min	29	25	4	8	30	35	23	17	28		14	26	25	18	8	25	30	48	53	41	50	55	62	57	33	27	35	49	47	45	51	44.5
Des M.	Max	51	63	32	40	42	48	50	47	58	52	32	39	30	30	30	35	34	38	55	53	44	47	58	64	56	40	28	38	53	52	43	51	46.3
	Min	30	17	8	20	33	32	26	25	32	28	24	28	24	24	24	27	32	35	31	28	37	35	36	32	23	12	15	29	36	40	40	27.8
De Soto	Max	52	66	32	40	46	49	51	48	64	57	35	30	34	30	40	34	38	55	53	44	47	58	64	56	40	28	38	53	52	43	51	46.3
	Min	28	27	7	19	32	31	23	23	32	27	25	28	24	20	19	27	32	33	35	25	35	34	33	40	24	12	18	24	35	40	39	27 3
Dows	Max	43	51	28	37	45	45	40	41	47	45	28	33	31	26	35	34	37	42	45	40	40	48	59	53	53	27	32	44	48	44	49	41.0
	Min	30	22	1	13	30	26	23	21	28	27	23	26	22	18	21	22	29	29	28	21	31	31	30	41	18	7	7	25	31	37	35	24.3
Dubuque	Max	44	49	25	37	41	42	48	42	40	51	34	29	28	30	34	35	39	42	47	39	45	50	55	56	33	25	29	43	52	45	50	40.8
	Min	32	22	8	15	31	33	31	27	30	31	29	25	22	21	21	17	31	35	30	26	30	35	28	38	25	12	15	25	33	38	38	26.9
Earlham	Max	52	63	30	39	43	49	52	49	58	56	41	39	34	28	38	30	36	55	53	45	42	57	61	55	44	28	37	51	47	42	47	45.3
	Min	25	28	5	15	24	28	13	16	29	25	19	22	22	16	15	16	24	28	28	24	32	30	31	42	21	9	8	22	34	37	36	23.2
Elkader	Max	46	42	36	37	40	40	40	40	43	41	41	33	32	26	33	34	37	45	48	47	40	37	53	57	48	45	26	31	41	47	46	50	40.5
	Min	29	32	6	11	30	31	24	22	26	32	..	25	22	20	17	17	30	33	30	20	30	34	25	43	26	11	12	24	28	38	37	25.7
Esthervil	Max	38	44	32	37	33	45	37	38	48	33	29	32	30	27	37	45	35	45	30	42	46	48	59	53	26	24	35	45	54	42	48	39.5
	Min	25	25	-2	1	11	12	12	20	23	32	18	20	22	20	10	17	25	29	30	18	26	29	28	35	14	5	7	22	31	33	35	20.4
Fayette	Max	47	48	20	37	44	40	42	40	42	46	36	38	33	30	32	39	35	47	37	40	38	46	59	54	29	24	34	42	53	47	47	39.4
	Min	29	20	2	9	27	28	20	19	25	32	25	24	18	18	18	14	29	28	41	41	40	38	46	59	54	29	24	34	42	53	47	47	39.4
Forest C'y	Max	41	51	29	35	39	47	38	39	43	35	28	33	28	26	34	20	26	27	30	31	28	32	30	35	16	6	6	22	31	35	35	23 2
	Min	28	29	-1	2	19	24	27	21	25	31	23	33	32	27	38	37	37	45	47	46	43	51	61	58	29	29	35	47	55	46	48	42.9
Ft. Dodge	Max	45	60	30	40	45	47	40	42	24	26	27	23	27	25	22	17	25	30	31	30	28	23	33	33	40	19	8	11	29	33	39	38	25.6
	Min	30	17	3	16	32	27	28	24	26	27	23	27	25	22	17	25	30	31	30	28	23	33	33	40	19	8	11	29	33	39	38	49	40.7
Galva	Max	50	60	31	39	41	48	38	..	53	..	31	32	32	31	37	40	39	46	47	48	45	..	..	..	..	28	28	36	48	..	..	49	40.7
	Min	25	19	0	12	29	15	24	21	25	..	10	23	24	16	8	23	30	29	29	21	33	..	..	..	..	15	12	9	25	29	..	35	20.8
Glenw'd	Max	58	71	45	41	47	52	56	53	71	69	41	42	34	33	29	34	39	70	62	53	50	61	63	63	41	30	42	48	59	51	49	50.2
	Min	29	21	5	21	29	26	28	27	39	26	21	25	25	23	12	27	31	30	33	36	34	31	38	40	22	12	15	23	37	39	33	27.0
Grand M.	Max	44	40	37	37	40	39	41	38	39	45	32	34	26	34	38	40	42	42	45	38	35	48	50	50	49	26	24	48	46	40	45	39 7
	Min	29	31	3	10	28	28	25	19	26	32	29	26	18	18	16	28	31	28	28	21	28	31	28	40	24	9	9	28	29	26	35	24 7
Greenfi'ld	Max	55	63	30	40	44	47	55	50	68	57	35	36	33	33	38	35	38	58	53	42	50	57	62	57	42	28	37	52	52	43	48	46.4
	Min	32	29	5	15	29	28	28	21	22	25	22	25	24	9	7	27	30	32	32	22	32	33	32	38	20	10	10	22	33	38	34	24.7
Grinnell	Max	46	56	31	38	41	41	48	44	49	46	32	38	29	30	33	33	37	40	49	40	52	50	58	52	53	29	31	47	47	45	49	42.4
	Min	30	31	7	16	30	30	28	29	29	29	27	28	22	19	23	24	30	33	33	25	34	33	33	44	25	10	12	25	33	39	38	27.2
Grundy C	Max	46	60	32	39	43	42	47	44	46	48	32	39	33	31	34	33	38	40	50	40	41	51	58	54	57	28	32	46	45	44	48	39.2
	Min	31	31	5	14	30	29	23	22	29	26	26	27	22	18	22	21	30	31	33	22	31	22	31	42	23	9	9	26	31	38	36	22.6
Guthrie C	Max	58	77	52	42	50	55	56	52	72	61	35	39	40	33	42	40	40	62	61	52	49	61	68	69	47	43	39	53	60	50	52	51.9
	Min	28	26	5	20	32	28	21	21	31	26	22	22	25	11	14	27	31	32	34	24	24	24	33	40	22	11	12	27	33	39	38	25.3
Hampton	Max	43	55	27	37	47	49	39	45	49	44	30	36	30	29	40	35	37	42	46	41	40	50	60	53	43	23	32	42	46	45	48	41 4
	Min	30	19	1	12	30	28	27	23	29	30	25	28	22	18	23	21	29	29	29	21	30	32	30	41	20	7	9	24	31	36	36	24 8
Hanlont'n	Max	38	48	29	35	40	45	42	36	43	41	30	31	29	26	33	33	37	41	41	38	37	45	57	51	37	21	33	41	50	44	47	38.8
	Min	27	13	-1	3	30	24	27	21	30	29	28	26	22	18	22	22	29	26	25	19	30	31	27	35	15	6	7	22	29	36	34	23.0
Harlan	Max	54	68	32	40	49	50	54	51	68	60	36	37	33	32	38	36	39	60	3	45	49	53	61	62	36	27	38	52	55	46	48	47.3
	Min	25	22	4	14	28	24	23	18	32	24	16	27	25	13	8	25	31	28	32	24	34	29	30	36	20	10	13	22	35	40	38	24.2
Hopeville	Max	53	61	30	39	44	48	56	54	64	58	39	38	31	28	40	34	38	57	54	44	68	60	60	56	35	28	36	51	45	45	47	46.5
	Min	29	27	8	17	31	30	27	23	28	27	22	26	23	12	18	28	31	33	36	25	35	32	38	35	25	13	14	25	36	39	39	26.8
Humboldt	Max	43	57	30	40	43	46	40	42	50	47	30	34	34	28	38	38	38	46	46	42	44	50	60	53	33	18	8	7	26	32	38	38	25.9
	Min	30	20	3	14	32	26	26	23	30	28	22	26	26	24	24	24	30	30	30	21	34	46	50	60	59	49	28	48	56	49	49	..	45.1
Ida Grove	Max	50	55	42	38	43	40	43	44	62	50	30	30	30	30	34	42	44	54	53	44	46	50	60	59	49	28	48	56	49	49	..		22.8
	Min	28	20	3	18	..	..	22	20	32	22	9	24	18	20	9	25	32	28	32	18	24	22	31	31	17	9	11	31	39	38	52	45.6
Indianola	Max	52	61	31	40	43	48	52	48	58	52	32	25	19	24	21	22	26	23	33	35	25	36	33	34	41	25	12	12	27	37	37	39	26.4
	Min	28	28	12	18	31	29	25	23	31	..	25	19	24	21	22	26	23	33	35	25	36	33	34	41	25	24	24	36	48	53	47	46	41.9
Inwood	Max	40	45	34	39	34	42	43	41	56	47	32	47	33	31	36	36	44	41	44	43	48	47	59	59	24	24	36	48	53	47	46	50	40.5
	Min	24	9	1	11	29	18	29	23	32	26	15	28	21	19	13	25	30	29	26	23	34	30	31	24	12	6	8	26	31	36	36	22.7
Iowa City	Max	47	55	27	41	41	48	51	47	49	50	35	42	30	32	38	38	39	45	51	45	59	53	62	54	32	23	32	49	51	49	54

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR MARCH, 1904—Continued.

STATIONS.		DATE.																														MEAN.
		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	
Keosa'qua	Max..	50	63	27	45	43	43	54	47	55	51	35	42	28	31	38	37	36	47	53	40	70	55	62	61	35	30	36	53	53	48	48	45.9
	Min ..	28	31	11	11	17	32	30	25	27	34	30	29	25	18	23	25	33	33	34	28	34	36	28	35	30	14	15	24	34	41	41	27.6
Knoxville	Max..	51	59	31	41	45	46	51	49	57	50	33	40	32	32	37	39	39	48	53	44	70	58	63	55	53	28	36	51	48	46	52	46.4
	Min ..	29	37	8	18	31	31	27	25	31	28	26	29	23	22	24	24	32	32	35	24	36	33	35	45	26	12	15	25	35	39	39	28.3
Larrabee	Max..	47	56	33	41	37	48	43	48	56	48	34	36	32	33	41	45	39	48	47	47	47	52	60	58	..	28	38	50	61	42	52	44.7
	Min ..	26	13	-1	13	28	11	25	26	30	25	8	25	24	19	12	22	28	25	25	20	33	26	38	26	..	6	6	27	30	37	36	22.2
LeMars ..	Max..	45	58	35	42	37	42	46	46	63	58	37	36	33	33	40	47	39	47	46	47	47	50	61	60	34	27	39	46	60	50	50	45.2
	Min ..	29	15	0	18	30	12	28	22	33	26	15	28	23	15	12	25	27	27	29	28	33	26	34	32	14	7	9	26	32	36	37	23.3
Lenox....	Max..	53	62	32	39	45	47	56	51	67	60	37	38	36	28	36	33	39	61	53	45	62	58	62	57	40	28	37	50	51	46	47	47.0
	Min ..	28	31	6	15	28	30	26	25	33	25	17	25	22	10	..	27	30	32	34	24	34	33	32	39	23	11	11	22	37	39	37	26.2
Leon.....	Max..	50	54	54	35	40	43	49	46	63	63	34	34	34	28	31	34	37	52	52	47	53	53	55	55	55	29	34	46	46	47	49	45.2
	Min ..	28	37	8	17	30	31	28	24	31	27	23	26	23	15	21	28	32	33	37	25	35	33	34	45	26	14	11	25	37	40	40	27.9
Logan....	Max..	56	64	35	43	46	51	55	53	69	66	39	40	38	35	38	35	40	40	64	61	50	59	62	62	36	35	42	52	58	49	58	49.4
	Min ..	27	18	5	17	30	32	27	19	35	25	18	26	12	20	12	16	26	31	28	31	35	27	42	30	30	11	14	32	32	42	40	25 5
Maquo'ta.	Max..	44	49	28	38	39	41	51	48	46	52	35	33	29	32	37	35	37	43	51	40	52	54	57	58	34	27	32	47	53	44	54	42.6
	Min ..	29	29	11	10	14	30	26	25	24	29	28	25	20	21	18	15	19	31	31	21	21	33	25	26	28	12	12	19	27	33	38	30.0
Marshlt'n	Max..	49	60	29	40	42	44	49	48	50	41	33	40	31	33	35	34	39	43	51	42	45	55	61	54	33	25	34	48	47	45	49	42.9
	Min ..	30	31	5	6	19	31	24	22	25	33	26	29	24	19	20	23	25	31	34	27	28	33	29	34	25	9	11	20	32	36	38	25.1
Mason C..	Max..	39	47	28	34	40	43	40	38	43	41	32	33	30	30	35	38	37	40	41	38	38	46	56	51	45	25	31	39	47	49	49	39.5
	Min ..	29	25	2	16	30	29	30	24	33	33	26	27	24	20	23	24	29	30	31	24	30	32	30	41	19	9	11	25	31	37	35	26.1
M'nticello	Max..	47	50	42	40	50	48	45	42	45	40	46	45	38	37	40	45	42	45	49	54	55	52	50	52	49	39	45	52	55	53	50	46.5
	Min	18	19	8	8	10	15	18	27	24	26	25	27	29	20	16	21	25	33	34	23	37	35	33	36	27	10	7	29	33	35	37	28.9
Mt. Ayr..	Max..	59	65	35	41	46	52	60	56	71	60	44	39	37	31	41	36	42	63	58	45	72	63	62	59	45	30	40	50	50	49	50	50.0
	Min ..	29	31	7	15	29	30	27	24	32	16	19	25	23	13	12	28	31	32	36	25	34	32	32	41	25	12	15	24	37	39	30	26.0
Mt. Pl'snt	Max .	49	59	52	40	43	40	52	45	52	50	37	40	30	35	40	39	38	44	52	45	68	62	60	60	56	31	34	52	54	46	52	47.0
	Min ..	28	33	10	15	27	31	27	23	31	28	27	29	23	18	23	24	32	33	36	25	37	36	30	44	29	13	14	23	35	39	40	27.8
Mt. Ver'n	Max	46	51	40	37	38	43	48	47	45	45	33	35	26	28	35	34	43	42	50	41	54	59	61	54	50	22	36	52	48	44	52	43.2
	Min	27	31	7	14	28	32	26	22	27	25	26	26	20	19	16	20	29	32	34	26	30	32	32	42	20	8	10	21	33	35	38	25.5
New H. ..	Max..	41	47	29	35	41	41	38	32	42	32	32	36	29	28	31	35	38	40	42	39	36	47	55	50	49	26	30	38	44	45	..	38.5
	Min ..	26	25	1	10	27	28	23	20	26	26	24	25	19	17	18	17	27	29	27	19	27	30	28	37	19	6	7	21	29	..	29	22.2
Newton ..	Max..	47	58	31	39	42	44	48	45	51	50	32	39	35	30	34	35	38	41	51	44	52	50	56	53	52	31	33	48	47	46	50	43.6
	Min ..	28	30	5	14	29	30	24	21	28	27	25	26	22	20	23	24	30	31	34	23	24	32	31	43	24	8	11	23	33	38	36	25.7
Northw'd	Max..	43	45	31	34	41	45	40	38	41	41	33	33	31	31	40	40	40	38	39	38	38	48	58	50	43	22	31	42	49	47	48	39.9
	Min ..	25	18	0	11	28	25	27	27	22	31	23	26	23	19	21	22	30	29	26	22	30	32	30	39	17	7	9	28	31	36	35	24.0
Odebolt ..	Max..	52	65	32	42	44	45	47	48	65	53	34	34	31	30	39	39	39	51	49	43	43	53	62	58	36	27	28	50	58	45	50	44.9
	Min .	26	23	2	15	31	21	26	41	32	27	15	26	25	17	9	24	30	27	31	33	34	27	28	35	17	9	9	24	30	37	37	24.8
Ogden. ...	Max..	47	72	32	45	49	59	47	62	40	36	34	37	29	30	38	31	39	47	52	46	47	56	63	36	35	29	37	50	56	44	..	44.0
	Min	25	29	1	10	37	24	20	18	17	27	20	23	21	18	10	18	25	27	29	20	24	30	41	41	18	6	6	18	29	34	34	22.6
Olin	Max..	49	48	45	40	41	37	..	48	48	50	36	36	30	36	36	35	39	42	47	39	48	50	55	56	54	30	30	45	52	44	58	43.3
	Min ..	28	30	9	13	27	22	..	32	25	30	29	24	20	22	16	20	30	32	34	24	35	35	27	40	29	11	13	22	30	38	48	26 5
Omaha, N	Max..	61	74	36	41	44	50	54	53	71	60	40	40	32	31	37	35	38	68	57	42	48	61	62	61	31	29	42	49	57	46	48	48.3
	Min ..	33	12	6	21	32	26	33	26	40	27	23	28	26	18	21	30	32	33	34	28	38	36	38	30	22	13	18	29	40	40	41	28.2
Onawa....	Max..	61	68	44	43	40	59	53	53	66	63	45	42	37	37	43	45	40	58	54	46	46	61	62	57	34	31	45	53	56	51	48	49.5
	Min ..	27	15	4	17	30	19	25	21	34	24	19	26	27	19	17	26	30	28	30	25	34	27	30	34	19	11	15	25	32	39	38	24.7
Osage.....	Max..	39	43	25	35	40	42	37	35	4	42	32	34	30	28	36	37	38	38	39	38	36	45	51	48	48	22	31	37	46	45	46	38.5
	Min ..	29	24	1	11	30	28	27	22	29	32	25	26	23	19	21	20	29	31	28	21	29	32	29	40	20	7	9	23	31	37	35	24.8
Osceola ...	Max..	58	63	60	34	47	56	58	65	63	42	32	40	25	46	48	50	53	57	56	70	58	64	58	56	57	40	46	56	60	56	50	52.4
	Min ..	36	37	33	16	23	29	23	26	31	27	24	26	23	16	16	17	18	20	23	25	36	32	35	46	15	12	10	13	17	32	32	24.8
Oskaloosa	Max..	52	55	32	41	42	42	52	47	53	46	33	40	29	30	39	37	37	44	54	43	60	52	61	56	52	28	33	50	47	45	50	44.6
	Min ..	28	32	7	16	29	33	23	22	32	30	27	29	22	19	23	25	31	33	38	26	36	34	32	43	28	10	13	24	34	39	39	27.6
Ottumwa	Max..	51	61	29	42	43	42	55	51	56	53	33	44	27	30	36	42	38	44	55	48	67	58	78	60	31	25	35	53	49	48	50	46.4
	Min ..	34	28	10	23	32	34	30	26	36	31	32	30	24	24	24	30	36	35	38	31	42	35	32	41	23	13	16	28	43	43	43	30.7
Pacific J'n	Max..	56	68	32	41	47	51	57	54	71	67	42	44	35	34	36	36	41	68	53	43	52	59	62	63	40	29	40	52	60	48	49	49.4
	Min ..	25	20	6	18	30	23	24	25	36	27	20	25	23	10	11	28	33	28	33	26	35	27	32	40	23	13	23	20	39	40	40	25.9
Perry, ...	Max .	50	64	31	40	47	47	46	42	57	53	32	47	33	31	39	34	38	50	51	42	47	51	62	55	39	28	36	47	54	44	49	44.1
	Min ..	30	24	6	19	32	29	25	23	31	28	24	23	24	22	16	27	31	34	25	36	35	31	38	23	11	13	22	34	40	39	26 7	
Plover....	Max .	44	54	30	40	43	45	42	45	52	35	35	32	31	32	41	43	37	47	40	45	43	50	52	57	30	22	35	48	58	44	45	42.2
	Min ..	27	9	0	17	30	20	25	20	24	20	24	24	25	20	22	25	28	31	30	25	32	31	33	30	15	6	7	29	33	35	33	23.5
Primghar	Max..	43	51	30	38	34	42	39	46	52	45	32	32	29	27	39	42	37	43	43	43	41	49	60	57	38	23	..	35	50	45	46	41.0
	Min ..	24	24	..	14	25	12	26	24	25	21	13	21	22	16	12	23	27	26	28	14	31	35	31	26	-7	5	..	7	30	36	36	20.6
Red Oak..	Max..	51	60	32	43	42	46	53	50	68	63	39	41	37	33	35	36	39	61	59	44	50	55	60	60	43	30	37	48	53	49	48	47.2
	Min ..	31	25	10	22	33	30	28	25	38	28	22	29	27	17	14	30	33	33	36	29	38	34	35	42	24	14	20	28	42	42	41	29.0
Ridgeway	Max..	42	45	30	37	43	46	42	45	40	46	36	36	31	34	39	39	48	44	45	40	40	50	59	54	45	26	31	41	47	47	46	41.7
	Min ..	29	18	0	10	30	30	27	20	28	34	28	28	21	20	20	19	30	33	30	20	28	32	29	41	21	9	9	22	30	36	35	24.7
Rock R .	Max	47	50	40	32	40	56	47	44	40	46	26	28	36	32	38	44	42	40	42	44	48	48	60	58	26	25	29	54	56	60	52	42.9
	Min ..	25	27	0	16	20	15	22	28	33	32	12	7	26	22	10	12	34	28	25	32	32	30	32	42	15	7	7	20	32	34	36	23.0
Rockw'l C	Max..	48	60	30	40	40	46	43	43	55	52	35	34	32	37	38	42	40	45	42	43	45	50	60	57	38	30	36	47	58	47	50	44.0
	Min ..	28	23	2	14	13	25	23	23	30	25	21	24	19	16	15	25	29	29	32	23	33	30	35	33	19	9	13	27	31	38	36	24.0
Ruthven.	Max..	45	40	32	35	35	45	35	42	52	41	30	24	42	30	27	32	28	32	42	35	30	28	50	55	30	30	30	42	40	47	45	43	37.7
	Min ..	10	15	3	15	20	25	10	20	30	24	24	12	23	22	11	20	12	20	15	20	22	20	30	25	5	25	9	30	35	35	14	18.7
Sac City..	Max..	48	..	31	40	44	48	43	45	57	50	31	32	31	31	38	38	39	45	49	42	43	48	60	56	34	34	37	49	57	42	50	43.1
	Min ..	27	24	3	10	30	22	28	23	30	27	19	26	24	17	14	24	29	27	32	22	32	28	29	32	16	8	11	26	32	30	36	23.8
St. Cha'les	Max	44	64	33	41	42	50	56	49	64	54	39	39	34	33	40	34	38	55	55	44	55	60	63	55	40	31	36	52	46	44	51	46.5
	Min ..	31	22	7	18	31	30	28	24	30	27	25	28	24	19	22	26	31	31	35	25	35	33	36	39	24	12	13	27	27	29	39	27.0
Sibley	Max..	46	44	35	59	35	44	42	40	53	33	36	32	32	29	..	45	35	41	40	43	42	..	59	55	24	24	36	47	55	40	49	40.5
	Min ..	21	23	-2	1	21	10	26	22	25	32	13	16	24	19	8	..	24	29	28	21	25	29	.	35	12	5	7	11	30	35	35	20.2
Sigourn'y	Max..	49	57	53	41	43	42	52	..	57	50	39	40	33	36	45	39	41	43	53	44	65	61	61	57	56	31	34	51	48	45	56	47.4
	Min ..	29	29	8	15	30	35	25	..	29	27	28	30	22	27	23	24	32	33	36	26	36	35	36	43	26	12	13	24	34	40	36	28.1
Sioux C'y.	Max..	50	64	38	42	36	45	48	49	67	50	33	36	33	34	38	45	37	48	47	45	47	55	61	57	29	25	39	47	57	45	49	45.3
	Min ..	33	9	2	18	27	13	32	25	36	24	20	29	25	19	17	27	29	29	29	24	36	29	35	23	15	8	13	27	33	40	39	24.7
Sioux C'r.	Max..	40	52	34	39	35	43	42	44	59	48	34	36	35	39	32	41	37	42	43	44	44	49	56	58	27	25	37	46	57	44	48	42.3
	Min ..	25	12	0	14	30	18	29	24	32	25	14	21	22	10	13	24	28	28	29	22	34	30	26	24	12	7	8	28	32	37	37	22.4
Spirit L..	Max..	42	35	32	37	35	51	42	39	49	34	26	34	35	26	40	49	35	43	35	44	41	46	60	60	35	19	35	39	58	40	40	39.9
	Min ..	24	9	-2	13	25	10	10	20	31	24	15	24	20	18	8	20	30	29	24	20	32	24	32	28	11	5	6	26	31	36	35	20.6
Storm L..	Max..	49	57	31	38	39	47	42	44	55	32	31	32	30	28	38	39	36	43	46	43	43	48	58	54	28	27	36	47	56	40	49	41.5
	Min ..	21	25	0	0	15	18	19	22	22	29	15	15	24	18	12	12	23	24	29	20	25	27	30	31	14	6	7	14	30	30	35	19.7
Stuart ...	Max..	..	..	..	..	..	..	50	47	62	63	59	57	58	63	58	46	38	57	41	45	46	54	60	58	55	30	36	49	57	45	48	51.2
	Min .	..	..	..	..	..	..	14	24	11	12	21	16	18	13	14	12	19	21	22	23	35	34	51	44	24	11	28	36	39	42	44	23.5
Thurman.	Max..	54	66	33	38	38	40	48	59	68	65	43	43	35	31	33	34	39	61	60	45	45	47	54	53	42	30	41	42	48	48	48	45 9
	Min ..	30	21	8	22	30	25	24	22	38	29	24	27	25	2	11	28	18	28	35	28	35	28	32	42	24	13	14	22	10	42	42	26.1
Tipton....	Max..	43	50	43	43	38	40	51	48	46	50	33	36	31	33	34	38	42	51	44	55	54	60	58	54	30	34	47	50	48	53	44.2	
	Min .	28	31	11	11	28	32	27	20	29	30	28	27	22	20	18	21	30	32	33	26	30	33	33	41	27	11	13	22	32	32	38	26.3
Toledo....	Max..	49	60	29	41	41	43	51	47	49	47	33	41	33	32	35	35	39	40	51	42	47	54	60	52	53	28	53	48	47	45	48	43.6
	Min ..	29	29	7	12	30	30	22	22	29	29	27	28	22	19	23	21	30	25	34	23	32	33	29	43	25	9	11	25	32	39	38	26.0
Vinton. ..	Max..	46	55	42	38	36	37	48	46	46	47	34	39	31	31	33	34	38	40	50	40	45	53	58	52	54	29	32	46	49	46	47	42 6
	Min ..	30	33	8	16	30	32	26	24	30	30	28	29	22	20	20	20	30	32	35	12	30	34	29	42	26	10	12	24	33	39	38	26.6
Wapello..	Max..	45	58	51	38	39	38	48	39	49	50	50	38	31	31	33	28	36	39	51	42	64	62	60	55	32	36	51	51	45	45	58	44.9
	Min ..	..	38	15	20	31	34	30	28	30	30	32	30	25	22	22	20	23	33	35	28	35	34	45	30	16	17	26	33	41	40	39	29.4
Washi'ton	Max..	48	55	28	39	39	40	52	47	50	50	36	40	29	32	36	36	35	41	53	43	65	55	60	58	45	28	34	50	49	45	48	44.1
	Min ..	26	26	7	14	21	30	32	25	31	30	30	26	20	20	22	24	31	32	33	26	34	34	31	31	28	12	15	25	34	40	40	27.0
Waterloo.	Max .	48	55	26	38	42	42	47	46	45	46	37	39	33	33	32	35	38	41	49	39	41	53	58	53	55	29	39	45	45	47	47	42.7
	Min ..	30	31	6	13	30	30	24	23	29	29	26	28	22	19	23	20	20	31	32	23	30	31	29	42	24	9	12	25	30	37	37	25.6
Waukee..	Max..	56	67	36	39	38	51	52	54	60	52	33	41	33	31	40	34	38	53	54	44	47	61	64	56	42	28	38	56	49	43	50	46.5
	Min ..	29	29	6	19	32	30	23	22	32	28	24	27	23	20	18	25	31	33	34	25	35	33	33	42	23	11	12	27	35	39	38	27.1
Waverly..	Max..	45	54	25	38	40	40	40	39	..	43	32	36	28	31	33	35	38	42	44	38	38	49	58	51	50	24	30	40	42	45	45	39.8
	Min ..	39	25	4	13	30	29	23	22	..	29	26	28	21	20	22	20	20	..	29	22	30	32	28	41	23	8	13	25	31	37	37	25,1
W.Bend..	Max..	43	54	31	40	41	46	39	40	50	44	26	33	31	28	40	42	38	46	44	42	48	51	60	56	32	26	35	47	55	43	50	45.0
	Min .	27	16	0	13	31	20	27	21	32	26	20	25	24	22	12	22	30	27	27	21	33	32	31	32	11	7	7	25	31	37	37	23 4
Whitten.	Max..	46	61	28	40	45	43	45	42	49	45	32	38	32	31	38	36	39	43	48	40	41	50	58	53	53	28	32	45	47	46	48	42.6
	Min .	23	25	2	12	24	21	21	20	27	28	25	28	20	17	21	29	31	32	22	32	31	31	42	20	6	7	23	32	32	38	36	24.5
Wilton J.	Max.	45	52	50	38	42	43	50	45	47	51	37	37	31	37	39	38	40	46	50	47	61	59	59	60	40	31	32	50	54	45	53	45.5
	Min	27	32	11	15	27	33	28	25	29	33	29	28	22

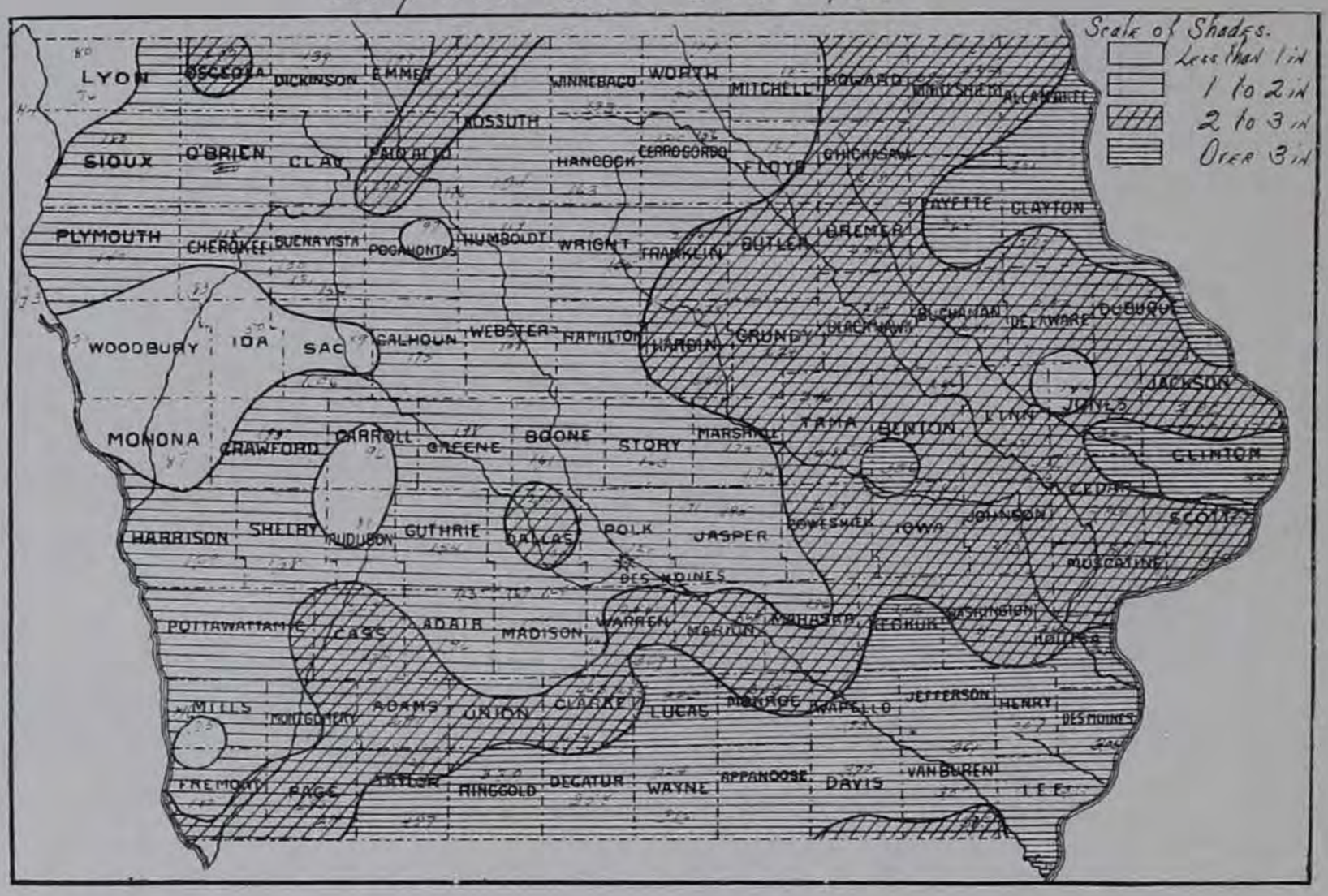
DAILY AND MONTHLY PRECIPITATION FOR MARCH, 1904.

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	
Albia			T										.11	.40			.29				.09			.46	.90					.25	.16	2.55
Algona													.11						.23		.37			.35						.11	.17	1.34
Allerton										T	T		2.30	.60																.46	.01	3.20
Alta			.30							.12			.13						.03		.40			.35						.50		1.50
Alta (near)									.20				.15						.03	.28				.15								1.31
Amana			T			.02				T			.36	.22		.07	.19			T	.14			1.41					.16	.04	.22	2.83
Ames										.11			.08			.16	.05			.01	.13			.77					.02	.24	.06	1.63
Atlantic									T	.15			.30			.29				.25	.03			.62						.59		2.23
Audubon			T							04			.30			.04				.09	.12			.21						.01	T	0.81
Baxter													.20				.25			.22	.18			.86					T	.15	.05	1.91
Bedford		T								.10			.89			.20				.13				.90					T	2.35	T	4.57
Belknap			.10			.24				T			.80	.10		.10	.10			.10	.10			1.25					T	.83	T	3.72
Belle Plaine						02	T			.10			.70	.05		.10	.30		T	T	.10			1.70					.15	T	.14	3.36
Bonaparte			.05			.13							.35				.21				.35			.89					.06	.54	.15	2.73
Britt	08				T	T				.02			.07	.03						.04	.71			.46					T	.04	.18	1.63
Buckingham		T								.01			.15						.05		.50			1.25		T			.27	.23	T	2.46
Burlington			.07			.05	.03			T	02		.50	.12		T	.21				.18	.20		.98					T	.48	.21	3.05
Carroll		T	T							T			.35								.08			.25							.28	0.96
Cedar Rapids			T			T					T			.22	T		.08		T					1.48						.13	.08	2.07
Chariton			T			T				T	T		.30	T		.33	T			T	.10			1.80		T	T		T	.60	.10	3.23
Charles City		T	T											.23			.05		.20		.14	.45			T	T				.36	.24	1.67
Clarinda													.62			.22					.21		.36	.72					.05	.60	.05	2.83
Clear Lake	T												.10	.10			T				.50			.40					T	T	.10	1.20
Clinton					.16					.06				.67			.26				.99			.86					.08	.52	.41	4.01
College Springs										T			.65											.75					.30	.40	.06	2.16
Columbus Junct'n			T			.27				T			.16	.26		T	.33			T	.13			.90					T	.48	.15	2.68
Corning			T							.03			.50			.30				.14	.03			1.10					T	.65	.16	2.91
Corydon			.01			T				T			.25	.31		.06	.25			.03	.17			1.53					.02	.58	.03	3.24
Cumberland													.30			.40				.20				1.10						1.20		3.20
Davenport			.06		T	.06				T	T	T	.24	.31		.04	.20		T	T	.26	.03		.65		T		T	T	.41	.44	2.70
Decorah													.12	.20		.04					.26			1.30	T	T		T			.3	2.22
Delaware						.14				.05			.30	.15		.25		.07			.48			1.07	.03					.16	.12	2.82
Denison										.50			.75			.10	.10			.08				.12						.30		1.95
Des Moines			T		T					.01	T		.30	T		.16	.04			.06	.04			.32					.05	.20	.02	1.20
De Soto			T		T					T			.20			.14	.11			.10	.15			.67					T	.24	.03	1.64
Dows	T									.10			.05			.03	.13		.10		.32			.53					T	.19	.10	1.55
Dubuque	T	.12	.02		T	T				.01			.16	.38		.04	.14	T	.15		.94	T		.76		T			T	.08	.06	2.86
Earlham	T		T							T			.09	T		.13	.06			.03	.15			.34						.39	T	1.69
Elkader	.10					.08				.03				.42			.11		.15		.48			1.10						.28		2.75
Estherville			T			T					T		.12	T				T	.10		.65			.23	.27				T	.61	1.98
Fayette	T					T				T				.70			.08		.15		.70			1.66					T		.35	3.64
Forest City											T			.10			.05		.10		.40	.10		.15	T						.48	1.33
Fort Dodge										T			.10								.50			T					T	.30	.13	1.08
Fort Madison		.20				.10				T	.25		.70	T						.27		.25		1.10		T				.77	.09	3.73
Gilman			T			T					T		.06				.33				.09			1.00				T	.12	.05	.09	1.74
Glenwood										T		T	.40			T				T				.10						.25		0.75
Grand Meadow	.08	T								.10				.40		.10	.01				.37			1.70			T	.05	.20			3.01
Greenfield		T	T							.01	.06		.25	T		.20	.02			.06	.17			.99					T	.18	.02	1.96
Grinnell										.10			.58			.23					.50			1.10					.33	.10	.04	2.80
Grundy Center									T				.30	.03		.10	.05		.04	T	.35			.88					.11	.24	.14	2.24
Guthrie Center			T							.02	T		.15	T		.10	.05			.10	.20			.77					.01	.14	T	1.54
Hampton										.15			.23			.18		.12		.28	.18			.60						.26		2.00
Hanlontown	T									T			.12					T	T		.55			.44		T			T		.23	1.34
Harlan		T	T							.08	T		.30	T		.08	.03		T	.10	.07	T		.41					T	.31		1.38
Hopeville		T								.02			.19				10			.21	.17			1.35					.05	.65	T	2.74
Humboldt																			.16		.42			.41						.20		1.19
Ida Grove													T																.50			0.50
Independence						.05				.07			.52	.05		.11			.10		.15			1.25					.01		.20	2.51
Indianola			T							.03			.60	.01		.13	.05			.13	.27			1.08		T			.08	.16	.01	2.55
Inwood										.01		.20		T							.53									.02		0.76
Iowa City			T			T	T				.03		T	.73	T		T		T		.03	.07			1.47					.26	.14	2.73
Iowa Falls	T	T									.15		T	.30	T		.35		.15		.33	.06		T	.63		T	T		.06	.25	2.28
Jefferson										.05			.20			.35					.55			.60						.23		1.98
Keokuk			.02	T	.17	.02				.03			25	.07		T	.46		T	T	.19	.22		1.10					.01	.84	.08	3.46
Keosauqua			.11			28					T			.44			.18				.15	.60			.97						.62	.14	3.59
Knoxville			.05							.03			.30	T		.10	T			T	.20			1.50					.40	.10	T	2.68
Lacona		.03								.14	.01	.30		.06		.14				.06	.24	.03		1.84					.25	.20	.04	3.37
Larrabee										.10								T			.45			.43						.20		1.18
Le Claire	T		.03			.03					T			.54	.03		.23	.04			.11	.23			.88	T	T				.03	.84	2.99
LeMars					.40					T			.30											.40						.30		1.40
Lenox			T							.05			.25			.10				.10	.05			1.10					T	.78	.06	2.49
Leon			T							T			.55			T				.70	.25			1.50					.15	.35	08	3.58
Logan										.30											.10	.44								.45			1.29
Maquoketa											.07			.32	.05		.15		.03		.20	.26			.95					.06	.27	2.36
Marshalltown			T								.04			.35			.15							02	.85				T	.15	.19	1.75
Monticello		T			T	T			T	T				.53	.08				.15		T			.50	T			T		.18		1.44
Mason City	.05												.16				.05		.20		.45			35					T	.30		1.56
Mount Ayr			.03							.04	.02		.34			.22	.07			.25	.14			1.50					.04	.50	.05	3.20
Mt. Pleasant			T			.42				.02			.28	.15		T	.27			T	.87	.06		1.00					.10	.25	.15	3.57
Mt. Vernon						.02				03			.32	.40			.20				.01	.02		1.00					.14	.03	.17	2.34
New Hampton	.02												.30	.10				T	.21					1.30					.05		.20	2 18
Newton													.27			.23					.23			1.15						.07		1.95
Northwood	T	T	T					T					.12	.08				T			.50			.56	T	T			T	T	.19	1.45
Odebolt										.12			.10			T				.04				.40						.40		1.06
Ogden													.15				.22					.22		.22	.50						.30		1.61
Olin										.01			.70			.10					.10		.10	2.00						.20	.01	3.22
Omaha, Neb			T							.07			.37			02	.03			.06	.05			.31						.39	.02	1.32
Onawa					.02					.10			.10			T	T			.03	.18			.22		T				.22		0.87
Osage	.08												.10	.17			.02	.04	.14		.34			.59					T		.34	1.82
Osceola		T	T										.70							T				1.05				.50			.38	2.63
Oskaloosa	.02					T				.04			.26	.09		.09				T	.03			1.00					.09	.09	.05	1,76
Ottumwa						T				.13				.78		.45					.04			2.00						.43	.10	3 93
Pacific Junction													.59			.01				.05	T			.46					T	.41	.03	1.46
Perry		T								T			.30			.25				T	.27			1.08					T	.20		2.10
Plover										T			.10						09	.06	.26			.22						.24		0.97
Red Oak			T							.09			.32			.05				.18	T			.66					T	.58	T	1.88
Ridgeway	.20									.02			.19	.57		.03		.13	.12	.03	.36			.82	T	T		T	.11	.37		2.95
Rock Rapids												.30									.50									T	T	0.80
Rockwell																					.50									.65		1.75
Ruthven									.50							.10								1.00			.75					2.25
Sac City											T		.20			T	T		T	T	.36									.33		0.89
St. Charles			.02							.02			.28			.23	.04									T			.05	.31	.05	1.00
Sibley			T		T	.10					.05		.40	T					T		.1.20		T	T	.15					.04	.50	.05	3.20
Sigourney			T				T			.09			.51	.12		.03	.40			T	.05			1.92					.06	.17	.15	2.05
Sioux Center		T			.05					.05			.70								.96			.06						.03	.07	3 42
Sioux City		T	T		.02					.05			.01								.32			.06						.02	T	1.85	0.50

DAILY AND MONTHLY PRECIPITATION FOR MARCH, 1904--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	
Spirit Lake	....	....	....	....	T	....	....	....	....	T	....	....	.35	....	..	....	....	....	....	..	T	....	..	.18	T	....	....	....	....	.86	....	1.39
Stockport	....	....	.09	....	..	.43	....	....	....	T	....	....	.12	.08	....	..	....	....	....	..	1.16	....	..	.95	....	....	....	....	.08	.51	.19	3.61
Storm Lake	....	....	T	....	....	....	....	....	....	....	T	....	T	.01	....	..	....	....	..	....	.80	..	...	.20	.05	....	....	....	..	T	.48	1.54
Stuart	....	..	...	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.20	.18	....	....	.82	....	....	....	....	....	.35	.10	1.65
Thurman	....	....	....	....	....	....	....	....	....	T	....	....	.20	....	....	.02	.	....	....	.08	T	..	..	1.05	....	....	..	....	T	.30	.20	1.85
Tipton	....	....	....	..	....	.10	....	....	....	....	....	....	.48	.38	....	....	....	....	.05	....	.27	....	..	1.01	....	....	..	....	....	.31	.20	2.83
Toledo	....	....	....	....	T	....	....	....	....	T	..	....	37	....	....	.25	....	..	....	.25	....	....	..	1.35	....	....	....	....	.30	.15	.18	2.85
Vinton	....	....	....	.	..	.02	....	....	....	.03	...	....	.06	.49	. .	.05	.20	....	.04	.07	.18	....	....	1.32	....	T	....	....	.02	.20	.18	2.86
Wapello	..	....	.11	....	....	.37	....	....	....	....	..	....	.21	.25	....	..	.23	....	..	...	1.00	....	.95	....	....	....	....	T	.54	....	.02	3.68
Washington	....	....	.03	....		.09	....	....	....	.01	....	....	....	.45	....	...	.24	....	....	.05	....	....	....	.05	.90	....	....	....	....	.35	.53	2.70
Washta	T	T	....	....	T	....	....	..	...	.10	...	..	T	....	....	....	..	T	....	.13	.	....	....	.50	....	..	....	..	....	.10	....	0.83
Waterloo	..	....	....	....	.	....	....	....	....	.04	..	..	.43	....	....	.13	....	....	.08	T	.43	....	....	1.33	....	....	....	....	.14	.13	.13	2.84
Waukee	....	....	T	....	T	....	....	....	....	.02	....	....	.40	.05	..	.23	.07		..	.13	.19	....	..	.83	....	....	....	....	.06	.23	.02	2.23
Waverly	T		T	....	..	....	....	....	....	.03	....	....	.30	.12	....	.08	.05	....	.14	..	.34	....	....	.70	....	....	....	....	.05	.22	.03	2.06
West Bend	..	....	..	..	....	....	....	....	....	T	..	..	.20	....	....	....	....	....	.20	....	.56	....	....	.37	....	....	....	....	.20	.23	..	1.76
West Union	T	....	....	....	....	....	....	....	....	....	....	.50	....	....	....	....	....	T	....	....	....	....	....	1.92	....	....	....	....	..	.31	....	2.73
Whitten	....	....	..	..	....	....	....	..	....	T	....	T	.40	.10	....	T	.10	....	....	T	1.00	....	....	.86	....	T	....	T	.03	.15		2.64
Wilton Junction	....	....	....	....	....	....	....	....	....	T	....	....	....	.60	....		....	..	..	....	.47	....	....	.78	..	....	....	....	....	.67	.25	2.77
Winterset	....	.	....	....	....	....	....	....	....	....	....	....	20	....	....	T	....	....	..	....	.40	....	....	.90	....	....	....	....	.20	.29	....	1.99
Woodburn	..	.07	...	....	....	....	....	....	....	T	....	....	.39	T	....	..	....	....	....	..	.30	.20	....	.70	....	....	....	....	T	.39	.19	2.24

Precipitation Chart March 1904.



APRIL, 1904. No. 4.

MONTHLY REVIEW

OF THE

IOWA WEATHER AND CROP SERVICE

CONTENTS.

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U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

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APRIL WEATHER AND CROPS.

This has been an abnormally cold month, the records of 115 stations indicating a monthly mean temperature of 44.1°, which is 5.2° below the normal. It was the coldest April for the State at large, of which we have records covering all districts. At Des Moines the coldest April in any previous year of record was in 1881. The temperature of the past month, however, was notably equable from first to last, the rise being moderate, and barely sufficient in the last week to start fruit buds and foliage. This retarded germination and possibly lessened danger of serious damage by sudden change from warm to excessively cold weather. The rainfall was 0.74 of an inch above normal, the larger part of which came about the 7th and 8th, and between the 22nd and 25th. There were some dry periods, and sufficient amount of sunshine to afford ample opportunity for seeding and preparing the ground for planting corn. Seeding of spring wheat, oats and barley begun generally from the 1st to the 4th, and that work was practically completed in the larger part of the State about the 20th to 23rd. Germination of seed was unusually slow, but at the close of April there were indications of a good stand, except on low, wet fields. Fruit buds appeared healthy and promising, but there were but a few blossoms visible prior to the first of May. The pastures and meadows were unusually late in starting, and there was but little grass for stock at the end of the month. On the whole, though the growth of vegetation was much belated, the month was more favorable for the farmer than the corresponding month in 1903.

NOTES AND COMMENTS.

Under the new drainage law, the citizens of Wright county propose to open several big ditches that will have an aggregate length of twenty-five miles, which will make tillable several thousand acres of land now under water.

Experiments with various feed stuffs, made in Oklahoma last winter, proved that the greatest gains were made by cattle fed on alfalfa hay and corn meal.

More than ever this year the country needs a bumper crop. It is the one thing necessary to put an end to all pessimism and bring prosperity greater than we have known before.—*Minneapolis Journal*.

Professor Carleton, cerealist of the U. S. Department of Agriculture, who has recently made a report on oat culture in Kansas, says that the farmers have shown an increasing disposition to disregard all spring sown grains, because of the danger to them from hot weather.

WIND—VELOCITY AND PRESSURE.

Haswell's Hand-Book for Engineers, a standard and reliable authority, gives the following as to velocity and force or pressure of wind per square foot of surface, in pounds.

Miles per Hour.	Feet per Minute.	Pounds Pressure per Square Foot.
10	880	.500
15	1320	1.125
20	1760	2.000
25	2200	3.125
30	2640	4.500
35	3080	6.125
40	3520	8.000
45	3960	10.125
50	4400	12.500
60	5280	18.000
80	7040	32.000
100	8800	50.000

DRAINAGE AND DROUGHTS.

An Omaha reader takes exception to our statement that the drainage of marshes and lakes in no perceptible degree diminishes the rainfall of the territory where located and that the cultivation of a semiarid region in no way increases the rainfall, and he presents some plausible arguments to show that our contention is wrong. Here are a few facts for our friends to consider: Lower California is an arid desert. Still it has the Pacific ocean on one side and the gulf on the other. Why should it be dry when such an enormous evaporation under a tropical sun is always in operation? The records show conclusively that n all the territory west of the one hundredth degree of west longitude the settlement of the country and the cultivation of the soil have in no manner increased the average rainfall. Take the Mississippi Valley, the territory which this statement is tended to cover, and where does the water come from which makes up the average of thirty to thirty-five inches per annum which the states of Minnesota, Iowa, Illinois and Missouri receive? Take the State of Iowa, to illustrate. To give this State one inch of rain would require the evaporation of the water of a lake twenty by twenty-seven and one-half miles in area and eight feet in depth, or a river a mile wide, eight

feet deep and 550 miles in length. The yearly rainfall of thirty-one inches in this State, would make a lake 110 miles long, fifty miles wide and twenty-six feet deep; and if all the water in all the rivers, creeks, lakes, ponds and sloughs in the State was vaporized and returned to the earth in the form of rain it would give less than one inch of rainfall. Now, whence comes the rainfall we get? From the Gulf of Mexico. The Mississippi Valley, if one could see it pictured out in relief, would be seen to be a vast trough reaching from northern Minnesota to the Gulf of Mexico, up which the moisture laden clouds are driven by the south winds, assuring a permanent and reliable rainfall and making the valley the garden spot of America. Had there been a range of mountains like the Rockies flung across the lower part of this valley, all that part of it which lay at the north would have been an arid desert. For the past two years all the northern part of this valley, better drained than it has ever been before—millions of acres of swamp lands reclaimed by drainage and put under cultivation, and lake beds converted into cornfields—has been deluged with such an excess of rainfall that all the drainage done was utterly insufficient to dispose of surplus water. It is now well settled that timber grows in any given territory because it rains there and that it does not rain because the timber grows. The facts justify a repetition of the phrase, "While drainage will dry up the earth it will not dry up the heavens," for the reasons above stated.—*J. S. Trigg's Farm Notes.*

OUR GOOD SOIL AND CLIMATE.

We who live in America and in the corn belt little realize how much we have to make us thankful. First there is the soil, which is richer than England has or Scotland, except in favored spots. Next there is the climate. Granted that our climate has in it violent extremes and is trying to live in if we do not fit it right, yet it means well and really blesses us. I never knew how much we have to make us glad until I shivered in England, France and Scotland for nearly two months of their summer.

It was a constant wonderment to me that things grew so well as they did with so little heat. Coming home, the maize standing rank and green, twice as high as the fences, looks mighty good to me. And this sets me thinking. Corn grows mostly from the sun. True, there must be soil and water in that soil, but sun power makes the golden grains and sunbeams coiled up within those grains are ready to give out again their stores of energy or warmth in winter time. That sun that pours down its fervent rays i not to be lightly spoken of. It comes to bless. It is our own fault if he overcomes us. To eat simply, drink properly, hot water at meal times and little at other times, to dress comfortably and to take exercise regularly out of doors will be to insure robust health during the hottest weather.

And those heated nights when the corn blades whisper to each other and the katydids cry warnings from out the thickness of the trees, they are a blessing, too. It is your own fault if you swelter in stuffy chambers. There is the Great Outdoors calling to you. Provide each of you a cot that you can take out beneath the trees, sleep there or under canvass, see if you do not find your sins forgiven in the morning and new store of li e and energy in you.

This is the glorious good land here and the sun shines!

Thank God for the heat that fills the cribs with gold!—*Joseph E. Wing, in Breeders Gazette.*

FARMING WITH ELECTRICITY.

In the application of electricity to every day work Germany has, perhaps, gone farther, than any other nation. Electrically heated and operated cooking and laundry apparatus is in common use there, but the most striking single development is the electrical farm.

Take for example, the Quendnau farm, which covers 450 acres and its dairy handles 1,000 gallons of milk daily. Every part of the farm is lighted by electricity, and is in telephonic communication with every other part. The dairy has an electrical churn; the barn contains electrically operated feed and carrot cutting machines, and even the grindstone is turned by a small belt from the shaft connected with the barn motor.

The water pumping apparatus is run by electricity, all the buildings are lighted by incandescent lamps and there is an electrical indicator at the doors of all the houses. The farm has also its own threshing and grist mill, the machinery of which is turned by a current from the miniature central station and finally there is a small sawmill, which gets its power from the same station. On the farm are all kinds of electrical agricultural machines.

The power of all these various operations—lighting, heating, telephones, churning, cutting, grinding, pumping, threshing and sawing—comes from a 50-horsepower stationary engine working two dynamos. From this station the power is distributed to all parts of the farm, and the switchboard is so plainly marked that the ordinary farm hand can regulate the supply to fit the need.—*London Answers.*

CLIMATOLOGY OF THE MONTH, APRIL, 1904.

BAROMETER.—Mean pressure, 30.05 inches; highest observed, 30.61 inches, at Des Moines and Dubuque, on the 3d; lowest observed, 29.13 inches, at Des Moines on the 8th; range for State, 1.48 inches.

TEMPERATURE.—The monthly mean temperature for the State, as shown by records of 115 stations, was 44.1°, which is 5.2° below normal. By sections the mean temperatures were as follows: Northern section 42 4°, which is 4.9° below normal; Central section 44.4°, which is 4 4° below normal; Southern section 45.5°, which is 6.7° below normal. The highest monthly mean was 47.8° at Ottumwa; lowest monthly mean, 40.2° at Sibley. The highest temperature reported was 86°, at Sigourney and Forest City on the 22d and 23d; lowest temperature reported 13°, at Primghar on the 11th. The average monthly maximum was 77.1°; average monthly minimum 20 9°. Greatest daily range, 48° at Forest City; average of greatest daily ranges 37.2°.

PRECIPITATION.—Average precipitation for the State, as shown by records of 126 stations, was 3 63 inches, which is 0.74 of an inch above normal. The averages by sections were as follows: Northern section 2.73 inches, which is .11 of an inch above normal; Central section 3 48 inches, which is .58 of an inch above normal; Southern section 4.68 inches, which is 1.57 inches above normal. The largest amount reported was 8.97 inches at St. Charles; least amount reported, 1.52 inches at Elkader. The greatest daily rainfall reported was 3.11 inches at Sigourney on the 25th. Average number of days on which .01 of an inch or more was reported, 7.

WIND AND WEATHER.—Prevailing direction of the wind, northwest; highest velocity reported, 56 miles per hour, from the northwest, at Sioux City, on the 11th. Average number of clear days, 15; partly cloudy, 6; cloudy, 9.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES.			
		Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	30.01	30.54	3	29.17	8
Des Moines	30 07	30 61	3	29.13	8
Dubuque	30.05	30.61	3	29.24	8
Omaha, Neb	30.05	30.61	16	29.38	8
Keokuk	30.02	30.53	16	29.16	8
Sioux City	30.08	30.60	16	29.43	8
Means	30.05	30.61	3	29.13	8

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	6.819	35	NE	25
Des Moines	7.394	36	S	23
Dubuque	6.561	34	NW	15
Keokuk	7.373	38	NW	15
La Crosse, Wis	6.735	36	NE	8
Omaha, Neb	9.177	46	NW	8
Sioux City	12.705	56	NW	11

OBSERVERS' NOTES.

ALLERTON.—*Rex Shriver.* Latter part of April, warm enough to start grass and foliage.

ALTA.—*David E. Hadden.* April was unusually cool, and the season is fully two weeks late.

AMANA.—*Conrad Schadt.* Cold, unseasonable weather, with frequent frosts; field work much delayed.

ATLANTIC.—*J. W. Love.* Farm work much hindered by cold and wet weather.

BAXTER.—*W. S. Thorp.* At close of April, plowing for corn was two thirds completed; small grain was coming up and grass was short.

BONAPARTE.—*B. R. Vale.* Cold month; vegetation two weeks later than normal; rains not excessive, but cold and mixed with snow; much cloudy weather.

BRITT.—*Geo. P. Hardwick.* Frost in ground at end of month; Spring ten days late; no bloom yet.

CHARITON.—*C. C. Burr.* Continued wet and cold, with frequent frosts.

CLINTON.—*Luke Roberts.* Month abnormally cold; no cherry trees in bloom at close of the month. There were 13 mornings, from 2nd to 21st, when water froze. The mean temperature was 44 1°, being 7.9° below normal. This breaks all April records during the past 26 years. The rainfall was 3.40 inches, which is half an inch in excess of normal.

CORYDON.—*Mrs. Clara Miller.* Snow fell on the night of the 19th and was not quite all gone on evening of 21st.

FLORENCE.—*J. H. DuBois* Seeding was mostly done by the 23d, except the last week it was unusually cold for April.

FOREST CITY.—*J. A. Peters.* Seeding begun April 4th, much delayed by rains and cold weather; oats about all in by the 23d; last ten days fine for work.

GREENFIELD.—*J. G. Culver.*—On the 23d lightning struck a tree 20 feet south of J. C. Mason's house and broke nearly every window on the south side of the house; the glass was broken to bits and fell outward; 100 feet south a window was broken and another 150 feet northeast, in these cases the glass fell inside. No one hurt.

GRUNDY CENTER.—*E. S. King.* The daily mean was 5.5° colder than in April, 1903. Small grain seeding commenced on the 6th and finished about the 23d.

HANLONTOWN.—*Miss G. M. Paschen.* Some seeding done April 6th; then delayed by rain till the 14th. Some potatoes planted on the 19th. Early gardens were up by the 30th.

INWOOD.—*G. M. Larsen.* Heaviest snow of the season fell on night of the 19th, the amount being 3.5 inches. Last week of the month was fine.

MOUNT VERNON.—*Jos. W. Hubbard.* Temperature below normal; season late, but favorable at the close.

RIDGEWAY.—*Arthur Betts.* Coldest April on record; last ten days delightful; 262 hours of sunshine; anemones on 16th, and buttercups, 25th; 8 days totally devoid of clouds.

VINTON.—*T. F. McCune.* Season a little late; small grain up and doing well; may be light; leafing backward. Garden stuff up in most places.

WHITTEN.—*F. P. Butler.* Very cold until last few days; seeding all finished, and plowing for corn well along.

ERRATA.

INDEPENDENCE—February—Total precipitations recorded .40 of an inch, on page 5, in March Review under belated reports, should have been .45 of an inch.

MARSHALLTOWN—February—Total snowfall omitted on page 6, should have been 5.0 inches.

MONTHLY REVIEW OF THE

CLIMATOLOGICAL DATA FOR APRIL, 1904.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Algona	Kossuth	1,213	28	42.9	-5.4	77	30	18	3	35	2.14	- .42	.77	T	7	19	8	3	NW	21, 23
Alta	Buena Vista	1,513	11	41.6	-6.0	75	30	20	16	33	4.44	†1.20	2.07	T	7	14	8	8		21
Alta (near)	Buena Vista										4.06		1.97		6					
Britt	Hancock	1,236	5	42.2	-4.6	73	23, 29	21	16, 19	39	3.05	† .98	1.45	2.0	7	8	17	5	NW	21
Charles City	Floyd	1,012	11	42.0	-5.3	75	23	20	3, 16	38	1.95	- .95	.80	2.0	5	16	3	11	W	22, 24
Clear Lake	Cerro Gordo	1,241		43.4		76	30	18	3	39	2.15		.75	2.0	5	13	16	1	N	
Cresco (a)	Howard			40.6	-4.1	73	30	18	1	39	2.95	† .52	1.00		4	23	0	7	NW	
Decorah	Winneshiek	857		43.4	-5.3	77	29	21	3, 16	30	2.16	- .53	1.10	.5	5					
Dows	Wright	1,142		42.6	-5.8	74	30	18	16	37	2.30	- .75	.90	.5	7	18	3	9	NW	22, 23
Elkader	Clayton	727	21	43.8	-4.4	79	30	19	16	45	1.52	-1.33	.85	1.0	5	16	7	7	NW	23
Estherville	Emmet	1,298	7	40.9	-7.4	76	30	20	3, 16	39	3.34	† .88	1.60		8	17	0	13	NW	22
Fayette	Fayette			41.6	-5.6	76	30	18	16, 17	44	2.33	- .87	.85	1.5	6	15	7	8	NW	23
Florence	Wright										2.51		1.25	.3	7				NE	24
Forest City	Winnebago	1,226	8	42.4	-5.6	86	23	21	3, 16	48	2.35	- .25	1.19	1.0	4	18	1	11	N	
Grand Meadow	Clayton	1,180	11	42.2	-5.3	73	30	19	16	32	2.78	- .35	1.35	0.8	6	12	10	8	NE, NW	
Hampton	Franklin	1,155	12	44.2	-3.4	80	30	21	3, 16	40	2.59	- .85	.98	0.8	5	9	18	3	NW	
Hanlontown	Worth			41.6		72	29	21	3	39	4.48		1.75	2.8	8	17	4	9	NW	22, 23
Humboldt	Humboldt	1,095	10	43.7	-5.4	76	30	20	16	40	3.45	+ .71	1.36		5	17	2	11	SE	8, 21
Inwood (b)	Lyon			42.3		75	30			37	2.40		1.00	3.5	5	14	2	14	NW	
Larrabee	Cherokee	1,366	11	42.6	-5.5	79	30	17	16	40	3.12	† .13	1.25	0.2	8	12	11	7		13, 15
LeMars	Plymouth	1,224	6	42.7	-7.0	76	30	17	16	42	3.50	- .12	1.90	2.0	5	13	7	10	NW	21
Mason City	Cerro Gordo	1,182		43.2	-6.2	75	30	23	3	32	2.32	-1.02	.70	1.0	7	10	10	10	NW	
New Hampton	Chickasaw	1,169		41.5	-7.1	74	30	18	3	36	1.90	- .03	.73	0.5	6	14	4	12	NW	
Northwood	Worth	1,222	6	43.4	-4.3	77	27	22	3, 16	45	2.15	- .16	.80	4.6	8	16	7	7	SE, NW	22, 23
Osage	Mitchell	1,184	11	42.3	-3.2	76	30	21	3, 16	35	1.87	- .70	.76	2.9	7	12	6	12	S, NW	21, 23
Plover	Pocahontas	1,190	5	41.6	-6.6	77	30	20	16, 19	39	3.79	†2.01	1.69		5	18	3	9	N	7, 21, 24
Primghar	O'Brien	1,215		41.2	-8.6	75	30	13	11	37	2.98	† .16	1.10	T	4	18	0	12	E	20
Ridgeway	Winneshiek			44.8	-3.8	83	30	19	3	43	1.77	- .34	.66	.7	10	14	11	5	NW	23
Sibley	Osceola	1,512		40.2	-7.8	78	30	20	3, 16	40	2.04	- .65	1.16	T	6	17	1	12	NE, NW	22
Sioux Center	Sioux		4	42.4	-5.9	76	30	18	16	41	2.32	- .81	1.00	2.0	5	14	4	12	N	4
Spirit Lake (c)	Dickinson	1,458	8	44.8	-4.3	80	30	21	13, 16	40	2.07	† .35	1.40		3					
Storm Lake	Buena Vista	1,440	7	41.2	-5.2	74	30	19	16	33	3.26	† .96	1.20		5	17	1	12	NW	20, 22
Washta	Cherokee	1,157									3.45	†1.72	1.10	2.0	4	17	9	4	NE	
Waverly	Bremer	942	6	43.6	-3.9	73	23, 29, 30	21	3, 14, 16	36	2.33	- .71	.68	.9	8	11	9	10		23
West Bend	Palo Alto	1,197	8	43.2	-3.6	76	30	20	16	35	3.64	† .83	1.72	1.0	6	13	10	7	N	21, 24
West Union	Fayette																			
Average				42.4	-4.9	76.4		19.0		38.4	2.73	† .11		1.4	6	15	6	9	NW	

CENTRAL SECTION.

Amana	Iowa	721	25	45.0	-3.7	79	23	23	16, 17	36	4.22	†1.34	2.02	0.1	8	14	11	5	NW	23
Ames	Story	926	20	45.0	-4.1	77	30	22	17	42	4.19	†1.44	2.21	T	7	19	4	7		23
Audubon	Audubon	1,301	8	43.7	-6.2	76	30	21	3	46	3.44	†1.52	1.00	1.5	9	14	3	13	NW	22, 23
Baxter	Jasper	998		44.4		78	30	20	3, 16	36	5.03		2.50		5	10	9	11	NW	
Belle Plaine	Benton	828	12	42.9	-2.8	78	23	21	16	37	3.14	- .47	1.60	1.1	7	12	11	7	NW	
Buckingham	Iowa										3.28		1.15	T	4	7	21	3		
Carroll	Carroll	1,265	12	43.0	-6.0	78	30	19	16	44	3.43	- .09	.85	1.0	6	15	5	10		7, 22, 23
Cedar Rapids	Linn	733	19	44.5	-3.9	80	23	23	16	39	1.85	-1.13	.60		8	13	10	7		
Clinton	Clinton	609	34	44.8	-3.8	83	23	21	4	42	3.40	† .47	.90	T	8	11	11	8	NE, NW	23
Davenport	Scott	606	31	45.6	-4.1	80	23	24	16	31	2.05	- .73	.82	T	6	13	9	8	NE	23
Delaware	Delaware	1,083	11	42.4	-3.6	79	23	19	16	37	1.93	-1.11	.75	1.0	7	15	9	6	NE	
Denison	Crawford	1,180	8	42.6	-6.7	74	30	17	3	38	2.20	-1.76	.85	1.0	7	17	5	8	N	
Des Moines	Polk	861	24	45.4	-5.1	74	30	26	3	31	5.48	†2.69	1.79	0.2	9	8	13	9	NW	22, 23, 24, 25
De Soto	Dallas	866		45.4		77	30	22	21	36	5.56		1.78	T	8	17	5	8	SE	
Dubuque	Dubuque	655	29	44.4	-4.2	79	23	24	16	33	2.05	- .74	.69	1.5	8	17	5	8	NW	23
Fort Dodge	Webster	1,126		42.4		76	30	21	3	38	4.66		2.00	T	6	16	3	11	NW	
Galva	Ida	1,290	8	41.4	-7.9	75	28, 30	15	9	44	3.63	† .87	1.66	1.5	6	18	4	8		21
Gilman	Marshall	1,052									3.93		1.46		5	17	5	8	N	
Grinnell	Poweshiek	1,023	9	44.6	-5.8	73	23	21	16	31	5.93	†2.41	3.00	T	8	11	10	9	N	8, 23, 25
Grundy Center	Grundy	976	11	43.8	-3.9	75	30	18	16	37	2.28	-1.10	.86		6	14	7	9	N, S	23, 24
Guthrie Center	Guthrie	1,077	6	47.3	-2.8	81	30	20	3	45	3.72	†1.25	1.09		10	15	6	9	NW	23
Harlan	Shelby	1,192		43.6		74	30	20	16	37	3.20		.90		8	12	9	9	N	21, 22, 23
Ida Grove	Ida	1,220		43.2		74	29, 30	19	4	37	4.35		1.92		4	22	0	8	S	21
Independence	Buchanan	921	38	42.7	-4.5	75	23	19	16	33	2.15	- .06	.90	2.0	6	18	6	6	NW	23
Iowa City	Johnson	685	43	44.3	-2.0	82	23	23	16, 17	41	5.49	†2.35	1.79	T	9	10	12	8	NW	
Iowa Falls	Hardin	1,190	7	42.6	-4.9	74	30	22	3, 16	39	2.40	- .75	.88	1.3	6	14	7	9	NW	22, 23
Jefferson	Greene	1,052									3.45		1.70	.5	7	6	13	11	SE, NW	23, 25
LeClaire	Scott	578									2.43		.71	T	7				SE	
Logan	Harrison	928	35	46.0	-4.0	78	30	22	3, 14, 16	40	2.95	† .08	.88		6	18	1	11	NW	20
Maquoketa	Jackson	688	9	43.3	-5.6	80	23	20	16, 17	42	2.99	† .46	.85		9	18	2	10	NE	
Marshalltown	Marshall	947	9	43.7	-5.9	77	23, 30	20	4	39	3.60	† .49	2.05		9	17	2	11	NW	24
Mt. Vernon	Linn	847	35	46.6	-3.9	84	30	19	16	46	2.97	- .06	.84	.5	8	13	8	9	NW	23
Newton	Jasper	944	14	44.2	-4.7	76	30	21	3, 4, 16, 21	37	4.87	†1.49	2.50		6	14	8	8		
Odebolt	Sac	1,356	5	43.5	-6.2	79	30	18	16	42	3.71	†1.00	1.13		6	20	5	5		
Olin (a)	Jones	760		44.0	-2.7	79	23	22	16	34	2.16	- .02	1.00		5	12	12	6	NE	
Onawa	Monona	1,053		45.8		81	30	19	16	40	1.82	†1.17	.75		7	21	0	9	SE, NW	21
Perry	Dallas	975		45.0		78	30	23	3, 16	36	5.44		2.15		4	7	15	8		23
Rockwell City	Calhoun			43.8	-4.4	78	29, 30	23	3, 16	40	4.35	†1.94	1.25		5	16	4	10		
Sac City	Sac	1,278	22	43.2	-5.0	75	29, 30	21	16	39	3.00	† .01	1.08	T	5	12	8	10	S	
Sioux City	Woodbury	1,165	13	43.9	-6.7	75	30	20	16	40	2.32	- .70	1.03	2.5	6	11	7	12	NW	21
Stuart	Guthrie	1,316	5	46.6	-2.6	75	23, 30	25	16	45	5.89		1.52		7				S, SE, SW	
Tipton	Cedar	807		46.1		78	23	23	16	33	4.22		1.12	T	5	18	7	5	SE	
Toledo	Tama	856	8	45.2	-5.4	78	23, 30	20	16, 17	39	3.14	† .11	1.60	T	6	14	8	8	NW	
Vinton (a)	Benton	810	12	45.1	-4.1	78	23	21	17	36	1.57	-1.35	.75	T	7	17	6	7		23
Waterloo	Black Hawk	862	15	43.2	-4.0	74	30	19	16	36	2.74	- .25	1.51	.5	8	15	8	7	NW	
Waukee	Dallas	1,039		46.2		80	30	21	14, 16	41	4.71		1.37	.5	8	12	8	10	NW	23
Wilton Junction	Muscatine	683	7	45.6	-5.3	75	29	21	16	34	3.11	† .24	1.55	.5	4	15	6	9	NE	
Whitten	Hardin	1,036		43.4		75	30	19	16	34	2.71		.94	T	5	14	8	8	NW	23, 24
Zearing	Story			43.3		79	30	20	16	36	3.46		1.90	T	7	15	8	7	NW	
Average				44.4	-4.4	77.4		20.8		38.2	3.48	† .58		0.6	7	14	7	9	NW	

CLIMATOLOGICAL DATA FOR APRIL, 1904—CONTINUED.

SOUTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Afton	Union	1212	7	45.4	-5.9	75	30	23	16	33	5.61	†1.94	1.44	5.5	8	13	7	10	NE	
Albia	Monroe	957	..	43 3	.....	81	23	22	13	35	5.26	.....	1.83	....	10	18	1	11	NW	
Allerton	Wayne	.....	....	45.6	....	77	23	24	3, 16	32	4.74	.....	1.50	6.0	8	16	4	10	NW	22, 25
Atlantic	Cass	1,164	11	44.4	-4.9	77	30	20	3, 14, 16	44	4 35	†1.31	1.38	1.8	6	....	....	....	S	21, 23
Bedford	Taylor	.....	....	45.0	....	76	23	21	3	36	5.62	.....	1.45	.8	9	14	2	14	NW	
Belknap	Davis	877	7	45.6	-7.0	80	23	27	3, 16	32	4.51	†2.47	2.25	....	6	19	5	6	NW	
Bonaparte	Van Buren	.....	10	46.0	-5.8	83	23	24	14	33	3.36	† .03	2.00	1.5	5	....	....	....	.....	
Burlington	Des Moines	544	....	47.2	....	83	23	26	14, 16	32	3.28	.....	1.13	....	8	15	7	8	NE	
Chariton	Page	1,042	7	45.0	-6.7	78	23	23	3	33	4.66	†1.17	2.10	1.0	6	12	10	8	N, SE	
College Springs	Page	.....	10	46.8	-3.9	77	23	22	16	32	4.74	†1.07	1.00	1.0	10	17	5	8	.....	
Columbus Jct	Louisa	596	....	45.2	.....	82	23	23	16, 18	38	2.91	.....	1.55	0.2	4	21	7	2	NE	22, 23
Corning	Adams	1,127	10	44.2	-6.5	75	23	23	3, 16	32	5 15	†2.06	1.48	3.0	9	15	6	9	NW	25
Corydon	Wayne	992	9	45.8	-6.0	78	23	18	3	34	4.68	†1.56	1.60	2.0	6	16	5	9	NW	
Clarinda	Page	1,069	....	44.8	-7.2	75	23	23	3, 16	36	4.89	†1.58	2.50	1.0	9	14	4	12	NW	
Cumberland	Cass	.....	....	.....	.....	.....	.....	.....	.....	.....	4.10	.	1.11	4.0	5	17	2	11	SW	
Earlham	Madison	.....	....	41.4	.....	73	30	18	3	39	7.64	.....	2.82	2.0	7	15	4	11	NE, SE	23
Fort Madison	Lee	516	51	.....	.....	.....	.....	.....	.....	.....	4.29	†1.00	2.27	1.7	6	8	12	10	S	22, 23, 25
Glenwood	Mills	....	15	46.5	-7.0	76	23	22	16	40	3.50	† .95	2.00	T	6	12	10	8	NW	
Greenfield	Adair	.....	11	44.6	-6.0	75	30	21	3, 16	37	5.28	†2.15	1.32	4.6	10	14	5	11	NW	22, 23, 24
Hopeville	Clarke	....	11	45.0	-5.2	75	23, 30	23	16	34	3.90	† .48	1.03	...	10	11	11	8	.....	22
Indianola	Warren	969	11	45.4	-10.2	74	30	21	16	33	7.98	†4.70	2.83	.5	9	16	8	6	NW	22
Keokuk	Lee	619	31	47.0	-5.0	81	23	28	16	28	5.11	†1.90	2.80	5.5	9	14	10	6	N	22, 23, 25
Keosauqua	Van Buren	664	10	45.4	-7.4	83	23	22	14	42	3.86	†. 02	1.85	...	8	14	6	10	.....	.....
Lacona	Warren	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.12	.	1.57	....	8	10	11	9	.....	.....
Lenox	Taylor	1,250	7	44.8	-6.4	78	23	22	16	35	4.94	†1.92	1.69	3.0	10	17	5	8	SE	23
Leon	Decatur	1,120	....	45.6	.....	78	23	24	3, 16	30	5.01	.....	2.00	6.5	10	20	1	9	S	.....
Mount Ayr	Ringgold	1,236	6	46.2	-5.3	78	30	23	16	37	4.52	†1.37	1.15	5.0	10	12	5	13	NW	.....
Mount Pleasant	Henry	729	20	46.0	-6.5	76	30	23	16	34	4.14	†1.09	2.26	T	6	11	14	5	NW	23, 25
Omaha, Neb	Douglas	1,113	32	45.8	-5.2	73	30	24	16	32	3.20	† .07	1.10	0.5	9	15	4	11	N	19, 20, 21, 22 28, 24
Osceola	Clarke	1,130	6	45.4	-5.4	74	30	20	4	41	4.11	† .59	1.60	3.5	7	17	5	8	NE	.....
Oskaloosa	Mahaska	843	18	45.8	-4.5	75	23, 30	22	16	35	4.11	†1.33	2.78	.5	8	17	2	11	NW	.....
Ottumwa	Wapello	649	8	47.8	-5.0	84	23	25	16	34	4.42	†1.34	3.09	1.0	6	15	7	8	NW	.....
Pacific Junction	Mills	960	..	44.7	.....	74	23, 30	22	16	38	5.36	.....	2.00	.5	8	13	7	10	N	.....
Red Oak	Montgomery	1,033	...	45.4	-6.4	73	23	27	16	28	4.67	†1.83	1.24	1.0	8	12	12	6	SE	21, 22, 23
St. Charles	Madison	1,070	....	45.6	.....	75	30	22	16	33	8.97	.....	2.84	....	11	14	10	6	NW	.....
Sigourney	Keokuk	787	....	46.6	-5.6	86	24	22	16	37	3.92	† .32	3.11	.5	5	17	9	4	NW	.....
Stockport	Van Buren	.....	...	.....	.....	.....	.....	.....	.....	.....	3.10	.	1.75	2.0	6	17	5	8	NW	.....
Thurman	Fremont	.....	....	44.8	-7.0	76	23	23	14	36	6.10	†2.66	2.35	....	10	18	3	9	SW	20, 21, 22, 23, 24
Wapello (*b*)	Louisa	588	....	47.7	-4.2	79	23	26	16	36	2.82	† .58	1.20	....	4	....	....	..	.....	8, 22, 23, 25
Washington	Washington	769	20	46.3	-4.6	81	23	22	16	31	2.74	† .12	1.53	.	5	....	....	....	NW	.....
Winterset	Madison	1,129	11	45.7	-10.5	79	29	21	4	41	6 41	†2.75	2.55	.8	8	17	3	10	N	.....
Woodburn	Clarke	961	....	.....	....	.....	.....	.....	.....	.....	4.64	.....	1.23	T	9	16	6	8	NE, NW	.....
Average	.....	.....	....	45.5	-6.7	77.6	.....	22.8	.....	.....	34.9	4.68	†1.57	.....	2.1	8	15	6	9	NW	.....
Average for state	.....	.....	.....	44.1	-5.2	77.1	.....	20.9	.....	.....	37.2	3.63	† .74	.....	1.4	7	15	6	9	NW	.....

*Means determined from 7 A. M., 2 P. M. and 9 P. M. observations, and maximum and minimum are taken from eye readings. †Above normal. ‡Received too late to be computed with means. *a*, One day missing; *b*, two days, etc. § Not supplied with self-registering instruments.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR APRIL, 1904.

STATIONS.		DATE.																													MEAN.
		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	Max	52	48	44	57	58	66	55	44	42	56	53	46	51	59	57	45	56	57	57	41	45	71	74	62	59	59	63	68	72	75	..	56.4
	Min	33	38	27	24	40	34	43	29	31	33	38	31	31	25	32	23	28	37	26	32	27	40	50	52	39	35	35	37	39	44	..	34.4
Albia	Max	52	48	49	57	58	64	58	46	36	50	40	45	48	56	43	44	54	58	51	46	58	66	81	69	45	59	59	58	60	66	..	54.1
	Min	35	29	23	24	26	38	32	36	32	31	35	28	30	22	28	23	23	36	26	28	27	28	46	57	44	32	36	36	41	43	..	32.5
Algona	Max	47	42	41	53	60	57	57	47	38	51	45	45	45	57	52	42	54	51	46	42	52	70	70	61	52	61	61	67	72	77	..	53.8
	Min	32	27	18	35	38	31	40	32	3	31	33	30	37	34	29	20	24	33	22	33	27	38	37	43	38	30	29	35	38	42	..	32.0
Allerton	Max	52	49	48	55	57	66	56	51	35	56	53	45	53	55	51	45	54	58	54	45	50	71	77	68	63	60	63	67	72	75	..	56.8
	Min	34	28	24	26	39	36	45	30	32	28	39	29	30	27	34	24	26	35	25	31	27	41	52	55	39	35	33	35	40	50	..	34.3
Alta	Max	47	45	46	54	62	60	50	38	42	53	43	42	44	58	47	42	54	47	45	44	46	66	64	50	47	59	64	69	73	75	..	52.5
	Min	30	24	22	27	40	30	34	30	26	30	29	28	31	25	26	20	26	30	23	32	26	33	37	41	37	30	34	36	40	45	..	30.7
Amana	Max	47	43	44	52	57	57	62	54	38	51	47	45	45	55	46	44	53	58	49	47	57	65	79	70	65	61	63	67	73	73	..	55.6
	Min	38	31	24	25	38	38	36	34	32	33	39	29	34	25	34	23	23	35	26	32	26	42	52	54	39	37	34	36	37	43	..	34.3
Ames	Max	50	45	49	56	51	64	55	50	37	53	48	45	49	58	50	46	55	54	52	52	58	73	67	65	60	62	66	69	70	77	..	56.2
	Min	35	29	33	24	41	33	43	35	32	33	33	30	33	24	31	24	22	36	26	35	28	43	46	49	40	35	34	36	36	35	..	33.8
Atlantic	Max	55	50	49	57	60	68	55	41	47	60	51	49	51	60	52	48	57	60	46	39	46	72	76	58	52	62	68	70	73	77	..	57.6
	Min	32	28	20	26	41	26	37	29	31	31	36	30	28	20	33	20	29	29	25	32	30	41	52	47	40	35	27	29	34	33	..	31.7
Audubon	Max	53	49	66	57	62	68	56	40	45	56	49	46	46	59	52	46	57	56	46	45	49	71	72	59	49	60	67	71	75	76	..	56.8
	Min	33	24	21	22	39	26	32	29	30	32	35	31	28	23	31	22	22	33	27	34	30	46	49	47	36	26	22	28	29	32	..	30.6
Baxter	Max	50	47	47	55	58	62	56	52	37	55	50	45	48	56	42	46	53	56	52	50	58	73	74	56	63	62	65	70	72	78	..	56.3
	Min	34	27	20	24	38	29	40	34	32	30	37	27	30	24	24	20	24	34	22	34	25	42	49	52	39	34	32	35	40	42	..	32.5
Bedford	Max	55	50	47	57	55	64	57	41	44	60	55	55	47	57	50	45	56	60	49	43	47	71	76	61	61	60	66	67	6	74	..	56.6
	Min	33	29	21	26	40	35	39	28	31	32	38	28	30	24	34	23	26	34	29	33	29	40	53	53	39	37	32	34	36	38	..	33.5
Belknap	Max	50	45	46	60	60	60	60	40	36	50	47	45	50	55	38	50	50	52	50	48	48	70	80	73	44	65	60	70	70	70	..	54.7
	Min	38	31	27	28	45	41	43	36	33	32	35	30	33	32	32	27	32	38	30	32	29	45	50	57	40	39	38	38	45	43	..	36.6
Belle P.	Max	47	42	42	52	60	57	62	40	37	50	47	45	45	54	39	42	50	57	50	45	51	67	78	67	47	59	61	65	72	60	..	53.0
	Min	38	29	22	25	33	32	38	32	32	33	37	28	32	24	33	21	22	35	24	31	25	36	41	53	40	37	32	37	38	44	..	32.8
Bonapar'e	Max	52	49	45	53	56	63	63	53	38	55	53	45	46	52	44	45	53	62	61	46	59	72	83	72	60	59	63	67	73	77	..	57.0
	Min	37	30	25	25	38	40	37	30	32	31	39	39	30	24	33	25	25	37	25	36	26	42	51	56	38	37	34	37	39	46	..	34.9
Britt	Max	46	38	45	53	59	64	58	48	36	49	44	45	45	55	47	42	52	50	44	50	54	68	73	60	53	60	65	69	73	70	..	53.8
	Min	31	27	20	26	37	29	40	32	29	29	32	29	30	24	28	21	23	31	21	32	26	38	35	43	38	30	31	32	34	39	..	30.6
Burling'n	Max	51	50	48	57	58	65	65	55	39	55	54	47	43	53	47	45	53	61	53	48	59	69	83	73	66	59	64	69	75	76	..	58.0
	Min	40	31	27	29	40	42	41	31	32	32	40	31	34	26	35	26	29	35	30	33	27	43	57	57	40	41	35	40	43	49	..	36.5
Carroll	Max	52	49	48	56	68	64	55	41	52	57	40	48	51	59	35	46	54	56	51	44	52	68	60	54	47	63	71	73	74	78	..	55.5
	Min	30	23	20	24	36	32	41	30	29	29	33	30	31	22	30	19	21	30	23	23	26	34	37	44	36	31	33	29	47	40	..	30.6
Cedar R.	Max	46	40	46	52	59	61	64	49	38	52	47	44	44	55	42	46	53	58	59	47	57	65	80	71	49	61	64	71	75	75	..	55.4
	Min	39	31	25	25	29	39	39	40	33	33	33	30	34	30	31	23	25	28	28	29	25	27	41	55	43	40	35	37	40	43	..	33.7
Chariton	Max	52	48	48	55	58	64	55	50	36	55	49	45	50	55	50	45	53	58	50	45	52	71	78	68	62	59	62	67	72	75	..	56.2
	Min	34	28	23	25	38	35	43	32	32	28	39	28	29	25	34	24	27	36	26	31	28	42	52	53	38	35	34	35	40	42	..	33.9
Charles C.	Max	43	34	43	51	50	57	61	43	37	47	45	44	44	54	54	42	51	52	45	47	57	61	75	65	56	64	63	68	72	73	..	53.3
	Min	35	39	20	15	26	32	34	35	30	30	33	29	30	28	30	20	22	28	24	27	25	28	39	46	40	33	32	31	34	38	..	30.8
Clarinda	Max	56	53	51	58	57	68	53	39	44	63	52	49	58	60	43	48	58	62	50	40	50	74	75	60	44	62	68	71	73	73	..	57.1
	Min	34	29	23	27	28	35	35	27	28	31	3	30	30	24	27	23	25	30	30	34	33	38	49	53	42	36	32	35	37	39	..	32 6
Clear L.	Max	44	38	57	57	55	69	55	48	38	48	44	45	50	58	54	45	53	2	46	51	52	69	60	60	52	62	68	72	73	76	..	55.0
	Min	32	26	18	23	37	31	37	35	27	25	32	27	30	30	27	20	31	30	24	30	26	38	43	44	37	32	33	47	45	47	..	31.9
Clinton	Max	50	45	44	53	54	62	65	53	44	53	52	49	45	54	45	45	53	63	49	49	59	61	83	73	58	59	63	70	76	76	..	56.8
	Min	37	32	23	21	33	39	32	33	33	32	31	28	29	26	31	22	23	34	25	27	24	39	43	57	37	40	36	39	34	42	..	32.7
Col. Sprgs	Max	54	51	49	59	57	66	55	37	45	59	52	50	..	60	48	47	57	59	..	..	47	72	77	60	56	60	65	68	70	75	..	57.6
	Min	40	29	25	30	42	40	..	28	30	32	38	29	..	32	34	22	27	35	..	..	32	40	53	52	40	37	37	41	41	47	..	35.9
Colum. J.	Max	50	45	42	53	59	60	67	57	39	52	50	49	44	54	45	43	54	61	51	48	59	68	82	74	65	60	63	67	74	73	..	56 9
	Min	38	25	25	25	37	40	39	33	26	32	30	28	32	28	30	23	28	23	27	32	26	41	55	56	26	38	34	38	43	46	..	33.5
Corning	Max	54	45	45	55	55	63	52	40	44	57	51	48	51	56	50	44	55	53	45	56	45	70	75	59	58	58	61	69	68	71	..	55.3
	Min	33	28	23	24	41	32	37	28	31	33	39	30	29	24	33	23	27	35	27	31	28	40	50	52	38	36	32	34	37	38	..	33.1
Corydon	Max	54	44	49	56	57	67	59	51	36	58	58	47	54	57	50	50	55	61	54	45	51	72	78	67	62	62	67	70	73	77	..	58.0
	Min	29	22	18	22	35	33	45	31	32	28	41	28	30	26	35	24	27	35	25	31	28	42	55	55	40	35	35	37	42	44	..	33.7
Cresco	Max	39	40	42	48	50	55	60	53	35	45	46	43	44	48	46	44	47	51	44	46	54	55	60	64	67	..	70	71	72	73	..	52.1
	Min	18	19	20	25	30	32	35	34	30	35	32	27	26	38	28	20	20	25	31	19	27	35	36	25	31	..	35	35	36	37	..	29.0
Davenpo't	Max	48	43	42	52	56	60	61	51	42	50	50	46	42	50	45	45	49	60	49	45	56	64	80	72	53	59	62	69	74	73	..	54.9
	Min	37	32	26	29	38	42	40	32	33	34	37	31	33	31	32	24	30	38	31	30	27	42	57	53	37	40	35	41	43	50	..	36.2
Decorah	Max	42	34	48	52	52	57	60	50	37	48	44	46	57	50	47	43	49	53	47	52	57	53	70	70	57	65	68	73	77	74	..	54.4
	Min	32	28	21	26	47	43	31	32	30	30	37	28	38	39	28	21	23	32	23	23	27	39	47	48	40	33	31	32	35	33	..	32.4
Delaware	Max	42	39	42	49	55	55	61	52	37	49	45	45	43	52	43	45	49	57	46	44	57	58	79	69	59	61	63	67	73	72	..	53.6
	Min	34	26	20	20	32	37	32	32	28	30	33	25	28	24	31	19	23	31	24	26	21	37	48	53	45	36	32	35	38	43	..	31.3
Denison	Max	45	44	43	52	60	61	..	..	42	52	52	41	45	56	56	45	58	57	45	41	46	70	66	59	46	62	66	69	73	74	..	54.5
	Min	34	26	17	26	39	27	34	29	29	31	35	31	28	22	30	19	27	27	21	32	26	33	37	44	38	31	44	31	41	36	..	30.8
Des M.	Max	52	48	45	55	55	64	54	46	38	55	47	45	47	45	47	44	53	56	49	46	56	73	69	64	52	61	63	65	71	74	..	55.0
	Min	36	31	26	27	42	33	37	35	33	34	37	32	34	27	32	26	29	39	30	33	29	45	57	52	41	38	37	40	42	44	..	35.9
De Soto	Max	54	49	49	61	59	67	55	49	40	55	50	46	48	58	50	46	55	57	49	46	56	72	71	62	60	91	63	68	72	77	..	56.8
	Min	35	29	23	25	46	33	45	33	33	33	37	32	32	24	32	23	25	37	26	33	22	38	52	52	40	36	34	34	38	41	..	34.1
Dows	Max	46	42	44	53	54	57	55	49	36	50	45	43	43	55	54	42	51	52	46	47	54	70	71	63	56	61	62	67	72	74	..	53.8
	Min	33	27	21	25	39	27	41	34	29	30	34	27	31	24	28	18	23	33	21	32	25	38	38	45	38	33	32	35	35	42	..	31.3
Dubuque	Max	44	39	44	50	53	56	60	49	39	50	47	44	45	50	43	44	49	57	46	45	53	55	79	68	56	60	63	70	74	74	..	53 5
	Min	39	34	25	28	37	41	34	34	34	33	37	32	29	30	29	24	27	39	29	27	26	38	51	55	39	40	39	39	41	45	..	35,2
Earlham	Max	52	47	46	45	56	64	53	42	41	56	50	47	57	47	46	47	54	50	47	40	47	54	71	69	58	60	62	65	70	73	..	53,9
	Min	31	22	18	20	32	30	42	32	30	30	36	29	19	30	26	19	21	22	29	21	26	28	38	47	35	33	28	29	31	37	..	29.0
Elkader	Max	45	39	49	54	58	61	65	56	38	53	45	45	48	50	35	47	51	59	49	49	56	57	74	72	54	67	68	75	78	79	..	55.9
	Min	37	31	20	22	31	38	28	36	32	31	35	28	30	25	31	19	21	35	22	29	26	39	50	52	40	37	28	30	34	38	..	31.8
Esthervil.	Max	45	40	45	52	63	59	51	39	41	53	43	45	44	55	38	42	54	49	49	48	48	68	65	48	51	60	63	68	72	76	..	52.5
	Min	32	27	20	25	28	27	28	38	31	29	33	29	30	24	27	20	22	33	22	24	28	30	34	37	38	29	30	31	36	37	..	29 3
Fayette	Max	45	38	45	52	53	57	63	54	36	49	48	45	48	51	51	43	49	46	45	48	56	58	72	69	55	64	65	69	..	76	..	53 4
	Min	34	27	19	23	30	35	27	36	30	29	31	26	27	22	27	18	18	20	22	27	27	37	49	48	45	37	29	28	32	32	..	29.7
Florence		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....
Forest C'y	Max	43	38	46	52	57	60	55	42	40	49	43	43	44	54	34	43	51	51	46	49	53	71	86	60	52	63	65	69	74	78	..	53,7
	Min	33	27	21	26	29	30	32	39	29	29	32	29	30	24	28	21	24	31	23	26	26	29	38	44	38	33	32	39	40	47	..	31.0
Ft. Dodge	Max	47	42	46	54	59	62	56	44	40	51	43	43	45	57	40	46	53	52	48	49	54	73	66	59	54	60	64	70	72	76	..	54.2
	Min	33	28	21	22	29	28	33	36	31	31	32	30	31	25	28	22	22	32	25	27	28	29	39	42	39	33	31	32	39	40	..	30 6
Galva	Max	48	47	50	55	64	60	55	40	44	55	49	45	46	59	55	42	56	58	48	40	48	68	61	56	48	58	66	75	74	75	..	54.8
	Min	31	24	20	17	39	26	35	28	15	27	28	28	30	20	27	36	20	28	19	31	28	39	31	31	34	28	26	31	32	35	..	28.1
Glenw'd	Max	57	50	49	59	64	69	61	48	43	60	54	49	54	61	56	54	59	58	53	38	45	72	76	58	51	60	75	67	71	73	..	58.1
	Min	33	28	24	31	46	34	37	27	30	33	39	28	32	29	34	22	31	39	32	32	34	38	50	46	40	35	35	41	42	45	..	34.9
Grand M.	Max	43	37	42	49	53	55	61	49	34	48	44	45	46	50	42	42	48	52	45	45	53	54	70	66	55	61	64	68	72	73	..	52.2
	Min	35	..	21	25	35	36	33	34	31	29	35	37	27	27	28	19	24	28	23	26	24	37	47	49	37	35	32	38	40	43	..	32.2
Greenfi'ld	Max	54	48	48	57	61	66	58	44	42	57	52	51	50	60	50	42	57	58	50	42	49	70	74	61	58	58	64	69	72	75	..	55.6
	Min	32	25	21	23	40	33	40	28	31	32	33	29	30	23	32	21	24	32	23	32	32	40	50	48	38	33	35	35	37	43	..	32.5
Grinnell	Max	48	45	48	52	56	56	59	53	37	51	47	43	44	53	48	42	50	54	48	45	56	70	73	67	60	60	60	64	79	72	..	54.2
	Min	35	29	28	27	38	35	40	34	32	32	39	28	33	29	32	21	27	36	25	33	25	42	50	53	39	36	36	39	46	48	..	34.9
Grundy C	Max	45	42	44	52	55	58	60	50	40	52	47	44	47	54	48	45	52	59	50	49	57	71	73	67	61	64	64	68	74	75	..	55.6
	Min	34	28	20	25	37	29	37	34	31	31	32	26	31	24	32	18	24	31	21	32	24	39	46	49	40	34	34	34	37	42	..	31.9
Guthrie C	Max	60	55	51	60	64	67	74	52	50	52	65	58	51	61	61	55	60	61	56	50	59	78	82	66	64	63	65	70	75	81	..	62.2
	Min	33	27	20	24	42	29	41	32	32	32	36	32	31	23	32	22	25	34	25	32	29	44	50	43	39	33	30	29	34	36	..	32,4
Hampton	Max	44	39	49	55	52	63	52	48	37	50	44	42	51	56	47	47	53	53	52	51	54	71	75	68	56	66	70	72	77	80	..	55.8
	Min	34	29	21	27	38	32	39	34	30	31	34	29	32	27	30	21	25	34	24	32	25	39	43	46	40	33	30	35	41	45	..	32.7
Hanlont'n	Max	43	38	44	51	53	57	54	48	37	43	43	43	42	51	49	40	50	48	42	46	51	68	65	60	52	60	61	67	72	71	..	51.8
	Min	33	27	21	28	38	32	37	32	29	30	33	39	28	26	28	31	25	31	33	29	26	37	37	44	37	32	30	32	33	33	...	31.5
Harlan	Max	52	47	47	58	67	67	57	40	45	57	53	46	48	59	51	48	56	55	46	39	45	70	66	58	50	60	66	68	71	74	..	55,5
	Min	33	26	20	25	37	31	35	29	30	31	36	32	31	22	33	20	25	33	26	32	30	39	42	45	38	32	31	32	34	37	..	31.6
Hopeville	Max	53	49	48	56	56	68	56	40	40	57	49	45	50	56	45	45	55	58	47	35	47	70	75	64	60	59	61	68	72	75	..	55.3
	Min	34	29	24	27	39	34	39	29	31	31	39	30	32	27	29	23	28	34	27	30	27	42	51	54	40	37	37	40	42	45	..	34,6
Humboldt	Max	48	43	46	54	62	60	57	48	40	52	50	45	45	58	53	43	55	52	48	50	56	70	66	62	54	60	64	70	74	76	..	55.4
	Min	32	28	18	26	40	30	42	35	31	32	35	30	32	24	30	20	25	34	22	35	29	42	46	46	40	30	30	32	34	40	..	32.0
Ida Grove	Max	40	49	60	56	64	65	61	41	45	54	53	45	45	60	57	42	45	58	48	44	47	69	65	60	51	59	65	61	74	74	..	55.2
	Min	33	27	24	19	41	28	38	31	29	31	35	30	34	23	29	21	22	28	24	33	30	41	36	44	39	32	28	32	37	41	..	31.3
Independ.	Max	43	37	44	51	57	57	62	55	36	48	44	43	44	51	47	42	48	57	46	47	54	69	75	69	62	62	64	67	72	72	..	53.9
	Min	36	28	20	23	24	32	35	34	31	31	35	28	29	24	31	19	21	30	22	29	23	38	48	51	39	35	32	37	39	42	..	31.5
Indianola	Max	53	50	47	57	57	65	55	50	48	49	50	46	49	58	46	46	54	59	50	46	56	72

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR APRIL, 1904—CONTINUED.

STATIONS.		DATE.																															MEAN.
		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	
Iowa City	Max..	48	45	48	55	59	60	65	38	38	53	49	46	48	55	42	46	63	59	59	51	61	68	82	73	46	62	61	71	75	77	..	56.4
	Min .	40	32	24	25	28	37	35	38	33	33	34	28	25	25	28	23	23	29	26	26	26	27	42	55	41	31	34	36	38	45	..	32 2
Iowa Falls	Max..	45	39	45	53	53	59	55	43	36	49	45	43	44	55	33	43	52	51	48	50	57	70	73	64	54	62	65	70	73	74	..	53 4
	Min ..	34	28	22	23	39	28	38	41	31	31	34	28	31	24	31	22	24	33	23	30	25	38	43	46	41	33	30	32	34	38	..	31 8
Keokuk..	Max..	51	49	44	55	55	62	61	50	40	54	52	44	45	52	47	42	52	60	50	44	57	70	81	69	60	58	62	66	72	75	..	56.0
	Min ..	41	38	29	29	40	42	43	31	31	33	39	33	35	30	36	28	30	42	32	35	29	45	59	59	42	41	33	41	44	51	..	38.0
Keosa'qua	Max..	53	50	47	55	57	65	62	36	39	57	55	48	48	55	45	45	55	62	53	47	59	74	83	71	43	61	63	67	75	78	..	56.9
	Min ..	34	31	28	24	30	38	41	34	30	33	37	32	29	22	40	26	23	38	27	32	28	32	41	57	43	40	33	35	37	40	..	34.0
Larrabee.	Max..	48	46	47	58	67	63	52	41	45	57	46	47	48	62	51	46	58	53	48	48	47	68	65	54	49	60	68	71	77	79	..	55.7
	Min ..	30	22	19	25	36	26	34	31	28	29	32	26	30	23	28	17	25	29	20	30	28	39	32	41	38	29	31	33	37	40	..	29.6
LeMars ..	Max..	50	48	50	52	65	66	57	50	45	55	50	45	47	65	63	45	60	53	44	41	41	66	82	55	48	60	67	70	73	76	..	55.6
	Min ..	31	24	18	28	37	26	35	30	27	29	33	27	31	23	27	17	27	31	20	31	32	39	32	39	38	28	26	36	35	38	..	29.8
Lenox....	Max..	53	49	45	58	57	67	56	42	44	57	52	46	51	58	57	43	56	58	48	39	46	72	78	60	59	58	62	67	71	73	..	56.1
	Min ..	32	27	23	26	40	32	40	27	30	32	38	29	29	27	33	22	26	33	28	32	28	40	50	52	38	35	37	37	41	45	..	33.6
Leon.....	Max..	52	48	46	56	57	64	67	51	37	54	53	46	52	55	56	44	54	57	55	40	45	70	78	65	62	59	61	66	70	72	..	56.4
	Min ..	34	29	24	26	37	35	46	28	32	30	38	30	31	27	34	24	26	37	28	32	27	41	53	54	40	37	37	40	41	45	..	34.8
Logan....	Max..	57	54	52	60	70	71	60	40	50	71	60	58	56	68	56	68	56	42	60	58	48	40	65	56	47	65	70	73	75	78	..	59.5
	Min ..	32	28	22	27	31	40	35	27	30	40	28	43	31	22	31	22	31	32	35	35	28	33	37	43	40	32	27	36	37	38	..	32.4
Maquo'ta.	Max..	48	45	47	52	58	62	61	47	43	53	50	50	45	52	43	47	49	61	50	47	56	60	80	73	41	62	65	71	76	76	..	55.7
	Min .	39	32	22	22	24	35	28	37	32	32	35	28	31	25	31	20	20	31	24	27	23	29	38	55	37	37	31	33	32	38	..	30.9
Marshlt'n	Max..	47	46	47	56	59	60	60	45	39	54	48	45	48	56	39	46	53	57	50	50	59	69	77	68	51	64	65	69	75	77	..	55.9
	Min .	36	28	21	20	29	32	32	43	32	32	37	28	32	25	28	21	21	31	25	25	26	29	42	50	43	35	31	33	36	41	..	31.5
Mason C..	Max..	44	38	45	52	50	58	52	48	36	48	43	43	44	52	48	46	52	51	45	51	52	62	63	60	56	61	62	68	73	75	..	52.6
	Min ..	36	30	23	28	38	34	40	36	30	30	35	29	30	28	30	28	28	35	27	33	32	40	43	46	38	35	34	36	41	43	..	33.9
Mt. Ayr..	Max..	57	52	53	60	56	71	54	43	46	60	54	48	53	60	50	49	52	61	51	41	47	71	76	60	62	60	67	71	74	78	..	57.9
	Min ..	33	29	24	26	40	34	39	27	31	52	38	30	31	28	33	23	27	36	29	31	27	40	51	52	39	36	38	41	42	49	..	34.5
Mt. Pl'snt	Max	51	48	43	53	59	60	65	55	38	54	54	49	52	54	48	47	52	60	52	47	50	70	85	74	65	59	63	66	72	76	..	57.7
	Min .	37	30	25	26	37	40	37	30	30	31	37	29	27	25	33	23	25	36	26	31	25	42	55	56	39	38	33	36	40	47	..	34.2
Mt. Ver'n	Max.	44	40	55	56	63	65	68	54	38	55	42	49	52	55	42	53	54	57	56	54	61	68	76	74	66	69	72	82	82	84	..	59.4
	Min	36	28	22	24	36	38	37	31	30	31	35	27	31	24	33	19	24	34	24	28	28	39	53	64	43	36	34	36	48	48	..	33.9
New H. ..	Max..	46	39	44	50	51	55	51	51	36	47	46	44	45	50	46	42	48	52	46	48	54	57	53	66	58	64	66	68	71	74	..	52.3
	Min ..	33	27	18	23	32	32	35	33	29	28	32	26	26	26	27	29	23	28	23	26	22	35	43	44	38	33	30	36	45	40	..	30.7
Newton..	Max..	49	46	45	55	57	55	60	55	39	53	49	43	47	52	49	45	55	54	52	48	58	71	73	65	63	61	64	65	73	76	..	55.9
	Min ..	34	28	21	21	33	34	32	33	31	30	37	27	33	25	33	21	28	34	24	33	21	43	49	51	38	33	33	37	38	43	..	32.6
Northw'd	Max..	42	37	50	52	55	59	58	48	39	46	44	45	46	51	46	49	57	50	45	50	52	60	68	60	56	64	77	71	72	76	..	54.2
	Min ..	34	27	22	25	38	34	37	32	28	30	33	28	27	26	28	22	25	31	27	29	25	45	47	45	37	32	32	55	33	41	..	32.5
Odebolt ..	Max..	52	46	49	51	64	66	60	40	45	55	58	45	48	60	57	46	57	55	49	45	50	71	65	60	58	62	70	72	75	79	..	57.0
	Min .	35	25	21	25	26	26	35	30	29	30	34	30	31	23	29	18	25	30	23	32	29	40	35	34	38	30	31	30	35	40	..	30.0
Olin	Max..	..	41	42	48	55	57	62	65	45	50	52	41	42	52	46	42	48	57	47	44	54	62	79	71	63	58	61	66	70	71	..	54.9
	Min ..	..	31	23	24	35	40	35	35	32	33	37	24	30	25	33	22	23	33	25	28	24	39	50	55	37	38	33	36	36	44	..	33.1
Omaha, N	Max..	56	49	50	57	66	68	51	37	44	58	50	47	51	61	53	45	60	56	46	39	45	72	63	53	44	61	67	66	72	73	..	55.4
	Min ..	34	32	29	34	45	38	32	28	28	36	37	32	36	33	33	24	32	40	34	34	34	40	44	43	39	37	38	45	47	50	..	36.3
Onawa....	Max..	57	53	55	56	68	68	61	38	47	59	56	53	55	65	60	53	64	60	53	43	42	73	69	58	46	68	71	73	78	81	..	59.5
	Min ..	31	26	23	28	40	30	35	28	27	31	34	29	35	26	32	19	29	32	27	32	32	39	37	44	40	30	31	36	38	41	..	32.1
Osage.....	Max..	43	38	46	52	50	57	59	48	36	46	43	41	45	50	46	42	49	51	48	49	54	60	68	63	56	62	66	70	72	76	..	52.9
	Min .	35	28	21	25	38	33	35	35	30	31	34	29	29	29	28	21	23	30	24	29	25	37	39	45	37	33	31	35	38	43	..	31.7
Osceola ..	Max..	52	60	50	57	57	69	54	51	52	52	52	46	54	58	51	50	57	59	50	40	50	71	80	64	47	60	61	67	72	74	..	57.2
	Min ..	33	27	30	20	30	36	36	36	31	30	42	30	32	25	31	22	30	37	26	30	29	30	46	54	44	33	35	39	41	44	..	33.6
Oskaloosa	Max..	52	49	47	55	67	62	60	54	38	54	50	44	47	56	46	43	54	59	53	48	59	74	75	70	64	59	61	66	73	75	..	57.1
	Min ..	36	29	24	26	39	36	40	34	33	32	41	28	31	26	33	22	23	36	26	34	27	44	53	54	39	33	35	36	38	43	..	34.4
Ottumwa	Max..	53	45	50	56	57	66	59	42	39	56	51	44	50	56	43	48	56	60	56	51	60	68	84	73	46	64	76	70	78	79	..	57.7
	Min ..	38	32	28	29	33	42	50	36	33	36	41	30	32	30	38	25	33	44	29	35	28	44	53	58	42	38	43	44	46	45	..	37.8
Pacific J'n	Max..	55	50	50	58	63	68	58	35	47	58	52	48	55	62	53	45	44	58	49	41	45	71	74	58	47	60	65	68	72	74	..	56.6
	Min ..	32	26	23	28	43	31	35	29	29	30	36	24	34	24	34	22	26	32	32	33	33	39	46	47	37	33	31	36	36	42	..	35.8
Perry.....	Max .	52	45	46	56	59	63	55	47	40	54	48	40	48	61	50	45	57	55	50	48	58	73	72	63	57	61	63	68	74	78	..	56.2
	Min ..	33	28	23	26	41	30	44	34	33	33	37	31	33	26	32	23	26	35	25	34	29	44	44	50	40	34	32	35	39	42	..	33.8
Plover....	Max .	47	41	47	48	65	58	55	40	40	50	40	45	48	58	35	42	53	50	43	48	47	67	69	55	50	58	63	70	74	77	..	52.8
	Min ..	31	24	23	22	37	33	36	31	29	29	29	28	31	24	26	20	25	31	20	31	25	40	35	44	38	31	31	35	35	42	..	30.5
Primghar	Max..	46	42	45	55	63	62	52	40	53	53	50	45	44	60	56	43	57	49	45	44	48	61	62	50	43	48	64	68	74	75	..	53.2
	Min ..	..	24	20	25	35	26	37	30	34	23	13	26	31	25	21	19	24	30	32	27	24	34	34	44	37	30	31	33	36	44	.	29.3
Red Oak..	Max..	51	48	46	49	58	62	58	39	48	54	53	45	52	45	45	44	53	56	54	42	47	68	73	59	56	57	63	65	68	71	..	54.3
	Min ..	34	32	29	33	45	34	37	30	31	35	38	32	37	30	36	27	32	38	32	35	34	44	53	52	40	37	36	38	43	44	..	36.6
Ridgeway	Max..	48	39	49	55	55	62	65	50	39	51	46	48	53	60	50	44	53	60	51	49	52	70	76	62	60	62	66	71	77	77	..	57.4
	Min ..	35	28	19	25	37	36	36	36	32	29	34	27	28	28	28	21	25	33	23	27	24	37	45	46	38	33	32	37	45	43	..	32.1
Rockw'l C	Max..	47	47	45	55	64	60	55	45	41	54	48	45	45	56	50	45	45	53	50	48	55	70	65	58	48	60	65	68	78	78	..	54.8
	Min ..	37	34	23	25	36	29	40	32	31	32	34	31	34	28	25	23	24	33	24	24	29	43	41	44	38	31	33	38	38	45	..	32.7
Sac City..	Max..	49	46	47	55	65	61	54	40	44	53	47	45	45	60	52	44	57	52	47	47	50	70	65	57	47	61	59	69	75	75	..	54.6
	Min ..	32	26	22	24	37	30	36	31	30	31	34	31	33	25	29	21	26	32	25	31	27	41	38	44	38	31	33	34	36	43	..	31.7
St. Cha'les	Max	54	54	47	58	55	66	54	47	36	58	49	47	49	59	48	46	54	59	50	41	54	72	70	63	58	61	61	67	73	75	..	56.2
	Min ..	34	29	23	25	40	36	44	32	32	32	40	30	33	27	31	22	29	36	26	32	28	42	53	53	40	35	36	38	45	47	..	35.0
Sibley	Max..	47	43	47	36	63	61	50	39	42	52	41	43	44	61	37	43	57	49	45	44	45	62	62	44	48	59	65	68	73	78	..	51.6
	Min ..	32	26	20	27	32	25	25	34	27	26	32	27	27	24	25	20	21	31	23	25	28	30	34	35	37	32	32	31	34	38	..	28.7
Sigourn'y	Max..	50	51	46	54	60	61	62	53	39	55	50	47	49	54	49	49	56	59	56	51	61	72	82	86	60	61	66	70	78	80	..	58.9
	Min .	36	26	23	25	38	37	38	33	32	33	40	28	32	24	32	22	23	35	25	33	25	48	52	54	39	36	33	37	41	48	..	34.3
Sioux C'y.	Max..	51	49	49	56	65	66	51	39	44	55	47	47	48	65	55	45	63	54	43	40	44	69	60	53	47	59	67	68	72	75	..	54.9
	Min ..	33	27	23	33	40	31	30	29	27	34	36	29	35	25	29	20	32	32	24	33	32	40	36	41	41	31	34	44	44	40	..	32.8
Sioux C'r.	Max..	45	45	48	54	64	64	55	39	44	58	47	45	45	64	59	44	60	53	45	41	40	63	60	56	47	57	66	70	73	76	..	54.2
	Min ..	31	24	21	26	37	25	36	27	27	30	22	26	32	23	27	18	22	23	22	32	29	39	38	39	38	31	35	35	35	42	..	29.6
Spirit L..	Max	..	..	..	58	62	58	50	45	40	52	55	43	51	60	61	46	55	40	42	49	56	75	75	50	48	59	69	74	76	80	..	56.4
	Min ..	..	..	..	42	35	39	38	34	28	30	35	29	21	25	26	21	26	32	33	32	38	45	35	41	32	32	33	34	39	40	..	33.1
Storm L..	Max..	47	44	45	53	63	59	50	40	43	52	43	43	45	57	37	42	54	51	45	45	47	64	65	51	47	60	63	67	71	74	..	52.3
	Min ..	33	25	21	24	30	30	32	30	29	29	33	29	29	24	29	19	26	32	22	27	28	28	35	41	38	29	29	34	41	44	..	30.0
Stuart ...	Max..	49	49	44	55	58	63	63	49	48	53	54	42	46	57	56	44	53	54	51	45	52	70	75	61	61	60	62	65	72	75	..	56.2
	Min .	46	43	42	41	42	34	37	29	32	34	35	32	34	39	35	25	29	37	29	38	31	43	30	50	41	..	53	36	34	45	..	37.1
Thurman	Max..	55	50	42	56	52	58	59	36	42	58	55	47	54	59	53	45	59	51	48	44	71	76	57	50	60	66	67	70	74	74	..	55.2
	Min ..	34	27	26	33	44	32	36	28	29	31	38	31	34	23	35	24	24	37	33	34	33	38	52	50	40	36	32	36	39	39	..	34.3
Tipton....	Max..	46	44	48	51	58	63	62	55	40	55	50	50	46	54	45	50	52	63	55	51	59	63	78	72	65	64	68	72	76	77	..	57.7
	Min	37	29	24	26	36	40	37	32	31	31	32	29	32	28	34	23	26	35	27	29	25	38	57	55	38	37	36	39	44	49	..	34.5
Toledo....	Max..	47	45	46	54	60	60	62	51	39	54	48	46	57	59	48	48	53	59	51	50	59	72	78	70	62	63	64	68	74	78	..	57.5
	Min ..	37	29	22	25	38	30	39	34	32	32	38	28	33	22	32	20	20	35	23	33	25	41	49	53	59	36	31	33	35	40	..	32.8
Vinton. ..	Max..	46	42	47	52	57	60	62	57	38	52	47	45	46	54	47	45	54	..	57	48	57	64	78	71	68	64	65	70	74	76	..	56.7
	Min ..	37	29	22	26	37	34	34	35	33	32	38	28	32	27	33	22	21	..	28	31	25	40	52	52	40	38	32	34	38	42	..	33.5
Wapello..	Max.	57	49	47	52	56	65	63	55	39	55	52	49	45	56	45	49	63	54	..	..	58	65	79	74	64	62	66	71	77	77	..	58.6
	Min ..	42	31	27	28	38	43	38	32	32	39	54	58	47	47	54	45	45	53	61	51	48	59	69	81	73	63	62	64	68	74	77	..	57.5
Washi'ton	Max..	48	47	45	54	57	62	68	52	39	51	46	48	53	61	51	48	59	69	81	73	63	62	64	68	74	77	..	35.1
	Min .	37	30	25	27	39	40	39	34	31	32	39	29	30	26	33	22	26	36	25	33	26	42	56	56	41	38	33	37	43	47	..	54 0
Waterloo	Max	45	39	45	52	55	58	61	45	40	52	47	45	45	53	36	45	50	57	48	48	56	63	70	68	53	64	65	68	73	74	..	32 4
	Min ..	36	29	21	24	29	31	36	42	31	31	38	27	31	26	34	19	24	34	24	31	25	35	42	50	42	36	31	36	37	42	..	58.7
Waukee..	Max..	54	50	53	59	58	70	59	50	37	55	48	48	52	61	49	53	58	58	50	49	57	75	71	64	60	66	67	70	79	80	..	33.8
	Min ..	33	28	22	22	41	29	44	33	32	32	32	30	33	21	30	21	28	36	26	33	27	44	54	51	39	35	34	39	41	44	.	54.3
Waverly..	Max..	43	34	45	54	54	57	62	52	38	49	46	45	45	55	48	44	51	54	47	49	55	62	73	68	60	63	64	67	73	73	..	32.9
	Min ..	35	28	21	36	39	32	38	36	32	28	36	29	32	21	30	21	23	33	25	31	26	39	44	49	41	35	31	35	37	43	..	53.9
W.Bend..	Max.	48	42	45	53	61	58	56	48	40	52	46	46	44	57	42	43	53	51	48	49	51	69	69	58	50	58	63	68	72	76	..	32.5
	Min .	34	27	21	26	38	31	40	32	31	32	36	31	32	25	33	20	28	33	22	34	28	40	39	44	38	31	32	33	40	45	..	55.2
Whitten..	Max..	48	44	43	53	58	58	60	51	36	50	48	43	45	55	47	43	53	54	49	48	57	71	71	66	64	62	63	69	73	75	..	31.6
	Min .	34	27	20	22	38	29	39	33	30	30	34	25	32	24	30	19	21	32	22	32	24	41	41	48	39	33	33	35	39	43	..	57.0
Wilton J.	Max..	49	44	44	59	51	61	65	52	42	52	50	49	44	54	45	45	51	62	53	47	58	66	81	74	66	65	63	68	75	74	..	34.2
	Min .	39	30	24	24	35	40	44	34	31	32	40	29	32	26	34	21	23	34	25	29	24	42	53	57	38	37	31	36	37	44	..	57.8
W int'rset	Max..	55	49	48	57	60	68	60	49	40	58	53	48	49	60	52	48	57	60	50	45	53	72	70	64	60	61	65	69	79	76	..	33.6
	Min ..	33	26	20	21	38	34	45	32	31	30	38	30	30	25	33	22	28	38	22	32	28	45	53	51	38	35	32	35	38	45	..	33.6
Zearing...	Max..	44	43	45	52	53	58	55	50	35	50	47	43	45	54	51	43	51	53	48	48	57	71	67	64	58	60	63	67	71	79	..	54.2
	Min ..	34	28	21	26	38	30	37	34	31	31	35	29	31	25	31	20	25	32	24	33	24	41	45	48	39	34	34	39	39	43	..	32.7
.. ..	..	..	..	..

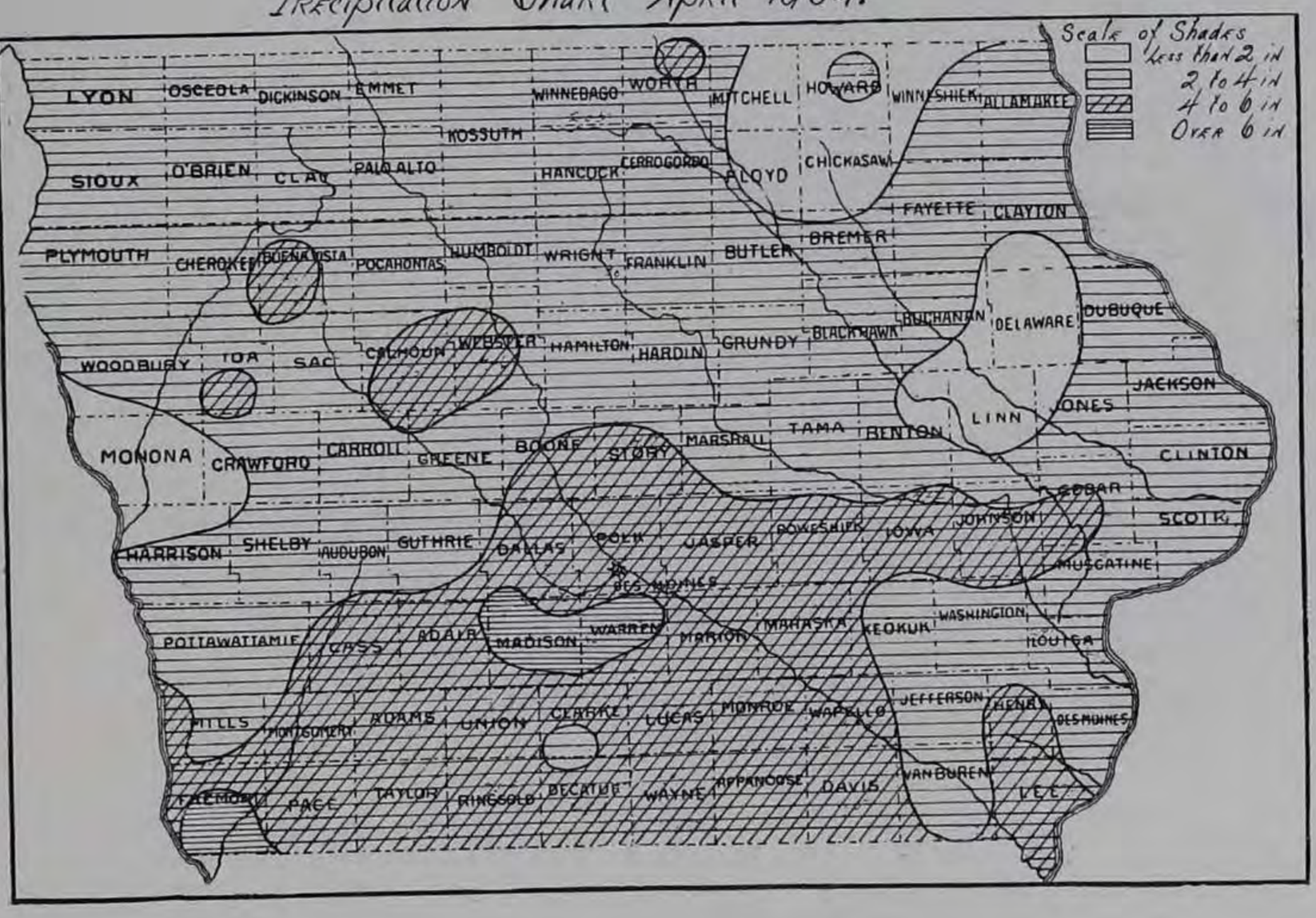
DAILY AND MONTHLY PRECIPITATION FOR APRIL, 1904.

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					.05		.61	.88											.16	1.01			1.44	.10	1.36							5.61
Albia	.05				.27	.06		1.55	.30				T							.15		.23		.15	1.83	.67						5.26
Algona							.28	.77	.08				T								.12	.29	.15	.50								2.14
Allerton					.28	T	.42	1.50	.03		T	T							T	1.12		.15	T	.14	1.10	T						4.74
Alta							1.17	1.15					.01						.01			2.07	.03									4.44
Alta (near)							1.08	.92				.01							.03		1.97		.05									4.06
Amana					.07		T	.79	T		.03		.01									.30	.86	.14	2.02							4.22
Ames							.37	1.35	.10		.01						T					.07	2.21	.08								4.19
Atlantic				T			.42	.66												.60	.38		.91		1.38							4.35
Aububon							.63	1.00	.09										.08	.20	T	.41	.25	.17	.61							3.44
Baxter							.28	.95															2.50	.15	1.15							5.03
Bedford	.01			.20	T		.35	1.10	T											.92	.25		1.45	.03	1.25							5.62
Belknap					.10		.10	1.44					T							T		.45		.17	2.25							4.51
Belle Plaine					.15		.12	.11	.05													.26	.85		1.60							3.14
Bonaparte	.04							.64	T				T									.41		.27	2.00							3.36
Britt							.31	1.45	.27				.05								T	.40	.08	.49								3.05
Buckingham							1.13	.73	T		T											.27	1.15		T							3.28
Burlington	05							1.13	.06		T		T		T							.32	.12	.45	1.12	.03						3.28
Carroll					T		.64	.51	.68											.10		.65	.85								3.43
Cedar Rapids	.02				.02			.60	.16	T		T	T									.18	T	.21	.20	.46						1.85
Chariton					.10	T	.70	2.10	T		T									.55		.16	T	T	1.05							4.66
Charles City					T			.35	.50				.10									.20		.80								1.95
Clarinda					08		10	.23	.40											.77		.50		1.25	1.25	.31						4.89
Clear Lake							.3	.75	.25		T											.25		.60								2.15
Clinton									1.05		.09		.06									.42	.99	.34	.45							3.40
College Springs				3			.20	.5	05											1.00	.02	.76	1.00	.20	.70							4.74
Columbus Junct'n								.77	T		T		T		T							.45	T	.14	1.55							2.91
Corning				T	.02		.40	.62	.05			T							T	1.06		.11	1.48	.09	1 32							5.15
Corydon					.25		.56	1.60	T		T	T								.93			T	.27	1 07							4.68
Cresco							.70		1.00				.75											.50								2.95
Cumberland							.86	.54												.67			.92		1.11							4.10
Davenport						T		.49	.10		T	T	T									.44	.03	.17	.82	T						2.05
Decorah								1.10					.04									51	.48	.03								2.16
Delaware					.19			.75			.02		.08									.26	.50	.13								1.93
Denison							.65	.85	.01										T	.36	.10	.21	.02									2.20
Des Moines					T		.60	1.17	.08		T		.01							.02		.12	1.50	.19	1.79							5.48
De Soto							.41	1.78	.18										T	.14		.23	1.07	.30	1.45							5.56
Dows							.26	.90	.12		T		.03									23	.05	.71								2.30
Dubuque	T				.06			.69	T		.01	.01	.18		T							.49	.0	60								2.05
Earlham	T						.40	1.39	.18	T	T									.62		.03	2.82		2.20							7.64
Elkader								.85					.03									.26	.07	.31								1.52
Estherville					T		.28	.45	1.60		T	.03	.04		.06							.86	.02									3.34
Fayette					T			.85	.02		T	T	.08									.40	.85	.13								2.33
Florence							.25	1.25	.10				.01									.17	.01	.72								2.51
Forest City								.51	.68				T									.60		.56								2.35
Fort Dodge							.04	1.00	1.40		.02											.20		2.00								4.66
Fort Madison								1.06							T							.48	.48		2.27							4.29
Galva							.75	1.00							T					.19	1.23	.43		.03								3.63
Gilman					T		.07	.92			T											T	1.05	.43	1.46							3.93
Glenwood							.25	.20												.60	T		.30	.15	2.00							3.50
Grand Meadow								1.00	.03		.05		.07									.28	1.35									2.78
Greenfield					.03	.04	.50	1.08	.10	T	T		T		T				.03	.63		14	1.3	.16	1 25							5 28
Grinnell					.12		.06	1.00			.03		.02									.20	1.50		3 00							5.93
Grundy Center						T	.18	.78	.04		T		T									.15	.27	.86								2.28
Guthrie Center					.02	.02	.43	1.09	.15											.40		.15	.46	.18	.82							3.72
Hampton							.85	.45				.06									.25		.98									2.59
Hanlontown							.20	.80	1.00				1.75									.40	.10	.23								4.48
Harlan				T	T		.90	.75	.08		T	T							.07	37	T	.42	.19	T	.42							3.20
Hopeville					.18		.71	1.03	04	T									.14	.52		.17	.49	.01	.61							3.90
Humboldt							.35	1.05	.18													.51		1.36								3.45
Ida Grove								1.92	T										T	.35	1.70			.38								4.35
Independence					.10			.90	T		.05		20									.25	.20	.45								2.15
Indianola					.12		.61	.10	.05			T								.20		1.20	2.83	.19	2.68							7.98
Inwood							1.00	39											.35		.55	.11									2.40
Iowa City	.04				T	T		.74	.05	T		.03	.02									.46	T	1.74	1.79	.62						5.49
Iowa Falls	T						T	.88	.46	T		.01	.02				T		T			22	T	.81								2.40
Jefferson								1.70	.05				.03									.20	1.40		.07							3 45
Keokuk	.02						T	.87	.01				.04		T							.36	.03	.93	2.80	.05						5.11
Keosauqua	.13							.64	.24				T	.08								.10		.27	1.85	.55						3.86
Knoxville					.10		.35	1.50	T		T											.14	1.41	.14	1.90							5.54
Lacona					.22		60	.98												18		.25	.25	.07	1.57							4.12
Larrabee							.15	.1			T		.75		.70					.10	1.25											3.12
Le Claire	.39							.71	.18			T	T	T								T	.41	.29	.38	.07							2.43
LeMars							.70	.50											.15	.25	1.90											3.50
Lenox				.07	.07		.32	50											.03	1.05		.14	1.69	.10	.97							4.94
Leon					.33		.58	2.00			.06								.06	1.08		.04	.08		.74	.04							5.01
Logan							82											.08	.47	.32			.88		.38							2.95
Maquoketa	.05						.80	.20			.06	.04										T	.85	.65	.12	.22							2.99
Marshalltown	.02				.03			.88	.15				.02									.08		2.05	.87							3.60
Mason City							.20	.70	.20				.10									.45	.07	.60								2.32
Mount Ayr				T	.25		.65	.75	.10		T								.05	.90		.12	.50	.05	1.15							4.52
Mt. Pleasant								.92	T	T												.59	.08	.26	2.26	.03						4.14
Mt. Vernon	.04							80			.04		.04									.35	.73	.13	.84							2.97
New Hampton								.73	.05		.04	T										.31	.05	.72								1.90
Newton					.08		.21	.95					.06										1.07		2 50							4.87
Northwood							.26	.80	.30		T		.16		.05							.43	.10	.05								2.15
Odebolt							.97	1.13											.27	.62	.42	.30										3.71
Olin								1.00			.01											.45	.50	.20								2.16
Omaha, Neb				.04	T		.75	30	0		T	T			T				T	.50	T	.30	.20	.10	1.00							3.20
Onawa				T			.40	.75	T										.03	.18	.25	.17	.04									1.82
Osage							.05	.76	.14		.02		.12									.45		.33									1.87
Osceola					T	T	T	1.60	.60											.35		.07		.36	58	.55						4.11
Oskaloosa					.15		.05	.59			T		.07									.25	.22		2 78							4.11
Ottumwa					.12			.71					.10										.40		3.09							4.42
Pacific Junction				.10			.72	.45											T	1.00	T	.64	.16	.29	2.00							5.36
Perry					T		.60	1.45											T		T		2.15		1.24							5.44
Plover							.45	1.10													.21	.34		1.69								3.79
Primghar				T			.80	.68			T									.40	1.10										2.98
Red Oak	T			T	.12		.30	.54	.05										T	1.24	T	.50	.90		1.02							4.67
Ridgeway	T				.02			.66	.10		.04	T	.0	.05	T							.30	.25	.31	.01							1.77
Rockwell City							.90	1.25														.70	1.25	.25								4 35
Ruthven																																
Sac City				T			.78	1.08		T										T	.95			.12	.07							3.00
Sibley							.45	.34	.11		T	T										1.06	.06	.02								2.04
St. Charles					.05		.71	2.25	.15		.01								.03	.40	T	.14	2.84	.16	2.23							8.97
Sigourney					T		T	.52	T		T		.05								.23		.01		3.11							3.92

DAILY AND MONTHLY PRECIPITATION FOR APRIL, 1904--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 Center	....	....	....	....	....	....	.85	.05	...	....	T	....	....	....	....	....	...	....	T	.20	1.00	.22	..	....	....	....	....	....	....	....	....	2.32
Sioux City	....	....	....	T	....	....	.65	.34	....	....	T		....	....	T	....	....	....	.05	.25	.78	.25		....	....	....	....	....	....	..	....	2.32
Spirit Lake	....	....	....	....	....	....	.50	1.40	....	....	....	....	....	....	....	....	....	....	....	....	.17	....	T	....	....	....	....	....	....	..	....	2.07
Stockport	....	....	....	.	....	...	T	.75	....	....	....	....	.08	....	....	....	....	....	....	T	....	.22	.24	.06	1 75	....	....	....	....	....	....	3.10
Storm Lake	....	.	....	....	....	...	.60	.55	.84	....	.	....	....	....	....	....	.	....	....	.52	....	1.20		.07	....	....	..	....	....	..	....	3.26
Stuart	....	....	....			...	.42	1.35	.20	....	....	....	....	....	....	....	....	....	....	....	....	....	1.20	.68	1.52	....	....	..	....	....	...	5.89
Thurman	..	....	....	.10	....	...	.21	.72	.02	..	..	....	T	....	....	....	....	....	T	.71	.08	.64	.74	.53	2.35	....		....		....	..	6 10
Tipton	....	....	....		T	....	....	.90		..	....	..	....	....	....	....	....	....	....	..	....	.66	.91	.63	1.12	....	....	..	....	....	..	4.22
Toledo		....	....	....	....	....	.23	.60	T	....	T	....	.03	....	....	....	....	....	....	..	....	.18	1.60	...	.50	....	....	....	....	....	....	3.14
Vinton	....	....	....	....	.07	....	T	75	.03	....	.04	....	T	....	.	..	....	....	....	....	....	.15	.39	..	.14	..	...	....	....	....	....	1 57
Wapello	..	...	..	....	....		....	.85	....	...	T	....	....	....	....	....	....	..	....	....	....	.61	.16	..	1 20	..	....	....	....	....	....	2.82
Washington	....	....	..	....	....	....	....	.74	....	...	....	....	.02	....	..	....	....	....	....	....		.22	.23	..	1.53	....	....	....	....	....	....	2.74
Washta	....	....	..	....	....	....	....	.74	....	...	....	....	....	....	....	....	....	....	....	....	1.10	....	....	....	....	....	....	....	....	.	....	3.45
Waterloo	.	....	....	T	.	....	.75	.80	...		...	T	....	....	....	..		....	.80			....	....	....	....	....	....	....	....	....	....	2.74
Waukee	...	....		....	.01	...	.11	72	.04	....	.02	T	.06	....	....	..	..	....	....	....	....	.27	1.29	.22	.	...	....	....	....	....	....	4.71
Waverly	....	....	....	....	T	....	.52	1.08	.10	....	T	.	....	....	....	....	....	....	....	.15	....	.1	1.37	.30	1.08	..	....		....	....	..	2.83
West Bend	..	...	....	....		....	.12	.63	.07	...	.02		.08	....	....	....	....	....	....	....	...	26	.47	.68	....	....	....	....	....	....	....	3.64
Whitten	....		...	T	....	....	.3	1.60	.12	..	...	T	T	....	....	....	....	....	....	.	.20	.40	....	1.02	....	..	....	....	....	....	....	2 71
Wilton Juuction	..	....	....	....	..	....	.35	.94	.25	....	T	....	....	....	....	....	..	....	....	..	...	T	.31	.86	T		....	....	.	....	...	3 11
Winterset	....	....	....	....	..	....		81	....	....	T	...	..	....	....	....	....	....	....	....	....	.58	T	.17	1.55	....	..	..	....	....	.	6.41
Woodburn	...	....	....	....	.34	..	.55	.07	.08	....	.	...	....	....	....	....	....	....	....	.08		.3	2.55	.15	1 57		....	....	....	....	....	4.64
Zearing			..	....	.01	..	1.23	1 00	.07		T	....	....	....	....	....	.	....	.25	.65		.17	.C2	T	.91	....	....	..	....	....		3.46
							.19	.95	.03	....	T	....	T	...	....		T	....	....		...	.12	1.90	.28		....	....	....	....	....	....	

Precipitation Chart April 1904.



MAY, 1904 No. 5.

CONTENTS.

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LOCAL FORECASTER,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

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Orange City	H. J. Vande Waa
Pella	J. H. Ver Steeg
Pittsburg	G. C. Duffield
Portland (Nora Springs, P. O.)	Arthur Pickford
Platte (Creston R. D.)	M. H. Dibel
Red Oak	Hon. C. L. Stratton
Rock Rapids	D. E. F. Merrill
Seymour	L. B. Sager
Shenandoah	Reuben Mullison
State Center	E. P. Thompson
Stuart	W. W. Bailey
Toledo	W. G. Malin
Van Horne	Spencer Smith
Waukon R. D	T. B. Wiley
Weldon	Ed Worden
Winterset	H. A. Kinsman
West Branch	Wrigley Smith
West Union	H. B. Blackman
Wilton	Thos. Boot
Wiota	I. S. Coomes
Woodward	George Swisher

U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

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IOWA CROP REPORT, JUNE 1, 1904.

ACREAGE OF STAPLE CROPS, AND AVERAGE CONDITION OF CROPS, FRUIT AND LIVE STOCK.

Reports received June 1st from county and township correspondents of the State 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.—Total number of acres, 9,052,450;—an increase of about 7 per cent as compared with the average of the past six years, and 1,500,000 acres in excess of the area actually harvested in 1903. The average condition of corn about June 1st was 90 per cent, or about fifteen points above the estimated condition at corresponding date last year.

WHEAT.—The area of spring wheat sown this season appears to be only 775,040 acres, a decrease of about 377,000 acres as compared with the acreage in 1902. The winter wheat acreage is about 71,030 acres, Condition of spring wheat, 94 per cent; winter wheat, 85 per cent.

OATS.—Area seeded, 4,018,980 acres; a decrease of about 190,000 acres compared with the acreage of 1901, or about 5 per cent below the normal area. The condition is placed at 92 per cent.

BARLEY.—Area seeded, 493,370 acres; decrease since 1901, about 38,300 acres. Condition June 1st, 93 per cent.

RYE.—Area seeded, 99,590 acres; decrease since 1901, about 25,000 acres. Condition June 1st, 91 per cent.

FLAX —Area seeded, 51,370 acres; decrease since 1901, 23,130 acres. Condition of crops, 85 per cent.

POTATOES.—Area planted, 113,250 acres; condition 95 per cent. Acreage about normal.

MEADOWS.—Area 2,797,640 acres; an average of recent years. Condition 96 per cent. Condition of pastures 97 per cent.

CONDITION OF FRUIT.—Apples, 91; plums, 89; peaches, 48; grapes, 87; cherries, 83; strawberries, 94; raspberries, 88; blackberries, 77 per cent.

CONDITION OF LIVE STOCK.—Cattle, 94; swine, 93; sheep, 97; horses, 95; foals, 93; spring pig crop, 85 per cent.

CONDITION OF CROPS JUNE 1, 1903.—Corn, 75; wheat, 93; oats, 93; barley, 96; rye, 94; potatoes, 91; flax, 84; meadows, 109; pastures, 107; apples, 70; cherries and plums, 35 per cent.

MAY WEATHER AND CROPS.

Though the month of May was generally regarded as unseasonably cold, the records for the state show that the average daily temperature (59.6°) was about normal, the daily deficiency being only 0.8°. The average rainfall, 3.78 inches, was .35 of an inch below normal, the northern section receiving the larger average amount. In portions of the west central district, and in some of the southern counties, there were some heavy downpours, which caused much delay in planting, the great excess of moisture being due in large part to the saturated condition of the subsoil, resulting from abnormal rainfall in the preceding season. On the whole it was a favorable month, with sufficient warmth and moisture for grass and small grain, and general conditions favorable for farm work and the germination of the better qualities of seed. Except in quite limited areas, the corn crop was planted about as early as usual, and the soil was in very good condition. The month was especially favorable for the growth of grass in meadows and pastures, and for the small grain crops on well drained lands. The hay crop is well assured; oats and spring wheat stooled out fairly well; potatoes made a fine start; garden truck was well advanced at close of the month, and the fruits promised a better yield than has been produced in recent years.

NOTES AND COMMENTS.

In his farm notes J. S. Trigg says: "The predictions of any man thirty days ahead on the weather are absolutely valueless." And so say all men of sense who have given due thought to the subject.

The *Evening Wisconsin* says: "The grass crop never looked more promising in the northern states, and as that crop amounts to much more in value than the cotton crop thoughtful observers should not forget this prominent blessing."

The *Rockford Register* says: "The state can well afford to have Professor Holden make some more corn trips next September and tell the farmers how to save seed corn. There are enough of them having to replant their fields this spring so that they will listen to him "

In "Notes on Science," by Prof. John L. Tilton, published in the *Indianola Herald* of May 12, 1904, we find the following interesting paragraph: Those who were at the track meet last Saturday were treated to a miniature tornado. The whirlwind was first noticed on the tennis court, then west of the fence and trees it reformed and pas ed slowly across the ball park in a northwesterly direction beyond the grounds. There was a cloud of dust probably twenty feet in diameter whirling violently around in a direction opposite to the hands of a watch as one looks down; but through the center was a vertical clearer space with distinct boundaries in which the streaks of dust indicated an upward movement. This center reached upward into the air to perhaps twice the height of ladies' hall, where it looked as if it terminated in a point. It occupied perhaps ten minutes in traversing a distance of four hundred yards. It is to be regretted that no cameras were at hand to photograph it.

IOWA CROPS, 1904—NUMBER OF ACRES BY COUNTIES.

Counties.	Winter wheat, acres.	Spring wheat, acres.	Corn, acres.	Oats, acres.	Rye, acres.	Barley, acres.	Flax, acres.	Potatoes, acres.	Meadows, acres.
Adair	270	9,490	104,290	30,980	170	360	.....	1,170	45,610
Adams	1,060	3,220	72,750	15,350	470	1,210	.....	580	27,920
Allamakee	620	3,190	40,320	50,610	1,250	6,250	410	1,090	34,270
Appanoose	1,220		53,250	10,250	1,810	.....	.....	1,080	42,110
Audubon	....	19,160	94,570	31,150	210	2,280	.....	980	25,860
Benton	.....	2,030	126,480	63,960	710	16,140	.....	1,780	39,110
Black Hawk	.....	420	97,200	52,510	1,650	3,690	....	1,380	40,150
Boone	....	3,290	103,640	49,860	340	310	.....	1,170	21,470
Bremer	.....	420	61,070	54,780	1,270	1,680	740	1,340	17,260
Buchanan	.....	410	87,450	49,360	510	1,570	80	1,060	35,850
Buena Vista	.....	7,280	109,340	61,240	320	6,260	520	1,310	18,570
Butler	.....	360	112,250	72,850	1,310	820	450	1,270	18,590
Calhoun	.....	4,190	110,710	62,820	230	4,260	860	1,060	16,450
Carroll	.....	16,860	112,180	48,620	240	3,070	190	1,720	21,210
Cass	510	21,750	116,250	27,410	380	960	.....	1,590	34,520
Cedar	670	1,420	110,830	35,250	1,480	10,410	.....	1,210	39,150
Cerro Gordo	.....	1,170	99,270	71,810	490	2,050	810	1,340	23,150
Cherokee	.....	19,320	112,550	50,180	90	4,370	120	1,250	22,890
Chickasaw	.....	1,080	64,880	60,370	630	2,511	4,180	1,260	24,510
Clarke	320	.....	57,720	15,850	470	120	.....	510	45,720
Clay	...	5,250	94,510	54,260	910	14,800	460	970	19,110
Clayton	1,250	5,730	76,910	62,810	4,040	5,910	.....	1,890	45,210
Clinton	420	3,360	108,720	37,950	2,310	4,750	...	1,190	44,280
Crawford	.....	40,420	140,780	42,010	590	2,180	.....	1,970	32,8 0
Dallas	1,430	4,320	112,780	39,120	480	820	.....	960	24,660
Davis	1,540	.....	58,390	15,250	2,040	.....	.....	540	46,640
Decatur	620	.....	70,180	16,110	640	.....	.....	670	54,380
Delaware	1,210	.....	89,430	45,870	1,860	4,150	.....	1,160	37,490
Des Moines	3,040	460	50 720	24,180	780	18,060	.....	8 0	19,120
Dickinson	.....	8,310	48,510	26,970	320	.....	2,120	520	7,920
Dubuque	110	3,620	68,110	51,250	1,890	2,440	.....	1,930	45,120
Emmet	.....	2,930	53,720	36,260	220	8,210	1,370	490	11,450
Fayette	130	3,010	92,120	72,130	960	5,860	1,860	1,640	47,910
Floyd	.....	580	84,790	68,140	1,170	4,710	1,930	1,980	17,160
Franklin	.....	1,690	99,790	74,510	540	1,060	920	1,060	20,130
Fremont	4,530	2,510	115,460	11,120	610	.....	.....	690	14,110
Greene	.....	2,450	90,620	42,370	120	2,050	.....	670	18,220
Grundy	.....	2,270	97,920	63,930	110	9,130	.....	1,5?0	21,210
Guthrie	320	8,610	82,160	37,230	140	1,050	.....	570	28,700
Hamilton	.....	4,020	94,870	50,910	60	980	650	1,440	18,610
Hancock	.....	4,810	88,120	73,480	260	2,510	1,060	950	17,460
Hardin	.....	3,060	98,110	55,620	210	730	110	1,390	20,320
Harrison	210	31,210	130,420	15,350	910	1,060	.....	1,540	12,2?0
Henry	2,060	.....	65,250	28,110	3,540	1,5?0	.....	5?0	21,040
Howard	90	1, 80	51,260	60,170	120	3,520	4,080	950	29,700
Humboldt	.....	7,090	68,120	36,520	140	1,910	920	460	15,110
Ida	.....	19,010	92,640	32,150	260	4,130	.....	950	20,210
Iowa	210	1,680	86,120	33,120	520	3,950	.....	1,230	44,080
Jackson	260	3,220	71,120	34,180	2,080	3,610	.....	1,170	44,020
Jasper	820	6,910	116,320	41,310	1,030	650	.....	2,010	34,110
Jefferson	1,960	50	59,110	22,710	4,070	2,060	.....	5?0	30,350
Johnson	720	1,030	105,920	42,510	2,870	5,810	.....	1,310	41,510
Jones	.....	980	91,630	35,050	1,750	5,140	.....	950	45,210
Keokuk	1,410	920	96,590	35,150	3,070	4,560	.....	8?0	39,690
Kossuth	.....	16,180	148,620	125,250	210	6,350	3,220	1,590	23,100
Lee	6,410	....	53,4?0	22,450	4,810	.....	.....	1,180	38,210
Linn	.....	1,810	111,920	50,360	1,080	920	.....	1,850	40,280
Louisa	2,240	80	60,180	20,210	3,040	1,560	.....	5?0	17,100
Lucas	620	40	50,710	13,810	.....	1,300	...	480	42,100
Lyon	.....	36,950	87,270	43,450	160	45,270	220	1,240	9,110
Madison	750	4,120	79,450	19,150	490	1,510	.....	690	38,420
Mahaska	1,520	1,810	102,190	32,140	1,810	3,020	.....	910	3?,120
Marion	2,160	3,090	93,410	28,160	1,440	810	.....	850	28,100
Marshall	.....	5,010	110,270	51,740	430	2,510	.....	1,150	28,100
Mills	1,800	6,120	75,010	11,480	320	420	.....	840	16,140
Mitchell	.....	2,470	61,4?0	65,160	510	11,960	.....	1,749	24,120
Monona	710	28,710	125,650	18,060	910	5,080	410	1,220	4,380
Monroe	250	120	5?,280	11,230	820	180	.....	620	30,210
Montgomery	2,810	14,710	96,110	13,400	510	320	.....	710	32,410
Muscatine	1,590	1,610	76,2?0	21,820	5,010	6,120	.....	2,120	24,020
O'Brien	.....	14,710	110,250	53,270	220	26,030	280	1,240	17,910
Osceola	.....	9,220	61,350	32,850	110	27,110	670	650	11,190
Page	8,570	4,590	115,190	16,270	1,200	1,020	.....	910	34,210
Palo Alto	.....	3,810	81,910	55,090	310	5,210	2,010	890	10,110
Plymouth	.....	90,120	163,890	51,030	390	9,570	210	1,930	17,960
Pocahontas	.....	2,8?0	108,410	68,540	410	3,110	1,620	1,080	12,210
Polk	930	5,110	110,820	38,720	920	.....	.....	1,920	2?,310
Pottawattamie	870	38,190	201,280	30,120	510	83?	.....	2,610	33,490
Poweshiek	70	2,260	103,820	40,110	390	3,450	.....	1,070	42,110
Ringgold	720	.....	79,280	20,820	620	.....	.....	510	52,190
Sac	.....	7,840	120,420	50,180	140	4,770	.....	1,070	25,110
Scott	2,060	6,120	77,910	21,390	1,810	23,580	.....	4,810	26,210
Shelby	.....	30,120	120,210	27,280	90	28,520	310	1,380	11,210

IOWA CROPS, 1904—NUMBER OF ACRES BY COUNTIES—CONTINUED.

Counties.	Winter wheat, acres.	Spring wheat, acres.	Corn, acres.	Oats, acres.	Rye, acres.	Barley, acres.	Flax, acres.	Potatoes, acres.	Meadows, acres.
Sioux	.....	60,180	149,120	51,120	.....	23,810	410	1,410	10,410
Story	90	1,740	112,410	51,410	490	510	.....	820	22,520
Tama	40	6,310	120,190	52,110	410	16,680	.....	1,750	40,180
Taylor	3,160	80	73,120	16,820	990	670	.....	650	34,110
Union	180	90	65,980	18,120	170	510	.....	810	43,080
Van Buren	2,220	.....	50,120	17,240	3,830	.....	.....	420	36,120
Wapello	2,070	110	62,820	16,180	4,160	1,580	.....	920	32,280
Warren	610	3,080	91,120	23,220	1,260	1,330	.....	810	41,020
Washington	920	280	73,890	32,610	2,810	4,000	.....	690	26,280
Wayne	90	.....	66,350	15,290	820	.....	.....	460	59,400
Webster	.....	5,850	121,180	75,530	180	960	810	1,130	19,220
Winnebago	.....	8,250	50,120	40,210	.....	1,240	1,890	610	12,100
Winneshiek	90	6,120	67,380	68,990	260	10,260	7,310	1,180	45,280
Woodbury	410	42,180	170,220	28,470	660	6,590	210	1,480	11,090
Worth	.....	3,020	43,280	57,190	110	5,510	6,290	740	16,110
Wright	.....	4,870	99,820	68,910	120	1,530	1,660	840	18,990
Totals for State	71,030	775,040	9,052,450	4,018,980	99,590	493,370	51,370	113,250	2,797,640

RELATION OF RAINFALL AND AGRICULTURE.

When the annual rainfall is under eighteen inches, agriculture can seldom be safely practiced without irrigation. Grazing then becomes the chief occupation, as is now the case over a large extent of our western plains, between the 98° meridian and the Rocky Mountains; and the people return in a measure to the roving life characteristic of the aboriginal inhabitants of semi-arid regions. When the rainfall is less than twelve inches a year, the region is reduced to a desert, and the water supply is too small to be of service in irrigation, unless in small areas, or on the banks of large rivers. On the other hand, the tropical regions where the rainfall rises above a hundred inches in a year are so luxuriantly overgrown as to make their occupation a difficult matter. The general rainfall of the eastern part of our country or of western Europe, with annual total varying from forty to eighty inches equably distributed through the year, is an amount under which human occupations are best developed.

The distribution of rainfall through the year is a matter of great moment. The northwestern part of the United States is favored in having the average value of the precipitation in successive months comparatively equable; droughts are exceptional, but when occurring are found in one season about as frequently as another. In Florida, the summers are wet and the winters are comparatively dry. In eastern Nebraska, there is a similar distribution of rainfall from dry winters to wet summers. In California, the reverse is true; the summers have a continuous drought, making the ground dry and dusty; the winters are cloudy and wet. These variations will be found to depend chiefly on the system of the general winds.

The irregularity in the monthly rainfall is an important matter, especially in regions where the annual supply is moderate. Even in the well-watered States east of the Mississippi, a deficiency in the summer rainfall sometimes causes droughts; for example, the southern Atlantic States had in September, 1888, 1.84 inches; while the same month of the preceding year had 9.47, or over five times as much; this variation appears to result chiefly from the variation in number, paths, and activity of cyclones in different years. On the margin of the western plains, where the total rainfall is hardly enough for agriculture, the departures from the normal monthly fall are of more serious import: a succession of rainy seasons tempts settlers further and further west, and when a series of dry years follows, the distress occasioned by the failure of crops becomes a calamity.

In India, where the year is divided into three seasons, the cold, the hot, and the wet seasons, the crops are preserved in the dry season by irrigating canals fed from rivers rising in the mountains, or in a smaller way by water pumped up from the rivers; if the waters in the rivers is insufficient, or if the rains arrive too late or are deficient, famine results, and the people of that great country die by the thousands. In more recent years, with the improvement of the irrigating canals, and with the better means of transportation of the plenty of one province to supply the need of another, the danger from this source is lessened.—*Davis' Meteorology.*

MIDWINTER IN WESTERN ONTARIO.

Mr. A. G. Seyfert, of Stratford, Ontario, writes to the U. S. Monthly Weather Review, under date of January 26, 1904, giving account of the rigors of the past winter in that portion of Canada. He says:

Not within the memory of the oldest inhabitant has western Ontario experienced such an unprecedentedly severe winter as this. Instead of the usual autumn rainfall, fine weather prevailed up to the middle of November, when it turned cold and commenced to snow, and has continued almost incessantly to the present time. Four feet of snow on the level and drifts in many places four times that depth result. Country roads are blockaded, and communication almost entirely cut off. Railroads are in but little better condition. The main lines are kept open, but many of the branches are cempletely snowed under and abandoned for the present. Every effort is being put forth in fighting the elements to keep the roads open, but never did such conditions prevail since railroads were first built in this province. The high winds, the intense cold, and the enormous quantity of snow are more than human agencies can overcome. The local papers are full of details of all sorts of accidents and fatalities attributable to the weather conditions. Roofs breaking down from the weight of the snow, people frozen to death within sight of their homes, freight trains loaded with live stock in snow drifts until the strongest animals only survived; is the tale that could be prolonged indefinitely.

During the two and a half months of this remorseless climate he mercury has been but once or twice above the freezing point, and for days many degrees below zero all day. One of the most serious features of this condition of affairs is the water famine with which most of the farmers have to contend. The

rainfall had been below the average when the winter set in, and since then none has fallen and the water supply of most of the farmers is exhausted, causing great inconvenience and in many cases much suffering.

February is usually the worst winter month in this latitude, and if this is the case this year untold privations will have to be endured before the end is in sight.

A QUICKENED GULF STREAM.

If the stories told by mariners about the heightened velocity of the Gulf Stream in the last few days be correct, an explanation of the phenomenon ought not to be hard to find Surface currents in the ocean result from the action of the wind. The water which issues from the Gulf of Mexico and flows northeastwardly from the southern extremity of Florida comes originally from that portion of the Atlantic lying near the equator. The trade winds of one hemisphere, blowing from the northeast, and those of the other hemisphere, blowing from the sontheast, co-operate in forcing the upper layers of the sea into the belt of calms, where the water acquires a westward montion. By the intervention of the continent the current is split, and the direction which is then taken is materially altered, but the impetus imparted by Nature's great marine pumping engine is not lost. In all probability the freer discharge which has just been reported means that this piece of invisible mechanism has, temporarily at least, been working a little harder than usual.

The trade winds, like all other winds, result from differences in atmospheric pressure. Near the equator the barometer usually reads much lower than it does twenty or twenty-five degrees away. These high and low pressure systems oscillate northward and southward with the seasons, but their organization is maintained the year round. Variations in the amount of difference — in what the meteorologists call the "gradient" — are also observed, and it may be asssumed that one has recently occurred which has tended to increase the velocity of the winds. Such an effect might be produced in either one of two ways. There might have been a diminution of pressure near the equator, or there might have been an unusual banking up of the air along the tropics. Owing to the lack of observatories at sea, it will probably be impossible to say which of these two influences has operated. International barometric charts show, however, that over the continents and islands departures of this sort from average conditions are not at all uncommon.

A deficiency or an excess of atmospheric pressure in one part of the globe must be compensated for somehow elsewhere. The volume of the air remains the same. It is the distribution only that changes. In time it will doubtless be possible to correlate eccentricities observed simultaneously in widely separated regions. The discovery of one would thus serve to explain the other to some extent, and possibly come to have a prophetic value. Interpretation and forecasting would also be facilitated, perhaps, if a part of this strange behavior of the atmosphere could be connected with the changes in the amount of solar radiation, or with marked differences in the ease with which the sun's heat is able to penetrate the earth's gaseous envelope. Researches having that object in view are in progress in this country and in Europe. It is not yet possible to say what will be the result, but it is excusable to hope that the researches will prove fruitful.—*N. Y. Tribune.*

CLIMATOLOGY OF THE MONTH.

BAROMETER.—Mean pressure, 29 93 inches; highest observed, 30.26 inches at Dubuque, on the the 3d; lowest observed, 29.53 inches, at Davenport, on the 8th; range for state, .73 of an inch.

TEMPERATURE.—The monthly mean temperature for the state, as shown by records of 114 stations, was 59.6 degrees, which is 0.8° below normal. By sections the mean temperatures were as follows: Northern section, 58.2°, which is 1.1° below normal; Central section, 59.9°, which is 0.3° below normal; Southern section, 60.6°, which is 1.4° below normal. The highest monthly mean was 62.4°, at Burlington, Onawa, Keokuk and R dgeway; lowest monthly mean, 56.4° at Sibley. The highest temperature reported was 93°, at Ridgeway, on the 22d; lowest temperature reported, 27°, at Charles City on the 15th. The average monthly maximum was 85.8°: average monthly minimum, 34.3°. Greatest daily range, 47°, at Monticello and Northwood; average of greatest daily ranges, 37.3°.

PRECIPITATION.—Average precipitation for the state, as shown by records of 126 stations, was 3.78 inches, which is 2.35 of an inch below normal. The averages by sections were as follows: Northern section, 4.01 inches, which is .19 of an inch above normal; Central section, 3.41 inches, which is .68 of an inch below normal; Southern section, 3.92 inches, which is .43 of an inch below normal. The largest amount reported was 8.15 inches at Onawa; least amount reported, 1.50 inches at Clear Lake. The greatest daily rainfall reported was 3.33 inches at Florence, on the 24th and 25th. Average number of days on which .01 of an inch or more was reported, 8.

WIND AND WEATHER.—Prevailing direction of the wind, southeast; highest velocity reported, 41 miles per hour, from the south, at Sioux City, on the 4th. Average number of clear days, 13; partly cloudy, 10; cloudy, 8.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES. Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	29.91	30.18	3	29.53	8
Des Moines	29 96	30.21	3, 27	29.63	22, 24
Dubuque	29.92	30.26	3	29.60	22
Omaha, Neb	29.92	30.22	27	29.53	24
Keokuk	29.92	30.15	3	29.54	8
Sioux City	29.96	30.20	27	29.64	7
Means	29.93	30.26	3	29.53	8

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	5.582	27	S	11
Des Moines	6.240	40	SW	11
Dubuque	5.092	34	NW	22
Keokuk	5 692	32	W	28
La Crosse, Wis	5.354	26	NW	9
Omaha, Neb	6.419	32	N	8
Sioux City	9.844	41	S	4

OBSERVERS' NOTES.

ALLERTON.—*Rex Shriver.* Corn was nearly all planted at close of month.

AUDUBON.—*Geo. E. Kellogg.* Nearly six inches less rainfall this month than in May, 1903.

BAXTER.—*W. T. Thorp.* Small grain looking fine; prospects good for fruits.

BONAPARTE.—*B. R. Vale.* Rain, 4.17. Corn planting was very tardy. Corn culture was hardly begun at end of month.

BRITT.—*Geo. P. Hardwick.* Corn was planted in favorable conditions from 9th to 24th; grain thin from poor seed; fruit prospects mostly poor.

CLINTON.—*Luke Roberts* May mean temperature slightly above normal; rainfall about two inches below normal. A month of ideal weather for farm work; but one frost (on 15th) that was harmless; though late vegetation was in good condition, except where poor seed was planted.

DOWS.—*A. C. Fuller*. A severe wind squall and electrical storm occurred on the 24th, at 9 P. M., causing considerable damage in some localities.

FOREST CITY.—*J. A. Peters*. Though dry, the crops look fine at close of the month. Some corn replanted on account of wire worms.

HANLONTOWN.—*Miss G. M. Paschen*. Corn planting begun on 4th; on 5th the ground white with hail; planting finished about 21st. Oats in good condition but thinner than usual.

HOPEVILLE.—*M. T. Ashby*. Close of the month finds fields wet and clammy, with considerable plowing to do and much planting to be done.

HUMBOLDT.—*H. S. Wells*. More corn planted than last year, but not so much wheat.

IDA GROVE.—*J. E. Conn*. An exceptionally fine month; crop prospects good.

INWOOD.—*G. M. Larsen*. A fair month; promise of a large crop of grain and fruit.

LARRABEE.—*H. B. Strever*. Wind caused some damage to outbuildings at Meriden on afternoon of the 5th. Several barns were damaged.

OLIN.—*N. Potter*. May has been an ideal month for farm work. Conditions are normal.

PACIFIC JUNCTION —*H. H. McCantney*. Ground has been saturated to extent of retarding planting, but crops are starting well.

RIDGEWAY.—*Arthur Betts*. A perfect May; entirely frostless; 312 hours of sunshine; thirteen days calm; no gales nor windstorms.

WAUKEE.—*E. J. Leonard*. Rainfall 3.46, or less than one-third the amount in May, 1903; too cool and cloudy for normal growth of crops.

ERRATA IN MARCH REVIEW.

COLLEGE SPRINGS.—Maximum temperature recorded 66° on the 2d, page 8, should have been 70° on the 9th.

DENISON.—Total precipitation recorded 1.95 inches on pages 7 and 11, should have been .83 inch.

INDIANOLA.—Mean temperature recorded 36.0° on page 8, should have been 36.4°. Mean minimum temperature recorded 26.4° on page 9, should have been 27.0°. Minimum temperature recorded 12° on the 3d, page 8, should have been 3d and 26th.

EARLHAM.—Mean maximum temperature recorded 45.3° on page 9, should have been 45.2°.

GALVA.—Letter indicating number of days missing, page 7, omitted should have been [F].

KEOSAUQUA.—Mean temperature recorded 36.7° on page 8, should have been 36 8°.

ONAWA.—Maximum temperature recorded 63° on the 2d, page 7, should have been 66° on the 9th.

THURMAN.—Maximum temperature recorded 66° on the 2d, page 8, should have been 68° on the 9th. Total snowfall omitted, on page 8, should have been 3.0 inches

WASHINGTON.—Maximum temperature recorded 60° on the 23d, page 8, should have been 65° on the 21st.

WILTON JUNCTION.—Maximum temperature recorded 60°, on the 24th, page 7, should have been 61° on the 21st.

ERRATA IN APRIL REVIEW.

ALBIA.—Minimum temperature recorded on the 13th, page 7, should have been 14th.

COLLEGE SPRINGS.—Letter indicating number of days missing, page 7, omitted, should have been [D].

CORNING.—Total snowfall recorded 3.0 inches, page 7, should have been 2.0 inches.

HUMBOLT.—Minimum temperature recorded 20° on the 16th, page 6, should have been 18° on the 3d.

INWOOD.—Minimum temperature on page 6, omitted, should have been 22° on the 3d.

ZEARING.—Mean temperature recorded 43.3° on page 6, should have been 43.4°.

BELATED REPORTS.

KNOXVILLE.—April.—Mean temperature 46.2°; highest 76° on the 30th; lowest 23° on the 16th; greatest daily range 34°; total precipitation 5.54 inches; greatest in 24 hours 1.90 inches on the 25th; prevailing direction, northeast; number of clear days 13, partly cloudy 5, cloudy 12, rainy 7.

ROCK RAPIDS.—April.—Mean temperature 43.2°; mean maximum temperature 55.5°; mean minimum temperature 31.0°: highest 75° on the 30th; lowest 18° on the 17th; greatest daily range 41°: total precipitation 1.11 inches; greatest in 24 hours .55 inch on the 22d; number of clear days 19, partly cloudy 9, cloudy 2, rainy 3.

CLIMATOLOGICAL DATA FOR MAY, 1904.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Algona	Kossuth	1,213	28	58.7	-0.8	88	22	33	10	35	3.06	- .39	2.25	..	6	17	9	5	SE	23,24,25
Alta	Buena Vista	1,513	11	58.1	-0.5	85	22	34	14	33	6.39	†2.17	1 98	....	11	11	14	6	S	5,22,24
Alta (near)	Buena Vista										6.34		1.86	....	8					
Britt	Hancock	1,236	5	57.6	-1.5	87	22	30	15	43	3 62	- .07	1.87	....	10	6	19	6	SE	7,25
Charles City	Floyd	1,012	11	57.6	-2.0	88	22	27	15	40	3.58	† 55	1.50	....	5	20	1	10	E	8,22,25
Clear Lake (a)	Cerro Gordo	1,241	....	60.8	.....	85	20,22	35	14	41	1 50	.....	.75	....	4	....	....	....	.....	.....
Cresco	Howard	.....	....	59.6	†2.9	90	23	32	15	32	5.35	†1.59	1.25	....	8	16	14	1	SE,SW,NW	.....
Decorah	Winneshiek	857	...	59.1	-1.1	86	22	32	15	38	5.19	† .82	1.65	..	7	...	...	...	.....	.....
Dows	Wright	1,142	....	57.8	-1.9	86	22	32	15	38	4 60	- .47	1.92	....	9	18	4	9	SE. NW	24
Elkader	Clayton	727	21	60.2	-0.7	90	22	30	15	41	3.50	- .55	1.32	....	5	12	15	4	NW	22,24,25
Estherville	Emmet	1,298	7	56.8	-1.9	82	20	32	15	36	3.57	† .41	1.50	....	6	16	4	11	SE	6,2 ,26
Florence	Wright	.....	..	.....	.....	.....	.....	.....	.....	.....	4.68	.....	3.33	....	9	8	18	5	SE	5,24
Forest City	Winnebago	1,226	8	58.2	-1.4	89	22	32	10	39	2.44	-1.36	1.50	....	5	16	5	10	SE	....
Grand Meadow	Clayton	1,180	11	58.0	-0 2	86	22	32	15	32	6.51	†1.36	2.74	....	9	8	16	7	SE, SW	24
Greene	Butler	924	5	59.2	-1.4	88	22	30	15	38	4.70	† .56	1.84	....	8	12	10	9	SE	5, 24, 25
Hampton	Franklin	1,155	12	59.6	†1.2	89	22	34	15	37	4.55	† .38	1.80	....	9	8	17	6	NW	5, 10, 14, 15
Hanlontown	Worth	.....	....	56.8	.....	88	22	29	15	34	2.95	.....	1.66	...	10	19	7	5	SE	5, 7, 25
Humboldt	Humboldt	1,095	10	59.6	-0.7	88	22	34	15	38	3.60	- .28	1.31	....	5	20	9	2	SE	5, 24
Inwood	Lyon	.....	....	57.4	.....	81	22	33	14	33	2.27	.....	.96	....	6	11	9	11	SE	24
Larrabee	Cherokee	1,366	11	58.9	†0.4	90	22	32	14	39	4.74	† .79	1.70	....	8	13	16	2	SE	5, 16, 24, 25
LeMars	Plymouth	1,224	6	58.7	-1.9	87	22	33	14	39	3.25	- .34	1.70	....	4	....	....	....	.....	24, 25
Mason City	Cerro Gordo	1,132		59.3	†0.3	88	22	35	15	34	3.55	- .40	2 08	....	5	9	17	5	NW	5, 24, 25
New Hampton	Chickasaw	1,169	...	56.9	-2.4	85	22	31	15	39	3 31	-1.16	1.28	....	8	...	...	...	NW	.....
Northwood	Worth	1,222	...	57.6	-1.3	85	22	34	15	47	3.11	-1.31	1.46	....	7	18	6	7	NW	5, 7, 24, 25
Osage	Mitchell	1,184	11	58.0	†0.9	87	22	31	15	35	3 03	-1.20	1.26	..	7	12	11	8	NW	5, 22, 24
Pocahontas	Pocahontas	.....		59.7		89	22	34	14	39	4.61	.....	3.16	..	6	20	8	3	SE	24
Plover	Pocahontas	1,190	5	59.1	-1,3	90	22	33	14	39	4.74	†1.46	1.90	....	5	16	7	8	SE	5, 12
Primghar	O'Brien	1,215	....	57.3	-3.6	86	22	31	14	33	3.60	† .53	1.25	....	6	19	....	12	SE	31
Ridgeway	Winneshiek	.....	....	62.4	†1.8	93	22	35	15	41	4.39	- .76	1.37	....	14	14	12	5	NE	5, 7, 11, 12, 22, 24, 25
Sibley	Osceola	1,512	....	56.4	-2.2	86	22	33	10, 14	36	2.97	- .38	.86	..	13	19	2	10	W	25
Sioux Center	Sioux	.....	....	58.4	-1.6	86	22	32	14	37	2.21	-1.61	.90	....	9	14	8	9	S	22, 24, 31
Storm Lake	Buena Vista	1,440	7	57.0	-1.0	84	22	34	13	33	3.74	† .22	1.85	....	7	15	5	11	NW	6
Washta	Cherokee	1,157	....	.....	.....	.....	.....	.....	.....	.....	6.08	.....	2.17	....	6	16	7	8	S	.....
Waverly	Bremer	942	6	59.6	-1.8	87	22	32	15	33	4 69	† 07	1.06	....	11	10	15	6	.....	5,7,8,12,22,25
West Bend	Palo Alto	1,197	8	58.8	-0.5	86	22	33	14	36	3.55	† .71	2.47	....	8	*8	16	7	.....	12,16,17,24,25
West Union	Fayette	.....	...	.....	.....	....	.....	.....	.....	.....	4,51	.....	1.80	....	5		....	13	NW	.....
Average		.....	..	58.2	-1.1	87.0	.....	32.3	.....	37.1	4.01	† .19	.....		7	14	10	7	SE	.....

CLIMATOLOGICAL DATA FOR MAY, 1904—Continued.

CENTRAL SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted)		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Amana	Iowa	721	25	60.2	†0.2	86	22	36	15	33	3.88	- .58	1.37	....	9	14	8	9	SE, NW	12
Ames	Story	926	20	60.0	†0.4	85	22	35	15	43	3.69	- .54	1.65	...	11	19	7	5	SE	12
Audubon	Audubon	1,301	8	59.2	-1.1	88	24	31	15	45	3.42	- .50	.97	....	11	13	7	11	S	.....
Baxter	Jasper	998	....	59.8	.....	85	22, 24	35	15	41	3.37	.....	1.10	....	7	9	7	15	SE	.....
Belle Plaine	Benton	828	12	58.4	-0.9	87	22	37	10, 15	36	3.41	-1.13	1.05	..	12	10	11	10	SE	.....
Buckingham	Tama	.....	....	.....	.....	..	.....	.....	.....	.....	2.74	.....	.61	.	9	8	21	2	.....	.....
Carroll	Carroll	1,265	12	58.7	-0.8	86	22	31	14	42	3.27	-1.14	1.10	....	9	18	5	8		7, 22, 25, 29
Cedar Rapids	Linn	733	19	60.9	†0.9	89	22	35	15	38	3.36	-1.16	1.16	....	6	13	12	6	NE, NW	.....
Clinton	Clinton	609	34	61.0	†0.1	90	22	33	15	38	2.50	-2.10	1.27	....	8	10	8	13	.....	.....
Davenport	Scott	606	31	61.4	†0.7	84	22	40	15	31	2.64	-1.65	1.33	....	12	11	12	8	NW	6, 12, 24
Delaware	Delaware	1,083	11	58.6	-0.1	86	22	32	15	33	3.42	- .70	1.02	....	9	11	15	5	NE, S.NW	.....
Denison	Crawford	1,180	8	59.4	-1.2	86	22	34	14	42	3.41	- .19	1.54	....	10	18	7	6	S	22, 24 25
Des Moines	Polk	861	24	60.6	†0.2	85	24	38	14	35	3.16	-1.54	1.45	...	9	8	16	7	SE	7, 12, 24, 25
De Soto	Dallas	866	..	60.8	.....	86	24	37	14	41	3.09	...	1.17	...	10	20	2	9	SE	.....
Dubuque	Dubuque	655	29	60.2	†0.3	86	22	39	16	31	3.86	- .13	1.29	...	8	12	15	4	NW	12, 22, 28
Fort Dodge	Webster	1,126	....	59.0	.....	86	22	35	14, 15	39	5.16	.....	2.60	....	8	19	3	9	.....	8, 25
Galva (*a*)	Ida	1,290	8	58 3	-2.4	88	22	32	14	43	7 8	†4.51	3.05	....	9	....	.....	.....	.....	.....
Gilman	Marshall	1,052	..	.....	.....	.....	.....	.....	.....	.....	2.05	.....	.57	...	7	14	9	8	N, SE	.....
Grinnell	Poweshiek	1,023	9	59.8	-0.4	84	22	37	14	32	2.61	-2.04	.80	...	8	7	12	12	N, E, S	.....
Grundy Center	Grundy	976	11	58.9	†0.2	88	22	34	15	38	3.55	-1.40	.69	....	8	15	8	8	E	29
Guthrie Center	Guthrie	1,077	6	60.7	-0.3	88	24	33	14	45	3.20	-1.37	1.33	....	11	19	3	9	NW	7, 12, 25
Harlan	Shelby	1,192	....	59.9	.....	87	24	34	14	40	3.07	.....	1.03	....	11	10	10	11	SW	6, 7, 25, 28
Ida Grove	Ida	1,220	....	60.9	.....	86	22	34	14	39	5.42	.....	2.00	...	6	22	6	3	S	.....
Independence	Buchanan	921	38	57.8	-1.9	85	22	30	15	36	2.45	-1.72	1.00	....	7	21	5	5	SE	12, 22, 24, 25
Iowa City	Johnson	685	43	61.0	†0.7	89	22	36	15	39	2.68	-1.66	.76	...	9	9	10	12	.....	.....
Iowa Falls	Hardin	1,190	7	57.5	-2.2	87	22	30	15	40	5.29	†1.74	2.05	....	7	13	10	8	NE, E	6, 8, 13, 25, 26
Jefferson	Greene	1,052	....	.....	.....	.....	.....	.....	.....	.....	2.76	.....	1.35	..	8	6	14	11	SE	7, 25
LeClaire	Scott	576	....	.....	.....	.....	.....	.....	.....	...	2.71	.....	1.01	...	10	....	....	....	N	.....
Logan	Harrison	928	35	60.8	-0.4	90	25	32	10	46	3.02	-1.17	1.00	....	7	13	5	13	S	.....
Maquoketa	Jackson	688	9	58.8	-2.3	86	22	32	15	42	2.42	-2.10	.86	..	7	20	3	8	.....	.....
Marshalltown	Marshall	947	9	59.6	-0.5	90	22	34	15	43	3.45	-1.29	1.20	..	10	14	2	15	SE, NW	24
Monticello	Jones	925	40	59.0	-0.5	88	22	34	14	47	2.99	- .92	.90	....	4	12	14	5	SW	.....
Mt. Vernon	Linn	847	35	61.1	-0.3	91	20	35	15	43	2.93	-1.16	.87	....	11	14	6	11	S	.....
Odebolt	Sac	1,356	5	60 4	-1.5	89	24	32	14	45	3.41	† .64	1.50	....	7	22	7	2	.....	.....
Ogden	Boone	1,088	8	59.2	-2 2	85	22, 24	30	14	34	2.63	-2 53	.73	....	9	13	7	11	SE	.....
Olin	Jones	760	....	59.4	-0.6	85	22	33	15	33	2.46	-2 07	1.00	....	7	12	11	8	NW	6, 12
Onawa	Monona	1,053	....	62.4	.....	88	24	35	14	40	8.15	†3.77	2.80	....	12	20	3	8	SE	5, 13, 23, 24
Perry	Dallas	975	....	61.1	.....	89	24	36	14	42	2.28	.....	1.22	....	6	16	8	7	.....	25, 26, 28
Rockwell City	Calhoun	.....	....	59.8	-0.8	88	22	33	14	37	3.65	† .31	1.50	...	6	19	7	5	.....	.....
Sac City	Sac	1,278	22	59.8	†2.1	86	22	34	14	40	4.06	† 43	1.72	....	7	16	8	7	.....	.....
Sioux City	Woodbury	1,165	13	60.2	†1.8	88	22	37	14	34	3 09	- .58	1.03	....	12	5	10	16	NW	5, 22, 24, 31
Stuart	Guthrie	1,210	5	60.4	-1.7	88	24	36	13	44	2.56	-1.89	1.05	....	7	..	....		W	.....
Tipton (*b*)	Cedar	807	....	61.4		88	22	38	15	33	2 37	.....	.67	....	8	14	15	2	E SE	.....
Toledo	Tama	856	8	59.7	-2.1	86	22	34	15	40	2.88	- .83	.95	....	5	10	12	9	SE, NW	.....
Vinton	Benton	810	12	60.4	†0.5	87	22	33	15	39	2.31	-1.56	.92	....	9	15	8	8	NW	12
Waterloo	Black Hawk	862	15	58.8	-1.2	89	22	33	15	37	4 62	†1.22	2.31	....	8	14	12	5	NW	24, 25, 29
Waukee	Dallas	1,039	....	62.0	.....	90	24	35	14	42	3.46	.....	1.14	....	10	7	10	14	S	25
Wilton Junction	Muscatine	683	7	61.1	-1.3	87	22	33	15	40	2.79	-1.53	.80	....	7	12	9	10	SE, NW	.....
Whitten	Hardin	1,036	..	59.8	‡0.0	89	22	34	10, 14, 15	37	3.49	- .35	.85	....	7	10	14	7	SE	5
Zearing	Story	.....	..	59.0	.....	85	22	34	10	41	3.09	.....	1.16	....	7	19	7	5	....	.....
Average	.....	.....	....	59.9	-0.3	84.8	.....	34.2	.....	39.3	3.41	- .68	.....	.....	8	14	9	8	SE	.....

SOUTHERN SECTION.

Afton	Union	1212	7	61.2	-1.9	87	24	36	14	37	4.20	- .51	1.07	....	10	10	11	10	SW	.....
Albia	Monroe	957	..	59.1	.....	84	22, 24	33	14	35	2.61	.....	.50	..	10	15	5	11	SE	.....
Allerton	Wayne	.....	....	60.0	.....	84	24	37	14	35	3.51	.....	.63	...	12	17	6	8	NW	6, 12, 24
Atlantic	Cass	1,164	11	59.7	†0.1	87	24	33	15	43	4.20	† .03	1.30	....	9	3	13	15	N	5, 7, 24, 25
Bedford	Taylor	.....	....	59.6	.....	84	24	35	14	34	4.50	.....	1.75	..	10	16	3	12	SE	.....
Belknap	Davis	877	7	61.9	-1.0	83	24	40	14	29	3.59	- .37	1 34	....	13	17	7	7	.....	.....
Bonaparte	Van Buren	.....	10	60 6	-2.3	84	22	37	15	33	4.17	† .14	.76	....	10	....	....	....	.....	.....
Burlington	Des Moines	544	....	62.4	.....	83	21, 22	41	10	29	3.70	.....	1.10	..	15	16	4	11	NW	.....
Chariton	Page	1,042	7	59.1	-3.6	83	24	36	14	33	2.80	-1.47	.65	....	8	9	14	8	S	.....
College Springs(c)	Page	.....	10	62.0	†0.6	85	24	35	14	34	3.00	-1.94	.75	...	9	....	....	....	SW	.....
Columbus Jct	Louisa	596	....	60.6	.....	85	22	35	10	36	3.16	.....	.63	....	13	17	9	5	NE, SE	.....
Corning	Adams	1,127	10	59.2	-1.8	83	24	36	14	34	5.55	† .82	1.09	..	11	11	11	9	SE, SW, NW	24, 25, 26
Corydon	Wayne	992	9	60.3	-1.5	84	24	35	14	33	3.06	-1.91	.50	....	12	10	13	8	E	24
Clarinda	Page	1,069	....	59.6	-2.1	90	24	36	11, 13, 14, 15	39	4.11	- .68	.88	..	13	19	1	11	NW	7, 8, 12, 25, 26, 29
Cumberland	Cass	.....	....	.....	...	.....	.....	...	.....	.....	3.42	.....	1.20	..	5	22	2	7	SW	.....
Earlham	Madison	.....	....	56.8	.....	84	24	31	15	42	2.78	.....	.95	....	6	17	7	7	SE	25
Fort Madison	Lee	516	51	.....	.....	.....	.....	.....	.....	.....	3.58	-1.28	1.34	....	6	4	17	10	S	6, 9, 12, 24
Glenwood	Mills	.....	15	61.0	-0.9	86	24	35	14	38	5.35	† 86	2.65	....	4	3	22	6	SW	.....
Greenfield	Adair	.....	11	60.0	-0.5	86	24	33	14	43	4 16	- .44	1.07	....	8	17	6	8	S	5, 7, 12, 25
Hopeville	Clarke	.....	11	59.8	-0.6	84	24	37	14	36	5.04	† .28	1.35	....	12	6	18	7	NW	.....
Indianola	Warren	969	11	60.6	-0 3	85	24	37	14	34	3.08	-1.62	1.22	....	9	3	16	12	SW	.....
Keokuk	Lee	619	31	62.4	-0.2	85	24	43	14	32	3.94	- .13	1.27	....	14	14	8	9	SW	5, 6, 9, 12, 22, 24
Keosauqua	Van Buren	664	10	61.2	-2.0	87	22	35	15	35	4.59	† .05	1.00	.	11	12	7	12	.....	.....
Lacona	Warren	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.32	.....	1.00	....	12	7	17	7	.....	.....
Lenox	Taylor	1,250	7	59.5	-2.6	88	24	35	14	38	4.28	- .43	.70	....	10	15	10	6	S	24, 25, 26
Leon	Decatur	1,120	....	61.0	.....	83	24	37	14	31	4.47		.99	....	12	19	1	11	S	.....
Mount Ayr	Ringgold	1,236	6	61.2	-1.2	88	24	36	14	40	6.51	†1.12	1.61	....	12	10	10	11	E	.....
Mount Pleasant	Henry	729	20	61.8	†0.4	88	21	40	10, 14, 15	34	4.37	† .03	1.21	..	15	10	12	9	SW	6, 23, 24
Omaha, Neb	Douglas	1,113	32	62.0	†0.3	88	24	38	14	34	4.86	† .49	2.35	....	11	10	8	13	N	5, 7, 16, 24, 25
Osceola	Clarke	1,130	6	60.0	-2.3	87	24, 26	31	14	39	5.66	† .59	2.00	....	13	....	....	....	.....	28, 29, 31
Oskaloosa	Mahaska	843	18	60.2	-0.2	84	22	36	15	35	1.96	-1.61	.62	....	11	14	2	15	E	24
Ottumwa	Wapello	649	8	62.0	-1.8	87	22, 24	38	15	37	3.09	-1.73	.93	....	9	12	10	9	NW	.....
Pacific Junction	Mills	960	...	60.9	.....	88	24	32	14	38	4.68	.....	1.54	....	13	11	16	4	S	.....
Red Oak	Montgomery	1,033	...	61.3	-1.8	84	24	40	13, 14	31	3 68	- .06	.75	....	13	8	15	8	.....	6, 12, 21, 24, 25
St. Charles	Madison	1,070	....	60.4	.....	85	24	37	14	32	3.80	.....	1.51	....	11	14	9	8	SE	.....
Sigourney	Keokuk	787	....	61.6	-2 6	86	28	36	15	40	3.09	- .89	1.03		7	15	12	4	SE	24, 25
Stockport	Van Buren	.....	..	61 8	.....	92	7	38	15	34	4.32	.....	.90	....	15	12	5	14	NW	12, 22, 24
Thurman	Fremont	.....	....	61.8	-1.5	89	24	35	14	35	4.14	- .57	.78	....	13	14	10	7	SW	.....
Washington	Washington	769	20	60.5	-0.9	85	22	39	10	34	3.01	- .42	.90	....	8	..	....	.	SE	.....
Winterset (*b*)	Madison	1,129	11	60.7	-0.6	90	20	38	14	40	2.32	-2.25	.70	...	5	....	....	....	.....	.....
Woodburn	Clarke	961	...	.....	.....	.....	.....	.....	.....	..	4.55	.....	1 09	....	11	16	8	7	SW	.....
Average	.....	.....	....	60.6	-1.4	85 7	.....	36.4	.....	35.6	3.92	- .43	...	....	10	12	10	9	SW	....
Average for state	.....	.....	....	59.6	-0.8	85.8	.....	34.3	.....	37.3	3.78	- .35	...	....	8	13	10	8	SE	.....

*Means determined from 7 A. M., 2 P. M. and 9 P. M. observations, and maximum and minimum are taken from eye readings. †Above normal. ‡ Received too late to be computed with means. *a*, One day missing; *b*, two days, etc. § Not supplied with self-registering instruments.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR MAY, 1904.

STATIONS.		DATE.																													MEAN.
		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	
Af on	Max	74	73	77	80	76	72	79	67	67	76	79	68	51	65	73	66	61	68	75	82	83	82	79	87	77	66	75	73	67	79	79	73.4
	Min	46	45	47	49	55	53	52	47	46	39	52	44	38	36	40	50	49	46	45	48	51	60	60	49	62	46	46	42	59	60	54	48.9
Albia	Max	72	66	75	71	80	72	75	60	65	72	78	56	52	61	71	56	60	66	70	80	80	84	68	84	76	65	71	72	67	72	77	70.1
	Min	46	44	47	48	54	57	58	51	44	38	43	55	41	33	37	48	45	47	44	48	51	55	60	49	53	50	44	47	54	53	49	48.1
Algona	Max	75	72	75	78	76	72	79	62	60	66	78	65	54	65	69	60	65	67	72	80	83	88	79	68	66	66	73	71	80	75	76	71.5
	Min	40	44	47	49	55	52	49	48	40	33	50	42	37	34	34	46	44	46	44	48	52	61	51	42	47	42	42	47	57	46	53	45.9
Allerton	Max	74	70	76	76	76	70	74	67	64	73	77	69	53	61	71	62	58	65	71	79	81	83	75	84	75	67	72	70	65	77	75	71.3
	Min	47	45	46	51	56	51	58	49	42	38	52	45	39	37	38	50	48	43	46	46	51	58	60	51	61	49	45	48	57	53	51	48 7
Alta	Max	76	72	74	78	72	69	68	66	65	70	76	52	48	63	72	53	61	60	70	78	78	85	70	78	62	63	70	68	77	78	72	69.1
	Min	47	47	47	48	53	49	55	48	38	38	51	42	35	34	40	47	45	45	51	49	53	60	49	45	45	43	42	50	57	51	58	47.1
Amana	Max	72	71	76	78	79	76	75	68	63	64	78	71	53	57	64	58	63	69	71	81	82	86	75	81	77	68	73	73	72	72	76	71.7
	Min	44	45	46	52	57	59	60	52	44	38	49	46	41	40	36	46	47	48	44	49	52	62	56	43	62	52	43	45	57	54	45	48.8
Ames	Max	76	74	76	78	80	72	81	63	65	70	74	71	50	63	71	64	67	67	74	83	81	85	79	85	78	66	75	70	69	75	76	72.8
	Min	46	45	46	50	46	54	52	50	44	39	57	44	40	36	35	47	42	49	47	46	52	62	51	42	57	46	45	43	47	52	51	47.2
Atlantic	Max	76	72	76	77	74	76	81	66	67	77	77	70	53	66	72	61	62	72	76	83	81	83	79	87	77	67	73	69	75	80	78	73.6
	Min	38	42	48	48	55	49	46	48	41	35	55	45	38	35	33	50	48	36	37	39	43	61	57	44	58	45	57	47	58	47	58	45.8
Audubon	Max	76	73	76	77	76	75	82	65	66	77	79	63	50	65	73	60	62	70	74	83	82	88	78	88	75	67	77	70	73	80	79	73.5
	Min	38	41	46	44	51	50	44	48	40	35	54	44	38	33	31	50	47	41	40	38	45	60	53	44	53	44	37	43	58	49	58	45.0
Baxter	Max	74	73	76	78	78	72	77	70	67	68	82	73	52	62	69	61	63	69	74	80	80	85	75	85	72	66	73	70	71	72	75	72.3
	Min	44	42	44	50	56	53	57	49	44	36	47	44	39	36	35	45	46	46	43	45	54	60	53	44	55	48	44	48	56	52	48	47.2
Bedford	Max	74	76	73	73	71	72	75	67	65	66	79	68	52	69	68	62	59	70	75	78	79	81	74	84	75	68	72	65	67	76	76	71.3
	Min	45	47	50	55	55	50	45	48	40	36	53	44	39	35	40	50	46	38	42	45	46	59	61	51	62	48	41	47	58	51	58	47.9
Belknap	Max	73	71	75	75	75	80	75	55	65	70	75	70	55	55	70	65	70	65	69	75	77	82		83	80	60	75	70	70	70	73	70.8
	Min	48	54	46	55	60	60	62	54	46	44	50	60	43	40	44	50	50	49	50	51	57	62	63	55	68	51	48	60	55	58	51	53.0
Belle P.	Max	72	72	75	78	80	75	65	55	62	63	77	51	50	57	65	53	61	67	69	73	80	87	62	80	78	65	71	63	73	70	74	68.6
	Min	46	45	47	53	57	55	55	50	48	37	48	47	40	38	37	45	45	46	46	45	53	61	56	44	53	50	45	48	53	54	47	48.2
Bonapar'e	Max	72	71	75	75	72	74	72	65	68	68	78	79	58	60	68	58	58	68	72	80	80	84	73	83	77	67	73	75	68	69	78	71.4
	Min	46	45	45	50	57	53	59	50	44	58	49	47	42	40	37	45	47	47	44	48	52	59	61	50	66	51	43	46	56	58	47	49.7
Britt	Max	74	73	76	78	80	71	79	63	61	69	78	62	52	59	68	56	66	66	70	84	82	87	73	68	66	65	74	79	79	76	78	71.4
	Min	41	40	44	50	53	50	46	43	39	31	50	41	35	31	30	46	44	46	40	41	49	60	50	40	47	42	38	49	45	47	53	43.9
Burling'n	Max	75	73	79	77	81	75	70	67	67	66	79	80	70	57	68	60	60	73	71	79	83	83	75	82	82	72	72	75	70	66	75	73.0
	Min	48	49	57	54	59	59	60	52	45	41	51	54	48	42	42	46	47	46	47	50	54	62	56	53	70	55	46	46	61	59	48	51.8
Carroll	Max	76	71	74	78	77	73	81	66	68	76	82	53	50	68	72	60	69	71	76	83	79	86	67	81	62	67	75	59	76	78	78	72.3
	Min	40	42	44	45	52	48	46	47	37	34	54	43	36	31	35	46	46	41	40	31	50	60	50	45	57	41	38	44	58	50	56	45.1
Cedar R.	Max	75	73	78	80	81	77	75	55	63	66	81	58	52	58	66	55	65	73	75	84	85	89	64	84	77	67	74	75	72	73	78	71.9
	Min	48	47	50	53	55	60	60	54	46	40	43	52	43	40	35	44	47	48	47	51	54	62	62	46	52	54	48	48	50	46	47	49.9
Chariton	Max	73	70	73	73	76	68	74	69	64	70	77	62	50	61	70	64	57	62	71	78	79	82	76	83	78	67	72	68	67	74	74	70.4
	Min	46	44	45	48	55	52	57	48	43	37	50	43	39	36	39	49	47	44	44	45	50	58	59	48	60	48	44	46	58	52	49	47.8
Charles C.	Max	74	73	76	78	78	71	79	58	60	67	77	53	52	58	63	54	67	67	71	81	84	88	69	67	65	66	73	74	78	73	75	70.0
	Min	41	39	46	50	54	53	55	48	44	34	37	44	38	35	27	39	42	44	42	46	47	63	58	41	47	46	40	46	54	52	48	45.2
Clarinda	Max	79	75	77	75	71	70	83	68	67	62	78	49	57	67	70	60	60	71	76	80	84	83	72	90	71	68	74	70	79	81	75	72.3
	Min	48	48	49	53	54	50	46	46	43	38	36	43	36	36	36	50	48	42	43	43	48	57	59	51	58	46	42	48	53	51	56	47.0
Clear L.	Max	73	75	73	77	78	71	77	63	61	66	71	67	52	60	69	64	65	61	74	85	80	85	80	69	67	67	79	70	..	80	78	71.2
	Min	68	70	65	70	63	54	52	47	41	37	49	42	39	35	36	45	44	47	44	50	57	62	53	46	49	43	47	53	..	57	51	50.5
Clinton	Max	75	74	80	81	80	83	72	69	68	60	81	76	61	52	61	59	69	73	76	84	82	90	72	84	85	70	75	81	76	69	78	73.7
	Min	41	48	48	48	56	57	63	50	43	46	47	53	47	38	33	37	41	42	46	46	49	59	48	46	61	52	53	50	55	54	43	48.4
Col. Sprgs	Max	74	72	75	74	70	74	78	76	68	76	77	65	54	67	67	62	..	68	78	78	80	84	82	85	74	67	..	73	..	79	75	73.3
	Min	48	47	50	55	55	60	48	47	42	42	54	44	37	35	44	50	..	48	46	53	60	67	60	52	59	47	..	53	58	52	54	50.6
Colum. J.	Max	74	73	79	79	80	79	73	66	65	67	78	76	58	57	64	52	64	69	73	83	82	84	72	82	80	67	73	70	69	67	77	72 0
	Min	43	46	48	52	57	57	60	40	39	35	48	50	40	40	38	46	45	47	50	51	56	62	57	49	65	53	44	50	58	57	46	49.3
Corning	Max	72	69	73	75	71	69	76	64	65	74	77	65	57	64	67	61	60	69	73	77	79	81	70	83	70	83	70	69	68	75	73	70.5
	Min	43	46	44	53	54	51	47	47	41	37	52	44	38	36	48	49	48	41	43	44	51	61	54	49	62	45	41	49	59	53	58	48.0
Corydon	Max	74	70	73	75	76	67	74	68	67	72	72	71	51	65	70	63	60	67	74	80	80	82	77	84	77	67	73	72	66	74	74	71.5
	Min	47	45	47	51	56	53	59	49	42	39	53	45	40	35	38	50	47	45	45	48	53	60	60	51	61	48	44	50	59	51	51	49.1
Cresco	Max	75	73	76	80	77	70	75	76	59	60	75	70	50	55	60	64	65	65	72	80	81	89	90	85	85	60	70	73	79	80	75	72.4
	Min	47	41	44	50	64	63	48	50	45	32	48	40	38	34	32	39	42	41	41	47	50	60	67	50	45	40	45	50	55	54	48	46.8
Davenpo't	Max	73	70	76	77	77	76	73	66	64	64	78	77	56	55	63	52	64	69	73	83	82	84	72	82	80	69	73	76	69	66	75	71.4
	Min	49	49	48	51	59	60	60	50	46	41	50	53	46	42	40	45	46	50	51	52	57	64	54	51	69	52	46	53	61	53	45	51.4
Decorah	Max	72	78	81	83	81	73	84	76	60	68	78	67	50	52	63	68	60	67	73	82	83	86	77	63	62	63	72	73	78	73	76	71.5
	Min	34	39	43	50	57	58	57	50	41	36	49	45	40	41	32	35	40	42	44	49	52	63	57	42	53	52	44	46	52	54	50	46.7
Delaware	Max	73	71	76	77	78	76	74	66	60	63	76	68	52	52	60	60	64	69	70	80	82	86	74	78	74	65	72	76	74	68	77	70.7
	Min	46	44	44	46	54	57	57	46	40	35	46	45	39	37	32	37	42	46	43	49	54	62	51	42	55	48	42	47	56	55	44	46.5
Denison	Max	76	72	75	74	74	71	79	68	66	76	79	71	50	66	71	58	62	69	72	79	80	86	82	86	80	65	71	69	75	77	76	72.7
	Min	39	42	46	50	49	51	55	52	41	35	50	44	37	34	37	48	48	40	39	38	52	62	49	44	50	43	40	49	59	45	60	46.1
Des M.	Max	71	70	73	76	77	70	78	64	64	70	78	68	50	62	69	57	62	67	72	80	79	83	73	85	74	66	72	68	71	71	74	70.8
	Min	50	49	51	53	57	56	56	50	46	41	53	46	41	38	42	49	48	50	46	47	53	62	55	50	56	48	46	52	60	56	53	50.3
De Soto	Max	72	71	74	77	78	74	79	64	66	76	79	69	51	64	73	63	63	67	71	81	82	86	78	86	78	67	73	70	71	73	75	72.4
	Min	46	48	49	51	56	54	50	49	45	38	56	46	40	37	38	50	48	48	46	44	50	62	58	45	63	47	46	49	60	51	55	49.2
Dows	Max	72	71	75	76	78	69	79	64	60	64	76	69	70	58	64	60	61	64	70	79	80	86	81	80	66	65	73	69	75	73	74	70.4
	Min	44	43	43	51	55	52	47	43	41	33	48	39	36	33	32	44	45	47	40	45	50	60	50	42	52	44	42	47	56	51	50	45.3
Dubuque	Max	74	70	76	77	75	77	71	65	62	63	77	70	55	52	58	58	64	68	72	81	82	86	70	77	76	67	72	73	73	68	76	70.5
	Min	48	47	49	51	58	60	59	48	45	42	50	48	45	41	39	39	44	48	46	53	57	63	54	48	55	51	48	52	58	54	45	49.8
Earlham	Max	72	62	73	75	75	70	76	63	61	72	77	65	49	62	68	58	59	64	72	78	76	79	72	84	74	65	71	67	68	75	74	69.5
	Min	40	42	44	43	52	40	44	45	40	32	52	42	39	33	31	47	43	41	40	39	43	59	54	42	60	44	39	43	67	46	1	44.1
Elkader	Max	78	75	81	81	80	78	79	70	64	67	80	71	50	54	64	65	67	72	77	87	85	90	74	74	74	69	76	76	76	75	81	73.8
	Min	44	40	40	47	56	59	59	50	42	34	49	45	40	38	30	37	40	45	43	47	47	65	56	43	55	50	41	44	54	55	45	46.6
Esthervil.	Max	75	72	75	78	73	69	75	66	61	66	76	53	48	58	67	50	65	66	71	82	80	81	69	64	50	65	74	71	79	78	77	68.8
	Min	38	40	40	42	50	52	56	47	41	33	42	42	36	35	32	48	44	46	45	47	51	59	52	42	46	42	43	51	55	45	48	44.8
Forest C'y	Max	75	76	77	80	81	72	77	65	61	65	77	52	50	59	66	53	65	69	74	87	85	89	73	64	57	66	75	71	81	75	77	70.8
	Min	44	46	45	51	54	51	49	47	40	32	40	42	36	33	34	46	43	47	43	48	51	59	52	41	49	43	42	47	54	51	51	45.5
Ft. Dodge	Max	75	74	76	79	78	72	80	65	64	70	77	51	50	62	71	52	62	66	72	81	80	86	64	84	62	65	72	74	76	74	78	70.7
	Min	44	46	47	49	52	53	52	49	42	37	43	45	39	35	35	45	46	46	45	48	57	62	51	45	52	44	45	47	59	51	54	47.3
Galva	Max	75	73	75	80	76	76	75	65	66	75	76	63	50	66	78	58	65	65	73	82	80	88	79	81	66	64	75	74	78	80	81	72.9
	Min	38	38	44	44		49	50	46	38	33	38	42	34	32	39	48	46	41	40	39	45	60	49	43	47	42	41	47	54	45	58	43 7
Glenw'd	Max	79	76	75	67	69	72	79	62	67	75	78	73	55	67	65	66	58	70	73	76	79	84	79	86	76	63	69	68	72	77	73	71.9
	Min	45	48	48	55	54	52	52	47	42	43	59	45	38	35	48	49	47	46	47	51	55	62	57	48	57	46	45	54	59	55	60	50.0
Grand M.	Max	74	74	76	79	77	75	77	68	56	60	70	69	51	54	59	63	64	69	72	82	82	86	72	66	66	66	72	74	76	77	75	70.4
	Min	45	44	44	47	56	55	57	45	41	36	47	43	38	35	32	37	42	45	43	51	55	62	54	49	54	40	43	49	34	55	45	45.7
Greene	Max	77	75	79	81	81	73	82	70	59	62	78	68	52	58	68	57	67	68	74	84	84	88	78	70	65	66	74	73	78	76	79	72 4
	Min	44	40	42	49	54	53	54	48	42	35	48	42	38	35	30	44	43	47	42	46	49	63	53	43	55	46	41	46	55	50	49	46 0
Greenfi'ld	Max	75	74	77	80	77	76	78	62	70	75	79	72	53	63	73	63	64	69	73	80	82	85	82	86	76	68	78	72	70	75	77	72.9
	Min	48	43	45	46	51	52	48	48	42	38	54	43	37	33	42	49	42	44	45	49	50	55	57	43	61	45	43	50	59	47	55	47.2
Grinnell	Max	70	69	73	75	76	70	74	63	62	61	77	70	57	58	65	62	60	65	67	76	79	84	75	81	71	71	70	69	70	70	74	69.8
	Min	48	45	47	52	58	56	60	50	43	39	49	57	41	37	39	46	46	48	47	52	57	63	55	49	56	49	47	52	55	54	50	49.9
Grundy C	Max	74	72	76	77	77	72	77	62	63	65	79	68	50	59	65	60	61	67	72	80	81	88	75	82	76	67	72	71	72	71	75	71.2
	Min	42	44	43	49	55	52	58	49	42	35	48	42	38	36	34	44	45	45	42	48	52	61	51	44	60	45	42	47	56	50	46	46.6
Guthrie C	Max	75	70	75	80	78	75	82	66	66	78	78	73	51	66	73	64	64	70	74	85	82	84	81	88	83	66	76	74	73	78	76	74.3
	Min	41	45	45	46	55	52	46	48	41	35	56	45	39	33	34	50	48	48	42	42	49	63	55	43	59	46	41	47	59	51	56	47.1
Hampton	Max	78	76	78	80	80	72	81	62	60	69	78	70	49	60	69	55	64	69	76	85	84	89	77	81	63	65	74	72	77	74	76	72.4
	Min	42	43	42	46	55	54	52	48	42	36	48	43	38	35	34	45	44	48	44	50	55	62	53	44	53	45	43	48	56	51	50	46.7
Hanlont'n	Max	72	71	74	77	72	67	77	62	58	62	77	67	50	56	62	55	64	65	69	78	82	88	75	63	63	63	74	69	77	72	74	68.9
	Min	40	38	42	45	52	52	47	58	40	32	48	41	38	33	29	44	40	45	39	46	48	61	53	39	48	48	40	46	56	50	49	44 6
Harlan	Max	76	72	75	78	75	75	81	67	66	75	80	73	52	66	73	63	64	69	73	80	82	85	82	87	78	66	73	72	78	80	81	74.1
	Min	41	46	49	45	49	49	48	48	41	35	53	46	37	34	35	50	47	37	41	43	46	56	53	47	52	44	59	39	59	49	59	45.7
Hopeville	Max	74	70	75	76	75	69	78	68	64	75	78	64	50	62	70	60	57	67	71	80	80	80	70	84	75	65	73	68	65	77	73	70 7
	Min	48	46	48	50	56	52	55	47	44	39	56	43	40	37	42	50	48	45	44	47	53	61	54	48	62	47	45	49	58	51	53	49.0
Humboldt	Max	75	75	77	80	80	72	82	67	65	70	80	66	52	62	72	63	65	67	70	80	82	88	80	66	66	62	62	67	78	75	78	71.7
	Min	41	44	46	47	58	64	50	50	41	35	52	44	40	36	34	50	46	46	44	46	50	64	50	44	50	44	45	49	58	48	55	47.5
Ida Grove	Max	73	72	75	76	73	71	75	65	67	78	77	69	59	68	72	57	63	67	72	81	80	86	82	82	73	67	75	74	77	80	80	73.1
	Min	42	45	45	49	54	50	50	50	42	39	56	46	37	34	38	49	48	43	43	43	52	63	59	54	48	45	44	51	69	75	47	48.7
Independ.	Max	74	72	77	73	77	72	74	66	62	63	78	70	79	54	61	53	61	68	69	80	80	85	69	77	68	65	71	70	72	72	73	69.5
	Min	48	42	43	47	53	51	57	47	43	36	47	45	38	36	30	42	43	45	42	49	48	61	51	41	59	49	42	45	55	52	43	46.1
Indianola	Max	72	70	78	77	78	71	79	70	65	73	77	74	54	63	70	62	60	68	73	80	79	82	75	85	77	66	73	68	69	72	75	71.9
	Min	50	47	50	53	57	55	57	49	44	38	51	45

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR MAY, 1904—Continued.

STATIONS.		DATE.																															MEAN
		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	
Iowa Falls	Max..	75	75	78	79	79	78	80	62	62	68	78	49	51	59	67	57	63	66	72	83	82	87	64	82	63	65	73	71	76	75	77	70.7
	Min ..	39	41	41	44	50	52	52	48	41	33	40	42	36	34	30	45	45	47	41	45	47	52	55	42	48	46	42	45	50	51	50	44.3
Keokuk..	Max..	71	70	75	75	77	72	71	63	65	67	79	79	57	59	67	54	58	65	71	79	81	85	74	85	83	71	72	76	71	67	74	71.4
	Min ..	49	50	60	55	58	59	59	54	47	43	51	56	56	43	44	48	49	48	48	52	57	67	65	63	71	56	49	53	61	61	50	53.3
Keosa'qua	Max..	73	72	78	76	80	77	74	55	67	71	80	82	60	62	70	56	60	68	74	82	83	87	73	85	78	64	76	76	63	71	77	72.6
	Min ..	43	47	45	51	65	56	58	53	44	39	48	57	43	40	35	48	48	48	46	48	49	61	62	51	53	53	44	45	57	59	58	49.8
Larrabee.	Max..	74	74	76	78	72	71	76	70	68	72	77	62	53	67	73	55	67	70	75	84	81	90	72	82	60	71	76	74	78	81	82	72.9
	Min ..	45	44	46	46	50	49	51	48	37	36	49	39	33	32	38	47	44	42	43	45	50	60	48	44	45	40	41	48	54	44	55	44.9
LeMars ..	Max..	75	73	75	77	67	71	74	67	68	75	76	66	50	66	70	56	66	69	72	79	83	87	71	82	65	64	72	71	80	82	78	71.8
	Min ..	40	43	46	49	52	48	53	46	38	37	54	40	35	33	40	48	46	41	42	40	50	58	49	48	46	43	42	51	54	44	58	45.6
Lenox....	Max..	72	71	74	76	72	68	77	64	65	74	78	70	51	63	67	62	59	68	72	76	80	80	78	83	74	66	70	68	66	75	71	70.6
	Min ..	49	46	48	51	54	52	47	47	41	39	52	43	38	35	42	50	46	42	44	49	52	60	59	45	61	47	43	50	58	52	57	48.4
Leon.....	Max..	72	71	74	76	75	67	75	75	64	74	77	75	51	62	70	65	59	66	72	78	80	82	82	83	76	68	72	69	70	78	77	72.1
	Min ..	49	45	49	51	56	52	58	48	44	40	53	44	40	37	41	50	48	46	47	52	53	60	60	51	63	48	47	48	58	52	53	49.8
Logan....	Max..	74	74	78	75	71	76	82	68	69	78	77	70	60	78	62	62	79	79	75	82	85	78	76	76	90	80	80	67	75	70	71	74.7
	Min ..	42	47	56	53	56	48	50	48	44	32	36	48	37	34	37	41	42	42	44	40	61	61	52	50	47	57	51	45	41	57	54	46.9
Maquo'ta.	Max..	75	72	77	78	77	76	72	58	65	65	77	65	57	58	64	56	66	72	74	83	83	86	69	82	80	67	75	75	70	70	78	71.7
	Min ..	40	40	41	45	58	57	58	56	42	36	46	50	44	39	32	35	40	45	43	45	46	60	59	40	49	56	40	41	53	51	38	45.9
Marshlt'n	Max..	76	75	78	80	80	74	80	61	64	69	80	52	51	61	68	55	62	70	74	82	85	90	62	86	73	69	75	74	74	75	78	72.1
	Min .	45	43	44	50	54	55	59	50	43	36	41	45	39	37	34	45	45	46	44	48	51	61	57	43	50	47	43	46	56	52	48	47.0
Mason C..	Max..	75	75	77	77	78	70	80	67	57	65	76	68	50	58	65	58	65	67	72	83	82	88	78	67	64	65	78	70	78	76	76	71.0
	Min ..	45	45	45	51	56	54	52	49	43	37	50	44	38	36	35	44	43	49	42	49	56	62	54	45	52	45	45	50	58	50	52	47.6
M'nticello	Max..	78	75	77	78	78	75	77	62	70	80	75	69	52	60	55	68	70	75	80	83	82	88	75	78	80	76	70	72	75	68	70	73.3
	Min ..	49	52	53	48	48	48	47	42	43	42	40	37	35	34	38	39	40	45	43	40	42	41	50	68	69	40	42	45	43	41	39	44.6
Mt. Ayr..	Max..	76	76	79	78	74	69	80	67	68	78	80	65	52	64	71	66	60	73	76	82	84	82	77	88	76	67	75	70	67	81	76	73.5
	Min ..	49	45	47	51	55	52	52	47	42	44	52	43	39	36	42	49	47	44	45	52	55	58	59	48	59	47	45	49	58	52	55	49.0
Mt. Pl'snt	Max..	73	73	79	80	80	79	78	68	66	66	79	81	61	58	68	60	60	69	72	80	88	85	77	82	82	67	75	79	69	69	72	73.4
	Min ..	48	48	62	57	57	57	59	51	43	40	48	48	42	40	40	46	46	46	45	49	54	60	60	49	66	52	45	46	57	59	46	50.2
Mt. Ver'n	Max.	83	74	80	80	79	75	69	66	61	73	85	78	50	56	73	55	67	73	75	91	83	86	72	82	74	67	80	68	71	81	85	73.9
	Min	46	44	42	49	55	56	57	47	43	38	47	46	41	39	35	44	44	47	46	51	55	62	54	45	61	51	47	49	58	56	42	48.3
New H. ..	Max..	75	73	..	..	-	70	77	68	60	71	75	69	50	55	62	67	63	67	71	80	80	85	80	68	64	65	71	..	76	71	73	69.8
	Min ..	43	42	..	..	..	51	55	46	41	32	..	41	38	32	31	40	45	42	40	46	49	61	52	41	53	44	39	..	45	49	46	44.0
Northw'd	Max..	74	73	74	76	76	74	77	67	58	69	76	67	50	57	64	60	65	68	71	80	81	85	80	67	82	64	72	70	78	83	80	70.9
	Min ..	44	42	43	48	52	52	60	49	42	36	48	42	39	35	34	36	42	45	40	40	40	38	37	41	48	44	44	45	55	60	49	44.2
Odebolt ..	Max.	80	75	77	79	75	75	78	68	68	79	80	73	54	67	75	60	63	70	75	85	82	87	85	89	75	62	77	75	80	85	82	75.3
	Mih ..	41	42	45	41	52	49	47	48	38	34	55	43	..	32	36	47	47	42	43	42	49	62	49	44	50	43	40	48	52	46	59	45.5
Ogden ...	Max.	74	72	74	77	78	74	80	65	66	69	76	71	50	62	70	63	62	68	73	80	81	85	76	85	69	70	75	74	76	74	75	72.4
	Min ..	43	42	44	46	53	48	48	45	36	33	48	39	35	30	39	46	45	46	49	44	52	61	44	59	57	49	41	52	52	48	52	46.0
Olin	Max..	72	70	74	76	78	78	73	68	62	60	78	69	55	55	60	56	64	78	70	78	80	85	75	80	79	67	70	76	75	64	66	70.7
	Min ..	47	44	45	50	58	58	59	50	42	38	46	49	42	40	33	42	47	46	47	47	48	60	53	42	63	52	52	43	55	54	42	48.2
Omaha, N	Max.	75	72	74	67	68	71	78	66	66	76	80	64	52	68	65	57	60	69	74	78	79	86	76	88	64	65	71	70	74	80	74	71.2
	Min ..	49	52	52	57	57	55	54	52	46	41	61	46	40	38	51	51	49	51	51	54	61	65	57	54	50	48	49	55	62	59	63	52.8
Onawa....	Max..	77	75	77	78	68	78	78	70	70	82	80	73	55	75	70	60	66	76	80	84	79	87	86	88	78	69	77	75	80	82	80	75.7
	Min ..	43	45	47	55	54	48	54	50	48	42	56	47	36	35	44	50	48	44	46	48	54	63	52	50	50	45	44	53	62	50	62	49.2
Osage.....	Max	76	75	76	78	79	69	78	63	57	65	76	67	50	56	65	55	65	65	71	81	83	87	74	60	65	66	75	72	79	77	78	70.4
	Min ..	42	40	42	47	54	54	51	47	42	35	47	42	38	35	31	41	42	46	40	48	52	63	54	42	51	45	42	45	54	49	49	45.6
Osceola ..	Max..	72	70	74	76	76	69	76	62	65	73	79	53	51	68	67	60	58	68	73	79	80	81	74	87	75	87	74	70	65	72	75	71.3
	Min ..	48	46	47	49	55	54	56	49	44	40	45	52	40	31	37	50	49	46	46	49	55	60	61	48	54	48	46	45	45	52	56	48.6
Oskaloosa	Max..	72	72	76	77	80	72	75	68	64	67	79	70	53	60	68	60	59	66	69	78	83	84	73	83	78	67	71	70	68	69	74	71.1
	Min ..	45	46	48	53	57	57	60	51	44	39	51	53	41	38	36	47	48	46	45	47	49	61	59	48	64	49	45	45	59	53	48	49.4
Ottumwa	Max..	80	78	81	80	84	75	75	68	66	71	80	69	57	62	73	58	64	69	74	84	84	87	69	87	76	68	80	72	70	75	80	74.1
	Min ..	54	52	48	53	58	57	60	51	45	41	50	51	42	39	38	42	46	42	47	49	51	61	61	50	64	52	42	48	50	55	48	49.9
Pacific J'n	Max..	77	73	77	70	71	73	80	66	67	77	80	70	54	67	62	60	60	70	75	78	82	84	78	88	82	68	72	73	75	73	76	72.8
	Min .	42	49	50	53	54	49	50	47	41	41	56	45	39	32	44	50	47	44	47	48	54	60	57	50	60	46	43	52	59	51	60	49.0
Perry.....	Max..	73	72	76	79	80	75	83	65	66	74	81	70	52	64	73	62	64	69	74	82	83	87	74	89	78	67	76	70	74	76	79	73.8
	Min ..	47	48	49	50	57	53	49	50	48	38	52	45	40	36	38	49	48	47	44	45	50	62	52	47	58	47	48	51	59	50	55	48.4
Plover....	Max..	75	73	77	80	78	72	73	65	65	70	80	64	55	64	74	63	65	64	70	76	84	90	77	78	62	65	74	73	79	76	80	72.6
	Min ..	44	42	43	46	48	49	46	50	88	35	50	48	35	33	35	47	45	46	56	45	50	58	48	44	44	42	39	50	55	47	55	45.6
Pocah'tus	Max.	77	73	77	80	78	72	80	65	65	71	80	76	51	62	75	60	65	68	70	81	80	89	77	83	65	65	75	70	77	77	78	73.0
	Min ..	43	44	45	48	56	53	50	49	39	36	51	43	37	34	38	49	46	46	44	46	53	58	50	44	51	44	44	50	46	45	56	46.4
Primghar	Max..	75	70	72	77	68	68	74	60	62	68	63	57	47	62	70	56	62	83	70	77	79	86	66	78	59	62	73	71	77	78	78	69.3
	Min ..	44	44	46	46	61	48	55	44	34	35	39	36	33	31	39	47	43	41	44	47	53	57	50	45	45	42	43	46	53	56	58	45.3
Red Oak..	Max..	73	69	73	72	70	72	76	63	65	73	74	70	53	62	68	62	58	67	71	75	77	79	75	84	77	65	70	69	71	78	75	70.5
	Min ..	47	51	53	57	58	55	53	50	47	43	58	47	40	40	47	52	50	45	47	51	53	63	60	53	61	49	47	55	61	54	62	52.1
Ridgeway	Max..	80	80	84	88	82	78	86	70	62	74	82	71	60	62	71	71	73	81	85	92	87	93	73	69	70	67	80	75	84	77	86	77.2
	Min ..	46	44	44	48	58	56	55	50	41	37	49	44	40	37	35	38	43	45	44	53	57	62	54	46	54	47	44	49	57	51	50	47.7
Rockw'l C	Max..	73	73	74	80	78	75	83	79	60	65	70	68	51	68	76	66	65	70	72	82	85	88	75	70	68	68	75	73	78	85	82	73.4
	Min ..	47	44	49	47	55	51	50	48	39	45	50	43	37	33	38	40	46	43	51	45	50	53	48	45	45	43	43	49	56	50	48	46.1
Sac City..	Max..	75	72	75	78	77	72	80	67	66	72	79	73	52	63	72	57	62	67	74	80	80	86	79	84	74	66	74	72	78	79	80	73.1
	Min ..	44	44	45	46	54	50	49	49	39	38	52	43	36	34	37	47	46	45	45	47	50	61	49	44	50	45	44	49	57	49	58	46.6
St. Cha'les	Max..	71	69	74	77	77	71	78	66	65	72	78	69	50	71	71	62	58	66	72	80	78	82	74	85	82	64	71	67	68	73	72	71.1
	Min ..	49	47	49	52	56	56	55	48	44	41	55	45	40	37	43	43	49	48	47	48	54	62	55	50	62	47	46	51	60	52	53	49.8
Sibley	Max.	77	72	75	77	67	72	74	67	64	65	76	56	47	63	71	50	64	67	72	81	78	86	69	66	48	65	74	68	77	79	77	69.2
	Min ..	42	42	44	47	50	51	50	45	38	33	37	39	35	33	36	45	44	40	42	43	47	53	50	45	44	41	38	46	53	44	51	43.5
Sigourn'y	Max..	78	80	82	80	82	76	75	65	66	71	77	64	53	82	74	55	66	68	72	84	85	82	70	85	79	83	82	86	68	75	81	75.0
	Min ..	44	44	46	49	50	58	60	47	44	39	51	46	41	37	36	45	46	46	45	48	53	51	58	45	64	42	43	46	58	54	45	48.1
Sioux C'y.	Max..	74	71	75	73	66	71	72	67	67	76	76	57	51	67	67	57	65	70	73	79	79	88	67	82	58	64	72	70	79	79	79	70.7
	Min .	45	48	51	57	54	51	56	50	43	45	54	42	38	37	47	52	46	48	45	45	57	62	50	53	48	46	46	54	60	49	63	49.7
Sioux C'r.	Max..	79	73	76	77	67	71	72	68	66	72	74	65	50	65	73	56	63	67	72	80	79	86	70	79	62	62	72	71	79	80	79	71.1
	Min ..	45	44	39	47	54	48	53	44	38	37	53	40	35	32	38	49	45	43	45	48	49	58	51	46	46	42	42	44	54	48	58	45.6
Stockport	Max..	72	71	77	75	78	79	92	64	61	71	79	76	56	61	72	60	60	69	69	76	80	82	73	81	76	68	71	74	72	68	75	72.2
	Min ..	46	48	46	53	58	58	61	51	44	42	49	50	44	42	38	48	49	49	48	51	56	64	61	52	66	55	48	50	60	60	49	51.4
Storm L..	Max.	74	70	73	75	71	70	74	66	65	68	76	58	50	63	69	52	51	65	71	78	75	84	60	77	53	64	70	68	77	75	75	68.3
	Min ..	40	43	46	48	52	49	50	48	39	37	43	42	34	35	40	46	45	45	43	45	54	59	49	44	50	43	45	50	55	45	50	45.6
Stuart ...	Max..	74	70	75	77	77	75	80	71	69	74	78	75	52	66	66	64	62	69	72	81	82	82	83	88	87	68	75	75	74	78	77	74.1
	Min ..	45	42	45	47	52	49	48	45	40	37	52	41	36	39	37	47	45	45	44	45	53	39	70	44	57	42	41	45	55	48	51	46.6
Thurman	Max..	75	72	74	68	71	68	77	68	68	78	79	74	55	69	63	63	63	73	77	79	82	86	79	89	79	67	75	75	72	82	75	73.4
	Min .	43	49	65	56	56	50	47	48	44	41	58	46	39	35	48	51	47	42	44	48	52	61	59	54	59	48	42	54	59	50	61	50.2
Tipton....	Max..	64	65	72	70	72	72	67	67	56	60	71	70	..	..	..	.	65	75	76	84	85	88	75	82	78	68	76	75	68	73	79	72.3
	Min ..	43	49	48	51	52	58	60	51	44	40	49	50	43	40	38	39	45	49	51	52	57	62	58	49	65	54	46	51	59	57	46	50.4
Toledo....	Max..	75	74	78	79	79	72	79	69	63	65	75	72	50	58	65	67	62	68	71	80	81	86	75	84	78	66	71	73	72	72	75	71.9
	Min .	43	43	45	50	55	55	59	50	44	35	49	45	40	38	34	45	46	45	45	46	50	61	58	44	62	49	43	45	56	52	46	47.5
Vinton. ..	Max..	75	73	76	78	78	76	75	72	64	65	79	74	51	56	64	60	63	71	73	81	81	87	80	81	79	67	73	71	71	71	75	72.3
	Min ..	49	44	45	52	56	57	59	51	44	37	49	46	41	38	33	45	46	48	44	51	51	63	53	42	62	50	44	48	56	54	46	48.5
Washl'ton	Max.	74	72	79	78	80	77	78	63	65	66	80	69	55	59	66	53	62	69	72	81	83	85	70	83	77	66	72	74	66	70	75	71.4
	Min ..	47	45	46	51	57	57	60	48	44	39	49	48	43	40	41	46	46	48	45	49	53	61	53	49	65	53	49	49	58	54	46	49.6
Waterloo.	Max..	75	74	78	77	79	74	77	56	63	66	82	55	53	57	63	52	65	71	74	81	84	89	62	80	71	66	78	72	72	73	77	70.1
	Min .	47	43	45	49	55	54	59	50	44	38	38	45	39	36	33	42	46	46	43	48	49	63	57	43	51	48	44	46	52	55	48	46.9
Waukee..	Max .	85	72	76	79	80	74	83	67	68	80	80	68	53	67	74	64	67	70	80	87	82	84	74	90	78	68	80	72	70	75	78	75.0
	Min ..	52	45	48	55	56	54	52	49	44	38	52	45	39	35	41	41	47	47	45	47	54	62	56	49	62	48	44	48	59	52	55	49.1
Waverly..	Max..	74	73	70	79	80	73	78	65	61	63	77	69	52	57	62	57	61	68	72	80	82	87	78	76	66	65	72	72	72	71	74	70.5
	Min ..	46	46	47	56	56	56	60	50	46	37	54	49	39	36	32	42	45	48	45	48	49	64	55	45	60	48	43	46	56	54	50	48.6
W.Bend..	Max..	74	72	75	79	78	74	78	68	64	69	77	61	52	62	70	61	65	67	70	82	80	86	72	72	67	66	72	71	78	76	80	71.5
	Min ..	45	44	45	48	55	53	48	48	40	34	51	42	37	33	34	46	44	47	42	45	52	61	48	43	47	43	41	50	53	50	54	46.0
Whitten..	Max.	74	74	77	89	80	77	78	68	62	70	66	55	50	60	68	67	62	67	73	83	83	89	80	83	77	66	75	74	75	75	79	72.8
	Min ..	44	44	45	49	56	52	58	47	41	34	42	47	37	34	34	44	45	47	43	46	52	60	49	53	60	45	42	45	52	52	49	46.7
Wilton J.	Max..	74	72	79	76	83	77	75	67	67	65	78	71	60	58	65	60	66	74	72	82	84	87	71	84	82	66	74	79	72	68	77	73.1
	Min .	43	46	47	50	61	57	61	49	43	38	48	52	44	39	33	44	44	46	49	51	50	61	61	41	64	54	42	48	52	57	43	49.1
W int'rset	Max	75	71	74	77	77	72	71	80	68	70	70	53	65	72	70	64	66	75	84	90	85	78	85	77	..	67	75	74	70	77	..	73.6
	Min ..	46	44	42	50	55	54	54	48	49	50	59	48	45	38	39	47	42	41	41	50	60	55	45	50	..	45	41	48	58	47	..	47.8
Zearing...	Max..	76	71	73	76	77	75	78	68	65	65	77	73	48	58	66	50	62	69	70	79	80	85	72	83	79	64	72	69	72	71	74	71.2
	Min ..	43	44	45	49	56	54	53	48

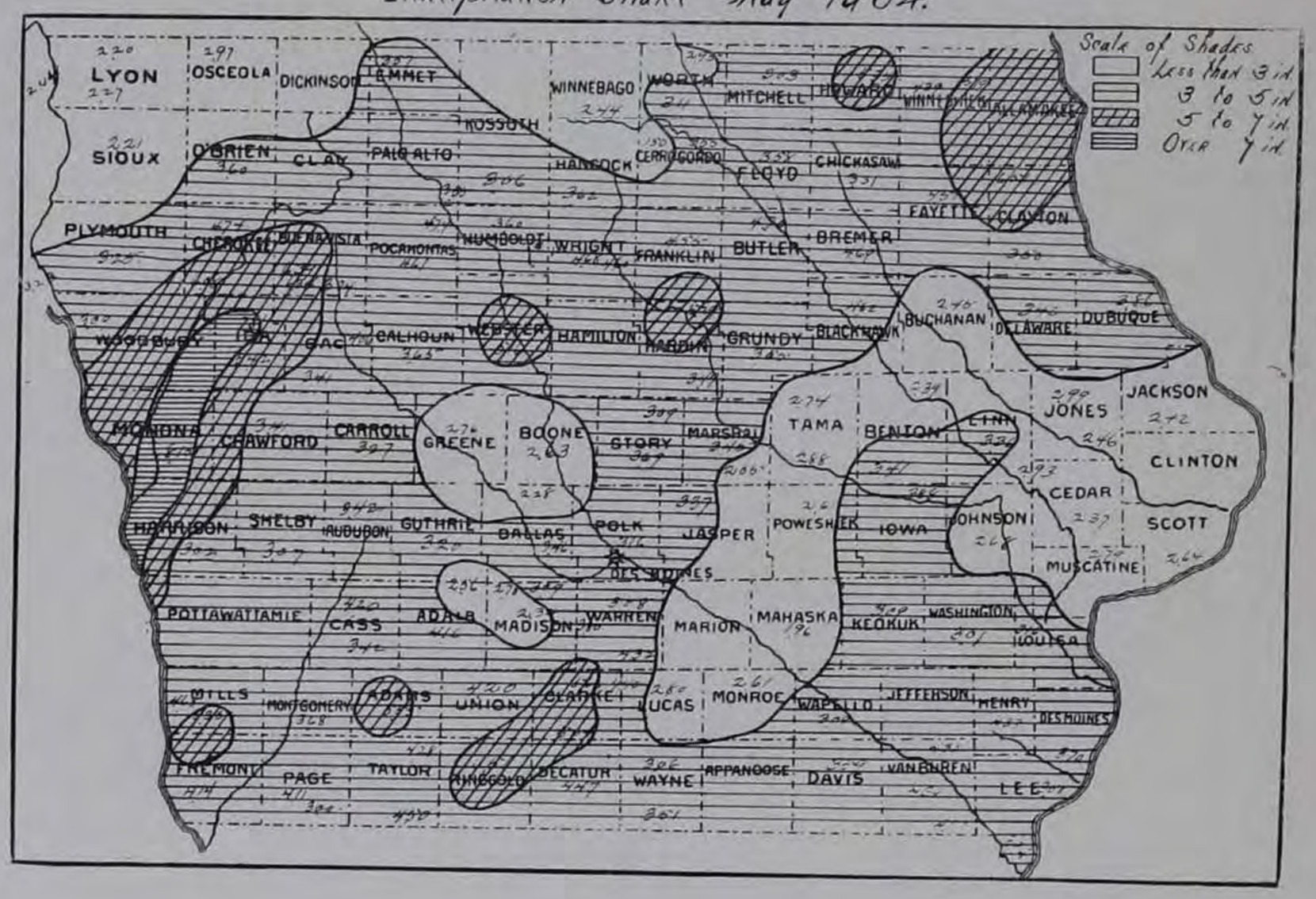
DAILY AND MONTHLY PRECIPITATION FOR MAY, 1904.

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		....	...	.17		....		.73	...	...	....	.64	T	....	....	.17	.52				...	...	....	.25	1.07	.52	....	.11	.22	...	..	4.20
Albia	....	...	....	....	.09	..	.30	.04	.28	T		T	.38	....	....	T	.17	....	....	....	....	....	.03	.40	...	.50	....	...	....	.42	....	2.61
Algona	..	....	....	....	T	....	....	....	....	....	....	....	....	....	....	.20	.28	..	....	....	....	....	.02	.10	2.25	.21	....	...	....	....	....	3.06
Allerton	....		..	T	.07	.10	.34	.42	T	..	....	.31	.08	....	....	.32	.11		...	....	....	T	..	T	.52	.63	....	.05	.56	....	....	3.51
Alta	..	....	....	....	1.98	....	01	....	....	..	....	.01	.03	....	....	1.00	.31		....	....	....	.02	.18	1.15	1.70	....	....	....	....	....	....	6.39
Alta [near]	....	....	....	....	1.68	....	....	..	....	..	....	.03	....		....	1.20	.31	....	...	.	...	.02	.19	1.86	1.05		....		....	..	..	6 34
Amana	..	....	.	....	T	....	1.37	1 07	T		....	.69	.03	....	..	.10	.04	....	...	..	....	..	T	T	.20	.34	....	T	.04	..	...	3.88
Ames	....	....	.	T	.22	....	.18	.55	T	T	....	.41	T	....	.	.12	.25	....	.	....	....	....	.05	....	1.65	.19	....	.01	.06	...	...	3.69
Atlantic	....	....	....		.29		....	1 28	....	....	....	.31	....	...	.20	.27	.15	....	....	..	..	....	...	.10	1.30	..	....	.30	...	....	....	4.20
Aububon		....	....	....	.02	.07	.82	.35	T	....	....	.03	....	..	.02	.45	.42	....	....	..	..	....	...		97	.06	....	.21	....	....	..	3.42
Baxter	....	....	...	...		..	...	.52	.05	...	....	70		....		.15	.25	..	...	..	..	....	....	....	1.10	.60	....	...	....	.	....	3.37
Bedford	..		....	.25	T	....		.40	....	....	....	1.00	T		T	.30	.08	....	....	....	T	....	....	.01	1.75	....	....	.07	.52	....	.12	4.50
Belknap	....	..	....	..		.24	.18	1.34	....	....	....	.20	.20	....	..	.19	.08	....	....			.40	....	.10	.16	.10	....	....	.37	.03	....	3.59
Belle Plaine	...	....		....	.01	T	.30	.65	....	..	..	1.05	..	....	....	.15	.20	....	...	....	....	....	.03	.05	.47	.35	....	T	.05	.10	....	3.41
Bonaparte	...	....	....	....		.52	.65	.62	..	....	....	.58	.	..	....	.17	.19	....	....	...	....	.08	....	....	.13	.47	....	....	.76	....	..	4.17
Britt	..	..	....	..	.34	.01	.80	T	....	....	....	T	.04	..	..	.10	.17	..	....	....	....	....	.05	.03	1.87	.21	....	....	..	..	T	3.62
Buckingham	....	...	..	....	.04	T	....	.58	T	....	....	.61	...	...	....	.40	.10	....	....	....	....	.10	.06		.30	.55	....	T	....	....	....	2.74
Burlington	....	.	..	....	....	.40	1.10	.54	.04	....	....	.17	.08	...	....	.16	.14	.04	....	....	....	.19	.15	.03	....	.07	....	....	.49	.10	....	3.70
Carroll	....	....	....	T	....	....	.58	....	....	....	....	....		T	....	.36	.40	....	....	..		.31	.11	....	.22	1.10	....	.10	.09	....	....	3.27
Cedar Rapids	....	..	..	....	T	....	1.16	.34	.52	T	..	....	.61	....	....		T	T	....	..	....	....	....	.08	T	.65	....	....	T	T	....	3.36
Chariton	....	...	....	....	.10	T	.32	.48	T	...	....	..	T	....		.20	.35	T	....	....	....	....	T	.40	.65	.30	....	T	....		....	2.80
Charles City	..	..	....		..	....	T	.91	.10	T	T	..	.10	T	....	..	....	..	....	....	....	....	T	.40	.65	.30	....	T	....		....	3.58
Clarinda	..	..	....	.22	.18	....	....	.81	..	....	..	.75		..	....	.31	.20	....	....	....	T	....	....	.05	.36	.83	....	T	.24	.11	....	4.11
Clear Lake	..	....	...	....	.75		T	.25	T	....	....	T	T	....	..	T	....	....	....	..	....	....	T	.30	.20	T	....	....	....	....	....	1.50
Clinton	....		..	....	....	.09	1.27	.18	.04	....	....	.54	.09	....	....	....	....	....	....	..	....	....	....	....	....	.01	....	....	.28	....	....	2.10
College Springs	....	...	....	.36	.10	....	....	.38	....	....	....	.75	....	...	.01		T	....	....	....	....	....	....	....	51	.45	....	.14	.30	....	T	3.00
Columbus Junct'n	....	..	....	....	T	.60	.45	.63	....	..	....	.35	.15	....		.07	.08	.07	.03	....	....	T	T	08	T	.15	....	..	.46	.03	....	3.16
Corning	....		.	.27	.04	....	....	.87	....	....	....	.95	T	...	T	.25	.13	....	....	....	T	....	....	.41	1.09	1.09	....	.19	.26	..	....	5.55
Corydon	....	...	....	.01	....	.03	.38	.41	....	....	....	.35	.13	..	....	.19	.50	....	....	....	....	....	....	.06	.31	.37	....	....	.32	....	....	3.06
Cresco	....	...	....		....	.60	.50	1.10	....	...	....	.15	....	....	....	....	....	....	....	....	....	.25	1.00	1.25	.60	....	...	....	....	....	....	5.35
Cumberland	..	....	....	T	....	....	.40	.70	..	....	....	.71	....	....	T	T	....	....	....	....	....	....	....	....	1.20	....	....	.41	....	....	....	3.42
Davenport	..	....	...	....	.01	.46	.87	.28	.06	....	....	.38	.12	....	....	T	T	T	...	...	..	....	T	.02	.01	.12	....	T	.23	.08	....	2.64
Decorah	....	....	....	..	T	.20	T	.66	...	....	T	.54	....	...	..	....	..	....	..	....	....	....	.54	1.65	1.26	.34	....	....	....	....	..	5.19
Delaware	.	....		....	T	....	.57	.82	....	....	.05	1.02	.02		..	....	....	....	....	....	....	.03	.13	....	.45	.33	....	....	....	....	....	....	3.42
Denison	...	....	....	....	.09	....	....	.08	....			T	T	..	.05	.78	.38	....	....	....	T	....	.12	....	1.54	.18	....	.08	.11	....	..	3.41
Des Moines	.	....	....	....	.03	T	....	.56	T	..	....	.75	T	....	...	.02	.18	T	..	....	T	....	T	T	1.26	.19	....	.05	.12	T	....	3.16
De Soto	....	....	...	....	T	....		.64	....	....	....	.64	.02	....	-	03	.15	.05	....	....	..	....	T		1.17	.11	....	.11	.17	....	....	3.09
Dows	....		....	....	.13	....	.22	.75	....	....	....	.04	....	....		T	.51	....	....	....	....	T	.14	.22	1.92	.67	....	....	....	....	..	4.60
Dubuque	....	....	...	....	T	T	.58	.58	T	T	....	.61	.12	....	....	....	T	T	....	..	....	1.13	.16	T	.53	.15	....	T	T	....	....	3.86
Earlham	....	....	...	T	T		....	..	..	....		.95	T	..	T	T	.23	T	....	....	....		....	....	.88	.24	....	.11	.37	....	....	2 78
Elkader	..	..	...	....	T	...	.25	1.25	....	....	....	.61	....	....	....	....	....	....	....	....	....	T	T	.07	1.32	....	....	-	....	....	....	3.50
Estherville	.	..	....		T	1.50	T	T	T	T	....	..	.20	T	....		.74	....	....	....	....	T	T	.05	.60	.48	....	....	T	....	....	3.57
Florence	.	..		..	.27		....	.31	....	....	....	....	.01	....	.15	.24	....	..	....	....	....	....	.04	.88	2.45	.33	....	....	....	..	....	4.68
Forest City	....	....	....	..	T	.05	...	.06	....		....	....	T	T	....	....	.12	....	....	....	....	....	....	1.00	1.21	....	....	....	....	....	....	2.44
Fort Dodge	..			....		....	.59	....	....	....	....	....	.04	T	....	....	.36	.02	....	....	....	....	.02	.18	2.60	1.35	....	....	T	....	..	5.16
Fort Madison	....	....	..	....	T	.96	1.34	....	T	....	....	T	..	....	....	.43	T	....	....	.	....	....	.22	.14	....	T	....	....	.58	.13	....	3.58
Galva	....		....	....	3.05	.02	....	....	....	..	..	T	.01	..	...	1.22	.11	....	....	.	....	....	T	.70	2.11	37	....	T	....	....	....	7.81
Gilman		....	....	....	T	T	T	.24	T	....	...	.37	T	....	....	.06	.25	T	....	....	....	....	T	.03	.53	.57	....	T	T	T	....	2.05
Glenwood	..	....	....	T	T	..	2.65	T	....	..	....	....	T	....	T	1.25	T	..	..	..	....	....	T	....	1.15		....	.30	T	....	....	5.35
Grand Meadow	....	....	....	....	T	....	.05	.90	.05	....	.07	.77	....	.03	....	..	....	....	....	....	....	....	.13	1.00	2.74	1.90	....	....	....	..	....	6.51
Greene	....	....	....	....	.13		....	1.13	.03	....	..	.07	....	....	....	....	....	....	....	....	....	....	....	....	1.84	.37	....	....	....	....	....	4.70
Greenfield	....	....	....	T	.15		T	.77	....	....	....	1.07	T	T	T	.15	.20	T	....	T	T	....	....	.02	1.00	.42	..	.16	.21	..	....	4.16
Grinnell	....	....		....	.05	....	.07	.40	.20	....	..	.70	....	....	....	.37	....	....	....	....	....	....	....	.02	.80	..	..	T	....	..	....	2.61
Grundy Center	....	....		....	T	....	....	.67	....	....	....	.64	....	....	....	.11	.63	....	....	....	....	....	.12	T	.09	.55	....	....	.14	....	....	3 55
Guthrie Center	..	...	..	....	.03	....	.11	.80	....	....	..	.38	....	....	..	.04	.11	.02	....	....	....	....	....	.06	1.38	.10	....	.12	....	..	...	3.20
Hampton	....	....	....	....	.04	....	.85	..	.04	..	....	.06	..	..	....	.50		.03	....	....	....	.01	.03	.20	1.80	1.03	....	....	....	....	....	4.55
Hanlontown	....	....	....	....	.31	.01	.29	.07	.06	....	....	T	T	....	..	....	....	....	....	....	T	....	T	.23	1.66	.25	....	....	....	..	....	2.95
Harlan	.	....		....	.15	.02	.12	....	.17			.01	T	...	.05	93	.23	..	....	....	.01	...	..	.42	1.03	.15	....	.21	T	....	....	3.07
Hopeville	..	.		.11	T		..	.55	....	....	....	1.37	....	....	....	.22	.31	.04	....	....	.01	...	..	.42	1.35	.25	....	.08	.33	...	....	5.14
Humboldt	....	....	...	....	....	....	..	T	....	....	....	....	....	....	....	.20	.66	....	..	..	....	....	....	.96	1.31	.47	..	....	....	....	..	3.60
Ida Grove		...	....	....	1.70	..	..	..	....	....	....	....	....	....	T	1.10	.45	....	...	....	....	....	.12	.05	2.00		....	..	....	..	....	5.42
Independence		....	....	....	T		.10	.60	...	....		.65	....	....	..	....	....	....	....	....	..	.05	.05	.	.80	.20	....	....	....	....	....	2.45
Indianola	....		..	T	.01			.56	T	..		.57	T	....	....	.05	.22	T	....	....	T		T	....	1.22	.20	....	.12	.13	..	....	3.08
Inwood		..	..	....	....	.11	....	....		....	....	.25	....	....	....	96	....	..		..		30	....	.30	.35	....	..	..			..	2.27
Iowa City	....	....	....	....	T	.05	.62	.08	.52	....	..	....	.76	T	....	..	.16	..	T		....	..	....	T	.02	.35	..	....	T	.12	....	2.68
Iowa Falls	....	....		...	T	T	....	.74	.02	T	..	..	.18	T	..	....	.62	T	T	....	....	....	....	.16	2.05	1.52	...	....	T	T	....	5.29
Jefferson	....	....	..	....	..	....	1.35	..	....	..	....	.05	....	....	....	....	.20	....	....	....	....	....	.15	.03	.95	....	....	.03	....	....	....	2.76
Keokuk	....	....			.01	.90	.85	.74	.13	....	....	.02	.07	....	....	.20	.13	....	....	....	..	.08	T	.08	T	.12	.	T	.41	.20	....	3.94
Keosauqua		....	....		..	T	.53	.15	.48	T	....	....	1.00	....	....	....	.35	.08	.01	.	..	....	.09	.11	T	.60	....	....	T	.99	..	4.39
Lacona	....	...	....	..	.05	....	.	.75	.	....	....	1.00	....	....	..	.15	.17	.08	....	..	....	....	.07	.10	.82	.78	..	.08	.27	....	....	4.32
Larrabee	....	....		....	1.16	....		....	....		....	.12	.07	T	....	1.12	.58	....	..	..	....	.02	....	.81	.86	....	....	....	....	....	....	4.74
Le Claire	....	....	..		..	....	1.01	.41	.14	.09	....	....	.40	....	..	....	.02	T	....	....	....	....	....	T	.02	.09	.11	....	..	.42	....	2.71
LeMars	....		.		..	..		....	....	....	.25	T	..	..	1 10	....	....	....	....	....	T	T	1 70	.20	....	....	....	....	....	....	3.25
Lenox		...	...	.37		....	T	.48	..	....	....	.70	....	..	....	.22	.09	....	...	.	....	....	....	.70	.51	.64	....	.10	.46	....	....	4.28
Leon	....	.		..	.16	.05	..	.99	....	..	..	.88	.06	..	....	.29	.27	....	....	....	....	....	....	....	.95	30	...	.10	.40	.02	....	4.47
Logan	1.00	.03	.32	....	....	..	....	....	....	....	....	....	53	....	.43	.82	.11	....	....	..	....	....	....	....	....	....	....	....	....	.31	...	3 02
Maquoketa	....	.	....	..		....	.86	.07	.58	....	....	....	.72	T		..	.58	.05	....	....	.	....	....	....	T	.27	.05	..		.06	..	2 42
Marshalltown	....	....		....	T	..	....	.32	.12	....	..	....	....	....	....	....	....	T	....	....	..	....	....	.05	.36	1.20	...	....	.02	.03		3.45
Mason City	....		....	....	.04	..	....	.46	....	....	...	T	..	....	....	....		T	....	....	..	....	T	.56	2.08	.41	....	....	....	....	....	3.55
Monticello	T	....	....	T	T	.90	....	..	.61	..	....	....	.75	..	..				....	..	T	.	....	.20	T	.73	..	....	T		....	2.99
Mount Ayr	....	....	....	.40	.02	T	.03	.72	....	....	..	1.21	T	....	..	.25	.25	T	..	....	....	....	....	.20	1.30	1.61	....	05	.47	..	..	6.51
Mt. Pleasant	..	....		.04	1.21	.56	.63	.03	..	....	-	.50	.07	T	..	.11	.17	..	....	....	....	....	.05	.20	.05	.22	....	T	.48	.05	....	4.37
Mt. Vernon		....	....	....	.02	.02	.87	.58	T	....	....	.22	.48	....	..	.05	..	T	....	....	....	....	T	T	.20	46	....	T	.01	.02	....	2.93
New Hampton	..	....	....		....	..	.05	.70	....	....	.02	.12		....	....		..		....	....	....	....	T	.54	1.28	.58	..	.02	....	..	..	3 31
Northwood	....	....	...	....	.75	....	T	.13	.07	..	T	T	.12	....	....	T	....	..	..	.	..	..	T	.27	1.46	.31	..	....	....	....	....	3.11
Odebolt	....	....		....	.05	....	..	....	....	....	..	....	....	..	..	1.00	.23	....	....	....	....	....	.15	.08	1.50	.40	...		....	....	....	3.41
Ogden	....	...	....		T		.28	.60			..	28	....	....	..	.08	.28	....	....	....	....	....	.06	.04	.73	.28	....	....	....	....	...	2 63
Olin	....	....	...	....	T	33	....	.70	.01	T	....	1.00	....	..	....		T	....	..	...	...	..	....	.01	.40	....	..	T	T	.01	....	2.46
Omaha, Neb		....	...	.10	.36	T	T	.22	....	....	....	.05	T	....	.40	.81	.06	....		..	T	....	.03	T	2.35	....	....	.45	.03		T	4 86
Onawa	....	....	....	.01	1.92	...	....	.10	...	...	....	T	.10	....	.75	1.69	.20	...	....	....	....	....	15	.15	2.80	.25	....	.03	....	....	....	8.15
Osage	....	..	....	....	.10	.03	....	52	T	..	....	T	T	T	...	....	....	....	...	....	....	.36	T	.51	1.26	.25	....	....	....	....	....	3.03
Osceola	....	.	...	....	.05	....	.15	.81	04	...	..	.06	2.00	T	..	.05	.10	.05	T	....	....	....	....	.25	.20	1.60	....	....	....	.30	...	5.66
Oskaloosa	..	...	...	....	.03	.02	T	.24	T	....		.45	.05	....	....	.03	.12	..	....	....	T	..	T	.03	.62	.07	T	T	.30	..	..	1.96
Ottumwa	....	...	....	....	...	.40	...	.98	..	....		.32	....	....	....	....	.24	....	..	....	....	.14	.13	....	.20	.08	....	....	.60	....	..	3.09
Pacific Junction	.	....	....	.13	.12	.07	.91	.45	....	..	....	.20	T	..	.12	.59	.02	...	..		....	..	....	.07	1 51	....	....	.44	....	....	02	4.68
Perry	....		..	...	T	....	T	.67	....	..	T	.14	....	....	....	.05	.15	.	....	..	....	....	T	....	1 22	...	..	.05	....	....	...	2.28
Plover	....	..	....		....	....	....	....	....	....	....	....	....	....	....	.20	.80	..	....	....	....	....	....	1.60	1.90	.24	....	..	....	....	....	4.74
Pocahontas	...	....	..		.01	....	..	T	..	....	..	....	....	....	..	.12	....	....	....	....	....	....	.03	.87	3.16	.42	....	..	....	....	..	4.61
Primghar	..			1.25	....	....	....	....	....	....	....	....	.10	....	....	1.00	....	....	..	....	....	....	....	.35	.80	..	.10	....	....	....	....	3.60
Red Oak	....	....	..	.20	T	.04	.06	.75	....	....	....	.70	T		.04	.32	.07	....	....	T	....	....	....	.09	.72	.36		.27	.06	....	T	3.68
Ridgeway		....	....	....	.06	.	.83	.71	.02	..	.05	.14	.01	.06	..	....	T	.01	....	..	38	..	....	36	1.37	.40	....	....	.01	....	....	4.39
Rockwell City	....	..	....	....	....	....	.30	....	....	....	....	T	T	..	....	.35	.15	....	....	....	....	....	.2	....	1.50	1.20	....	T	....	....	....	3 65
Ruthven	....	..	....		1.10	....	....	....	....	....	....	....	....	..	....	.90	....	....	..	....	....	....		.90	.60	....	....	....	....	....	....	3.50
Sac City	....	....	....		....	T	.44	T	...	....	...	T	...	....	..	.78	.14	..	....	....	....	....	.20	.02	1 72	.76	...	T	....	..	..	4.06
Sibley	...	....	....	....	.28	.62	.01		....	....	..	.02	.35	.05	....	.04	.86	....	....	....	....	.02	....	.01	.29	.38		....	....		.04	2.97
St. Charles	....	..	...		01	T	....	.66	...	....	....	.67	.02	..	....	.07	.25	.02	....	....		....	T	T	1.51	.25	....	....	.32	.02	....	3.80

DAILY AND MONTHLY PRECIPITATION FOR MAY, 1904--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	1.03	.96	.02	....	....	.39	....	....	....	T	.22		..	....	..	....	T	...	.21	...	....	T	.26	....	....	3.09
Sioux Center	....	....	..		.12	.03	T	....	..	....	....	.27	.02	....	T	.90	.28	....	....	....	..	.10	....	....	.47	....	..	....	....	....	.02	2.21
Sioux City	....	....	..	.01	.70	....	.01		..		-	.04	T	....	.14	.87	.01	....	...		...	T	.15	.05	1.03	.04	....	.04	..	....	T	3.09
Stockport	....	....	..	....	....	.50	.33	.63	.09	....	....	.90	.07	...	...	.15	.17	T	...	....	....	.09	.03	.05	.43	.26	....	T	.6	.02	....	4.32
Storm Lake	....	..	...	....	....	.54	...	....	....	....	..	..	....	....	....	.40	.23	....	....	....	....	....	.13	.09	1.85	.50	..	....	....	..	....	3.74
Stuart	....	....	....	....	....	....		....	....	....	....	.71	...	..	....	.06	.11	...	....	....	....	....	....	....	1.05	.27	....	.13	.23	....	....	2.56
Thurman	..	....	....	.15	.20	T	.38	.06	....	....	....	.62	....		.15	.40	.10	-	....	..	T	....	....	T	.78	.30		.48	.25		.27	4.14
Tipton	....	....	....	....		....	.67	62	....			.64	.08	....	....		....	....	....	....	....	....	....		.12	.04	....	...	.15	05	...	2.37
Toledo	..	....	....	-	T	....	....	.63	....	...	...	.80		....	....	.10	.40	....	....	....	....		T	....	.95	..	....	..	....	...	..	2.88
Vinton	....	....	....	...	T	.18	.05	.70	T	..	....	.92	.14	....	....	.04	.02	....	....	....	..	....	.03	T	.29	...	..	....	T	..	....	2.39
Washington	..	....	..	....	.05	.50	..	53	....	..	....	.90		...	....		.15		....	....	....	....	....	.06		.42	..	...	.40	....	....	3.01
Washta	...	....	..		1.55					....	....	T	T	....	T	1.43	.25	....	....	....	T	....	28	.40	2 17	....	....	....	..	...	6.08
Waterloo	-	....	....	....	T	T	...	.72	T	....	-	.50	.16	.01	....	T	T	T	....	....	....	....	.14	.07	2.31	.71	....	-	T	....	..	4.62
Waukee	..	....		...	.01	....	T	65		....	...	.60	T	....	....	.07	.14	....	....	....	....	....	T	T	1.14	.36	..	.10	.34	.05	....	3.46
Waverly	....	....	....	-	.01	-	.14	.85	T	....	-	.46	.05	....	..	...	....	...	..	....	....	....	.08	.81	1.06	.80	....		.18	....	....	4.69
West Bend	...	..	....	....	T	....	T	...	T		....	.01	.02	....		.16	.50	....	....	....	....	.25	03	1.00	1.47	36	..	T	....	..	..	3 55
West Union	....			....	....	....	.12	41	T	....	....	59	..	....	....		....	....	..	....		....	....	1.80	1.59		....	....	....	....	....	4.51
Whitten	....	....	....	....	T	T	.26	.65	T	..	.47	....	T	....	..	....	.74	..	....	....	....	..	.15	...	.85	.37	....	T	T	....	....	3.49
Wilton Junction	....	....	...	....	....	....	.80	.75	...	....	....	.42	....	....	....	....	....	.28	....	....		..	...	....		22	..	...	.10	.22	....	2 79
Winterset	....	....	...	....	....	...		.52	....	-	....		....	....	....	....	....		...	....	....		....	.70		.68	....	16	.26	....	....	2.32
Woodburn	....	....	..	T	.04	T	.18	74		....	....	1.09	T	....		.15	.38	T	....	..	T	T	..	.23	1.03	.40	....	.06	.25	....	....	4.55
Zearing	...		..		....		...	71	...	....	..	.42	....	...	....	.38	.17	..	...	....	....	....	.09		1.16	.16	....		...	....	....	3.09

Precipitation Chart May 1904.



JUNE, 1904. No. 6

CONTENTS.

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GEO. M. CHAPPEL,
LOCAL FORECASTER,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

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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U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

VOLUME XV. JUNE 1904. No. 6.

IOWA CROP CONDITION, JULY, 1904.

Following is a summary of reports received from correspondents of the State Weather and Crop Service, estimating the condition of the staple farm crops July 1, 1904. The reports generally show that the stand of corn and oats is materially lighter than the average, owing to defective seed; and all crops are several days later than usual, as a result of the late advent of spring. The general condition, however, is several points better than at the corresponding date last year, as will be seen by the figures below:

CONDITION JULY 1, 1904: Corn, 90 per cent; spring wheat, 91; winter wheat, 87; oats, 91; barley, 93; rye, 94; flax, 89; meadows, 90; pastures, 94; potatoes, 101; apples, 85; plums, 7 ; grapes, 89.

CONDITION LAST YEAR: Corn, 77 per cent; spring wheat, 88; oats, 87; barley, 89; rye, 98; flax, 85; meadows, 104; pastures, 107; potatoes, 96; apples, 70; plums, 49; grapes, 78.

JUNE WEATHER AND CROPS.

The month of June was cooler than usual, with less than the normal amount of rainfall, and a large percentage of cloudiness in portions of the state. The daily average temperature was 2.5 degrees below normal. The precipitation was quite unequally distributed; the northern section receiving an average of 4 53 inches, the central section 2.74, and the southern section 3.08 inches. The week ending June 6th brought excessive rains in all parts of the state, except portions of the east central district. The wet and cloudy weather of that week caused much delay in the cultivation of corn, and in large portions of the state the fields became weedy and the growth of corn was considerably retarded by cold nights and wet, cloudy weather. The second week was generally very favorable for field work and the growth of crops, the days being bright and warm with ideal conditions for cleaning out the corn fields. The week ending the 20th was also favorable, though the temperature was below normal. There was but little interruption of work, and fair progress was noted in the growth of all crops. From the 20th to the close of the month the average temperature was abnormally low, and there was more than usual cloudiness in the larger part of the state. Despite all drawbacks, however, the corn crop advanced steadily, and at the close of the month the fields were generally clean and the stand was but little below the average of the past fifteen years. The month as a whole was favorable especially for small grain, which headed out about the usual time, though short in straw, giving promise of a much better crop than was harvested in 1902 or 1903. The hay crop was well advanced and fairly good, especially in quality. Potatoes and garden vegetables were usually promising.

NOTES AND COMMENTS.

In a large part of Iowa the crop of cherries has been much larger than usual. The strawberry crop also has been very good, but not up to the standard in flavor. Plums, peaches and blackberries are much below the average in condition. Raspberries and gooseberries, quite fair crops

Under the new drainage law, petitions are being filed in the offices of various county auditors asking for the authorization of drainage ditches to be dug through lands subject to overflow and too wet for cultivation, to promote the public health and welfare of the people. A timely bulletin has been issued by the Iowa Experiment Station at Ames, entitled "Drainage Conditions in Iowa," which will serve as a valuable handbook for farmers, drainage engineers and students. A copy may be secured by addressing a note to Director C. F. Curtiss, Ames, Iowa.

About everything grown in the way of green forage has been tried for filling the silo, and the result of all the experiments is that no crop so well fills the bill, taking ease and economy of handling and value as ensilage, as our common field corn cut when the ears are well glazed. This makes the silo fit into the ordinary farm economy all through the corn belt.—*J. S. Trigg.*

The application of the dynamo to water power gives every waterfall, no matter where located, a money value. Wise men recognizing this fact are picking up all available water powers, for they will all be used in the near future.—*J. S. Trigg.*

FORECASTING THE WEATHER.

The American people like to be humbugged. Next to the gold brick and green goods artist, the long range weather forecaster is the biggest fake on the market. There is not a man living today who can give the slightest clue as to whether next July will be wet or dry, abnormally hot, or unusually cold, and whoever attempts to do so is simply playing on the credulity of the public. The average fakir's long range forecasts consist of a series of violent storms, tornadoes, hot waves, cold spells and hailstorms, which, if one-fourth of them arrived, would make all Iowa a howling wilderness in a short quarter of an hour. Even the milder tempered gentry have the happy faculty of

making such an indefinite forecast that it can not be applied to any locality or any date. There is not a farmer in Iowa who would not be absolutely ruined if he planned his work for one season in accordance with the predictions of these false prophets. He would have to contend with frosts up to the first of June and beginning again in August, floods during the entire season, weather that would scorch vegetation like a blast from a furnace and a sharp cold spell every third day.

To be sure these forecasts hit it once in a while. One who is guessing all the time can not fail occasionally to hit it. His guess is worse than useless if he does not succeed at least every other time and a great many of them do not do this good. Neither of the long range prophets will explain to the scientific world the basis upon which he makes his forecasts, and this refusal of itself would justify the charge of fraud and chicanery if there were no other thing against them.

The officials of the United States Weather Bureau, on the other hand, take the public into their confidence. They openly admit that there is much about the science of forecasting that they do not know and may never learn. They do not claim absolute accuracy for their forecasts but over 80 per cent of them are verified. Predictions are usually made for only thirty-six hours in advance and any one conversant with the facts knows that at present that is as far ahead as our knowledge will warrant any one in predicting. The day may come when scientists may be able to tell something about the coming seasons by reference to the peculiar action of sun spots, but this problem is just being taken up and several years must elapse before anything of moment can be announced. The most these scientists hope to do is to foretell whether a season will be unusually hot, or abnormally cold, whether the rains will be abundant, or drouth prevail. Detailed forecasts for each day, months in advance, will probably never be attempted, as that feature is at present believed to be quite infeasible. In the meantime don't be running after false gods—*Afton, Iowa, Star-Enterprise.*

CULTURE OF FORESTS.

The Pennsylvania Railroad company is engaged in planting locust trees with a view of supplying crossties in the future. Last fall 50,000 trees were planted at Conewago, Pennsylvania, and now as many more are being planted. Next fall, it is said, the company will plant 200,000, and in the following spring 650,000. The forest will cover three square miles, and, it is estimated, will furnish 5,000,000 ties within twenty-five years. This is an excellent work, and is evidence of a wise and farsighted policy. Tree planting is neglected by individuals because forest trees are of slow growth and the benefit or profit is too remote to tempt one to set out forests. But in the case of such a corporation as the Pennsylvania Railroad company the case is different. Such a corporation is supposed to be immortal, and the management, if it is prudent, is always looking to the future. Iron and steel have been tested as substitutes for wooden crossties, but without success. Wood is manifestly the best material for this use, and there is scarcely any use which has caused a more general and deplorable devastation of the forests of the United States as the demand of the railroads. The time is rapidly approaching when the natural supply must fail or become too expensive. Some of the western railroad companies have for some years back been planting trees along their right of way. On the fertile lands of the prairies trees make rapid growth, and, while a sufficient supply can not be produced this way, enough can be grown to make it worth while.

The Pennsylvania company is going about the work in the right way. Large areas of rough land, suitable for the purposes of a forest, can be obtained at a slight cost, and a forest once grown will continue, under proper management, to yield ties and perpetuate itself indefinitely. Careful trimming from the time the young trees begin to grow will train them into proper shape, and thus a single tree will yield more ties than those which have had no pruning. The Pennsylvania company has also selected the very best tree for the purpose. The locust is one of the most rapid-growing of the hardwood trees, and one locust tie will probably outlast a half dozen of oak or chestnut. In fact the locust is regarded as the most durable of all our native woods, and a railroad track laid upon locust ties would be almost as permanent as if the ties were of iron.—*Baltimore Sun.*

CLIMATIC FACTORS IN RAILROAD ENGINEERING.

A thesis on the above subject has been prepared by R. M. Brown as a part of his course in general climatology at Harvard University and has been published in the Journal of Geography for April, 1903. The struggle of railroads against climatic conditions has been recorded so fully during the past century as to become exceedingly instructive, and the influence of the various climatic factors is presented one by one in Mr. Brown's memoir.

As to heavy precipitation he notes that the rainy seasons are often followed by droughts, and this alternation destroys all woodwork either by shrinkage and splintering or by the growth of fungi. Railroad ties decay when there is a good supply of moisture and when the temperature is between 32 degrees and 150 degrees. Data on these points are given for India, South Africa, Central Africa and Central America.

The diseases that are considered peculiar to climate, such as cholera, malarial fevers and yellow fever, offer difficulties that must be overcome. The experiences of numerous large railroad undertakings are mentioned. The droughts that occur in some locations require the building of huge tanks, while in other cases one must go a long distance to obtain pure water. Outdoor work can not well be done in the rainy weather and laborers accustomed to hot dry weather lose many days in the rainy season.

The floods and damages by heavy rains are matters of great importance and "are registered on the books of the construction companies with unceasing regularity. * * * The history of every road that traverses the belt of heavy precipitation is a story of continual struggle against floods." In regions of heavy rainfall land slips are frequent and a long list of these is given by the author

The ballast on the roadbed appropriate to the long, dry season is not appropriate to the heavy rain season. In general, the ballast produces dust haze sufficient to obscure the approaching train; the dust also penetrates the machinery, causing hot axles and other damage. In America and England, under most conditions, stone ballast is the more expensive, but in India the climate reverses this rule.

In regions of moderate precipitation, whether of rain or snow, the length and weight of the freight trains is determined by the weather; thus, on the Pennsylvania railroad west of Pittsburg, the load assigned to an engine is 1750 tons in good weather and 1225 in bad weather. On the Union Pacific road the snow offers great obstacles; about 2 per cent of the entire expense of the road is credited to the removal of snow and repairs of snow sheds. The Iquique railroad of Chili reports increased cost of working during fogs which produce slippery rails.

In regions of light precipitation, or drought, railroad ties decompose; the danger of fire is increased, and burning bridges cause wrecks of trains. In the Arabian deserts the railroad operators suffer comparatively little from disease. On the Transcaspian road the lack of good water brought about

disease. On the Iquique road it is necessary to convey water in tanks and in some cases distilled water was carried forty miles on mules.

In regions of high altitude the rarefaction of the air causes much trouble to the operators, but on the other hand the absence of germs prevents the decay of organic matter. In the report of work on the railroad up the Jungfrau, Doctor Kronecker stated that mountain sickness sets in at altitudes varying with different persons, but that it a tacks all persons as soon as they indulge in the least muscular effort above 10,000 feet. Persons in good health can stand being passively transported up to 12,000 feet without inconvenience; a prolonged sojourn may, however, be disastrous. On the Callao, Lima and Oroya railroad many thousands of laborers lost their lives. "So difficult was it to work in the rarefied air at high altitudes that riveters did not average a week's work each and many returned on the next train." On the other hand, in building the Sierra Leone railroad the number of deaths and invalids was wonderfully low, but the climate had an enervating effect and there were frequent absences on leave. In the upper portions of the railroads, such as the Jungfrau, snow avalanches are a serious obstacle, but may be avoided by burrowing under or by underground tunnels. Many railroads are abandoned during the snow season. Not only in Switzerland but also in the Rocky Mountain region snow sometimes overpowers all human efforts.

In regions of severe winter cold another class of obstacles is met with, namely, the formation of ice. Although deep and frozen rivers and lakes may be traversed by railroads, yet when the breakup comes in springtime there is a period when such transportation must cease and when boa!s are also impossible. The experiences of the Transsiberian road and the Canadian Pacific are given with some detail. The average number of days during which work is possible on account of the snow and ice and the frozen ground is very limited. At Lake Baikal the soil is unworkable from October to April; at Vladivostock, the number of days when the temperature is below freezing is 150, and, in general, on the Transsiberian railroad the total number of working days in a year is about 100. A general tabulation of the number of working days in each month of the year, for various portions of the United States, would perhaps elucidate many of the problems relating to the labor question.—*Monthly Weather Review, April, 1903.*

CLIMATOLOGY OF THE MONTH OF JUNE, 1904.

BAROMETER—Mean pressure, 29.96 inches; highest observed, 30 26 inches, at Des Moines and Dubuque on the 26th and 27th; lowest observed, 29.44 inches, at Sioux City on the 3d; range for state, 0.82 inch.

TEMPERATURE—The monthly mean temperature for the state, as shown by records of 114 stations, was 67.1°, which is 2.5° below normal. By sections the mean temperatures were as follows: Northern section, 65.7°, which is 2.6° below normal; central section, 67.5°, which is 2.0° below normal; southern section, 68.2°, which is 3.1° below normal. The highest monthly mean was 70.6° at Monticello; lowest monthly mean, 63.7° at Sibley. The highest temperature reported was 94° at Clinton, Larrabee, Ridgway and Ruthven on the 23d and 24th; lowest temperature reported, 35° at Charles City on the 2d. The average monthly maximum was 88.1°; average monthly minimum, 45.9°. Greatest da ly range, 45 at Pocahontas; average of greatest daily ranges, 33.4.

PRECIPITATION—Average precipitation for the state, as shown by records of 126 stations, was 3.45 inches, which is 1.05 inches below normal. The averages by sections were as follows: Northern section, 4 53 inches, which is .15 inch below normal; central section, 2.74 inches, which is 1.56 inches below normal; southern section, 3.08 inches, which is 1.23 inches below normal. The largest amount reported was 8.35 inches at Humboldt; least amount reported, .44 inch, at Gilman. The greatest daily rainfall reported was 3.67 inches at Charles City on the 19th. Average number of days on which .01 of an inch or more was reported, 7.

WIND AND WEATHER—Prevailing direction of the wind, southeast; highest velocity reported, 58 miles per hour, from the northwest, at Sioux City, on the 28th. Average number of clear days, 13; partly cloudy, 10; cloudy, 7.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES. Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	29.94	30.23	27	29.56	3
Des Moines	29.98	30.26	26	29.55	3
Dubuque	29.97	30.26	27	29.60	3
Omaha, Neb	29.94	30.26	26	29.46	3
Keokuk	29.95	30.20	26	29.55	3
Sioux City	29.95	30.25	26	29.44	3
Means	29.96	30.26	26-27	29.44	3

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	5.224	25	W	3
Des Moines	5.546	30	SW	23
Dubuque	4.485	34	NW	24
Keokuk	5.033	32	W	5
La Crosse, Wis	4.469	25	W	23
Omaha, Neb	5.264	32	N	29
Sioux City	8.684	58	NW	28

OBSERVERS' NOTES.

ALLERTON—*Rex. Shriver.* An ideal month for all crops; fruit generally good.

ALTA—*David E. Hadden.* June cool, with rainfall about 2 inches below normal of preceding 14 years.

AMANA—*Conrad Schadt.* Month was cool and dry, favorable for small grain, but not so good for corn and grass.

ATLANTIC—*J. W. Love.* Did not have one clear day in June, and nights were cool; severe storm and some hail on the 20th, but not much damage resulted. Crops are doing well.

BONAPARTE—*B. R. Vale.* Rain 4.41 inches, against 2.30 in June, 1903. Up to date we have 1.48 inches in excess of last year, but crops are much better. Month too cool for corn.

BRITT—*Geo. P. Hardwick.* But three clear days in June; corn acreage large, but stand thin. Oats short and thin; meadows and pastures below average; potatoes good.

CARROLL—*Moses Simon.* Lightning struck and burned dwelling of M. Yegge on night of 28th, causing $1,000 damage. No one hurt.

CHARITON—*C. C. Burr.* No floods or severe storms in June; nights abnormally cool.

CLARION—*J. H. DuBois.* Clover in blossom June 11th, strawberries ripe 13th; new potatoes on 18th; oats heading 20th.

FOREST CITY—*J. A. Peters.* Corn varies from four to twenty-four inches high; too cool and cloudy for corn; hay crop good.

GRAND MEADOW—*F. L. Williams.* June dry and cool; all crops except corn look well; potatoes extra good.

GREENFIELD—*J. D. Culver.* Rainfall much less than usual but was well distributed, and none of the crops suffered.

GRINNELL—*A. O. Price.* Rainfall in June 1.22 inches. The least amount in a long period.

GRUNDY CENTER—*E. S King.* All crops were ten days late June 1st, but were up to date on 30th; corn knee high on average and three-fourths laid by; grass short.

HANLONTOWN—*Miss G. M. Pashen.* Corn crop not making good progress; small grain looks well; early potatoes, peas and beens fit for use.

HUMBOLDT—*H. S. Wells.* Rainfall for June 8.35 inches; corn plowing hindered, but the crop is all right where it has been worked; hay crop made.

IDA GROVE—*J. E. Conn.* A fine growing month; small grain looks well; hay crop heavy; good rains, but no bad storms.

INWOOD—*G. M Larsen.* Fair conditions the entire month; nights rather too cool for corn; prospect good for large crop of grain.

JEFFERSON—*Isaac Young.* Hail did some damage on the 19th near Churdan; some windmills damaged; lightning killed some cattle in south part of county.

MONTICELLO—*C. E. Heisey.* June was very dry; only .90 of an inch of rain; showers went around us; grass brown, early potatoes short; corn better than ever before.

MOUNT VERNON—*Rev. J. W. Hubbard.* Temperature and rainfall below normal; hay crop light; small grains promise well; fruits abundant.

OLIN—*Nathan Potter.* Rain only 1.42 inches; cold June weather; a fine month for cultivating corn; all crops normal.

ONAWA—*C. G. Perkins.* Hailstorm on 29th did considerable damage.

OSAGE—*G. D. Pattengill.* On the 18th, from 1:30 to 2:30 P. M , the rainfall was 2.90 inches.

OSKALOOSA—*Jos. Boyd.* June was cool and free from severe storms.

POCAHONTAS—*F. E. Hronek.* On night of 28th a hailstorm caused much damage in a strip 3 to 5 miles wide and 8 to 10 long. Damage to corn 10 to 40 per cent.

RIDGEWAY—*Arthur Betts.* A very pretty June; 315 hours of sunshine; terperature normal; vegetation has made rapid growth and is of good color; 16 days calm.

WAUKEE—*E. J. Leonard.* June remarkably free from severe storms; small fruit abundant; crops doing well.

ERRATA IN MAY REVIEW.

CRESCO—Minimum temperature recorded on the 15th, page 7, should have been 10th and 15th.

DENISON—Maximum temperature recorded on the 22d, page 8, should have been 22d and 24th.

NEW HAMPTON—Mean temperature recorded 56.9 on page 7, should have been 57.0. Mean maximum temperature recorded 69 8 on page 10, should have been 69.9. Number of days missing omitted on page 7, should have been (c).

OSCEOLA—Mean temperature recorded 60.0 on page 8, should have been 59.9. Mean minimum temperature recorded 48.6 on page 10, should have been 48.5.

ROCKWELL CITY—Total precipitation recorded 3.65 inches on pages 8 and 11, should have been 3.70 inches.

CLIMATOLOGICAL DATA FOR JUNE, 1904.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Algona	Kossuth	1,218	28	65.6	-4.1	85	19	43	7	29	3.71	-.68	1.58	....	11	15	9	6	SE	1, 19, 24, 25
Alta	Buena Vista	1,513	11	64.8	-3.7	86	23	43	6	26	3.63	-2.03	1.04	....	10	12	4	4	S	2, 13, 18, 20, 24, 25, 28, 29
Alta (near)	Buena Vista										3 20		.92	....	9					
Britt	Hancock	1,236	5	66.4	-1.4	87	18, 23	42	7	34	4.69	† .21	1.35		14	3	21	6	S	2, 20, 24, 25
Charles City	Floyd	1,012	11	65.2	-3.1	86	18, 23	35	2	31	5.96	† .85	3.67	....	10	18	0	12	S	2, 19, 24, 29
Clear Lake	Cerro Gordo	1,241	....	68.4		88	16	46	7	35	5 30		2.00	..	6	3	26	1	SE	
Cresco	Howard		....	65 4	†3.?	90	20	46	25	35	2.45	-2.5!	.85	....	6	15	9	6	SE	
Decorah	Winneshiek	857	..	65.7	-2.1	87	23	44	8	34	2.34	-1.92	1. 0		4	..	....	....		
Dows	Wright	1,142	....	65.0	-2.7	86	23	42	7	31	5.52	† .44	1.45	....	10	20	4	6	SE	2, 20, 24
Elkader	Clayton	727	21	67.2	-2 3	89	23	45	8	39	2.75	-1.4	1.35	....	6	15	14	1	SE	3, 18, 23, 29
Estherville	Emmet	1,298	7	63.8	-4.8	87	23	42	7	33	5.27	†2.18	1.00	....	14	15	3	12	SE	20, 30
Florence	Wright	1,226	8								7.59		2.25	...	11	10	20	0	W	1, 20, 23, 29
Forest City	Winnebago	1,226	8	65.4	-2.7	85	:3	43	7	32	4.09	- .97	1.77	....	10	14	3	13	S	
Grand Meadow	Clayton	1,180	11	65.2	-1.8	84	18	46	7	30	1,99	-3.27	.90	....	7	5	15	10	SE	23, 25, 29
Greene	Butler	924	5	66 6	-2.8	88	23	44	7	35	4.30	† .23	.69	....	13	7	7	16	W	
Hampton	Franklin	1,155	12	66.2	-2.0	87	23	45	7	38	4.73	- .50	1.22	....	10	6	20	4	SE	
Hanlontown	Worth		....	63.8		84	23	44	7	31	5.16		1.55		12	9	6	5	S, NW	18, 19, 20, 25, 29
Humboldt	Humboldt	1,095	10	66.6	-3.4	88	23	44	7	33	8.35	†3.68	2.08	....	12	19	7	4	SE	2, 3, 20, 23, 24, 25, 29
Inwood	Lyon		....	65.5		89	19	45	6	30	4.08		1.10	....	7	20	2	8	S	
Larrabee	Cherokee	1,366	11	67.2	-1.7	94	24	42	7	44	5.39	- .51	1.75	....	9	8	17	5	SE	
Mason City	Cerro Gordo	1,132	.	66.3	-1.4	86	23	46	7	30	6.60	- .44	2.10	....	11	7	19	4	NW	2, 4, 18, 19, 20, 24, 25, 29
New Hampton (a)	Chickasaw	1,169	...	64.0	-4.6	85	23	42	7	32	3.35	-1.13	.97	....	10	11	6	13	NW	
Northwood	Worth	1,222	....	64.8	-2.0	83	23	44	7	27	6.16	†1.35	1.83	....	11	14	13	3	SE, NW	2, 4, 20, 22, 23, 24
Osage	Mitchell	1,184	11	65 4	-1.0	86	14, 23	43	8	38	6.10	†1.58	3.20	....	8	6	13	11	S	2, 18, 23, 25
Pocahontas	Pocahontas			66.2		87	23	44	7	45	4.84		1.61	....	11	15	10	5	SE	24. 25, 29
Plover	Pocahontas	1,190	5	65.6	-3.0	88	23	44	7	31	4.42	† .39	1.25	..	9	20	4	6	S	1, 10, 13, 18, 19 20, 24, 28, 29
Ridgeway	Winneshiek	1,215	....	68.7	-0.5	94	23	48	7	30	2.98	-1.54	.99	....	13	15	14	1	S	2, 3, 13, 18, 20 23, 24, 25, 29
Ruthven	Palo Alto		....	68.2		94	23	42	7	37	3.88		1.00	.	....	....	..	..	SE	
Sheldon	O'Brien	1,422	....																	
Sibley	Osceola	1,512	....	63.7	-3.4	86	19, 23	39	7	33	4.96	† .83	1.66	....	14	13	2	15	S	29
Sioux Center	Sioux		....	65.4	-3.6	89	19, 23	40	6	31	4.57	† .27	1.52	....	8	14	6	10	S	20, 24, 25, 29
Storm Lake	Buena Vista	1,440	7	64.5	-3.5	85	23	43	7	27	3 66	-1.22	.96	..	11	15	3	12	SE	
Washta	Cherokee	1,157	....								4.55	† .14	1.70	....	7	16	10	4	S	
Waverly	Bremer	9,426	6	65.8	-3.0	86	23	46	7	30	3.43	-1.05	.67	....	12	10	14	6	....	2, 3, 13, 18, 19 20, 24, 25, 29
West Bend	Palo Alto	1,197	8	65.3	-2.5	87	19	42	7	31	6.93	†3.12	1.91	....	10	....		....	S	20, 23, 25, 29
West Union	Fayette	....	...		....						1.66	. .	.41	...	7	13	0	17	SW	
Average				65 7	-2.6	87.3		43.4			33 3 4 5!	- .15			10	13	10	7	SE	

SOUTHERN SECTION.

Afton	Union	1,212	7	69.5	-2.1	90	19, 20, 23	49	6, 7	38	2.55	-1.75	.83	....	8	5	21	4	SW	
Albia	Monroe	957		67.4	....	87	23	48	7	32	1.67	.... .	.58	....	8	13	9	8	SE	
Allerton	Wayne		....	68.4		86	20	48	7, 14	33	2.36		1.10	....	8	20	8	2	SW	2, 3, 15, 18, 20, 24
Atlantic	Cass	1,164	11	67 1	-2 6	92	18	43	14	40	3.84	-1.84	1.00	....	8	0	9	21	S	1, 2, 20, 23, 24, 28, 29
Bedford	Taylor		....	67.0		86	19	47	14, 27	32	2.71		.92	.	9	11	7	12	SE	
Belknap	Davis	877	7	68.4	-2.6	85	22, 24	50	14	32	4.80	† .72	2.05	....	8	16	6	8	S	
Bonaparte	Van Buren		10	67.4	-5.0	88	20	43	7	31	4.41	† .17	1.28	.	10		....	....		
Burlington	Des Moines	541	....	68 4		90	19, 23, 25	52	22	30	4.05		1.80	....	11	14	12	4	SW	
Chariton	Page	1,042	7	67.2	-3.2	86	20	47	14	33	3.40	- .87	1.00	....	6	11	11	8	SE	20
College Springs	Page		10	69.5	-2.0	90	19	49	6	35	5.04	† .61	1.25	....	14	16	11	3	SE	
Columbus Jct	Louisa	596	....	68 3	...	87	19, 20, 23, 24	48	7	29	3.81		1.64	....	10	19	9	2	SE	2, 3, 24
Corning	Adams	1,127	10	66.7	-3.7	83	23	43	14	34	2.83	-1.36	.60	....	9	9	16	5	SE	1, 3, 20, 24, 28
Corydon	Wayne	992	9	68.0	-2.8	85	18, 19	49	7, 14	32	1.73	-2.60	.58	....	7	9	10	11	SE	20, 24
Clarinda	Page	1,069	....	68.1	-3.7	91	23	43	14	42	4 86	- .25	.95		10	12	6	12	SE	
Cumberland	Cass										3.71		1.22	....	5	21	5	4	S	
Earlham (e)	Madison		....	64.1		85	23	42	22	33	2.41		.85	....	8	....	....	....		1, 2, 15, 20, 23, 24, 28, 29
Fort Madison	Lee	516	51								3.70	- .64	.87	....	8	2	18	10	SW	1, 3, 4, 13, 20 22, 24, 29, 30
Glenwood	Mills		15	68 6	-5.0	88	23	50	7, 21	31	3.03	- .88	1.80	....	5	2	24	4		
Greenfield	Adair		11	67.7	-2.9	90	19	47	7	31	2 61	-2 50	.62	..	12	16	8	6	SE, S	1, 2, 3, 4, 16, 17, 19, 22, 23, 24
Hopeville	Clarke		11	67.9	-2.6	87	23	49	7	33	2.28	-2.07	.63		10	2	20	8		
Indianola (a)	Warren	969	11	68.3	-2 1	89	23	50	7, 14	32	1.73	-2.35	.43	....	11	....	....	....		1, 2, 4, 15
Keokuk	Lee	619	31	69.7	-2.8	86	23	54	7	25	3.62	- .92	1.34	....	9	11	16	3	NE	3, 4, 13, 18, 20, 24, 29, 30
Keosauqua	Van Buren	664	10	69.0	-4.0	87	13, 23, 24	50	7, 9, 10, 22	31	4.85	† .79	1.20	....	11	2	16	12		
Lacona	Warren										2.00		.97	.	10	7	15	8		
Lenox	Taylor	1,250	7	67.0	-3.2	86	20	48	6, 7	30	3.45	- .68	.80	....	11	18	6	6	S	1, 2, 3, 20, 24
Leon	Decatur	1,120	....	68.4	....	85	19, 23	50	7	31	3.43		1.26	....	13	20	6	4		
Massena	Cass			68.4		91	23	45	14	41	2.97		1.02	....	12	18	8	4	S	3, 20
Mount Ayr	Ringgold	1,236	6	69.0	-1.7	89	23	50	6, 7	34	2.94	-1.50	.75	....	12	7	12	11	E	
Mount Pleasant	Henry	729	20	69.2	-1.9	90	20, 24	49	7	32	3.26	- .95	1.13	....	11	14	13	3	SW	2, 24
Omaha, Neb.	Douglas	1,113	32	69.1	-2.4	90	23	51	6	29	3.11	-2.56	1.09	....	11	5	12	13	SE	1, 2, 13, 21, 23, 24, 25, 29
Osceola	Clarke	1,130	6	68.3	-2.4	89	10	49	7	67	2.79	-1.49	1.10	....	10	16	7	7	SE	
Oskaloosa	Mahaska	843	18	67.8	-2.1	88	23	48	14, 22	33	1.49	-2 64	.75	....	6	15	3	12	SW	
Ottumwa	Wapello	649	8	69.2	-3.2	88	23	51	1, 7	36	2 76	-1.03	1.10	....	7	8	16	6	E	
Pacific Junction	Mills	960	...	68.3		90	23	47	6, 7, 15	39	2.72		1 29	....	8	9	18	3	S	
Red Oak	Montgomery	1,033	....	69.0	-3.6	85	18, 23	49	27	26	3.10	-2.06	.92	....	9	3	23	4	SE	1, 3, 15, 17, 20, 24, 28
St. Charles	Madison	1,070	....	67 7	....	86	20	51	7	28	2.09		.54	....	12	12	15	3	SE	
Sigourney	Keokuk	887	....	68.7	-3.6	92	20	42	7	39	1.53	-2.16	.64	..	4	19	8	3	SE	13, 20, 24
Stockport	Van Buren		...	69.4		84	12, 13, 20, 23	54	7	29	6.27		1.46	....	13	8	10	12	SE	2, 13, 20, 24
Thurman	Fremont		....	68 8	-3.4	91	23	46	14	36	4.08	-3.46	1.17	....	10	8	11	11	SW	
Wapello (a)	Louisa	588	....	68.2	-3.8	86	23, 26	51	9	28	2.47	- .45	.90	....	5	....	....	....	SE	
Washington (a)	Washington	769	20	68.2	-5.0	88	23	51	7, 8, 14, 22	29	1, 22	-2 02	.38	....	6	....	....	....	SE	
Woodburn	Clarke	961	....								1.61		.53	..	6	19	5	6	NW	23
Average			....	68 2	-3.1	87.9		48.4		32.8	3.08	-1.33		....	7	11	12	7	SE	
Average for state			....	67.1	-2.5	88.1		45.9		33.4	3.45	-1.05		....	7	13	10	7	SE	

CLIMATOLOGICAL DATA FOR JUNE, 1904—Continued.

CENTRAL SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Amana	Iowa	721	25	67.8	-1.9	89	23	47	7,8	34	.50	-3.90	.19	....	5	12	14	4	SE	2, 18, 20, 22, 24
Ames	Story	926	20	67 4	-2.6	88	23	46	22	36	3.45	-1.30	1.91	....	10	19	8	3	SE	18, 19, 29
Audubon	Audubon	1,301	8	65.6	-3.2	89	19,23	41	14	43	4.02	† .25	1.36	....	10	11	9	10	SE	1, 8, 12, 20, 24
Baxter	Jasper	998	....	67.2		87	20, 23	46	7	33	1.25	.....	.40	....	7	11	9	10	SE	
Buckingham	Iowa	.....	.....	.....	.....	.....	.....	.....	.....	.....	.80	.....	.29	..	5	10	20	0	.....	
Carroll	Carroll	1,265	12	65.6	-3.9	90	23	45	6,7	39	5.61	† .78	2.12	....	12	19	1	10	.....	1, 3, 12, 18, 19, 24, 2[illegible], 28
Cedar Rapids	Linn	733	19	68.9	-1.8	90	23	47	7,8	32	2.64	-1.23	1.20	....	7	12	13	5	NE, E	
Clinton	Clinton	609	34	69.2	-0.7	94	23	45	7	37	1.64	-3.04	.74	....	6	13	12	5	....	3, 15, 20, 25,
Davenport	Scott	606	31	69.0	-1.9	88	23	49	1	2[illegible]	2.2[illegible]	-1.11	.58	..	6	11	13	6	E	2, 3, 4, 20, 24, 29
Delaware	Delaware	1,083	11	66.0	-2.6	86	23	45	7	34	2 50	-1.78	1 02	..	8	9	17	4	S	
Denison	Crawford	1,180	8	66 2	-2.7	88	23	45	7,14	33	4.02	† .44	1.86	....	9	17	9	4	N	12, 18, 23 28
Des Moines	Polk	861	24	68 4	-1.7	[illegible]7	23	52	6	27	2.08	-3.23	1.03	....	10	3	20	7	SE	1, 2, 3, 18, 20, 23, 24, 29
De Soto	Dallas	866	..	67.2	.....	86	23	49	14, 22	31	2 14	.....	.91	....	[illegible]	24	3	3	SE	
Dubuque	Dubuque	655	29	67.5	-2.0	87	3	47	7	31	.74	-4.46	.58	....	5	14	10	6	SE	3, 20, 24, 25, 29, 30
Fort Dodge	Webster	1,126	....	66.0	.....	87	23	46	7	31	7.73	.....	2 60	...	11	....	....	....	SE	
Galva (*a*)	Ida	1,290	8	66.6	-2 4	93	24	44	6,7	35	3.57	- .66	1.53	..	8	....	....	.	S	
Gilman	Marshall	1,052	.	....	.....	.....	.....	....	.....	.....	.44	....	.20	....	5	11	14	5	SE, SW	
Grinnell (near)	Poweshiek	1,023	9	68.0	.....	89	20, 22	49	23	31	1.22	.....	.42	....	6	8	17	5	SE	2, 18, 19, 20 24, 25, 28, 9 30
Grundy Center	Grundy	976	11	65.6	-3.5	87	23	41	7	34	1.89	-3.95	.54	....	8	12	11	7	E, S	8, 4, 19, 24, 29
Guthrie Center	Guthrie	1,077	6	67.6	-2.0	90	19	46	7,14	37	5.06	†1.00	1.15	..	10	12	14	4	SE	1, 2, 15, 20, 23
Harlan	Shelby	1,192	....	67.4	..	[illegible]3	19	44	14	38	4.2	-1.90	1.11		9	6	14	10	SE	1, 13, 23, 24, 29
Ida Grove	Ida	1,220	....	68 4	.....	91	22	47	6	30	2.57	.....	1.05		5	18	8	4	S	23
Independence	Buchanan	921	38	65.2	-3.9	85	23	44	7,14	36	2 05	-2.98	.60	....	6	19	10	1	S	3, 18, 20
Iowa City	Johnson	685	43	68.8	-0.5	90	24	48	7	35	2.14	-2.49	1.08	..	8	11	6	13	S	
Iowa Falls	Hardin	1,170	90	65 4	-3.1	88	23	43	7	36	5.45	† .63	1.92	..	8	15	8	7	NE, E, SE, NW	2, 14, 19, 20, 24, 29, 30
Jefferson	Greene	1,052	....	.....	.....	.....	.....	.....	.....	.....	3.94	.....	1.55		9	5	11	14	SE	1, 19, 23, 29
LeClaire	Scott	576	....	.....	.....	.....	.....	.....	.....	.....	1.02	.	.61	..	7	....	....		S	
Logan	Harrison	928	35	68.9	-1.2	93	23	48	7	34	3 12	-2.58	1.01	....	7	14	7	9	SE	
Maquoketa	Jackson	688	9	66.2	-3 8	87	13, 19, 23, 24	43	1, 17	40	.99	-4.73	.49	....	6	19	7	4	SW	
Marshalltown	Marshall	947	9	67 6	-1 8	91	23	45	7	34	.85	-4 09	.28	....	9	11	10	9	SE	
Monticello	Jones	925	48	70.6	†2.1	[illegible]8	15, 16, 18	46	5	33	90	-3.57	.50	....	2	20	9	1	SW	
Mt. Vernon	Linn	847	35	68.6	-2.6	92	12, 19	42	6	37	2.7	-1.04	1.10	....	8	15	8	7	NW	18, 20
Montezuma	Poweshiek	.....	....	.....	.....	.....	.....	.....	.....	.....	1.18	....	.62	..	4	....		....	.....	24
Odebolt	Sac	1,356	5	67.4	-3.4	92	23	45	6,7	36	4.07	- 24	1 45	....	6	17	7	6	.....	
Ogden	Boone	1,088	8	66 4	-3.2	86	23	47	6	33	4.06	- .82	1.73	....	11	21	6	3	SE	
Olin (*i*)	Jones	760	....	68 6	-1.0	88	24, 25	45	1	33	1.42	-2.10	1.00	...	4	....	....	....	.....	18, 20
Onawa	Monona	1,053	....	69.4	.....	92	23	48	6	31	8.02	†2 82	3.15	....	8	22	....	8	SE	1, 3, 18 21, 25, 29
Perry (*a*)	Dallas	975	....	68.4		89	18, 23	49	6, 14	33	3.22	.....	1.29	....	10	6	19	5	.....	
Rockwell City	Calhoun	.....	....	67.4	-1 5	89	23	46	6	32	5.35	† .85	1.60	....	11	20	4	6	.. ..	
Sac City	Sac	1,278	22	66.4	-2.2	89	23	46	6,7	30	4 77	- .12	1 68	....	7	16	7	7	S	1, 3, 19, 24, 29
Sioux City	Woodbury	1,165	13	67.0	-3.3	88	23	49	6	27	3.46	- .34	1.89	....	10	8	13	9	S	3, 12, 13, 24, 25, 29
Stuart	Guthrie	1,316	5	67.3	-3.5	93	19, 23	44	6	39	2.59	-1.38	1.32	..	8	....	....	....	E	
Tipton	Cedar	807	...	69.8	...	89	20	48	7	30	3.55	.....	2.66	....	6	18	11	1	SW	3
Toledo	Tama	856	8	66.0	-4.7	87	23	43	7	36	1.30	-2.30	.40	...	5	9	13	8	SE	
Vinton (*a*)	Benton	810	12	66.4	-3.3	88	23	45	7,8	36	.57	-3.41	.24	....	6	24	3	3	SE	
Waterloo	Black Hawk	862	15	66.8	-1.9	89	23	45	7	34	1.43	-2.53	.36	....	8	....	....	....	E	24
Waukee	Dallas	1,039	....	69.6	.....	91	23	50	6	37	2.67	.....	1.10	....	9	9	19	2	S	1, 3, 15, 18, 24
Wilton Junction	Muscatine	683	7	68.7	-2.3	90	20, 24	46	8	36	1 40	-1.88	.42	....	6	16	8	6	NW	13
Whitten (*f*)	Hardin	1,036	..	68.6	†0.3	90	18	47	22	38		.....		....	....	....	..	....	.....	.....
Zearing	Story	.....	...	66.0	.....	86	23	46	7	32	1.79	.. .	.85	....	6	17	8	5	SE	3, 19, 20, 24, 29
Average		...	....	67.5	-2 0	89.1	.....	64.0	.....		34.0	2.74	-1.56		5	14	10	6	SE	.....

*Means determined from 7 A. M., 2 P. M. and 9 P. M. observations, and maximum and minimum are taken from eye readings. †Above normal. ‡Received too late to be computed with means. *a*, One day missing; *b*, two days, etc. § Not supplied with self-registering instruments.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR JUNE, 1904.

STATIONS.		DATE. 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		MEAN.
Af.on	Max..	80	82	75	77	69	78	87	84	81	84	86	86	79	85	77	83	88	89	90	90	80	86	90	86	77	79	80	80	78	78	..	82 1
	Min ..	60	57	62	59	54	49	49	56	54	54	56	57	59	50	58	52	56	62	62	64	55	53	64	64	62	54	57	56	57	54	..	56.9
Albia.	Max..	76	81	77	76	69	75	73	78	79	82	79	85	81	81	67	79	83	83	85	85	77	82	87	79	78	72	75	75	79	78	..	78.5
	Min ..	50	60	65	63	58	54	48	53	52	54	56	51	60	49	55	51	57	58	63	65	58	51	62	66	64	55	51	51	52	54	..	56.2
Algona. ..	Max..	70	68	74	75	69	66	72	77	78	82	82	79	72	80	76	80	83	83	85	81	72	76	83	82	76	72	78	73	75	73	..	76.4
	Min .	56	57	56	59	59	46	43	52	53	53	55	58	55	51	53	52	55	63	53	62	53	49	63	64	62	50	50	51	55	52	..	54.8
Allerton .	Max.	77	85	74	75	71	75	80	79	78	82	82	85	83	81	72	78	81	84	85	86	77	81	84	80	79	73	77	78	80	80	..	79.4
	Min .	60	60	63	62	56	53	48	56	54	54	55	56	60	48	58	50	56	66	62	64	59	53	64	64	63	54	56	58	56	52	..	57.3
Alta. . ..	Max.	66	66	66	70	58	67	72	78	78	78	75	76	68	76	75	80	81	78	84	76	72	80	86	80	70	74	74	72	77	74	..	74 3
	Min ..	59	56	59	57	48	43	46	5.	55	54	57	62	53	52	56	56	58	63	61	60	52	54	66	64	54	49	52	55	52	53	..	55.4
Amana. ..	Max..	74	82	83	78	73	72	74	78	81	80	82	84	82	82	75	80	84	87	84	87	74	81	89	82	81	72	79	76	80	78	..	79.8
	Min ..	52	60	65	64	59	56	47	47	48	50	56	57	54	48	53	50	53	62	59	62	56	49	59	67	65	55	49	55	59	55	..	55.7
Ames	Max..	73	76	76	75	68	71	75	81	82	84	81	83	75	82	76	82	83	87	83	78	76	82	88	83	76	78	78	75	77	75	..	78.6
	Min ..	56	60	64	62	54	50	50	55	51	52	59	58	58	48	56	50	54	59	60	65	57	46	61	64	64	56	49	57	57	56	..	56 3
Atlantic..	Max.	74	75	70	75	67	77	85	83	80	84	83	85	73	83	80	83	82	92	90	87	80	82	89	80	77	78	77	75	79	80	..	80.2
	Min ..	61	57	60	57	52	48	46	56	51	50	55	51	55	43	57	47	55	55	58	60	55	49	66	63	62	47	46	55	50	54	..	54.0
Audubon.	Max..	74	76	70	74	63	70	78	81	79	82	82	82	71	84	76	82	84	88	89	82	76	82	89	81	76	75	78	78	77	77	..	78.5
	Min ..	60	57	61	55	50	44	52	54	52	47	52	50	54	41	52	48	52	55	58	62	54	46	63	63	50	46	45	57	51	52	..	52.8
Baxter. ..	Max.	73	78	76	75	72	74	76	78	80	83	80	85	79	80	70	80	82	85	83	87	77	80	87	81	77	77	76	75	79	80	..	7*.8
	Min ..	54	53	65	60	54	51	46	51	50	53	54	56	62	47	55	50	53	60	70	63	54	48	63	63	64	50	50	59	55	53	..	55.5
Bedford ..	Max..	75	78	71	75	67	76	82	81	77	80	81	83	77	79	78	65	78	84	86	84	78	79	85	82	76	74	75	74	78	78	..	77.9
	Min ..	60	56	61	59	54	49	50	60	57	53	57	55	57	47	60	53	57	62	62	62	54	53	67	63	62	52	47	54	49	50	..	56.1
Belknap..	Max..	70	79	75	75	72	70	72	73	76	77	77	80	82	82	71	77	77	82	82	80	82	85	84	85	80	70	70	75	80	75	..	77.2
	Min ..	60	65	66	64	60	60	58	60	60	57	55	60	60	50	52	55	58	58	65	68	60	55	67	63	63	58	58	60	59	57	..	59.7
Bonapar'e	Max..	73	78	82	76	73	74	73	76	76	79	79	81	85	79	67	76	80	78	83	88	75	79	85	84	81	71	72	73	79	77	..	77.7
	Min ..	53	63	64	62	61	55	48	56	51	51	55	56	54	51	53	55	53	63	60	61	59	51	58	64	63	57	57	59	60	53	..	57.0
Britt. ..	Max..	70	72	76	74	65	63	75	80	81	83	85	82	75	80	74	84	85	87	86	80	76	82	87	84	73	80	81	76	78	72	..	78.2
	Min ..	65	57	57	57	50	47	42	52	55	56	56	56	55	46	54	53	55	61	56	61	58	54	62	59	60	47	52	51	52	50	..	54.5
Burling'n	Max	74	78	82	75	71	70	73	74	78	79	80	81	86	78	74	79	88	79	90	89	77	82	90	88	90	82	72	76	82	77	.	79.8
	Min .	65	62	63	63	58	60	61	54	55	54	59	61	56	55	56	59	58	64	60	64	61	52	63	66	64	66	60	60	63	65	..	56.9
Carroll .	Max..	68	75	70	72	61	65	76	80	79	82	80	84	72	86	77	81	83	84	87	82	79	82	90	83	75	77	76	73	78	77	..	77.8
	Min ..	58	56	57	56	50	45	45	53	52	49	54	55	55	47	56	50	55	57	60	61	52	48	64	62	61	47	49	52	50	50	..	53 5
Cedar R..	Max	76	83	83	79	71	70	75	79	82	82	82	83	83	84	73	82	86	87	83	81	75	83	90	81	81	73	80	77	80	77	..	80.1
	Min ..	52	54	59	65	62	56	47	47	53	55	58	60	58	52	55	53	56	61	65	66	59	53	62	66	67	57	54	60	61	58	..	57.7
Chariton .	Max	76	80	73	75	72	74	77	78	78	82	80	83	80	80	74	78	83	84	84	86	75	80	85	81	76	70	74	75	78	78	..	78.3
	Min ..	58	59	63	61	54	51	49	55	51	53	55	55	58	47	56	50	55	64	60	62	59	50	62	63	63	54	54	53	54	53	..	56.1
Charles C.	Max	71	77	78	76	67	62	69	76	80	80	79	83	68	81	73	81	83	86	79	80	71	79	86	82	78	74	79	76	78	75	..	76.9
	Min	52	35	58	62	54	51	59	44	48	49	54	52	57	44	53	48	53	58	59	63	55	47	60	62	65	50	53	52	56	55	..	53.6
Clarinda..	Max.	78	78	70	76	67	80	85	86	79	83	84	86	76	85	80	81	79	85	89	84	80	83	91	86	76	75	75	77	80	82	..	80.5
	Min .	60	55	60	58	50	48	50	53	56	55	57	56	58	43	55	52	57	63	63	63	57	54	60	63	62	53	49	52	55	55	..	55.7
Clear L. ..	Max	78	73	74	75	70	62	74	85	87	85	83	82	78	84	78	88	82	82	83	80	83	80	86	86	78	84	79	80	77	74	..	79.7
	Min ..	56	59	61	61	54	48	46	50	52	51	58	61	64	56	55	53	60	63	60	60	65	53	60	65	64	54	60	54	54	54	..	57.0
Clinton...	Max..	81	79	90	82	77	68	76	80	85	82	84	86	90	84	80	81	86	90	90	93	79	84	94	93	81	75	81	80	84	82	..	82.9
	Min ..	46	52	62	59	62	57	45	47	48	53	53	53	59	53	52	52	51	55	62	67	53	50	64	66	64	52	61	50	60	53	..	55.4
Col. Sprgs	Max..	76	78	72	72	68	82	86	82	78	83	85	87	82	86	82	83	84	85	90	87	82	83	89	83	76	76	76	80	80	80	..	81.1
	Min .	59	59	60	54	54	49	51	52	58	58	60	60	60	51	62	55	60	64	66	65	53	57	68	65	68	60	53	54	54	54	..	57.9
Colum. J.	Max..	77	81	84	77	74	72	74	72	81	80	82	84	86	80	71	80	83	85	87	82	82	84	89	93	78	78	80	81	78	75	..	79 3
	Min .	51	59	63	62	62	55	48	51	52	54	56	58	57	52	55	53	54	62	60	64	59	52	59	65	64	56	55	66	60	55	..	57 3
Corning..	Max..	75	76	72	73	66	76	79	80	78	81	80	85	79	80	70	80	82	85	83	87	77	80	86	82	75	74	75	75	79	78	..	77.8
	Min ..	60	55	61	59	56	49	48	58	56	54	57	53	57	43	49	51	56	64	63	63	54	54	66	64	62	52	46	53	53	52	..	55.6
Corydon..	Max.	76	80	73	74	70	75	81	77	77	81	82	84	82	80	73	77	80	85	85	83	79	79	83	80	78	72	73	74	79	80	..	78.4
	Min ..	61	62	61	62	56	52	49	56	55	53	51	57	61	49	58	50	57	66	63	66	60	51	69	66	64	54	54	57	57	54	..	57.7
Cresco . ..	Max..	75	70	75	74	69	57	59	70	80	80	79	82	80	82	81	79	80	81	89	90	85	80	85	80	75	74	75	73	75	71	..	76.8
	Min ..	50	55	52	53	55	49	52	60	60	54	55	55	50	51	50	49	54	56	60	62	58	54	50	68	46	52	53	52	56	52	..	54 1
Davenpo't	Max..	74	77	84	77	73	68	73	77	82	78	80	82	85	81	75	79	83	80	86	86	75	81	88	85	82	73	76	74	80	78	..	79.1
	Min ..	49	55	63	64	63	56	50	54	56	58	56	58	63	54	59	55	55	63	64	67	59	56	63	66	64	57	59	59	63	59	..	58.9
Decorah. .	Max..	72	78	77	76	67	61	63	78	82	81	79	83	68	78	72	78	82	82	82	83	74	79	87	77	73	72	79	73	77	82	..	76.3
	Min ..	53	57	61	65	57	52	50	44	48	47	55	53	57	47	57	47	53	58	62	61	58	48	60	63	64	52	50	53	60	61	..	55.1
Delaware.	Max..	73	74	78	76	75	64	68	75	79	77	79	84	78	81	75	79	83	83	82	84	74	80	86	82	79	69	79	75	80	74	..	77.5
	Min ..	46	4	60	61	58	52	45	49	54	54	3	56	56	48	55	52	49	57	63	61	53	51	57	62	64	52	50	54	58	53	..	54 6
Denison..	Max..	71	71	72	72	66	73	75	79	78	80	79	81	69	78	75	80	81	84	86	79	75	80	88	80	73	75	75	74	76	75	..	76.7
	Min ..	60	58	59	60	49	47	45	55	57	54	55	56	53	45	58	52	58	55	62	62	55	53	67	63	61	49	50	57	52	54	..	55 6
Des M....	Max..	73	77	72	75	66	75	73	77	77	82	81	84	74	79	69	78	81	83	84	86	76	80	87	78	76	76	74	75	79	76	..	77.4
	Min ..	59	61	66	63	57	52	53	58	57	58	60	58	62	56	60	54	59	64	64	65	60	53	65	66	64	55	54	60	58	57	..	59.3
De Soto ..	Max..	72	77	72	75	68	75	73	76	77	80	78	82	79	79	77	78	80	83	84	84	77	80	86	80	80	73	74	75	76	76	..	77.5
	Min ..	59	58	64	60	55	51	52	57	52	52	56	56	59	49	56	51	55	60	61	65	58	49	65	64	65	52	51	60	57	57	..	56.9
Dows. ...	Max..	70	72	73	73	68	64	73	77	78	79	78	81	74	79	75	78	81	83	80	76	70	78	86	80	74	75	75	72	75	71	..	75.6
	Min ..	54	59	60	60	51	47	42	51	50	54	56	55	57	50	54	50	55	60	60	59	54	48	61	60	63	50	52	53	54	52	..	54.4
Dubuque.	Max..	78	73	81	77	71	62	68	77	83	78	80	82	80	80	71	78	82	83	86	84	74	80	87	85	82	71	78	72	78	75	..	77 7
	Min ..	51	56	61	63	59	53	47	51	52	56	57	58	58	52	5.	54	66	60	64	64	58	54	61	63	64	56	54	58	62	57	..	57.3
Earlham .	Max.	73	76	70	73	..	..	..	..	..	79	79	82	73	78	73	76	79	81	84	84	75	80	85	80	74	75	74	75	76	75	..	77.2
	Min .	5.	52	60	55	..	..	..	..	..	45	48	49	52	41	49	45	49	50	55	60	44	42	62	58	61	47	42	53	49	52	..	51.0
Elkader ..	Max.	75	79	83	76	74	63	70	83	86	83	82	88	78	85	75	83	86	87	86	85	76	84	89	85	80	79	83	78	81	77	..	80.6
	Min ..	48	57	61	62	57	53	48	45	48	48	54	54	57	48	55	47	48	55	63	60	54	48	57	63	66	50	50	52	57	53	..	53 9
Esthervil.	Max.	66	67	70	73	65	62	71	77	78	80	75	72	71	78	72	74	82	79	84	75	72	80	87	78	7.	75	76	71	72	73	..	74.3
	Min ..	57	55	54	55	49	45	42	50	50	49	55	59	55	51	53	50	56	59	56	62	50	49	54	65	60	46	52	53	54	53	..	53.3
Forest C'y	Max..	71	67	74	74	67	61	73	76	81	82	81	82	73	80	75	81	82	82	83	80	73	79	85	82	73	75	80	82	82	75	..	77.0
	Min ..	53	55	57	60	50	48	43	47	51	53	57	57	58	48	54	51	55	62	51	61	52	48	61	63	62	49	53	50	54	51	..	53.8
Ft. Dodge	Max..	71	70	72	61	62	68	73	79	80	83	79	82	70	79	78	81	84	82	83	77	75	82	87	73	75	76	78	74	77	77	..	76.3
	Min ..	56	58	60	61	53	49	46	53	53	53	5	52	59	54	57	53	57	61	61	64	57	51	59	64	52	51	54	55	55	56	..	55.7
Galva.....	Max..	70	71	72	74	60	68	76	87	80	84	82	77	7.	78	79	85	87	86	87	82	82	84	89	93	78	78	80	81	78	75	..	79.3
	Min ..	59	57	64	58	48	44	44	54	53	52	54	..	53	47	54	52	54	57	53	63	50	49	66	63	63	45	46	53	54	51	..	53.8
Glenw'd .	Max..	74	73	72	72	66	76	8	80	76	78	79	82	76	78	79	78	76	84	85	84	75	79	88	84	79	72	72	77	77	78	..	77.7
	Min ..	59	58	55	65	52	48	50	58	58	60	60	58	58	61	62	56	60	62	65	65	52	58	69	62	60	54	50	58	56	59	..	58.2
Grand M.	Max..	77	74	79	75	64	65	65	76	80	78	79	82	67	78	71	79	81	84	83	82	72	79	78	83	77	69	79	75	76	73	..	76.0
	Min ..	49	47	59	61	54	54	46	47	53	56	57	55	56	50	51	49	53	63	61	62	53	49	64	61	62	49	53	52	55	53	..	51.5
Greene. .	Max..	75	76	79	76	69	62	72	81	83	82	84	86	74	81	78	83	83	84	82	78	74	83	88	82	74	79	81	77	78	74	..	78.6
	Min ..	52	57	62	62	53	51	44	46	48	52	54	54	56	49	55	53	53	59	59	63	55	47	60	62	65	50	53	53	54	54	..	54.5
Greenfi'ld	Max.	78	78	71	76	67	75	78	78	79	83	82	76	80	79	78	84	85	88	90	77	80	89	88	85	78	78	77	77	78	78	..	79.7
	Min ..	58	57	60	58	52	4	47	53	50	52	58	57	49	59	54	58	60	62	64	55	54	64	60	62	63	50	48	55	55	50	..	55.7
Grinnell(near	Max.	72	81	78	77	77	70	76	76	76	80	82	87	79	86	68	79	82	87	87	89	76	89	80	81	79	74	74	77	80	78	..	79.2
	Min ..	49	63	59	62	52	51	47	54	53	58	56	55	61	60	55	52	57	63	60	64	55	61	49	71	63	51	52	58	56	53	..	56.7
Grundy C	Max..	72	77	78	75	65	68	52	77	79	79	79	83	71	80	77	78	80	84	80	81	73	80	87	79	76	76	77	73	77	75	..	76.9
	Min ..	52	60	63	62	53	51	4	48	48	52	55	51	59	48	52	49	54	59	61	63	53	46	63	63	58	50	51	56	56	53	..	54.3
Guthrie C	Max..	74	75	75	73	69	75	76	80	79	83	81	85	83	83	82	83	83	87	90	88	78	81	88	83	79	75	76	77	77	77	..	79.8
	Min ..	61	57	63	58	52	48	46	56	54	50	55	54	55	46	56	51	55	59	60	65	56	48	65	64	64	50	49	59	53	54	..	55.4
Hampton.	Max..	73	73	75	75	65	64	73	79	80	82	81	85	74	81	77	82	82	82	80	78	71	80	87	80	73	77	78	75	77	73	..	77.1
	Min ..	52	60	61	62	52	49	45	49	50	52	55	56	58	50	55	54	56	61	60	63	56	50	6	64	65	51	54	53	55	54	..	55.4
Hanlont'n	Max..	68	69	73	73	66	58	68	74	76	77	78	78	70	78	69	78	80	82	78	78	69	77	84	81	73	73	75	72	76	70	..	74.0
	Min ..	51	55	58	61	51	48	44	47	45	50	54	50	57	57	54	49	56	60	57	62	54	46	61	63	63	47	51	49	54	53	..	53.6
Harlan....	Max.	75	78	72	75	68	74	81	82	81	85	84	84	72	82	80	83	84	89	93	85	81	83	9.	83	77	77	81	80	78	77	..	80.4
	Min .	60	56	60	55	50	46	45	55	55	54	56	54	53	44	57	50	54	59	60	61	54	51	63	63	61	49	47	56	49	54	..	54.4
Hopeville.	Max..	78	81	72	75	65	76	82	77	78	81	83	85	74	81	72	79	84	85	86	86	75	82	87	83	76	74	74	76	78	88	..	78.8
	Min ..	60	57	62	64	55	51	49	56	54	54	56	.6	58	57	58	51	57	64	62	63	50	53	64	65	61	53	52	58	56	55	..	57.0
Humboldt	Max.	70	68	78	74	68	66	72	78	80	84	84	82	76	80	78	82	85	83	84	78	70	82	88	81	75	75	77	74	76	73	..	77.4
	Min ..	58	60	60	60	52	50	44	55	50	51	58	56	54	50	56	51	58	62	58	64	57	51	64	63	64	50	52	52	56	54	..	55.7
Ida Grove	Max..	74	69	70	72	66	72	77	80	81	81	78	77	74	80	80	85	86	80	37	81	80	91	84	84	82	79	80	82	81	77	..	79.0
	Min	60	58	61	57	50	47	48	50	61	56	56	59	54	51	59	55	60	61	63	66	56	69	66	66	65	49	66	57	54	56	..	57.9
Independ	Max..	73	77	78	75	68	62	68	77	80	79	73	83	77	80	73	79	82	81	81	80	72	77	85	80	75	73	76	73	77	74	..	76.3
	Min .	51	55	62	61	55	50	44	47	50	53	53	55	55	44	53	50	50	56	63	62	55	50	57	63	64	52	50	55	55	55	..	54.2
Indianola.	Max..	75	80	75	76	70	75	75	77	77	81	80	84	..	82	69	79	83	85	86	85	76	82	89	81	76	73	75	77	77	79	..	78.6
	Min ..	59	60	65	68	55	52	50	57	55	56	59	56	..	50	56	51	57	64	64	65	59	52	64	64	64	54	53	59	57	56	..	58.0
Inwood...	Max..	39	65	62	66	58	65	72	80	77	69	80	72	72	78	72	81	81

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR JUNE, 1904—Continued.

STATIONS.		DATE.																													MEAN
		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		
Keokuk..	Max..	73	78	83	75	73	73	73	75	78	81	79	81	85	80	76	77	81	78	84	81	76	80	86	86	80	76	71	72	80	76	..	78.2
	Min ..	57	65	65	64	66	59	54	60	59	57	59	61	60	56	59	59	58	65	62	61	64	58	64	66	66	62	61	63	65	55	..	61.2
Keosa'qua	Max..	76	80	82	78	73	78	76	79	80	81	81	84	87	82	71	79	82	83	84	86	79	81	87	87	84	75	74	75	81	81	..	80.2
	Min ..	54	60	66	64	61	57	50	57	50	50	55	55	54	52	52	53	54	64	66	62	66	50	60	71	64	58	58	59	59	54	..	57.8
Larrabee.	Max..	58	70	71	71	62	75	86	82	83	82	81	75	78	82	82	87	86	86	92	82	82	83	92	94	75	82	80	84	71	82	..	79 9
	Min ..	49	53	55	54	48	47	42	53	50	51	53	57	53	55	56	55	57	60	59	58	50	52	68	66	59	52	49	53	54	53	..	54.4
Lenox....	Max..	74	76	71	74	68	75	78	78	77	80	80	80	76	78	73	76	79	81	84	86	75	78	85	82	75	73	73	75	78	77	..	77.2
	Min ..	60	57	61	58	55	48	48	57	55	54	58	57	59	50	59	52	57	64	63	63	54	54	65	63	62	54	52	57	55	52	..	56.9
Leon.....	Max..	79	80	75	77	75	77	81	81	78	80	80	81	79	81	80	78	81	84	85	83	77	81	85	82	77	77	74	78	78	78	..	79.4
	Min ..	59	58	64	63	54	52	50	56	53	55	57	58	60	52	58	52	56	65	62	65	57	52	63	65	63	56	52	58	57	54	..	57.5
Logan....	Max..	73	75	71	75	66	78	82	85	81	80	85	87	71	83	82	85	85	89	92	85	79	85	93	85	79	78	83	85	78	79	..	81.1
	Min ..	61	55	58	58	51	46	48	57	59	56	56	57	56	65	56	54	57	63	61	63	54	53	68	64	61	50	43	56	58	58	..	56.7
Maquo'ta.	Max..	75	77	83	78	74	67	76	79	83	79	81	84	87	83	74	80	83	80	87	86	78	81	87	87	84	76	79	73	83	80	..	80 3
	Min ..	43	53	56	60	68	57	45	45	45	46	54	50	50	50	51	46	43	50	60	56	56	45	53	63	65	53	47	50	59	53	..	52.2
Marshlt'n	Max..	74	81	81	79	69	74	76	81	82	85	83	83	76	85	74	83	86	89	85	86	77	85	91	84	80	78	82	77	80	80	..	81.0
	Min ..	52	56	65	61	55	52	45	50	47	50	53	53	61	47	55	47	52	57	60	63	54	46	57	63	64	50	50	55	54	53	..	54.2
Mason C..	Max..	68	72	73	74	65	61	70	78	81	82	81	80	74	78	75	80	83	79	76	76	72	81	86	80	73	76	78	74	75	72	..	75.8
	Min ..	54	54	61	62	53	49	46	50	51	54	57	58	59	53	55	52	69	63	60	65	55	54	62	65	65	53	58	55	57	55	..	53.8
Massena..	Max..	76	79	73	74	67	79	86	85	83	84	82	87	82	86	83	83	84	89	90	85	80	82	91	83	79	77	79	78	79	79	..	81.5
	Min ..	60	56	61	59	53	48	47	56	55	53	57	55	55	45	57	50	55	55	60	63	54	52	76	64	62	51	47	50	53	51	..	55.3
M'nticello	Max..	70	82	83	83	76	75	78	76	78	77	80	83	84	85	88	88	80	88	84	83	80	83	82	85	82	80	80	79	81	75	..	80.9
	Min ..	43	58	55	49	46	49	50	58	62	65	60	55	59	70	75	70	69	72	70	72	70	69	75	70	58	52	47	48	49	50	..	60.2
Mt. Ayr..	Max..	76	83	73	75	70	79	84	83	80	83	82	83	77	85	75	82	81	85	88	86	82	83	89	85	78	74	80	78	83	84	..	80.9
	Min ..	59	56	61	58	54	50	50	56	55	55	58	58	61	52	58	52	56	64	62	66	54	55	64	63	62	55	52	56	56	53	..	57.0
Mt. Pl'snt	Max	76	79	84	78	79	73	71	80	78	83	82	85	88	82	75	80	84	80	87	90	79	82	88	90	85	73	78	75	82	80	..	80.9
	Min ..	53	61	64	62	62	54	49	52	52	53	55	56	56	52	57	54	55	65	60	64	59	52	61	65	63	57	58	59	60	52	..	57.4
Mt. Ver'n	Max	78	81	81	81	73	70	78	87	88	87	88	92	80	87	78	89	86	83	92	81	85	82	87	80	80	72	80	74	81	78	..	82 1
	Min	48	50	62	61	59	42	43	50	58	54	55	59	58	50	56	52	53	61	62	63	52	50	52	62	62	54	52	56	59	54	..	55.0
New H. ..	Max..	71	76	76	66	68	62	67	77	81	80	78	84	76	..	78	77	80	82	78	77	71	76	85	79	74	78	77	72	74	72	..	75.6
	Min ..	49	54	58	58	50	48	42	46	49	50	52	56	54	..	47	48	57	58	58	60	50	46	57	60	59	47	50	51	52	50	..	52 3
Northw'd	Max..	79	72	79	72	69	70	70	76	79	78	79	77	73	77	71	77	79	80	79	79	69	76	83	80	76	72	76	73	69	70	..	75.3
	Min ..	51	50	60	60	52	47	44	47	51	53	55	56	57	51	54	50	54	69	59	63	53	47	60	60	63	50	52	51	57	53	..	54.3
Odebolt ..	Max.	67	69	69	74	69	76	81	83	83	85	83	85	74	83	83	86	87	88	90	81	80	80	92	86	80	82	81	80	80	79	..	80.6
	Min ..	59	51	60	56	49	45	45	54	54	53	54	58	53	50	56	52	51	59	60	64	53	49	62	64	62	46	49	53	52	54	..	51.3
Ogden ...	Max.	76	72	72	74	69	77	74	72	79	82	80	84	72	81	72	82	84	85	82	75	75	81	86	82	79	75	74	76	75	76	..	77.4
	Min ..	56	53	58	63	50	47	48	54	51	53	57	57	53	48	53	54	51	60	61	62	55	50	65	63	53	50	50	55	64	60	..	55.5
Olin	Max..	74	79	84	78	73	..	..	..	..	..	..	..	..	..	79	78	81	84	85	87	75	78	87	88	88	77	77	77	79	76	..	80 2
	Min ..	45	55	62	66	58	..	..	..	..	..	..	..	..	..	53	48	48	56	65	60	59	56	57	65	65	55	51	56	61	55	..	57.0
Omaha, N	Max	73	71	69	72	67	78	82	83	78	75	79	82	69	80	81	80	77	86	87	82	76	79	90	80	74	74	73	79	79	79	..	77.8
	Min ..	61	60	61	60	53	51	53	61	62	64	62	64	57	54	64	60	63	63	67	68	55	61	70	64	62	58	56	60	59	59	..	60.4
Onawa....	Max..	73	70	69	70	68	77	79	83	79	75	78	82	75	83	81	85	84	84	91	84	83	82	92	90	81	78	79	84	83	81	..	80.1
	Min ..	62	57	61	56	50	48	51	59	61	63	58	62	55	52	61	58	62	62	64	66	57	57	70	65	63	52	54	60	55	57	..	58.6
Osage.....	Max	70	75	77	75	67	58	68	80	82	83	83	81	70	86	74	82	83	83	82	80	72	80	86	82	73	76	79	76	78	73	..	77.1
	Min ..	52	57	61	61	51	50	44	43	49	52	53	54	56	48	53	51	53	60	58	61	54	47	60	62	63	49	52	51	56	53	..	53.8
Osceola ..	Max..	80	81	73	79	81	75	80	80	79	89	83	82	79	81	74	80	82	88	80	85	80	82	88	83	80	75	80	76	81	80	..	80.5
	Min ..	55	57	55	61	53	61	49	53	52	52	55	56	58	52	56	51	54	63	62	65	57	50	57	64	63	54	50	58	56	55	..	56 1
Oskaloosa	Max..	73	81	77	76	72	73	72	78	78	82	81	83	81	81	73	77	81	83	84	87	76	80	88	80	78	71	76	73	78	77	..	78.3
	Min ..	57	63	65	63	58	54	50	58	49	52	57	55	56	48	55	52	56	65	62	63	59	48	63	66	65	56	53	59	57	55	..	57.2
Ottumwa	Max..	77	83	80	79	72	78	72	82	82	85	84	87	84	83	67	81	84	87	86	87	79	84	88	84	80	75	77	75	81	80	..	80 9
	Min ..	51	63	65	63	59	55	51	57	52	53	54	53	57	53	56	55	56	62	63	65	60	52	52	65	63	58	56	62	60	57	..	57.6
Pacific J'n	Max..	74	76	75	73	67	80	86	83	80	80	83	85	76	83	81	82	86	88	83	82	77	83	90	84	74	76	74	81	80	79	..	80.0
	Min .	60	55	58	56	54	47	47	59	59	61	57	55	58	62	47	55	59	64	59	62	53	56	68	62	59	51	48	56	55	56	..	56.6
Perry.....	Max..	..	77	73	77	67	74	77	80	82	86	81	85	77	84	77	84	85	89	87	83	75	84	89	85	77	77	79	78	82	79	..	80.3
	Min ..	..	58	65	60	54	49	51	57	53	53	57	57	58	49	50	51	57	60	61	65	57	51	65	60	65	52	51	60	54	55	..	56.4
Plover....	Max..	72	72	72	77	67	67	70	77	78	83	84	77	70	80	76	81	86	82	86	77	72	81	88	84	76	75	78	75	75	72	..	77.0
	Min ..	58	59	58	56	47	46	44	54	53	52	55	58	54	55	54	52	55	60	58	55	52	50	65	64	63	48	50	50	52	53	..	54.3
Pocah'tas	Max..	70	68	70	73	64	68	74	80	81	83	83	78	71	80	79	81	84	80	84	78	73	82	87	84	76	78	77	74	77	73	..	77.0
	Min .	57	58	59	59	52	47	44	55	52	54	52	60	54	53	55	54	57	61	58	62	56	52	58	65	63	51	54	52	58	53	..	55.3
Primghar	Max..	65	64	68	70	59	68	71	78	70	74	79	72	72	88	72	81	84	84	88	74	76	80	86	85	70	77	75	76	77	72	..	75.2
	Min ..	58	56	57	55	46	43	45	54	56	54	56	58	52	53	55	54	58	58	62	61	48	66	67	64	58	46	56	53	49	50	..	54 9
Red Oak..	Max..	74	75	70	72	67	75	79	80	77	79	79	81	78	77	78	78	76	85	84	83	75	80	85	83	78	75	75	76	77	78	..	77.6
	Min ..	63	60	62	60	57	52	54	63	62	61	63	60	61	53	64	58	63	64	67	68	58	59	70	66	65	57	49	60	59	58	..	60.5
Ridgeway	Max..	76	74	79	76	71	60	80	84	85	83	89	84	72	82	85	87	82	88	83	92	81	91	94	90	75	76	79	83	80	75	..	81.2
	Min ..	52	57	61	64	53	52	48	50	54	56	57	60	60	50	56	52	55	61	62	64	54	52	62	64	63	50	54	52	58	54	..	56.2
Rock R...	Max..	80	70	70	70	72	70	78	80	78	73	81	74	79	79	80	84	84	85	92	80	72	80	86	84	84	83	84	83	80	76	..	79.0
	Min	56	54	56	58	52	44	40	54	55	56	56	60	55	51	51	55	60	60	76	50	62	60	68	66	56	48	49	54	53	52	..	55.6
Rockw'l C	Max..	78	75	75	76	63	72	75	80	83	85	85	84	75	80	80	80	86	85	86	80	78	80	89	84	80	75	80	78	79	75	..	79.2
	Min ..	57	56	50	56	50	46	47	58	52	53	55	58	58	51	56	56	55	65	68	65	53	57	67	65	60	48	51	53	53	51	..	55.7
Rathven.	Max..	80	71	70	72	75	61	71	82	83	84	79	85	83	88	90	83	87	84	86	83	78	84	94	93	86	88	86	83	84	80	..	81 8
	Min ..	57	51	51	57	48	47	42	52	53	51	53	63	54	51	55	51	59	63	59	63	51	53	65	65	60	59	48	56	52	53	..	54.6
Sac City..	Max..	71	70	70	74	62	71	75	81	80	81	80	80	74	80	78	83	84	88	86	79	76	82	89	83	78	78	78	73	79	77	..	77.8
	Min ..	58	57	50	55	49	46	46	55	53	54	52	58	54	52	57	53	57	60	60	60	54	51	65	64	62	50	50	56	53	55	..	54.9
St. Cha'les	Max..	75	78	73	73	68	73	74	76	77	80	79	83	75	81	71	75	80	82	84	86	74	79	85	79	76	76	75	75	77	75	..	77.1
	Min ..	59	59	64	61	56	52	51	56	55	56	57	59	61	53	58	53	57	63	65	67	58	55	64	65	65	55	55	61	58	50	..	58.3
Sibley	Max	64	66	66	69	59	63	72	80	80	78	79	73	71	76	72	79	81	82	86	74	72	80	86	82	69	74	75	75	76	71	..	74.3
	Min ..	58	54	55	56	50	44	39	49	54	53	54	59	52	47	52	52	57	61	59	60	48	51	57	63	57	46	53	53	50	51	..	53.1
Sigourn'y	Max..	79	84	84	78	73	75	81	84	85	87	85	90	88	85	71	84	85	89	91	92	78	86	90	83	80	79	79	81	80	80	..	82.2
	Min ..	52	63	63	62	59	54	42	47	50	52	54	56	56	47	52	50	52	64	60	60	54	48	48	65	64	60	62	59	56	53	..	55.2
Sioux C'y.	Max..	67	66	66	68	60	71	77	81	77	69	78	70	73	78	76	80	79	81	87	78	77	79	88	83	73	77	74	81	75	76	..	75.5
	Min .	60	55	60	56	51	49	52	59	62	62	60	62	54	58	56	59	63	62	65	64	55	61	70	66	57	51	53	54	57	59	..	58.4
Sioux C'r.	Max..	69	65	66	67	58	66	74	82	79	75	79	75	74	76	75	80	82	84	89	81	76	82	89	87	77	78	76	81	76	74	..	76.4
	Min ..	57	56	56	54	49	40	46	54	57	55	56	56	51	52	54	53	59	61	59	59	52	51	66	65	59	48	47	53	52	54	..	54.4
Stockport	Max..	75	77	80	75	72	72	73	78	77	79	82	84	84	77	78	71	78	80	83	84	74	78	84	83	79	72	76	78	79	76	..	77.9
	Min ..	57	64	66	64	62	59	54	59	56	59	60	59	55	57	56	56	68	65	65	65	61	55	62	70	66	60	60	62	64	59	..	60.8
Storm L..	Max	63	66	66	65	70	67	70	76	76	76	74	75	70	76	75	77	80	78	83	75	73	78	85	80	70	74	73	71	76	73	..	73 7
	Min ..	58	57	57	57	49	44	43	51	51	54	57	59	53	52	56	57	59	60	60	63	51	56	59	64	62	50	55	57	52	54	..	55.3
Stuart ...	Max..	75	78	77	77	78	78	79	81	81	84	84	84	88	86	84	83	86	87	93	89	79	83	93	92	81	77	79	77	79	79	..	82.3
	Min ..	55	53	55	55	50	44	45	51	51	50	52	55	54	47	52	49	52	57	58	58	51	49	60	56	59	49	48	53	50	51	..	52.3
Thurman.	Max..	78	75	74	75	68	81	88	84	78	81	82	84	78	80	84	82	79	81	84	83	81	83	91	84	79	72	74	79	79	81	..	80.1
	Min .	60	55	60	58	54	48	52	59	60	63	59	55	57	46	61	58	61	61	65	62	54	56	70	64	61	53	48	58	55	54	..	57 6
Tipton....	Max..	76	80	83	76	73	69	76	82	84	83	83	88	87	85	74	82	89	85	88	89	79	82	88	86	83	76	82	77	83	81	..	81.4
	Min ..	51	55	62	62	62	54	48	53	55	58	58	60	60	55	58	55	55	62	65	65	58	57	62	66	64	57	56	59	60	58	..	58.3
Toledo....	Max..	74	79	79	75	71	69	72	79	79	83	81	85	76	80	71	78	82	85	84	86	72	80	87	80	78	73	78	77	73	75	..	78 0
	Min .	51	60	65	62	55	52	43	46	46	50	53	55	60	45	54	48	52	60	59	61	52	44	61	64	65	50	48	54	55	54	..	54.1
Vinton. ..	Max..	73	79	80	76	74	67	70	80	80	80	79	..	80	82	76	80	83	74	82	83	75	81	88	84	79	74	77	74	80	77	..	78.2
	Min ..	52	57	57	63	58	52	45	45	47	50	56	..	56	46	53	47	58	60	64	62	55	47	60	64	65	52	49	58	57	55	..	54 7
Wapello..	Max..	71	77	80	71	68	70	71	73	78	78	77	79	80	78	69	75	79	77	82	81	79	78	86	81	..	86	74	71	79	77	..	76 7
	Min ..	53	60	64	63	63	61	62	65	51	53	54	56	55	55	56	56	55	64	61	65	61	60	62	67	..	58	60	61	64	67	..	59.7
Washi'ton	Max..	75	80	82	77	72	72	74	78	80	81	80	83	85	80	67	78	81	82	85	86	77	80	88	84	81	71	77	72	80	..	..	78.9
	Min ..	52	61	64	63	61	56	51	51	52	53	57	57	56	51	57	53	53	64	61	65	58	51	61	68	63	55	55	60	60	..	..	57.6
Waterloo.	Max..	73	81	79	77	69	65	72	80	82	83	81	86	69	82	76	79	86	87	81	82	75	81	89	83	78	76	82	76	79	78	..	78.9
	Min ..	53	56	59	63	56	50	45	47	48	51	54	55	59	48	54	50	52	56	62	63	56	49	55	62	65	52	51	56	56	56	..	54.6
Waukee..	Max	72	83	80	83	82	85	80	82	81	83	81	90	81	88	76	84	83	90	89	83	83	84	91	84	79	80	77	79	80	78	..	82.4
	Min ..	54	59	59	59	55	50	51	56	54	55	58	56	59	51	59	51	51	62	62	65	58	55	59	62	64	53	52	60	59	56	..	56.9
Waverly..	Max..	70	76	78	76	70	62	69	75	79	79	78	81	75	79	76	72	81	80	79	77	73	78	86	80	73	73	77	73	75	73	..	75.8
	Min ..	53	52	62	63	56	51	46	47	49	55	56	56	54	50	57	54	55	60	62	63	56	50	61	65	65	62	54	56	57	51	..	55.9
W.Bend..	Max..	70	72	75	75	65	68	73	79	80	83	84	77	75	78	76	81	84	83	87	75	72	80	86	83	72	74	76	73	76	70	..	76.7
	Min .	57	57	57	58	48	46	42	51	50	54	55	59	53	50	54	52	54	61	57	62	52	50	63	63	60	47	50	52	53	51	..	53.9
Whitten..	Max	75	..	..	..	..	..	..	81	84	82	84	86	81	85	80	85	86	90	86	83	75	85	89	84	75	77	81	89	78	75	..	82.3
	Min ..	53	..	..	..	..	..	..	50	49	55	56	54	59	48	54	50	53	60	62	62	54	47	59	62	63	50	51	56	54	53	..	54.8
Wilton J.	Max..	77	81	81	72	74	77	74	78	83	78	79	84	89	82	76	80	84	85	88	90	77	82	89	90	85	77	80	82	83	80	..	81.3
	Min ..	51	57	63	62	54	47	52	46	59	52	55	60	53	50	54	50	60	61	62	64	57	50	55	64	65	53	52	58	61	56	..	56.1
Zearing...	Max..	72	73	73	75	68	69	72	77	77

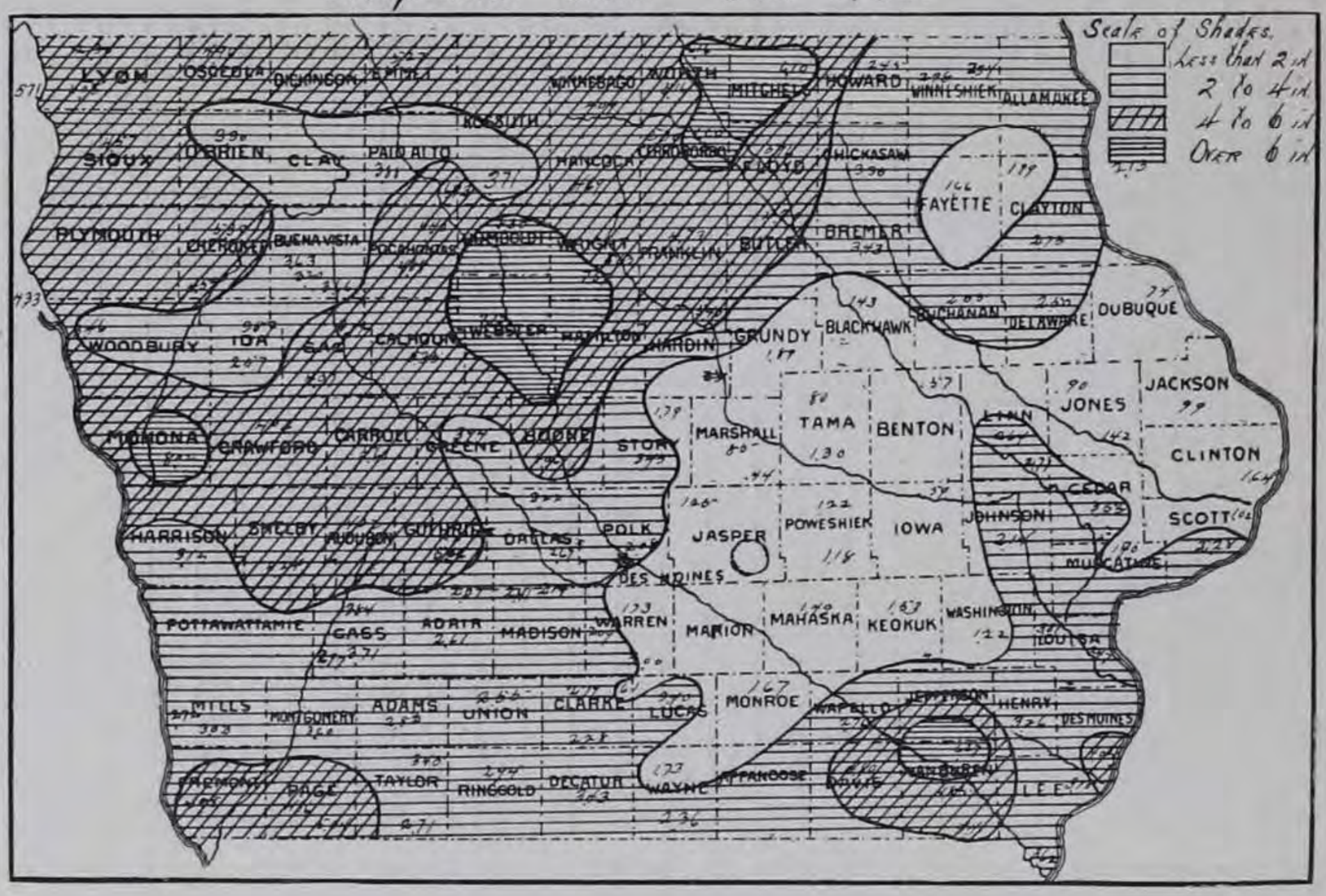
DAILY AND MONTHLY PRECIPITATION FOR JUNE, 1904.

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	....	.88	.14	.10	....	....	....	....	....	....	....	....	....	....	.31	..	T	....	....	.05	.12	....	....	.69	....	....	....	.26	T	....	....	2.55
Albia	....	....	.08	....	.03	.04	....	....	....	....	....	....	....	....	....	.58	....	.49	....	....	.02	....	....	....	.38	..	..	....	.05	....	....	1.67
Algona	.12	.55	.30	T	.03	....	....	....	....	....	....	....	.23	....	....	....	....	....	....	.55	....	..	.04	.16	1.58	....	..	....	.10	.05	....	3.71
Allerton	....	.23	.38	T	.10	..	..	T	....	..	..	....	....	..	.37	....	T	.06	..	.10	.07	..	....	1.10	T	....	....	....	....	T	....	2.36
Alta	1.04	....	.78	....	.01	....	....	....	....	....	....	....	.70	....	....	....	....	.41	....	.02	....	..	....	.10	.53	..	..	.02	02	....	....	3.63
Alta [near]	.92	....	.55	....	.02	....	....	....	....	....	....	....	.59	....	....	....	....	.26	....	.18	....	....	....	.08	.45	....	....	....	.15	....	....	3.20
Amana	..	.08	T	T	....	T	....	....	....	..	....	....	T	....	.15	..	....	....	....	.19	....	....	.05	.12	..	....	....	....	T	....	....	0.59
Ames	.04	1.91	.35	.53	T	.01	....	....	....	..	....	....	....	....	.01	....	....	.06	.15	T	....	..	..	.10	T	....	....	....	.29	T	....	3.45
Atlantic	.74	....	.43	....	....	....	....	....	....	....	....	....	....	....	T	....	....	....	....	1.00	.19	....	.47	.66	..	..	....	.29	.06	....	....	3.84
Aububon	.48	....	.26	.03	....	....	....	..	....	....	..	....	....	....	1.36	T	T	.25	..	.27	.12	..	.18	.71	....	....	....	....	.35	....	..	4.02
Baxter	....	.40	....	....	....	..	T	....	....	....	..	....	....	....	.20	....	....	.03	.32	.05	....	....	....	.13	....	....	....	....	.12	....	..	1.25
Bedford	....	.35	.30	T	....	....	....	....	....	....	....	....	T	....	.47	....	.25	....	....	.03	.21	....	....	.92	..	....	....	.08	.10	T	....	2.71
Belknap	....	.05	.04	.05	....	....	....	....	....	....	....	....	.90	....	.61	..	..	2.05	....	.38	....	....	....	.72	....	....	....	....	....	....	....	4.80
Bonaparte	....	.42	.20	.26	....	....	....	....	....	....	..	....	.27	....	.50	....	....	1.28	....	.16	....	..	....	.15	....	..	....	....	.11	.06	....	4.41
Britt	.10	.79	.24	.53	.10	.04	....	....	....	....	....	....	.17	.02	....	....	....	02	.08	1.35	....	....	....	46	.74	....	....	T	.05	....	....	4.69
Buckingham	....	.29	....	.07	....	T	....	....	....	....	....	....	.07	....	T	....	....	....	T	....	....	....	.17	T	T	....	....	....	.20	....	..	0.80
Burlington	....	.20	1.80	.50	T	....	.04	....	....	....	....	....	T	....	.22	....	....	.19	....	.01	....	..	....	.95	.10	....	....	.01	.03	....	....	4.05
Carroll	2.12	..	.50	.04	....	....	..	....	..	..	..	1.02	.20	.10	....	..	....	.25	.03	....	....	....	....	.73	.02	....	....	.50	.10	....	....	5.61
Cedar Rapids	....	.04	....	.33	T	T	T	....	....	....	..	....	....	T	....	.05	....	....	1.20	....	.50	....	....	.40	.12	....	..	....	....	T	....	2.64
Chariton	T	.18	.43	T	T	....	....	....	....	....	..	....	T	....	.67	....	T	.51	....	1.00	T	..	....	.61	....	....	....	....	....	....	....	3.40
Charles City	....	.39	.10	.21	.21	.08	....	....	....	....	....	....	T	....	....	....	....	T	3.67	.60	....	....	....	.30	.17	.23	....	....	T	T	....	5.96
Clarinda	.82	....	.32	.43	....	....	....	....	..	....	....	....	T	..	.63	....	....	.13	....	....	.88	....	....	.28	.95	....	....	T	.38	.04	....	4.86
Clear Lake	....	.30	1.80	....	T	....	....	....	....	....	....	....	T	....	....	....	....	2.00	T	.80	....	....	....	.30	....	....	....	....	.10	T	....	5.30
Clinton	....	....	.74	.18	....	....	....	....	....	....	..	....	....	....	.05	....	....	....	....	....	21	....	....	....	.40	....	....	....	....	.06	....	....	1.64
College Springs	1.25	.08	.61	.87	....	....	....	....	....	....	..	....	.02	....	.60	....	.07	....	.01	.03	.25	....	....	.95	.20	....	....	.02	.08	....	....	5.04
Columbus Junct'n	....	.43	.80	.15	....	.08	....	....	....	....	....	....	.07	.05	.44	....	....	....	....	.10	....	..	....	1.64	....	....	....	....	....	.05	....	3.81
Corning	.55	....	.60	.40	....	....	....	....	....	....	....	....	T	....	.05	....	T	.58	....	T	40	....	....	.15	.07	..	....	.03	T	T	...	2.83
Corydon	....	....	.37	T	.07	....	....	....	....	....	....	....	....	....	.50	..	....	.13	...	.04	04	....	....	.58	....	..	....	....	....	....	....	1.73
Cresco	....	.35	.85	.25	T	....	....	....	....	....	....	....	....	....	....	....	....	.20	....	....	....	....	.50	....	.30	....	..	....	....	....	....	2.45
Cumberland	.95	....	..	.62	T	....	....	..	....	....	....	....	T	..	..	..	..	..	....	1.22	....	....	....	.72	....	....	....	T	..	.20	....	3 71
Davenport	....	.06	.09	.49	....	T	....	....	....	....	....	....	T	....	T	....	....	....	....	.07	T	....	T	.58	..	....	....	....	....	T	....	2.28
Decorah	....	.42	.36	.06	T	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.50	....	....	....	....	....	....	....	2.34
Delaware	....	.47	1 02	.18	....	.11	..	..	....	....	..	....	....	....	....	....	....	.33	....	.03	....	....	....	.27	....	....	..	....	.09	....	..	2.50
Denison	.12	.08	.11	T	....	....	....	....	....	....	....	.28	.20	....	....	....	....	.72	.02	....	....	..	....	1.86	....	....	..	....	63	....	....	4.02
Des Moines	.77	.26	T	.05	.03	....	T	.06	....	....	....	....	T	....	.20	....	....	.02	....	.09	T	..	..	.49	T	....	....	....	.11	....	....	2.08
De Soto	.12	.49	.03	.10	....	..	T	..	....	....	....	....	....	....	.30	..	....	T	....	.02	....	....	....	91	..	....	....	....	.17	T	....	2.14
Dows	....	1.45	.22	.42	....	....	....	....	....	....	..	....	.23	....	....	....	....	....	.48	1.22	....	....	....	1.15	.10	....	....	....	.20	05	....	5 52
Dubuque	..	T	.04	.56	T	.04	..	..	..	....	....	....	.02	....	T	....	....	....	..	....	T	....	T	.08	T	....	....	....	T	T	....	0.74
Earlham	.14	.47	.06	.08	....	....	....	....	....	....	....	....	....	....	.76	....	..	....	..	.03	.02	....	....	.85	T	....	....	T	T	T	..	2.41
Elkader	....	....	1.35	.12	....	....	....	....	....	....	....	....	.05	....	....	....	....	.55	....	....	....	....	....	.43	....	....	....	T	25	....	....	2.75
Estherville	.26	1.00	.25	.26	T	.08	....	....	....	....	....	T	.10	.30	T	....	....	....	.20	.75	....	..	.04	....	.42	.05	....	....	.56	1.00	....	5.27
Florence	.02	.93	.26	.40	....	....	....	....	....	....	....	....	.51	....	....	....	....	....	....	1.35	....	....	2.25	.22	.37	....	....	1.18	.10			7.59
Forest City	....	1.40	.37	.21	.31	.03	....	....	....	....	....	....	....	.12	....	....	....	....	.10	.74	....	....	....	.07	.75	....	....	....	T	T	....	4.09
Fort Dodge	.02	2.50	.20	.10	.02	T	..	....	....	....	....	....	.38	.53	....	....	....	....	T	.48	....	....	....	2.60	....	....	..	....	.87	.03	..	7.73
Fort Madison	.03	....	.50	.50	....	T	T	..	....	....	....	....	T	....	.50	....	....	.7	....	.40	....	....	....	.62	....	....	..	T	.28	T	....	3.70
Galva	.88	.02	.33	....	T	....	....	....	....	..	....	....	1.53	....	....	....	....	.10	....	....	....	....	....	.41	.26	....	..	T	....	04.	....	3.57
Gilman	T	.20	....	T	T	T	T	....	..	....	....	T	....	.08	....	....	....	T	.09	....	....	.08	.09	T	....	....	....	....	....	T	....	0.44
Glenwood	.33	T	.60	T	T	....	....	....	....	....	....	....	T	....	T	....	....	..	....	T	.10	..	....	1.80	.20	....	....	T	T	....	....	3.03
Grand Meadow	..	.05	.45	....	....	....	....	..	....	....	....	....	.30	....	....	....	....	....	....	....	....	....	.90	....	.05	..	....	....	.16	.08	....	1.99
Greene	....	.67	.17	.43	.18	.03	....	....	....	....	....	....	.54	....	....	....	....	.69	.50	.18	....	....	....	.53	.20	....	....	..	.16	.02	....	4.30
Greenfield	.15	.31	.45	.20	.14	.05	.01	....	....	....	....	T	.	.53	....	....	T	....	.02	.01	....	....	....	.62	....	....	....	T	.12	....	....	2.61
Grinnell (near)	..	.40	.02	T	....	T	T	....	....	....	....	....	.15	..	.12	....	....	....	....	.15	....	....	....	.3	T	....	....	T	T	T	..	1.22
Grundy Center	.02	.54	.04	.03	....	....	....	....	....	....	....	....	.31	....	..	....	....	....	.19	T	....	....	....	.50	....	....	....	....	.26	....	....	1.89
Guthrie Center	.36	1.15	.47	.78	....	....	....	....	....	....	....	..	....	....	.65	....	....	.03	....	.71	..	....	....	.78	....	....	..	....	.10	.03	..	5.06
Hampton	1.16	.25	.15	.56	....	....	....	....	....	....	....	....	.10	....	....	....	....	1.22	.08	....	....	....	.66	.13	....	....	....	.42	....	....	....	4.73
Hanlontown	.18	1.55	.71	.46	.12	....	....	....	....	....	....	....	.03	T	..	....	....	.27	.23	.80	....	....	....	.17	.56	..	....	....	.05	..	....	5.16
Harlan	1.00	..	.60	.02	T	....	T	....	....	....	....	....	.45	....	....	....	....	T	....	....	.14	....	.46	1 11	.01	....	....	....	.45	..	....	4.24
Hopeville	..	.07	.24	.11	.02	.	..	.26	....	....	....	..	....	....	.33	....	....	....	....	.53	.07	....	....	.6	.02	....	....	T	....	..		2.28
Humboldt	.24	2.08	.40	.11	....	....	....	....	....	....	....	....	.34	..	....	....	....	.04	....	.71	....	....	1.68	.36	.89	....	....	....	1.20	.30	...	8.35
Ida Grove	1.05	....	.42	....	....	....	....	....	....	....	....	....	60	....	....	....	....	T	....	....	....	....	.30	.20	..	....	....	..	....	....	....	2.57
Independence	....	.05	.55	.10	T	..	....	.	....	....	....	....	T	....	....	....	....	.40	....	.35	....	....	....	.60	..	....	....	....	....	....	....	2.05
Indianola	.25	.13	.05	.02	.03	....	.01	..	....	....	....	....	....	....	.40	T	....	....	....	.06	.02	....	.32	.43	T	....	....	T	.01	....	....	1.73
Inwood	.79	.78	1.10	....	....	....	....	....	..	....	....	....	.30	....	....	....	.05	....	.03	....	....	....	....	1.03	....	....	....	....	....	....	....	4.08
Iowa City	....	.03	....	.47	T	....	....	....	....	....	..	....	....	.05	..	.22	....	....	.04	....	1.08	....	....	.18	.12	....	....	....	....	T	....	2.14
Iowa Falls	....	1.10	.16	.20	.19	T	....	....	....	....	....	....	....	T	....	....	....	....	T	1.92	T	..	....	1.54	T	....	....	....	.33	.01		5.45
Jefferson	1.55	.02	.26	.40	....	....	..	....	....	..	....	....	....	....	.05	....	....	....	.32	....	....	....	....	1.16	....	....	....	....	....	.18	....	3.94
Keokuk	....	T	.58	.78				....	....	....	....	....	....	T	.23	....	....	.70	....	.32	..	....	....	.56	.25	....	....	T	04	.16	....	3.62
Keosauqua	....	.42	.04	.41	..	T	....	T	....	..	..	....	....	1.20	....	.73	....	.82	..	....	.08	....	....	....	.98	.02	....	.03	.12	....	....	4.85
Lacona	.04	....	.12	.03	.01	.01	.03	..	....	....	....	....	....	....	.44	..	....	....	..	.97	.05	....	....	.30	..	..	....	....	....	....	....	2.00
Larrabee	1.75	.50	.75	T	.05	....	....	....	....	....	..	.20	.87	....	....	....	....	.06	..	.36	....	....	....	....	.85	....	....	....	T	....	....	5.39
Le Claire	....	.03	T	.61	....	.02	....	....	....	....	..	....	....	....	....	.11	....	....	....	....	.02	....	....	T	.22	....	....	.01	....	T	....	1.02
Lenox	.30	.8	.56	.19	..	....	..	....	....	....	..	....	....	....	.34	....	.05	....	..	.48	.25	....	....	.40	.05	....	....	.03	T	T	....	3.45
Leon	.03	.05	.28	.07	....	....	..	.26	..	..	....	....	....	..	.71	....	.05	.14	..	.34	.16	....		1.26	.05	....	....	....	.03	....	....	3.43
Logan	1.01	....	.50	....	..	....	....	....	....	....	....	.10	....	....	....	....	....	....	....	....	....	....	.02	.23	....	.78	....	....	.48	..	....	3.12
Maquoketa	....	.09	....	.49	....	....	....	..	....	.	....	....	....	.20	....	....	..	....	....	....	.02	....	....	.10	.09	....	..	T	....	....	....	.99
Marshalltown	....	.18	....	....	....	.02	....	..	....	....	....	....	....	.08	....	.02	....	....	....	.12	....	....	....	.10	.03	..	....	....	.28	.02	....	.85
Mason City	....	2.10	.18	1.05	.02	....	....	....	....	....	....	....	.05	....	....	....	....	.65	.40	1.10	....	....	....	.65	.20	....	....	....	.20	....	....	6.60
Massena	.03	.72	1.02	.22	....	.02	....	....	....	....	....	....	.03	....	.07	..	....	..	....	.10	.28	....	....	.41	.02	....	....	....	.05	....	..	2.97
Monticello	T	T	.50	....	..	.	T	....	....	....	....	....	....	....	....	....	....	....	T	....	....	....	....	.40	....	....	T	....	....	T	..	.90
Montezuma	.12	....	....	....	....	....	....	....	....	....	....	....	....	....	.19	....	....	....	....	.25	....	....	....	.62	....	....	....	....	....	....	....	1.18
Mount Ayr	.10	.20	.30	.40	....	....	....	....	....	....	....	..	T	....	.45	....	.05	.15	....	. 0	.30	....	....	.75	.05	....	....	.09	T	T	....	2.94
Mt. Pleasant	....	1.13	.07	.24	....	.07	....	....	....	....	....	....	.10	T	.43	....	....	.26	....	.08	....	....	....	.74	.04	....	....	....	....	.10	....	3.26
Mt. Vernon	....	....	.77	....	....	....	....	....	....	....	....	....	....	.06	.07	....	....	.10	.25	1.10	....	....	....	.35	....	....	T	....	....	.01	....	2.71
New Hampton	....	.32	.02	.20	.05	....	....	....	....	....	....	..	.35	.....	....	....	....	.86	.05	.20	....	....	....	.97	.33	....	....	....	.	....	....	3.35
Northwood	T	1.83	.21	1.12	T	.	....	....	....	....	....	....	.11	T	.06	....	....	1 00	....	.19	....	....	T	.30	1.29	....	. .	..	.03	.02	....	6.16
Odebolt	1.45	....	.50		....	....	....	....	....	....	....	....	.40	..	....	....	....	.50	....	....	....	....	....	50	....	..	..	....	.72	....	....	4.07
Ogden	1.73	.39	.26	.05	....	....	.02	....	....	....	..	..	....	....	....	..	....	.40	.40	.10	..	....	....	.33	....	....	..	.19	.19	..	....	4.06
Olin	T	T	1.00	.02	....	....	....	....	....	....	....	....	....	....	T	....	....	T	....	.05	....	....	....	.35	....	....	....	....	T	T	....	1.42
Omaha, Neb	.98		.63	.02	.02	T	....	....	....	T	....	....	.02	....	.01	....	.03	....	..	....	.15	....	.15	.94	.12	....	..	....	.06	T	....	3.11
Onawa	3.15	....	.27	T	T	....	....	....	....	T	..	..	1.95	....	....	....	..	....	....	....	03	....	....	1.30	.70	....	....	....	.60	.02	....	8.02
Osage	....	.77	.25	.79	....	....	....	....	....	....	..	.	.05	....	....	....	....	3.20	....	.25	....	....	....	. 22	.57	..	....	....	....	....	....	6.10
Osceola	....	.60	.15	.02	....	....	.	T	....	....	....	....	....	....	.21	.14	....	.10	....	....	.12	.10	..	.25	1.10	..	....	....	T	....	....	2.79
Oskaloosa	....	....	05	.04		....	T	....	....	....	..	....	T	....	.75	..	.	....		.16	....	....	....	.45	....	....	....	....	....	.04	....	1.49
Ottumwa	....	.15	....	....	....	.06	....	....	....	....	..	....	.15		1.10	....	....	.65	...	T	....	....	....	.62	....	....	....	....	.03	....	..	2.76
Pacific Junction	.46	T	.40	.09	....	..	....	....	....	....	....	....	.03	....	T	T	....	....	....	T	.25	..	T	1.29	.19	....	....	.01	T	....	..	2.72
Perry	1.29	....	.30	....	....	....	.14	.23	....	....	....	....	....	....	.16	....	....	.31	.27	.16	....	....	....	.20	....	..	..	....	.16	..	....	3.22
Plover	.75	....	.36	....	....	....	....	....	..	....	....	....	.35	....	....	..	....	.16	.08	.26	....	....	....	....	1.10	....	....	1.25	.11	....	....	4.42
Pocahontas	.95	.03	.19	T	T	....	....	....	....	....	....	....	.43	....	....	..	....	.09	T	.78	..	....	.05	.23	.42	....	..	T	1.61	.06	....	4 84
Red Oak	.92	....	.84	.37	T	....	....	....	..	..	....	..	.13	....	.12	...	T	....		T	.34	....	....	.43	.17	....	....	.28	T	....	....	3.60
Ridgeway	....	.40	.9s	.17	.05	.02	..	....	....	..	....	....	.05	..	....	....	..	.18	T	.02		....	.59	.03	.23	....	....	....	.06	.19	....	2.98
Rockwell City	.35	1.60	.40	.10	....	....	....	....	....	....	....	....	.60	....	....	....	....	.15	.15	.45	....	....	....	.60	....	....	....	....	.65	.30	...	5.35
Ruthven	1.00	.50	.03	....	....	....	....	....	....	....	....	....	.40	....	....	....	....	.40	....	.70	..	....	....	....	.60	..	....	....	.25	....	....	3.88
Sac City	1.68	....	.38	....	T	....	....	....	....	....	....	....	.52	....	....	....	....	.19	....	..	..	....	T	1.27	T	....	..	T	.69	.04		4.77
Sibley	.21	1.66	.71	.59	.01	....	....	....	....	....	....	....	.37	.19	....	....	....	.02	.22	.03	....	....	....	....	.70	.05	....	....	.03	.17		4.96
St. Charles	.34	.20	.05	.06	.04	.05	....	....	....	....	....	....	....	.	.54	....	....	....	....	.35	.10	....	....	.30	....	....	....	T	.02	.04	....	2.09
Sigourney	....	....	T	T	....	T	....	....	....	....	..	....	.03	....	.64	..	....	....	....	.27	....	..	....	.60	....	....	..	....	....	....	..	1.53

DAILY AND MONTHLY PRECIPITATION FOR JUNE, 1904--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	1.89	.01	.59	T	.03					.02		T	.1					.13					T	.05	.24			T	.32	T		3.46
Sioux Center	1.05	.20	1.52							T		.38	.65					T		.31				T	.44				.02			4.57
Stockport	T	.83	.37	.18		.02	T						.82		.58			1.46		.34				1.40	.06			.02	.06	.13		6.27
Storm Lake	.02	.94	.86	.03									.51	.18					.36	.41				.08	.24				T	.03		3.66
Stuart	.10	.39	.17												.42					.07				1.32					.08	.04		2.59
Thurman	.67	T	.53	.38									.09		.64		T				.22			.92	25		.28	.10		.01		4.08
Tipton			2.66	.10											.22			T		.22				.34						.01		3.55
Toledo		.35													40					.10			.20		T					.25		1.30
Vinton		.10				.07							.03		T			T	.11					.24					.02			.57
Wapello		.18	.90	.36									T		.43									.60								2.47
Washington		.22	.18										.05		38					.05				.34								1.25
Washta	1.70		.63								T	T	1.10					T		20				.56	.20				.16			4.55
Waterloo		.17	.01			.01							.18					.08	.10	35				.56					.17			1.43
Waukee	.42	.18	.07	.18			.05								.26			.26	T	T				1.10					.15			2.67
Waverly		18	.12	.06	.03	.05							.52					.27	.21	.55				.67	.31				.46			3.43
West Bend	.24	.61	.55										.31					.04		.55			1.66		1.06			1.75	.16		6.93
West Union		.35	.37	.05									.30					.12					.41				.06				1.66
Wilton Junction			.42	.12	T	T							T		.25					.15				.35					T	.11		1.40
Woodburn	T	.10	.25	.15											.44			.14		.10			.53					T				1.61
Zearing		.45	.19															T	.85	T				.07					.19	.04		1.79

Precipitation Chart June 1904.



JULY, 1904. No. 7

CONTENTS.

CENTRAL STATION, DES MOINES, IOWA.

J. R. SAGE,
DIRECTOR.

GEO. M. CHAPPEL,
LOCAL FORECASTER,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

THE IOWA WEATHER AND CROP SERVICE

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

STATE BOARD OF AGRICULTURE,

CONSTITUTED AS FOLLOWS:

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DR. J. I. GIBSON, State Veterinarian.

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Third District—W. C. BROWN, Clarion.
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Fifth District—S. B. PACKARD, Marshalltown.
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Tenth District—J. W. WADSWORTH, Algona.
Eleventh District—H. L. PIKE, Whiting.

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From the following, weekly and monthly reports of Metorological data are received by the Iowa Weather and Crop Service.

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Albia	E. R. Reeve
Algona	Dr. F. T. Seeley
Allerton	Rex Shriver
Alta	D. E. Hadden
Alta (near)	W. J. Minard
Amana	Conrad Schadt
Ames	Exp. Station
Atlantic	J. W. Love
Audubon	Geo. E. Kellogg
Baxter	W. T. Thorp
Bedford	E. E. Healy
Belknap	A. W. Rankin
Belle Plaine	S. P. Vandike
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Britt	G. P. Hardwick
Buckingham (Traer P. O.)	Dr. W. A. Daniel
Burlington	I. S. Shontz
Carroll	Moses Simon
Cedar Rapids	Electric Light and Power Co.
Chariton	C. C. Burr
Charles City	C. H. Priebe
Clarinda	A. S. Van Sandt
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Clinton	Luke Roberts
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Decorah	F. H. Baker
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Des Moines	*Geo. M. Chappel
De Soto	R. D. Minard
Dows	A. C. Fuller
Dubuque	*Orin Parker
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Eldon	T. Madden
Elkader	Chas. Reinecke
Estherville	Earle W. Peterson
Fayette	R. Z. Latimer
Florence (Clarion P. O.)	H. Du Bois
Forest City	J. A. Peters
Fort Dodge	Tobin College
Ft. Madison	Miss L. A. McCready
Galva	C. E. B. Roberts
Gilman	Jas. L. Wylie
Glenwood	J. P. Jackson
Grand Meadow (Postville P. O.)	F. L. Williams
Greene	J. L. Cole
Greenfield	J. G. Culver
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Guthrie Center	D. G. Beardsley
Hampton	E. C. Grenelle
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Harlan	C. A. Reynolds
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Keokuk	*Fred Z. Gosewisch
Keosauqua	Prof. J. A. Landes
Knoxville	Casey & Bellville
Lacona	Agent C., B. & Q. R'y
Larrabee	H B. Strever
Lenox	J. L. Hurley
Le Mars	Dr. T. E. Cole
Leon	Millard F. Stookey
Logan	Mrs. M. B. Stern
Maquoketa	Frank W. Keeney
Marshalltown	Branch S. Jones
Mason City	J. S. Mills
Massena	Fred. T Knott
Montezuma	C. J. Griffin
Monticello	C. E. Heisey
Mount Vernon	Rev. J. W. Hubbard
Mt. Ayr	A. F. Beard
Mt. Pleasant	Prof. J. W. Edwards
New Hampton	R. H. Gurley
Newton	Hon. J. P. Beatty
Northwood	Dr. J. H. Darey
Odebolt	E. Starner
Ogden	C. L. Zollinger
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Osage	G. D. Pattingill
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Perry	J. A. Harvey
Plover	J. S. Smith
Pocahontas	F. E. Hronck
Primghar	Jasper N. Marsh
Red Oak	J. S. Cole
Ridgeway	Arthur Betts
Rockford	J. R. Waller
Rock Rapids	W. C. Wyckoff
Rockwell City	C. M. Randall
Ruthven	F. M. Fitzgerald
Sac City	J. A. Sodestrom
St. Charles	C. W. Minard
Sheldon	J. B. Frisbee
Sibley	H. G. Doolittle
Sigourney	Mrs. R. F. Ashbaugh
Sioux Center	Jacob de Ruyter
Sioux City	*U. G. Purssell
Spencer	S. Gillespie
Spirit Lake	W. C. Drummond
Stockport	C. L. Beswick
Storm Lake	L. E. Burdick
Stuart	Hon. John Herriott
Thurman	C. R. Paul
Tipton	F. K. Gregg
Toledo	Herbert Giger
Vinton	T. F. McCune
Villisca	C. E. Matteson
Wapello	Geo. W. Schofield
Washington	Wm. A. Cook
Washta	H L. Felter
Waterloo	M. L. Newton
Waukee	E. J. Leonard
Waverly	H. S. Hoover
Whitten	Dr. Frank P. Butler
Wilton Junction	J. M. Rider
Winterset	B. L. Sprinkle
West Bend	Phil Dorweiler
West Union	J M. Lisher
Woodburn	C. B. McDonough
Zearing	H. E. Burkhart

*U. S. Weather Bureau.

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U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

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IOWA CROP REPORT, AUGUST 1, 1904.

Tabulated reports received from correspondents of the Iowa Weather and Crop Service show the following estimates of the condition of the staple crops on August 1, 1904:

Spring wheat, 75 per cent; corn, 88 per cent; oats, 89 per cent; flax, 94 per cent; pastures, 96 per cent; potatoes, 101 per cent; apples, 73 per cent; grapes, 86 per cent.

At corresponding date last year the estimates were as follows: Spring wheat, 82 per cent; corn, 73; oats, 77; flax, 84; pastures, 104; potatoes, 80; apples, 65; grapes, 80.

Compared with the estimates of condition on July 1, 1904, spring wheat shows a decline of 16 points, on account of the serious attack of rust and blight during the latter part of July. The estimates are two points lower on corn and oats as compared with the July rating. As a matter of fact, however, the general outlook of the corn crop is better than it was about the first of July, though it is still relatively about eight to ten days later than usual.

Secretary Greene, of the Iowa Horticultural Society, gives the following report of the fruit crop for August 1, 1904:

Summer apples, 62 per cent; fall apples, 64; winter apples, 54; peaches, 10; American plums, 60; domestic plums, 38; Japan plums, 45; grapes, 82 per cent. The best crop of apples is grown this year in the eastern part of the State.

JULY WEATHER AND CROPS.

This has been the coldest July since 1891, when the mean temperature for the state was 68.6°. The mean for this month, 70.6°, was 3.6° below the normal. The warmest period was the second decade. The average rainfall for the state, 4.41 inches, was .18 of an inch above normal. The northern section received an average of 3.77 inches; central section, 4.47; southern section 5.00 inches. Rain in measurable quantity fell at one or more stations in the state every day during the month. And yet the average number of clear days was 16, partly cloudy, 9, and cloudy, 6. Generally there was sufficient sunshine to promote plant growth. The days were warm, and nights unusually cool. The heaviest storm of the month, in respect to amount of rainfall, occurred on the night of the 19th; but the excessive downpour was limited to a few counties. On the whole the month was favorable for crops and field work. Corn was laid by from the 4th to the 15th,—about a week later than usual. During the showery period in the early half of the month spring wheat and oats were attacked by rust. The wheat crop was damaged seriously, but oats were not very badly injured. The latter half of the month was favorable for harvest operations and most of the small grain was in shock or stack before August 1st. Haying progressed quite favorably and though the yield was lighter than the average the quality was superior, and most of it was secured in good order. Corn made notably fine progress, despite the cool weather, and at the close of the month that crop was much more advanced than was deemed possible earlier in the season. Potatoes, garden truck, apples, small fruit and all minor crops made normal advancement.

WHEN CORN IS TASS'LING OUT.

There is music in the breezes
  As they rustle thru the corn,
There is grandeur in the sunrise
  As it dries the dew each morn;
There is gladness 'mongst the people
  And the farmers fairly shout—
There is always joy in Iowa
  When the corn is tass'ling out!

There is singing in the hayfield
  And along the dusty roads,
Where the farm boys drive the wagons
  With their fresh and fragrant loads;
The housewives sing so gaily
  As their tasks they go about—
There is heaps of joy in Iowa
  When the corn is tass'ling out!

Over yonder in the stack yard
  Rise the swelling yellow cones,
And the stackers toil and listen
  For the dinner bell's sweet tones,
While they laugh and greet each other
  With a lusty, ringing shout—
There's a pile of joy in Iowa
  When the corn is tass'ling out!

And the waving, nodding tassels
  Tell a story, short, but true,
Of the happy times a-coming,
  Of the debts a-coming due;
How we'll meet 'em and pay 'em.
  Every one without a doubt—
There's prosperity in Iowa
  When the corn is tass'ling out.

—J. F. Dalton, in Manson Democrat.

AS TO SEED CORN.

Throughout the corn belt there was last spring a vigorous effort made by some of the agricultural experiment stations to instruct the growers of corn in regard to their seed corn, its selection, planting, etc. While much good was thus no doubt accomplished, the right time to do this sort of work is in the fall of the year, at the time when the seed corn should be gathered from the field. Once knowing what to select for seed, the winter care of it is really a simple matter, bearing in mind the fact that to insure a perfect germination of seed corn it should be picked before frost and kept where it will not freeze until planted, for it is frost which is the principal destroyer of the vitality of seed corn.—*Trigg's Farm Notes.*

NOTES.

In Iowa corn is grown principally for the grain. In Franklin county, Missouri, the cob is more valuable in the market than the shelled corn grown thereon. The variety produced in that region is known as the cob-pipe corn, and the factories in that section manufacture cob-pipes for shipment to all parts of the world. In Iowa dry cobs are used for kindling fires, for which purpose they are sold in towns for about a dollar per load. So corncobs end in smoke, whether sold at the pipe factory or for fuel.

Our American maize is growing upon the world. Its merits as a wholesome food are just beginning to be understood. In every way corn, employing the word in the sense peculiar to America, is a staff of life. Where its use is most abundant the finest type of men and women is raised and domestic animals are unsurpassed in vigor. Corn is nutritious, compact in bulk, easily transported, and one of the least perishable of foodstuffs. It contains in itself the elements that will sustain life for an indefinite period. In this age of rapid commercial communication there should be no famine as long as such a large surplus of corn is available. Corn is cheap, in fact, too cheap. It is worth relatively more than it sells for. The price is not likely to go too high, for its production in this country, great as is the yield, could easily be doubled. From every point of view corn is one of the greatest of nature's gifts to man, though as yet imperfectly appreciated.—*St. Louis Globe-Democrat.*

THE MISCHIEF OF WRONG THEORIES.

During the past century there has been such steady progress in all branches of science that the more intelligent portion of the community has abandoned those notions with regard to astrology, alchemy, spontaneous generation, witchcraft, and other philosophies that were formerly accepted by the most learned. The diffusion of education has raised the children of the present generation above the level of the philosophers of a former generation. And yet we have seen it demonstrated again and again that the popular majority does not fully appreciate the extent of our present knowledge of the laws of the weather, and is still liable to resort to unscientific methods in hope of accomplishing that to which science has not yet attained.

We have seen communities in America and Australia carried away with the idea that cannonading can produce rain, or in Europe that the ringing of church bells or the offering of prayers can avert droughts and floods. In southern Europe the agriculturists are but just recovering from the strange belief that hail can be prevented by shooting rings of smoke toward the clouds. During the past ten years a wealthy engineer of Russia has devoted his fortune to the conversion of the people to his idea that the moon controls the weather, and so seriously does his advocacy of this error affect the uneducated agricultural community that the director of the weather service at Odessa (Klossovsky) has gone to the trouble of publishing an elaborate statement of the errors in fact and theory committed by this engineer. He shows very clearly that Demtchinsky's method of predicting the weather by lunar periods amounts to nothing more than predicting an average condition, an average which very rarely occurs, whereas the departures from it are very frequent. The verifications of these predictions are like the combinations in an ordinary game of chance, where there is an equal number of heads and tails, or hits and misses.

As the collection of meteorological statistics depends so largely upon the voluntary work of thousands of upaid observers, it is to be feared that the good work we are doing in America may be seriously interrupted if erroneous views are allowed to have an influence in this country as profound as they seem to have in southern Russia.

We can not repeat too often and too clearly the general proposition that meteorology is to be advanced only by studying in details the effects on the atmosphere of insolation, radiation, the diurnal rotation and annual revolution of the earth, and the presence of continents and oceans.—*Monthly Weather Review.*

THE PLANETARY WEATHER PROPHETS.

The prophets who profess to believe that variations in temperature and precipitation are due to movements of the planets have come to grief out in California. According to the most recent issue of "The United States Monthly Weather Review," they promised the farmers an abundance of rain last winter, but their hopes were not realized in the southern part of the State. There is no reason to imagine that the authors of these fallacious assurances are particularly dejected over the result, but the failure of the prediction is influencing public opinion in a wholesome manner. Remarking upon the disappointment, The San Diego *Times* says: "We are thrown again upon the Weather Bureau, with added experiences in discounting old-time signs as interpreted by that wonderful array of weather-wise men who annually find their way into print to demonstrate what they can not predict about the weather."

The methods of the planetary forecasters—those of them who are honest, at least—are defective in several ways. They seldom sit down a year after their predictions have been issued and make a rigid comparison between the promise and the actual facts. Such a proceeding would be instructive in the extreme, though highly discouraging. They also neglect to formulate any system of mechanism whereby the planets can do the work imputed to them. They usually exhibit a singular ignorance of well established and fundamental laws. One of these men, for instance, mentions in a letter to the Weather Bureau the usual prevalence of easterly winds in Southern California last winter, and thinks that they were the result of some magical celestial influence. There is a much more simple way to account for them. Observation at government stations shows that there was an unusually high atmospheric pressure in the centre of the continent for several months, beginning with November, and a deficiency along the Pacific Coast. Now, the air always flows from a high area toward a low one, and the velocity is proportional to the "gradient." The latter having been steeper than is common, the movement should have been more vigorous than ordinary. The abnormal prevalence of easterly winds and the deficiency in precipitation in the vicinity of San Diego and Los Angeles, therefore, were closely related

to the severity of the winter in the eastern half of the country, which was due primarily to differences in pressure between the heart of the continent and the Atlantic Coast.

One of the most important advances made in meteorology in the last few years is the revelation that simultaneous changes occur in pressure in widely separated regions. In a recent number of "Nature" W. J. S. Lockyer gave striking illustrations of the barometric seesaw. Going back through an interval of over thirty years, he showed that when the pressure was sensibly higher than the average in India it would almost invariably be below the mean in South America. Between the areas which exhibit opposite conditions the boundaries are not yet well defined, nor is the duration of an abnormal state of things always the same. The interval apparently varies from one year to four. There does not appear to be a regular periodicity from which couclusions regarding the future can safely be drawn. Nevertheless, there is a significance in the single fact that the opening of a new chapter of history in one locality is often attended by a corresponding change in another, remote from the first. The phenomenon needs more study before it can be turned to account practically, but it seems to point to a thoroughly rational system of long range forecasting. It will not enable the expert to predict what will happen on a particular day, but it may possibly assist him to reach a fairly accurate conclusion of the general character of a period several months in length.

Caution must be exercised in attempting to explain sustained departures from the average of many years over a large area. Compensating excesses or deficiencies in other parts of the globe are perfectly intelligible because there is only just so much atmosphere. Accumulations here mean scarcity there. It is conceivable, of course, that exceptional obscurity in one locality, say, from an abundance of volcanic dust, might thus destroy the balance by cutting off some of the sun's heat in one locality. There is a stronger probability, however, that fluctuations in the output of solar energy will some day be logically connected with the observed effect. Any one who is familiar with the extent and violence of the disturbances which occur on the sun will find such a suggestion more credible than the notion that diminutive bodies, whose surfaces undergo no apparent change, have any appreciable influence.—*N. Y. Tribune.*

CLIMATOLOGY OF THE MONTH.

BAROMRTER.—Mean pressure, 29 98 inches; highest observed, 30.32 inches, at Dubuque, on the 2d; lowest observed, 29 69 inches, at Davenport on the 11th; range for state, 0.63 inches.

TEMPERATURE.—The monthly mean temperature for the state, as shown by records of 119 stations, was 70.6°, which is 3.6° below normal. By sections the mean temperatures were as follows: Northern section 69.1°, which is 3.9° below normal; Central section 71.0°, which is 3.1° below normal; Southern section 71.70°, which is 3.9° below normal. The highest monthly mean was 74.0° at Keokuk; lowest monthly mean, 66.5° at Cresco. The highest temperature reported was 100°, at Marshalltown on the 17th; lowest temperature reported, 38°, at Fayette on the 2d. The average monthly maximum was 93.1°; average monthly minimum, 46.8°. Greatest daily range, 43°, at Logan; average greatest daily ranges 33.4°.

PRECIPITATION.—Average precipitation for the state, as shown by records of 117 stations, was 4.41 inches, which is 0.16 of an inch above normal. The averages by sections were as follows: Northern section, 3.77 inches, which is 0.41 below normal; Central section, 4.47 inches, which is 0.38 above normal; Southern section, 5.00 inches, which is 0.54 above normal. The largest amount reported was 11.97 inches at Thurman; least amount reported, 1.28, at Plover. The greatest daily rainfall reported was 7.73 inches at De Soto on the 19th. Average number of days on which .01 of an inch or more was reported, 10.

WIND AND WEATHER.—Prevailing direction of the wind, southwest; highest velocity reported, 42 miles per hour, from the northwest, at Sioux City on the 3d. Average number of clear days, 16; partly cloudy, 9; cloudy, 6.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES.			
		Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	29.97	30.27	2	29.69	11
Des Moines	30.00	30.28	2	29.77	13
Dubuque	29.99	30.32	2	29.72	11
Omaha, Neb	29.96	30.20	23	29.66	13
Keokuk	29.98	30.27	2	29.76	11
Sioux City	29.96	30.19	23	29.70	16
Means	29.98	30.32	2	29.66	13

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	4.731	36	SW	13
Des Moines	5.357	34	NW	14
Dubuque	4.481	29	S	3
Keokuk	4.908	32	SW	3
La Crosse, Wis	4.566	31	W	17
Omaha, Neb	5.154	36	W	11
Sioux City	8 275	42	NW	3

OBSERVERS' NOTES.

ALTA.—*David E. Hadden.* July mean temperature was 3° below normal, and rainfall about 1.50 inches less than average of preceding fourteen years.

AMANA.—*C. Schadt.* Nights were cool, and weather very favorable for ripening grain and harvesting, with sunshine and rain enough to promote growth of corn.

ATLANTIC.—*J. W. Love.* Corn has made rapid growth, though nights were cool.

BONAPARTE.—*B. R. Vale.* Rain, 4.43 inches, but latter half of month was dry; good harvest weather after the 10th.

BRITT.—*Geo. P. Hardwick.* Wind and hail on 14th and 17th lodged grain and blew off apples. Wheat barley and potatoes good.

CHARITON.—*C. C. Burr.* No severe storms; temperature did not rise above 90 in July.

CLINTON.—*Luke Roberts.* A fine month for all crops, out of door work and personal comfort. Rain, 3.18, barely enough for crops; corn, potatoes and fruit doing well; grain and hay mostly secured.

COLUMBUS JUNCTION.—*J. B. Johnston.* On the 30th a severe electric storm caused damage to buildings and live stock.

FOREST CITY.—*J. A. Peters.* Harvesting oats began about 23d; early corn in tassel on 25th; oats about one-third in shock at close of month.

GRAND MEADOW.—*F. L. Williams.* Month was generally favorable for crop growth; barley crop heavy; oats and wheat rusted; pastures extra good; hay light; corn late.

GRINNELL.—*A. O. Price.* Perfect harvest month and all matured crops secured in fine condition.

HANLONTOWN.—*Miss G. M. Paschen.* Haying began the 6th; harvest of oats, 28th; heavy storm night of 29th damaged small grain and corn; some damage by hail.

IDA GROVE.—*J. E. Conn.* Corn doing well; haying nearly done; fruit crop good.

INWOOD.—*G. M. Larson.* The month was very favorable for farm work; abundant crop of good hay put up; corn looking well.

LOGAN.—*M. B. Stern.* Month changeable, cool and warm, but crops have grown finely.

OLIN.—*Nathan Potter* Good month for farm work, which was well advanced at its close.

POCAHONTAS.—*F. E. Hronek.* Excellent weather for haying and harvesting; corn tasseling and silking at close of month.

RIDGEWAY.—*Arthur Betts.* Coolest July on record here; 341 hours of sunshine; just enough rain, and crops are promising; hard windstorm on the 18th, with some damage to orchards, etc.

WAUKEE.—*E. J. Leonard.* Storm on 19th was severest in years; more rain fell in ten hours (6.80) than fell in May and June.

BELATED REPORTS.

FAYETTE.—May. Mean temperature 57.0°; mean maximum 70.0°; mean minimum 44.1°; maximum temperature 87° on the 20th and 22d; minimum 30° on the 10th; greatest daily range 39°; total precipitation 4.99 inches; greatest in 24 hours 1.16 inches on the 25th; number of rainy days, 7.

FAYETTE.—June. Mean temperature 65.3°; mean maximum 77.8°; mean minimum 52.8°; maximum temperature 88° on the 23d; minimum temperature 40° on the 9th; total precipitation 2.02 inches; greatest in 24 hours .83 inches on the 23d; number of rainy days 8.

VILLISCA.—June. Mean temperature 66.6°; mean maximum 79.0°; mean minimum 54.1°; maximum temperature 88° on the 21st; minimum temperature 43° on the 30th; greatest daily range 35°; total precipitation 2.73 inches; greatest in 24 hours .57 inches on the 20th; number of rainy days 11; clear 10; partly cloudy 16; cloudy 4; prevailing direction of wind, southwest.

CLIMATOLOGICAL DATA FOR JULY, 1904.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Algona	Kossuth	1,213	28	69.4	-4.3	90	16,17	47	1	30	3.75	†0.08	.93	....	9	17	8	6	SE	3, 10, 26
Alta	Buena Vista	1,513	11	69.4	-3.3	92	16	49	2	27	3.12	-1.59	1.17	....	9	17	2	2	S	3, 10, 13, 18, 20, 25, 29
Alta (near)	Buena Vista										3.96		1.14	....	9					
Britt	Hancock	1,236	5	69.4	-3.5	91	16,17	45	1	38	4.74	†0.42	.94	....	16	7	19	5	N	14, 17, 26
Charles City	Floyd	1,012	11	68.2	-5.5	93	18	44	2	32	4.75	†1.52	.93	....	11	20	1	10	S, SW	4, 19, 30
Clear Lake	Cerro Gordo	1,241	....	71.2		92	16	50	1,2	32	4.70		1.90	....	13	12	16	3	NW	
Cresco (d)	Howard		....	66.5	-4.6	90	17	43	2	35										
Decorah	Winneshiek	857	....	67.9	-4.7	92	16,18	43	2	32	2.84	-0.37	.84	..	7	....	....	....	....	
Dows	Wright	1,142	....	69.1	-3.9	91	16,17	48	1,3	32	3.65	-0.70	1.64	....	10	19	5	7	NW	18, 25
Elkader	Clayton	727	21	71.0	-3.0	99	17	42	2,24	42	3.05	-1.29	1.40	....	9	20	9	2	NW	3, 8, 11, 18
Estherville	Emmet	1,298	7	67.2	-5.5	93	17	44	15	41	4.50	†0.62	1.00	....	12	18	2	11	NW	14
Fayette (b)	Fayette		....	67.4	-4.9	93	17,18	38	2	39	4.37	†0.67	1.88	..	8	....	....	....	SE, SW	3, 5, 8, 18, 30
Florence	Wright	1,226	8	....							4.54		2.14	....	11	10	21	0	W	3, 4, 7, 8, 10, 14, 26, 29, 30
Forest City	Winnebago	1,226	8	69.2	-3.7	91	16	48	1,2	33	4.76	†1.33	1.33	....	11	15	4	12	S	
Grand Meadow	Clayton	1,180	11	68.0	-3.0	92	17	45	2	33	4.03	-0.29	1.98	....	13	12	13	6	SW	
Greene	Butler	924	5	70.0	-5.1	94	16	46	2	38	3.06	-1.13	.75	....	14	8	10	13	W	3
Hampton	Franklin	1,155	12	71.0	-1.7	95	17	48	2	34	4.79	†0.65	2.08	..	13	13	13	5	NW	
Hanlontown	Worth		....	67.5		90	16	45	2	30	5.53		2.50	....	14	17	8	6	SE	3, 10, 14, 17, 18, 25, 29
Humboldt	Humboldt	1,095	10	69.8	-4.1	93	16,17	50	1,2	39	2.65	-1.29	.72	....	12	22	5	4	SE	
Inwood	Lyon		....	69.4	....	94	16	40	14	38	3.78		1.29	....	7	24	2	5	NE	13, 29
Larrabee	Cherokee	1,366	11	71.8	-1.2	95	16,18	45	1	40	3.58	-1.08	.73	....	7	14	14	3	SW	2, 25, 29
LeMars (i)	Plymouth	1,224	6	69.6	-4.3	93	16	45	23		3.27	-1.63	1.05	....	6	....	....	....		
Mason City	Cerro Gordo	1,132	..	70.3	-1.1	96	16	50	1,2	32	3.01	†0.22	.65	....	9	10	15	6	S	3, 4, 10, 14, 17, 26, 29
New Hampton (c)	Chickasaw	1,169	....	66.8	-6.6	90	18	44	1	29	2.47	-2.01	.92	....	11	17	5	9	NW	
Osage	Mitchell	1,184	11	68.6	-2.4	92	16	44	2	35	3.21	-0.33	.94	....	15	12	7	12		3, 10, 17, 29
Pocahontas	Pocahontas			70.8		94	17	47	23	33	1.42		.50	...	8	19	8	4	S, NW	3, 10, 17
Plover	Pocahontas	1,190	5	69.8	-4.7	94	16	47	23	32	1.28	-3.85	.55	....	3	21	7	3	S	
Primghar (a)	O'Brien		....	68.4	-6.3	90	16	47	1	30	5.76	†0.63	2.01	.	10	20	0	11	S	18
Ridgeway	Winneshiek	1,215	....	71.2	-5.4	99	16	48	1	33	3.65	-1.44	1.05	....	13	18	11	2	S	3, 10, 13, 17, 18 20, 25, 29, 30
Rock Rapids	Lyon	1,021	....	69.4	-3.4	92	16,17	45	23	34	3.95	†1.43	1.70	....	4	....	....	....		
Sibley	Osceola	1,512	....	66.8	-4.5	90	16,17	44	23	34	4.51	†0.60	1.76	....	14	16	3	12	S	14, 19, 28
Sioux Center	Sioux		....	69.8	-4.7	91	16	49	1,2	32	7.75	†2.37	1.46	..	11	15	12	4	S	10, 13, 14, 18, 20, 29
Spirit Lake (i)	Dickinson	1,458	8	68.5	-6.1						3.90	-0.50	.80	....	7	....	....	....		
Storm Lake	Buena Vista	1,440	7	68.6	-4.5	90	16,17	45	23	30	2.56	-1.72	.73	..	9	13	16	2	SE	4, 10, 14, 29
Washta	Cherokee	1,157	....								2.51	-2.59	.60	....	10	18	12	1	N	
Waverly	Bremer	942	6	69.4	-4.5	93	17	48	2	30	4.07	†0.23	1.50	....	14	14	12	5	S, E	3, 8, 10, 14, 17, 18, 27
West Bend	Palo Alto	1,197	8	69.0	-3.9	92	16,17	44	23	36	2.25	-1.59	1.15	....	9	17	9	5	S	3, 10, 18
Average			....	69.1	-3.9	92.6		45.7		33.8	3.77	-0.41		....	10	16	9	6	S	

SOUTHERN SECTION.

Afton	Union	1,212	7	72.6	-3.5	92	18	49	1	31	4.22	-0.58	1.25	....	7	13	14	4	SW	
Albia (b)	Monroe	957	..	70.2	...	92	16,18	50	2	34	4.65	....	1.15	....	9	....	....	....	SE	
Allerton	Wayne		....	71.1		91	17,18	51	2,23,24	32	4.77		1.26	....	9	21	7	3	SW	3,5,6,11,19,30
Atlantic	Cass	1,164	11	70.6	-3.1	93	17	45	23,24,25	42	5.47	†1.12	1.41	....	9	5	12	14	S	13, 19, 20, 30
Bedford	Taylor		....	70.4		89	18,31	48	1	36	5.36		1.26	....	9	16	11	4	SE	
Belknap	Davis	877	7	71.9	-3.6	90	17,18	54	1,2	26	4.28	-0.38	1.20	....	8	18	10	3	S	
Bonaparte	Van Buren		10	71.4	-5.0	93	30	47	2	31	4.43	†0.83	1.85	....	6	..	....	....		
Burlington	Des Moines	544	....	73.4		93	17	51	2	28	5.19		1.30	....	11	18	9	4	SW	30, 31
Chariton	Lucas	1,042	7	70.2	-4.9	90	16,17,18	48	2	34	5.14	-1.10	1.95	....	6	15	8	8	SE	
College Springs	Page		10	73.4	-2.0	98	10	53	1,23	32	6.88	†1.15	3.15	....	12	19	8	4	SE	
Columbus Jct	Louisa	596	....	71.6	....	92	16,17	47	2	31	3.84		0.85	....	11	24	6	1	NW	3, 14, 30
Corning	Adams	1,127	10	70.1	-4.4	90	18	45	1	35	6.31	†1.87	2.15	....	9	14	15	2	SW	5, 10, 11, 14, 19, 20
Corydon	Wayne	992	9	71.6	-4.2	90	18	51	1,2	29	5.25	†0.85	1.96	....	10	16	7	8		3, 5, 19
Clarinda	Page	1,069	....	72.0	-4.3	95	17,18	50	1,24	36	7.28	†2.60	3.55	....	12	14	2	15	SE	19
Earlham	Madison		....	67.9	....	90	17,18	43	2,24	41	6.23		4.15	....	8	21	6	4	S	3, 11, 14, 19, 20, 30
Fort Madison	Lee	516	51	....							4.43	†0.32	1.78	....	5	9	15	7	S	5, 7, 14, 30
Glenwood	Mills		15	70.8	-6.2	90	18	53	23	27	5.20	†1.54	1.80	....	10	....	....	....	SE	
Greenfield	Adair		11	71.0	-3.6	92	17,18	48	1,23	31	4.00	-0.89	1.73	....	10	21	7	3	S	2, 3, 5, 7, 11, 13 14, 19, 29, 30
Hopeville	Clarke		11	71.2	-3.2	91	18	51	1,2,23	27	5.24	†0.62	1.69	....	9	8	18	5	S	
Indianola	Warren	969	11	71.9	-3.7	94	17,18	50	2	32	5.37	†1.73	3.19	...	10	....	....	....		4, 14
Keokuk	Lee	619	31	74.0	-2.9	93	30	54	2	26	4.48	†0.38	1.58	....	8	14	14	3	SW	3, 5, 7, 14, 15, 27, 30, 31
Keosauqua	Van Buren	664	10	72.2	-4.6	94	30	47	2	31	4.72	†0.75	2.07	....	9	9	13	9		30
Knoxville	Marion	920	6	71.6	-4.6	93	18	49	2,23	30	3.31	-1.15	0.60	....	9	17	5	9	SE, SW	
Lacona	Warren		....								6.47		3.50	....	9	11	13	7		
Lenox	Taylor	1,250	7	70.5	-4.2	89	17,18	51	1,2	31	4.76	-0.46	1.68	....	9	20	8	3	S	10, 11, 14
Leon	Decatur	1,120	....	71.6	....	90	16,17,18	50	2	31	5.34		1.43	....	10	21	7	3	W	3, 5
Massena	Cass		....	71.8	....	94	16,18	49	1	39	4.70		1.54	....	10	20	8	3	S	3, 13, 19, 30
Mount Ayr	Ringgold	1,236	6	72.2	†1.5	93	17,18	51	2	33	4.14	-0.30	1.20	....	10	13	11	7	NW	
Mount Pleasant	Henry	729	20	73.8	-1.5	97	17	50	2	29	3.92	†0.18	1.35	....	9	14	9	8	SW	3, 31
Omaha, Neb	Douglas	1,113	32	73.1	-3.1	93	18	54	23	27	3.15	-1.60	0.68	....	14	12	14	5	S	3, 5, 11, 13, 14, 19, 20, 21, 29, 30
Osceola	Clarke	1,130	6	71.2	-4.7	93	17,18	49	2	33	4.35	-0.79	1.50	....	10	22	3	6	SW	
Oskaloosa	Mahaska	843	18	70.2	-5.2	92	17	48	2	30	5.89	†1.84	1.89	....	11	21	2	8	SW	18, 30
Ottumwa (b)	Wapello	649	8	73.9	-2.9	95	16,17,18	50	2	35	3.70	-0.59	0.95	....	7	....	....	....	SE	
Pacific Junction	Mills	960	..	71.5		92	17,18	49	1,23	34	5.00		1.06	....	12	13	17	1	S	
Red Oak	Montgomery	1,033	....	72.2	-4.3	89	18	54	1	23	6.66	†1.86	1.96	....	12	11	17	3	S	5, 6, 11, 13, 14 19, 20, 30
St. Charles	Madison	1,070	....	71.4	....	93	17	52	2	26	4.92		2.25	....	14	18	9	4	S	
Sigourney	Keokuk	887	....	71.7	-5.9	94	17	51	1	36	2.44	-2.23	0.98	...	8	15	9	7		3, 14, 31
Stockport	Van Buren		...	72.4		89	17,30	56	23,24,25,28	28	3.65		1.22	....	10	13	7	11	SE, SW, NW	14, 31
Thurman	Fremont		....	73.9	-2.6	94	18	52	1,23,24	34	11.97	†6.49	6.27	....	12	14	12	5	SE	3
Wapello (b)	Louisa	588	....	72.0	-5.4	91	17,18	49	2	36	3.68	†0.59	1.07	....	10	16	12	1		
Washington (g)	Washington	769	20	72.4	-3.2	92	16,17	54	23,24	33	4.23	†0.69	1.20	....	10	....	....	....	SW	
Winterset	Madison	1,129	11	71.6	-2.7	95	18	48	1	31	5.18	-0.75	3.40	....	5	....	....	....		
Woodburn	Clarke	961	....								5.01		1.56	....	8	19	7	5	SW, NW	3, 5, 14
Average			....	71.7	-3.9	92.3		50.0		31.8	5.00	†0.54		....	10	16	10	5	SW	
Average for state			....	70.6	-3.7	93.1		46.8		33.4	4.41	†0.18		....	10	16	9	6	SW	

CLIMATOLOGICAL DATA FOR JULY, 1904—CONTINUED.

CENTRAL SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Amana	Iowa	721	25	70.8	-3.2	93	17	44	2	30	6.64	†2.44	1.67	....	11	15	11	5	S	3,8,14,18,27
Ames (*a*)	Story	926	20	70.2	-4.8	94	18	44	27	38	2.89	-2.19	.80	....	9	21	4	6	NW	11,14,26
Audubon	Audubon	1,301	8	69.8	-3.1	93	17,18	44	24	42	4.98	†1.06	1.60	..	15	12	11	8	.....	3,4,5,10,11, 19,20,30
Baxter	Jasper	998	....	70.4	.....	92	16,17,18	45	2	33	6.70	.....	2.25	....	10	15	10	6	SW	18,19
Belle Plaine	Benton	826	12	69.4	-4.2	93	16,17,18	47	2	30	3.99	†0.35	1.45	....	10	10	14	7	SE	
Buckingham	Iowa	.....	....	.....	.....	.....	.....	.....	.....	.....	3.70	.....	1.21	....	9	12	16	3	.....	
Carroll	Carroll	1,265	12	70.6	-3.3	93	17,18	47	2,23	36	3.92	†0.02	1.78	....	14	15	4	12	.....	2,3,10,11, 18,20
Cedar Rapids	Linn	733	19	72.6	-3.2	98	16	48	2	32	5.62	†1.75	2 75	....	12	9	14	8	SW	
Clinton	Clinton	609	34	71.4	-2.6	95	16,17,18	42	2	39	3.78	-0.31	1.04	....	11	17	6	8	S	3,14,18,26,27
Davenport	Scott	606	31	72.9	-2.1	92	16	52	2	28	3.34	-0.32	.93	....	12	12	13	6	SW	3,10,11,14,19, 19,26,27,31
Delaware	Delaware	1,083	11	69.0	-3.6	92	17	45	2	32	3.38	-0.30	1.32	...	11	13	14	4	S	
Denison	Crawford	1,180	8	71.8	-2.0	92	16,17	46	1	33	3.33	-0 99	.48	....	16	22	8	1	S	3,4,5,6,7,10, 11,13,18,19, 20,21,25,29 30
Des Moines	Polk	861	24	71.6	-2.9	93	18	54	2	30	6.94	†3.24	4.32	....	11	13	12	6	SW	10,11,13,14, 18,19,20,26, 30
De Soto (*a*)	Dallas	866	....	70.7	.....	93	17	51	2,24	32	9.98	.....	7.73	..	11	....	....	....	SW	
Dubuque	Dubuque	655	29	71.2	-3.1	94	17	47	2	28	1.86	-2.42	.83	....	11	13	12	6	NW	3,11,14,18, 26
Fort Dodge	Webster	1,126	....	70.6	.....	95	17	49	23	35	2.21	.....	.48	....	13	....	....	....	.....	
Galva	Ida	1,290	8	69.8	-4.2	93	18	43	23	39	4.09	-0.11	.99	.	11	17	8	6	.....	10,29
Gilman	Marshall	1,052	..	.....	.....	.....	.....	.....	.....	.....	5.56	.....	2.27	....	13	18	6	7	S,SW	
Grinnell (near)	Poweshiek	1,023	9	70.8	....	94	17,18	49	1	37	5.55	.....	3.05	....	10	16	10	5	SW	3,6,8,10,11, 14,18,19,20
Grundy Center	Grundy	976	11	69.7	-2.5	93	17,18	48	1,2	32	5 38	†1 20	1.46	....	14	17	6	8	S	3,4,8,18,19
Guthrie Center	Guthrie	1,077	6	71.6	-2.4	94	18	47	2	35	6.90	†2 36	3.10	. .	14	21	7	3	SE	2,3,11,13,18, 20
Harlan	Shelby	1,192	....	71.4	-3.2	93	17,18	47	1	38	5.20	-0.80	2.11	....	14	8	17	6	S	3,4,13,14,19, 20,21,30
Ida Grove	Ida	1,220	....	72.4	.....	95	16	46	23	37	2.70	.....	.80	..	6	19	10	2	E	
Independence	Buchanan	921	38	67.9	-5.5	92	17,18	45	2	30	3.73	-0.99	2.00	....	10	17	5	9	N,SW,NW	18
Iowa City	Johnson	685	43	71.6	-2.6	96	16,17	46	2	35	2.49	-2.01	.69	....	13	....	....	....	N	
Iowa Falls	Hardin	1,170	90	68.9	-4.1	93	17,18	47	2	42	3.86	†0.02	1.21	.	13	16	6	9	S	4,8,11,14,18, 26,27,30
Jefferson	Greene	1,052	....	.....	....	.....	.....	.....	.....	.....	6.84	.....	1.77	....	11	...	...	....	SE	
LeClaire	Scott	576	....	.....	.....	.....	.....	.....	.....	.....	4.04	.....	2.13	....	12	.	....	....	S	
Logan	Harrison	928	35	71.6	-3.4	98	27	40	23	43	.....	.....		....		12	10	9	SW	
Maquoketa	Jackson	688	9	69.6	-5.5	96	17	39	2	39	2.48	-1.61	1.33	.	9	16	10	5	SW	
Marshalltown	Marshall	947	9	71.4	-2.4	100	17	46	7	38	4.50	†0.05	1.66	....	13	19	5	7	SE	
Mt. Vernon	Linn	847	35	71.9	-5.4	94	31	47	2	35	3.19	-1.44	.83	...	9	16	7	8	S	
Odebolt	Sac	1,356	5	73.0	-3.1	96	16,17	46	23	38	2.82	-2.30	.65	....	11	21	5	5	.....	
Ogden	Boone	1,088	8	70.0	-4.9	92	17	49	1,23	28	6.14	†2.02	1.88	....	13	18	5	8	SE	
Olin	Jones	760	....	71.0	-3.8	94	16	47	2	31	2.59	-1.01	1.03	....	10	15	13	3	SW, NW	3,8,11,14,18
Onawa	Monona	1,053	....	73.6	.....	95	16	52	1,23	32	3.33	-1.30	.74	....	13	25	3	3	SE	3,5,6,11,13, 19,20,25,29
Perry	Dallas	975	...	71.6	....	94	18	50	2	30	6.52	....	1.84	....	12	10	10	11	.....	
Rockwell City	Calhoun	.....	....	71.5	-2.4	95	17	48	2,23	32	2.86	-1.14	.55	....	12	19	11	1	.....	
Sac City (*c*)	Sac	1,278	22	70.4	-2.9	94	16	49	2,6,23	33	3.15	-0.66	.87	....	11	....	..	....	SW	
Sioux City	Woodbury	1,165	13	71.4	-2.9	94	16	50	1,23	27	5.49	†2.12	1.88	....	14	15	9	7	SE	13,20,25,26
Stuart	Guthrie	1,316	5	71.1	-5.2	97	17	47	2	35	8.30	†3.33	5.60	...	11		....	....	E	
Tipton	Cedar	807	....	73.3	.....	96	17	50	2	31	2.25	.....	0.42	..	10	17	12	2	SW	
Toledo	Tama	856	8	70.2	-4.7	95	17	44	2	35	3.71	†0 48	1.40	....	10	15	11	5	SW, NW	14
Vinton	Benton	810	12	70.4	-3.3	94	17	43	2	35	3.51	†0.12	1.10	....	11	23	4	4	SW	3
Waterloo	Black Hawk	862	15	70.0	-4.0	98	17	46	2,3	37	3.56	-0.59	1.17	....	11	15	11	5	SW	3,18
Waukee	Dallas	1,039	....	73.6	.....	97	17,18	52	1,2	33	9.31	.....	6.80	..	11	16	11	4	S	11,14,19,20
Wilton Junction	Muscatine	683	7	71.9	-3.5	96	17	43	2	36	2.14	-3.13	.44	..	8	16	7	8	NW	30
Whitten	Hardin	1,036	...	71.1	-3.6	94	16,17,18	48	1,2	35	6.05	†2.28	2 00	....	8	15	9	7	SW	3,8,11,14,18
Zearing	Story	.....	..	69.6	.....	93	18	47	2	30	4.73	.....	.98	....	9	17	9	5	S	
Average	.....	.....	....	71.0	-3.1	94.4	....	...	44.6	.....	34.1	4.47	†0.38	..	....	11	16	9	6	SW	

*Means determined from 7 A. M., 2 P. M. and 9 P. M. observations, and maximum and minimum are taken from eye readings. †Above normal. ‡Received too late to be computed with means. *a*, One day missing; *b*, two days, etc. § Not supplied with self-registering instruments.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR JULY, 1904.

STATIONS.		DATE.																													MEAN.
		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	Max	80	83	88	83	75	73	71	84	90	90	85	86	86	83	92	93	93	94	86	84	78	78	79	83	84	85	84	87	87	90	88	84.6
	Min	49	63	63	59	56	57	58	58	59	65	66	58	58	64	57	71	69	67	67	63	56	53	57	57	55	61	62	58	61	71	64	60.7
Albia	Max	75	78	86	78	70	66	72	79	82	86	80	80	83	84	89	92	91	92	83	81	80	77	76	80	81	82	82	86	82	..	..	81.1
	Min	51	50	52	63	56	60	58	58	60	60	65	57	57	60	58	59	72	71	65	62	60	57	51	51	58	60	64	58	60	65	..	59.3
Algona	Max	75	72	76	80	75	73	75	75	79	86	80	80	77	78	85	90	90	88	86	78	78	75	78	78	80	84	81	82	80	84	81	80.0
	Min	47	51	60	54	58	59	56	62	64	60	59	9	57	63	55	7	71	70	61	59	54	55	48	51	59	61	52	57	64	71	57	58.9
Allerton	Max	77	77	83	80	68	69	71	80	84	87	82	80	81	84	88	90	91	91	84	82	79	77	78	80	83	83	82	85	83	90	86	81.8
	Min	52	51	62	62	55	59	60	63	59	64	65	55	60	65	56	70	68	68	64	64	61	53	51	51	55	62	61	55	63	71	67	60.4
Alta	Max	74	76	79	80	74	68	64	75	80	83	80	79	79	77	87	92	91	87	86	79	78	73	74	79	77	82	81	84	83	82	80	80.1
	Min	50	49	62	53	58	58	56	56	58	62	6	56	61	60	56	74	70	70	63	60	53	54	50	51	61	60	54	57	64	62	56	58.7
Amana	Max	73	78	86	78	75	70	74	81	79	85	79	78	83	84	85	92	93	92	84	81	78	77	76	80	81	85	81	84	79	84	86	81.3
	Min	53	44	60	62	54	62	57	63	60	58	67	58	53	66	56	70	71	71	67	63	57	59	53	51	55	63	63	56	62	69	66	60.3
Ames	Max	77	79	82	80	76	70	71	82	81	86	83	82	84	80	..	92	93	94	85	81	76	78	76	78	81	84	82	84	83	80	86	81.5
	Min	52	47	61	58	55	61	55	62	59	61	..	57	56	63	52	72	74	69	65	62	57	60	50	49	56	64	44	52	64	70	59	58.9
Atlantic	Max	78	79	82	82	76	70	68	80	90	90	87	85	82	82	90	92	93	92	87	84	79	79	82	80	82	85	87	87	83	81	89	83.6
	Min	46	51	63	56	54	60	55	60	50	65	65	51	61	61	48	72	71	70	65	62	58	52	45	45	45	60	55	50	65	73	55	57.7
Audubon	Max	77	79	81	81	73	70	67	78	88	88	82	82	82	80	90	92	93	93	86	82	77	76	79	81	79	85	85	87	85	83	86	82.2
	Min	46	46	62	55	58	60	59	61	51	64	63	52	58	60	48	72	72	70	66	60	56	55	47	44	58	59	52	50	64	71	51	57.5
Baxter	Max	77	78	84	81	74	71	75	77	82	85	80	82	82	83	86	92	92	92	84	83	81	78	77	78	81	80	83	84	80	80	85	81.5
	Min	49	45	62	58	54	59	55	60	59	62	63	54	57	62	53	71	71	69	64	62	55	59	50	51	56	62	59	55	64	70	65	59.2
Bedford	Max	77	77	81	80	72	73	68	78	87	88	85	84	82	80	88	88	88	89	84	81	79	77	79	78	85	85	83	85	84	89	81.5	
	Min	48	51	64	58	56	60	58	58	55	53	65	55	63	63	52	71	62	69	64	62	60	51	51	50	53	68	53	54	64	73	63	59 3
Belknap	Max	70	70	80	80	73	70	75	75	80	82	83	81	80	85	88	89	90	90	82	82	77	75	76	83	80	80	80	85	85	85	87	80.6
	Min	54	54	55	60	62	62	61	62	63	65	68	65	60	65	62	73	73	73	65	63	61	60	57	58	58	65	67	62	61	65	75	63.2
Belle Pl'e	Max	70	75	83	77	70	57	67	77	79	82	77	76	80	83	85	93	93	93	80	76	77	75	74	78	81	82	80	81	77	85	84	78.9
	Min	52	47	60	60	55	50	57	62	60	59	65	53	55	65	55	70	70	71	61	64	56	53	52	55	57	63	63	58	64	68	67	50.9
Bonapar'e	Max	74	75	87	80	82	68	75	79	84	85	83	80	82	83	88	92	92	91	84	86	80	79	77	80	82	84	84	86	85	93	86	82.9
	Min	52	47	57	65	51	60	57	61	62	59	66	57	57	65	56	70	68	69	63	59	59	55	53	53	54	63	60	54	59	68	69	59.8
Britt	Max	76	71	80	83	77	77	77	80	83	87	81	82	79	80	86	91	91	90	85	82	79	73	80	79	71	85	79	85	82	84	80	81.1
	Min	45	58	58	53	57	59	55	62	59	57	57	54	57	61	51	71	68	69	61	58	52	53	47	51	58	59	51	58	64	67	55	57.6
Burling'n	Max	80	77	86	80	77	69	76	77	84	83	84	81	81	88	88	90	93	91	88	88	82	82	77	82	85	84	85	85	84	92	89	83.3
	Min	55	51	62	70	57	61	59	63	65	61	67	69	62	66	61	74	71	73	69	71	72	60	54	58	57	64	59	59	64	67	67	63.5
Carroll	Max	77	78	80	82	76	71	72	76	84	88	80	83	84	82	90	92	93	93	88	84	80	77	76	80	77	82	86	86	86	80	78	82.0
	Min	48	47	54	52	57	59	55	59	62	62	64	54	59	60	54	72	73	71	64	65	58	58	47	57	60	61	54	55	64	73	55	59.1
Cedar R.	Max	76	80	86	77	75	68	75	80	82	86	80	83	84	85	90	98	97	96	87	83	81	80	85	85	85	86	85	86	80	82	89	83.5
	Min	54	48	57	62	58	62	59	63	63	60	65	60	57	66	60	68	74	75	68	67	59	60	55	54	59	62	62	59	62	67	66	61.6
Chariton	Max	76	77	85	77	72	67	70	79	82	86	83	79	80	81	88	90	90	90	84	81	80	78	77	79	81	82	81	85	82	87	85	81.0
	Min	49	48	62	60	53	59	60	62	58	64	64	56	59	53	54	70	68	63	64	63	59	54	51	52	55	60	61	55	63	71	65	59 5
Charles C.	Max	71	76	76	77	74	68	74	76	76	86	78	78	77	81	84	92	91	93	84	76	78	73	75	78	81	84	82	84	83	80	86	81.5
	Min	48	44	59	57	58	59	54	61	55	55	73	55	51	61	52	68	72	70	64	50	51	55	49	47	55	59	50	55	60	63	56	57.1
Clarinda	Max	80	80	86	81	74	73	68	83	88	91	87	85	85	84	92	94	95	95	82	83	78	79	78	83	80	86	87	88	90	92	94	84.5
	Min	50	53	58	60	66	58	59	58	56	61	64	58	62	62	56	61	69	68	64	62	61	52	51	50	57	60	65	54	60	67	64	59.5
Clear L.	Max	82	78	79	88	75	78	74	81	82	83	84	85	76	82	87	92	91	89	89	81	84	74	80	80	77	82	81	84	80	83	82	82.0
	Min	50	50	58	56	64	59	56	62	59	61	59	56	58	62	61	69	74	71	66	62	59	55	51	55	62	63	56	60	63	71	61	60.3
Clinton	Max	73	81	86	81	84	71	72	81	84	85	88	80	84	90	89	95	95	95	88	91	86	81	80	84	87	85	86	84	86	91	90	84.9
	Min	52	42	52	53	52	62	59	59	63	57	63	59	50	63	56	63	69	70	65	55	54	56	52	48	52	63	61	56	58	64	68	57.9
Col. Sprgs	Max	76	80	86	90	73	75	70	88	88	98	90	88	86	88	91	91	91	93	81	81	80	80	84	80	81	85	84	85	89	88	94	85.0
	Min	53	54	66	58	59	61	59	61	61	62	64	60	60	63	60	72	70	63	64	64	63	55	53	54	58	60	62	67	66	72	64	61.7
Colum. J.	Max	72	78	86	80	78	67	77	80	84	85	80	79	83	86	87	92	92	91	82	86	81	78	78	81	82	84	82	85	86	90	86	82.5
	Min	53	47	60	66	57	60	57	62	62	60	66	63	56	64	58	72	71	71	67	62	58	56	52	54	58	62	61	56	63	59	67	60.6
Corning	Max	75	78	84	79	70	72	68	78	86	86	82	81	82	80	88	89	89	90	81	80	76	75	75	78	79	82	81	83	85	84	87	80.7
	Min	45	50	63	56	57	59	57	63	51	63	64	59	63	60	57	71	69	70	64	62	60	53	49	52	59	61	59	55	65	72	57	59.5
Corydon	Max	77	77	82	81	71	68	69	78	86	87	84	83	80	84	87	89	89	90	85	83	79	81	77	78	80	84	85	85	83	87	89	81.9
	Min	51	51	63	62	56	60	61	63	60	65	66	56	62	65	58	72	69	70	65	65	60	56	52	53	57	62	62	58	65	72	66	61.4
Cresco	Max	70	75	74	78	77	79	78	75	78	80	79	73	..	..	..	..	90	90	83	77	78	75	75	76	74	80	83	77	77	80	80	78.2
	Min	45	43	51	58	51	59	58	54	58	53	60	54	..	..	..	..	..	55	60	63	58	51	52	50	45	56	60	50	60	62	58	57	54.8
Davenpo't	Max	70	76	87	79	79	67	72	77	83	83	82	79	80	87	86	92	92	91	86	88	82	80	77	80	81	83	84	84	84	90	87	82.2
	Min	55	52	59	65	60	64	57	61	66	62	68	61	63	66	64	74	74	74	70	66	61	59	55	57	62	65	65	59	68	69	70	63.6
Decorah	Max	70	75	77	77	74	69	74	74	72	79	78	80	72	78	86	92	90	92	85	83	78	76	74	76	77	82	78	78	73	79	81	78 4
	Min	48	43	57	52	58	57	55	60	61	56	63	57	53	66	56	64	71	71	64	62	53	49	52	47	57	53	58	51	62	70	53	57.4
Delaware	Max	70	77	80	77	80	65	74	79	78	85	81	78	80	86	85	91	92	91	84	82	78	75	74	81	82	85	78	83	78	79	84	80.4
	Min	46	45	53	60	55	58	54	57	53	55	64	56	54	64	55	65	70	70	65	61	55	53	49	50	53	62	58	54	59	66	63	57.7
Denison	Max	74	76	80	79	74	70	67	77	84	86	81	80	80	81	88	92	92	91	86	80	76	75	74	79	78	85	87	86	85	84	84	81.0
	Min	46	51	63	55	57	60	60	60	53	64	64	52	61	61	55	73	73	71	74	71	66	63	55	55	68	68	70	71	71	71	51	62.7
Des M.	Max	74	76	83	80	73	70	70	78	82	86	82	80	82	83	87	92	92	93	83	79	78	77	75	78	78	80	82	84	81	83	87	80.9
	Min	55	54	64	62	58	62	60	63	60	66	64	60	61	65	57	73	73	65	64	66	62	60	55	54	60	64	65	60	66	72	64	62.4
De Soto	Max	74	77	83	77	74	70	68	78	81	85	82	78	82	80	87	91	93	92	87	79	76	74	73	77	77	81	80	83	82	80	..	80.0
	Min	54	51	63	59	54	61	59	61	59	65	65	59	61	65	55	74	73	72	65	63	59	60	54	51	58	65	62	57	67	72	..	61.4
Dows	Max	73	75	76	81	75	69	70	73	80	82	79	79	80	79	84	91	91	90	88	83	82	73	71	77	79	83	80	82	80	81	81	79.8
	Min	48	50	58	55	55	59	54	62	59	60	60	57	57	63	52	72	72	68	65	61	52	56	48	50	57	61	53	57	63	69	51	58.4
Dubuque	Max	69	75	82	79	79	68	74	78	78	82	82	79	81	86	88	93	94	93	86	83	78	76	76	80	80	82	79	80	80	82	87	80.9
	Min	53	47	58	64	59	61	59	60	62	58	67	62	58	66	61	69	75	70	69	64	59	59	55	54	58	65	64	55	64	66	66	61.5
Earlham	Max	75	76	82	79	70	69	67	79	82	86	81	80	81	81	87	89	90	90	83	80	78	75	75	77	76	82	82	83	83	80	85	80.1
	Min	45	43	60	55	49	58	56	56	51	61	60	50	53	61	46	70	69	67	62	57	51	52	47	43	53	60	56	48	63	68	56	55.7
Elkader	Max	76	81	82	82	80	70	78	81	79	87	84	85	82	86	92	97	99	97	92	90	81	81	82	84	82	88	84	86	84	81	88	84.5
	Min	47	42	54	63	56	60	55	60	56	56	64	56	53	66	53	63	75	68	68	59	52	55	49	42	52	63	55	51	58	70	58	57 4
Esthervil.	Max	74	75	81	80	75	69	68	77	80	83	81	80	77	78	85	93	90	87	87	80	80	74	76	80	80	78	80	88	83	85	80	80 1
	Min	49	47	58	54	54	59	56	60	49	45	60	54	45	47	44	59	66	72	57	57	54	52	46	48	57	58	50	55	58	54	56	54,2
Fayette	Max	71	77	77	77	76	68	74	76	79	81	80	78	78	81	87	92	93	93	86	85	84	75	72	72	78	87	..	84	78	81	..	80.0
	Min	43	38	48	57	56	55	49	58	56	53	62	58	50	58	52	66	67	68	58	54	54	50	48	48	54	61	..	51	52	65	..	54.9
Forest C'y	Max	77	81	79	79	74	74	74	76	80	84	82	83	76	81	85	91	90	88	88	81	80	80	75	80	79	77	86	79	81	81	84	81	80.8
	Min	48	48	54	54	59	59	55	60	58	57	59	55	57	61	53	59	72	71	61	60	56	52	49	51	58	59	56	59	63	63	58	57.5
Ft. Dodge	Max	75	78	82	80	74	72	71	77	81	85	81	81	81	79	88	94	95	91	89	81	80	76	79	82	82	84	83	87	83	81	85	81.8
	Min	51	52	54	56	58	60	57	59	60	63	64	57	58	64	56	59	75	72	68	64	56	59	49	50	62	63	58	57	59	64	60	59.5
Galva	Max	79	81	82	82	78	71	66	78	85	88	82	83	81	78	90	92	92	93	90	82	79	76	78	82	80	85	83	88	86	83	80	82 0
	Min	46	46	63	51	56	59	55	52	53	62	63	51	61	63	51	73	70	71	61	58	58	57	43	45	61	58	50	57	64	68	60	57.6
Glenw'd	Max	75	75	79	75	72	70	68	78	87	86	83	80	72	80	88	89	89	90	86	79	77	75	73	77	78	79	82	84	85	85	83	87	89	80	84	80.0
	Min	55	54	63	58	57	60	58	62	60	58	64	62	64	62	60	74	73	73	65	64	61	55	53	55	63	61	63	60	67	65	61	61.6
Grand M.	Max	70	75	78	75	77	67	72	77	74	83	79	78	77	80	84	90	92	90	85	73	78	74	75	78	78	82	77	80	78	78	80	78.5
	Min	46	45	55	59	57	58	54	57	57	55	62	56	54	65	55	65	71	69	65	60	55	54	50	50	57	60	55	54	59	67	61	57.6
Greene	Max	75	79	79	80	80	70	76	78	81	84	82	82	79	80	89	94	93	92	88	84	80	77	79	81	77	85	83	85	81	84	83	81.9
	Min	47	46	59	56	58	59	53	63	57	56	59	54	53	63	51	68	73	67	65	61	63	55	48	48	56	60	53	58	62	70	58	58.0
Greenfi'ld	Max	79	79	85	78	74	68	69	82	83	90	83	78	82	79	89	90	92	92	87	78	80	75	75	79	80	85	82	87	84	85	83	82.3
	Min	48	50	63	57	56	58	59	56	54	66	65	54	57	63	53	72	72	69	64	64	58	56	48	53	53	63	61	58	64	63	60	59.6
Grinnell	Max	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	....
	Min	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....
Grinnell(near	Max	74	76	87	81	76	67	72	80	82	87	79	79	80	83	85	92	94	94	87	82	82	77	75	81	83	84	81	85	80	84	86	81.8
	Min	49	50	50	59	55	60	57	60	60	63	63	55	60	63	56	72	70	71	64	63	57	57	51	55	57	61	60	56	63	69	66	59.7
Grundy C	Max	74	76	83	77	72	70	74	77	80	84	79	78	81	80	86	92	93	93	86	80	76	77	76	77	79	83	82	83	80	79	84	80.4
	Min	48	48	56	57	55	58	53	62	57	58	64	55	55	65	54	70	72	70	65	61	54	58	49	52	56	61	60	64	62	70	60	59.0
Guthrie C	Max	78	79	86	82	80	73	70	81	84	89	88	83	84	82	90	92	92	94	93	84	81	79	77	81	80	84	83	85	86	85	85	83.5
	Min	50	47	63	57	56	61	57	60	55	65	63	56	60	62	55	73	73	72	66	64	57	57	49	49	58	62	57	54	66	70	57	59.7
Hampton	Max	75	76	77	79	72	70	73	81	83	84	81	86	80	83	91	94	95	94	90	84	81	79	83	81	80	87	83	86	81	81	86	82.5
	Min	50	48	58	57	58	60	55	62	60	60	60	56	57	64	57	71	74	70	65	62	56	57	50	50	58	61	54	58	64	71	60	59.5
Hanlont'n	Max	71	74	77	78	71	69	71	76	76	81	77	77	74	77	83	90	85	88	85	78	77	71	75	77	75	82	77	79	79	81	79	77.7
	Min	46	45	58	56	59	59	54	62	57	54	57	54	53	62	53	70	71	71	61	59	52	53	49	48	61	59	50	57	62	67	57	57.3
Harlan	Max	78	81	85	84	74	72	75	79	90	87	84	84	83	81	89	91	93	93	88	84	79	75	79	82	81	87	84	86	86	85	85	83.4
	Min	47	50	63	53	55	59	58	62	64	51	63	55	60	60	51	72	71	70	66	64	59	52	48	48	60	58	56	54	65	69	52	58.5
Hopeville	Max	76	78	83	81	70	69	68	81	85	90	83	80	82	80	83	90	90	91	83	81	78	75	76	80	80	85	82	86	83	86	90	81.6
	Min	51	51	63	60	57	59	59	60	58	65	68	58	60	64	57	71	68	68	64	63	60	56	51	53	56	61	63	56	63	72	66	60.7
Humboldt	Max	75	78	83	78	74	71	74	78	80	86	80	78	79	78	86	93	93	91	87	78	78	74	78	81	79	76	70	85	81	81	82	80.1
	Min	50	50	61	56	58	61	60	64	60	64	62	56	60	58	54	54	74	71	65	62	54	58	58	52	61	62	56	58	65	65	60	59.6
Ida Grove	Max	79	79	83	84	71	73	70	79	85	88	86	85	81	83	92	95	94	92	91	84	83	79	79	82	79	83	86	88	90	84	85	83.9
	Min	50	53	65	51	60	61	59	60	57	65	68	54	65	66	55	75	73	74	65	61	61	60	46	52

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR JULY, 1904—Continued.

STATIONS.		DATE.																															MEAN.
		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	
Inwood..	Max..	76	77	82	82	71	65	64	74	81	83	82	80	73	78	87	94	83	89	87	79	81	80	75	81	84	81	82	87	88	88	80	80.3
	Min ..	50	52	63	52	65	55	59	54	65	61	73	55	61	40	56	74	70	66	60	62	56	48	68	50	50	52	53	58	65	65	54	58.5
Iowa City	Max..	76	81	89	80	76	69	70	82	84	87	78	81	86	86	91	96	96	95	86	86	80	79	80	84	84	87	83	87	79	84	90	83.6
	Min ..	54	46	56	63	55	62	57	63	61	56	65	57	54	62	57	61	73	73	67	63	57	58	53	53	54	56	65	55	61	63	67	59.6
Iowa Falls	Max..	74	89	79	80	72	71	74	78	80	85	78	81	82	80	86	92	93	93	87	79	77	74	79	78	78	83	79	83	82	82	81	80.9
	Min ..	50	47	50	57	54	57	54	56	60	58	60	55	54	58	50	65	72	70	62	61	53	56	49	48	52	51	57	57	59	66	57	56.9
Keokuk..	Max..	73	76	86	78	76	70	77	76	84	85	83	79	81	89	89	91	93	90	86	88	81	79	76	80	82	83	86	85	85	93	86	82 8
	Min ..	56	54	62	70	59	63	62	64	67	66	71	63	62	70	67	76	76	75	69	65	65	59	60	58	58	67	67	59	67	71	70	65.1
Keosa'qua	Max..	75	78	87	82	77	69	78	80	86	87	83	82	83	90	90	92	93	93	87	88	82	80	78	81	84	88	88	89	84	94	87	84.4
	Min ..	52	47	62	67	52	61	57	62	64	60	67	59	55	67	55	67	69	70	67	58	60	54	52	50	54	61	62	53	60	65	70	60.0
Knoxv'le.	Max..	75	79	86	82	75	73	80	80	80	87	80	80	84	82	88	92	92	93	74	83	78	76	76	80	83	83	80	85	81	86	85	81.9
	Min ..	56	49	64	62	57	61	58	60	60	63	63	60	58	65	63	73	71	71	63	61	60	59	49	52	58	62	65	56	65	72	67	61.4
Larrabee.	Max..	85	81	88	85	84	78	66	82	90	90	89	89	82	80	94	95	93	95	91	82	84	86	83	84	81	85	85	88	91	83	81	85.5
	Min ..	45	52	64	51	52	57	53	55	53	59	60	51	60	60	61	75	69	72	63	60	57	57	46	52	60	57	53	57	65	67	56	58.0
Le Mars..	Max..	..	.	..	81	73	68	77	82	83	84	..	81	79	78	88	93	90	87	86	80	78	74	75	80	80	85	..	..	..	..	..	81 0
	Min ..	..	..	..	52	61	58	57	54	60	60	..	54	61	60	56	74	68	71	60	63	60	59	45	50	48	50	..	..	..	..	..	58.2
Lenox....	Max..	73	75	83	77	73	71	68	79	84	86	82	79	81	79	87	88	89	89	85	77	75	75	73	77	78	81	81	83	85	85	85	80.1
	Min ..	51	51	63	58	58	59	58	59	57	64	64	68	61	63	56	72	69	68	63	63	61	55	52	55	58	61	63	57	64	72	64	60.9
Leon.....	Max..	76	77	83	79	71	71	70	80	85	87	88	80	83	82	89	90	90	90	87	82	81	76	77	80	80	83	82	84	86	87	83	82.0
	Min ..	53	50	62	62	57	57	59	61	58	65	67	59	59	65	58	72	69	68	64	64	61	58	53	53	56	62	63	56	63	72	67	61.1
Logan....	Max..	81	85	86	81	80	78	77	84	90	95	92	90	90	88	89	84	88	86	82	78	76	74	83	82	89	88	08	89	91	87	78	85.1
	Min ..	48	58	61	58	50	56	58	57	55	66	67	66	57	64	60	62	68	64	64	50	55	44	40	67	60	56	58	49	75	55	50	58.0
Maquo'ta.	Max..	73	78	85	80	78	66	74	78	84	85	85	82	81	88	89	95	96	94	88	88	84	82	80	84	83	83	87	86	81	84	91	83.6
	Min ..	50	39	53	58	52	61	53	58	60	54	63	58	50	60	53	60	72	70	67	58	49	50	48	45	48	50	57	47	54	60	64	55.5
Marshlt'n	Max..	77	80	88	82	74	70	78	79	82	89	79	83	85	84	91	98	100	98	87	80	80	80	80	85	87	87	85	87	83	89	89	84.4
	Min ..	50	46	52	58	53	60	54	60	59	59	64	55	53	63	53	61	72	70	64	62	55	58	54	49	55	61	59	56	61	66	62	58.4
Mason C..	Max..	73	77	79	80	75	70	73	76	78	80	80	79	74	78	90	96	88	88	90	83	83	74	79	82	77	85	80	80	80	82	83	80 4
	Min ..	50	50	60	57	62	60	56	63	60	59	59	56	60	63	58	72	66	72	67	63	58	55	51	55	62	61	55	60	65	72	61	60.2
Massena..	Max..	81	80	85	84	79	72	70	83	90	91	88	86	82	83	90	94	93	94	92	85	81	78	81	81	81	88	86	88	88	84	88	84.8
	Min ..	49	50	50	57	58	59	58	60	52	65	66	59	61	62	51	72	71	71	65	63	59	55	50	50	57	61	59	54	54	70	57	58.9
Mt. Ayr..	Max..	78	83	85	82	74	74	70	81	89	90	85	84	84	84	92	92	98	93	86	82	80	80	80	82	80	87	86	87	86	86	91	84.1
	Min ..	52	51	62	59	56	59	59	59	59	63	64	59	60	62	59	71	68	67	64	63	61	56	52	54	57	61	61	56	62	71	65	60.4
Mt. Pl'snt	Max .	75	79	89	82	76	67	79	80	86	86	90	84	85	93	91	96	97	95	88	91	86	81	79	82	83	88	87	87	85	95	90	85.5
	Min ..	67	50	60	56	56	62	57	61	64	61	66	58	57	65	72	72	70	71	66	62	60	57	53	54	57	65	69	56	63	68	69	62.1
Mt. Ver'n	Max..	80	82	84	80	76	71	75	79	85	91	85	90	84	88	90	91	93	93	90	83	78	81	85	84	82	83	83	89	78	80	94	84.1
	Min .	50	47	57	60	56	60	56	62	62	64	64	56	55	64	58	68	71	70	65	63	58	57	51	51	52	62	62	57	61	65	68	59.7
New H. ..	Max..	71	74	75	77	75	68	75	..	74	81	78	77	75	78	83	89	88	90	84	76	78	74	75	77	..	81	77	80	76	79	80	78.1
	Min ..	44	45	55	55	57	57	62	..	52	55	59	52	52	63	51	65	68	67	63	58	53	..	48	50	52	..	50	53	59	67	55	55.6
Odebolt ..	Max.	81	81	82	84	88	76	75	77	88	90	86	87	84	82	92	96	96	93	93	90	87	81	84	85	86	91	89	81	87	86	83	86.3
	Min ..	59	49	62	53	57	60	56	59	54	63	65	54	61	63	56	74	73	72	63	60	57	57	46	60	60	60	53	56	64	71	55	59.7
Ogden....	Max.	74	77	82	81	73	70	70	78	81	85	78	79	81	80	85	91	92	91	85	79	77	75	77	79	79	85	83	84	82	82	84	80.6
	Min ..	49	55	60	58	55	59	55	60	56	62	62	54	58	61	57	71	72	69	65	62	56	57	49	52	58	62	58	56	64	71	57	59.4
Olin	Max..	70	77	84	78	80	69	75	81	82	82	82	82	80	85	85	94	93	93	85	85	82	78	77	80	83	85	80	81	82	85	85	81.9
	Min ..	52	47	58	65	55	63	56	60	61	57	66	60	56	66	56	67	69	71	68	68	54	67	53	49	53	63	60	52	59	67	65	60.1
Omaha, N	Max..	76	76	78	79	74	68	69	79	86	89	84	84	84	83	90	93	92	93	85	81	76	75	76	79	78	83	84	86	90	83	84	81 8
	Min ..	56	58	65	61	61	61	61	62	59	69	64	65	69	64	65	76	75	74	68	65	63	59	54	60	65	63	64	65	70	71	64	64.4
Onawa....	Max..	79	81	85	85	83	74	68	80	89	90	86	87	84	86	93	95	93	91	83	85	82	79	79	83	79	86	85	88	91	88	86	84.8
	Min ..	52	54	65	57	61	62	61	57	56	68	66	60	67	64	61	75	71	73	66	67	64	60	52	55	63	62	59	60	68	71	58	62.4
Osage.....	Max..	76	79	77	80	74	70	64	78	79	83	81	80	73	79	87	92	88	90	87	80	81	74	78	80	76	86	79	83	76	84	82	79.9
	Min ..	46	44	57	58	69	58	54	62	56	55	54	54	53	62	53	68	72	66	61	58	53	53	48	48	53	58	53	56	62	69	59	57.2
Osceola...	Max..	79	82	84	81	73	79	72	80	87	81	85	82	85	81	90	92	93	93	83	82	81	78	81	69	82	85	83	87	89	86	90	83.1
	Min ..	51	49	57	57	54	58	54	61	58	60	64	58	57	60	60	59	69	68	64	66	60	58	52	50	56	60	64	56	63	68	66	59 3
Oskaloosa	Max..	73	78	85	76	72	67	73	78	80	84	79	78	82	82	86	91	92	91	84	78	78	77	74	78	81	81	81	84	82	84	85	80.5
	Min ..	52	48	60	63	53	62	58	61	59	61	64	54	56	65	55	73	72	71	65	60	59	57	54	51	57	61	62	55	55	71	67	60.0
Ottumwa	Max..	78	79	87	82	..	67	78	81	86	89	82	82	84	89	91	95	95	95	87	83	82	81	..	83	86	86	85	89	85	92	89	85.1
	Min ..	53	50	52	63	58	63	60	63	64	64	67	61	59	67	61	75	73	76	68	63	63	60	57	55	60	66	67	58	67	61	71	62 7
Pacific J'n	Max..	79	76	82	79	75	71	71	82	89	90	86	84	82	81	90	91	92	92	87	83	78	78	77	81	80	82	84	87	90	84	86	82.9
	Min .	49	52	63	58	58	60	58	58	55	64	63	56	64	60	56	72	71	70	66	64	60	56	49	50	61	59	60	57	67	67	57	60.1
Perry.....	Max..	78	86	84	81	76	71	69	74	84	87	82	81	85	83	89	92	92	94	86	80	77	76	78	82	80	86	83	86	84	80	85	82.1
	Min ..	52	50	62	58	57	61	57	61	58	65	64	53	60	63	55	73	74	71	67	64	58	60	51	53	60	64	58	56	68	71	60	61.1
Plover....	Max..	77	77	83	82	76	70	75	76	83	86	81	80	79	78	87	94	93	86	86	80	80	72	76	80	81	85	81	87	83	85	80	81.3
	Min ..	50	49	62	52	58	55	52	53	60	61	62	59	56	54	56	72	69	72	64	64	60	60	47	48	55	58	52	55	64	70	55	58.2
Pocah'tas	Max..	76	78	81	81	76	70	70	77	81	85	80	81	78	80	86	93	94	90	89	81	80	75	80	80	80	86	83	87	84	81	83	81.5
	Min .	49	51	62	54	58	59	57	60	59	64	64	56	62	64	56	73	73	71	68	64	62	61	47	53	55	60	54	55	60	71	57	60.0
Primghar	Max..	75	76	81	80	76	68	63	71	81	81	80	78	..	75	86	90	89	84	85	77	78	71	75	80	79	81	81	81	85	82	77	78.9
	Min ..	47	51	61	50	50	59	55	58	55	62	63	55	60	59	55	74	68	68	62	60	55	55	49	50	60	57	54	55	65	67	53	57.8
Red Oak..	Max..	75	78	80	77	74	71	71	78	82	84	82	81	82	78	87	88	88	89	85	80	76	72	74	76	78	79	82	83	84	83	83	80.0
	Min ..	54	58	66	63	68	62	62	64	59	68	67	62	67	65	65	74	75	73	68	65	65	58	55	56	63	65	64	61	70	73	66	64.4
Ridgeway	Max..	77	80	76	79	78	74	79	76	83	81	85	83	79	83	91	99	92	95	88	82	81	77	78	80	75	86	83	84	80	85	85	82.4
	Min ..	48	50	57	60	60	60	55	60	60	58	64	57	57	66	58	67	75	70	64	62	58	56	53	54	58	62	57	59	63	71	60	60.0
Rock R...	Max..	76	80	84	82	74	69	70	70	74	80	85	80	76	88	90	92	92	84	89	78	80	80	78	82	80	82	80	86	88	82	80	81.0
	Min	48	46	53	60	62	57	60	55	56	60	55	62	60	58	66	68	68	66	58	62	54	52	45	48	62	60	50	60	64	60	55	57.7
Rockw'l C	Max..	76	80	83	87	80	78	73	75	85	87	85	80	82	82	88	93	95	93	86	80	78	75	80	81	84	85	86	87	85	85	83	83.1
	Min ..	50	48	60	55	58	58	55	57	65	67	65	55	58	63	56	77	73	71	66	68	56	57	48	52	60	60	58	56	62	68	55	59 9
Sac City..	Max..	76	77	82	82	75	70	66	79	..	..	..	87	82	81	88	94	93	91	90	82	81	76	79	81	79	81	83	86	84	83	84	81.9
	Min ..	51	49	62	54	51	49	53	58	..	..	..	57	60	62	55	73	73	75	67	60	59	58	49	50	61	61	55	57	64	70	58	59.0
St. Cha'les	Max..	75	78	83	78	69	67	69	77	82	85	80	80	81	80	87	91	93	92	81	76	79	75	74	78	79	81	81	84	82	86	87	80.3
	Min ..	55	52	63	60	59	61	59	62	59	65	66	59	61	65	61	73	72	71	65	65	62	59	54	55	59	63	64	60	66	73	65	62.4
Sibley	Max..	73	77	81	81	68	67	64	76	79	82	83	80	76	76	85	90	90	83	86	79	79	73	75	70	79	83	81	84	83	81	79	79.1
	Min ..	46	49	55	51	54	56	57	58	53	58	50	50	54	60	51	57	67	71	57	60	53	51	44	47	51	53	48	52	58	63	54	54.5
Sigourn'y	Max..	83	82	87	82	72	69	76	85	85	83	78	82	83	85	87	92	94	93	81	83	81	78	79	82	85	86	83	88	84	88	89	83.4
	Min ..	51	46	59	62	54	61	55	58	60	73	66	56	56	64	56	66	70	70	64	64	58	57	55	53	55	61	62	55	62	69	65	60.0
Sioux C'y.	Max..	76	76	82	81	72	68	66	74	83	84	85	81	81	80	88	94	90	86	87	81	77	75	74	79	79	86	82	85	90	83	84	81.0
	Min ..	50	57	62	57	63	60	61	57	57	66	66	57	64	63	61	75	72	74	67	61	63	59	50	58	61	60	57	63	68	68	61	62.0
Sioux C'r.	Max..	79	79	83	82	74	69	67	77	84	83	82	82	77	77	87	91	90	85	86	78	79	75	77	81	83	83	85	87	85	85	84	81.2
	Min ..	49	49	62	52	61	58	59	57	56	60	62	56	60	60	55	73	67	66	59	60	59	57	51	50	62	57	53	57	67	65	54	58.5
Spirit L..	Max..	..	78	80	80	75	69	67	75	78	80	81	84	76	75	..	..	..	..	..	..	..	..	82	81	76	84	70	88	82	82	82	78.4
	Min ..	..	48	60	53	62	57	62	59	60	60	61	54	62	62	..	..	..	..	..	..	..	..	49	53	61	55	65	60	64	66	56	58.6
Stockport	Max..	71	77	83	79	79	68	79	77	83	82	82	79	80	83	85	88	89	88	82	86	80	78	74	80	79	82	83	84	83	89	85	81.2
	Min ..	57	58	62	68	57	63	60	66	67	63	71	62	60	67	59	74	72	72	69	62	63	59	56	56	56	66	65	56	63	71	73	63.6
Storm L..	Max..	74	74	78	78	72	69	64	75	81	84	80	79	79	78	85	90	90	88	87	80	79	74	74	78	76	84	81	83	83	83	80	79.4
	Min ..	48	51	55	53	57	51	56	58	55	57	65	54	58	62	60	65	70	72	62	60	55	57	45	51	61	61	51	56	60	65	59	57.7
Stuart ...	Max..	79	80	85	85	76	75	72	83	87	91	87	89	84	84	91	95	97	95	93	81	79	76	79	83	78	86	83	83	87	83	85	84.4
	Min ..	49	47	50	52	54	55	55	55	55	60	59	55	56	59	56	68	67	68	64	56	55	56	51	54	55	63	62	58	66	69	62	57.8
Thurman.	Max..	80	78	80	82	79	73	70	83	90	93	90	87	83	84	91	92	91	94	89	82	78	78	78	81	81	83	84	85	90	87	85	83.9
	Min ..	52	56	62	60	60	63	60	63	60	67	63	60	66	62	57	74	87	73	66	65	61	54	52	52	68	63	60	57	60	73	62	63.9
Tipton....	Max..	77	80	85	80	75	71	78	73	84	87	81	84	83	88	90	94	96	94	87	87	84	84	81	83	86	87	87	87	87	85	90	84.4
	Min ..	59	50	60	63	59	65	61	58	62	61	67	59	59	65	59	71	72	72	68	68	60	59	56	56	58	63	64	59	64	66	66	62.2
Toledo....	Max..	74	77	85	78	75	69	76	76	78	84	78	80	83	81	87	93	95	93	85	82	78	78	77	80	82	82	82	83	80	84	85	81.3
	Min ..	49	44	61	59	53	60	56	60	60	57	64	55	51	65	52	72	71	70	66	63	54	59	50	48	57	63	60	55	64	69	65	59.1
Vinton. ..	Max..	74	78	84	79	75	68	74	77	78	85	81	80	81	84	88	92	94	93	89	81	77	76	78	79	80	84	82	83	79	82	87	81.4
	Min ..	50	43	59	60	56	60	56	62	60	57	66	57	53	65	56	70	71	72	66	64	57	58	51	49	55	63	61	56	63	68	61	59.5
Wapello..	Max..	74	85	..	84	76	67	70	75	87	81	78	79	79	84	83	89	91	91	85	82	81	80	76	..	80	81	85	84	83	89	89	81.7
	Min ..	55	49	..	66	55	62	58	54	64	60	69	61	54	66	60	74	73	74	69	63	61	59	56	..	55	64	64	57	64	68	71	62.2
Washi'ton	Max..	..	..	..	..	.	..	74	77	83	84	80	79	82	86	86	92	92	91	83	85	80	79	76	79	82	83	83	84	82	87	85	82.9
	Min ..	..	..	..	..	..	..	..	60	63	60	67	58	57	66	57	59	71	72	66	63	59	58	54	54	57	63	64	57	62	69	68	61.8
Waterloo.	Max..	75	79	83	83	75	69	76	78	79	84	80	81	81	83	89	95	98	97	86	80	77	78	78	80	81	87	83	85	80	78	88	82.1
	Min ..	48	46	46	59	56	58	54	58	58	58	64	56	54	61	56	59	74	72	67	62	56	60	50	49	54	60	59	58	61	64	60	58.0
Waukee..	Max .	84	80	84	88	79	73	69	84	92	95	85	86	83	85	91	96	97	97	90	86	86	82	82	82	80	90	89	84	80	91	92	85.9
	Min ..	52	52	58	68	56	54	59	61	59	69	68	58	59	64	58	73	72	70	64	63	60	59	52	59	58	63	60	66	58	71	63	61.3
Waverly..	Max..	70	74	78	76	74	67	73	76	75	81	79	77	79	79	84	91	93	92	85	80	80	74	73	77	75	81	78	80	78	79	82	78.7
	Min ..	50	48	59	59	58	59	56	63	58	57	62	56	55	65	54	71

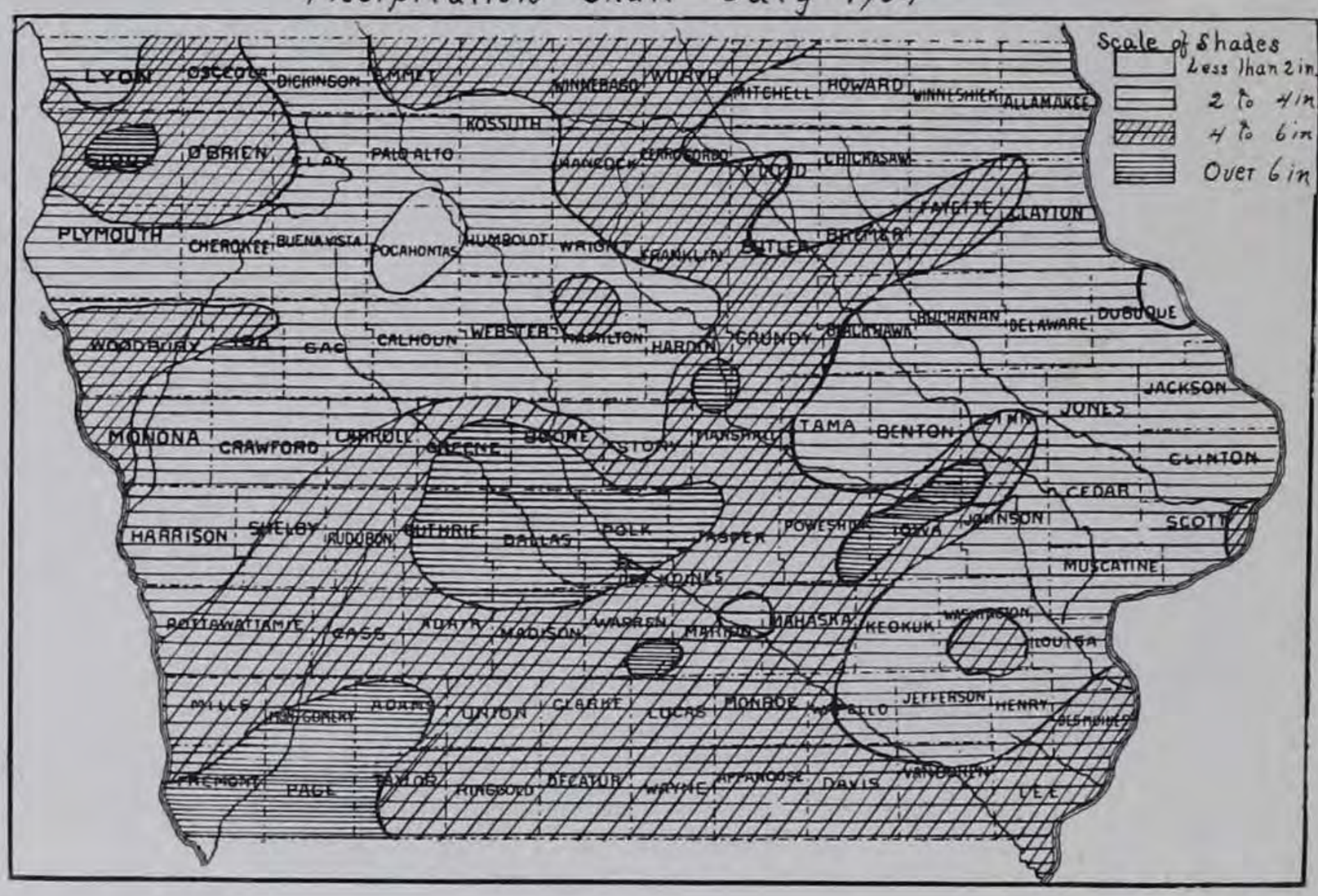
DAILY AND MONTHLY PRECIPITATION FOR JULY, 1904.

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	....	....	.77	....	1.16	T	.11	....	....	T	T	....	....	.74	....	....	....	....	1.25	.14	....	..	....	....	....	....	....	....	....	.05	..	4.22
Albia	....	....	....	.28	....	1.15	.85	.13	....	....	.35	.06	....	.58	....	....	....	....	1.05	.20	....	....	....	..	....	..	....	....	....	....	....	4.65
Algona	....	....	.90	.15	....	T	.16	....	....	.93	....	....	T	.18	....	....	T	.08	..	T	....	....	....	....	.12	73	....	....	.50	....	....	3.75
Allerton	..	..	.44	....	1.00	1.19	.07	T	....	T	.10	....	....	.45	....	....	....	....	1.26	.01	....	....	....	....	....	T	....	....	....	.25	T	4.77
Alta	....	....	.04	.45	....	.03	.23	....	....	.53	....	....	.04	....	....	....	....	T	....	T	....	....	....	....	.51	.12	....	....	1.17	....	....	3.12
Alta [near]	....	....	.72	....	....	.08	.25	....	....	.62	....	....	.08	....	....	....	..	.15	....	.24	....	....	....	....	.68	..	....	....	1.44	....	....	3.96
Amana	....	..	1.15	.10	T	.99	.03	1.67	.	....	.07	....	....	1.26	....	....	....	....	1.11	T	..	1.06	....	....	....	.02	T	....	T	.18	....	6.64
Ames	....	.	.80	....	.03	.04	.22	.05	....	....	.45	....	....	.37	....	....	....	..	....	T	..	....	..	....	....	.41	....	.	.02	....	....	2.39
Atlantic	....	....	1.41	....	.55	.08	.10	....	....	....	....	..	.20	.08	....	....	..	....	1.39	.70	....	....	....	....	....	....	....	.	....	T	.96	....	5.47
Aububon	....	....	.79	.21	.29	.05	.11	.02	T	.75	.44	....	.09	....	..	....	..	....	1.60	.52	.01	....	....	....	.01	T	....	....	.05	.04	....	4.98
Baxter	....	....	.42	....	....	.13	.12	.75	....	....	.13	....	....	.50	....	....	....	1.75	2.25	.25	....	....	....	....	....	..	....	....	....	.40	....	6.70
Bedford	..	....	.75	....	1.01	.54	.07	....	....	1.00	.18	..	T	....	....	....	..	....	1.26	.48	.07	....	....	..	....	....	....	....	....	T	....	5.36
Belknap	....	....	.20	....	1.20	.52	.12	T	....	....	T	....	..	.40	....	....	....	....	.96	T	.	....	....	....	....	....	T	....	.	.10	.78	4.28
Belle Plane	....	..	.14	.23	....	.50	.02	.93	....	....	....	..	....	.40	....	....	..	....	1.45	....	....	.02	....	....	....	.10	....	....	....	.20	....	3.99
Bonaparte	....	....	.13	....	1.85	.26	....	....	....	T	T	....	..	.40	....	....	....	....	.13	....	....	....	....	....	....	....	....	....	....	....	1.66	4.43
Britt	....	....	.61	.20	....	....	.13	.13	..	.94	.02	....	.12	.98	....	....	.54	.04	.01	.05	....	.07	.....	....	.24	.20	....	....	.46	T	....	4.74
Buckingham	....	..	1.21	....	T	.20	.28	T	....	.02	....	....	.17	....	....	....	..	....	.92	....	..	.09	....	....	....	.44	....	....	T	.36	....	3.70
Burlington	.	..	.04	....	.46	.16	.16	1.21	....	....	.90	....	....	.55	....	....	....	....	.07	....	....	....	....	....	....	T	.04	....	....	.30	1.30	5.19
Carroll	....	....	.42	.40	.14	.02	.14	....	....	.22	.10	....	T	.04	....	....	.	....	1.78	24	.02	....	..	....	.05	....	....	.25	....	.10	T	3.92
Cedar Rapids	T	...	.31	.48	.	T	.40	.09	.33	....	T	.06	....	.34	....	....	....	....	.52	....	....	.14	.	....	....	....	2.75	..	....	.18	.02	5.62
Chariton	....	....	.55	....	.85	1.10	.10	T	....	....	T	....	....	.59	....	....	.	....	1.95	T	T	....	....	....	....	T	....	..	T	T	....	5.14
Charles City	T	....	.25	.50	....	T	T	.38	.86	....	.93	..	....	.17	....	..	.38	.	.83	....	....	T	..	....	....	T	....	....	.07	.17	.21	4.75
Clarinda	....	....	....	.31	.52	.76	.26	....	....	.39	30	....	....	.61	....	....	....	....	3.55	.44	.12	....	..	....	....	....	....	....	....	T	.02	7.28
Clear Lake	....	....	.20	.55	T	T	.30	.05	T	1.90	T	.10	....	.25	..	..	.50	T	....	T	....	T	....	....	.10	.05	..	.10	.50	.10	....	4 70
Clinton	....	....	1.02	....	..	.42	....	1.04	....	....	T	....	....	.35	....	....	....	.15	....	....	....	.07	....	....	....	.26	.11	....	....	.36	....	3.78
College Springs	....	....	.20	.08	.60	.75	.28	....	....	.05	.12	....	.02	.76	....	....	....	....	3 15	.76	.11	.	....	....	....	....	....	....	....	T	....	6.88
Columbus Junct'n	....	....	.05	....	.30	.38	T	.85	..	....	.54	....	....	.38	....	..	....	....	.26	T	....	.05	....	....	....	.12	..	....	.22	....	.69	3.84
Corning	..	..	.40	....	80	.17	.12	....	....	.23	.29	....	T	1.35	....	....	....	....	2.15	.80	T	....	....	....	T	....	....	....	T	T	....	6.31
Corydon	....	....	.34	....	.75	1.39	.07	T	..	....	.24	....	..	.32	....	....	....	.	1.96	.06	T	...	....	....	....	.04	....	....	T	T	.08	5 25
Cumberland	....	....	1.91	.04	1.00	.	.20	.04	.02	....	....	....	.02	.35	....	....	....	....	.84	.28	...	....	....	....	....	....	....	....	T	.01	...	4.71
Davenport	....	....	.43	.13	T	.31	T	.72	...	....	.13	....	..	.36	....	..	....	....	.02	T	....	03	....	....	....	.10	.18	....	T	.51	.42	3.34
Decorah	....	....	.66	.10	T	T	.42	.12	..	....	....	....	.	....	....	....	.84	.20	....	....	....	....	....	....	....	....	....	....	....	.50	....	2.84
Delaware	....	....	1.32	.30	.08	.35	....	.16	....	....	.08	..	....	.22	....	....	....	....	.39	....	....	....	....	..	..	.14	...	....	T	.31	.03	3.38
Denison	....	....	.48	.20	13	.13	.08	.13	.	.07	.14	....	.11	....	....	....	....	.10	.40	.31	.07	....	....	....	.25	....	....	....	.42	31	....	3.33
Des Moines	....	....	.38	.01	.09	.11	.08	.6-	....	T	.35	....	....	.24	....	....	....	....	4.32	.52	T	....	....	....	T	T	....	....	T	.16	T	6.94
De Soto	....	....	.37	....	.14	.02	.14	.05	..	.13	.26	..	....	.22	....	....	....	....	7.73	.77	T	....	....	....	....	T	....	....	T	.15	..	9.98
Dows	....	....	1.64	.49	.07	T	.19	.25	....	..	....	....	....	.05	....	....	T	.19	.	.	....	....	....	....	....	.26	....	....	.37	.14	T	3.65
Dubuque	..	....	.44	.39	.06	.21	.01	.10	.04	..	....	....	....	.11	....	.	..	..	.16	....	....	T	....	....	....	.20	....	....	T	.14	T	1.86
Earlham	....	....	.82	...	.35	T	.11	...	....	..	.21	....	....	.28	....	....	....	....	4.15	.22	T	....	....	....	....	....	....	....	T	.19	....	6.23
Elkader	....	....	1.40	....	.07	.15	T	.65	....	....	....	....	....	.04	....	....	T	.30	....	....	....	.03	....	....	....	.18	....	....	T	.18	....	3.05
Estherville	....	....	.24	.03	....	.17	....	.75	....	....	.05	....	....	1.00	..	....	T	....	....	.15	....	T	.05	.	....	.21	.75	...	....	1.00	.10	...	4.50
Fayette	...	.30	1.36	....	.04	....	....	1.38	....	T	....	..	....	....	....	....	....	.38	....	....	....	.07	....	....	....	....	....	....	T	.34	...	4.37
Florence	..		.20	.78	.04		.15	.05	....	.04	....	....	.30	.06	....	....	....	....	.30	....	....	....	....	....	....	2.14	....	..	.48	....	....	4.54
Forest City	....	....	.23	.34		....	..	.20	.04	..	1.17	....	.	1.33	....	..	....	.16	T	..	T	....	....	....	..	.51	....	....	.18	.50	.10	4.76
Fort Dodge		.	.21	.33	....	.03	.02	20	T	.11	.03	....	....	.08	....	....	....	....	.05	....	....	....	....	....	....	.48	....	....	.10	.29	.28	2.21
Fort Madison	....	..	..	....	.28	T	1.48	T	....	....	T	.	....	.08	T	...	....	....	.	.99	....	....	....	....	.46	.01	....	.81	....	1.78	....	4 48
Galva	..	....	.63	.03	T	T	.16	.03	....	.31	.02	....	.47	....	....	....	....	.75	2.27	.09	....	T	....	....	....	.15	....	....	.98	....	....	4.09
Gilman	....	....	.43	.32	.03	.08	.05	.67	....	....	.18	....	....	.47	....	....	....	..	.15	.75	.10	....	....	....	.05	....	....	....	T	.07	....	5.56
Glenwood	....	....	1.80	....	.35	1.00	T	....	....	....	.20	....	.65	....	....	....	....	....	....	.75	.10	....	....	....	....	.10	....	....	T	.15	....	5.20
Grand Meadow	....	....	1.98	....	.02	.10	....	.68	....	....	36	....	....	.13	....	....	.19	.11	..	.01	.07	....	....	....	....	.10	....	....	.02	.26	....	4.03
Greene	....	....	.69	....	.14	.06	.18	.25	....	.10	.	....	.05	.23	....	..	.05	.75	.03	....	....	....	....	....	....	.18	....	....	.10	.25	....	3.06
Greenfield	....	....	.54	....	.66	.24	.24	....	....	.02	....	T	....	.26	....	..	....	....	1.45	.28	T	..	..	....	..	....	....	..	T	.30	.01	4.00
Grinnell (near)	....	..	.55	....	.05	.50	.10	T	....	....	.20	.	....	.75	..	....	....	....	2.90	.15	....	....	....	....	....	....	....	....	.15	.20	....	5.55
Grundy Center	....	..	1.48	.07	.05	.14	.19	.38	T	....	.57	....	....	.24	....	....	.	.85	.93	....	.	.10	....	....	....	.45	....	....	.01	.14	....	6.38
Guthrie Center	....	....	.94	.08	.15	.17	.22	.03	....	.16	.28	....	....	.63	....	....	....	....	3.10	.72	.02	....	..	....	....	....	....	....	.04	.36	..	6.90
Hampton	....	.38	1.28	....	.10	.03	.42	....	....	.06	....	....	.08	....	..	....	....	2.08	....	....	....	....	....	....	.07	....	....	.03	.11	.20	....	4.79
Hanlontown	....	....	.40	1.00	....	....	.17	.04	....	.38	....	....	.09	.44	....	....	.23	.07	....	....	....	....	....	....	.12	....	....	.05	1.00	1.50	.04	5 53
Harlan	....	..	.53	.38	.37	.21	.01	....	....	....	.49	....	.11	.10	....	..	....	T	2.11	.72	.02	....	....	....	.01	....	....	....	.06	.08	....	5.20
Hopeville	..	..	.85		1.22	.27	.06	....	....	.07	....	....	....	.97	....	....	....	....	1.69	.08	T	....	....	....	....	....	....	....	T	.03	....	5.24
Humboldt	....	...	.72	.50	....	....	.20	.18	....	.05	....	..	.02	.07	....	....	..	.03	....	....	....	.03	..	.	.15	.27	....	....	.43	....	....	2.65
Ida Grove	....	....	.80	....	....	.10	.50	....	....	.20	....	....	T	....	..	..	....	....	....	.60	T	....	....	....	....	T	....	.	.50	....	....	2.70
Independence	....	....	2.00	....	.12	.30	.20	.18	....	T	....	....	....	.10	....	..	....	.30	.18	....	....	....	....	....	.10	....	....	....	T	.25	....	3 73
Indianola	..	...	....	.40	.22	.25	.03	T	....	....	.08	..	....	.90	....	....	....	..	3.19	.15	T	....	..	....	....	..	....	....	.05	.10	T	5.37
Inwood	....	..	....	....	....	.04	.88	.32	.	.35	....	....	.80	.10	....	....	....	....	....	....	....	....	....	....	T	....	....	....	1.29	....	....	3.78
Iowa City	T	....	.16	.27	...	.05	.69	.07	....	....	.13	.06	....	.36	....	....	....	....	.53	T	T	.03	....	....	..	..	.07	....	....	.05	.02	2.49
Iowa Falls	T	..	.22	.95	....	.02	.01	.18	.52	....	.09	....	..	.04	....	....	....	....	1.21	....	....	.05	....	....	..	.46	..	T	T	.02	.09	3.86
Jefferson	....	..	1.20	....	.17	.08	.51	..	..	1.77	.95	....	..	.80	..	....	....	..	.73	.33	....	....	....	....	....	.	....	....	.15	.20	....	6.84
Keokuk	....	..	.12	.04	1.09	.27	.03	1.55	....	....	....	....	....	....	..	....	T	..	....	....	....	....	....	....	....	....	....	.11	....	T	1.27	4.48
Keosauqua	.32	....	.04	.27	..	1.00	.30	.46	....	....	T	T	....	.10	....	....	....	....	.16	....	....	....	....	....	....	....	....	T	....	T	2.07	4.72
Knoxville	....	....	.53	....	.28	.32	.05	47	....	..	.60	....	.32	....	..	..	....	.	.57	.17	T	....	....	....	....	....	....	....	T	T	....	3.31
Lacona	....		1.33	....	.80	.25	.02	....	....	....	....	....	....	....	....	....	....	....	3.50	.50	T	....	....	....	.01	....	....	....	.02	.04	....	6.47
Larrabee	....	.26	T	.	T	....	.35	T	.58	....	....	....	.51	....	....	....	....	....	....	.50	....	....	....	....	.65	....	....	....	.73	....	....	3.58
Le Claire	..	..	.03	.41	....	.02	.41	.61	....	....	....	.03	....	.13	.05	....	....	....	.07	....	....	....	....	....	....	.04	.11	....	....	T	2.13	4.04
Le Mars	....	....	.45	....	....	....	1.05	....	....	....	....	.55	1.00	....	..	.07	.	T	....	....	....	....	....	....	.15	....	....	....	....	....	....	3.27
Lenox	....	..	.28		1.22	.17	.10	.	....	.07	.09	....	T	.80	....	..	....	....	1.68	.35	T	....	....	....	....	....	....	....	....	T	T	4.76
Leon	....	....	1.15	.05	.70	1.43	.09	....	....	.09	.06	....	....	.34	....	....		....	1.28	.15	....	....	....	....	....	....	....	....	....	T	...	5.34
Logan	....	..	....	....	....	....	.2-	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Maquoketa	....	....	.10	1.33		....	.23	.20	.06	....	..	.	....	.12	....	....	....	....	.07	....	.	....	....	....	....	....	....	....	....	..	.22	.15	2.48
Marshalltown	..	....	.10	32		.05	.06	.16	.32	T	....	.21	....	.33	....	....	....	....	1.66	....	T	.02	....	....	....	.77	....	....	....	.05	.45	4.50
Mason City	....	....	.33	.46	T	T	....	.30	....	.45	....	....	T	.33	....	....	.65	....	....	T	....	....	....	....	....	.16	..	.10	.23	....	....	3.01
Massena	....	..	1.54	....	.53	.39	.20	....	....	.12	T	.	.40	....	....	....	....	....	.92	.35	.03	....	....	....	....	....	....	....	T	.22	....	4.70
Mount Ayr	....	....	.70	....	.36	.90	.07	....	....	.10	.08	....	T	.35	....	....	....	....	1.20	.35	T	....	....	....	....	....	....	....	T	.03	...	4.14
Mt. Pleasant	....	....	.14	T	.79	.26	.04	.40		....	.14	.	...	.28	....	....	..	....	.52	....	....	....	....	....	....	....	T	....	....	T	1.35	3.92
Mt. Vernon	....	....	.83	T	T	.73	T	.31	....	T	.02	....	....	.36	....	....	....	....	.46	....	....	.20	....	....	..	.08	T	....	T	.20	....	3.19
New Hampton	....	....	.92	....	....	.32	.15	....	.37	.02	....	....	....	.14	....	....	.22	..	....	....	.	.09	....	....	....	.02	....	....	.04	.18	....	2.47
Odebolt	....	....	.50	.30		.20	.05	....	....	....	....	....	.08	....	....	....	....	....	.10	.65	....	....	....	....	.23	.14	....	....	.55	.02	....	2.82
Ogden	....	....	.89	.07	....	.18	.16	....	....	1.88	.81	..	....	.92	....	....	....	.02	.78	.20	....	.07	....	....	....	....	....	....	.05	.11	...	6.14
Olin	....	....	1.03	.	T	.48	.07	.19	....	T	T	....	....	.18	....	..	....	.25	.	..	....	.03	....	....	T	.01	.03	..	....	.32	....	2.59
Omaha, Neb	....	....	59	.09	.46	.2-	.01	..	....	....	.31		.12	.27	....	....	T	....	.04	.62	.06	....	....	..	.14	....	..	..	.09	.09	....	3.15
Onawa	....	....	.32	.15	.08	.74	.20	....	....	....	.05	..	.07	....	..	....	.07	....	.33	.52	.06	...	....	....	.52	....	....	....	.22	...	....	3.83
Osage	...	...	.27	.45	.10	.02	.14	.26	....	.94			03	.21	....	....	.29	....	.	T	.08		....	....	.06	.07	....	....	.25	.04	....	3.21
Osceola	..	....	T	.15	1.50	.50	.10	.05	....	T	T	....	.50	....	....	....	....	1.30	.10	T	T	....	..	....	T	..	....	....	.10	.05	....	4.35
Oskaloosa	....	....	.74		85	1.00	.11	.23	....	....	.20	....	.29	....	....	....	....	.03	1.39	.77	....	....	....	....	....	....	....	....	T	.28	....	5.89
Ottumwa	....	....	.55	....	.75	.53	....	.15	....	....	....	....	....	.18	....	....	....	....	.95	T	....	....	....	....	....	....	....	..	....	.54	....	3.70
Pacific Junction	....	....	1.06	.10	.85	.71	T	....	....	....	.22	....	.63	16	....	....	....	....	28	60	.22	....	....	....	.05	....	....	T	....	.12	....	5.00
Perry	..	....	1.36	.22	.07	.14	.13	.04	....	.24	.87	....	....	.37	....	....	....	....	1.84	1.05	....	....	....	....	....	....	....	....	T	.16	....	6.52
Plover	..	....	.42	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.31	....	....	..	....	..	....	....	..	....	....	.55	....	....	1.28
Pocahontas	....	....	.39	.05	....	T	..	T	T	.20	....	....	08	.03	..	....	.02	T	....	T	....	....	....	....	.15	....	....	..	.50	....	....	1.42
Primghar	..	..	.10	....	....	.04	1.00	.18	....	2.01	....	....	.40	....	....	....	....	.41	....	....	.02	....	....	....	.75	....	....	....	.85	....	....	5.76
Red Oak	....	...	1.49	....	.67	.17	.02	....	....	....	.27	....	.02	1.18	....	....	....	....	1.96	.73	.06	....	....	....	T	....	....	....	.01	.08	....	6.66
Ridgeway	....	....	.88	....	.07	.08	.50	.55	....	..	....	....	.11	....	....	....	.54	.38	....	.06	.02	....	....	....	.01	....	....	....	.07	.38	....	3.65
Rock Rapids	....	....	....	....	....	....	.90	....	....	....	....	.95	....	....	....	....	....	....	....	..	....	....	....	....	.90	....	....	1.20	..	....	....	3.95
Rockwell City	...	....	.55	....	....	.05	.10	.05	..	.55	....	..	....	....	....	..	....	.03	.35	.08	....	.05	...	....	05	....	....	....	.5-	.50	....	2.86
Sac City	....	....	.87	...	....	52	.08	....	....	25	....	....	....	.07	....	...	.	....	.11	.20	....	....	....	....	.24	.18	02	...	.61	T	...	3.15
Sibley	....	....	.11		....	.05	.01	1.03	....	.13	..	....	....	.93	....	....	....	....	.08	..	....	.04	....	....	.23	.03	....	.01	1.76	.10	....	4.51
St. Charles	....	...	.42	.46	.46	.14	.06	03	..	..	.18	..	....	65	....	....	....	....	2.2-	.10	.01	..	....	..	T	T	...	....	.02	.12	.02	4.92

DAILY AND MONTHLY PRECIPITATION FOR JULY, 1904--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	....	....	.43	....	.40	.9	T	.16	....	....	....	....	....	.26	....	..	....	....	....	.04	....	....	....	....	....	.04	....	....	T	.08	.10	2.44
Sioux City	....	....	.21	....	.01	.02	1.35	.03	....	.01	.07	....	.43	....	....	....	T	.01	....	1.88	.04	....	....	....	1.22	.04	....	....	.17	....	..	5.49
Sioux Center	....	....	.22	..	T		.85	.31	....	.84	T	....	1.46	.90	....	T	....	.20	....	.37	....	..	..	....	.86	.34	....	....	1.40	....	....	7.75
Spirit Lake	....	....	T	....	T	T	.60	.80	....	....	..	....	.25	.55	....	....	....	....		....	....	....	....	....	.60	.80	....	..	.30	....	....	3.90
Stockport	....	....	.13	.09	.57	.37	.10	.25	....	....	T	....	....	.57	....	....	....	....	.85	....	T	..	....	....		....	....	T	....	.27	.95	3.65
Storm Lake	....	....	.34	.27		T	T	.20	....	.55	T	....	....	.16	....	....	....	....	....	....	T	....	....	....	.22	.09	....	....	.63	.10	....	2.56
Stuart	....	....	.36	.30	.25	.07	.17	.09	....	....	.42	....	....	.20	..	....	....	....	5.60	.60	....	....	..	....	....	....	..	..	....	.24	....	8.30
Thurman	....	6.09	.18	.12	.62	.32	.10	....	....	....	.28	....	.30	.42	....	....	T	....	1.40	1.07	.30	....	....	..	....	....	....	....	T	.27	....	11.97
Tipton	....	.22	.34	.11	.01	.34	.16	.14	....	....		....	....	.12	....	..	..	....	.42	....	....	....	....	....	....	....	....	....	....	.36	....	2.25
Toledo	....	....	T	.90	.05	.16	T	.10	....	....	.10	....	....	.35	..	....	....	....	1.40		....	....	..	....	..	.30	....	....	T	.35	....	3.71
Vinton	....	....	1.10	....	.06	.42	.06	.40	....	.03	....	....	....	....	....	....	....	....	1.08	.06	....	.15	....	..	....	.07	T	....	....	.08	....	3.51
Wapello	....	.20	..	....	.24	.40	T	.55	....	....	.15	....	....	.50	....	.	....	....	.15	....	....		..	....	.29	....	....	....	.13	1.07	....	3.68
Washington	....	....	.32	....	....	.83	....	.30	..	....	.10	....	....	.50	....	....	....	....	1.20	....	....	....	....	....	....	.10	..	....	....	.12	.76	4.23
Washta	....	.15	.11	....	T	..	.42	....	..	.20	.05	....	.23	....	..	....	..	.48	....	.25	.02	....	..	....	..	....	..		.60	....	..	2.51
Waterloo	....	....	1.17	....	.12	.13	.14	.62	....		.03	..	....	.10	....	....	....	.88	....	....	....	.01	....	....	....	.10	....	....	T	.26	....	3.5
Waukee	....	....	.50	....	.15	T	15	.01	....	.11	.64	....	....	.20	....	....	....	....	6.80	.57	.02	....	....	....	T	....	....	....	....	.16	....	9.31
Waverly	....	....	.48	.06	.16	.25	.14	1.50	....	.03	....	....	T	.15	....	....	....	1.02	....	....	....	.08	....	....	.03	.05	....	..	.02	.10	....	4.07
West Bend	....	....	1.15	....	....	T	.31	....	....	.03	....	..	.05		..	....	.02	.05	....	.02	....	....	..	....	.21	..	....	....	.41	....	....	2.25
Whitten	....	....	2.00	.11	T	T	.10	.70	..	....	.80	....	....	.35	..	....	....	.99	1.00	T	....	....	....	....		....	....	....	..	T	....	6.05
Wilton Junction	....	....	.27	.29	..	30	....	....	....	.10	....	....	....		....	....	....	....	44	....	....	....	....	....	....	.10	.31	....	....	.33	....	2.14
Winterset	....	....	.58	....	....	....	.10	....	....	....	....	....	..	.70	..		....		3.40	.40	....	....	....		....		..	....	....	....	....	5.18
Woodburn	....	....	1.00	....	1.33	.46	.06	.05	....	....	T	....	....	.50	....	....	....	1.56	....	.05	..	....	....	T		....	....	....	T		....	5.01
Zearing	....	....	.94	....	....	.07	.10	.98	....	....	T	..	....	.31	....	....		.65	.77		....	T	....	....	....	.77			....	.14	....	4.73

Precipitation Chart July 1904



AUGUST, 1904 No. 8

CONTENTS.

CENTRAL STATION, DES MOINES, IOWA.

J. R. SAGE,
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GEO. M. CHAPPEL,
LOCAL FORECASTER,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

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U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

VOLUME XV. AUGUST 1904. No. 8.

AUGUST WEATHER AND CROPS.

The average temperature of August, 1904, was exactly the same as August, 1903, 1902 and 1891. The mean was 2.7° below the August normal. In the northern section it was 67.3°; central section, 69.2°; southern section, 70.7°. The month was mostly clear and warm by day, though unseasonably cool at night. The average rainfall was normal for the state, but in its distribution the larger amount was received in the south and eastern districts, where it was most needed. The bulk of the rainfall came about the 17th to 21st and the 29th. There were, on the average, 17 clear days, 8 partly cloudy, and 6 cloudy, affording an ample amount of fair weather for harvesting, stacking, threshing, cutting wild hay, millet, etc., and fall plowing. In all these farm operations very good progress was made. The pastures were revived and made green as in June by the copious showers in the latter half of the month. The corn crop made fair advancement during the month, though in view of its belated condition its progress was not as rapid as seemed desirable. The most advanced portion of the crop was well filled and dented at the close of the month. Reports at that time indicated that about one-third of the crop, with favorable conditions, would be mature by September 20th, while the balance required abundant warmth and sunshine until October 1st to be safe from harm by killing frost. The crop was unusually rank, green, and heavily eared. The minor crops were in good condition. Potatoes made heavy yield, and early apples were especially good and abundant. The yield of tomatoes and green corn for canning has been better than usual. Garden truck, cucumbers for pickling and melons yielded abundantly.

THE WEATHER SERVICE.

The *American Cultivator*, one of the ablest agricultural journals in America, says:

"The weather-reporting service, particularly in New England and the Middle States, has been excellent this summer, and has proved decidedly of use during the hay harvest. Year by year the department workers and their correspondents are adding to their efficiency as the result of experience.

"The time has come, arrived long ago, in fact, when farmers can rely quite safely upon the reports given out. A farmer who is naturally a good judge of local weather signs, and who has learned how to study the government weather reports including the weather conditions in other parts of the country, has a decided advantage in planning his farm work.

"Local signs by themselves are not very reliable, and do not usually indicate the weather long in advance. But the government weather men are often able to predict fairly well several days in advance, owing to the reports of weather in other sections, and its known rate of advance and length of duration. Those who still doubt the usefulness of these reports should compare them for awhile with the judgments of those who depend wholly upon observation of the sky and similar means. For long-time predictions the station reports will no doubt show the better average of correctness.

"The careful observer will soon learn to strike a balance between the reports and local indications, and will get the full usefulness of each. The study of weather signs, and also the charts and reports, should be an item in the public school course of every town."

SELECTED NOTES.

All the gold in America—the greatest hoard of yellow metal ever gathered in any country—could not buy one year's harvest of our corn and wheat. To buy one season's wheat crop would take all the gold mined in this country in six years. In the past seven years all the gold mines of the world have only produced enough to buy one year's yield of our six cereals. The cereal, cotton and hay crops, more than one hundred and fifty million tons, could not be bought with all the money in the country, as our stock of money—gold, silver and paper—has not yet reached the stupendous total of two and three-quarter billion dollars.—*Wall Street Journal.*

It has been ascertained that not less that 4,000,000 acres of land in the state of Iowa, much of it under cultivation, would be greatly benefited by drainage, while Minnesota has probably as much more. These wet lands are the best lands when the water is got rid of. This needed drainage is now well under way in both states. Huge ditchers operated by steam and gasoline engines are at work making main waterways sometimes twenty miles in length, while smaller machines are putting in laterals and feeders. Later tile drains on the farms tributary to these ditches will relieve these choice lands from the plague of standing water and make possible the production of the finest of crops.—*J. S. Trigg.*

Of course not all of the carbonic acid in the air is secured, nor indeed all of that which enters the cellular air pass ges of the green parts of the plant, and hence it follows that very much larger volumes of air than have been stated must be brought into close contact with the growing clover in order to meet its needs. This air, however, can not come into intimate relations with the green chlorophyll-bearing cells of the clover in the field without of necessity permitting the evaporation of large quantities of water from the plants; and this brings us to realize how imperative is the demand for water by rapidly growing crops. The writer has found, for example, by direct measurement that the air passing three feet above a clover field, and at a moderate rate,

even as early as May 30th, in Wisconsin, when the air temperature is only 52.48 F., may have its relative humidity increased from 44 to 48 per cent by the moisture taken from the field; and this means that 3,510 pounds of water are required to make even the observed change of humidity in a volume of 152,600,000 cubic feet of air, which is the amount required to carry to the clover crop its carbon, supposing all the carbon which the air contained to be utilized.—*Prof H. F. King.*

GREAT VALLEYS FOR GREAT NATIONS.

The following article from the columns of the *New Orleans Picayune* contains matter of interest, especially for geographic students:

The Mississippi Valley is the most extensive and the most fertile and productive agricultural region on the globe. It is in the north temperate zone, and, therefore, it possesses climates best suited for the residence of people of the white race, and consequently, is the most favorable to the development of the highest civilization. Covering an area of nearly two million square miles, it embraces conditions capable of sustaining a dense population, and there is no question that it is destined to become the seat of power of the greatest nation that has ever inhabited the earth.

All great nationalities grow up in valleys, because it is only in such situations that food products and the other material requisite for the maintenance and employment of a large population can be found. The Valley of the Nile was the seat of a great Egyptian power. The Valley of the Euphrates was the heart of the Babylonian Empire. The great nations of India and China grew up in the wide valleys along their mighty rivers. In modern times when ocean transportation is so available food products and other raw material can be carried to the countries that do not possess them, but it may be laid down as a rule that the greatest nations grow up in locations where their populations can be most cheaply fed and most advantageously employed.

It has been frequently suggested that the Valley of the Amazon, in South America, is to be at some time in the future the seat of one of the world's greatest national powers. It contains two million square miles, while the Amazon itself is the greatest river on our globe, with numerous navigable tributaries. All such prophecies are vain, because the mouth of the mighty river lies immediately under the equator, and the whole of the valley's area is in the torrid zone.

United States Consul Louis H. Ayme, in a report to the Department of Commerce, at Washington, gives an account of a recent journey of exploration made by him to Manaos at the mouth of the Rio Negro, a large tributary that comes into the main river from the north. He reports that the Amazon river may be divided into three parts: "The lower Amazon, extending as far as Manaos, where the Rio Negro flows into it, a distance of about 900 miles; the upper Amazon, from Manaos to Iquitos, near the Peruvian boundary, a distance of perhaps 1,800 miles, and the Peruvian Amazon region, with navigable rivers for a distance of 1,600 miles and more. This amazing river system, which empties into the Atlantic, through a series of mouths 180 miles wide, more than twice as much water as the Mississippi carries in flood, and which stains the ocean for a distance of 600 miles, lies in a broad, flat valley elevated but a few inches above flood level, with an inclination of only about 1 foot in 5 miles. This valley almost always flooded, is covered with vast forests, in which at sparse intervals are found occasional hard-wood trees of some value. This depression, at least 30 miles wide, has a swift, very deep river running through it, with a breadth of from 2 to 6 miles. The thick forest growing up out of the water forms the so-called "banks." Here and there are patches of slightly elevated ground on which Indian huts are erected. To make this huge river and to sustain the growth of the vast matted forest, rain—much rain—is needed, and it is a fact that more rain falls in this region than in any other of like extent in the world. As one sails or steams up the great river there are seen occasional patches of green, level vegetation, for all the world like wondrously fertile meadows, and it is not difficult to imagine great flocks of cattle feeding on them, until the sight of a capybara or tapir, more than knee deep in the green ooze, informs one of the real consistency of that tempting and solid-looking meadow; it is little better than a swamp.

In these extraordinary forests there are found some of the most beautiful and valuable woods in the world, as well as fruits, nuts, oils, balsams and gums, but—and this but is unsurmountable—they are found as rarely as diamonds in the gravel or gold nuggets in the streams. There is a false impression existing that rubber trees, ebony, rosewood, and all the rest are found in great groves or clusters, like our pine or oak forests. The fact is that these trees are solitary. When two of them are only a quarter of a mile apart (and remember that the quarter-mile is not open space, but thick-matted, almost impenetrable swamp forest) they are considered close together; if they are a mile apart they are not considered to be very far distant from each other. Nor does this huge forest produce any great quantity of food for human beings. The staple articles of food for the dweller on the Amazon is dried pirarucu, a huge, fat river fish, and "farinha," the starch of the manioc root.

In all that vast region which lies under a tropical sun the only towns are Para, at the mouth of the Amazon, and Manaos, 900 miles up the river at the confluence of the Rio Negro, and in every other direction there are no settlements, and only a few scattered tribes of natives, who move about from tree to tree of the dense forest when they can no longer remain upon the flooded lands.

If the Valley of the Amazon were in a temperate zone, it would be sought and settled by the whites, who would control its river floods by levees, cut down its forests, cultivate its lands, and build towns and cities. But under a tropical sun and in a climate which is deadly to all people of the white race, the Valley of the Amazon is as hopeless of such a future as are the valleys of the Congo and the Niger.

The only parts of South America that are fit for the habitation and development of the white races are the countries in the lofty mountain region of the Pacific coast, and Argentina, the southern part of Brazil, Paraguay and Uruguay. South America is not likely to ever give rise to any great dominating power, because the requisite physical and climatic conditions are lacking. Only a small portion comparatively of South America lies in a temperate zone, and, therefore, North America will continue to dominate the hemisphere.

WHEAT RUST.

In an article on "Wheat Rust," Prof. W. M. Hays, who is one of the greatest authorities on wheat cultivation, discusses the subject very exhaustively.

Professor Hays says that the rusts of cereal grains are caused by a class of minute parasite plants, which do not produce flowers or seeds, but their means of reproduction are by spores. There are several species of these pestiferous plants, the life histories of which are not fully worked out; but it is certain that their spores live over winter and germinate on the surface of the leaves of wheat and other members of the grass family.

The only outward evidence of the presence of these plants is their heads or seed-like spores. The bodies of the plants are mere slender branching threads, growing through the tissues of the leaves and stems of plants. Sometimes they grow throughout the plant without forming spores. Their thread-like branches extend out under the plant's skin, there developing some little round spores so numerous, that as they grow and

swell, they push up the underskin of the plant and burst it open. The patches on leaf or stem being evidence of the presence of yellow or black masses of spores.

These rust parasites use the food that belongs to the kernel of the wheat in producing both the spores and the thread-like bodies of the rust plants. It may be that the parasite has other injurious effects on the growing grain than the mere absorption of its food, but of this little is known. The amount of spores showing is evidently not always the index to the amount of injury done.

But when there are large amounts of rust spores there is certain to be considerable damage. This subtle disease is always present and all our fields are exposed to it, as all towns are constantly exposed to the germ of consumption. In favorable seasons the rust diseases do not spread rapidly and each wheat plant has none or so little that its vitality is not sapped; just as men do not succumb to consumption in the high altitudes and dry atmospheres of some southern states. In moist warm seasons, on the other hand, the rust multiplies rapidly and the large, soft wheat plants are compelled to support such a burden of these internal foes that their vigor is seriously impaired, just as the human family when placed in damp, unhealthful conditions is much more liable to succumb to germs of tuberculosis.

As a man or a cow will thrive under favorable conditions with a small amount of tubercular germs in the system, so a wheat plant will fatten up its berries if burdened with only a few of the thread-like bodies of its parasite. But if the conditions are unfavorable the man or the cow grows poor; and with bad conditions the wheat can not fatten up its berries; or, if the rust develops early in the life of the host plant, it sets but few berries and we have but few shrunken kernels.

Little is known, it seems, as to whether one species of rust under certain climatic conditions is worse than another, but appearance of spores before harvest is generally heralded as an unusually bad omen, and whether the presence of dark-colored spores is more significant of injury than yellow spores is not well understood. It is true, however, that the dark spores usually appear later in the season on the stubble of the grain and live over the winter. In a year of cool weather at the ripening season the effect of rust is often over-estimated as proven at threshing time.

CLIMATOLOGY OF THE MONTH.

BAROMETER.—Mean pressure, 30.03 inches; highest observed, 30 34 inches, at Dubuque and Des Moines, on the 23d and 26th; lowest observed, 29.60 inches, at Davenport, on the 19th; range for state, 0.74 inch.

TEMPERATURE.—The monthly mean temperature for the state, as shown by records of 115 stations, was 69.1°, which is 2.7° below normal. By sections the mean temperatures were as follows: Northern section, 67 3°, which is 3.2° below normal; central section, 69.2°, which is 2.4° below normal; southern section, 70.7°, which is 2.9° below normal. The highest monthly mean was 73.3° at College Springs; lowest monthly mean, 65.0° at New Hampton and Sibley. The highest temperature reported was 97°, at Mt. Ayr and Waukee, on the 13th; lowest temperature reported 35°, at Earlham, on the 8th. The average monthly maximum was 91.4°; average monthly minimum, 44.0°. Greatest daily range, 45° at Rock Rapids; average of greatest daily ranges, 35.1.

PRECIPITATION.—Average precipitation for the state, as shown by records of 126 stations, was 3.43 inches, which just equals the normal. The averages by sections were as follows: Northern section, 2.89 inches, which is 0.16 inch below normal; central section, 3.24 inches, which is 0.29 inch below normal; southern section, 4.15 inches, which is 0.45 inch above normal. The largest amount reported was 6.75 inches at Fort Dodge; least amount reported, 0.66 inch, at Sibley. The greatest daily rainfall reported was 4.00 inches at Fort Dodge on the 29th. Average number of days on which .01 of an inch or more was reported, 7.

WIND AND WEATHER.—Prevailing direction of wind, southwest; highest velocity reported, 42 miles per hour, from the south, at Sioux City, on the 3d. Average number of clear days, 17; partly cloudy, 8; cloudy, 6.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES.			
		Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	30.02	30.33	23	29.60	19
Des Moines	30.06	30 34	26	29.72	19
Dubuque	30.04	30.34	23	29.66	19
Omaha, Neb	30 02	30.29	22	29.68	19
Keokuk	30:02	30.30	23	29.63	19
Sioux City	30.00	30.26	22	29.70	21
Means	30.03	30.34	23&26	29.60	19

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	4.560	27	N	21
Des Moines	5.196	30	W	24
Dubuque	4.646	24	NW	25
Keokuk	4.433	30	NW	21
La Crosse, Wis	5.014	26	NW	25
Omaha, Neb	5.059	33	NW	5
Sioux City	7 918	42	S	3

OBSERVERS' NOTES.

ALTA.—*David E. Hadden.* The rainfall for August was .88 inch above the 14 years' normal; temperature about normal.

ALLERTON.—*Rex Shriver.* Favorable month for all kinds of work; fall pastures starting well; apple crop good.

AMANA.—*C. Schadt.* First and second decades very dry and favorable for threshing; corn made good progress.

AMES.—*Thos. S. Hunt.* Corn backward at close of August, needing 3 or 4 weeks without frost.

ATLANTIC.—*J. W. Love.* A peculiar month; only one thunderstorm in August; light, harmless frost on morning of 8th.

BONAPARTE.—*B. R. Vale.* Rain 4.40 inches, well distributed; temperature below normal; pastures good.

BRITT.—*Geo. P. Hardwick.* Generally fair, with no severe storms; cool nights, with two light frosts on low lands (8th and 22d); wheat rusted badly; oats yielding 28 to 30 bushels, of good quality; barley about same; corn uneven.

CHARITON.—*C. C. Burr.* A month of bright, pleasant days and cool nights; corn needing 30 days after close of August.

CLINTON.—*Luke Roberts.* Mean temperature of August 2.4° below normal; rainfall 2.34 inches in excess of normal; crops made good growth; lightning did some damage in this county.

FOREST CITY.—*J. A. Peters.* Light frost in low places on 8th; no damage; not over 25 per cent of corn in full roasting ears at close of month.

GREENFIELD.—*J. G. Culver.* Two brilliant meteors on evening of 10th, between 9:30 and 11.

GRINNELL.—*A. O. Price.* Weather fine for stacking and threshing; clear days prevailed.

HAMPTON.—*E. C. Grenelle.* Frost observed in several places on morning of 8th and 22d; no damage.

HANLONTOWN.—*Miss G. M. Paschen.* Threshing from shock begun on the 11th. Oats good quality and average 40 bushels per acre.

HOPEVILLE.—*M. T Ashley.* Month closed with corn late; will require a full month of warm weather to mature the crop.

IDA GROVE.—*J. E. Conn.* Exceptionally fine weather; warm days and cool nights; corn doing well and pastures good.

INDIANOLA.—*John L. Tillon.* On 17th lightning struck a barn six miles west of town, set it on fire and killed a boy.

INWOOD.—*G. M. Larsen.* August generally fair; nights were cool; oats and barley make good yield; wheat damaged by rust and poor; large fruit crop; lightning has done much damage.

KEOSAUQUA —*J. H. Landes.* Remarkably cool nights have been most marked features of the month.

LARRABEE.—*H. B. Strever.* On the 17th lightning struck barn of Jas. Main, a few miles northeast of Cherokee. Martin Main was killed instantly.

OLIN.—*N. Potter.* Rain sufficient for fall pasture and for fall plowing; corn has done well, but is ten days late.

RIDGEWAY.—*Arthur Betts.* Warmest August since 1901, with 354 hours of sunshine; rainfall light, more than half falling on 9th; a pretty fog-bow observed on the 20th; mirages on the 2d and 6th; crops will compare favorably with 1893.

ZEARING.—*H. E. Burkhart.* Four miles northwest of town about 15 acres of corn killed by frost, on the 8th; shock threshing all done by 31st.

ERRATA IN JULY REVIEW.

EARLHAM.—Total precipitation recorded 6.23 inches on pages 7 and 11, should have been 6.33 inches.

ESTHERVILLE.—Maximum temperature recorded on the 17th, page 7, should have been on the 16th.

FLORENCE.—Total precipitation recorded 4.54 inches on pages 7 and 11, should have been 4.00 inches. Amounts on 13th and 19th, should have been .03 inch, instead of .30 inch.

HARLAN.—Mean temperature recorded 71.4° on page 8, should have been 71.0°.

MT. AYR.—Mean maximum temperature recorded 84.3° on page 10, should have been 84.1°.

SIGOURNEY.—Minimum temperature recorded 51° on the 1st, page 7, should have been 46° on the 2d.

WAUKEE.—Minimum temperature recorded 52° on the 1st and 2d, page 8, should have been 1,2, 23d.

ATLANTIC.—Mean temperature recorded 70.6° on page 7, should have been 70.5°. Mean maximum temperature recorded 83.6° on page 9, should have been 83.3°.

GALVA.—Mean maximum temperature recorded 82.0° on page 9, should have been 82.4°. Mean temperature recorded 69.8° on page 8, should have been 70.0°.

IDA GROVE.—Mean temperature recorded 72.4° on page 8, should have been 72.2°. Mean maximum temperature recorded 83.9° on page 9, should have been 83.6°.

MARSHALLTOWN.—Mean maximum temperature recorded 84.4° on page 10, should have been 84.3°.

MASON CITY.—Mean minimum temperature recorded 60.2° on page 10, should have been 60.3°. Mean temperature recorded 70.3° on page 7, should have been 70.4°.

CRESCO.—Maximum temperature recorded on the 17th, page 7, should have been 17th and 18th.

BELATED REPORTS.

MONTEZUMA, July.—Total precipitation, 5.13 inches; greatest in 24 hours, 3.10 inches on the 19th; number of rainy days, 6.

VILLISCA, July.—Mean temperature, 70.6°; mean maximum, 82.4°; mean minimum, 58.9°; 59.8°; maximum temperature, 92° on the 16th, 17th and 18th; greatest daily range, 34; total precipitation, 7.70 inches; greatest in 24 hours, 3.05 inches on the 19th; number of rainy days, 8; clear, 17; partly cloudy, 12; cloudy, 2; prevailing wind from the southwest.

NORTHWOOD, July.—Mean temperature, 69.3°; mean maximum, 80.5°; mean minimum, 58.1°; maximum temperature, 91° on the 17th; minimum, 47° on the 2d; greatest daily range, 35; total precipitation, 5.00 inches; greatest in 24 hours, 1.00 on the 6th and on the 17th; number of rainy days, 11; clear, 16; partly cloudy, 9; cloudy, 6; prevailing direction of wind from the northwest.

CLIMATOLOGICAL DATA FOR AUGUST, 1904.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	PRECIP., IN INCHES. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).	Number rainy days	SKY. Number clear days.	Number partly cloudy days.	Number cloudy days.	Prevailing direction of wind.	DATES OF THUNDER STORMS.
Algona	Kossuth	1,213	28	67.5	-3.6	89	12	45	8, 22, 26	33	2.95	-0.76	1.00	....	6	18	9	4	NW	9, 21
Alta	Buena Vista	1,513	11	67.6	-3.2	89	14	44	22	32	4.9	†1.08	1.98	....	8	16	10	5	S	9, 15, 17, 20, 21, 28
Alta (near)	Buena Vista	.....	...	.....	.....	.....	.....	.....	.....	....	4.96	.....	1.97	..	9	...	...	...	...	
Britt	Hancock	1,236	5	66.6	-3.4	90	12	41	8	35	2.39	-1.28	0.81	....	7	10	17	4	N	
Charles City	Floyd	1,012	11	65.4	-5.7	90	24	39		36	2.42	-0.51	1.08	....	6	16	2	13	E	4, 9, 15
Clear Lake	Cerro Gordo	1,241	....	68.4	...	89	14	47	22	30	1.00		0.80	....	4	13	17	1	S, W	
Cresco	Howard	.....	....	66.2	-5.0	90	24	39	8	35	2.66	-0.19	1.70	....	4	16	13	2	NW	
Decorah	Winneshiek	857		66.7	-3.8	89	24	39	8	34	2.06	†0.38	0.86	..	5	...				
Dows	Wright	1,142	....	66.4	-3.6	89	24	40	8	32	2.57	-1.31	0.80	....	6	21	4	6	SE	
Elkader	Clayton	727	21	68.5	-2.3	94	12	40	8	42	2.06	-0.74	0.70	....	7	22	9	0	NW	4, 9, 13, 15, 21
Estherville	Emmet	1,298	7	66.6	-4.4	94	13	44	0, 11, 23	38	3.93	†0.66	2.00	....	7	18	0	13	SE, NW	2, 3, 9
Fayette (b)	Fayette	....	..	66.2	-3.3	91	12	36	8	41	3.81	†0.91	1.12	....	8	....	....	..	....	3, 4, 9, 13, 15 19, 21, 28
Florence	Wright	1,226	8	.....	....	.....	.....	.....	.....	....	2.29		0.90	....	6	7	22	2	NW	9, 21, 28
Forest City	Winnebago	1,226	8	66.0	-4.8	9	12	43	8	37	2.97	†0.76	0.9	....	8	18	3	10	W	
Grand Meadow (a)	Clayton	1,180	11	66.2	-2.8	86	12	40	26	30	2.95	†0.45	1.20	....	6	16	10	5	SW	15
Greene	Butler	924	5	67.8	-4.6	91	24	40	8	37	2.50	-0.56	1.20	..	7	9	10	12	W	
Hampton	Franklin	1,155	12	69.4	-0.8	92	24	44		34	2.50	-0.65	0.83	....	6	13	14	4	NW	
Hanlontown	Worth	.....	....	65.4	.....	88	24	41	8	32	2.33		0.75	....	5	21	5	5	S	3, 9, 21
Humboldt	Humboldt	1,095	10	68.2	†1.3	89	12	45	8	31	3.66	†0.55	1.24	....	6	23	3	5	SE	21
Inwood	Lyon	.....	..	68.3	....	92	14, 24	45	22	36	1.99	.....	0.65	....	5	15	4	12	S	9, 31
Larrabee	Cherokee	1,366	11	69.0	-2.2	92	24	45	22	36	3.38	†0.04	1.50		7	17	10	4	SW	
LeMars (e) ‡	Plymouth	1,224	6	69.2	-2.8	93	14	41	10	37	1.92	-0.79	1.85	..	4	...	...		.....	
Mason City	Cerro Gordo	1,132		68.2	-1.4	89	12, 24	48	8, 10, 22	30	2.10	-0.56	0.68	...	4	14	12	5	S	3, 8, 21, 28
New Hampton (a)	Chickasaw	1,169	...	65.0	-5.7	88	24	43	22	36	1.84	-0.66	1.05	....	5	16	12	3	NW	
Northwood	Worth	1,222	....	65.6	....	87	4	43	22	30	2.65		0.80	....	7	18	11	2	NW	
Osage (h)	Mitchell	1,184	11	67.6	†0.1	89	12	42	8	35	1.91	-1.09	1.33	..	5	...	....	....	.....	
Pocahontas	Pocahontas	.....		69.0	.....	90	24	44	9, 22	33	4.53		1.55		7	19	7	5	S, NW	9, 19, 21, 28
Plover	Pocahontas	1,190	5	67.7	-3.3	90	12, 24	4	8	34	4.47	†0.47	2.18	...	4	24	3	4	NW	
Primghar (b)	O'Brien	.....	...	67.6		89	14, 24, 26	43	22	31	2.88	†0.44	1.00	...	8	19	0	12	S, NW	
Ridgeway	Winneshiek	1,215	....	69.7	-3.1	94	24	50	8, 22, 26, 30	37	2.27	-0.43	1.30	....	7	22	8	1	S	3 4, 9, 15, 21 28
Rock Rapids	Lyon	1,021	....	67.6	-2.2	90	14	40	20	45	2.40	†0.64	1.75	...	2		...	..	.....	
Sibley	Osceola	1,512	....	65.0	-4.1	91	24	38	22	41	0.66	-2.59	0.45	....	7	23	1	7	S	3, 9 20
Sioux Center	Sioux	.....	....	67.8	-1.4	91	24	42	23	39	1.47	-2.63	0.77	....	8	14	15	2	S	9, 22
Spirit Lake	Dickinson	1,458	8	67.9	-4.4	89	24	44	10, 22	34	3.08	-0.93	1.13		5	15	10	6	S	
Storm Lake (a)	Buena Vista	1,440	7	66.4	-5.1	88	14	44	10	32	5.16	†2.24	1.50	....	9	19	0	12	SE	9, 17
Washta	Cherokee	1,157	....	....	....	....	.....	.....	.....		1.42	-1.49	0.76	....	4	20	11	0	S	
Waverly (a)	Bremer	942	6	67.3	-4.1	90	24	41	8	35	2.42	-0.11	1.16	...	8	18	11	2	S	
West Bend	Palo Alto	1,197	8	66.9	-2.8	88	12, 24	42	8	36	3.18	-0.45	1.64	....	6	17	9	5	S	8, 9, 19, 21, 28
Average		.....	....	67.3	-3.2	90.0	.....	42.4	.....	35.1	2.89	-0.16	.....	...	6	17	8	6	S	

SOUTHERN SECTION.

Afton	Union	1,212	7	71.0	-2.9	92	14	45	8, 23	36	4.66	†1.15	2.20	....	5	19	8	4	SW	
Albia (a)	Monroe	957	..	69.9	.....	92	12	46	8	38	3.73	....	1.70	....	7	....	....	....	E, S	
Allerton	Wayne	.....	....	71.2	.....	95	13	47	8, 26	34	3.90	.....	1.47	....	10	23	5	3	SW	9, 13, 18, 21, 25, 29
Atlantic	Cass	1,164	11	69.8	-1.1	94	14	39	8, 26	41	3.80	†0.74	1.50	....	4	6	12	13	S	9
Bedford	Taylor	.....	....	70.2		94	14	43	26	33	6.39	.....	3.00	..	6	15	6	10	S	
Bonaparte	Van Buren	.....	10	69.4	-5.5	92	12	45	26	35	4.40	†0.57	1.69	....	6		...	...	.....	
Burlington	Des Moines	544	....	71.0	.....	91	21	50	26	32	6.08	.....	1.71	..	10	21	7	3	SW	15, 19, 21, 29
Chariton	Lucas	1,042	7	69.6	-4.1	91	14	45	8	28	3.32	†0.42	0.95	....	5	20	6	5	SE	
College Springs	Page	.....	10	73.3	-0.9	94	13	48	21, 27	41	4.19	†0.75	1.25	....	10	21	10	0	SE	
Columbus Jct	Louisa	596	....	69.1	....	90	13	48	8	33	5.72	.....	1.96	....	10	20	9	2	NW	9, 13, 15, 21
Corning (a)	Adams	1,127	10	69.4	-3.4	90	14	42	26	35	5.35	-0.05	1.50	....	5	....	....	....	SW	
Corydon	Wayne	992	9	71.4	-2.9	93	13, 14, 15	45	8	33	2.82	-1.19	1.25	....	8	17	7	7	S	17
Clarinda	Page	1,069	...	71.2	-3.2	95	14	44	23, 26	38	4.17	.....	2.27	....	8	22	1	8	SW	29
Cumberland	Cass	.....	....		....	.....	.....	.....	.....	.....	3.25	.....	1.41		6	25	4	2	SW	
Earlham	Madison	.....	....	67.2	.....	89	13	35	8	40	2.84	.....	1.18	....	6	....	....	....	.....	4, 9, 14, 17, 18 29
Fort Madison	Lee	516	51		.....	.....	.....	.....	.....	.....	5.32	†1.66	1.33	....	8	8	17	6	SW	
Glenwood	Mills	.....	15	70.4	-3.7	90	14	49	22	32	3.22	-0.29	1.75	....	4	8	20	3	SW	
Greenfield	Adair	.....	11	69.6	-3.0	89	12, 14, 24	45	22	35	3.94	†1.12	1.56	....	8	21	8	2	S	4, 9, 14, 17, 18 19, 21, 28, 29
Hopeville	Clarke	.....	11	71.0	-2.1	95	14	47	8	31	4.97	†1.68	2.23	....	6	15	15	1	S	9
Indianola (a)	Warren	969	11	70.2	-2.5	91	12, 13	45	8	41	3.99	-0.17	1.12	..	7	....	....	....	SE	4, 9, 14, 17, 21 28
Keokuk	Lee	619	31	71.9	-2.6	91	21	53	23	29	4.63	†1.80	1.45	....	12	18	7	6	NW	4, 9, 10, 11, 13 14, 15, 17, 21, 26, 31
Keosauqua	Van Buren	664	10	70.2	-4.7	94	12	46	8, 11, 23	42	3.85	†0.36	1.00	....	9	5	14	12	.....	
Lacona	Warren	.....	....	.....		....	.....		.....	.....	3.61	.....	0.98	....	9	7	18	6	.....	
Lenox	Taylor	1,250	7	69.9	-3.3	90	13, 14	47	8, 26	31	5.16	†1.56	2.17	..	7	22	8	1	S	13, 15, 18, 21, 29
Leon	Decatur	1,120	....	71.2	....	91	13	47	8	32	4.45	.....	1.98	....	6	24	3	4	N	
Massena	Cass	.....	....	71.2	.....	95	14	43	8	43	4.23	.....	1.76	....	6	25	3	3	S	4, 9, 29
Mount Ayr	Ringgold	1,236	6	72.8	-2.9	97	13	48	8	36	5.87	†2.55	2.85	....	7	17	9	5	SW	
Mount Pleasant	Henry	729	20	70.6	-1.8	92	13	47	8	30	5.21	†1.30	1.29	....	9	14	11	6	SW	4, 9, 21
Omaha, Neb	Douglas	1,113	32	72.4	-1.3	93	14	54	22	26	4.45	†1.11	1.88	....	11	16	6	9	S	3, 4, 5, 9, 15, 21, 28, 29
Osceola	Clarke	1,130	6	71.1	-3.1	95	14	44	8	39	5.67	†2.48	1.32	....	8	21	3	7	SE, SW	9, 14
Oskaloosa	Mahaska	843	18	69.8	-2.0	90	12, 13, 24	45	8, 26	35	2.36	-0.78	2.01	....	8	17	4	10	SW	21, 28
Ottumwa	Wapello	649	8	72.9	-2.1	95	12, 14	50	8, 11	34	2.72	-0.96	1.00	....	9	14	12	5	SE	
Pacific Junction	Mills	960	..	70.6	.....	93	14	45	22, 26	35	3.21	.....	1.15	....	8	15	12	4	S	
Red Oak	Montgomery	1,033	....	72.1	-2.6	88	13, 14, 15, 24	50	26	26	2.03	-1.06	0.86	....	8	12	16	3	S	6, 9, 15, 17
St. Charles	Madison	1,070	....	70.8	.....	90	13, 14, 24	49	8	30	4.33	.....	1.32	....	8	21	8	2	NW	
Stockport	Van Buren	.....	...	70.6	....	89	13	50	8, 11, 23, 26	32	3.67	.....	1.47	....	8	16	4	11	NW	4, 19, 21
Thurman	Fremont	.....	....	71.3	-2.9	93	14	44	26	32	3.38	-2.05	0.85		10	15	10	6	SW	
Wapello	Louisa	588	....	70.1	-4.8	88	12, 15, 21	49	8	29	6.40	†1.15	2.51	....	10	19	9	3	SW	3, 9, 13, 15, 18, 19, 21
Washington	Washington	769	20	69.6	-3.6	92	13, 22	48	8, 9	40	4.39	†0.90	1.47	...	7	....	....	....	SW	
Winterset	Madison	1,129	11	71.2	-1.2	95	13	46	8	31	2.30	†1.24	1.35	....	6	22	7	2	S	
Woodburn	Clarke	961	....	.....	.....	.....	.....	.....	.....	.....	4.33	.....	1.56	....	7	20	7	4	SW	9, 17, 21, 29
Average		.....	....	70.7	-2.9	92.1	.....	46.3	.....	34.3	4.15	†0.45	.....	....	8	17	9	5	SW	
Average for state		.....	....	69.1	-2.7	91.4	.....	44.0	.....	35.1	3.43	†0.00	.....	....	7	17	8	6	SW	

CLIMATOLOGICAL DATA FOR AUGUST, 1904—CONTINUED.

CENTRAL SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Amana	Iowa	721	25	68.8	-2.0	91	12, 13	48	8	34	2.88	-.70	1.73	....	7	19	7	5	SW	15, 21, 28
Ames	Story	926	20	69.0	-3.2	92	24	40	8	35	3.37	-.17	1.30	....	6	21	8	2	S	28
Audubon	Audubon	1,301	8	69.8	-2.1	91	13, 14, 24	36	8	43	3.11	-.84	1 23	..	6	19	7	5	SW	4, 9, 15, 19, 21, 28
Baxter	Jasper	998	....	68.5	..	91	13	44	8	34	2.23	.....	.75	....	5	19	8	4	SW	
Belle Plaine	Benton	826	12	68.4	-2.2	90	5, 13	47	26	33	2.68	-1.68	1.35	....	6	15	8	8	E, SE	
Buckingham	Iowa	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.30	.....	1.36	....	5	8	23	0	.....	
Carroll	Carroll	1,265	12	68.8	-2.4	90	14, 24	41	8	34	3.16	-.61	1.60	..	7	18	3	10	.....	9, 17, 20, 21, 28
Cedar Rapids	Linn	733	19	70.1	-2.6	94	12, 13	47	8	38	2.54	-.71	1 30	....	7	15	12	4	SE, S	
Clinton	Clinton	609	34	68.0	-3.2	95	12	42	8	43	5.36	†2.31	2.75	....	9	14	13	4	...	13, 15, 21, 25
Davenport	Scott	606	31	70.0	-2.8	90	13	52	8	30	3.60	.....	.89	....	10	17	9	5	SW	4, 9, 13, 15, 21, 25, 28, 29
Delaware	Delaware	1,083	11	66.9	-2.9	90	12	44	8, 26	36	2.50	-.36	.89	..	7	19	9	3	S	2
Denison †(b)	Crawford	1,180	8	69.7	-2.4	92	24	42	26	37	2 95	-.43	1.25	....	6	....	....	....	S	
Des Moines	Polk	861	24	70 2	-1.8	91	24	49	26	37	2.60	. ....	1.00	....	7	19	6	6	SW	4, 19, 17, 21, 28
De Soto	Dallas	866	...	70.0	.....	90	24	44	8	33	3.08	.....	1.40	..	7	23	3	5	SE, SW	
Dubuque	Dubuque	655	29	68.8	-2.8	91	12	45	8	31	2.58	.....	1.04	....	11	13	12	6	NW	4, 9, 13, 15, 21
Fort Dodge	Webster	1,126	....	67.9	.....	91	5	42	8	33	6.75	.....	4.00	....	9	20	3	8	S	20
Galva	Ida	1,290	8	67.8	-3.6	90	12, 14	39	8	40	2.56	-.78	.94	.	5	15	10	6	.....	4, 9, 21
Gilman	Marshall	1,052	..	.....	.....	.....	.....	.....	.....	.....	2.92	.....	.89	....	7	20	8	3	S	
Grinnell (near)	Poweshiek	.....	....	69.1	....	91	13	47	8, 22, 26	34	2.56	.....	1.10	....	5	18	7	6	SW	9, 15, 17, 21, 28, 29
Grundy Center	Grundy	976	11	67.8	-2.9	91	24	41	8	33	2.61	- 96	.82	....	6	17	9	5	SW	
Guthrie Center	Guthrie	1,077	6	70.0	-2.4	91	13	41	8	35	4.12	- 44	2.15	.	8	22	5	4	NE	9, 14, 17, 19, 28
Harlan	Shelby	1,192	....	69.0	... ..	91	14	41	22, 26	34	1.91	.....	.70	....	5	12	13	6	S	4, 9, 15, 17, 21
Ida Grove	Ida	1,220	....	69.6	.....	93	14	43	8, 26	38	2.28	.....	1.05	..	4	18	10	3	S	17
Independence	Buchanan	921	38	67.6	-2.6	92	24	41	8	40	1.80	-1.63	1.00	....	7	23	3	5	SW	9, 13, 15
Iowa City	Johnson	685	43	69.4	-2.2	94	12	46	8	42	3.93	-.33	2.03	....	7	15	1	15	N	
Iowa Falls	Hardin	1,170	90	65 8	-4.4	90	24	39	8	36	2.14	-1.26	.94		6	21	3	7	NW	9, 18, 21, 29
Jefferson	Greene	1,052	....	.....	....	.....	.....	.....	.....	.....	4.07	.....	1.68	...	9		...	...	NW	9, 15, 18, 28
Little Sioux (k)	Harrison	.....	....	72.6	.....	94	14	44	22	32	1.78	.....	.88	....	6	16	9	6	SE	3, 9, 17, 21
LeClaire	Scott	576	....	.....	.....	.....	.....	.....	.....	.....	4.29	.....	.81	....	8	....	....	....	S	
Logan	Harrison	928	35	71.2	-1.3	95	14, 15	43	26, 28	39	.99	-2.87	.50		4	15	12	4	SW, NW	
Maquoketa	Jackson	688	9	66 8	-5.1	93	13	38	8	43	4.47	†1.64	1.45	....	10	15	4	12	NE	
Marshalltown	Marshall	947	9	69.0	-3.0	95	24	40	8	42	3 24	-.33	2.00	..	7	13	3	15	NW	4
Monticello	Jones	925	48	.....	.....	.....	.....	.....	.....	.....	3.08	-.47	1.00	....	4	20	9	2	SW	
Mt. Vernon	Linn	847	35	70.1	-0.1	93	13	45	8	36	4 07	-.50	1.53	...	6	22	2	7	NW	1, 9
Montezuma	Powshiek	.....	....	.....	.....	.....	.....	.....	.....	.....	3.60	.	1.90	....	4	....	....	....	.....	
Odebolt	Sac	1,356	5	70.0	-4.6	95	14	42	8	38	3.36	-.33	1.33	....	11	15	10	6	.....	
Ogden	Boone	1,088	8	68.8	-4.2	91	24	46	8, 22	32	2.51	-1.55	1.21	....	3	24	3	4	SE	
Olin	Jones	760	....	68.0	....	91	13	42	8	36	3.54	-.04	1.10	....	7	21	7	3	NW	
Onawa	Monona	1,053	....	72.8	.....	96	14, 24	49	22	34	2.63	-1.26	.95	....	7	23	4	4	SE, S	4, 6, 17, 19, 21
Perry	Dallas	975	...	70.0	.....	91	24	44	8	34	4.21	.....	1.75	....	5	14	10	7	.....	9, 17
Rockwell City	Calhoun	.....	....	68.2	-3.2	91	12	45	22	34	5.95	-2.41	1.70	..	5	22	4	5	.....	
Sac City	Sac	1,278	22	69.3	-0.7	91	14	44	8	32	5.48	†2.12	1.74	...	7	19	3	9	S	9
Sioux City	Woodbury	1,165	13	69.8	-1.8	96	14	46	10	35	2.68	.....	1.10		11	12	10	9	S	3, 9, 15, 17, 20
Stuart	Guthrie	1,316	5	71.0	-2.9	90	24	48	8	30	3.48	.....	2.25	...	6	0	24	7	SE	
Tipton	Cedar	807	...	71.0	.....	94	13	51	8, 26, 27	32	3 06	.	1.27	..	6	24	5	2	NW	
Toledo	Tama	856	8	68.6	-3.8	92	13, 24	40	8	36	3.00	-.82	1.65	...	8	17	8	6	NW	
Vinton (a)	Benton	810	12	68.6	-2.1	92	13, 15	40	8	36	2.41	.....	1.14	..	6	....	....	....	.....	
Waterloo	Black Hawk	862	15	68.4	-2.4	93	24	43	8	37	2.93	-67	1.16	..	8	19	10	2	SW	4, 9
Waukee (a)	Dallas	1,039	....	72.0	.....	97	13	45	8, 9	40	3.25	.....	1.20	....	6	21	4	6	NW	9, 29
Wilton Junction	Muscatine	683	7	69.4	-3.5	93	12	43	8	36	5.15	.....	1.80	....	6	22	4	5	NW	15
Whitten	Hardin	1,036	..	68.0	-2.9	90	12, 24	42	8	37	3.24	.....	1.30	....	6	15	11	5	SW	
Zearing	Story	718	....	68.3	.....	91	24	42	8	32	3.48	.....	2.07	....	5	21	4	6	NW	15, 29
Average	.....	.....	....	69 2	-2.4	92.1	....	43 4	.....	35.9	3.24	-.29	..		7	18	7	6	SW	

*Means determined from 7 A. M., 2 P. M. and 9 P. M. observations, and maximum and minimum are taken from eye readings. †Above normal. ‡Received too late to be computed with means. a, One day missing; b, two days, etc. § Not supplied with self-registering instruments.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR AUGUST, 1904.

STATIONS.		DATE.																														MEAN.
		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	Max	88	83	91	83	86	81	75	81	77	78	86	91	91	92	89	88	91	84	82	85	87	72	77	90	85	77	80	88	68	76	83	83.4
	Min	59	54	59	68	59	57	59	45	56	56	52	63	69	67	69	61	67	58	67	58	62	49	45	59	62	48	58	57	60	59	57	58.7
Albia	Max	88	80	87	83	84	78	73	76	78	74	83	92	91	90	90	90	88	82	77	84	88	73	79	91	73	78	80	84	76	78	84	82.3
	Min	..	57	55	61	56	59	55	46	47	58	51	54	66	64	69	60	62	60	62	62	64	51	50	54	64	48	52	55	64	60	60	57.5
Algona	Max	78	78	83	78	85	77	76	73	68	71	79	89	82	87	84	85	80	78	79	85	77	73	76	88	82	78	80	81	72	72	80	79.2
	Min	58	47	60	59	57	57	58	45	56	46	51	67	66	56	64	57	54	53	62	60	59	45	47	60	55	45	54	57	61	54	60	55.8
Allerton	Max	83	81	86	85	85	80	74	77	78	77	84	91	95	92	91	90	89	86	81	84	89	75	77	92	80	79	80	85	78	79	84	83.5
	Min	59	54	60	66	54	61	54	47	59	57	52	63	68	67	71	61	65	60	68	56	66	50	49	58	57	47	50	55	66	62	61	58.8
Alta	Max	75	78	84	78	87	76	70	74	67	73	84	86	86	89	83	84	75	77	78	84	72	73	77	88	74	80	82	79	70	70	81	78.5
	Min	55	50	61	58	55	53	54	47	55	47	55	67	65	61	65	59	59	55	65	63	56	44	50	63	54	49	54	61	61	57	62	56.8
Amana	Max	79	79	84	83	84	78	73	75	78	73	80	9	91	87	89	88	80	82	74	83	87	72	77	89	82	76	79	83	69	77	81	80.7
	Min	55	53	56	66	55	57	53	43	59	59	49	60	71	59	65	58	59	59	64	58	67	50	46	55	65	46	50	53	59	55	61	56.9
Ames	Max	81	82	85	84	88	80	75	75	73	71	79	89	91	88	89	88	75	79	74	83	85	76	78	92	82	79	84	89	84	76	81	81.8
	Min	54	57	60	66	56	55	54	40	58	50	50	61	72	53	69	54	58	58	65	59	67	47	46	57	56	44	50	55	61	57	57	53.3
Atlantic	Max	81	83	84	85	85	84	75	79	74	80	87	89	93	94	92	86	88	83	80	85	84	77	78	91	82	80	83	81	78	77	84	83.3
	Min	53	53	62	62	47	53	49	39	55	52	53	67	71	65	69	57	63	59	66	57	67	41	43	61	59	39	50	58	62	59	57	56.4
Audubon	Max	79	83	85	88	85	80	73	77	73	79	87	89	91	91	86	86	85	79	80	85	80	78	79	91	78	81	83	85	69	76	82	85.0
	Min	50	45	58	62	48	50	50	36	53	42	53	67	69	63	69	57	62	59	65	56	64	42	43	58	60	38	47	59	60	58	54	54.7
Baxter	Max	80	82	85	85	83	79	74	74	75	72	78	89	91	88	89	86	83	80	75	83	85	75	77	90	80	76	80	85	65	76	80	80.6
	Min	54	54	59	67	57	53	54	44	57	54	48	61	74	61	69	56	59	57	65	54	65	46	48	57	46	46	50	55	59	57	61	56.4
Bedford	Max	86	85	83	83	82	83	75	77	77	80	84	87	92	94	93	85	89	83	83	82	86	75	76	89	79	78	78	85	78	76	81	82.7
	Min	58	57	60	63	49	55	56	48	59	54	56	65	66	64	61	60	62	60	67	58	62	47	44	62	61	43	48	59	65	61	61	57.8
Belle Pl'e	Max	77	78	84	82	90	80	70	73	76	68	78	89	90	85	87	85	76	76	72	80	85	70	74	88	73	75	78	85	62	71	79	78.8
	Min	56	54	59	64	57	68	68	50	57	57	49	60	72	60	65	59	58	58	62	57	62	50	50	55	63	47	52	57	60	55	58	58.0
Bonapar'e	Max	82	80	84	85	82	78	75	75	81	72	79	92	91	87	90	88	84	81	75	82	90	74	78	90	79	76	79	85	74	75	84	81.5
	Min	59	54	57	62	57	60	54	46	57	55	48	57	68	62	66	59	64	61	67	61	61	53	46	55	64	45	46	50	61	57	61	57.2
Britt	Max	76	81	82	77	85	75	69	76	71	74	80	90	81	86	82	84	80	80	79	84	74	72	76	89	78	79	80	83	72	78	85	79.3
	Min	53	47	59	59	53	49	52	41	56	43	51	64	65	55	63	54	54	54	62	58	59	42	46	58	44	51	52	56	58	53	60	53.9
Burling'n	Max	85	80	83	84	82	80	78	75	81	74	81	90	88	88	85	89	86	82	78	83	91	73	79	88	81	77	80	84	73	79	83	81.9
	Min	62	58	58	63	59	61	56	51	59	60	56	61	71	64	66	65	65	64	68	65	66	55	51	56	64	50	51	55	61	59	62	60.1
Carroll	Max	80	81	84	80	87	80	74	75	70	84	87	88	89	90	86	88	78	80	80	84	78	78	80	90	76	71	82	82	70	74	80	80.8
	Min	54	50	60	60	53	50	52	41	56	48	56	69	68	64	67	56	60	58	65	61	66	45	50	61	58	44	55	61	62	57	58	56.9
Cedar R.	Max	83	84	88	85	86	81	76	78	79	76	80	94	94	92	93	91	81	82	72	85	88	78	81	93	78	79	82	85	63	75	84	82.8
	Min	58	55	59	62	59	60	58	47	49	57	55	56	66	63	64	62	62	63	63	58	59	53	50	52	61	50	52	56	59	55	56	57.4
Chariton	Max	80	81	84	83	84	79	72	75	78	75	82	90	90	91	89	87	86	80	79	83	82	75	76	90	83	78	77	83	77	76	77	81.0
	Min	59	55	61	66	54	58	55	45	58	57	49	63	69	65	70	59	64	59	67	55	62	49	48	57	62	46	49	55	65	60	59	58.1
Charles C.	Max	77	77	83	77	84	75	70	74	70	70	78	88	81	86	84	84	79	77	74	83	77	74	78	90	73	78	81	86	70	75	83	78.6
	Min	55	49	53	60	54	51	54	39	57	53	49	53	52	50	60	56	52	56	59	52	55	44	46	49	58	42	46	54	59	49	49	52.1
Clarinda	Max	88	84	90	86	88	83	75	80	78	80	90	91	94	95	94	89	93	83	85	87	88	78	80	94	72	82	84	76	88	78	85	85.1
	Min	59	59	60	62	52	54	58	49	54	56	55	59	66	64	65	60	62	61	64	59	62	48	44	47	64	44	47	55	62	63	61	57.3
Clear L.	Max	74	82	82	81	86	77	71	74	69	74	79	87	83	89	85	85	78	80	79	84	76	76	77	86	81	79	81	81	72	77	79	79.5
	Min	56	52	61	62	62	54	52	48	57	49	51	64	68	61	62	64	60	55	62	60	63	47	49	57	57	55	55	61	59	51	60	57.2
Clinton	Max	84	81	85	85	85	82	75	76	83	83	83	95	92	85	89	90	83	82	74	82	91	78	78	87	79	76	79	84	70	78	85	82.5
	Min	54	58	54	57	52	57	50	42	51	51	46	52	67	55	57	57	57	61	62	62	68	44	48	48	59	45	44	46	58	51	51	53.5
Col. Sprgs	Max	..	83	87	83	85	82	75	79	80	79	87	90	94	93	92	84	88	86	85	85	89	78	91	80	80	77	84	86	79	80	86	86.6
	Min	63	60	63	64	57	62	59	51	58	55	57	65	65	67	67	62	65	63	67	63	48	50	62	62	62	49	48	60	64	60	63	60.0
Colum. J.	Max	80	80	83	84	87	78	74	74	79	72	79	89	90	86	89	86	84	80	75	81	89	73	76	87	72	75	87	83	74	75	82	80.7
	Min	60	54	58	63	57	60	55	47	57	56	52	59	67	61	61	60	64	60	67	63	65	51	49	54	55	48	51	53	59	55	60	57.5
Corning	Max	81	85	82	83	81	76	78	76	75	..	84	87	89	90	87	84	87	80	81	83	83	72	74	89	80	75	78	84	77	73	81	81.2
	Min	56	57	62	49	53	51	43	57	55		57	66	68	67	67	65	63	60	68	59	62	45	45	63	61	42	51	60	60	59	60	57.7
Corydon	Max	85	84	85	86	85	80	75	75	78	80	82	91	93	93	93	89	88	81	80	83	86	77	77	91	82	80	82	85	77	75	82	83.2
	Min	60	55	62	67	56	60	56	45	59	57	52	65	69	66	72	63	65	61	69	57	67	49	52	58	63	48	53	58	64	62	60	59.7
Cresco	Max	81	80	80	75	85	76	69	71	66	71	80	86	80	85	84	83	85	73	81	76	73	78	84	90	86	77	81	86	70	75	79	78.9
	Min	52	47	48	64	54	49	52	39	55	58	45	51	66	49	65	53	50	54	69	53	61	42	49	56	56	44	53	56	57	46	58	53.4
Davenpo't	Max	81	77	81	85	82	80	74	73	80	70	78	89	90	85	90	87	82	79	73	81	89	73	77	87	81	74	77	80	63	76	82	79.9
	Min	63	58	62	66	59	61	59	52	59	59	56	59	68	63	67	62	64	63	65	64	67	55	54	58	59	53	56	59	58	53	60	60.0
Decorah	Max	78	77	81	75	84	77	70	73	71	74	88	88	78	86	84	88	77	78	72	81	78	73	77	89	88	78	80	83	69	62	73	78.4
	Min	58	50	55	66	55	57	53	39	57	47	65	63	62	50	64	54	53	57	62	55	62	50	45	57	58	44	52	58	55	57	47	55.0
Delaware	Max	78	81	83	81	83	78	71	75	77	70	78	90	87	86	86	87	81	79	70	81	85	73	71	88	80	77	80	86	72	75	82	79.7
	Min	53	50	54	64	55	52	51	44	55	55	47	56	69	55	63	58	56	55	58	58	65	46	45	52	61	44	49	52	56	45	53	54.1
Des M.	Max	79	82	84	83	85	79	73	74	76	72	81	89	91	81	89	87	81	78	76	83	86	74	76	91	80	77	79	83	64	74	80	80.4
	Min	63	56	63	65	57	59	57	50	59	56	53	66	74	67	72	60	62	61	66	64	64	53	53	54	59	49	54	58	60	59	63	59.9
De Soto	Max	83	78	83	80	83	78	72	76	74	72	82	87	89	87	85	86	81	78	75	83	84	75	77	90	82	79	82	84	76	74	80	80.5
	Min	59	54	62	67	57	58	57	44	54	56	54	67	74	67	73	60	64	60	68	60	66	51	49	62	64	46	51	58	60	64	59	59.5
Dows	Max	75	78	82	78	86	76	69	72	67	70	77	88	84	86	82	85	78	76	76	82	76	74	76	89	82	77	79	81	71	73	81	78.3
	Min	52	47	60	61	55	51	52	40	57	49	45	64	68	57	67	54	54	55	60	56	62	43	47	58	56	45	51	56	59	53	60	54.6
Dubuque	Max	78	79	83	82	85	79	70	74	76	70	78	91	87	87	88	89	81	79	70	82	87	73	77	88	80	76	78	83	68	76	82	79.9
	Min	59	54	59	67	57	60	56	45	59	56	51	60	66	58	65	59	61	61	61	62	64	52	52	57	59	50	57	58	57	53	58	57.8
Earlham	Max	80	8	83	81	83	79	70	75	74	75	82	87	89	87	87	85	84	78	78	82	85	74	76	88	78	78	80	84	75	80	..	80.6
	Min	52	47	56	63	50	50	50	35	50	52	48	63	70	62	70	55	61	55	63	53	61	40	43	57	58	38	44	55	57	53	.	53.7
Elkader	Max	84	84	87	82	88	80	76	79	76	77	82	94	88	93	92	91	83	83	73	86	83	79	81	93	78	82	86	88	73	80	85	83.4
	Min	50	48	51	65	52	50	52	40	57	56	46	59	64	51	60	55	52	59	60	51	69	47	44	55	63	42	48	53	58	45	59	53.6
Esthervil.	Max	84	80	84	80	87	81	74	74	70	72	81	86	94	90	86	85	84	81	81	89	75	76	81	92	74	80	84	78	70	65	77	80.5
	Min	51	48	52	54	56	52	50	45	46	44	44	52	65	55	61	60	55	53	51	60	65	45	44	54	52	46	50	56	58	56	55	52.7
Fayette	Max	83	81	85	83	86	80	70	77	73	73	85	91	83	87	86	85	80	77	71	82	70	73	77	90	70	..	..	87	76	73	8	79.9
	Min	51	45	50	53	51	49	5	36	55	58	41	56	58	49	64	56	53	58	59	51	60	45	43	54	58	..	..	65	60	42	55	52.6
Forest C'y	Max	75	81	82	77	81	76	70	74	67	75	78	89	83	86	82	85	81	78	80	83	82	70	73	78	88	73	77	80	80	73	77	78.5
	Min	54	50	53	59	56	55	52	43	52	45	48	56	66	56	65	55	57	53	57	57	62	44	46	51	54	45	52	57	60	50	52	3.6
Ft. Dodge	Max	77	80	84	85	91	79	70	80	71	73	84	90	87	90	86	86	79	78	78	85	74	74	79	89	74	79	82	76	71	72	81	80.1
	Min	55	51	56	63	58	55	55	42	45	49	50	57	69	61	66	58	59	57	58	61	63	48	48	52	58	48	51	56	63	57	57	55.7
Glenw'd	Max	81	78	84	80	84	80	73	77	74	73	85	87	88	90	89	84	86	82	80	83	83	72	76	89	87	77	79	83	79	76	80	80.6
	Min	59	58	65	62	57	59	58	50	55	53	58	69	71	67	70	62	66	62	64	65	62	49	52	65	55	50	56	64	63	59	62	60.2
Grand M.	Max	78	80	81	78	83	76	70	73	70	71	76	86	82	83	84	83	77	77	70	80	76	72	76	82	81	75	78	84	66	78	..	77.5
	Min	53	52	54	62	56	53	52	43	55	54	49	61	65	55	64	59	55	56	59	56	64	47	54	58	60	40	49	51	56	56	..	54.9
Greene	Max	79	82	85	80	86	77	71	77	70	73	80	90	83	88	86	87	83	80	76	85	78	77	80	91	82	79	82	85	72	78	83	80.8
	Min	53	49	57	63	56	53	52	40	56	51	49	60	68	55	66	57	54	56	61	54	66	44	45	56	58	45	52	55	54	50	59	54.8
Greenfi'ld	Max	81	82	83	86	84	78	73	76	74	73	83	89	88	89	86	87	87	82	82	83	85	73	77	89	84	78	82	86	79	78	80	81.8
	Min	57	54	56	62	55	56	55	47	55	56	53	54	71	66	69	62	64	59	65	60	60	45	50	60	61	49	52	54	59	58	58	57.5
Grinnell (near	Max	80	79	85	85	85	79	75	75	78	72	78	90	91	89	89	89	82	78	73	82	88	75	77	90	85	78	82	85	70	73	83	81.3
	Min	55	53	60	65	56	56	53	47	57	55	51	61	72	61	69	57	61	57	63	50	66	47	50	56	60	47	51	56	57	55	61	56.9
Grundy C	Max	80	80	84	81	84	78	73	73	74	71	78	89	88	87	87	86	80	78	74	82	85	76	77	91	82	78	80	82	66	75	81	80.0
	Min	53	50	58	66	64	52	51	41	56	52	46	63	69	58	64	57	55	56	62	54	66	45	47	58	57	45	51	56	58	54	61	55.7
Guthrie C	Max	85	83	85	83	85	81	76	76	75	76	85	90	91	90	88	86	85	79	78	83	83	79	82	90	85	77	80	85	80	74	80	82.3
	Min	55	50	60	61	55	55	53	41	62	50	54	68	73	64	64	59	64	59	66	60	65	46	47	60	62	44	51	59	61	61	57	57.6
Hampton	Max	77	85	87	81	88	78	75	77	72	77	80	91	88	90	85	89	83	79	74	85	78	78	80	92	81	83	84	83	74	79	85	81.9
	Min	54	52	59	64	59	54	54	44	58	49	49	65	71	59	70	60	57	55	67	57	62	46	48	58	58	49	53	59	63	50	60	56.9
Hanlont'n	Max	73	77	81	75	85	74	67	71	66	69	75	87	79	85	82	83	75	76	75	82	74	72	75	88	81	77	80	81	68	73	76	76.8
	Min	54	48	59	60	55	51	52	41	57	44	47	65	67	53	66	55	52	52	61	55	56	42	48	58	55	45	53	58	53	50	58	54.0
Harlan	Max	82	83	86	79	86	79	72	78	75	76	86	89	89	91	87	87	88	82	81	85	80	74	76	88	80	78	80	86	78	77	83	82.0
	Min	55	50	59	60	51	55	51	44	53	47	55	64	65	64	67	57	63	59	66	59	61	41	43	61	60	41	47	57	6	58	59	55.9
Hopeville	Max	82	85	86	83	84	81	72	78	77	78	85	90	90	95	91	87	90	80	81	84	87	76	77	90	72	80	81	86	77	72	88	82.6
	Min	61	56	62	68	58	57	57	47	58	57	53	64	70	67	71	64	66	60	67	58	62	50	48	60	57	49	57	58	62	60	60	59.5
Humboldt	Max	76	75	84	87	87	79	70	75	68	70	80	89	85	88	84	86	79	78	77	84	76	63	71	87	82	72	70	70	70	70	74	77.6
	Min	54	68	75	77	56	55	55	45	59	49	51	69	69	58	66	56	56	56	64	60	65	46	49	62	58	48	56	60	64	56	60	58.8
Ida Grove	Max	76	82	88	8	89	84	80	76	72	78	87	88	89	93	85	86	76	79	80	84	77	74	77	88	83	78	81	83	74	85	87	81.9
	Min	52	49	55	61	51	52	45	43	58	49	57	69	68	66	69	58	62	58	67	53	58	45	52	65	58	43	57	64	64	65	66	57.4
Independ.	Max	78	80	85	80	82	77	72	74	74	71	77	91	87	88	86	88	78	80	75	83	82	75	78	92	83	78	81	86	68	76	81	80.2
	Min	55	51	55	63	54	55	54	41	56	55	48	59	72	55	65	65	55	56	60	50	66	47	44	52	61	42	48	62	58	47	57	55.1
Indianola	Max	80	81	83	82	83	79	73	77	76	73	84	91	91	90	88	86	86	78	78	85	85	74	..	90	83	78	82	85	75	75	81	81.7
	Min	60	55	62	66	57	58	56	45	59	57	52	54	73	65	73	61	64	59	69	62	54	50	..	49	62	47	50	57	60	59	62	5.6
Inwood	Max	77	78	87	80	88	81	73	74	69	74	85	87	82	92	90	82	80	84	84	85	80	76	78	92	82	89	84	75	71	73	77	80.6
	Min	55	50	61	57	55	53	52	47	55	57	57	57	65	65	61	63	58	58	56	53	55	61	45	53	63	54	48	48	55	60	58	58	56.0
Iowa City	Max	83	84	88	87	86	80	76	80	80	77	83	94	93	90	92	91	85	86	76	86	90	78	80	92	74	80	81	86	62	81	84	85.4
	Min	56	53	53	61	56	58	54	46	47

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR AUGUST, 1904—CONTINUED.

STATIONS.		DATE.																															MEAN.
		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	
Keosa'qua	Max..	83	83	86	87	84	80	76	75	84	79	81	94	92	90	93	91	86	82	76	83	91	78	78	90	87	77	79	85	79	78	85	83.5
	Min ..	59	55	57	62	56	61	54	46	53	57	46	52	65	63	67	60	64	61	65	63	63	55	46	49	63	47	48	50	62	60	59	57 0
Larrabee.	Max..	81	84	88	81	91	79	72	79	69	78	87	90	87	91	87	86	83	83	82	86	76	74	79	92	82	80	84	91	72	78	86	82.4
	Min ..	49	48	59	58	55	48	48	46	55	46	51	68	69	58	59	59	58	56	65	62	58	45	50	68	51	46	55	61	63	59	61	55.6
Lenox....	Max..	80	81	84	84	82	78	78	76	77	76	84	88	90	90	87	84	87	80	82	82	84	73	75	89	80	76	82	85	76	73	80	81.2
	Min ..	62	57	61	55	55	56	56	47	58	55	56	66	68	66	68	62	65	59	67	60	62	49	49	61	62	47	51	59	60	59	60	58.6
Leon.....	Max..	83	82	85	83	83	82	77	77	77	76	84	89	91	89	90	86	88	85	79	82	85	73	75	89	88	75	78	84	77	78	82	82.3
	Min ..	60	56	61	68	57	60	59	47	59	57	52	69	69	68	71	64	66	59	69	59	65	52	49	59	64	50	50	56	66	62	61	60.1
Lit. Sioux	Max..	..	..	.	..	..	..	..	..	.	..	..	91	89	94	90	89	87	81	82	86	79	76	78	92	83	81	83	83	77	79	83	84.1
	Min ..	..	..	..	..	..	..	..	..	..	..	..	63	71	69	63	60	67	61	67	67	63	44	54	67	61	49	57	66	65	61	64	62.0
Logan....	Max..	81	80	88	89	82	89	75	82	85	79	90	92	91	95	93	90	90	84	85	89	79	7	80	92	80	82	85	82	77	80	85	84.8
	Min ..	63	53	60	63	52	57	55	46	57	48	58	67	67	60	67	58	64	54	67	67	60	44	49	68	61	43	51	48	62	61	64	57.6
Maquo'ta.	Max..	84	82	84	87	86	82	77	76	79	74	79	92	93	89	91	91	83	80	71	83	88	77	77	88	77	79	78	85	65	78	84	81.9
	Min ..	50	47	50	62	51	53	50	38	48	57	44	49	60	53	50	56	55	58	61	61	62	51	44	47	56	43	42	45	59	46	53	51.6
Marshlt'n	Max..	83	83	89	85	87	81	77	80	79	73	82	94	92	91	91	90	82	83	72	86	88	78	82	95	79	82	87	85	64	78	83	83.3
	Min ..	54	51	56	65	55	54	54	40	57	53	49	53	65	60	69	56	57	56	58	54	55	46	48	53	60	44	47	54	61	55	56	54.7
Mason C..	Max..	75	79	82	79	85	76	70	75	68	72	76	89	82	88	83	84	78	78	78	83	75	74	78	89	82	80	82	81	70	75	77	78.8
	Min ..	55	53	58	63	59	55	55	48	58	48	54	65	70	60	70	62	60	56	62	59	65	48	50	59	58	54	54	57	58	51	61	57.6
Massena..	Max..	85	86	90	83	85	81	75	79	75	80	88	92	93	95	90	89	88	86	83	87	83	88	86	90	89	80	84	88	78	76	83	85.0
	Min ..	55	53	60	62	52	52	53	43	55	55	55	66	71	67	65	65	65	60	67	53	63	45	48	60	61	40	50	60	60	58	59	57.5
Mt. Ayr..	Max..	88	89	87	88	84	84	77	81	81	83	90	91	97	96	96	89	92	88	83	85	87	77	81	92	81	82	84	89	78	80	85	86.0
	Min ..	63	58	60	66	53	60	57	48	58	55	54	64	66	67	68	64	64	60	68	61	63	50	49	61	63	50	52	59	62	60	61	59.6
Mt. Pl'snt	Max..	88	83	84	86	83	81	79	76	83	73	81	91	92	87	89	87	86	82	74	81	91	72	77	89	81	77	80	83	76	78	84	82.4
	Min ..	60	55	59	65	58	60	56	47	57	57	51	62	69	63	63	62	65	61	67	61	66	53	50	56	67	49	51	54	60	57	61	58.8
Mt. Ver'n	Max..	85	89	85	85	84	82	79	80	76	82	83	92	93	92	92	89	82	80	73	82	85	83	86	88	79	85	84	81	73	81	85	83.7
	Min ..	55	57	55	63	57	57	54	45	56	55	53	58	72	59	63	59	58	59	61	59	66	49	49	57	63	49	50	53	53	51	56	56.5
New H. ..	Max	75	79	80	76	83	76	70	72	67	69	74	86	81	83	84	83	79	77	..	81	76	71	75	88	82	75	78	83	67	73	79	77.4
	Min .	52	48	55	62	53	49	51	47	54	57	48	57	65	50	62	56	55	53	..	57	63	43	44	52	52	44	46	51	51	45	55	52.6
Odebolt ..	Max..	82	85	89	82	90	85	77	79	72	79	88	91	93	95	89	90	80	81	83	86	80	77	80	91	85	82	85	84	73	74	85	83.6
	Min ..	52	49	62	59	52	50	53	42	56	46	55	67	68	63	67	57	61	51	66	62	63	44	48	63	56	44	55	60	62	58	60	56.5
Ogden ...	Max	78	81	84	81	86	80	73	75	72	73	80	90	90	89	86	86	78	79	76	84	83	76	78	91	78	79	81	85	67	75	81	80.5
	Min .	54	52	60	63	54	56	52	46	56	48	52	65	70	68	65	60	56	58	65	58	66	46	49	59	60	48	52	57	62	58	58	57.2
Olin	Max	79	79	81	84	82	83	72	73	84	73	77	88	91	89	87	86	82	81	74	82	89	70	74	86	81	70	72	77	79	79	81	80.2
	Min	53	50	57	64	53	54	52	42	55	57	47	58	70	67	65	57	57	61	64	62	67	51	46	50	65	46	50	61	47	45	58	55.9
Omaha, N	Max..	82	80	86	81	88	78	71	76	72	75	87	89	91	93	88	88	87	82	80	85	77	76	78	91	80	79	80	84	71	77	82	81.7
	Min ..	62	61	65	62	62	63	62	56	59	55	62	70	74	70	70	64	69	64	69	68	63	54	55	68	62	56	58	66	62	60	64	63.1
Onawa....	Max.	83	80	88	83	90	84	78	77	73	80	89	92	89	96	90	88	85	80	83	88	86	81	81	96	91	84	86	83	80	78	83	84.7
	Min ..	56	56	65	62	56	57	58	50	60	50	59	68	69	69	70	61	67	62	69	66	64	49	53	65	61	52	57	65	66	62	63	60.9
Osage.....	Max.	..	..	..	..	..	..	..	..	..	75	76	89	83	87	84	85	79	80	80	83	75	75	79	90	80	79	83	84	66	78	78	80.1
	Min ..	..	..	..	..	..	..	..	..	..	49	49	60	67	52	67	57	54	54	60	54	61	45	47	56	57	47	50	55	59	51	59	55 0
Osceola...	Max..	85	85	88	86	88	82	85	81	80	79	84	90	93	95	91	90	90	82	85	84	87	83	79	90	75	80	87	92	70	78	83	84 7
	Min ..	60	56	60	64	59	58	54	44	52	57	51	56	67	66	75	62	61	58	61	57	60	50	48	51	62	46	50	54	65	59	58	57.5
Oskaloosa	Max..	81	79	85	82	83	78	73	77	75	68	80	90	80	89	88	88	83	79	78	82	87	73	78	90	83	76	80	86	75	74	87	81.0
	Min ..	61	54	59	66	57	57	55	45	61	58	47	62	72	63	71	57	64	61	69	60	67	51	48	58	65	45	50	51	60	58	62	58.5
Ottumwa	Max..	85	85	87	87	87	81	76	77	79	74	83	95	94	95	93	93	87	83	78	85	92	82	81	94	76	80	85	6	70	80	86	84.4
	Min ..	64	53	63	66	60	63	57	60	62	60	50	64	64	67	73	63	68	65	67	65	73	54	52	61	69	52	51	56	65	61	65	61,4
Pacific J'n	Max	84	83	85	81	86	80	75	79	76	87	84	88	91	93	90	88	90	85	85	86	80	73	76	89	78	76	80	88	78	81	84	83.2
	Min ..	54	58	61	60	51	55	51	49	55	57	52	65	70	66	64	60	63	62	67	62	62	45	46	63	59	45	50	60	63	60	60	57.9
Perry.....	Max..	78	82	85	83	83	80	73	78	75	74	83	90	90	89	86	89	80	80	77	84	83	75	78	91	81	79	81	86	69	76	82	81.3
	Min ..	56	52	62	66	58	56	55	44	58	51	55	67	71	64	70	56	63	60	69	60	67	49	48	61	61	47	52	60	61	59	59	58.6
Plover....	Max..	78	83	80	78	88	77	70	75	67	70	80	90	87	89	87	86	82	81	80	87	79	72	77	90	82	79	83	84	73	70	83	80.2
	Min ..	50	52	64	58	54	52	53	41	55	45	55	65	65	55	64	56	55	58	64	60	62	44	45	60	55	45	50	55	60	55	59	55.2
Pocah'tas	Max..	77	88	6	77	89	81	73	77	70	75	82	89	86	88	84	85	81	77	79	85	76	74	78	90	85	80	83	78	78	70	82	80.6
	Min ..	54	50	61	60	56	53	54	45	44	50	56	70	70	68	66	64	62	63	64	62	59	44	49	61	56	49	54	59	63	57	57	57.4
Primghar	Max..	74	71	80	77	80	75	69	74	78	72	84	86	81	89	83	82	80	79	80	85	76	74	77	89	77	89	79	78	69	..	..	78.9
	Min .	55	49	60	66	57	55	51	46	52	46	55	66	62	59	62	59	59	55	65	65	56	43	50	62	50	48	59	59	60	57	60	56.4
Red Oak..	Max..	81	79	83	81	82	78	75	77	75	75	83	86	88	88	88	84	86	82	80	83	81	73	75	88	84	76	78	81	80	76	80	80.8
	Min ..	63	61	67	67	58	62	62	55	62	58	61	69	73	71	72	66	66	72	71	64	66	54	52	67	62	50	56	65	65	62	66	63.4
Ridgeway	Max..	80	81	83	80	89	80	74	75	74	73	75	87	85	88	87	86	81	79	76	85	81	77	88	94	85	80	84	90	74	79	81	81.6
	Min ..	58	54	60	65	58	55	55	50	56	54	52	62	70	56	70	62	60	57	60	59	71	50	51	59	60	50	54	58	57	50	59	57.8
Rock R...	Max..	78	83	80	78	88	78	70	74	75	75	87	88	86	90	83	82	78	76	83	85	78	76	78	88	78	82	85	82	80	78	82	80.8
	Min .	50	47	46	66	62	52	50	46	43	55	55	62	60	58	58	58	56	54	55	40	50	56	54	58	42	54	60	60	58	60	58	54.3
Rockw'l C	Max..	78	81	80	81	89	80	76	78	70	69	83	91	98	89	87	90	79	80	82	80	78	73	78	90	78	78	80	80	79	78	84	80.9
	Min ..	54	51	58	58	55	53	53	50	50	48	53	66	65	61	65	56	56	58	56	60	60	45	47	53	55	48	52	55	56	56	58	55.4
Sac City..	Max..	78	82	86	83	88	80	74	76	70	76	85	90	89	91	86	88	75	79	80	85	76	75	78	90	78	79	82	79	71	71	82	80.7
	Min ..	57	51	60	61	57	55	55	44	56	48	54	68	68	62	68	59	60	56	66	62	63	60	49	60	57	48	54	59	61	58	60	57.9
St. Cha'les	Max..	87	80	85	81	85	79	72	76	76	73	83	89	90	90	87	88	86	78	77	82	84	73	76	90	82	80	81	84	76	78	80	81.4
	Min ..	61	57	63	66	60	60	58	49	59	56	54	66	73	66	73	64	64	59	65	61	63	51	50	60	64	51	53	59	60	59	61	60.2
Sibley	Max..	74	79	83	87	87	75	71	74	61	75	85	82	81	89	80	82	77	76	82	86	68	74	77	91	73	80	82	77	73	69	77	78.3
	Min	50	45	51	55	51	50	50	43	49	41	44	59	63	57	58	53	56	53	55	62	61	38	40	51	51	42	44	57	58	58	57	51.7
Sioux C'y.	Max..	76	76	86	80	91	78	73	73	67	73	86	89	83	96	85	85	79	78	83	86	76	76	77	92	74	80	83	78	74	74	81	80.4
	Min ..	55	54	64	60	56	56	56	53	54	46	59	69	68	67	65	61	63	59	67	66	59	49	56	66	54	51	58	64	60	60	64	59.3
Sioux C'r.	Max	76	79	85	78	87	77	70	75	69	75	85	85	85	90	86	83	80	77	84	85	80	75	75	91	77	74	84	82	74	75	80	79.9
	Min ..	55	50	62	57	56	51	52	45	54	43	57	64	65	61	61	57	60	55	65	65	58	46	42	63	50	45	45	60	61	59	63	55.7
Spirit L..	Max..	75	80	82	80	85	75	70	70	65	78	82	84	78	87	82	82	83	81	80	87	79	78	78	89	83	80	83	80	76	65	75	78.9
	Min ..	55	49	55	57	65	52	52	49	55	44	58	64	65	64	67	64	60	58	55	64	61	44	53	61	53	48	57	59	57	57	62	56.9
Stockport	Max	80	80	83	83	80	78	75	79	79	78	78	88	89	85	86	86	84	82	75	79	87	74	75	88	82	75	76	83	74	76	81	80.6
	Min ..	62	57	60	65	59	63	58	50	59	61	50	62	71	63	69	62	67	68	70	65	72	54	50	56	63	50	51	52	62	60	64	60.5
Storm L..	Max..	76	79	83	78	87	76	71	73	63	72	82	86	86	88	83	84	75	76	75	83	69	73	75	87	72	77	80	78	70	67	..	77.6
	Min ..	51	46	56	59	53	53	54	49	54	44	50	57	65	60	64	58	62	55	55	64	62	45	48	55	54	50	55	58	61	57	56	55.3
Stuart ...	Max..	81	83	87	85	86	83	78	78	76	73	83	89	88	89	89	87	87	82	80	85	84	74	77	90	88	78	80	86	82	75	82	82.7
	Min ..	58	55	61	65	59	58	57	48	57	53	53	66	73	66	72	63	64	59	66	61	64	49	49	60	58	50	51	60	61	59	59	59.2
Thurman.	Max..	82	83	86	81	85	78	74	78	73	77	87	90	92	93	90	85	86	82	81	84	80	74	76	91	84	76	79	85	80	78	83	82.4
	Min ..	57	60	64	63	52	57	58	50	59	53	58	68	71	69	66	62	63	63	68	61	63	48	49	68	63	44	55	65	65	60	63	60.2
Tipton....	Max.	85	84	84	88	87	83	79	77	78	75	81	91	94	90	91	90	82	82	75	83	89	78	78	88	82	79	80	83	73	75	83	82,8
	Min ..	59	58	59	65	60	59	58	51	58	58	54	59	71	62	65	61	62	62	63	63	68	53	53	56	68	51	51	54	57	52	59	59.3
Toledo....	Max..	82	80	85	83	84	80	74	76	77	70	79	91	92	89	89	88	81	80	72	82	87	76	77	92	83	78	81	8	68	75	83	81.2
	Min ..	53	50	55	67	55	53	52	40	57	57	46	63	74	59	67	56	56	56	63	55	66	46	45	58	61	43	53	54	59	56	61	56.0
Vinton. ..	Max	81	81	85	84	84	81	74	75	76	74	79	91	92	..	92	89	83	81	76	83	85	76	78	91	87	80	81	82	71	75	1	81,6
	Min ..	55	50	56	56	56	56	53	40	58	57	48	61	75	..	58	53	57	60	61	54	66	50	48	55	63	46	50	53	57	53	60	55.7
Wapello..	Max..	82	75	82	83	81	80	78	73	70	70	78	88	87	86	88	86	80	77	75	78	88	74	86	83	76	76	81	74	76	76	83	80.0
	Min ..	64	56	59	62	57	61	56	49	59	59	55	61	71	64	67	62	65	62	68	64	69	52	57	55	50	57	59	60	52	62	67	60,2
Washi'ton	Max..	81	80	83	83	82	78	75	74	79	69	80	90	92	88	90	87	82	79	74	81	88	92	78	89	79	74	77	82	66	76	81	80.9
	Min ..	60	54	59	66	57	58	55	48	48	57	51	61	70	62	66	61	63	61	67	61	67	52	52	57	58	49	52	54	61	55	62	58.4
Waterloo.	Max..	87	82	87	82	86	80	75	76	73	73	79	91	89	89	90	89	82	82	72	85	85	79	82	93	80	82	84	88	69	78	84	82.4
	Min ..	54	50	55	59	55	56	54	43	57	55	49	55	70	59	67	58	56	56	60	54	55	48	45	49	60	48	47	53	62	49	50	54.5
Waukee..	Max..	91	89	90	84	88	81	81	78	74	82	85	96	97	96	93	91	83	..	81	90	85	86	84	96	84	88	87	84	73	80	84	86.0
	Min .	58	58	62	66	58	55	56	45	45	54	53	65	73	65	69	59	62	..	59	59	64	49	49	60	61	48	52	58	60	59	61	58.1
Waverly..	Max..	77	77	82	79	84	76	76	74	71	69	77	87	83	85	85	85	79	77	71	81	77	73	77	90	79	67	80	84	78	74	80	78.5
	Min ..	55	52	56	66	54	52	54	41	57	55	52	61	70	56	67	..	56	59	61	56	67	59	46	55	60	47	52	57	58	51	51	56.1
W.Bend..	Max..	76	80	84	78	86	76	69	76	66	71	81	88	82	87	83	85	81	80	80	84	74	72	76	88	77	77	80	83	74	72	83	79.0
	Min ..	50	44	61	57	63	50	53	42	54	44	51	62	64	56	62	55	54	54	62	58	58	43	48	60	54	46	53	58	62	55	69	54.8
Whitten..	Max.	83	81	87	86	87	78	74	76	75	72	81	90	89	88	87	88	80	80	76	82	80	81	77	90	83	77	80	83	67	75	81	81.1
	Min ..	53	50	58	66	56	52	53	42	57	50	49	62	70	59	68	51	55	56	60	54	58	45	45	55	58	45	49	55	59	54	59	54.9
Wilton J.	Max..	87	85	85	86	89	82	77	78	83	73	81	93	93	91	90	90	85	87	76	90	91	74	72	88	82	76	84	85	70	78	82	83.3
	Min ..	61	51	55	54	59	55	49	43	55	56	52	55	70	59	57	58	59	61	64	60	63	62	48	56	52	46	48	53	52	53	58	55.6
Winte'set	Max	83	83	88	86	89	84	75	77	79	78	78	92	95	90	92	91	86	80	80	83	90	80	78	77	80	80	80	86	75	79	87	83.3
	Min ..	60	60	64	67	58	56	52	46	60	58	57	62	72	66	70	60	65	59	65	60	64	50	50	48	50	54	60	60	60	61	5.	59.1
Zearing...	Max..	78	80	84	81	85	77	71	74	74	70	79	88	87	87	86	87	83	79	74	82	83	74	77	91	86	78	80	82	66	75	81	80.0
	Min ..	55	52	61	65	55	52	53	42	58	51	49	64	70	60	69	57	53	57	63	56	66	48	49	60	60	46	52	58	59	56	59	56.6
.....		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....
.....		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.

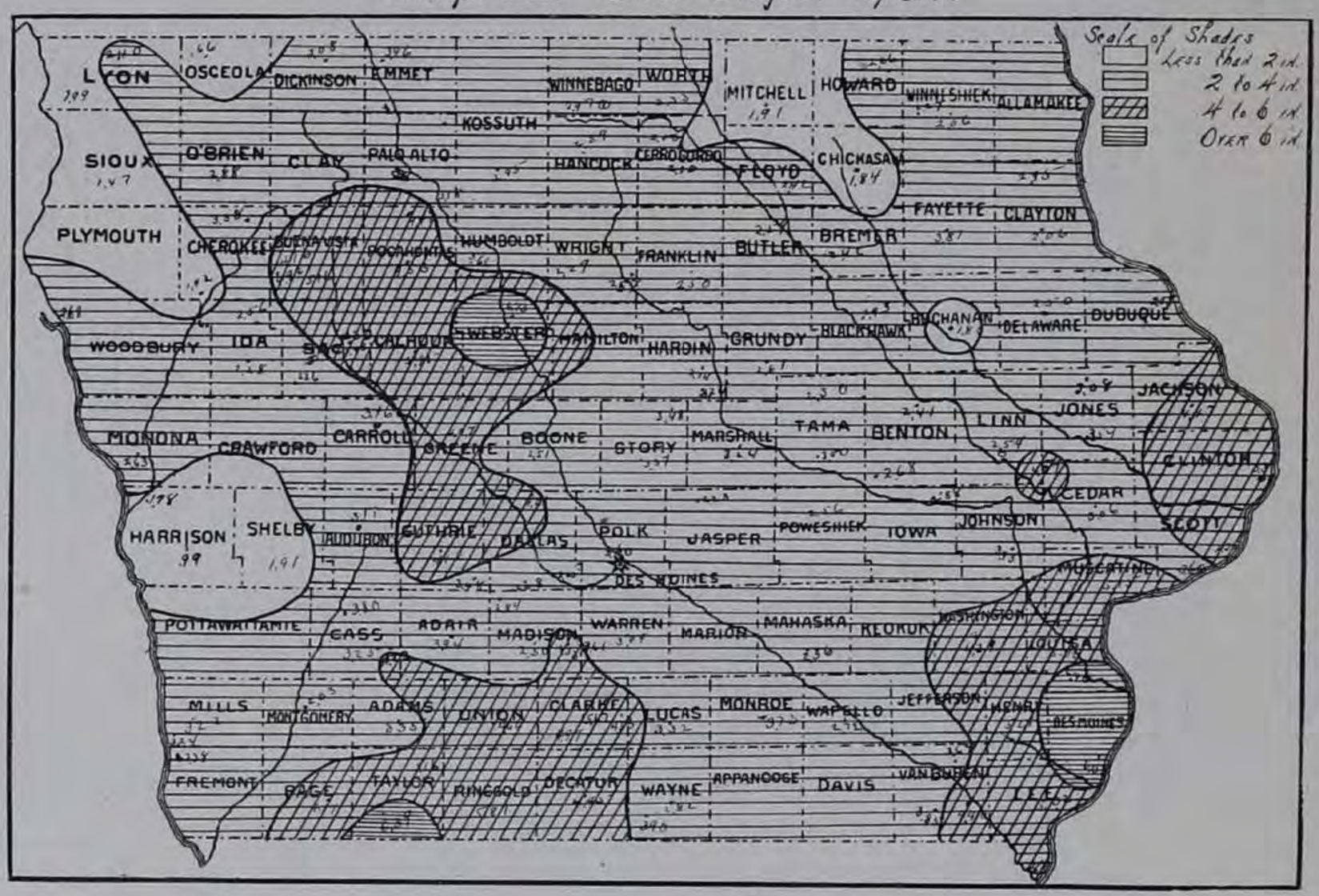
DAILY AND MONTHLY PRECIPITATION FOR AUGUST, 1904.

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	....	....	...	T	..	....	....	....	.68	....	....	....		....	....	....	...	.48	.70	...	.70	....	....	....	....	....	....	...	2.20	....	....	4.66
Albia	....	....	....	T	....	....	....	....	.18	....	....	....	....	T	....	..	....	1.70	10	.50	....	.59	...	....	T	....	....	....	.40	.28	....	3.73
Algona	.53	....	.10	....	...	....	....	....	.75	....	..	..	....	....	....	...	...	....	.06	....	1.00	...	....	....	....	....	....	....	.51	....	....	2.95
Allerton		..	....	....	....	....	....	....	.37	..	....	....	.10	....	....	....	.02	.04	1.06	....	.77	.03	....	..	.01	....	....	....	1.47	.03	....	3.90
Alta	.03	....	....	....	....	....	....	....	1.37	....	....	....	....	....	T	....	.78		.17	.03	1.16	....	....	....	....	....	..	1.34	.04	..	....	4.02
Alta [near]	.08	....	...	....	....	....	..	....	1.97		....	....	....	....	....	....	.69	....	.18	.09	.90		....	....	T	....	....	1.00	.02	.03	....	4.96
Amana	....	..	....	T	....	....	....	....	.14	....	..	....	....	....	.17	..	T	....	.12	....	.69	.03	...	....	T	....	....	.17	1.56	....	..	2.88
Ames	....	.	.01	....	....	....	....		1.14	....	....	..	....	....	....	..	.61	.20	....	T	....	....	..	...	....	....	...	.11	1.30	....	....	3.37
Atlantic	....	....	....	....		....		....	1.50	....	....	....	....	....	....	....	....	.50	.81	....	.99	....	....	....	....	....	..	....	..	..	....	3.80
Audubon	....	....	....	T	..	....	....	....	1.23	..	.	....	....	.55	T	....	.04	..	.53	..	.13	....	....	..	....	..	....	.63	T	..	....	3.11
Baxter	....	....	..	T	....	....	....	....	.55	....	..	..	..	....	....	....	.23	....	.20	....	T	....	....	....	....	....	....	.50	.75	....	....	2.23
Bedford		....	....	T	....	....	....	....	.85	....	..	....	....	....	.06	..	..	.24	1.38	....	.86	....	....	....	....	....	....	T	3.00	T	....	6.39
Belle Plaine	....	....	....	....	....	....	....	....	.02	....	..	....	....	....	.15	..	.10	....	.30	..	.76	..	....	....	....	..	..	....	1.35	....	....	2.68
Bonaparte	....	.	....	.50	....	....	....	....		....	....	..	.09	..	.23	....		....	1.69	....	1.04	....	..	..	....	....	....	.53	.85	....	....	4.40
Britt	.04	....	.21	....	....	....	....	....	.81	.01	...	T	..	....	....	...	....	....	....	..	.77	....	....	....	....	....	....	1.36	.02	....	....	2.39
Buckingham	....	....	.....	.19	....	....	T	....	.40	....	....	....	....	....	....	....	....	....	.23	....	.12	....	....	....	....	....	....	....	T	....	....	2.30
Burlington	....	....	....	.29	....	....	....	....	T	....	....	....	.36	....	.16	....	....	.53	1.71	...	1.11	.27	....	....	.01	....	....	....	1.47	....	.17	6.08
Carroll	.15	..	....	....	....	....	....	....	1.60	...	....	....	....	....	....	..	.40	..	.07	.36	.28	....	..	....	....	....	....	.30	....	T	....	3.16
Cedar Rapids	....	....	....	T	....	....	....	T	.10	.13	....	....	....	....	.03	....	....	.18	T	.85	....	.45	....	....	....	....	....	....	1.30	.10	....	2.54
Chariton		...	..	T	....	....	....	..	.89	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	T	.95	....	....	3.32
Charles City	....	....	....	.45	....	....	....	..	1.08	.14	....	....	....	....	.10	....	....	....	....	....	....	.15	....	....	....	....	....	....	.50	....	....	2.42
Clarinda	....	.06		T	....	T	..	..	.85		....	....	....	....		.24	....	.52	....	....	....	.23	....	....	....	....	....	....	.07	2.20		4.17
Clear Lake	T	....	.25	....	....	....	....	....	.80	....	T	....	....	....	T	....	T	....	T	....	.30	....	....	....	....	....	....	.65	....	....	....	2 00
Clinton	....	....	....	.21	.	....	....	....	.21	....	....	....	.55	..	.05	....	....	....	.80	....	2 75	....	....	....	.01	....	.	....	.78	....	....	5.36
College Springs	....	.02	....	.15	....	T	.02	....	1.00	....	..	....	..	....	....	.50	.08	.60	.02	....	.55	....	....	....	....	....	....	....	1.25	....	..	4.19
Columbus Junct'n	....	....	....	.24	....	....	....	....	.20	.02	....	....	.60		.15	....	T	T	.13	.98	....	1.25	.19	....	..	....	....	....	1.96	....	....	5.72
Corning	....	....	....	....	....	..	....	.57	....	T	....	....	....	....	....	T	T	.87	.12	....	.29	....	....	....	....	T	....	....	1.50	....		3.25
Corydon	..	....	....	....	....	....	....	....	.26	....	....	..	....	....	....	..	.22	..	.51	....	.47	.05	....	..	.03	....	....	....	1.26	.02	...	2.82
Cresco	...	....	.35	....	....	....	....	....	1.70	..	....	..	....	....	....	..	....	....	....	....	.11	....	....	....	....	....	....	.50	....	....	....	2.66
Cumberland	....	....	....	.41	....	....	....		1.41	....	..	..	....	....	....	..	....	.21	.51	....	T	..	....	....	....	....	....	.69	.02	....	T	3.25
Davenport	....	....	....	.20	....	..		.86	.14	.04	....	....	.70	....	.04	....	....	....	.81	T	.51	.26	....	....	.01	....	....	....	.89	....	..	3.60
Decorah	....	....	.34	....	....	....	..		....	....	....	....	....	.81	....	T	....	....	T	....	.28	....	....	....		....	....	.27	T	....	....	2.06
Delaware	....	....		.21	....	....	....	....	.34	....	....	....	.27	....	.34	....	T	....	.40	....	.05	....	....	....	....	....	....	....	.89	....	..	2.50
Des Moines	....		....	.19	....	....	....	....	1.00	....	....	..	....	....	T	....	.44	.09	.15	....	.02	....	....	....	....	....	....	T	.71	T	..	2.60
De Soto	....	....	....	.19	....	....	....	....	1.40	....	..	....	....	.04	T	....	.44	....	.26	....	.03	....	....	....	....	....	....	T	.72	T	....	3.08
Dows	T	....	..	....	....	....	....	....	.80	....	....	....	....	....	....	....	.14	....	41	....	.48	....	....	....	....	....	....	.32	.42	....	....	2 57
Dubuque	....	....	....	.03	....	....	....	....	.25	....	....	....	.20	.08	....	T	T	.58	.01	58	.01	....	....	....	....	....	....	....	1.04	..	..	2.58
Earlham	....	....	....	T	....		....	....	1.18	....	..	....	....	.22	T	....	.05	.29	.10	..	T	....	....	....	....	....	....	....	1.00	....	....	2.84
Elkader	....	....	....	.30	....	....	....	....	.32	....	....	....	.05	....	.04	....	....	....	.15	....	.50	....	....	....	....	....	....	.70	....	....	....	2.06
Estherville	....	.90	2.00		....	....	....	....	.40	.10	....	....	.17	T	.80	..	T	..	T	....	.10	....	....	....	....	....	....	....	.42		.04	3.96
Fayette	....		.07	.04	..	....	....	....	1.06	....	....	....	....	....	.03	....	T	..	.03	....	1.12	....	....	..	....	....	....	.52		....	....	3.81
Florence	.04	....	....	....	....	....	....	..	.72	....	....	....	....	....	.03	....	T	....	.12	....	.48	....	....	..	....	....	....	.90	....	....	....	2.29
Forest City	...	.05	.86	.10	....	....	....	....	.63	T	....	....	T	....	T	.	...	T	.03	....	.25	.53	..	....	....	....	....	....	.52			2.97
Fort Dodge	....	T	....	.05	....	..	....	....	1.00	....	....	..	..	....	....	....	.36	.36	.27	.13	.45	.13	....	....	....	....	....	....	4.00	T	T	6.75
Fort Madison		..	....	.55	....	....	....	....		....	....	....	.13	....	.87	....	.36	.05	1.33	1.25			....	....	T	....	....	....	.78	....	....	5.32
Galva	T	..	....	T	....	....	T	....	.94		....	T	....	....	T	....	.37	.09	T	T	.93	....	..	..	....	....	....	.23	....	....	....	2.56
Gilman	T	....	T	....	....	....	....	....	.42	....	....	....	....	....	.14		.18		....	....	.42	T	.12	....	....	....	....	.89	.75	....	..	2.92
Glenwood	....	T	....	....	T	T	....	....	1.75	....	....	..	....	....	T	....		1.00	T	....	.12	....	....	....	T	....	....	T	.35		....	3.22
Grand Meadow	....	....	....	....	....	....	....	....	1.20	....	....	....	.14	....	.18	....	....	....	.10	....	.63	....	....	....	....	....	....	.70	....	....	....	2.95
Greene	....	....	.28	....	....	....	....	....	1.20	..	....	....	..	....	.12	....	....	....	.13	..	.12	....	....	..	....	....	....	.42	.32	....	....	2.59
Greenfield	T	....	.25	....	...		....	....	1.56	..	....	....	..	.20	T	....	T	.25	.35	....	.08	..	....	....	....	....	....	....	1.24	.01	....	3.94
Grinnell (near)	....	....		....	....	.	....		.53	....	....	....	....	....	....	....	T	..	.68	....	.25	....	....	....	....	....	....	.10	1.00	....	....	2.56
Grundy Center	....	..	....	....	..	....	....		.82	....	....	....	....	....	....	..	.15	....	.36	....	.05	....	....	....	....	....	....	.47	.76	....	....	2.61
Guthrie Center	....	..	....	....	....	....	....	.83	....	....	....	....	....	....	....	....	.03	....	.54	...	.28	....	....	....	....	....	....	.42	....	....	T	2.33
Hampton	....	....	.04	....	....		....		.65	....	....	....	....		....	....	....	....	.02		.49	....	....	....	....	....	....	....	....	T	....	1.91
Hanlontown	....	....	.75	....		....	....	....	.65	....	....	....	....	....	T	T	T	.03	.70	....	.15	..	....	....	....	T	....	....	2.23	....	....	4.97
Harlan	....	T	T	.38	....	....	....	....	.43	....	....	....	....	.05		....	....	.84	.53	....	.89	....	....	....	....	....	....	1.24	.42	....	..	3.66
Hopeville	....	.	....	....	....	....	....	....	.90	....	....	....	....	....	....	....	.05	..	.30	..	.75	....										2.28
Humboldt	..	....	....	....	....	....	....	....	1.05		..	..	....	..	T	....	1.00	..	.15	T	.08	....	....	....	....	....	....	1.00	....	..	....	1.80
Ida Grove	T	....			....	....	....	....	.42	....	....	....	T	....	.18	....	.0	....	.10	....	.05	....	....	....	....	....	....		.81	....	....	3.99
Independence	....	....	..	.08	.	..	....	..	1.12	....	....	....	T	.11	T	.	.55	T	.12	....	.81	....	....	....	....	....	..	....	....	....	....	1,99
Indianola	....	....	....	.47	....	.	....		.65	....	....	..	....	....	....	....	..	....	.21	46	....	....	....	....	....	....	....	.03	....	....	.64	3.93
Inwood	....	....	..	....	..	....	....	....	T	.35	....	....	....	....	.14	....	..	....	.03	.46	....	.92	....	....	..	..	....	....	1.63	.40	....	2.14
Iowa City	....	...	....	T	..	....	....	T	.83	T	...	....	T	....	....	....		.07	.14	.15	T	.01							.94	....	....	4.07
Iowa Falls	....	T	....	....	....	....	....	....	1.65	..	....		....	....	.02	....	.18	....	.50	....	.01	....	..	..	....	....	....	1.68	....	.03	....	4 63
Jefferson	..	....	....	....	....	....	....	....	.16	.02	...	T	.05	....	.39	....	.20	.11	1.18	....	.22	.37	....	....	....	....	....	....	.40	....	.08	3.85
Keokuk	....	....	....	1.45	....	....	....	....	....	T	....	....	....	.85	.09	....	....	.06	.26	.69	....	1.00	....	....	..	..	..	..	.55	.07	....	3.61
Keosauqua	....		....	....	.28	....	....	....	.98	....	....	....	....	.18	.01	.20	.18	.42	....	....	.63		....	....	....	....	....	....	.98		....	3.38
Lacona		T	....	.03		....	....	....		....	....	T	....		T	....	20	....	.16	.01	.42	....	....	....	....	....	....	....	1.50	T	T	4.29
Larrabee	T	....	....	....	....	....	....	....	1.09	....	....		....	.70	T	....	....		.35	.81	....	.79	....	....	T	....	....	....	.43	.37	....	5.16
Le Claire	....	..	....	....	.54	....	....	....	....	.80	..	..	....	....	....	....	....	1.00	.28	....	.62		....	....	....	....	....	....	2.17	..	....	4.45
Lenox	....	..	....	..	....	....	..	....	.75	....	....	....	.02	.32	....	.	....		....	....	....	....	....	....	....	....	....	....	1.98	....	....	1.78
Leon		....	....	....	....	....	....	....	.38	....	....	....	....	....	....	....	....	.05	.39	....	.37	..	....	....	....	....	....	....	....	....	....	.99
Little Sioux	....	T	..	.07	....	.02	....	....	.88	....	....	....	....	....	....	....	....	....	.50	....	....	.01	....	....	....	....	....	....	....	....	....	4.47
Logan	....	..	....	.04	....		....	....	.44	....	....	....	....	....	....	....	....	....	.07	.86	1.45	....	....	....	....	....	....	....	.73	.14	....	3.24
Maquoketa	....	....	....	.25	..	....	....	....		.17	....	..	.63	.02	.15	....	....	....	.31	04	....	....	....	....	....	....	....	....	2.00	.02	...	2.10
Marshalltown	....	....	....	.31	....	....	....	....	.53	.03	....	....	....	....	....	....	T	....	T	...	.38	....	....	....	....	....	....	.54		....	....	4 23
Mason City	....	....	.50	....	..	....	....	....	.68	....	....	....	....	....	....	....	....	.80	.21	....	.05	....	....	....	....	....	....	....	1.76	..	....	3.08
Massena		....	....	.15	....		....	....	1.06	....	..	....	.45	..	..	....	....	....	....	....	1.00	....	..	....	....	....	..	.88		..	....	
Monticello	T	....	....	.75	..	....	..	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	T	2.85	....	....	5.87
Montezuma	....		....	....	....	....	....	....	.64	....	....	....	....	.10	....	T	.04	08	1.47	..	.69	....	..	....	..	....	....	....	.99	..	..	5.21
Mount Ayr	....	....	....	....	....	....	....	....	.08	.21	....	....	.15	....	.85	....	..	.36	1.29	..	.70	..	....	....	....	....	....	....	1.32	....	....	4.07
Mt. Pleasant	....	....	....	.58	....	....	T	....	.37	....	....	..	..	....	.07	....	....	..	1.53	....	.66	....	....	....	....	....	....	....	....	..	....	1.84
Mt. Vernon	....	....	....	.12	....	....	....	....	1.05	..	....	....	..	..	.18	....	....	....	.08		.28	..	....	..	....	....	....	....	....	....	....	
New Hampton	....	..	.25	....	....	....	....	..	1.33	....	....	....	....	....	....	....	.42	.08	.04	1.12	....	....	....	....	....	..	..	.13	.13	.04	.01	..	3 36
Odebolt	.03	....	....	....	....	.03	....	..	1.21	....	....	....	....	....	....	....	.24	....	.09	..	....	.	....	....	....	....	....	.04	.92	....	....	2.51
Ogden	....	....	....		....	....	.01	....	.02	....	..	....	.01	..	.34	....	....	....	1.02	....	.85	....	....	....	....	....	....	....	1.10	....	..	3.54
Olin	....	....	....	.20	....		....	..	1.15	....	....	....	....	..	.0	.01	....	.25	1.63	...	.12	....	....	....	T	....	....	.03	.35	T	....	4.45
Omaha, Neb	....	.03	T	.26	....	.60	....	..	.95	....	..	....	....	....	....	.01	.38	....	.67	....	.25	....	....	....	....	....	....	T	....	T	....	2.63
Onawa	....	....	T	.08	..	.29	....	....	1.33	....	....	T	..	....	....	....	T	....	.02	....	.30	....	....	....	....	....	....	.21	.05	....	T	1.91
Osage	....	....	....	....	....	....	....	....	.50	.10	....	....	....	T	T	....	.80	....	.75	.20	1.32	..	....	....	....	T	....	....	1.50	.50	T	5.67
Osceola	....	....	....	....	....	....	....	....	.31	....	....	....	..	....	T	....	.04	.06	.47	....	.34	....	....	....	....	....	....	.01	1.00	..	....	2.36
Oskaloosa	....	....	....	.13	....	....	....	....	.06	....	....	....	....	....	....	....	.67	..	.47	..	1.00	....	....	....	....	....	....	.49	.03	....	....	2.72
Ottumwa	....	....	....	....	....	....	....	....	1.15	....	....	....	....	....	....	.04	....	T	.90	....	.15	....	....	....	T	....	..	T	.73	....	....	3.24
Pacific Junction	....	....	....	.03	....	.15	.09	....	1.60	....	..	....	....	....	T	....	.40	T	.44	T	T	...	....	....	..	..	....	T	1.75	.02	T	4.21
Perry	T	....	....	....	....	....	....	..	.83	..	....	T	....	..	T	....	....	....	.22	....	1.24	....	....	....	....	....	....	2.18	..	....	....	4.47
Plover		....	...	...	...	....	....	..	1.34		....	T	....	..	T	....	.06	...	.52	.13	.91	....	....	....	....	....	....	1.55	.02	....	..	4.53
Pocahontas	T	....	....	T	....	....	....	....	1.00	..	....	....	....	..	....	....			.28	.10	.25	.15	....	....	T	..	....	.67		....	..	2 88
Primghar	.02		.41	....	....	....	....	....	.86	....	....	....	....	..	T	.01	.02	T	35	..	.07	....	..	....	....	....	....	T	.65	....	....	2.03
Red Oak	....	T	....	.05	....	.02	....	....	1.30	....	....	....	....	....	....	....	.01	T	T	..	.17	....	..	....	....	....	....	.50	....	....	T	2.27
Ridgeway	.02	....	.20	.07	....	....	....	....	....	....	....	....	....	T	....	T	....	T	....	..	....	....	....	....	....	....	....	....	..	....	1.75	2.40
Rock Rapids	....	....	....	..	....	....	.65	T	....	....	....	..	....	....	....	....	1.70	...	1.20	....	.50	....	..	....	..	....	....	1.00	....	....	....	5.95
Rockwell City	...	....	...	....	....	...	....	....	1.55	....	....	....	....	..	T	....	.80	....	.81	.06	1.18	....	....	....	....	....	....	.87	....	....	....	5.48
Sac City	.02	....	....	....	....	....	T	....	1.74	....	....	....	....	....	....	....	....	....	.07	.01	.04	.02	....	..	....	....	....	....	.03		T	.66
Sibley	....	....	.04	....	....	....	....	....	.45	....	....	....	....	.20	....	....	.76	.56	.49	....	.64	....	....	....	....	....	....	....	1.32	.01	....	4.83
St. Charles	....	...	....	.35	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	

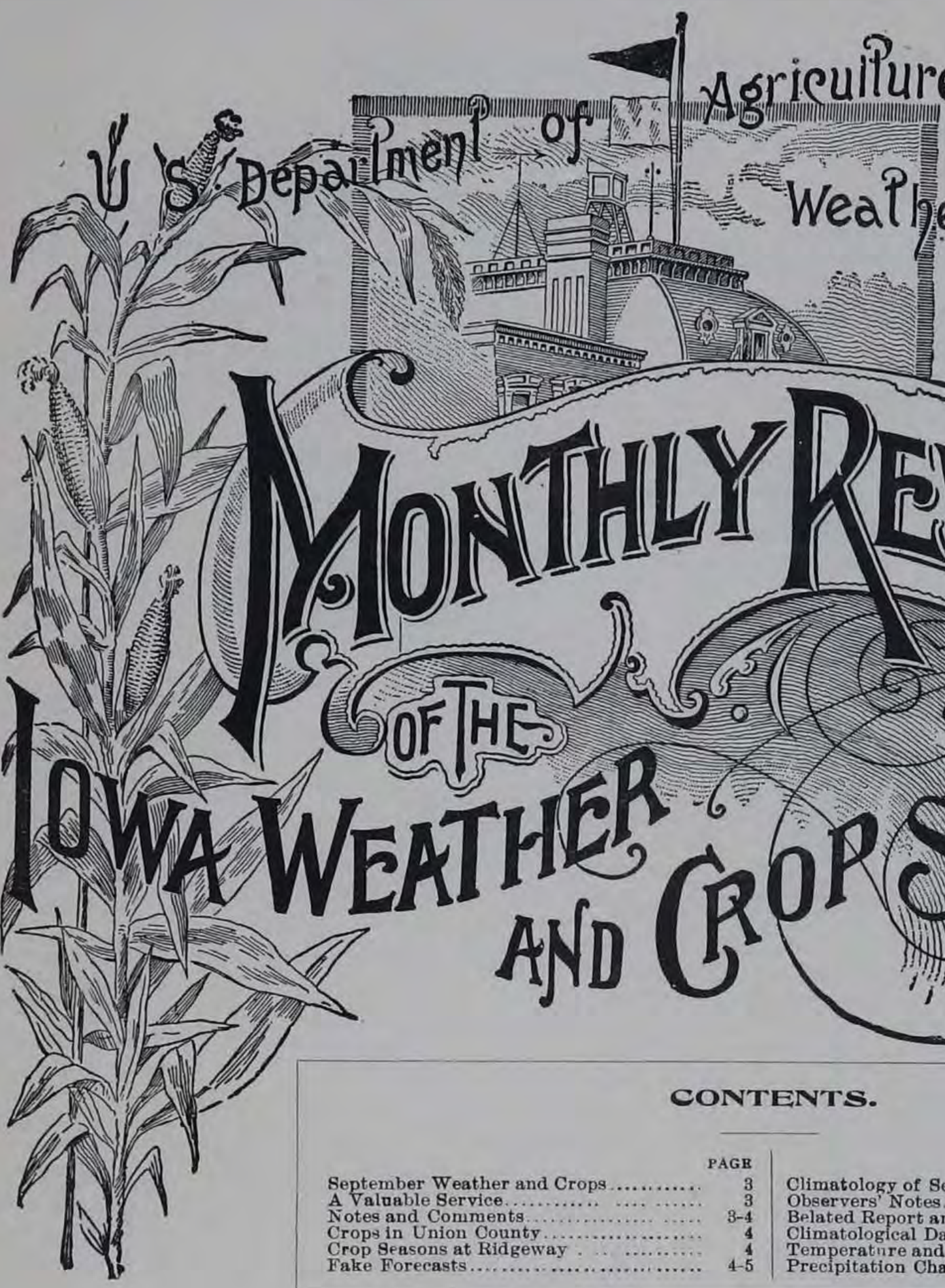
DAILY AND MONTHLY PRECIPITATION FOR AUGUST, 1904--CONTINUED.

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	.04	.02	....	.20	....	..	....	....	1.10	....	....	...	..	....	.01	....	.59	....	.16	.43	.10	....	..	....	....	....		.02	T	.01	....	2.68
Sioux Center	.07	....	....		....	....	....	....	.77	....	....	....			.01	....	....	....	.18	.04	....	....	....	....	....	....	....	.38	....	.01	.01	1.47
Spirit Lake	.19	....	1.13	....	....	....	....	T	.46	....	T	T	T	T	T	....	T	....	T	....	....	....	..	....	..	....	....	1.00	....	T	.30	3.08
Stockport	...		....	.49	..	....	....		T	..	....	....	T	....	..	...	T	.06	1.47	.02	.47	.37		....	T	....	....	T	.77	.02	...	3.67
Storm Lake	...	.03	...	...	..		....	....	1.50	....	...	..	....	....	...	..	.30	89	.10	...	1.12	.04	....	....	....	....	....	..	1.13	.0	T	5.16
Stuart	....	....		....	....	....	....	....	2.25	....		..		.09	....	....	.06		.31	..	....	....	....		....	....	....	.73	....	.02	..	3.48
Thurman	....	T	T	.25	....	.10	.05	....	.85	..	..	..	....		.2.	.10	....	.28	.32	....	.38	....	....	....	T	....	....	T	.85	....	..	3.38
Tipton	.	....	..		....			....	.25		....	....	....	....	.17	....	....	....	.62	....	.53	.22	..	....		....	....		1.27	...		3.06
Toledo	....	....	..	.10	....	..	....		.40	...	....	..	....	..	.10	....	.15	....	.50	....	.10	....		....		....	....		1.65		...	3.00
Vinton	..	...	....	.05	....	....	....	....	.43	..		..	....			....	....	....	.58	....	.12	..	....	....	....	....	....	.09	1.14	....	T	2.41
Wapello	....	....	..	.06	..	....		....	.55	....	....	....	.41	....	.20	....	....	.16	2.51	....	.42	.22	....	....	....	....	....	1.61	.26	..	..	6.40
Washington	....	....	....	.08		....	....	...	....		..	....	....	..	.28	....	.20	....	1.12		1.18	..	..	..	.06	....	....		1.47	....	....	4.39
Washta	T		T		...	..	T	....	.30		....	..		....	T	..	T	T	....	.16	.76	....	..	..		....	....	.20	T	T	....	1.42
Waterloo	....	....	.02	.65	..	...	....	....	92	....		..	.02	....			....	....	.07	...	.09	....	....	....	....	....	....	.32	.84	....		2.93
Waukee	....	....	..	.15	....		..	....	1.20	....	....	....	....	....	T	....	.65	...	.25	....	.02	....	..	....	....	..	....	....	.98	T		3.25
Waverly	....	....		.05	....	....	....	....	1.16	....	....		....		.02	....	.02		.03	....	.11	..		....	..	....	....	.38	.65		....	2.42
West Bend	.03	..	....	....	....	....	....	T	.85	....	..	T		....	..	....		..	.17	....	.32	.17	...	....	....	..	....	1.63	.01	T	....	3.18
Whitten	..	....	....			....	....		1.00	T	....		....	....	....	....	.24	.03	.27	....	....	....			....	....	....	.40	1.30	....	..	3.24
Wilton Junction	....	....	....	.10	....		....	....	.53	....	....	....	....	....	.42	....		..	.68	....	1.80	....	....	....	....	....	....	....	1.62	...	..	5.15
Winterset	....	....	.	....	....	....	....	....	1.35	..	....	....	....	.23	....	..	.26	.38	.05	....	.05	..	...		....	....	....	....	....		...	2.80
Woodburn	..	..	..	...	....	....	....	....	.75	....	....	....	....	.04	....	....	.16	.51	.28	....	1.00	....		....	....	....	....	....	1.58	....	..	4.33
Zearing	...	....	....	....	..	..	....	....	.96	....	..	....	....	....	T	....	.26	.	.19	....	....	....	....			....	....	.80	1.27		....	3.48

Precipitation Chart August 1904.



SEPTEMBER, 1904 No. 9



MONTHLY REVIEW

OF THE

IOWA WEATHER AND CROP SERVICE

CONTENTS.

CENTRAL STATION, DES MOINES, IOWA.

J. R. SAGE,
DIRECTOR.

GEO. M. CHAPPEL,
LOCAL FORECASTER,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

THE IOWA WEATHER AND CROP SERVICE

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

STATE BOARD OF AGRICULTURE,

CONSTITUTED AS FOLLOWS:

OFFICERS.

W. W. MORROW, PRESIDENT, Afton.
C. E. CAMERON, VICE-PRESIDENT, Alta.
G. D. ELLYSON, TREASURER, Des Moines.
JOHN C. SIMPSON, SECRETARY, Des Moines.

EX-OFFICIO DIRECTORS.

ALBERT B. CUMMINS, Governor of Iowa.
H. R. WRIGHT, Dairy Commissioner.
DR. J. I. GIBSON, State Veterinarian.

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Second District—C. W. PHILLIPS, Maquoketa.
Third District—W. C. BROWN, Clarion.
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Fifth District—S. B. PACKARD, Marshalltown.
Sixth District—T. C. LEGOE, What Cheer.
Seventh District—M. J. WRAGG, Waukee.
Eighth District—JOHN LEDGERWOOD, Leon.
Ninth District—M. McDONALD, Bayard.
Tenth District—J. W. WADSWORTH, Algona.
Eleventh District—H. L. PIKE, Whiting.

METEOROLOGICAL STATIONS AND OBSERVERS.

From the following, weekly and monthly reports of Metorological data are received by the Iowa Weather and Crop Service.

Afton	Hon. N. W. Rowell
Albia	E. R. Reeve
Algona	Dr. F. T. Seeley
Allerton	Rex Shriver
Alta	D. E. Hadden
Alta (near)	W. J. Minard
Amana	Conrad Schadt
Ames	Exp. Station
Atlantic	J. W. Love
Audubon	Geo. E. Kellogg
Baxter	W. T. Thorp
Bedford	E. E. Healy
Belknap	A. W. Rankin
Belle Plaine	S. P. Vandike
Bonaparte	Hon. B. R. Vale
Britt	G. P. Hardwick
Buckingham (Traer P. O.)	Dr. W. A. Daniel
Burlington	I. S Shontz
Carroll	Moses Simon
Cedar Rapids	Electric Light and Power Co.
Chariton	C. C. Burr
Charles City	C. H. Priebe
Clarinda	A S. Van Sandt
Clear Lake	E. C. Schrader
Clinton	Luke Roberts
College Springs	A. M. Finley
Columbus Junction	J. B. Johnston
Corning	Jerome Smith
Corydon	Miss May Miller
Cresco	R. H. Doolittle
Cumberland	Agent C., B. & Q. R'y
Davenport	*J. M. Sherier
Delaware	Wm. Ball
Decorah	F. H. Baker
Denison	Prof. W. C. Van Ness
Des Moines	*Geo. M. Chappel
De Soto	R. D. Minard
Dows	A. C. Fuller
Dubuque	*Orin Parker
Earlham, R. F. D.	Geo. Phillips
Eldon	T. Madden
Elkader	Chas. Reinecke
Estherville	Earle W. Peterson
Fayette	R. Z. Latimer
Florence (Clarion P. O.)	H. Du Bois
Forest City	J. A. Peters
Fort Dodge	Tobin College
Ft. Madison	Miss L. A. McCready
Galva	C. E. B. Roberts
Gilman	Jas. L. Wylie
Glenwood	J. P. Jackson
Grand Meadow (Postville P.O.)	F. L. Williams
Greene	J. L. Cole
Greenfield	J. G. Culver
Grinnell	Prof. J. S. Buck
Grinnell (near)	A. O. Price
Grundy Center	Ed King
Guthrie Center	D. G. Beardsley
Hampton	E. C. Grenelle
Hanlontown	Miss G. M. Paschen
Harlan	C. A. Reynolds
Hopeville	M. T. Ashley
Humboldt	H. S. Wells
Ida Grove	J. E. Conn
Independence	E. F. Wulfke
Indianola	Prof. J. L. Tilton
Inwood	Geo. M. Larsen
Iowa City	Prof. A. A. Veblen
Iowa Falls	J. B. Parmelee
Jefferson	Isaac Young
Keokuk	*Fred Z. Gosewisch
Keosauqua	Prof. J. A. Landes
Knoxville	Casey & Belville
Lacona	Agent C., B. & Q. R'y
Larrabee	H B. Strever
Lenox	J. L. Hurley
Le Mars	Dr. T. E Cole
Leon	Millard F. Stookey
Little Sioux	G. H. Gibson
Logan	Mrs. M. B. Stern
Maquoketa	Frank W. Keeney
Marshalltown	Branch S. Jones
Mason City	J. S. Mills
Massena	Fred. T Knott
Montezuma	C. J Griffin
Monticello	C. E. Heisey
Mount Vernon	Rev. J. W. Hubbard
Mt. Ayr	A. F. Beard
Mt. Pleasant	Prof. J. W. Edwards
New Hampton	A. F. Kemman
Newton	Hon. J. P. Beatty
Northwood	Dr. E R. Young
Odebolt	E. Starner
Ogden	C. L. Zollinger
Olin	Hon. Nathan Potter
Omaha, Neb	*L. A. Welsh
Onawa	C G. Perkins
Osage	G. D Pattingill
Osceola	Mrs. S. Lewis
Oskaloosa	Jos. Boyd
Ottumwa	Dr W. B. La Force
Pacific Junction	Agent C., B & Q. R'y
Pella	L. L. Davenport
Perry	J. A. Harvey
Plover	J. S Smith
Pocahontas	F. E. Hronek
Primghar	Jasper N. Marsh
Red Oak	J. S. Cole
Ridgeway	Arthur Betts
Rock Rapids	W. C. Wyckoff
Rockwell City	C. M. Randall
Ruthven	F M. Fitzgerald
Sac City	J. A. Sodestrom
St. Charles	C. W. Minard
Sheldon	Dr. A. W. Beach
Sibley	H. G Doolittle
Sigourney	Mrs. R. F. Ashbaugh
Sioux Center	Jacob de Ruyter
Sioux City	*U. G Pur-sell
Spencer	S. Gillespie
Spirit Lake	W. C. Drummond
Stockport	C. L. Beswick
Storm Lake	L. E. Burdick
Stuart	Hon John Herriott
Thurman	C. R. Paul
Tipton	F. K. Gregg
Toledo	Herbert Giger
Vinton	H G. Haines
Villisca	C. E. Matteson
Wapello	Geo. W. Schofield
Washington	Wm. A. Cook
Washta	H L. Felter
Waterloo	M. L. Newton
Waukee	E. J. Leonard
Waverly	H S Hoover
What Cheer	R. S. Alexander
Whitten	Dr. Frank P. Butler
Wilton Junction	J. M. Rider
Winterset	B. L. Sprinkle
West Bend	Phil Dorweiler
Woodburn	C. B. McDonough
Zearing	H. E. Burkhart

*U. S. Weather Bureau.

WEATHER-CROP OBSERVERS.

Reporting for the Weekly Bulletin.

Agency	J. H. Van Zandt
Albia	Wm. Mercer
Allerton	James Piper
Alta	Jonas Cushman
Audubon	A. H. Edwards
Blairstown	T. H. Weil
Burt	R. Jain
Cedar Rapids	Hon. A. J. Fuhrmeister
Centerville	Jacob Harter
Charles City	W. B. Towner
Clarksville	F. M. Russell
Correctionville	Hon. W. B. Chapman
Creston	M. V. Ashby
Danville	Sherman Matthews
Dunlap	Hon. B. F. Roberts
Emerson	D. B. Nims
Fort Dodge	R. W. Blaine
Fruitland	R. T. Hummel
Goldfield	D. M. Stephens
Geneva	Wm. H. Thompson
Hartford	H. E. Slack
Hartwick	Fred McCulloch
Harlan	H. B. Kees
Hesper	G. E. Dillingham
Humeston	Hon. S. H. Moore
Independence	Geo. H. Wilson
Indianola	H. D. Guthrie
Ireton	J. M. Sherman
Lake City	C. B. Hamilton
Le Mars	Hon. Henry Schrooten
Long Grove	Hon. Chris Marti
Manson	J. D. Skinner
Marshalltown	Hon. S B. Packard
Mt. Pleasant	W S. Wright
Milton	Hon. E. C. Holland
Monroe	J. A. Dibel
Nevada	Geo. C. White
Northwood	T. L. Bolton
Orange City	H. J. Vande Waa
Pella	J. H. Ver Steeg
Pittsburg	G. C. Duffield
Portland (Nora Springs, P. O.)	Arthur Pickford
Platte (Creston R. D.)	M. H. Dibel
Red Oak	Hon. C. L. Stratton
Rock Rapids	D E. F. Merrill
Seymour	L. B. Sager
Shenandoah	Reuben Mullison
State Center	E. P. Thompson
Stuart	W. W. Bailey
Toledo	W. G. Malin
Van Horne	Spencer Smith
Waukon R. D	T. B. Wiley
Weldon	Ed Worden
Winterset	H A. Kinsman
West Branch	Wrigley Smith
West Union	A. B. Blackman
Wilton	Thos. Boot
Wiota	I. S. Coomes
Woodward	George Swisher

U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

VOLUME XV. SEPTEMBER, 1904. No. 9.

SEPTEMBER WEATHER AND CROPS.

The average temperature of September was about normal for the state, the southern and central sections showing an excess, and the northern section a small deficiency. The coldest period was from about the 11th to the 22d. The average rainfall for the state was 2.78 inches, which amount is about 0.52 of an inch below the normal for September. In its distribution there was much inequality, ranging from less than a tenth of an inch at one station in the northwest to over eight inches in the southeast district. The southeast and northeast districts received the heaviest rainfall. The week ending September 12th was normal in temperature and sunshine, with very light rainfall, and generally favorable conditions for ripening the belated corn crop, a considerable portion of which was well dented with husks and blades putting on the brown shade of autumn. The week ending the 19th brought several days of good ripening weather, but much anxiety for the safety of the immature portion of the corn crop was caused by the occurrence of light to heavy frosts on the mornings of the 12th, 14th and 15th, the cold wave extending to all districts in the state. A few stations also reported frost on the 21st. The lowest temperature recorded was 30° at four stations. The observed effects proved that the frosts were not "killing," and that the damage to the corn crop was limited to late planted fields in the bottom lands of the central valleys of the state. Broadly stated, the actual damage by frost affected less than one-fourth of the area planted, and the shrinkage of the frosted portion of the crop was probably less than 20 per cent. This would indicate possible loss of 5 per cent of the crop for the state, as the direct result of frost. The cold weather of that period, however, retarded the development of the crop, and made it desirable to extend the ripening weather beyond the 1st of October. During the month good progress was made in the usual farm operations, such as plowing, seeding fall wheat and rye, harvesting potatoes, apples and millet, and threshing small grain. The yield of potatoes and fall apples has been very satisfactory. The grape crop is heavy, and there has been a good yield of plums. The growth of all kinds of garden truck has been unusually heavy. The pastures have been much better than usual for September. At the close of the month it was estimated that ninety per cent of the corn crop was practically safe, giving promise of more than the average output of merchantable corn.

A VALUABLE SERVICE.

That the government climate and crop service as conducted under the auspices of the weather bureau of the United States Department of Agriculture is playing an important part in the economic conditions of the farmer is forcibly called to mind in the review of the annual Iowa report for the year 1903 as it has been issued by the director of the Iowa bureau at Des Moines. It is interesting to note that during the year there were issued 10,000 copies of the 1902 report, 32,000 monthly reviews, 70,000 weekly climate and crop bulletins, not to mention an appendix of 185 pages in connection with the annual report. This shows the magnitude of the service in one state from the standpoint of printed matter distributed.

Fortunately, in Iowa, the state and the federal goverments have been enabled to unite their forces, thus insuring better results to the farmer by virtue of this consolidated service. It is interesting to note that at the end of the fiscal year ending June 30, 1904, there were 50,000 rural patrons of telephones in Iowa who were daily receiving the benefit of the climate and crop service. In addition to these there were 7,000 farmers getting the reports from the bureau through the mails direct, not to mention the tens of thousands who had the information placed before them through the agency of the daily press.

The Iowa service has six regularly equipped stations in different portions of the state, from which accurate information regarding climatic changes is always available. In addition to this there are 132 correspondents in various portions of Iowa who are in close touch with local conditions and report weekly their observations to the main office at Des Moines, from which the officials of the service are enabled to summarize the important details in making up their weekly crop reports.

Every year farmers are learning the value of this service. With the advent of the telephone and the rural mail their value to the man in the country is to be rapidly enhanced until the time is here when no progressive farmer will be without daily, and, if necessary, hourly information relative to possible climatic changes.—*Chicago Drovers Journal.*

NOTES AND COMENTS.

According to a recent report of the U. S. consul at Halifax, the province of Nova Scotia has been scorched by one of the worst droughts in its history, the most disastrous effects being suffered in the eastern portion. It will cause much privation, and possible hunger.

Macaroni wheat escaped rust in the Dacotas, and this fact is likely to enlarge the area of that grain in future years. If good bread may be made of the flour, its rust-resisting quality will insure its commercial value.

In a flash of lightning the air is simply heated momentarily to the point of incandescence along the path of the discharge. This is the accepted scientific theory as to the nature of the electric spark or flash.

The moon affects the tides and is an aid to courting but, she has not a thing to do with the weaning of babies and calves or the planting of potatoes.—*J. S. Trigg.*

If the fertilization of the soil is the main thing sought, try mammoth clover, plowing the whole thing under the second year. It is the cheapest method of renovating a wornout field there is to be found.—*J. S. Trigg.*

The brief summer season of the north country is a miracle worker. Out of the long winter paralysis, the snow banks, the chill and dilatory spring, with May frosts and snowstorms, the grip of the cold is broken at last, and heat, moisture, electricity and seventeen hours of sunshine get in their work. Grain, fruit and flower then go on a wild sixty mile an hour race, and the garden of Eden replaces the arctic winter waste. Such wheat, such oats, such flax, such potatoes and garden truck, and life on the farm one mad rush to save and gather the abundance before the geese start south and the praties freeze in the ground! Three months of heaven to offset nine months of purgatory! The Finn, the Russian and the Norseman take kindly to these conditions.—*J. S Trigg.*

WEATHER AND CROPS IN UNION COUNTY.

The close of this year of crop reports finds us with clear skies and warm air. This has been a whole season of anxie y as to the outcome of our crops. Today finds our corn crop ripening except the belated plantings, and even this is turning color in husk and blade, and with present indications is likely in this part of the state to make corn. Taking it altogether we have an average crop for ten years. Hay not so good as last year, but oats equally as good. Potatoes much better, and, corn very much better; and during all the year pastures have been fine. The rainfall last year, from May to September, inclusive, was 37.43 inches, while this year it was only 19.01 inches; and yet for the farmer this has been as wet a season as last. This is from the fact that we had frequent rains, and some quite heavy. We have had no great downpour at any one time. In May last year we had 11.90 inches while this year we had 4.20. In August, 1903, we had 12 34; this year, 4.66 inches. This excess for 1903 is from two great rains, one in May and one in August. The average temperature has been lower this year than last. With the promise of high p ices for farm products (except meats) the farmers are quite as well off as they have been in the best seasons.

N. W. Rowell,
Vol. Observer.

Afton, Iowa, October 1, 1904.

CROP SEASONS AT RIDGEWAY.

Observer Arthur Betts, of Ridgeway, Winneshiek county, has tabulated meteorological data for the crop season—April 1st, to October 1st, for seven years. The figures below show the mean temperature in degrees, precipitation in inches, and total hours of sunshine for the six months period in the years named:

YEAR.	Mean Temperature.	Precipitation.	Sunshine.
1898	67.7	13.59	1,657
1899	66.8	19.70	1,561
1900	69 4	23 43	1,715
1901	69 8	20.47	1,704
1902	66.0	30.86	1,378
1003	66.4	25 04	1,436
1904	67.1	18.45	1,584
Average	67.6	21.65	1,562

FAKE FORECASTS.

In ordinary mercantile business it is quite a common experience for the manufacturer of a good article that is rapidly growing in popular favor to find counterfeits or infringements on his patent springing up like mushrooms, and sometimes offering very serious and illegitimate rivalry. The Weather Bureau has gone through a very similar experience. In 1870 there were, we believe, no long-range forecasters known to the country, except the ordinary farmers' almanacs, and we doubt whether any but the most credulous placed any faith in them. I have often told of the confession of one of these almanac weather makers, who with a twinkle in his eye said that after the proper astronomical part of the almanac was completed, and when he was in the spirit for writing up the weather, he would sit down and make it up for a year ahead, or so long as he felt in the mood. He fully understood that some people can be gulled sometimes, but we all know that we can not fool all the people all the time. So far as we recall the names of those who have distinguished themselves for making popular weather predictions based on principles that are contrary to all our knowledge of meteorology, the list runs somewhat as follows: Venor, 1875–1890; Hicks, 1890 to date; Dunne, 1892 to date; Foster, 1885 to date; Elmer, 1903 to date; Snavely, 1902–1904.

While these have been active in the United States, the rest of the world has also had its varied experiences. In England, Mr. Hugh Clements and his great expounder, Hon. William Digby, have vexed the printer with an imposing volume and the public with daily predictions in the local newspapers. These authors speak as confidently about the moon as Rev. Mr. Hicks does about Vulcan, Jupiter and the other planets, real and imaginary. Italy and Austria have gone through a sad experience with vortex-ring cannons for driving away hail. Russia has enjoyed the gratuitous services of Demtschinsky and his predictions based upon the moon.

In general, it would seem that weather predic ion and long-range forecasts are so greatly desired that everyone is willing to give a man a fair show. The wonder is that the indefinite utterances of these oracles can be accepted as forecasts, or that their flat failure when they do not become definite should not have consigned them to oblivion. Recall, for instance, the sad work of Falb, who in 1895 predicted terrible earthquakes and storms, possibly indicating the approaching end of the world, thereby frightening the whole of Spanish America, so that no work could be done for weeks and the whole community was thrown into a hopeless state of panic. Recall the prediction made about 1880 of an awful storm that would scourge the Gulf and South Atlantic States. Many of the intelligent inhabitants and nine tenths of the less intelligent were frightened by the prediction, and allowed it to entirely alter their ordinary lives and business.

Who was it that in 1901 started a newspaper paragraph, purporting to come from some responsible person, predicting a hurricane for the coast of New Jersey on a certain date? So great was the anxiety that it was necessary for the Secretary of Agriculture to issue a counteracting telegram showing that the original was certainly a fake. A community even of the most intelligent, cool-headed people is likely to be carried off its feet by enthusiasm for some hero, or by a mania for some financial scheme, or to be stampeded by fright. Emotions are contagious, and it is necessary for a community to protect itself against injurious popular movements, just as it would protect itself against injurious contagious diseases. Freedom of individual action is the ideal on which we have built up our republic; but when that freedom of action threatens the existence of the republic it must be restrained, moderately, if you will, and wisely, but still sufficiently to protect the public from danger. We would not for a moment countenance the publication of numerous nautical almanacs differing considerably in the pre-

diction of exact positions of the sun, moon, and stars, because we know that only one of these can be right, and that the others would certainly lead to errors in navigation that would endanger the lives of thousands of persons. The community does not allow either druggists or physicians to operate without first giving satisfactory evidence that they are competent to handle the drugs that they deal in. Every state has its laws relative to the licensing of steam engineers, since a steam engine in incompetent hands would be a menace to the lives of many.

Wherever the life and property of the citizens are at stake, the government of the people, by the people, and for the people, must necessarily look after their interests, and the time must soon come when a general law will forbid the publication of weather predictions and storm warnings, especially those of a sensational character, by any others than properly licensed persons.—*U. S. Monthly Weather Review.*

CLIMATOLOGY OF THE MONTH.

BAROMETER.—Mean pressure, 30.04 inches; highest observed, 30.55 inches at Dubuque on the 21st; lowest observed, 29.71 inches at Sioux City on the 28th; range for state, 0.84 inches.

TEMPERATURE.—The monthly mean temperature for the state, as shown by the records of 114 stations, was 64.0°, which is 0.4° above normal. By sections the mean temperature was as follows: Northern section, 61.8°, which is 0.5° below normal; central section, 64.3°, which is 1.1° above normal; southern section, 65.6°, which is 0.2° above normal. The highest monthly mean was 68.6° at Belknap; lowest monthly mean, 59.0° at Sibley. The highest temperature reported was 94° at Wilton Junction on the 11th; lowest temperature reported, 30° at Atlantic, Earlham, Hanlontown and Rock Rapids on the 14th, 15th and 21st. The average monthly maximum was 88.9°; average monthly minimum, 34.7°. Greatest daily range, 54° at Estherville; average of greatest daily range, 36.5°.

PRECIPITATION.—Average precipitation for the state, as shown by the records of 122 stations, was 2.78 inches, which is 0.52 of an inch below normal. The averages by sections were as follows: Northern section, 2.67 inches, which is .74 inch below normal; central section, 2.13 inches, which is 1.13 inches below normal; southern section, 3.53 inches, which is 0.28 inch above normal. The largest amount reported was 8.33 inches at Keokuk; least amount reported, .09 of an inch at Ida Grove. The greatest daily rainfall reported was 3.01 inches at Keokuk on the 18th and 19th. Average number of days on which .01 of an inch or more was reported, 7.

WIND AND WEATHER.—Prevailing direction of the wind, south and southwest; highest velocity reported, 39 miles per hour from the northwest at Sioux City on the 1st. Average number of clear days, 13; partly cloudy, 8; cloudy 9.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES.			
		Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	30.03	30.46	21	29.74	17
Des Moines	30.07	30.49	21	29.72	1
Dubuque	30.05	30.55	21	29.72	17
Omaha, Neb	30.03	30.43	21	29.65	17
Keokuk	30.01	30.42	2	29.77	17
Sioux City	30.05	30.45	21	29.71	28
Means	30.04	30.55	21	29.71	28

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	4.848	24	NE	25
Des Moines	5.855	35	NE	19
Dubuque	4.791	28	N	25
Keokuk	5.136	30	W	2
La Crosse, Wis	5.309	32	NW	1
Omaha, Neb	5.761	37	SW	24
Sioux City	8 324	39	NW	1

OBSERVERS' NOTES.

AFTON.—*N. W. Rowell.* A month of great anxiety to all; we have alternated between hope and fear as sunshine and shadows came and went. But a kind Providence has so tempered the winds that no blighting frost has fallen. Our corn crop is secure and our pastures green, with ripe fruit upon tree and vine. Let us give thanks.

ALTA.—*David E. Hadden.* The mean temperature for September was about 1° below the normal; no killing frost occurred during the month.

AMANA.—*C Schadt.* Weather favorable for maturing corn; no real killing frost; only about 5 per cent lost by late planting from effect of frost on the 15th on low ground; grapes, plums and apples abundant.

AMES.—*Thos. S. Hunt.* Corn is now well out of danger.

ATLANTIC.—*J. W. Lovell.* A moderately warm September; first ice formed on 14th; corn is nearly all safe.

BONAPARTE.—*B. R. Vale.* Rain 6.73 inches; too wet for farm work or the good of the corn; subsoil full of water; pasture good.

BRITT.—*Geo. P. Hardwick* Frost damaged corn on low lands and slightly on high lands; injured about 35 per cent. Thunder and windstorm on the 28th damaged corn and light buildings.

CHARITON.—*C. C. Burr.* Month passed without a killing frost; on 15th frost did some harm to corn on low land; some corn yet needs ten days to ripen; pastures better than average.

CLINTON. *Luke Roberts.* Mean temperature 2° above normal; rainfall .55 of an inch below normal; per cent of cloudiness, 50; frost affected corn only in places and but slightly; crop as good as in 1903, possibly better.

DECORAH.—*F. H. Baker.* There was a light frost on 15th.

EARLHAM.—*Geo. Phillips.* Month closed with no damage by frost; corn now safe except very late planted.

CLARION.—*J. H. DuBois.* Frost on 15th killed leaves of tender vines; apple, plum and potato crop very large.

FOREST CITY.—*J. A. Peters.* No killing frost in September; frost on the 15th damaged corn only on low land and creek bottoms; ground in good condition for plowing.

GRAND MEADOW.—*F. L. Williams.* There being no killing frost was favorable to corn; corn cutting well advanced, and fall work well along.

GREENFIELD.—*J. G. Culver.* No frost sufficient to injure vegetation except in few places on lowest bottoms; very little damage to corn.

GRINNELL.—*A. O. Price.* No serious damage by frost; large amount of corn cut; plowing well advanced.

GRUNDY CENTER.—*E. S. King.* A variable month; corn practically safe; potatoes yield 200 to 300 bushels per acre.

HOPEVILLE.—*M. L. Ashley.* Eighty per cent of corn safe at close of month; late fields need 10 to 15 days of good weather.

INWOOD.—*G. M. Larsen.* Month favorable for corn, and crop will be heavy; pastures good.

KEOSAUQUA.—*J. H. Landes*. Five rainstorms, each attended with fierce electric disturbance, causing loss of stock and buildings in different parts of the county.

LARRABEE —*H. B. Strever*. Corn touched by frost on low lands on 21st; bulk of crop safe at end of month.

LOGAN.—*Mrs. M. B. Stern*. Frost on 15th killed very tender precipitation, but did not do much injury to corn.

MT. VERNON.—*J. W. Hubbard*. Season closes favorably; small grains and root crops good; corn crop large, with an unusual per centage of soft ears.

OLIN.—*Nathan Potter*. A fine month; frost damaged corn on low land; apple and po ato crops large.

RIDGEWAY.—*Arthur Betts*. Warmest September since 1898; sunshine 262 hours; on night of 5th nine fires were kindled by lightning in sight of this station. Hail on 17th, and hailstones averaged size of plums.

WAUKEE.—*E. J. Leonard*. Month free from heavy storms; some corn frosted on low lands, but bulk of crop is now safe.

WAVERLY.—*H. S. Hoover*. Upland corn untouched by frost; last ten days worked wonders in ripening corn.

WHITTEN.—*Frank P. Butler*. Frost did but little damage and corn is now practically safe.

BELATED REPORT.

BELKNAP—*August*. Mean temperature 71.8°; highest 91° on the 13th; lowest 50° on the 9th; greatest daily range 26°; total precipitation 4.25 inches; greatest in 24 hours 1.80 inches; number of clear days 25, partly cloudy 2, cloudy 4, rainy 5; prevailing direction, south.

ERRATA IN AUGUST REVIEW.

MASSENA.—Minimum temperature recorded 43° on the 8th, page 7, should have been 40° on the 26th. Total precipitation recorded 4.23 inches on page 7, should have been 4.03 inches.

WILTON JUNCTION.—Maximum temperature recorded on the 12th, page 8, should have been on the 12th and 13th.

LOGAN.—Maximum temperature recorded on the 14th and 15th, page 8, should have been on the 14th.

OSAGE.—Maximum and minimum temperature on the 1st, page 10, omitted, should have been 75 and 54 respectively. Maximum temperature recorded 89° on the 12th, page 7, should have been 90° on the 24th.

CLIMATOLOGICAL DATA FOR SEPTEMBER, 1904.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	PRECIP., IN INCHES. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).	Number rainy days	SKY. Number clear days.	Number partly cloudy days.	Number cloudy days.	Prevailing direction of wind.	DATES OF THUNDER STORMS.
Algona	Kossuth	1,213	28	61.6	-0.9	86	28	35	15,21	34	2.07	-1.09	.81	....	6	11	10	9	S	1
Alta	Buena Vista	1,513	11	61.4	-1.8	87	9	36	15,21	36	1.17	-1.60	.61	....	4	1	13	5	S	1, 10, 27, 28
Alta (near)	Buena Vista	.....	....	...	...	...	.....	.....	.....	.....	1.69	.....	.68	...	5	...	....	..	.....	.....
Britt	Hancock	1,236	5	61.4	-0.2	87	28	33	5	35	3.19	- .86	1.22	....	8	8	16	6	SW, NW	1, 6, 10, 25, 28
Charles City	Floyd	1,012	11	60.6	-2.1	88	28	33	15	41	3.31	† .44	1.11	....	6	12	2	16	SE	2, 6, 11, 29
Clear Lake	Cerro Gordo	1,241	...	62.8	....	89	28	39	21	32	2.05	...	.75	....	6	12	12	6	SE	
Cresco	Howard	.....	....	60.4	-1.2	87	17	33	18	37	4.95	†1.26	1.10	....	6	6	23	1	NW	
Decorah	Winneshiek	857	..	61.9	† 0	83	10, 17, 23	34	15	34	5.44	†2.00	1.76	..	7	...	.	.	.....	
Dows	Wright	1,142	....	62.4	†0.8	87	28	34	15	35	4.60	† .3	1.75	....	8	14	5	11	S, W	1, 10
Elkader	Clayton	727	21	64.5	†2.5	93	28	32	15	47	4.39	† .57	2.00	....	6	18	10	2	SE	1, 6, 13, 17, 19, 25, 28
Estherville	Emmet	1,298	7	60.4	-0.5	92	18	31	2.	51	1.35	-1.75	.68	....	7	11	3	16	NW	
Florence	Wright	1,226	8	.....	.....	.....	.....	.....	.....	.....	3.69	.....	1.28	....	9	3	24	3	SW	1, 5, 28
Forest City	Winnebago	1,226	8	60.8	-1.5	90	28	34	15	43	1.77	-2.05	.70	....	7	11	4	15	S, W	
Grand Meadow	Clayton	1,180	11	62.4	†0.7	85	28	36	14	32	6.09	†2.92	2.50	....	7	12	5	13	SW	1
Greene	Butler	924	5	62.7	-1.4	88	28	34	15	39	3.30	† .05	1.10	...	8	6	7	17	W	
Hampton	Franklin	1,155	12	64.2	†1.9	91	28	37	15	36	4.24	† .74	2.20	....	8	5	19	6	NW	1, 10, 28
Hanlontown	Worth	.....	....	60.9	.....	8.	28	30	15	41	1.55	.	.45	....	9	15	8	7	SE	1, 25, 28
Humboldt	Humboldt	1,095	10	63.2	†0.9	87	28	37	15	32	2.00	-1.44	.70	....	6	13	6	11	SW	1
Inwood	Lyon	.....	....	60.5	.....	90	9	34	21	37	.41	.....	.30	....	2	18	5	7	S	
Larrabee	Cherokee	1,366	11	62.0	-1.1	89	9	35	21	40	.97	-1.91	.59		5	11	12	7	SW	1, 27, 28
LeMars	Plymouth	1,224	6	62.0	-0.9	91	9	35	21	40	.85	-2.34	.85	..	1	14	8	8	S	
Mason City	Cerro Gordo	1,132	.	62.6	-0.4	87	28	37	15	34	2.55	† .70	.74	....	8	7	13	10	NW	1, 2, 11, 25 28
New Hampton	Chickasaw	1,169	..	60.2	-2.4	87	28	32	15	36	2.75	†1.00	1.27	....	7	11	8	11	S	28
Osage	Mitchell	1,184	11	61.1	†1.7	85	17, 28	34	15	36	4.16	† .66	1.93	..	10		9	13	S	
Pocahontas	Pocahontas	.....		63.2	.....	83	28	37	21	33	1.76	.	.69		5	13	9	8	SW	1, 13
Plover (a)	Pocahontas	1,190	5	62.2	-1.2	88	28	34	15	38	4.33	† .32	2.04	...	6	16	6	8	.....	1, 5, 11, 17
Ridgeway	Winneshiek	1,215	....	63.7	†1.5	90	17	38	15	36	5.16	†1.03	1.21	....	11	13	16	1	S	1 5, 6, 11, 17 19, 25, 28
Rock Rapids	Lyon	1,021	....	60.1	-2.9	88	9, 17	30	21	44	.60	-1.70	.60	....	1		....	..	.....	
Sheldon	O'Brien	1,422	....	62.4	† 0	92	9	32	21	38	1.53	.	1.25	...	6	16	9	5	S	1, 18,
Sibley	Osceola	1,512	....	59.0	-2.2	89	9	31	21	52	2.70	- .46	1.18	...	7	12	1	17	S	1, 2, 13, 20, 28
Sioux Center	Sioux	.....	....	61.2	†0.5	89	9, 17	34	21	49	.71	-3.67	.65	....	3	15	6	9	NW	
Spirit Lake	Dickinson	1,458	8	61.3	-2.7	89	9	36	21	39	1.03	-4.68	.43		3	6	10	4	S	
Storm Lake	Buena Vista	1,440	7	60.4	-3.1	86	9	34	21	34	.99	-2.03	.35	....	5	11	3	16	SE	
Washta	Cherokee	1,157	....	.....	.....	.....	.....	..	.....		2.11	.....	1.65	....	3	19	8	3	S	
Waverly	Bremer	942	6	62.8	†0.3	89	23	37	15	35	3.78	† .53	1.74	...	10	9	11	0	.....	2, 18, 20, 21, 25, 28, 29
West Bend	Palo Alto	1,197	8	61.8	†1.0	87	23	34	21	33	2.69	- .49	1.38	....	8	7	15	8	S	1, 6, 11, 28
Average		.....		61.8	-0.5	88.2	.....	31.8	.....	38.2	2.67	- .74	.....		6	12	9	9	S	

SOUTHERN SECTION.

Afton	Union	1,212	7	65.2	†0.1	86	1, 10, 28	35	15	34	2.80	-1.07	1.08	....	7	15	9	6	SW	
Albia (a)	Monroe	957	..	65.2	.....	90	10	40	12, 15	38	5.55	.....	2.58	....	7	13	2	15	SE	
Allerton (j)	Wayne	.....	....	65.2	.....	90	10	36	15	33	.....	.....	.....	....	...	....	....	....	.....	1, 2, 13, 19, 20
Atlantic (a)	Cass	1,164	11	61.0	†4.1	89	9	30	14	43	3.06	† .39	.73	...	7	....	...	....	S	1, 10, 13, 2, 25, 27
Bedford	Taylor	.....	....	65.6	....	87	9, 28	33	15	33	4.40	.....	1.40	..	8	15	6	9	S	
Belknap	Davis	877	7	68.6	†1.9	89	1	41	22	35	5.61	†1.97	2.25	....	7	18	7	5	N	
Bonaparte	Van Buren	.....	10	66.0	-1.7	90	28	35	15	31	6.73	†2.72	1.92		7		....	...		
Burlington	Des Moines	544	....	67.3	....	90	10, 28	39	15	32	3.98	.....	1.09	....	9	18	5	7	S	13, 18, 24, 26
Chariton	Lucas	1,042	7	65.4	-0.2	89	23	35	15	33	2.66	-1.07	.79	....	5	13	6	11	.....	
College Springs	Page	.....	10	66.9	-0.2	90	27	37	15	34	1.12	-1.34	.58	....	3	21	3	6	S	
Columbus Jct.	Louisa	596	....	65.2	.....	87	23	37	15	31	4.61		1.60	....	8	19	9	2	SW	18, 19, 20
Corning	Adams	1,127	10	64.8	-0.3	87	28	38	14, 15	32	2.23	- .25	.75	....	7	11	11	8	SE	2, 20
Corydon	Wayne	992	9	66.8	†0.3	90	10	38	15	41	2.73	-1.13	1.00	....	7	13	8	9	SW	
Clarinda	Page	1,069	...	65.0	-1.0	91	29	34	15	42	1.39	-1.17	.61		8	16	2	12	SW	
Cumberland	Cass	.....	....		....		.....	.....	.....		2.03	.....	1.75	....	3	21	3	6	SW	
Earlham	Madison	.....	....	62.4	....	86	10	30	15	41	3.37	.....	1.70	...	7	20	2	8	S	1, 2, 24, 26, 29
Fort Madison	Lee	516	51	.....	...	.....	.....	.....	.....	.....	5.04	†1.25	1.75	...	6	10	8	12	S	
Glenwood	Mills	.....	15	66.1	-1.8	90	27	39	14	29	3.15	†1.02	1.25	....	5	7	21	2	SE, SW	
Greenfield	Adair	.....	11	65.0	-0.8	87	1, 28	37	14	30	2.80	- .48	.94	....	8	19	7	4	SW	2, 13, 18, 20, 23 24, 27, 28, 29
Hopeville	Clarke	.....	11	66.0	.....	89	1, 28	37	15	32	2.35	-1.18	.76	..	7	7	15	8	S	
Indianola (a)	Warren	969	11	66.2	†0.6	83	28	36	15	35	2.74	- .31	1.27		9	...	....	....	SW	1, 18, 24, 27, 29
Keokuk	Lee	619	31	67.2	†0.8	89	28	42	15	27	8.33	†4.81	3.01	....	8	15	9	6	SW	2, 13, 18, 20, 24, 27
Keosauqua	Van Buren	664	10	65.2	-2.2	90	10	35	15	42	6.26	†1.78	2.11	....	7	8	7	15	.....	2, 13, 19, 24, 27
Lacona	Warren	.....	....	.....	.....	.....	.....	.....	.....	.....	3.20	.....	1.03	....	7	9	17	4	.....	
Lenox	Taylor	1,250	7	65.2	-0.1	86	28	38	15	30	2.44	- .53	1.00		9	21	6	3	S	1, 2, 13
Leon	Decatur	1,120	....	65.8	.....	86	1	38	15	35	2.19	.....	1.06	....	3	16	6	8	S	11, 24
Massena	Cass	.....	....	65.0	.....	88	9, 10, 17	32	16	45	2.72	.....	1.31	....	7	17	1	12	S	24, 27
Mount Ayr	Ringgold	1,236	6	67.0	6.8	90	1, 28	40	14	37	2.28	-1.04	.95	....	8	11	9	10	SW	
Mount Pleasant	Henry	729	20	66.1	†2.5	89	10	38	15	30	6.97	†3.61	2.16	....	7	13	10	7	SE	18, 20, 27
Omaha, Neb.	Douglas	1,113	32	66.3	†1.5	89	28	42	14	32	2.60	- .31	.66	....	8	12	5	13	S	1, 10, 13 23, 26, 27, 28
Osceola (a)	Clarke	1,130	6	65.2	†0.1	90	1	35	15	39	2.87	-1.31	1.25	....	5	17	7	6	SW	
Oskaloosa	Mahaska	843	18	65.4	†1.0	89	10	35	15	34	3.46	† .38	.95	....	7	18	1	11	SW	19, 21, 27
Ottumwa	Wapello	649	8	68.2	†1.6	92	10	39	15	34	4.58	† .26	2.10	....	6	14	6	10	SE, W	
Pacific Junction	Mills	960	...	66.4	.....	91	28	38	14	36	2.43	.....	1.05	....	6	16	12	2	S	11, 13, 24, 28
Red Oak	Montgomery	1,033	...	66.8	†0.1	87	28	40	15	27	2.01	- .95	.90	....	6	10	14	6	SW	1, 2, 13, 27
St. Charles	Madison	1,070	....	66.4		89	28	41	15	34	2.27	.....	.78	....	8	16	9	5	NW	13, 20, 24, 27
Stockport	Van Buren	.....	..	66.0	.....	88	10	38	15	30	7.08	.....	1.96		7	13	4	13	SE, NW	2, 13, 19, 24, 27
Thurman	Fremont	.....	....	66.5	†0.7	89	28	37	14	34	1.52	-1.69	.92	...	3	17	3	10	SW	
Washington	Washington	769	20	65.2	†0.2	88	10, 28	38	15	31	3.99	†1.37	1.41	..	7	....	....	....	SW	
Winterset	Madison	1,129	11	67.1	†1.9	90	28	41	15	32	2.72	- .63	1.07	....	7	17	7	6	S	
Woodburn	Clarke	961	....	.....	.....	.....	.....	....	.....	...	2.77	.....	.97	....	8	13	7	10	SW	13, 24
Average		.....	....	65.9	†0.2	88.8	.....	37.1	.....	34.4	3.53	† .28	.....	..	7	15	7	8	SW	
Average for state		.....	....	64.0	†0.4	88.9	.....	34.7	.....	36.5	2.78	- .52	.....	...	7	13	8	9	S, SW	

CLIMATOLOGICAL DATA FOR SEPTEMBER, 1904—Continued.

CENTRAL SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted)		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Amana	Iowa	721	25	64.5	†1.8	88	28	33	15	35	1.44	-1.92	.43	....	9	11	13	6	S	1, 6, 17, 19, 24, 25, 27
Ames	Story	926	20	61.5	†1.1	88	23	34	15	39	3.37	-.16	1.05	....	8	18	5	7	SW, NW	
Audubon	Audubon	1,301	8	63.6	†0.2	91	28	13	15	42	2.22	-.84	52	....	8	16	5	9	SW	
Baxter	Jasper.	998	..	64.2	.	88	28	36	15	35	2.45	.....	1.00	....	7	15	6	9	SW	
Belle Plaine	Benton	826	12	63.4	-0.3	83	28	35	15	33	2.53	-.57	.92	...	8	12	12	6	SE, NW	
Buckingham	Iowa	....	....	....	.....	.....	.....	.....	.....	.....	2.12	.....	1.52	...	6	7	22	1	.....	
Carroll	Carroll	1,265	12	63.4	†0.3	89	9	36	14	33	1 66	-1.46	.55	..	6	12	5	13	.....	1, 11, 14, 28,
Cedar Rapids	Linn	783	19	65.0	†1.4	92	28	36	15	42	1.02	-1.87	45	....	8	8	15	7	NW	
Clinton	Clinton	609	34	64.0	†0 9	90	23	33	15	37	2.67	-.43	.87	....	10	9	13	8		1, 13, 17, 25
Davenport	Scott	606	31	65 6	†0.9	89	10	42	15	27	3.93	†.80	2 07	....	8	11	5	14	SW	1, 2, 13, 17, 18 19, 20, 24, 25 26, 27
Delaware	Delaware	1,083	11	62.6	†1.2	87	28	34	15	39	2.65	-.59	1.23	..	7	11	14	5	S, NW	26, 29,
Denison	Crawford.	1,180	8	64.2	†0.8	91	9	37	15	37	1 53	-1 68	85	....	5	16	5	9	S	
Des Moines.	Polk	861	24	65 2	†1.1	89	1	33	15	31	1.95	-1.25	.71	...	10	8	14	8	SW	1, 13, 18, 19, 23, 24, 27, 28 29
De Soto	Dallas	866		66.0	.....	89	28	37	15	34	1.78	.....	.50		8	18	3	9	SW	
Dubuque	Dubuque	655	29	64.2	†1.0	89	28	39	15	37	2.21	-1 88	1.16	....	8	6	13	11	SE	1, 2, 17, 18, 25, 26, 29
Fort Dodge	Webster.	1,126	....	62 2	.....	88	9	40	15	42	4.02	.....	1.70	....	7	15	5	10	SE	2
Galva	Ida	1,290	8	60 9	-3.6	89	23	33	15,21	39	1.07	-2.93	46		4	15	7	8	.....	28
Gilman	Marshall	1,052	..	....	.....	.....	.....	.....	.....	.....	1.67	.	1 05	....	6	12	8	10	S	
Grinnell (near)	Poweshiek	....	....	65.8	†2.4	91	10	37	16	33	1.00	-1.46	.35	....	7	13	5	12	SW	1, 2, 6, 13, 17, 18, 27
Grundy Center	Grundy	976	11	63.8	†0.9	89	28	35	15	36	3.18	- 14	1.27	....	9	14	7	9	S, NW	1, 2, 6, 11, 20, 29
Guthrie Center	Guthrie	1,077	6	65.2	†1.7	88	28	33	15	34	1.64	-1 82	.43		8	19	5	6	NE	1, 2, 13, 27, 28
Harlan	Shelby	1,192	....	63.6	.. .	89	23	31	15	37	2.48	-2.12	.53	..	9	12	6	12	SW, NW	1, 11, 13, 19, 20, 24, 27, 28
Ida Grove	Ida	1,220	....	64.1	.....	88	28	37	15	35	.09	.....	.05		3	17	7	6	S	1, 28
Independence	Buchanan.	921	38	62.6	†1.3	90	28	31	15	38	1.86	2.84	1.30	....	4	14	12	4	W, SW	1, 6, 17
Iowa City	Johnson	683	45	64 3	†0.9	91	10, 28	35	15	41	3.12	-.71	1.00	....	7	11	2	17	N	
Iowa Falls	Hardin	1,170	90	61 6	‡ .0	89	28	31	15	40	2.24	-1.08	.63		7	18	2	10	SW	1, 2, 11, 29
Little Sioux	Harrison	.....	....	65.9	.....	92	28	38	14	33	1.33	.....	.39	....	6	14	6	10	SE	1, 11, 19, 28
LeClaire	Scott	576	...	.....	.....	.....	.....	.....	....	....	3.65	.....	2.01	....	8	....	....	....	S	
Logan	Harrison	928	35	65.5	†1.5	92	9	34	15	39	2.55	-.56	.83	.	6	12	4	14	S	
Marshalltown	Marshall	947	9	63.4	-0.8	91	10	33	15	41	3 68	†1.01	2.12	..	9	12	4	14	SE	
Mt. Vernon	Linn	847	35	64.7	†3.0	88	10, 28	35	15	40	1.78	-1.03	.68	...	8	14	7	9	W	
Montezuma	Poweshiek	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 57	.	.60	....	4	....	‹	....	.....	
Odebolt	Sac	1,356	5	63.8	†0.7	91	9	33	4	50	1.17	-1.98	.74	....	4	11	15	4	.....	
Ogden	Boone	1,088	8	63.6	-1.1	88	28	40	15	32	3.51	-.29	1.45	....	8	15	5	10	S	
Olin (*b*)	Jones	760	....	63.6	†2.1	87	28	32	15	39	1.56	-1.82	.77	....	7	13	13	4	.....	2, 13, 17, 19, 24
Onawa	Monona	1,053	....	66 3	.....	91	9	41	14	34	2.58	-.19	.85	....	8	15	10	5	NW	1, 11, 19, 28
Perry (*i*)	Dallas	975	..	63.8	.....	87	10	37	15	34	.....	.....	.....	....	....	..	....	....	.....	
Sac City	Sac	1,278	22	63.7	-2.1	89	9	37	15	35	1.47	-1.82	.90	...	5	12	6	12	SW	
Sioux City	Woodbury.	1,165	13	63.3	-1.9	92	9	40	21	37	.86	-1.23	.51		5	12	4	14	SE	1, 27
Stuart	Guthrie	1,316	5	65.8	†1.6	87	28	38	15	37	2.34	-.48	1 17	...	7	....	..	....	S	
Tipton	Cedar	807	..	66.4	...	90	10	39	15	30	3.02	.	1.61	...	8	16	13	1	S	
Toledo	Tama	856	8	64.5	†0.4	93	10	31	15	40	1.65	-1.46	.75	...	6	14	6	10	NW	
Vinton	Benton	810	12	65.3	†2 5	91	23	33	15	30	1.30	-1 49	.62		6	24	1	5	SW	1
Waterloo	Black Hawk.	862	15	64.0	†1 6	93	28	33	15	40	2.15	-2.53	.80		9	9	13	8	S	2, 6, 29
Waukee	Dallas.	1,039	....	67.7	.....	93	10	38	15	34	1.79	.....	.76	....	8	16	9	5	S	2, 24, 27, 29, 30
Wilton Junction.	Muscatine.	683	7	65 0	†0 7	94	11	32	12	43	1.91	-1.29	.65	....	6	15	7	8	NW	1, 19
Whitten (*l*)	Hardin	1,036	..	65.4	†2.8	89	28	38	12	31	.....	.....	.....	....	....	..	....	....	.....	
Zearing	Story	718		64.3	.....	89	28	33	15	40	2.35	.....	1.05	....	5	13	7	10	NW	1, 2
Average			....	64.3	†1.1	89 7	....	...	35 7	.....	37.0	2.13	-1.13	.	...	7	13	8	9	S, SW	

* Means determined from 7 A. M., 2 P. M. and 9 P. M. observations, and maximum and minimum are taken from eye readings. †Above normal. ‡ Received too late to be computed with means. *a*, One day missing; *b*, two days, etc. § Not supplied with self-registering instruments.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR SEPTEMBER, 1904.

STATIONS.		DATE.																													MEAN.
		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	Max.	86	77	73	77	80	75	70	79	85	86	75	71	61	61	69	73	68	79	85	71	64	68	79	81	84	80	84	86	78	71	..	75.9
	Min.	66	60	50	51	54	54	51	48	57	59	49	40	53	40	35	47	58	60	63	51	47	44	61	68	56	63	65	67	63	56	..	54.6
Albia	Max.	89	76	74	78	80	80	74	80	85	90	67	72	62	64	70	76	75	78	74	60	60	70	77	84	82	79	84	88	80	..	..	76.1
	Min.	62	62	52	53	55	57	53	48	55	64	53	40	43	42	40	46	53	68	60	54	43	42	45	62	60	62	64	64	67	60	..	54.3
Algona	Max.	78	75	73	77	79	74	69	78	85	76	69	69	62	61	69	71	84	75	78	69	54	64	78	70	67	73	77	86	77	68	..	72 8
	Min.	64	57	47	50	58	51	54	50	53	58	45	40	48	41	35	40	52	47	57	40	35	42	58	55	49	53	58	67	56	54	..	50.5
Allerton	Max.	88	78	73	80	80	80	72	81	84	90	76	72	63	62	69	79	85	80	78	73	..	..	..	..	..	..	..	.	..	..	..	77.2
	Min.	66	66	52	50	52	56	52	48	57	60	51	39	53	40	36	49	58	67	62	52	..	..	..	..	..	..	..	..	..	..	..	53.3
Alta	Max.	78	71	73	79	83	71	73	80	87	72	67	70	60	62	72	74	86	4	84	53	57	60	80	70	67	76	80	86	77	62	..	72.8
	Min.	62	56	46	49	56	52	48	52	57	56	45	42	45	39	36	42	52	47	57	40	36	44	60	49	50	52	60	65	54	50	..	50.0
Amana	Max.	86	76	73	77	77	77	72	75	82	87	77	66	63	62	68	73	85	76	77	71	58	66	77	81	75	78	80	88	80	67	..	75.0
	Min.	65	63	51	51	50	58	56	49	57	61	54	37	50	40	33	46	48	65	60	56	59	42	56	65	53	64	60	68	66	57	..	54 0
Ames	Max.	86	79	76	78	80	73	73	79	85	87	68	70	62	64	70	82	87	77	77	68	57	67	79	73	72	77	82	88	79	69	..	75.5
	Min.	65	61	50	50	53	58	66	45	48	57	45	38	49	41	34	43	51	56	59	57	45	42	59	64	56	62	64	68	62	56	..	53.5
Atlantic	Max.	85	80	78	81	83	61	76	80	89	88	70	69	62	70	76	83	78	85	73	64	61	80	74	77	76	77	87	74	67	..	..	76.3
	Min.	64	59	46	38	58	52	44	43	49	48	48	36	46	30	40	56	55	63	49	45	47	61	61	55	61	61	67	60	54	..	..	51.6
Audubon	Max.	84	77	74	81	85	72	73	82	90	89	69	72	62	64	73	76	86	77	79	74	62	63	83	75	78	81	86	91	80	67	..	76.8
	Min.	62	58	46	40	51	49	44	43	50	52	45	37	49	38	31	43	51	53	62	47	43	44	60	63	53	60	61	67	59	50	..	50.4
Baxter	Max.	85	74	74	75	79	75	74	77	84	87	75	69	60	62	68	75	85	78	74	60	60	70	77	84	82	79	84	88	80	..	..	75.2
	Min.	65	60	49	52	53	58	51	49	55	62	51	40	51	40	36	44	50	57	58	51	41	40	57	63	56	60	63	69	64	55	..	53.3
Bedford	Max.	84	77	77	77	78	75	75	80	77	86	76	70	63	64	69	80	84	81	82	77	65	64	77	84	83	77	86	87	79	70	.	77.2
	Min.	67	60	51	45	52	52	48	46	54	54	50	40	52	38	33	45	57	61	63	51	49	47	61	63	60	65	65	69	63	57	..	53.9
Belknap	Max.	89	75	74	87	83	80	75	80	81	85	64	80	60	63	68	79	87	87	80	65	68	76	80	82	81	81	87	88	80	72	..	77.9
	Min.	74	66	56	60	60	60	57	54	58	61	60	47	55	45	48	52	64	64	63	58	50	41	60	63	64	69	62	72	71	64	..	59 4
Belle Pl'e	Max.	79	85	72	75	77	78	75	75	82	83	64	67	60	56	67	72	85	78	75	62	53	65	76	78	72	77	79	88	79	65	..	73 5
	Min.	64	62	52	51	55	58	55	49	55	61	50	38	53	40	35	46	52	58	59	53	40	40	50	61	55	68	60	62	65	56	..	53.4
Bonapar'e	Max.	88	79	74	80	80	82	78	79	84	89	75	69	64	61	70	78	85	80	78	73	57	40	48	55	63	57	66	64	68	68	60	77.4
	Min.	64	63	53	50	50	53	53	49	54	61	54	38	51	41	35	47	55	66	58	57	40	35	42	58	55	49	53	58	67	56	54	54.5
Britt	Max.	82	75	74	79	81	74	71	77	84	77	64	57	47	38	33	37	50	48	57	41	38	41	58	55	50	55	54	65	55	49	..	78.5
	Min.	63	57	47	47	49	51	53	47	52	56	45	37	47	38	33	37	50	48	57	41	38	41	58	55	50	55	54	65	55	49	..	49.2
Burling'n	Max	88	78	73	81	83	81	74	79	84	90	77	70	67	60	71	78	86	75	83	69	66	70	80	77	79	75	84	90	84	70	..	77.4
	Min	66	66	56	52	57	56	54	54	65	64	57	42	55	43	39	52	58	61	60	58	42	45	59	65	61	67	63	70	70	60	..	57.2
Carroll	Max.	84	74	75	85	83	72	75	83	89	86	69	69	59	66	71	75	85	77	87	57	62	68	79	72	67	77	83	88	79	61	..	75.2
	Min.	65	58	45	47	57	50	46	55	57	59	45	40	52	36	37	45	54	50	60	45	41	42	57	63	51	55	57	69	56	55	..	51,6
Cedar R.	Max	87	74	78	78	82	78	76	79	86	90	69	69	60	63	72	79	89	78	79	65	56	68	78	79	75	80	81	88	80	67	..	76.2
	Min.	62	65	5	55	53	54	60	51	52	61	55	40	42	43	36	37	62	63	61	58	40	40	44	60	55	56	62	68	69	60	.	53.7
Chariton	Max	88	77	72	78	79	78	74	79	85	89	75	71	60	63	68	72	84	79	80	74	62	68	76	84	81	81	86	89	83	71	.	76.9
	Min.	66	61	50	49	51	56	51	45	57	60	52	39	47	57	49	55	48	58	65	61	51	44	43	59	62	50	60	62	67	65	59	54.0
Charles C.	Max	83	72	75	74	79	73	65	76	82	83	64	59	50	36	37	41	33	43	44	52	52	50	39	39	40	58	52	54	57	59	62	51	..	72.0
	Min.	50	57	51	49	52	57	59	45	46	59	50	36	37	41	33	43	44	52	52	50	39	39	40	58	52	54	57	59	62	51	..	49.1
Clarinda	Max.	84	79	76	82	85	77	78	84	90	88	72	74	60	65	72	78	89	84	88	58	70	67	79	82	83	74	87	91	76	63	..	77.8
	Min.	65	59	51	46	52	53	48	42	48	54	51	40	42	40	34	38	47	61	61	51	50	49	50	65	60	63	64	60	62	59	..	52.2
Clear L.	Max.	78	72	75	79	75	74	69	77	80	78	66	69	60	62	69	76	82	78	72	65	57	67	76	74	67	75	82	89	76	66	..	72.8
	Min.	65	56	49	56	58	56	58	55	59	62	47	43	48	42	41	46	50	49	59	47	39	41	67	57	52	56	56	62	59	53	..	52.9
Clinton	Max.	87	77	78	76	80	80	76	79	82	88	69	69	62	62	69	74	85	77	80	65	60	67	80	79	75	77	80	90	83	70	..	76.0
	Min.	62	58	51	49	48	55	53	52	51	58	51	37	50	41	33	46	48	63	58	56	41	43	47	61	54	60	56	63	62	57	..	52.1
Col. Sprgs	Max.	86	78	75	77	81	6	75	80	86	89	77	72	67	60	71	76	86	84	85	72	65	69	83	83	85	78	80	89	80	72	..	78.7
	Min.	67	59	51	50	53	53	50	52	55	59	50	44	47	39	37	49	60	62	64	51	52	50	63	66	60	64	66	67	61	53	..	55.1
Colum. J.	Max.	85	81	72	78	78	79	74	78	80	88	79	67	70	58	62	71	75	86	76	78	54	52	64	78	68	67	69	76	74	67	..	75.1
	Min.	65	63	52	52	56	56	53	50	57	62	53	40	53	41	37	49	55	64	68	58	40	42	53	63	58	64	62	68	69	59	..	55.4
Corning	Max.	83	77	72	75	79	71	72	78	84	85	76	69	63	61	67	73	84	78	83	72	63	64	78	80	82	79	85	87	79	67	..	75.5
	Min.	67	60	50	45	55	56	47	46	55	60	50	40	52	38	38	44	56	58	64	51	47	47	60	62	58	65	66	67	63	53	..	54.0
Corydon	Max	88	78	76	79	79	86	82	80	86	90	77	72	65	65	69	80	85	80	78	74	62	74	76	84	81	80	85	88	81	73	..	78 4
	Min.	67	62	52	52	54	45	54	47	59	62	52	40	51	39	38	50	60	62	62	53	45	44	55	63	60	66	65	69	65	59	..	55.1
Cresco	Max.	80	72	72	75	76	71	70	75	82	81	73	66	60	60	68	70	87	70	70	63	62	67	75	70	70	71	72	86	72	68	..	71 8
	Min.	63	56	59	49	53	59	55	55	56	60	50	37	44	40	34	43	50	33	58	44	38	40	56	49	52	57	57	60	49	42	..	49.9
Davenpo't	Max.	85	79	74	78	78	79	73	76	82	89	74	68	61	59	68	74	84	76	81	69	59	65	78	78	75	77	77	88	80	68	..	75 1
	Min.	68	63	54	55	57	58	57	56	60	66	51	44	50	44	42	53	57	64	60	46	42	45	55	62	55	63	59	69	67	58	..	56.0
Decorah	Max.	80	72	73	77	78	74	68	74	80	83	66	62	56	59	56	68	83	76	72	68	59	64	73	77	69	72	73	83	81	69	..	71,5
	Min.	61	58	56	50	51	60	58	49	60	63	53	38	47	42	34	38	49	55	33	48	39	41	57	60	53	59	58	62	64	53	..	52.3
Delaware	Max.	83	78	72	76	78	76	71	75	82	86	77	66	58	58	68	71	86	75	77	72	55	64	75	74	68	74	75	87	78	64	..	73.4
	Min.	63	58	48	50	50	57	54	47	55	59	50	39	47	37	34	44	47	59	57	52	57	37	53	62	48	59	57	65	62	.	.	51.7
Denison	Max.	82	76	74	81	86	77	72	82	91	84	67	71	65	64	72	75	87	78	86	75	63	61	81	77	70	81	86	90	80	72	..	76.9
	Min.	67	59	45	44	56	50	46	51	56	56	44	40	48	38	37	42	56	51	59	47	40	46	59	57	50	56	62	66	68	52	..	51,6
Des M	Max	89	76	74	77	80	72	71	78	86	86	68	70	62	64	69	75	85	77	77	66	59	67	78	78	78	77	82	88	79	69	..	75.2
	Min.	67	62	51	51	56	59	54	49	58	62	50	41	46	43	38	48	57	60	62	52	46	44	60	59	57	64	66	71	65	54	..	55.1
De Soto	Max.	85	76	75	79	81	73	70	80	87	88	77	73	64	66	71	77	87	78	82	74	61	66	80	79	79	79	82	89	80	70	..	76.9
	Min.	67	60	51	50	56	58	51	49	59	62	52	41	52	42	37	46	55	59	64	51	48	44	61	64	56	64	66	71	64	56	.	55.2
Dows.	Max.	80	75	73	77	77	71	69	77	84	80	67	68	61	60	68	73	85	76	72	68	57	67	82	85	77	77	80	87	77	67	..	73.8
	Min.	63	58	48	51	56	53	53	45	55	59	48	37	48	40	34	39	50	5	58	48	41	40	57	56	48	58	58	65	58	52	..	50.9
Dubuque	Max.	82	77	73	76	77	76	72	75	82	88	71	66	59	59	68	73	86	75	78	68	57	62	74	76	66	76	74	89	79	67	..	73.4
	Min.	65	63	54	54	54	61	57	55	61	65	51	43	40	43	39	51	49	64	58	47	41	42	55	63	57	61	57	67	67	58	.	55 0
Earlham	Max.	84	74	73	73	80	75	71	79	85	86	74	70	59	59	64	75	84	78	82	71	63	65	77	82	81	81	82	84	83	68	..	75.4
	Min.	63	58	45	43	51	55	45	41	55	54	48	33	49	36	30	34	48	55	61	49	48	41	52	51	51	62	57	53	56	58	..	49.3
Elkader	Max.	86	75	78	81	82	78	75	81	87	91	76	72	58	62	72	78	90	79	78	69	60	70	78	73	72	78	77	93	80	68	..	76.9
	Min.	60	59	53	47	49	60	58	49	57	63	51	35	51	40	32	44	43	58	58	50	34	39	56	66	58	59	64	63	65	51	..	52.1
Esthervil.	Max.	76	70	80	81	83	71	70	81	87	75	66	70	60	62	72	76	92	83	77	48	59	63	80	65	67	74	76	85	80	65	..	73 1
	Min.	63	56	47	51	56	55	51	49	0	52	42	36	45	42	36	37	38	44	56	44	31	33	45	53	52	46	47	62	53	5	..	47.6
Forest C'y	Max.	78	74	76	79	81	73	70	78	85	77	65	69	58	62	69	74	87	76	72	55	61	65	78	64	67	78	79	90	80	65	..	72.8
	Min.	61	55	48	48	55	58	53	47	49	54	45	40	43	39	34	36	44	47	58	46	36	41	43	60	51	65	55	61	56	50	..	48.9
Ft. Dodge	Max.	82	72	74	79	82	72	72	80	88	79	67	70	58	62	71	75	86	76	78	54	52	64	78	68	67	76	82	87	79	62	..	73.1
	Min.	63	60	50	50	53	55	53	52	52	55	48	41	44	43	40	41	44	52	52	48	44	44	45	62	55	55	60	66	60	56	.	51 4
Glenw'd	Max.	80	77	72	78	84	66	77	80	89	83	72	70	67	61	70	74	85	80	82	77	74	64	83	78	82	78	90	87	75	71	..	76.9
	Min.	68	56	51	52	57	55	50	54	60	64	47	46	49	39	44	49	63	56	64	48	47	50	62	62	58	61	66	67	62	51	..	55.3
Grand M.	Max.	81	69	72	75	76	72	70	74	80	83	70	67	49	39	44	49	63	56	64	48	47	50	62	62	58	61	66	67	62	51	..	55.3
	Min.	66	61	52	58	56	58	58	50	60	60	50	40	48	36	37	48	51	54	57	51	37	40	58	64	51	58	56	65	62	53	..	71.7
Greene	Max	83	74	75	78	80	73	65	78	85	82	67	69	59	62	69	74	86	78	71	66	59	68	79	73	70	75	79	88	80	67	..	53.2
	Min.	65	57	50	50	54	58	57	46	55	60	49	38	50	40	34	43	47	53	60	50	40	40	57	62	48	58	55	66	59	51	..	73.7
Greenfi'ld	Max.	87	79	72	77	80	74	78	79	82	86	77	72	67	60	71	76	86	84	85	72	65	67	80	80	85	80	80	87	77	68	..	51.7
	Min.	58	58	47	50	57	55	48	50	51	57	48	43	50	37	41	47	58	54	65	49	44	45	60	59	57	60	61	68	62	56	..	76.9
Grinnell(near	Max.	88	76	75	80	80	78	76	78	85	91	80	70	75	63	70	76	87	78	76	73	68	79	82	76	78	83	90	88	83	73	..	77 5
	Min.	65	60	50	50	54	59	53	49	58	62	51	40	53	40	37	45	55	59	58	50	41	48	58	63	57	61	64	68	64	55	..	54.2
Grundy C	Max.	85	73	75	77	78	73	74	77	83	86	76	68	59	63	69	75	86	79	74	70	56	68	78	75	71	78	81	89	82	67	..	74 8
	Min.	65	60	50	51	55	60	54	45	57	60	50	39	50	40	35	44	50	55	58	54	41	38	58	62	50	61	61	68	62	53	..	52.9
Guthrie C	Max.	86	84	73	77	82	75	74	79	87	87	73	70	65	63	70	77	85	84	84	78	66	64	81	75	74	79	82	88	78	71	..	77.0
	Min.	65	60	48	48	57	53	47	45	58	59	49	39	51	40	36	47	52	55	63	50	46	45	62	63	55	62	64	70	61	55	..	53.5
Hampton	Max.	85	75	75	82	80	76	73	80	87	83	67	73	61	63	73	80	89	81	78	67	60	71	79	73	79	80	79	91	77	67	..	76.1
	Min.	64	57	49	48	56	56	57	48	57	60	50	40	48	42	37	45	51	52	58	50	42	40	58	58	53	53	57	67	60	53	..	52.4
Harlan	Max.	84	76	73	79	83	72	73	80	88	86	67	71	62	61	70	72	83	76	85	73	67	63	84	74	80	82	86	89	81	67	..	76,2
	Min.	65	57	46	48	50	50	45	47	51	54	46	38	48	39	34	44	53	53	63	46	42	47	59	61	53	59	62	64	58	51	..	50.9
Hopeville	Max.	89	78	73	78	80	76	70	80	87	87	70	71	61	62	69	79	86	78	82	71	63	67	78	84	88	79	86	89	80	66	.	76.7
	Min.	67	61	51	51	53	56	52	50	57	60	50	43	51	41	37	47	60	62	63	51	47	45	61	62	59	65	67	67	62	58	..	55.2
Humboldt	Max.	77	77	74	78	80	72	72	78	84	78	67	69	63	62	69	70	84	77	77	72	58	64	80	75	76	75	80	87	76	70	..	74.0
	Min.	65	60	49	51	58	54	51	50	55	60	47	40	48	44	37	41	2	50	60	44	43	45	60	60	51	58	60	67	58	55	..	52.4
Ida Grove	Max.	83	74	73	87	83	75	72	81	87	79	73	71	64	62	71	72	84	75	82	73	68	65	8	77	71	78	83	88	79	70	..	76.0
	Min.	60	59	49	62	48	53	48	53	56	60	47	40	49	41	37	40	57	50	59	46	38	47	60	57	50	56	61	70	58	54	..	64 1
Independ.	Max.	85	73	72	69	77	73	70	75	83	86	78	67	58	60	69	73	83	76	74	74	56	66	75	73	71	82	81	80	78	70	..	73.9
	Min.	63	59	50	47	50	59	55	44	57	59	50	36	50	40	31	41	48	53	58	54	35	35	55	62	45	60	59	66	64	52	..	51.2
Indianola.	Max.	87	79	75	78	81	73	73	80	87	87	76	72	60	..	71	76	85	77	79	73	62	68	78	80	78	77	82	88	77	69	..	76.8
	Min.	66	61	66	50	54	57	52	47	58	61	51	40	50	..	56	47	57	61	61	51	46	43	60	64	58	64	64	69	65	56	..	55.7
Inwood.	Max.	74	70	71	79	78	68	73	82	90	79	66	69	64	60	70	74	85	70	75	59	58	63	80	71	67	76	76	70	76	60	..	71.8
	Min.	56	46	44	56	62	54	45	54	53	58	44	42	40	39	38	46	60	46	57	38	34	47	58	46	45	49	64	59	53	46	..	49.2
Iowa City	Max.	89	75	75	78	81	80	75	79	85	91	67	72	62	63	76	78	87	77	80	64	61	69	78	83	77	81	80	91	80	66	..	76.7
	Min	61	64	52	51	51	55	51	51	55	57	55	39	41	42	35

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR SEPTEMBER, 1904—CONTINUED.

STATIONS.		DATE.																													MEAN
		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		
Keosa'qua	Max..	88	81	74	79	80	83	76	78	84	90	75	70	64	62	70	78	85	81	80	66	63	68	81	79	80	77	87	88	81	67	..	77.2
	Min ..	60	64	54	50	51	53	54	54	54	57	55	37	40	41	35	36	50	61	59	61	41	42	45	61	61	64	64	65	68	62	..	53.3
Larrabee.	Max..	81	72	74	79	85	75	75	82	89	74	67	72	62	63	74	74	87	74	82	67	68	69	83	73	69	82	83	87	81	66	..	75.6
	Min ..	65	45	45	46	53	51	45	53	49	58	39	45	49	40	39	39	56	44	50	46	35	45	45	52	46	45	55	64	60	49	..	48.4
Le Mars..	Max..	78	74	75	80	86	72	75	85	91	75	77	70	64	64	76	75	88	75	80	65	57	63	80	70	68	78	80	85	80	67	..	75.1
	Min ..	64	56	45	47	54	51	45	51	51	59	41	40	45	40	38	37	54	45	51	41	35	47	54	54	46	54	61	67	54	41	..	48.9
Lenox....	Max..	84	77	73	76	79	75	70	78	84	85	76	68	61	62	68	77	85	77	82	75	63	64	77	81	83	76	85	86	78	70	..	75.8
	Min ..	67	59	51	50	55	56	49	50	56	59	49	43	52	39	38	47	60	60	63	50	47	46	61	61	58	64	66	68	62	54	..	54.7
Leon.....	Max..	86	81	73	74	77	76	71	76	83	85	77	64	64	60	67	73	83	79	78	76	62	68	76	80	81	80	84	85	80	75	..	75.8
	Min ..	65	61	52	53	54	56	52	50	57	60	42	53	53	40	38	50	59	66	61	52	46	45	60	62	59	66	66	68	65	60	..	55.7
Lit. Sioux	Max..	83	78	76	83	87	80	80	84	91	81	72	72	66	66	75	77	88	81	86	75	65	61	84	80	71	84	86	92	82	71	..	78.6
	Min ..	67	53	46	52	58	49	47	57	60	57	43	47	48	38	44	47	62	50	63	47	41	52	61	57	54	53	61	69	55	52	..	53.2
Logan....	Max..	83	79	75	82	87	77	80	90	92	85	74	72	65	64	73	75	85	78	73	71	72	62	85	76	75	82	78	91	82	78	..	78.0
	Min ..	62	57	45	43	51	51	48	68	74	56	41	49	49	35	34	44	56	53	62	47	48	50	60	62	52	56	63	60	62	52	..	53.0
Marshlt'n	Max..	89	75	77	81	83	77	76	81	87	91	69	73	59	65	73	78	89	81	76	60	59	70	80	79	73	79	82	71	83	65	..	76.0
	Min ..	62	60	49	50	51	54	54	45	49	58	51	37	42	41	33	37	47	57	58	52	40	39	47	60	54	58	59	62	63	55	..	50.8
Mason C..	Max..	74	70	73	78	79	72	63	78	84	76	67	68	60	60	69	72	85	79	72	67	58	66	75	72	66	73	75	87	76	67	..	72.2
	Min ..	64	54	49	54	59	58	60	48	53	68	57	38	50	40	37	44	51	51	60	49	40	42	57	60	54	57	57	57	60	53	..	52.9
Massena..	Max..	83	78	75	80	86	75	75	81	88	88	79	72	68	63	76	77	88	81	86	76	69	63	81	78	84	82	83	87	80	70	..	78.4
	Min ..	63	60	49	44	44	43	46	46	55	59	50	39	50	38	36	32	57	57	57	50	45	46	60	60	58	62	67	58	63	53	..	51.6
Mt. Ayr..	Max..	90	80	78	79	81	78	74	82	89	87	78	75	64	68	71	81	88	79	82	77	61	71	80	87	86	80	87	90	81	73	..	79.2
	Min ..	65	59	51	51	54	54	51	52	59	60	49	43	50	40	41	49	60	62	62	50	46	45	60	62	49	65	68	68	64	57	..	54.9
Mt. Pl'snt	Max..	87	78	73	79	80	81	76	77	82	89	76	68	63	60	68	74	85	78	80	70	62	68	80	78	78	76	82	88	81	71	..	76.3
	Min ..	66	63	54	53	56	56	55	52	56	63	54	42	51	42	38	49	57	64	58	58	40	43	56	64	58	64	64	69	71	60	..	55.9
Mt. Ver'n	Max..	87	78	76	80	80	78	74	78	82	88	76	75	60	63	69	83	84	79	77	70	57	69	74	79	71	83	83	88	78	71	..	76.3
	Min ..	65	61	50	50	53	56	56	48	53	60	52	40	52	39	35	43	53	65	57	54	36	40	54	63	51	61	59	67	65	55	..	53.1
New H. ..	Max..	81	70	72	74	76	72	68	74	80	82	66	67	60	58	65	68	83	76	76	68	59	64	75	71	69	72	76	87	83	68	..	72.0
	Min ..	62	53	45	47	51	58	55	43	53	57	47	36	37	37	32	42	47	54	56	48	35	37	45	49	47	55	41	63	58	63	..	48.5
Odebolt ..	Max..	81	75	75	83	86	80	76	83	91	81	70	73	64	65	72	76	86	82	86	74	63	62	82	77	70	80	84	88	79	72	..	77.2
	Min ..	65	58	45	33	51	52	47	51	55	59	44	40	47	39	38	40	54	49	58	46	36	45	60	56	49	56	60	67	56	52	..	50 3
Ogden ...	Max	85	78	75	79	85	74	71	80	85	86	72	69	64	63	70	75	81	77	80	68	60	65	78	72	70	71	82	88	82	70	..	75.0
	Min ..	60	58	48	51	53	54	48	50	56	59	49	41	45	41	40	46	49	55	62	47	45	44	58	57	55	52	61	69	61	55	..	52.3
Olin	Max	85	78	72	74	79	79	74	75	79	6	78	64	64	60	65	71	84	77	78	71	58	65	76	79	73	..	..	87	81	69	..	74.3
	Min	65	64	52	49	54	56	59	50	55	60	55	15	48	42	32	45	45	65	58	59	39	43	53	66	49	..	..	60	68	57	..	52.8
Omaha, N	Max..	82	79	74	80	85	70	79	85	88	86	68	70	64	64	75	76	86	80	84	62	64	64	84	71	80	79	81	89	78	70	..	76.4
	Min ..	65	58	52	54	58	57	53	58	61	54	50	52	53	42	46	52	64	57	62	48	48	52	65	59	59	62	68	68	63	52	..	56.2
Onawa....	Max.	81	79	80	84	88	80	79	86	91	82	74	69	65	70	77	79	89	83	87	74	59	62	82	79	70	80	85	88	81	72	..	78.5
	Min ..	65	58	50	50	58	56	52	56	59	60	48	47	50	41	43	47	59	52	60	46	44	51	60	58	52	56	65	68	57	54	..	54.1
Osage.....	Max.	76	72	73	77	78	74	64	77	83	79	66	68	59	60	68	73	85	77	69	64	57	67	74	72	68	73	76	85	79	68	..	72.0
	Min ..	63	56	49	50	54	58	56	46	54	60	48	37	48	42	34	43	49	49	49	49	39	59	39	59	49	56	56	64	58	52	..	50.2
Osceola ..	Max..	90	76	74	80	81	78	75	80	87	89	57	73	62	65	70	78	87	80	82	58	58	70	79	87	73	81	87	89	82	..	..	76.8
	Min ..	59	60	50	57	50	65	53	48	58	61	50	42	48	42	35	40	48	63	62	52	47	43	46	63	59	65	65	65	64	60	..	53.5
Oskaloosa	Max..	87	77	72	76	79	78	73	78	84	89	78	69	62	62	69	73	85	78	77	72	61	67	76	82	78	76	82	87	81	71	..	76.0
	Min ..	66	63	52	50	52	58	54	49	59	63	53	36	54	41	35	45	53	59	60	54	44	44	57	65	58	64	65	69	67	59	..	54.9
Ottumwa	Max..	91	78	80	82	86	83	76	82	87	92	75	72	61	65	71	78	87	80	82	71	67	72	80	83	82	81	86	88	84	74	..	79.2
	Min ..	65	65	52	56	52	56	57	53	60	63	55	43	54	43	39	52	60	71	61	57	42	41	61	66	63	68	66	70	68	52	..	57.1
Pacific J'n	Max	82	79	74	85	86	79	81	81	88	87	82	69	71	68	71	75	86	81	85	75	65	64	84	76	84	80	86	91	77	70	..	78.7
	Min ..	66	56	50	49	55	52	47	52	57	57	49	49	45	38	40	46	59	57	65	49	49	52	63	62	52	52	65	69	62	50	..	54.1
Perry, ...	Max..	86	77	73	78	81	72	70	88	86	87	71	71	63	63	70	73	86	78	82	73	..	..	..	..	..	..	..	..	..	73	..	75.9
	Min ..	68	61	50	49	54	55	49	47	56	59	50	42	49	41	37	45	52	57	64	49	..	..	..	..	..	..	..	..	..	49	..	51.6
Plover....	Max..	84	73	75	79	83	75	73	80	84	73	64	70	58	60	70	73	84	75	83	58	..	67	80	74	73	74	80	88	78	73	..	74.5
	Min ..	65	60	47	46	55	55	48	55	62	55	45	39	45	40	34	43	50	47	45	38	..	45	58	55	53	51	52	68	55	48	..	50.0
Pocah'tas	Max..	79	73	74	78	82	73	72	80	86	76	66	69	66	62	71	73	84	75	82	72	70	65	81	74	68	76	80	88	77	65	..	74.6
	Min ..	66	59	47	50	58	55	50	53	53	59	44	42	49	40	38	42	53	48	62	46	37	45	59	58	53	55	58	67	57	53	..	51.9
Red Oak..	Max..	81	79	73	75	80	75	74	78	84	84	72	72	66	59	67	72	82	81	83	77	66	65	79	78	77	77	83	87	76	73	..	75.8
	Min .	69	62	52	61	59	59	53	54	59	61	54	50	52	43	40	50	62	61	67	52	52	54	63	66	62	65	69	71	66	58	..	57.9
Ridgeway	Max..	79	70	75	76	79	77	70	79	82	88	71	66	65	60	69	74	90	79	73	70	59	66	77	75	74	72	75	87	75	68	..	74.4
	Min .	64	56	52	51	57	61	58	49	59	63	51	43	47	41	38	48	54	54	59	48	40	40	58	65	53	57	59	64	62	51	..	53.4
Rock R...	Max.	78	70	75	82	80	70	74	84	88	72	70	68	64	64	74	78	88	70	72	50	58	64	78	70	72	75	78	80	76	74	..	73.2
	Min ..	58	56	45	48	50	52	46	52	56	48	38	42	48	46	38	34	44	44	48	38	30	42	56	40	46	44	54	64	54	49	..	47.0
Sac City..	Max	80	74	75	81	78	77	72	81	89	84	68	69	63	62	71	74	85	77	84	74	59	62	79	76	71	77	82	88	79	74	..	75.5
	Min .	65	58	48	49	56	53	50	59	55	58	45	41	48	41	37	44	50	49	60	46	39	44	60	57	51	55	60	68	57	55	..	51.9
St. Cha'les	Max	86	77	74	80	82	75	71	81	87	86	72	74	61	64	76	78	85	79	79	67	61	78	79	80	80	79	81	89	79	69	..	76.8
	Min ..	67	60	51	52	56	58	58	52	60	64	51	45	51	42	41	50	58	61	61	51	46	44	61	63	58	64	65	69	65	56	..	56.0
Sheldon..	Max..	76	74	78	82	85	75	76	85	92	85	72	71	65	68	77	76	90	79	78	66	57	60	78	73	70	80	78	85	82	70	..	76.1
	Min ..	63	57	44	49	54	52	45	52	64	53	49	41	45	40	37	35	52	44	53	42	32	45	58	52	52	45	57	62	50	48	..	48.8
Sibley	Max..	75	72	74	80	83	70	72	82	89	71	67	69	60	63	73	74	87	73	74	45	57	64	79	65	66	76	75	83	78	66	..	72.1
	Min ..	62	55	43	45	53	52	48	51	51	52	40	41	46	41	35	34	35	44	45	41	31	37	46	54	49	44	44	60	51	48	..	45.9
Sioux C'y.	Max..	78	74	75	81	87	71	75	86	92	74	68	67	62	64	75	73	83	76	82	50	61	61	84	69	68	79	83	84	81	67	..	74 5
	Min	61	56	49	54	59	55	47	57	55	57	45	48	46	42	43	45	59	48	50	43	40	52	61	51	50	51	65	64	57	52	..	52.1
Sioux C'r.	Max..	78	72	74	0	84	70	75	85	89	77	65	70	63	64	75	75	89	78	77	62	55	62	82	73	68	76	79	84	80	68	..	74.5
	Min ..	65	56	45	42	48	53	45	53	53	45	37	41	45	37	38	41	40	44	52	41	34	47	58	54	43	46	58	67	54	53	..	47.8
Stockport	Max	86	79	71	76	77	79	73	76	82	88	77	69	62	59	68	73	82	79	78	72	72	67	70	77	79	75	83	87	80	71	..	75.6
	Min ..	67	64	56	50	50	56	56	52	56	64	56	41	50	43	38	48	59	69	60	57	42	44	56	62	62	67	65	71	70	61	..	56.4
Storm L..	Max..	75	72	74	78	83	71	72	80	86	73	67	67	60	63	70	72	84	83	84	51	55	65	80	70	68	75	80	85	79	60	..	72.7
	Min ..	62	58	47	48	58	54	48	50	56	59	44	45	48	40	43	40	41	46	50	44	34	39	45	55	48	48	49	49	47	48	..	48.1
Stuart ...	Max	82	80	73	79	81	76	74	79	86	83	82	82	67	60	69	71	85	79	84	79	62	66	81	77	79	81	83	87	79	73	..	77.3
	Min ..	66	60	49	50	53	58	51	51	55	63	47	45	49	40	38	48	55	56	63	50	47	45	60	62	56	62	63	68	62	56	..	54.4
Thurman.	Max..	81	78	72	78	83	75	76	80	86	87	74	70	67	62	70	72	88	80	85	76	66	67	84	78	85	78	79	89	79	68	..	77 1
	Min ..	68	57	52	44	57	54	48	48	58	58	52	44	50	37	63	48	57	59	65	50	50	52	62	68	60	63	68	69	62	53	..	55.9
Tipton....	Max..	86	80	75	78	80	79	76	78	83	90	77	72	62	62	69	76	85	76	81	73	58	76	72	81	76	80	78	89	84	70	..	76.7
	Min ..	66	63	55	53	55	57	57	53	57	61	57	45	51	41	39	48	56	67	59	55	43	53	57	64	55	63	59	67	69	59	..	56.1
Toledo....	Max..	87	76	74	78	79	75	75	80	84	93	72	71	61	61	70	76	87	79	76	72	59	68	77	78	73	79	82	89	80	68	..	76.0
	Min ..	65	61	51	50	56	58	57	45	58	63	52	34	49	41	31	43	47	59	58	53	41	40	58	63	53	62	61	68	65	55	..	53.0
Vinton. ..	Max.	86	75	74	77	79	75	73	77	83	88	82	69	65	61	70	77	87	82	76	73	60	68	76	77	73	82	81	91	85	74	..	76.6
	Min ..	66	61	51	52	51	59	57	46	59	61	58	35	53	41	33	54	48	63	60	55	39	41	58	64	50	62	61	68	65	55	..	54 0
Washi'ton	Max..	86	78	73	77	77	80	74	76	83	88	72	69	61	62	69	75	85	79	78	71	63	68	73	80	77	75	80	88	77	67	..	75.5
	Min ..	67	61	52	52	56	56	55	51	52	63	48	41	51	42	38	49	56	65	59	54	40	43	56	63	58	64	63	69	66	57	..	54.9
Waterloo.	Max	90	74	76	79	81	77	73	80	85	89	68	71	61	65	73	76	70	80	75	67	59	69	78	75	73	82	83	93	81	68	..	75.7
	Min ..	61	60	51	52	51	55	56	47	57	61	50	38	55	41	33	45	46	57	60	54	39	39	53	60	49	57	60	62	63	54	..	52.2
Waukee..	Max..	90	80	81	85	86	76	78	85	91	93	80	74	62	69	78	86	89	83	83	73	64	68	80	83	80	81	83	92	82	83	..	80.6
	Min ..	62	59	59	58	55	58	51	49	58	60	51	40	49	41	38	51	55	58	63	51	47	44	55	63	50	63	63	70	63	54	..	54.8
Waverly..	Max..	84	72	72	75	77	72	68	75	82	83	62	67	59	61	68	70	84	79	72	65	57	65	75	77	70	74	78	89	81	68	..	72.7
	Min .	65	57	52	51	55	60	58	46	56	62	41	39	49	41	37	46	49	57	60	52	41	43	57	62	47	60	61	68	63	54	..	53.0
W.Bend..	Max..	83	72	74	76	81	72	71	78	84	74	64	69	67	61	70	71	83	75	82	69	59	64	80	73	69	76	81	87	78	68	..	73.7
	Min ..	64	58	46	48	57	51	50	51	53	56	44	38	47	40	37	39	52	47	58	43	34	42	57	56	48	53	55	64	54	51	..	49 8
Whitten..	Max..	85	71	73	76	79	71	73	77	83	87	68	67	..	..	..	..	..	76	..	..	.	69	80	74	73	77	83	89	80	71	..	76.5
	Min .	65	54	48	50	54	58	54	45	55	60	48	38	..	..	..	..	..	55	..	..	..	39	57	61	51	60	60	67	61	54	..	54.3
Wilton J.	Max..	87	80	77	79	80	81	76	79	84	90	94	75	70	71	77	75	74	78	81	70	62	68	80	81	79	77	79	90	81	78	..	78.4
	Min ..	61	58	68	50	52	54	56	48	52	56	57	32	40	42	35	42	48	54	57	54	40	42	53	55	57	53	59	64	59	54	..	51.6
Winte'set	Max..	88	79	77	82	83	81	75	81	87	89	76	72	68	67	69	78	78	82	83	75	68	76	80	89	81	81	83	90	82	68	..	78.9
	Min ..	68	60	50	50	56	58	50	50	60	60	50	47	52	42	41	48	60	60	64	52	48	46	62	63	55	61	63	68	60	55	..	55.3

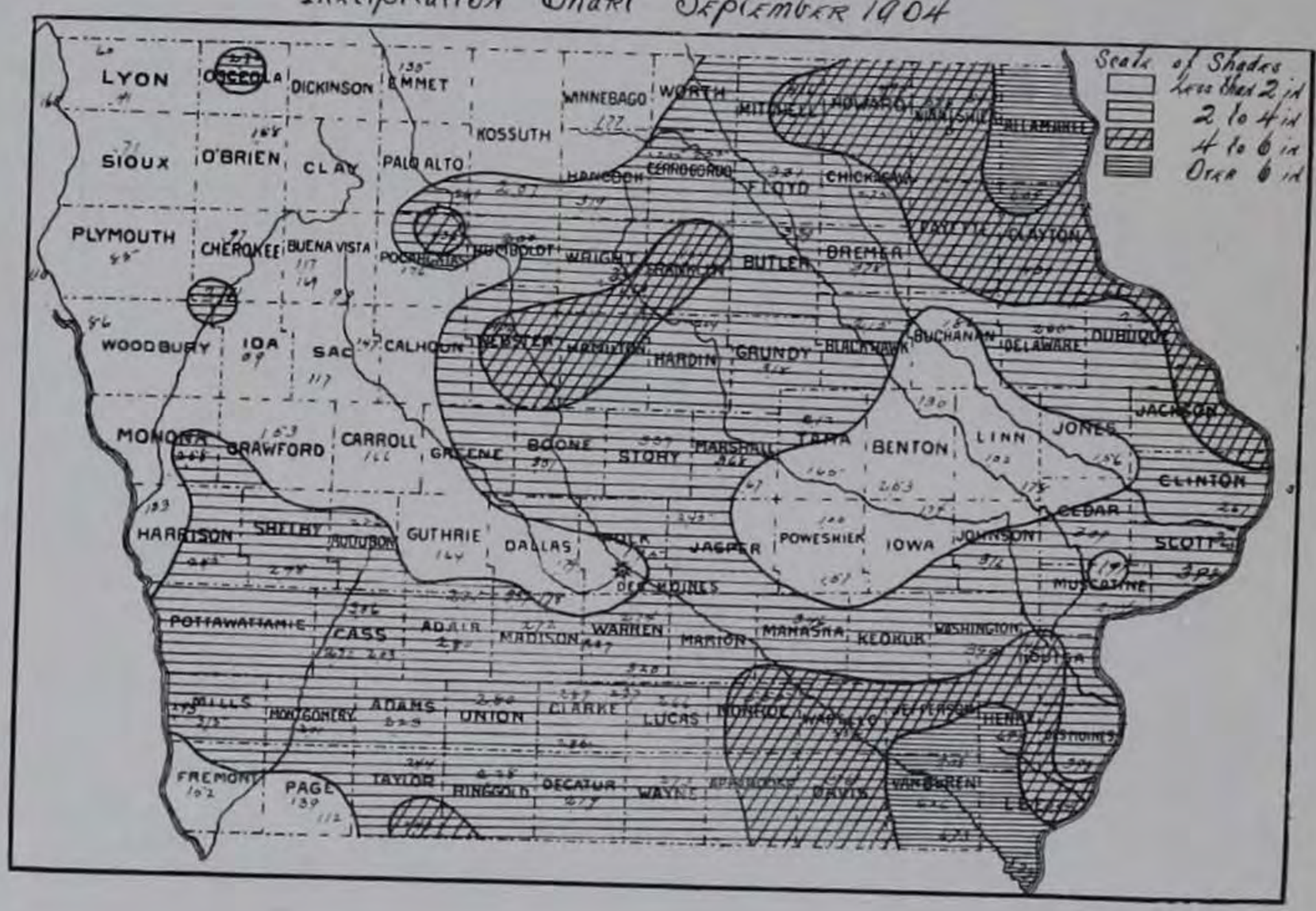
DAILY AND MONTHLY PRECIPITATION FOR SEPTEMBER, 1904.

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	.75	....	....	....	....	..	....	....	....	.04	....	.68	....	....	....	....	...	....	..	..	....	....	1.08	..	....	T	....	.12	.08	....	2.80
Albia	....	.45	....	....	....		....	....	....	....	....	....	.32	.50	....	..	....	....	T	.60	....	....	..	1.08	..	....	2.58		.02	....	....	5.55
Algona	.81	.27	....	....	....	.08	....	..	..	..	T	....	.16	..	....	....	....	....	T	....	T	..	....	....	....	....		.63	.42	....	....	2.07
Alta	.61	....	....	....	..	....	....	....	..	T	....	.	.10	....	....	....	....	..	....	....	T	....	....	....	....	....	.03	.43	....	....	....	1.17
Alta [near]	.68	....	..	....	....	....	....		....	.19		...	.12	....	....	....	....	....	....		T	..	....	....	....	....	.05	.65	....	....	....	1.69
Amana	.43	.27	....	....	....	.04	....	..	....	....	....		.22	....	....	..	.08	....	T	17	....	....	....	.26	....		.08	....	.19	....	....	1.74
Ames	.87	.80	....	..	....	....	....	..	....	....	T	....	.20	....	....	....	....	.	....	1.05	.01	....	....	.09	....	....	.37	....	.48	T	....	3.37
Atlantic	.29	.	....	.	..	....	....	..	....	.40	....	....	.78	....	....	....	....	.	....	..	....	.25	....	....	....	.72	.42	....	.20	....	..	3.06
Audubon	.28		....	....	....	....	....	..	....	....	.52	....	.52		....		....	....	....	.05	....	..	....	.01	T	..	....	.43	.10	.31	....	2.22
Baxter	.70	1.00	....	....	..	..		....		....	..	.	.15	..	....	....	....	....	....	.05	....	.	.	.18	..	....	.12	.	.05		....	2.45
Bedford	.82	....	....	....	....	....	....	....	....	..	.12	...	1.40	....	....	....	....	....	....	1.17	....	.04	....	.42	T	T	T	.04	....	.39	....	4.40
Belknap	.56	....	.	....	....	....	....	....	..	....	....	....	1.11	....	....	....	..	.13	.91	.10	....	..	....	.55	....	....	2.25	....	....	....	....	5.61
Belle Plaine	.50	.35	....	....	...	.12		.	..	....	....	....	.12	....	....	....	....	....	....	.08	..	..	...	.20	....	....	.24		.92	....	....	2.53
Bonaparte		1.00	....	..	..		....	....	....	.	....	....	1.50	...	....	....	....		.90	.28	....	....	....	1.05	....	.08	1.92	....	....	..	....	6 73
Britt	1.22	.18	....	....	....	.41	....	....	..	.19	....	....	.29	....	..	....	..	T	.03	T	T	T	T	T	....	..	....	.70	.22	....	..	3.19
Buckingham	1.52	....	....	...	....	.07	....	.	....	....	T	.	.11	....	....	....	....	....	.12	....	....	.06	....	....	....	....	T	.24	....	....	....	2.12
Burlington	.01	.11	....	....	....	....	....	....	....		T	.	.98	....	....	....	....	1.09	.19	.24	....	....	..	.34	..	.10	.92		....	..	..	3.98
Carroll	.40	.02	....	....	....	....	....	....	....	..	.55	..	....	.15	....	....	....	....	....	....	....	....	....	....	....	....	....	.54	.	....	..	1.66
Cedar Rapids	.06	.45	....	...		....	.06	....	....	....		....		.12	....	....	....	.08	....	.08	....	T	.	.13	..	....	....	....	.04	....	..	1.02
Chariton	T	.46		....	....	....	....	.	....	....	T	.	.79	....	....	..	....	...	T	.27	....	....	.	.72	....	T	.42	T	T	..	....	2.66
Charles City	.17	1.11	T	....	T	.42	....	....	....	....	.48	....	T	.53	....	..	..	....	....	T	....	....	....	....	....	T	....	....	.60	..	....	3.31
Clarinda	...	.25	...	....	....	....		....	....	....	....	....	.51	.10	....	....	....	....	....	.39	....	....	.02	....	....	T	....	....	.12	..	....	1.39
Clear Lake	.35	.40	.05	....	....	T	..		....	....	.30		.20	....	..	T	....	T	....	....	....		....	....	....	T		.75	....	....	....	2.05
Clinton	.02	28	....	..	....	....	....	.		...			.81	.	....	....	.36	....	....	.12	....	....	.07	.07	.01	.87	....	..	.06	....	....	2.67
College Springs	....	.53	...	....	....	....	....	....	....	..	....	...	.58	....	..	..	....		....	....		.01	....	....	.	....	....	..	....	..	....	1.12
Columbus Junct'n	....	.68	....	..	.	....	....	....	....	....	.07	....	.92	....	....	....	....	.38	.22	.49	....	....	....	.25	..	....	1.60	....	....	..	....	4.61
Corning	....	.57	....	....	....	....	..	...	....	..	.14		.75	....	....	..	....	....	....	.10	...	.05	....	.41	....	....	T	...	.21	T	..	2.23
Corydon	.09	.44	....	.	..	....	....	....	....	..	T	....	1.00	....	....	....	..	....	....	.29	....	....	....	.72	....	....	.17	....	.02	..	....	2.73
Cresco	.80	....	....	....	....	1.00	..	..	....	....	.70		.75	....	....	..	....	....	....	....	....	..	....	....	1.10	....	..	.60	....	....	....	4.95
Cumberland	T	....	....	..	....	....	....	....	....	....	....	.27	....	....	....	....	....	....	....	....	....	..	....	1.75	....	....	T	....	.01	....	....	2.03
Davenport	T	.35	....	....	....	....	....	....	....	..	T	....	1.12	....	....	..	..	.01	T	.12	T	T	T	.16	....	2.07	.14	....	.01	....	..	3.98
Decorah	.92	.68	....	....	....	1.76	....	....	....		.28	....	.50	....	....	....	....	....	T	....	....	....	....	....	.81	....	....	..	.59	....	....	5.44
Delaware	.04	1.23	....	....	....	....	....	....	....	..	.01	....	.08	....	....	....	....	....	....	.	....	....	.34	..	....	.68	....	....	.57	....	....	2.65
Denison	.12	T	.	....	..	....	....	....	....	....	T	....	.24	....	....	....	....	....	....	....	....	....	....	....	T	T	....	.85	.06	.26	....	1.53
Des Moines	.07	.64	....	...			..	....	..	..	.01	.	.30	....	....	....	....	.02	....	.60	....	....	T	05	T	....	.22	....	03	.01	....	1.95
De Soto	....	.45	....	....	....	....	....	....	....	....	.18	....	.36	....		....	....	....	....	T		T	....	.07	....		.50	.07	.09	.06	....	1.78
Dows	1.75	95	....	....			....	..	....	..	.54	....	.21	....	....	....	....	....	....	.05	.05		T	....	T	....	T	.65	.40	....	....	4 60
Dubuque	.06	.38	....	....	....	T	....	....	....	....	..	....	.07	T	....	....	T	.07	....	T	....	....	T	.03	1.12	.04		....	.44	....	..	2 21
Earlham	.05	.55	....	....	....		....	....	....	....	.29	....	.51	....	....	....	....	....	..	T	....	T	....	.23	....	1.70		....	.04	T	....	3.37
Elkader	.98		....	....	..	.07	....	....	....	....	.07	....	.45	....	....	....	....	....	....	....	....	....	....	.02	.80	....	....	....	2.00	....	..	4.39
Estherville	.66	.34	T	....	....	.	T	....	....	....	....	....	.10	.05	....	....	....	.	....	T	....	....	....	....	....	.04	...	.12	.04	....	..	1.35
Florence	1.25	.25	....	....	.04	....	....	....	....	....	.45	....	.22	..	....	....	....	....	....	....	.01	....	....	....	....	....	.01	1.28	.18	....	....	3.69
Forest City	.30	.40	T	..	T	.20	....		....	....	.08	....	....	.25	....	....	....	....	....	....	....	....	....	....	....	.10	....	T	.44	....	....	1.77
Fort Dodge	.43	.50	T	....	..	....	....	..	....	..	.43	....		.20	....	....	....	....	....	1.70	....	....	....		T	.02	....	....	.75	..		4.02
Fort Madison	....	.18	....	....	....	....	....	....	....	....	....	..	.96	..	....	....	....	1.75	.18	....	....	....	....	.89	....	....	1.08	....	....	....	....	5.04
Gilman	1.05	.10	....	....	..	.15	....	....	....	....	T	....	.07	....	....	....	T	..	.	T	T	T	T	.12	....	T	.18	....	....	....	....	1.67
Glenwood	T	...	.10	....	....		..	....	....	.15		....	.65	..	....	....	....	..	....	..	T	T	....	1.25	....	....	.	.	1.00	....	..	3.15
Grand Meadow	2.50	....	....	....		.37	....	....	....	....	.46	....	.56	....	.	..	.04	....	....	....	....	....	....	....	1.07	....	....	....	1.09	....	..	6.09
Greene	1.10	.40	....	....	....	.30	....	..	....	....	.45	....	.31	....	.	....	....	....	.10	....	....	....	....	....	....	.03	....	....	.70	....	....	3.39
Greenfield	T	.47	....	....	....	....	....	....	....	..	.08	....	.51	...	....	....	....	....	....	....	T	T	T	....	.94	..	.43	.17	.11	.09	....	2.80
Grinnell (near)	.05	.30	.	....	...	.05	....	....	....	....	....	....	.25	....	....	....	....	....	....	.05	....	....	....	....	....	....	.25	....	.05	..	.	1.00
Grundy Center	1.27	.92	....		T	.09	....	....	....	....	.10	....	.18		....	....	....	.06	....	.07	T	....	....	.04	..	....	....	....	.45	....	....	3.18
Guthrie Center	.07	12	....	....	....	....	....	....	....	....	.36	....	.37	....	....	....	....	....	....	....	....	T	....	.06	....	....	.16	....	.43	.07	....	1.64
Hampton	2.20	....	....	....	....	....	....	....	....	.53	..	....	.27	....	....	....	.05	..	.04	....	.08	....	....	....	.05	....	....	1.02	....	....	....	4.24
Harlan	.82	...		....	....	....	....	....	....		.58	....	.48				..	..	T	.35	....		....	.01	....		10	.37	.13	.14	....	2.48
Hopeville	.01	.67	....	....	....	....			....	....	.05	....	.72	....	....	....	....	....				....	....	.76	....	....	....	....	.05	.09	....	2 35
Humboldt	.70	....		....	....	..	....	....	..	....	.40	....	.28	....	....		....	....	....	....	.10	....	....	....			....	.37	.15	....	....	2.60
Ida Grove	.03	...	....	..	....	....	....	....	....	....	..	....	....	....	..	....	....	....	....	....	....	....	....	....		....	....	.05	...	.01	....	.09
Independence	1.30	....	....		..	T	....	..	....	....	....	....	T	....	.	....		.05	....	....	T	....	.01	....	....	....	....	.50	....	....	..	1.86
Indianola	.03	.28	..	....	....	....	T	T		....	04		.43		....	....	....	.15	....	....	....	T	....	.52	....	....	1.27	..	.02	.02	....	2.74
Inwood	....	....	....	....	....	..	....	....	....	..		.30	....	....	....	....	....	....	....	....	....	..	..	....	....	.11	....	....	....	....	....	.41
Iowa City	T	1.00	....	....	....	....	T		....	..	....	T	T	.52	....	....	....	T	.14	.24	....	..	..	1.00	....	.08	.14	T	....		....	3.12
Iowa Falls	.24	.60		....	T		....	....	....	....	.63	..	1	.07	....	....	....	....	T	.10	....	T	..	.03	....	T	....	T	.57	..	....	2.24
Keokuk	..	.33	....	....	....	T	.	....	..	....	.01	....	.36	....	....	....	....	2.70	.31	.23	....	..	....	2.49	....	....	1.90	....	....	T	....	8.33
Keosauqua	T	.95			....	....	..	..	..	..	....	....	.63	1.48	....	..	....	....	.79	.23	....	....	T	.90	.10	....	1.18	....	....	....	....	6.26
Lacona	....	.33	....	.	..	....	..	....	....	....	....	....	.57		....	....	....	....	....	.38	....	....	....	.82	....	....	1.03	.05	....	.02		3.20
Larrabee	.59	T	....	....		....	....	..		....		..	.01		....	.	....	..	....	....	.01	....	....	....	....	....	.15	.21	..	....	.	.97
Le Claire	....	.43	..	....	....	....		.	....	....	....	..	.04	.67	..	....	....	.08	T	.28	....	....	....	.12		2.01	.02	....	T	....	....	3.65
Le Mars	.85	....	....	....	....	....	....	....	....	....	....	....	....	..	....	....	....	..	....	.	T	....	....	....	T	....	T	T	....		....	.85
Lenox	.20	1.00	....	....	....	....	....	..	....	....	.07	....	.57	..	....	....	....	....	....	.15		T	.05	.25	....	....			.10	.05	....	2.44
Leon	T	....		....	....	....	....	....	....	..	....	....	1.06	....	....	....	....	....	.13	....		....	....	1.00	....	....	....	....	....	T	....	2.19
Little Sioux	.37	....		....	....		....	....	....	....	T	....	.19	....	....	....	....	....	.09	....		....	....	....	....	....	....	.39	.02	.27	....	1.33
Logan	.22	....	....	....	....	....	T	....	....	.83		.43	....	....	....	....	....	....	.09	....	....	....	....	....	....	....	.75	....	....	.23	....	2.55
Marshalltown	.07	2 12	....	....		....	....	....	....	....	....	....	.02	.10	....	....	....	T	.15	....	....	T	....	.10	....	....	.40	.02	.72	..	....	3 68
Mason City	.60	.40		....	.03	T	....	....	....	....	.45	....	.27	....	....	....	....	..	.03	....	....	....	....	....	.03	....	....	.74	....	....	....	....	2.55
Massena	.51	....	....	....	....	....		....	....			.05	.51		....	....	....	....	....	....	....	..	....	1.31	....	....	.05	....	.18	.11		2.72
Montezuma	T	.42	....		....	T	....	....	....	....		....	35	....		....	T	T	....		....	....	....	.20	....	....	.60	....	....	....	....	1.57
Mount Ayr	T	.30	....	....	....	....	....	....	....	....	.20	....	.95		....	....	....	....	....	.06	....	T	.03	.65	....	....	....	....	.06	.03	....	2 28
Mt. Pleasant	....	.73	....	....	....	T	....	..			....	....	1.44	....	....	..	..	1.42	2.16	.26	....	....	T	.25	..	....	.71	T	....	....	..	6.97
Mt. Vernon	T	.68	....		....	.01	....	....	....	....	T	....	.40	....	....	....	.01	....	....	.15	T	....	T	.26	....	.21	....	....	.06	....	....	1.78
Muscatine	....	.35	....	..		....	....	....	....	....	....	....	....	.45	....	..	....	....	.27	.26	....	....	....	.21	.05	T	.50	T	T	....	....	2.04
New Hampton	1.27	.20	....	.	....	.26	....	....	....	....	.41	....	.26	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.30	....	....	2.75
Odebolt	.13		....	....	....	....	....	....	....	....	....	....	....	....	.17	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.17
Ogden	.18	.57	....	....	....	....	....		....	..	53	....	.18	.10	....	....	....	....	....	1.45	....		....	.13	....	....	....	....	.37	....	....	3.51
Olin	.77		..	....	..	.02	....	....	....	....	T	....	.48	....	....	....	.01	....	....	..	..	....	....	.12	.10	....	....	....	.06	....	....	1.56
Omaha, Neb	.02	..	....	....	....	....	....	....	....	.02	48	....	.66	....	..	....	....	....	....	....	T	T	T	.65	T	....	.01	.52	T	.24	....	2.60
Onawa	.85	....	..	....	....	....	....	....	....	....	.14	....	.15	....	....	....	....	....	.18	....	....	....	....	....	....	....	.01	.70	.05	.50	....	2.58
Osage	1.96	.21	....	....	....	26	....		....	....	.28	....	.30	.06	....	....	....	....	.05	....	....	....	....	....	.45	.02	....	....	.57	....	....	4.16
Osceola	....	1.25	....	....	....	....	....	....	....	....	T	....	.32	....	....	....	....	....	....	T	....	....	T	1.05	T	T	.20	T	.05	T	....	2.87
Oskaloosa	T	.76	....	....	....	....	....	....	.	....	T	....	.60	....	....	....	....	.02	.95	....	....	....	T	.48	....	....	.60	..	..	.05	....	3.46
Ottumwa	.10	.15	....	....		....	....	..	....	....	....	....	.88	....	....	..	....	.35		1.00		....	....	....	....	....	2.10	....	....	....	....	4.58
Pacific Junction	.06	....	....	....	....	....	....	....	....	....	.18	....	1.05	....	....	....	....	....	....	....	T	T	....	.55	....	....	....	.40	....	.19	..	2.43
Plover	1.80	....	....	....	.12	....	....	....	....	....	....	....	.18	....	....	....	.07	....	....	....	....	....	....	....	....	....	.15	2.04	..	....	....	4.36
Pocahontas	.69	....	....	....		....	....	....	....	....	.17	....	.31	....	....	....	....	....	....		.01	....	....	....	....	....	....	.55	....	..	....	1.76
Red Oak	.13	.01	....	....	....	....	....	..	....	....	....	....	.72	....	....	....	....	....	....	....	....	T	....	.90	T	....	T	....	.21	.04	....	2.01
Ridgeway	1.01	....	..	....	.20	1.01	....	....	..	....	.56	....	.60	.03	....	....	.10	....	.07	....	....	....	....	....	.94	..	.02	.62	....	....	..	5.16
Rock Rapids	T	T	....	....	....	..	....	....	..	....	....		....	.	....	....	....	....	T	....	T	....	....	....	....	....	....	.60		....	..	.60
Sac City	.09	T	....	....			....	....	..	....	.28		.19	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.90	T	.01	....	1.47
Sibley	1.03	1.18	T	....	...	T	....	....	....	....	....	.	.18	....	....	....	....	T	....	.06	....	.02	....	....	....	....	....	.20	.03	....	....	2.70
St. Charles	.07	.45	....		....	..	....	....	....	....	.05	....	.05	....	....	....			...	.07	....	.	...	.70	T	..	.78	.	.10	T	....	2.27
Sheldon	1.25	T	...		....	....	....	....	....	....	....	....	.11	....	....	..	T	.17	.01	.	.01	....	....	....	....	..	T	.03	....	....	....	1.58
Sioux City	.51	....	..	....	....	....	....	....	....	....	....	....	.04	....	....	....	....	....	....	....	T	....	T	..	T	....	.01	.11	T	.19	..	.86
Sioux Center	.65	.03	....	.	...	.	...	....	....	....	....	....	....	....	....	....	....	....	T	....	T	...	T	....	....	....	T	.03	....	....	....	.71
Stockport	T	.99	....	...	....	....	.	....	....	....	....	....	1.96	....	...	....	....	T	1.36	.37	....	....	T	.57	T	.35	1.48	....	T	T	....	7 08
Storm Lake	.17	24	T	....		....	....	....	..	....	.13	..	....	.10	....	....	....	....	....	....	.	T	....	.08	....	....	1 17	....	.35	..	....	....	2.34
Stuart	.04	.24	....	....	....	....	..	....	....	....	....	....	.32	.14	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.99

DAILY AND MONTHLY PRECIPITATION FOR SEPTEMBER, 1904—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	
Thurman	T										T		.92									T									1.52
Tipton	.10	1.61											.50					.12		.20				.28		.18	.08			.22		3.02
Toledo	.75	.50											.10						.05		T							.15				1.65
Vinton		.62				.39							.07						.09					.08		10		.05				1.30
Washington		.65											.58					.87		.30				.16			1.41					3.99
Washta	.65	T								T	.02								T	T							.06	.40				2.11
Waterloo	.80	.74				.08					.02		04							.02	.01		T	.02					.42			2.15
Waukee		.76									.13		30							.08		T		.07	T		.18		.20	.07		1.79
Waverly	1.74	.54			.02	.10							.48					.05		.05	T		.02		.05				.73			3.78
West Bend	.95					.01					.1		.17					.03	.01		.02											2 69
Wilton Junction	.30					T							.65					.15	.49							T	1.38					1.91
Winterset	.07	60									.07		.47											.22	.10		T					2.72
Woodburn	T	.49									.05		.73						T	.07		T		.39			1.07		.05			2.77
																								.97			.39		.05	.02	

Precipitation Chart September 1904



OCTOBER, 1904 No. 10

MONTHLY REVIEW

OF THE

IOWA WEATHER AND CROP SERVICE

CONTENTS.

CENTRAL STATION, DES MOINES, IOWA.

J. R. SAGE,
DIRECTOR.

GEO. M. CHAPPEL,
LOCAL FORECASTER,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

THE IOWA WEATHER AND CROP SERVICE

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

STATE BOARD OF AGRICULTURE,

CONSTITUTED AS FOLLOWS:

OFFICERS.

W. W. MORROW, PRESIDENT, Afton.
C. E. CAMERON, VICE-PRESIDENT, Alta.
G. D. ELLYSON, TREASURER, Des Moines.
JOHN C. SIMPSON, SECRETARY, Des Moines.

EX-OFFICIO DIRECTORS.

ALBERT B. CUMMINS, Governor of Iowa.
H. R. WRIGHT, Dairy Commissioner.
DR. J. I. GIBSON, State Veterinarian.

DISTRICT DIRECTORS.

First District—R. S. JOHNSTON, Columbus Junction.
Second District—C. W. PHILLIPS, Maquoketa.
Third District—W. C. BROWN, Clarion.
Fourth District—R. T. ST. JOHN, Riceville.
Fifth District—S. B. PACKARD, Marshalltown.
Sixth District—T. C. LEGOE, What Cheer.
Seventh District—M. J. WRAGG, Waukee.
Eighth District—JOHN LEDGERWOOD, Leon.
Ninth District—M. MCDONALD, Bayard.
Tenth District—J. W. WADSWORTH, Algona.
Eleventh District—H. L. PIKE, Whiting.

METEOROLOGICAL STATIONS AND OBSERVERS.

From the following, weekly and monthly reports of Metorological data are received by the Iowa Weather and Crop Service.

Afton ..... Hon. N. W. Rowell
Albia ..... E. R. Reeve
Algona ..... Dr. F. T. Seeley
Allerton ..... Rex Shriver
Alta ..... D. E. Hadden
Alta (near) ..... W. J. Minard
Amana ..... Conrad Schadt
Ames ..... Exp. Station
Atlantic ..... J. W. Love
Audubon ..... Geo. E. Kellogg
Baxter ..... W. T. Thorp
Bedford ..... E. E. Healy
Belknap ..... A. W. Rankin
Belle Plaine ..... S. P. Vandike
Bonaparte ..... Hon. B. R. Vale
Britt ..... G. P. Hardwick
Buckingham (Traer P. O.) ..... Dr. W. A. Daniel
Burlington ..... I. S Shontz
Carroll ..... Moses Simon
Cedar Rapids ..... Electric Light and Power Co.
Chariton ..... C. C. Burr
Charles City ..... C. H. Priebe
Clarinda ..... A. S. Van Sandt
Clear Lake ..... E. C. Schrader
Clinton ..... Luke Roberts
College Springs ..... A. M. Finley
Columbus Junction ..... J. B. Johnston
Corning ..... Jerome Smith
Corydon ..... Miss May Miller
Cresco ..... R. H. Doolittle
Cumberland ..... Agent C., B. & Q. R'y
Davenport ..... *J. M. Sherier
Delaware ..... Wm. Ball
Decorah ..... F. H. Baker
Denison ..... Prof. W. C. Van Ness
Des Moines ..... *Geo. M. Chappel
De Soto ..... R. D. Minard
Dows ..... A. C. Fuller
Dubuque ..... *Orin Parker
Earlham, R. F. D. ..... Geo. Phillips
Elkader ..... Chas. Reinecke
Estherville ..... Earle W. Peterson
Fayette ..... R. Z. Latimer
Florence (Clarion P. O.) ..... H. Du Bois
Forest City ..... J. A. Peters
Fort Dodge ..... Tobin College
Ft. Madison ..... Miss L. A. McCready
Galva ..... C. E. B. Roberts
Gilman ..... Jas. L. Wylie
Glenwood ..... J. P. Jackson
Grand Meadow (Postville P.O.) ..... F. L. Williams
Greene ..... J. L. Cole
Greenfield ..... J. G. Culver
Grinnell ..... Prof. J. S. Buck
Grinnell (near) ..... A. O. Price
Grundy Center ..... Ed King
Guthrie Center ..... D. G. Beardsley
Hampton ..... E. C. Grenelle
Hanlontown ..... Miss G. M. Paschen
Harlan ..... C. A. Reynolds
Hopeville ..... M. T. Ashley
Humboldt ..... H. S. Wells
Ida Grove ..... J. E. Conn
Independence ..... E. F. Wulfke
Indianola ..... Prof. J. L. Tilton
Inwood ..... Geo. M. Larsen
Iowa City ..... Prof. A. A. Veblen
Iowa Falls ..... J. B. Parmelee
Keokuk ..... *Fred Z. Gosewisch
Keosauqua ..... Prof. J. A. Landes
Knoxville ..... Casey & Bellville
Lacona ..... Agent C., B. & Q. R'y
Larrabee ..... H B. Strever
Lenox ..... J. L. Hurley
Le Mars ..... Dr. T. E Cole
Leon ..... Millard F. Stookey
Little Sioux ..... G. H. Gibson
Logan ..... Mrs. M. B. Stern
Maquoketa ..... Frank W. Keeney
Marshalltown ..... Branch S. Jones
Mason City ..... J. S. Mills
Massena ..... Fred. T Knott
Montezuma ..... C. J. Griffin
Monticello ..... C. E. Heisey
Mount Vernon ..... Rev. J. W. Hubbard
Mt. Ayr ..... A. F. Beard
Mt. Pleasant ..... Prof. J. W. Edwards
New Hampton ..... A. F. Kemman
Newton ..... Hon. J. P. Beatty
Northwood ..... Dr. E. R. Young
Odebolt ..... E. Starner
Ogden ..... C. L. Zollinger
Olin ..... Hon. Nathan Potter
Omaha, Neb ..... *L. A. Welsh
Onawa ..... C G. Perkins
Osage ..... G. D. Pattingill
Osceola ..... Mrs. S. Lewis
Oskaloosa ..... Jos. Boyd
Ottumwa ..... Dr W. B. La Force
Pacific Junction ..... Agent C., B & Q. R'y
Perry ..... J. A. Harvey
Plover ..... J. S Smith
Pocahontas ..... F. E. Hronek
Red Oak ..... J. S. Cole
Ridgeway ..... Arthur Betts
Rock Rapids ..... W. C. Wyckoff
Rockwell City ..... C. M. Randall
Ruthven ..... F. M. Fitzgerald
Sac City ..... J. A. Sodestrom
St. Charles ..... C. W. Minard
Sheldon ..... Dr. A. W. Beach
Sibley ..... H. G Doolittle
Sigourney ..... Mrs. R. F. Ashbaugh
Sioux Center ..... Jacob de Ruyter
Sioux City ..... *U. G. Purssell
Spirit Lake ..... W. C. Drummond
Stockport ..... C. L. Beswick
Storm Lake ..... L. E. Burdick
Stuart ..... Hon John Herriott
Thurman ..... C. R. Paul
Tipton ..... F. K. Gregg
Toledo ..... Herbert Giger
Vinton ..... H G. Haines
Wapello ..... Geo. W. Schofield
Washington ..... Wm. A. Cook
Washta ..... H L. Felter
Waterloo ..... M. L. Newton
Waukee ..... E. J. Leonard
Waverly ..... H S Hoover
What Cheer ..... R. S. Alexander
Whitten ..... Dr. Frank P. Butler
Wilton Junction ..... J. M. Rider
Winterset ..... B. L. Sprinkle
West Bend ..... Phil Dorweiler
Woodburn ..... C. B. McDonough
Zearing ..... H. E. Burkhart

*U. S. Weather Bureau.

WEATHER-CROP OBSERVERS.

Reporting for the Weekly Bulletin.

Agency ..... J. H. Van Zandt
Albia ..... Wm. Mercer
Allerton ..... James Piper
Alta ..... Jonas Cushman
Audubon ..... A. H. Edwards
Blairstown ..... T. H. Weil
Burt ..... R. Jain
Cedar Rapids ..... Hon. A. J. Fuhrmeister
Centerville ..... Jacob Harter
harles City ..... W. B. Towner
Clarksville ..... F. M. Russell
Correctionville ..... Hon. W. B. Chapman
Creston ..... M. V. Ashby
Danville ..... Sherman Matthews
Dunlap ..... Hon. B. F. Roberts
Emerson ..... D. B. Nims
Fort Dodge ..... R. W. Blaine
Fruitland ..... R. T. Hummel
Goldfield ..... D. M. Stephens
Geneva ..... Wm. H. Thompson
Hartford ..... H. E. Slack
Hartwick ..... Fred McCulloch
Harlan ..... H. B. Kees
Hesper ..... G. E. Dillingham
Humeston ..... Hon. S. H. Moore
Independence ..... Geo. H. Wilson
Indianola ..... H. D. Guthrie
Ireton ..... J. M. Sherman
Lake City ..... C. B. Hamilton
Le Mars ..... Hon. Henry Schrooten
Long Grove ..... Hon. Chris Marti
Manson ..... J. D. Skinner
Marshalltown ..... Hon. S. B. Packard
Mt. Pleasant ..... W S. Wright
Milton ..... Hon. E. C. Holland
Monroe ..... J. A. Dibel
Nevada ..... Geo. C. White
Northwood ..... T. L. Bolton
Orange City ..... H. J. Vande Waa
Pella ..... J. H. Ver Steeg
Pittsburg ..... G. C. Duffield
Portland (Nora Springs, P. O.) ..... Arthur Pickford
Platte (Creston R. D.) ..... M. H. Dibel
Red Oak ..... Hon. C. L. Stratton
Rock Rapids ..... D. E. F. Merrill
Seymour ..... L. B. Sager
Shenandoah ..... Reuben Mullison
State Center ..... E. P. Thompson
Stuart ..... W. W. Bailey
Toledo ..... W. G. Malin
Van Horne ..... Spencer Smith
Waukon R. D ..... T. B. Wiley
Weldon ..... Ed Worden
Winterset ..... H. A. Kinsman
West Branch ..... Wrigley Smith
West Union ..... H. B. Blackman
Wilton ..... Thos. Boot
Wiota ..... I. S. Coomes
Woodward ..... George Swisher

U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

Iowa Weather and Crop Service.

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OCTOBER WEATHER AND CROPS.

October was warmer and drier than usual, the daily mean temperature being about 1° above normal, and the average rainfall for the state 0.73 of an inch below normal. The northern section received the largest amount, the average being about 0.29 of an inch above the October normal. The first frost of the month occurred on the morning of the 6th, and was heavy enough to kill vines and most of the cornstalks remaining green in the northern half of the state. In the southern half that frost was light, causing no damage. The first general killing frost covering the state occurred on the morning of the 23d, all crops being safe at that time. The bulk of the rainfall came in the first and second decades—mainly between the 5th and 20th, the balance of the month being dry and favorable for farm work, for drying out the corn crop and harvesting the minor crops. No better weather could be desired for preparing corn for cribbing than was prevalent from the 20th to 31st. Good progress was made in harvesting the corn during the last week, though the heavier ears contained considerable moisture. But the weather was cool by night, though moderate and clear by day. The heavy potato crop was harvested in good condition, the quality of the product being unusually good. Pastures were very good throughout the month. Good progress has been made in fall plowing. The small acreage in fall wheat and rye showed an excellent growth and good stand. On the whole October was a very mild and favorable month, crowning a fairly productive crop season.

NOTES AND COMMENTS.

October brought an abundant supply of health-giving ozone, with the delightful glow and warmth of the temperate zone. There is nothing in the torrid zone that equals the Indian summer of this latitude.

What will be the character of the coming winter? That question is frequently propounded to observers of the Weather Bareau, and it's easily answered. It will be an open winter—sure! It will be open on all sides and above, for free entrance of all the winds that blow; for boreal blasts, blizzards, snow flurries from the north and west, and for some balmy breezes from Gulfland. It will be an old-fashioned winter; that is to say, it will be quite like some of the fashions of winter that prevailed in the pioneer years between the 40's and 70's. Whether severe or mild its prototypes may be noted in the old-time records. There will be some sudden changes, intermittent temperatures, and a goodly number of bright, cold, crisp and health-giving days. All in all, it will be good winter for indoor social enjoyment, for hearing lectures, attending institutes and meetings for mental and moral improvement. It will be a good winter for taking account of stock and preparing for next season's business. This is fully as specific as any of the long-range prognostications.

At the recent session of the International Geographic Congress, held in Washington, D. C., Commander Robert E. Peary, U. S. N., served as president and made the opening address. Referring to the rapid progress made in recent years, he said; "Wireless telegraphy is an accomplished fact today, not an experiment, and the atmosphere of the globe in a short time will throb incessantly with countless messages." He referred to the isthmian canal as the grandest project, the greatest engineering, financial, and diplomatic problem of the age, and added; "A fearless master hand has at a stroke cut the Gordian tangle that has hitherto defied the ablest statesmen and financiers of the world, and the nations today accept without question the Panama canal as a fact."

With deep regret announcement is made of the death of Isaac Young of Jefferson, Greene county, one of the faithful voluntary observers and crop reporters of the climate and crop service of Iowa. His death occurred on the evening of September 21st, after a brief illness. In all things he was faithful until the end.

By joint action of the boards of supervisors of Monona and Harrison counties a great drainage ditch is to be dug, at an estimated cost of $258,000, which will reclaim 86,000 acres of land that is now too wet for cultivation. It is likely to be a very profitable enterprise, from a sanitary as well as a financial point of view. Within a few years the rich land thus brought into cultivation will grow the heaviest crops produced in those counties. The soil is practically inexhaustible. The reclaimed tract may produce four to five million bushels of corn per year.

Will Chamberlain, in his "Wayside Notes," says: As a weather prophet, Bob White is a profound fizzle. He does not belong to the Hicks school, because he makes no claims to weather prognostications. His "More Wet" is his personal clarion, and has no relations to storms in any sense of the word, The quail is very neat and trim little gent of the by-ways.

It is the surplus water in the soil that injures crops, and this is removed by tile drainage. No moisure is drained from the soil by tiling that would be helpful to plant growth.

United States Consul Winslow says that Belgium has eleven large mills that grind American corn exclusively, and that the product of these mills is used for bread making. One large bakery turns out 10,000 loaves of bread weekly made of a mixture of 25 per cent corn flour and 75 per cent rye or wheat. Over 800 bakeries in Berlin are selling bread made of this same mixture. Commenting on this statement an exchange says: "The short wheat crop and the probable advance in the price of bread will afford the corn grower an unusual good opportunity this year to start a propaganda in the United States for the more general use of corn as food. If it has been possible to lead Europeans into using corn it ought to be even less difficult to do the same thing in this country. A more general use of corn would not only largely benefit the western states, which are the chief producers of this cereal, but would be a blessing to poor people the country over who find their slender incomes hardly equal to the feeding of large families on such an expensive luxury as white bread.

The molasses, gluten and sugar feeds and the multitude of other balanced and mixed feeds which have developed of very late years are constantly growing in importance and in the appreciation in which they are held in the trade. At the same time, millfeeds are as highly esteemed as ever they were, and it cannot justly be said that they have suffered at all in the estimation of the public by the increasing use of the multitude of special feeds which have come to the front. This is explainable by two reasons; one that millfeeds are quite largely used as a basis for various mixed foods, and the other that the practice of feeding stock in a special and careful way has made immense strides in the last five years. Once bossy got grass in season and hay out of season, and if she succeeded in annexing a bran mash on the side or a dessert of cut up pumpkins or whole turnips she regarded herself as a lucky if not pampered animal. Nowadays, all this is changed. The farmer has his sharp eye glued on the analyses and tests of the agricultural colleges and state boards of agriculture, and the consequence is that the bill of fare which the progressive farmer serves up to his stock and poultry rivals the menu of the average country hotel for length and variety. All this is pleasant for the live stock and profitable for the farmer, and, at the same time, gives wide scope to the feed business, which daily assumes greater and greater importance. Nor is the end of this movement by any means in sight, for it is based upon the purely business principle of securing the best possible results from a given investment.—*Flouer and Feed.*

UNRELIABLE WEATHER PROPHETS.

The following article clipped from the editorial columns of the *Homestead* is scientifically sound, and worthy of a careful reading:

Nothing could be of greater practical value to the farmer than a reliable prognostication of the weather for a year or even for a single season. Such a prediction would be a controlling factor in the decision of many important questions regarding crops and farm management. If the character of the weather as to temperature, humidity, sunshine, wind and rainfall could be foretold with accuracy, the farmer could well afford to invest a generous sum each year in the forecasts.

Many intelligent and generally well-informed persons will tell you that certain men whom they can name have solved this problem; that their predictions from year to year have been marvelously verified by the results, and that their publications are worthy of attention and study.

When the prognostications of these long-range weather forecasters are examined they are almost invariably characterized by two features, either of which would condemn them as being worthy the credence of educated people. One of these is their pretended dependence on astronomical or astrological conditions; the other is their general character, varying enough as to either time or locality to be valueless and unsusceptible of being tested.

Astrology has no standing as a science. It makes its appeal to the ignorant and superstitious. Astronomy is one of the genuine sciences and its conclusions are everywhere received with respect; but any astronomer of standing will tell you that there is no body of astronomical knowledge on which long-range weather predictions, or weather forecasts of any character, can be based. There is a supposed connection between the variations in the size and character of sun-spots and atmospheric and magnetic conditions on the earth; but the problem has not yet been worked out; and any writer who leads his readers to infer that it has been even partially solved is either uninformed or mendacious.

The professional long-range weather prophet makes his forecasts so indefinite and general that he can and actually does claim any storm of any character at any place within several days of his assigned dates as being a substantial fulfillment of the prediction. The futility of such logic is seen when it is remembered that some kind of an atmospheric disturbance is occurring in some part of the United States almost every day in the year. Like our "equinoctial storms" of fall and spring, give the weather prophet's storm a leeway of three or four days each way, six or eight days in all, and it will be pretty sure to come along, according to programme.

In its very nature, the weather depends on an infinite variety of causes, conditions and combinations between them. It is not susceptible of reliable long-range prediction. The weather forecasts now published by the government are mainly reliable because they are made in accordance with known scientific principles. They are based on observed phenomena, calculated on actual movements of storm centers. They are not always verified by results in every part of the territory they cover; but they are infinitely more valuable than any long-range forecasts made. It is safe to give the long-range weather prophet a wide berth.

THE WEATHER AND THE ALMANACS.

The way to determine the value of long-range weather forecasts is to compare them with the records, noting misses as well as hits. They ought to score about 50 per cent of verification by the law of chance, even if the storm dates were drawn from a lottery wheel. From an almanac published by one of the planetary weather prophets the following extracts have been clipped covering the period from October 20 to November 7, 1904:

OCTOBER—"Fourth storm period. This period runs from the 20th to 25th, central on the 22d. The disturbing factors at this time are the Vulcan equinox, the Mercury disturbance, the opposition of Jupiter, with moon on the celestial equator and full. Things to be expected. It is probable that some of the most marked disturbances of the month will occur at this time. Low barometer and rapid change to warmer may be expected in all western sections as early as the 21st. Rain with probable thunderstorms will quickly follow, and during the 22d, 23d and 24th, a series of storms will pass over the country from west to east. Mercury will begin his work of thick cloudiness, mist and sleet northward at this time. Earthquake disturbances will be felt in many parts of the globe not far from the 24th."

"Fifth storm period.—This period is central on October 27th and 28th. Some energetic storms, especially on and about the

lakes and North Atlantic will appear at this time. Rain will turn to sleet and snow northward," etc.

NOVEMBER—"First storm period. This period covers the first six days of the month, having its center on the 3d. In most western extremes the weather will turn quite warm. From about the 3d to the 6th these conditions will develop into cloudiness and rain and pass eastwardly across the country. The culmination of the period will fall on and touching the 5th, about which day rain, with possible thunder, will turn to colder and snow in the north and be followed by rising barometer, high westerly winds and much colder."

Now it is scarcely necessary to refer to the weather maps, covering the period from October 20th to November 8th, to be assured that these almanac forecasts were not verified in Iowa. During that period there has been a steady prevalence of most delightful Indian summer weather over the greater part of the western half of the United States, and most of the time throughout the northern states. The almanac maker did not correctly decipher the wireless messages sent by Jupiter and the other planets. Storms were sweeping over some other portions of the earth, and even over portions of this continent, not only on the specified storm days of the almanac, but also on all the days in October, and all other days in the year. So of course all long-range forecasts may be verified by allowance of a liberal range of time and locality. But—*cui bono.*

CLIMATOLOGY OF THE MONTH.

BAROMETER.—Mean pressure, 30.06 inches; highest observed, 30.54 inches at Dubuque on the 6th; lowest observed, 29.46 inches at Davenport and Dubuque on the 21st; range for state, 1.08 inches.

TEMPERATURE.—The monthly mean temperature for the state, as shown by records of 111 stations, was 53.1°, which is 1.0° above normal. By sections the mean temperatures were as follows: Northern section, 51.1°, which is 0.4° above normal; central section, 53.0° which is 1.6° above normal; southern section, 55.2°, which is 0.7° above normal. The highest monthly mean was 58.4° at Belknap; lowest monthly mean, 49.2° at Estherville. The highest temperature reported was 96° at Waukee on the 4th; lowest temperature reported, 16° at Earlham on the 27th. The average monthly maximum was 81.9°; average monthly minimum, 23 2°. Greatest daily range, 51° at Waukee; average of greatest daily range, 36.9°.

PRECIPITATION.—Average precipitation for the state as shown by records of 120 stations, was 1.67 inches, which is 0.73 of an inch below normal. The averages by sections were as follows: Northern section, 2.50 inches, which is .29 inch above normal; central section, 1 60 inches, which is .78 inch below normal; southern section, 0.90 inch, which is 1.73 inches below normal. The largest amount reported was 4.43 inches at Sioux Center; least amount reported, .14 inch at Bonaparte and Corydon. The greatest daily rainfall reported was 3.00 inches at Olin on the 9th. Average number of days on which .01 of an inch or more was reported, 6.

WIND AND WEATHER.—Prevailing direction of the wind, southeast, south, and northwest; highest velocity reported, 52 miles per hour from the northwest at Sioux City on the 21st. Average number of clear days, 15; partly cloudy, 8; cloudy, 8.

OBSERVERS' NOTES.

ALTA.—*David E. Hadden.* October rainfall occurred during the middle decade; last decade was ideal weather; frost on the 6th was only heavy in low places; first general killing frost came on night of 22d.

AMANA.—*C. Schadt.* Weather very favorable for ripening and drying corn, and a considerable part of the crop is harvested; despite apparently unfavorable season nearly all crops have been abundant; fall sown fields look green and healthy; first killing frost October 23d.

ATLANTIC.—*J. W. Love.* A very fine month for farm work; farmers husking corn and report heavy yield of good quality. Ducks made southward flight on 2d and wild geese the 4th.

BAXTER.—*W. L. Thorp.* Corn matured without damage by frost.

BONAPARTE.—*B. R. Vale.* A royal month for farm work and maturing the corn crop; rainfall 0 14 inch—the lowest record in years.

BRITT.—*Geo. P. Hardwick.* First killing frost here on October 6th, with but few mornings of frost temperature; corn husking begun the 25th, though much was unfit to crib.

CHARITON.—*C. C. Burr.* Month favorable for farm operations, and work is well advanced; some corn being cribbed.

CLINTON.—*Luke Roberts.* A very fine month with 20 clear days and no killing frost until 23d; rainfall only 0.59 inch—the least October rainfall in the last 26 years, except in 1897 when it was only 0.37 of an inch.

FOREST CITY.—*J. A. Peters.* Very little corn cribbed; not dry enough; first killing frost here October 6th.

GARDEN GROVE.—*F L. Williams.* Very favorable month for ripening corn; but little in crib yet; pastures fine as in June; plowing well along.

GRINNELL.—*A. O. Price.* First killing frost October 23d; weather fine; corn dry enough to crib.

GRUNDY CENTER.—*E. S. King.* A remarkable month; best kind of weather for corn and harvesting potatoes; some begun to crib corn on the 19th.

HANLONTOWN.—*Miss G. M. Paschen.* Corn husking begun last week in October. About one third soft, one third sound, and balance rotten.

HUMBOLDT.—*H. S. Wells.* Corn all right and turning out good; pastures still good.

IDA GROVE.—*J. E. Conn.* An exceptionally warm and dry October; corn husking begun on the 20th.

INWOOD.—*G. M. Larsen.* A fine month. Good yield and quality of corn; considerable clover threshing.

LARRABEE—*H B. Strever.* Frost killed corn on 6th, but flowers were in bloom till 23d.

LEON—*M. F. Stookey.* Freezing temperature forming ice on night of 21st-22d. Not much frost on account of wind.

LOGAN—*Mrs. M. B. Stern.* A remarkable month for mildness; killing frost came later than usual.

OLIN—*Nathan Potter.* An ideal month for fall work; corn-picking began with better crops than usual.

RIDGEWAY—*Arthur Betts.* Coolest October since 1898; 212 hours sunshine; first killing frost on 6th; very heavy thunder on 10th, struck in several places.

SHELDON—*A. W. Beach.* First killing frost on 6th; corn all safe; husking generally begun on 24th.

STOCKPORT—*C. L. Beswick.* Least rainfall for any month since these records begun, over three years ago.

WAUKEE—*E. J. Leonard.* Fine month for maturing corn; no frost sufficient to kill tomato vines till 23d, and frost every night after that except one.

WHITTEN—*Frank P. Butler.* Morning of 23d ice formed; it was the first killing frost; the one the 6th was light.

ZEARING—*H. E. Burkhart.* Frost of the 6th did no damage; corn being cribbed last of month, and yield reported to average 50 bushels per acre.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES. Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Davenport	30.05	30.48	6	29.46	21
Des Moines	30.08	30 52	6	29.66	21
Dubuque	30.07	30.54	6	29.46	21
Omaha, Neb	30 05	30.46	6	29.64	19
Keokuk	30.06	30.44	6, 14	29.57	21
Sioux City	30.05	30.48	6	29 70	9
Means	30.06	30.54	6	29.46	21

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Davenport	5.488	34	NW	21
Des Moines	6.362	34	NW	21
Dubuque	4.702	29	NW	21
Keokuk	5.986	40	NW	21
La Crosse, Wis	5.525	29	N	21
Omaha, Neb	6.570	40	N	19
Sioux City	10 545	52	NW	21

BELATED REPORTS.

SIGOURNEY—*August*. Mean temperature 70.8°; highest 95° on the 13th; lowest 46° on the 8th; greatest daily range 36°; total precipitation 3 62 inches; greatest in 24 hours 1.47 inches; prevailing direction, northwest. Number of clear days 18, partly cloudy 9, cloudy 4, rainy 8.

SIGOURNEY—*September*. Mean temperature 65.6°; highest 94° on the 10th; lowest 36° on the 15th; greatest daily range 33°; total percipitation 2.99 inches; greatest in 24 hours .69 inch; prevailing direction, southwest. Number of clear days 5, partly cloudy 17, cloudy 8, rainy 10.

ROCKWELL CITY—*September*. Mean temperature 62.2°; highest 90° on the 28th; lowest 38° on the 14th, 15th, 19th; greatest daily range 42°; total precipitation 1.75 inches; greatest in 24 hours .55 inch. Number of clear days 14, partly cloudy 10, cloudy 6, rainy 4.

WAPELLO—*September*. Mean temperature 67.6° highest 89° on the 17th; lowest 40° on the 15th; greatest daily range 31°; total precipitation 4.24 inches; greatest in 24 hours 1 51 inches; prevailing direction, southeast. Number of clear days 16, partly cloudy 11, cloudy 3, rainy 6.

AFTON—*September*. Mean temperature 65.2°; highest 86° on the 1st, 10th, 28th; lowest 35° on the 15th; greatest daily range 34°; total precipitation 2.80 inches; greatest in 24 hours 1.08 inches; prevailing direction, southwest. Number of clear days 15, partly cloudy 9, cloudy 6, rainy 7.

MAQUOKETA—*September*. Mean temperature 62 0; highest 90° on the 10th; lowest 30 on the 15th; greatest daily range 44°; total precipitation 3 99 inches; greatest in 24 hours 1 52 inches; prevailing direction, northwest. Number of clear days 11, partly cloudy 5, cloudy 14, rainy.

ERRATA IN SEPTEMBER REVIEW.

CHARITON.—Maximum temperature recorded on the 28th, page 7, should have been 10th and 28th.

CRESCO—Mean temperature recorded 60.4° on page 7, should have been 60.8°.

CLARINDA.—Maximum temperature recorded on the 29th, page 7, should have been the 28th.

ESTHERVILLE.—Maximum temperature recorded on the 18th, page 7, should have been the 17th.

SIOUX CENTER.—Mean temperature recorded 61.2° on page 7, should have been 61.0°. Mean Maximum temperature recorded 74.5° on page 10, should have been 74.1°

CLIMATOLOGICAL DATA FOR OCTOBER, 1904.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Algona	Kossuth	1,213	28	50.4	-0.2	76	9	22	27	35	1.47	-.63	.51	....	7	18	8	5	NW	
Alta	Buena Vista	1,513	11	50.6	-0.2	78	3, 4	25	25, 27	36	2.46	†.29	.83		10	11	12	8	S	8, 10, 17
Alta (near)	Buena Vista										2.45		.92		7					
Britt	Hancock	1,236	5	50.9	-0.8	78	9	22	23, 27	38	1.65	-.53	.51		9	7	16	8	S	
Charles City	Floyd	1,012	11	49.4	-1.2	78	9	21	27, 28	39	1.94	-.10	.72	....	11	12	6	13	SE	
Cresco (e)	Howard			52.2	† 46	76	10, 11	25	27	27	2.25	-.12	.80	..	5	..				
Decorah	Winneshiek	857	..	51.6	†0.9	88	10	23	26	37										
Dows	Wright	1,142	....	51.3	-1.3	79	4	20	27	38	2.13	-.22	.66	T	7	19	4	8	NW	17
Elkader	Clayton	727	21	51.8	†2.3	82	17	20	27	43	1.74	-1.01	.66		6	12	13	6	NW	4, 9
Estherville	Emmet	1,298	7	49.2	†0.1	77	3, 8, 16	22	6	41	2.85	†1.23	1.10	..	8	12	5	14	NW	
Florence	Wright	1,226	8								1.69		.80	....	9	3	7	21	SW	19
Forest City	Winnebago	1,226	8	51.0	†0.5	88	3	24	23, 27	48	1.89	-.48	.78	....	6	15	3	13	W	
Grand Meadow	Clayton	1,180	11	50.8	†0.8	76	9	25	27	24	3.09	†.52	1.30	....	6	7	9	15	SE, SW	
Greene	Butler	924	5	51.6	-.20	78	4	23	27	36	2.34	†.20	.63	....	7	8	12	11	SW	
Hampton	Franklin	1,155	12	53.2	†.26	86	4	23	27	36	2.13	-.50	.88	....	7	12	15	4	NW	
Hanlontown	Worth			50.0		79	17	20	27	43	2.23		.82	....	6	15	5	11	NW	9
Humboldt	Humboldt	1,095	10	52.3	†.26	77	9	22	27	38	1.59	-.14	.38	....	8	14	9	8	NW	
Inwood	Lyon			50.6		80	3	26	22, 25, 26	35	4.34				7	15	3	13	S	
Larrabee	Cherokee	1,366	11	51.8	†1.3	81	3, 16	24	27	37	3.18	†1.34	1.25	....	7	12	11	8	SW	9, 18, 19
LeMars	Plymouth	1,224	6	51.1	-1.4	82	3	20	27	38						9	16	6	S	10
Mason City	Cerro Gordo	1,132		51.0		75	9	27	6	32	1.85		.52		8	8	15	8	SE	17, 19
New Hampton	Chickasaw	1,169		50.6	-2.9	77	1	24	27	32	2.34	-.21	1.20	....	7	13	9	9	S	9, 19
Osage	Mitchell	1,184	11	49.8	†2.9	76	9	24	27	33	2.08	-.35	.64	....	9	7	10	14	NW	
Pocahontas	Pocahontas			52.0		78	9	25	25, 27	36	2.40		.80	....	7	15	5	11	S	
Plover	Pocahontas	1,190	5	50.8	-1.5	78	9	24	23, 25, 27	39	2.62	†.31	1.03	...	7	13	7	11	W	8, 9
Ridgeway	Winneshiek	1,215	....	51.8	-2.1	80	7, 8	25	27	30	2.71	-1.17	.82	....	12	12	15	4	S	3, 7, 9, 10.17, 19
Rock Rapids	Lyon	1,021	....	51.0	†3.5	78	4, 16	25	6	40	2.65	†.90	1.35	....	3	....	....	....		
Sheldon	O'Brien	1,422	...	52.4	-1.0	85	3	22	27	45	3.86	†1.86	1.45	..	9	18	7	6	S	10
Sibley (b)	Osceola	1,512	....	51.1	†0.2	81	2, 3	22	25, 26	40	3.96	†2.29	1.72	....	12	....	....		SE, NW	
Sioux Center	Sioux			51.3	-1.9	82	3	26	25, 27	40	4.43	†2.87	1.85		8	14	7	10	S	
Storm Lake	Buena Vista	1,440	7	50.4	-5.1	79	4	26	25, 27	36	3.09	†1.33	1.04		9	14	3	14	NW	
Washta	Cherokee	1,157	....								2.50	†.53	1.00	..	4	20	7	4	SE	
Waverly	Bremer	942	6	52.4	-1.0	79	9	23	27	36	1.68	-.96	.58	...	9	12	10	9	S	7, 9, 17, 19
Average				51.1	†0.4	79.6		23.3		36.9	2.50	†0.29		T	8	12	9	10	S, NW.	

SOUTHERN SECTION.

Afton	Union	1,212	7								.85		.61	....	3					
Albia	Monroe	957	..	53.7	...	82	4	24	27	41	.21		.06	....	5	16	3	12	SE	
Allerton	Wayne			55.4		84	4	23	27	40	.52		.35	....	6	20	5	6	NW	5
Atlantic	Cass	1,164	11	52.4	†0.4	85	4	19	27	47	1.40	-1.24	.70	...	3	10	8	13	SW	18
Bedford	Taylor			55.9		85	4	23	23	40	.58		.29		5	17	3	11	SE	
Belknap (h)	Davis	877	7	58.4	†2.8	82	8	32	23, 27	32				....	...		...			
Bonaparte	Van Buren		10	54.6	-1.1	83	9	26	23, 27	39	.14	-1.68	.14		1					
Burlington	Des Moines	544	....	55.8		83	9	28	23, 27	38	.43		.39	...	4	22	3	6	NW	18, 21
Chariton	Lucas	1,042	7	54.8	‡0.0	84	4	24	23, 27	39	.45	2.37	.45	....	1	20	6	5	SE	
College Springs (b)	Page		10	56.6	-1.1	85	4, 8	27	27	35	1.34	-1.77	.70	....	4	21	3	7	SE	
Columbus Jct	Louisa	596	....	53.1		81	9	25	27	31	.74		.40	T	3	25	6	0	SW	4, 5, 19
Corning	Adams	1,127	10	54.6	†0.6	83	4	22	27	39	2.13	-.43	1.65	....	5	15	9	7	SE	19
Corydon	Wayne	992	9	56.4	†1.3	88	18	23	27	42	.14	-2.73	.09	....	4	19	7	5	NW	
Clarinda	Page	1,069	....	54.4	-0.2	90	5	25	27	44	1.72	-1.07	.97		7	19	0	12	S	
Cumberland	Cass										1.32		1.00	....	3	22	2	7	S	
Fort Madison	Lee	516	51								.52	-2.23	.27	...	2	11	12	8	SW	5, 19
Glenwood	Mills		15	56.2	†0.3	85	4	26	27	35	.45	-2.13	.35	...	2	12	12	7	SW	
Greenfield	Adair		11	54.1	†0.5	83	4	24	27	34	1.49	-.81	.91	....	9	21	5	5	S	18
Hopeville	Clarke		11	55.1	†0.4	85	4	26	27	34	.90	-1.53	.42	....	5	14	10	7	S	
Indianola (a)	Warren	969	11	54.0	-0.2	80	4, 17	24	27	34	1.09	-.97	.50	...	6				NW	4, 19
Keokuk	Lee	619	31	56.5	†2.4	82	9	32	27	29	.30	-2.46	.28		2	14	12	5	SW	5, 8, 19
Keosauqua	Van Buren	664	10	53.5	-2.6	82	9	25	27, 28	39	.39	-1.51	.18	....	3	9	11	11		
Lacona	Warren										1.20		.63	....	5	11	9	11		
Lenox	Taylor	1,250	7	54.6	†0.3	85	4	25	27	31	1.03	-1.96	.50	....	5	22	3	6	S	
Leon	Decatur	1,120	....	54.4		80	4	25	27	31	.74		.41		3	17	5	9	S	
Mount Ayr	Ringgold	1,236	6	56.8	†1.5	86	4	26	27	39	1.08	-1.31	.35	....	8	13	9	9	NW	
Mount Pleasant	Henry	729	20	54.0	†3.4	82	9	26	27	30	.43	-1.65	.23	....	4	15	11	5	SE	18
Omaha, Neb	Douglas	1,113	32	56.6	†3.7	87	4	32	27	32	1.40	-1.07	.53	....	9	12	6	13	S	8, 9, 17, 18
Osceola	Clarke	1,130	6	57.4	†2.8	86	4	27	23	41	.27	-2.80	.22	....	2	20	6	5	S	
Oskaloosa (c)	Mahaska	843	18	54.9	†3.0	82	4	25	23, 27	37										
Pacific Junction	Mills	960	..	55.2		87	4	22	27	36	1.07		.33	....	6	13	12	6	S	18
Red Oak	Montgomery	1,033	....	56.2	-1.1	81	4	30	27	32	2.00	-1.20	1.38	....	7	10	16	5	SE	4, 18, 19
St. Charles	Madison	1,070	....	56.2		89	4	24	27	35	1.50		.70	....	8	25	0	6	NW	5
Stockport	Van Buren		...	55.2		81	9	27	27	33	.34		.30	T	3	16	8	7	NW	
Thurman	Fremont			55.4	-0.9	86	4	22	27	39	2.44	-1.60	1.08	....	5	15	7	9	SW	4, 18, 19
Wapello	Louisa	588	5	53.9	-2.3	78	9	29	27	26	.77	-1.45	.40	T	3	16	13	2	SE	19, 20
Washington	Washington	769	20	53.9	-0.1	82	9	26	27	36	.54	-1.59	.34	..	3	....	...	....	SW	
Winterset	Madison	1,129	11	55.2	†1.5	90	4	20	27	39	1.00	-1.37	.49	....	5	16	6	9	SW	
Woodburn	Clarke	961	....								.50		.35	....	2	19	2	10	NW	
Average				55.2	†0.7	28.9		25.4		36.0	0.90	-1.78		T	4	17	7	7	SE S, Sw, NW	
Average for state				53.1	†1.0	81.9		23.2		36.9	1.67	-0.73		T	6	15	8	8	SE S, NW	

CLIMATOLOGICAL DATA FOR OCTOBER, 1904—CONTINUED.

CENTRAL SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted)		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Amana	Iowa	721	25	52.6	†3.0	79	9	22	27	36	1.00	-1.74	.42	....	7	18	9	4	SE	5,9
Ames	Story	926	20	53.6	†2.7	84	4	23	27	39	1.78	- .74	.86	....	5	17	6	8	NW	
Audubon	Audubon	1,301	8	53.0	†1.8	87	4	19	27	44	1.82	- .41	.52		7	17	5	9	NW	9,17,19
Baxter	Jasper.	998	...	53.0	.....	83	4	23	27	36	1.40	.....	.50	....	5	14	9	8	SE	
Belle Plaine	Benton	826	12	52.3	†1.7	81	4	22	27	37	1.55	- .73	1.04	T	5	12	14	5	SE, W	
Buckingham	Iowa	....	....	.....	.....	.....	.....	.....	.....	.....	1.83	.....	.45		9	11	17	3	.....	
Carroll	Carroll	1,265	12	52.7	†1.4	85	4	24	27	42	1.99	- .27	.72	....	7	19	3	9	.....	17,18
Cedar Rapids	Linn	733	19	52.8	†1.3	82	9	25	27	36	1.04	-1.55	52	....	5	13	11	7	NW	
Clinton	Clinton	609	34	51.8	†1.4	83	9	26	23,29	3[illegible]	.59	-1.82	.26	....	4	20	9	2	SW	4
Davenport	Scott	606	31	54.4	†2.3	81	9	30	27	33	1.15	-1.47	.64	....	5	16	10	5	SW	5,19
Delaware	Delaware	1,083	11	50.4	†1.4	78	4,9	22	27	33	2.62	† .40	.96	....	7	14	16	1	SE, SW	5,9,10,19
Denison (a)	Crawford.	1,180	8	53.3	†2.5	85	4	20	27	41	1.41	-1.00	.57	..	7	....	....	....	S	
Des Moines.	Polk	861	24	54.6	†2.4	86	4	28	27	33	1.50	-1.51	.40	....	10	10	11	10	SW	4,5,8,19
De Soto	Dallas	866		54.9		88	4	22	27	38	1.57	.....	.88	....	7	19	2	10	SE	
Dubuque	Dubuque	655	29	52.8	†2.2	80	9	29	27	32	3.18	†1.47	1.13		10	6	13	12	S	4,5,9,10
Earlham (f)	Madison,	.....	....	52.8	.....	85	4	16	27	37	1.55	.....	.86	....	7	....	..	..	.....	5
Fort Dodge	Webster.	1,126	....	51.5	.....	77	9,16	22	27	37	2.08	.....	.70	....	10	18	3	10	SE	5
Galva	Ida	1,290	8	.....	....	.....	.....	19	27	.....	2.93	†1.26	1.35		8	19	3	9	.....	9
Gilman	Marshall	1,052		....	.....	.....	.....	.....	.....	.....	.76		.25	....	5	15	10	6	S	
Grinnell	Poweshiek	1,023	9	53.6	†1.3	81	4	25	27	30	.64	-1.81	.30	....	5	17	6	8	SW	19
Grinnell (near)	Poweshiek	.....	....	53.8		82	17	24	27	33	.83	.....	.35	....	4	12	10	9	S	6,10,20
Grundy Center	Grundy	976	11	52.8	†1.4	81	4	23	27	38	1.70	- .99	.71		8	14	5	12	SE	4,5
Guthrie Center	Guthrie	1,077	6	54.0	†1.5	84	4	22	27	39	2.68	† .46	.98		10	21	4	6	NE	4,9,18
Harlan	Shelby	1,192	....	53.0		84	4	20	27	40	.92	.....	.20		8	14	6	11	S	10,17,18,19
Ida Grove	Ida	1,220	....	52.2	.....	80	4	20	27	39	1.40	.....	.60	....	4	17	8	6	S	
Independence	Buchanan.	921	38	51.5	†3.3	80	4	23	27	41	1.89	- .48	.50	....	6	19	7	5	S	9,10,19
Iowa City	Johnson.	683	45	53.2	†2.1	81	4,9,17	24	27	41	1.59	- .95	.60		6	18	2	11	N	
Iowa Falls	Hardin	1,176	90	50.4	†0.1	79	9	19	27	38	1.92	- .38	.82	....	8	14	4	13	NW	5,8,9,17,18
Little Sioux	Harrison	.....	....	55.6	.....	89	4	23	27	46	1.34	.....	.54	....	8	16	8	7	SE	1,17
LeClaire	Scott	576	...	.....	.....	.....	.....	.....	.....	.....	.87	.....	.41		4	....	....	....	N, SW	
Logan	Harrison	928	35	53.5	†1.2	85	4	22	27	40	1.53	- .92	.48	..	5	17	4	10	NW	
Maquoketa	Jackson.	688	9	51.0	-3.4	81	9	20	27	47	1.83	-1.11	1.01	....	6	14	11	6	SW	
Marshalltown	Marshall	947	9	51.6	-1.4	85	4	22	27,28	44	1.73	- .74	.45	....	9	15	4	12	SE	
Muscatine	Muscatine.		...	.....		.....	.....		.....	.....	1.00	-2.04	.65	....	4	....	....	....	S	
Mt. Vernon	Linn	847	35	52.8	-0.8	80	17	24	27	41	2.49	† .09	1.30	....	6	18	7	6	W	
Odebolt	Sac	1,356	5	52.5	-2.9	80	4	21	27	35	1.24	- .97	.38	....	6	19	6	6	.....	
Ogden	Boone	1,088	8	53.4	‡0.0	83	4	25	23,27	33	1.53	-1.13	.72	....	3	19	2	10	S	
Olin (a)	Jones	760	....	52.4	†0.5	79	9	26	23	37	3.78	† .36	3.00	....	5	15	11	5	E	
Onawa	Monona	1,053	....	55.7		85	4	29	27	36	2.07	- .32	.95		8	21	4	6	SE	17
Perry	Dallas	975		53.4		84	4	23	27	37	2.01	.....	.65		7	13	6	12	.....	
Rockwell City	Calhoun.	....	....	52.0	-0.7	80	9	25	25,27	35	1.88	- .70	50	....	6	16	7	8	.....	
Sac City	Sac	1,278	22	52.3	†2.4	78	4	24	27	35	1.18	-1.38	.30	....	8	17	5	9	SW, NW	
Sioux City	Woodbury.	1,165	13	53.5	†2.5	84	3	30	23	36	2.39	† .69	.17	....	6	14	8	9	N	18,19
Stuart	Guthrie	1,316	5	54.1	-2.3	82	4	26	27	30	2.17	- .81	.98	....	4	3	15	13	W	
Tipton (a)	Cedar	807	....	54.1	.....	80	9,17	27	23	34	.89		.44	....	3	17	13	1	SW	
Toledo	Tama	856	8	53.2	†0.7	82	4	19	27	42	1.10	- .77	.40	T	6	14	7	10	NW	
Vinton	Benton	810	12	53.5	†2.9	81	4,5	19	27	44	1.35	- .25	.92	....	3	17	7	7	SW	
Waterloo	Black Hawk.	862	15	53.8	†4.1	81	4,17	23	27	41	1.24	-1.08	.56		9	17	8	6	W	4,19
Waukee (a)	Dallas.	1,039	....	56.0	.....	96	4	24	27	51	1.07	.....	.63	....	6	20	7	4	S	
Wilton Junction	Muscatine.	683	7	53.4	†0.6	84	9	24	27	37	.94	-1.13	.66	....	4	23	5	3	NW	
Whitten	Hardin	1,036		51.7	-1.2	79	9	21	27	33	1.50	-1.12	.55	....	6	9	13	9	NW	5,9,19
Zearing	Story	718		52.6	.....	83	4	21	27	36	1.01	.....	.58	....	6	16	7	8	SE	19
Average				53.0	†1.6	82.3		21.0		37.9	1.60	-0.78	.....	T	6	16	8	7	SE	

† Above normal. ‡ Received too late to be computed with means. *a*. One day missing; *b*. two days, etc. § Not supplied with self-registering instruments.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR OCTOBER, 1904.

STATIONS.		DATE.																													MEAN.
		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	
Albia	Max	71	75	75	82	58	56	66	73	80	74	71	66	67	55	69	77	79	77	62	57	56	52	57	54	54	57	54	66	68	64	71	65.9
	Min	48	48	46	51	53	32	37	42	52	63	46	40	41	43	41	43	54	50	50	42	46	35	28	44	28	28	24	25	36	35	36	41.5
Algona	Max	70	62	72	68	61	50	57	62	76	67	60	62	64	57	65	75	73	69	57	56	51	49	53	47	47	45	50	62	65	61	68	60.7
	Min	50	48	41	51	38	26	43	50	53	52	40	37	43	47	45	51	49	49	43	38	40	36	23	40	23	32	22	37	30	32	36	40.2
Allerton	Max	71	68	75	84	71	55	67	83	80	77	73	79	67	57	70	77	80	77	67	59	55	51	57	53	50	56	57	68	72	71	75	67.8
	Min	50	48	51	59	48	33	42	59	65	59	43	49	42	45	42	43	54	47	44	40	42	33	26	41	27	32	23	31	34	36	35	43.0
Alta	Max	70	66	78	78	57	46	61	64	74	65	59	66	63	59	69	76	70	57	48	54	51	48	56	47	50	46	49	64	66	65	67	60.9
	Min	45	46	42	54	34	31	45	49	53	46	42	38	47	49	46	57	46	47	38	36	37	30	27	36	25	32	25	33	40	35	41	40.4
Amana	Max	72	69	69	78	71	54	62	74	79	76	65	62	63	62	64	73	77	73	63	54	53	48	52	54	46	55	50	61	64	59	65	63.5
	Min	49	47	38	56	46	32	42	58	66	56	46	38	38	40	43	49	55	49	49	41	42	38	25	42	30	32	22	30	28	36	31	41.7
Ames	Max	71	71	74	84	64	50	61	75	83	71	63	65	68	54	69	82	79	77	68	62	62	52	56	53	48	54	52	65	67	64	70	65.6
	Min	47	46	41	54	41	31	44	59	65	55	41	36	42	46	41	51	52	47	47	40	44	36	24	39	28	34	23	39	30	34	31	41.5
Atlantic	Max	68	70	77	85	72	50	62	75	68	61	66	69	68	58	72	75	77	69	56	58	53	50	60	52	49	55	54	66	70	72	72	64.8
	Min	48	45	47	50	42	32	47	57	65	54	36	34	46	49	44	56	46	46	41	40	41	32	20	40	30	28	19	35	25	25	26	40.1
Audubon	Max	69	70	78	87	71	51	63	75	77	70	66	68	69	61	72	78	74	70	57	57	52	50	60	52	51	52	53	67	66	70	70	65.4
	Min	49	47	44	54	46	31	47	59	64	57	38	32	46	50	43	55	47	44	44	39	44	32	22	41	26	32	19	32	24	26	26	40.6
Baxter	Max	70	70	72	83	75	59	60	73	78	72	68	68	65	57	66	77	77	75	64	57	53	50	54	52	47	55	50	60	65	68	70	64.5
	Min	47	46	39	55	45	31	41	58	65	55	43	39	41	45	46	53	54	48	45	40	42	35	24	40	27	32	23	33	32	34	34	41.4
Bedford	Max	71	79	75	85	75	58	66	82	76	71	75	70	70	63	73	76	78	74	68	70	55	50	59	55	50	57	53	65	70	71	74	68.0
	Min	50	42	52	61	49	38	39	60	67	60	39	43	48	50	44	54	55	50	49	55	45	31	23	39	29	31	25	30	30	35	35	43.8
Belknap	Max	70	74	76	79	..	60	69	82	80	76	76	..	..	..	..	..	..	..	70	64	56	52	55	65	60	60	60	65	70	73	70	67.9
	Min	51	54	55	62	55	40	58	61	69	70	56	49	..	..	..	..	..	..	60	44	45	39	32	48	36	40	32	40	43	41	44	49.0
Belle Pl'e	Max	70	69	69	81	55	55	62	74	78	75	65	63	65	64	65	75	78	74	64	57	52	48	53	54	47	55	49	60	65	60	68	63.5
	Min	48	49	40	45	50	33	42	50	55	65	45	40	42	48	42	46	53	50	52	40	42	37	23	40	26	30	22	30	28	33	32	41.1
Bonapar'e	Max	73	76	73	82	70	58	68	78	83	81	72	66	66	64	68	78	80	77	65	55	57	48	57	55	50	56	54	67	68	60	71	67.0
	Min	48	46	45	54	46	36	40	65	65	58	49	40	40	41	45	47	54	46	48	43	43	36	26	33	29	31	26	28	30	35	36	42.2
Britt	Max	71	61	70	68	62	63	67	65	78	69	58	63	66	54	67	76	74	74	59	55	51	49	52	48	49	45	49	61	66	61	68	61.9
	Min	54	47	40	53	36	27	42	50	53	51	37	49	41	47	44	53	48	49	46	36	40	37	22	36	24	29	22	27	28	36	34	39.9
Burling'n	Max	74	76	73	80	70	61	67	76	83	81	73	67	69	65	70	73	80	78	63	51	56	50	57	57	51	58	54	65	68	60	72	67 0
	Min	50	49	46	52	51	39	41	56	66	64	52	48	45	42	43	48	57	52	50	42	45	39	28	45	31	35	28	34	35	38	34	44 7
Carroll	Max	71	68	78	85	55	51	64	72	77	64	64	67	68	61	71	78	74	69	60	60	55	54	56	52	56	42	53	68	68	72	72	64 7
	Min	45	49	42	55	45	31	45	59	60	57	40	34	45	44	43	56	46	45	50	38	41	30	25	30	28	31	24	32	26	30	36	40.7
Cedar R	Max	75	69	71	81	58	56	65	77	82	73	66	63	65	63	67	78	81	77	64	55	51	49	52	53	45	54	52	62	64	61	69	64 4
	Min	51	50	40	41	50	35	34	44	44	68	50	43	43	43	42	46	54	53	53	42	41	39	29	29	32	32	25	26	30	31	35	41.1
Chariton	Max	70	76	76	84	72	55	68	80	80	72	72	69	66	56	70	77	80	77	66	49	55	50	56	54	49	56	55	67	71	69	74	67.1
	Min	49	46	49	58	49	33	42	60	66	58	41	38	42	45	41	53	50	46	47	41	44	34	24	42	27	31	24	31	32	35	38	42 5
Charles C	Max	71	62	66	73	52	55	60	67	78	64	61	60	65	55	65	75	74	73	59	56	57	50	59	52	54	49	49	60	66	59	67	61.7
	Min	41	42	37	37	48	25	25	40	54	61	42	38	37	44	45	50	48	48	38	40	37	24	24	29	25	21	21	27	27	32	37.2	
Clarinda	Max	70	80	79	90	59	54	67	84	76	67	75	76	75	61	75	79	80	73	51	61	47	53	62	54	53	59	57	68	73	75	79	67.8
	Min	49	45	49	58	51	40	41	48	60	59	41	41	48	41	43	45	53	45	47	36	40	31	26	31	30	31	25	27	30	31	32	41 1
Clinton	Max	73	65	69	78	60	56	65	75	83	78	62	60	63	63	65	73	72	77	72	50	52	48	59	55	50	55	49	61	64	58	65	63.7
	Min	45	43	37	48	46	35	44	55	54	52	49	40	39	32	41	43	52	43	44	41	39	33	26	40	29	33	27	28	26	35	34	39.8
Col. Sprgs	Max	66	76	77	85	70	56	..	85	79	73	74	70	73	72	74	79	79	73	..	64	62	55	64	62	52	56	53	66	67	70	69	69.0
	Min	47	47	50	60	50	41	47	57	67	55	44	43	49	47	45	55	55	51	41	36	45	32	29	44	29	34	27	31	38	39	39	44.3
Colum. J.	Max	69	64	68	77	69	56	64	77	81	77	67	64	64	63	65	72	76	75	64	52	55	48	53	54	48	55	49	60	67	64	67	64.0
	Min	49	47	41	52	49	34	34	53	65	59	57	38	41	41	41	48	55	49	49	40	40	34	28	43	29	33	25	31	35	34	33	42.2
Corning	Max	66	75	75	83	73	53	65	79	76	71	69	68	68	60	70	76	75	72	61	59	54	49	58	54	49	54	52	62	66	68	68	65.4
	Min	50	54	51	61	46	36	43	62	66	53	49	48	46	50	44	55	55	50	44	39	43	33	25	43	27	30	22	33	27	35	36	43.7
Corydon	Max	72	79	75	83	76	54	66	82	80	73	75	70	68	60	73	75	78	74	68	70	60	55	59	58	57	56	52	62	56	69	75	72	75	69.4
	Min	50	46	51	60	50	32	42	60	66	58	44	38	43	45	42	54	55	47	45	42	45	43	26	40	26	34	22	32	33	35	39	43.4
Cresco	Max	70	65	61	70	65	53	60	63	75	76	76	..	..	70	64	73	.2	72	69	60	55	52	50	45	49	40	45	..	.	..	65	62.1
	Min	49	48	39	54	45	26	39	58	58	55	43	.	..	39	46	51	53	52	48	38	38	26	27	35	38	28	25	..	..	.	50	42.4
Davenpo't	Max	73	66	69	78	69	54	64	74	81	78	67	60	61	60	66	75	78	76	64	51	53	46	52	54	47	55	50	62	68	58	68	63.8
	Min	52	50	46	55	46	37	42	59	69	56	52	46	46	44	44	52	60	56	48	42	42	37	32	41	32	36	30	37	37	37	35	45.1
Decorah	Max	72	73	68	70	60	54	70	75	73	88	62	59	61	61	64	74	75	63	58	52	48	51	48	39	46	48	59	55	63	60	69	61.9
	Min	48	48	46	39	35	27	56	55	54	54	52	39	44	43	48	55	48	53	41	39	38	28	41	32	28	23	34	36	34	33	32	41.2
Delaware	Max	73	61	66	78	68	53	61	75	78	73	62	55	60	60	63	72	75	72	66	50	46	45	49	49	43	51	46	57	62	55	63	60.9
	Min	45	47	37	52	42	31	40	53	58	56	49	39	38	39	42	47	53	48	47	38	37	34	26	40	26	29	22	32	32	31	30	40.0
Denison	Max	69	69	79	85	70	49	63	78	77	72	65	69	65	62	..	78	74	67	56	57	54	49	60	55	61	52	52	65	67	71	71	65.4
	Min	45	49	43	57	45	30	47	56	64	57	37	33	50	50	.	47	47	51	42	39	42	32	23	41	27	32	20	34	26	30	40	41.2
Des M	Max	71	71	75	86	64	51	64	75	78	68	67	65	65	54	69	78	78	76	62	58	54	51	56	53	49	56	53	64	66	63	71	64.9
	Min	50	51	48	58	43	37	45	62	66	56	45	41	44	46	42	55	55	53	43	42	42	36	29	42	31	36	28	35	34	38	38	44 2
De Soto	Max	74	71	77	88	74	51	64	75	79	70	69	68	68	58	76	83	81	80	62	58	55	52	58	54	52	56	54	66	65	65	72	66 9
	Min	50	50	45	57	45	33	45	60	67	58	43	36	44	48	43	55	55	49	46	41	44	36	26	41	28	35	22	34	29	32	34	42.9
Dows	Max	78	70	78	79	64	50	55	65	78	70	62	62	64	56	66	76	75	73	62	56	51	49	51	49	45	50	49	62	68	62	69	62.6
	Min	46	42	40	56	39	27	42	52	56	53	40	38	41	46	45	52	50	48	48	37	40	37	23	37	25	30	20	31	29	34	36	40.0
Dubuque	Max	75	63	65	78	59	53	61	76	80	72	63	57	57	59	64	73	79	73	61	51	51	46	51	51	44	51	49	59	63	50	68	61.4
	Min	50	50	43	54	43	36	43	55	61	56	51	48	44	42	46	53	61	53	48	41	40	38	34	40	34	33	29	38	33	36	36	44.2
Earlham	Max	70	71	75	85	72	50	62	75	76	70	67	66	67	57	71	76	..	..	..	..	..	..	71	51	49	54	53	64	68	70	71	66.4
	Min	45	45	44	56	46	29	43	55	63	56	39	30	39	45	39	51	..	.	..	..	..	..	23	30	25	32	16	32	24	33	35	39.1
Elkader	Max	76	68	65	78	55	58	60	79	80	70	67	60	64	59	69	77	82	77	57	52	48	47	52	50	40	54	52	64	70	58	71	63.2
	Min	42	49	37	53	43	28	43	52	54	57	52	39	40	37	45	50	57	45	52	40	40	36	26	40	29	29	20	30	27	31	29	40.4
Esthervil	Max	75	62	77	70	50	48	60	77	71	59	60	64	64	56	67	77	74	57	47	56	51	52	54	46	48	38	50	63	69	62	73	60.5
	Min	47	46	36	44	40	22	29	45	52	50	39	32	35	45	47	51	50	51	46	38	40	35	24	37	24	30	23	28	29	28	32	37.9
Forest C'y	Max	75	65	88	73	49	54	58	65	81	57	61	62	67	63	67	79	75	75	58	55	49	48	50	46	44	44	49	64	70	68	68	61.8
	Min	46	48	40	57	44	26	35	45	53	56	39	39	41	44	45	48	49	51	50	37	40	37	24	37	25	29	24	28	32	35	38	40.1
Ft. Dodge	Max	71	66	75	71	53	49	62	72	77	59	59	65	65	55	69	77	74	73	60	56	52	50	55	49	48	49	.2	62	67	71	68	62.3
	Min	48	48	43	45	48	30	32	36	56	58	43	42	42	49	45	47	53	47	48	40	42	38	28	35	28	28	22	25	30	42	43	40.7
Galva	Max	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....
	Min	43	43	41	52	40	26	45	45	54	49	35	35	48	49	45	56	44	49	40	36	43	32	23	40	23	31	19	29	24	28	33	38.7
Glenw'd	Max	67	75	78	85	79	52	67	80	77	73	69	71	64	71	72	77	76	64	52	58	55	49	65	60	51	54	53	63	67	72	72	66.7
	Min	48	49	50	62	47	40	49	67	67	57	45	47	50	57	47	58	55	53	40	37	47	33	30	45	31	34	26	36	36	39	41	45.8
Grand M.	Max	70	60	65	72	68	54	56	70	76	68	62	58	62	56	62	73	75	73	65	52	48	45	49	49	40	48	46	56	59	55	65	59.8
	Min	47	48	40	54	40	30	41	53	56	56	50	41	43	42	45	51	51	50	50	39	39	36	37	38	28	30	25	36	39	32	31	41.9
Greene	Max	72	64	67	78	67	55	75	68	77	69	60	63	65	55	65	76	74	66	52	48	52	38	40	38	26	37	28	29	23	32	30	32	32	40.7
	Min	45	49	38	55	46	27	43	51	55	55	42	38	41	44	44	52	52	48	52	38	40	38	26	37	28	29	23	32	30	32	32	40.7
Greenfi'ld	Max	67	72	76	83	74	52	63	78	77	69	64	67	67	58	71	75	78	75	50	59	55	51	57	46	52	54	53	67	66	69	70	65.0
	Min	47	47	48	58	44	34	45	59	66	51	44	45	43	48	43	55	52	51	44	40	44	32	28	40	26	31	24	34	35	35	46	43.2
Grinnell	Max	70	69	69	81	75	53	61	71	78	71	66	63	63	55	65	75	76	74	67	55	52	50	52	71	46	54	49	59	64	59	66	63.8
	Min	49	49	43	58	45	33	42	57	66	57	47	43	42	42	41	52	56	51	47	41	44	36	29	42	29	29	25	35	37	36	42	43.4
Grinnell(near	Max	73	72	72	57	80	76	52	52	75	80	75	72	64	67	69	78	82	68	78	73	57	52	58	54	50	57	52	64	67	61	72	66.4
	Min	47	47	43	43	45	43	32	35	50	66	55	43	42	40	43	51	55	41	49	47	29	35	25	42	27	32	24	33	35	34	45	41.2
Grundy C	Max	73	69	70	81	71	54	60	77	78	70	64	62	64	54	64	76	79	76	66	66	53	52	51	52	46	56	51	62	66	61	70	64 4
	Min	47	48	39	57	43	28	43	57	60	56	42	38	40	44	40	52	52	48	49	39	42	37	25	41	27	28	28	33	28	33	36	41.1
Guthrie C	Max	68	64	75	84	75	54	63	74	77	71	64	66	67	61	70	77	75	74	60	57	58	58	57	51	48	54	51	62	65	68	68	65.0
	Min	50	49	44	60	46	33	47	61	67	58	43	35	45	49	44	56	50	46	46	40	45	33	25	41	28	35	22	36	28	29	40	42.9
Hampton	Max	76	70	71	86	64	58	57	70	79	69	60	67	70	54	67	79	80	76	68	56	50	51	52	50	44	55	52	69	73	65	72	64.8
	Min	48	49	38	57	42	28	42	57	57	53	41	37	39	46	44	53	53	46	47	38	41	38	26	40	28	32	23	34	37	34	39	41.5
Hanlontown	Max	75	61	66	70	63	51	55	59	78	70	57	59	65	54	65	77	79	74	60	55	49	48	52	44	44	50	61	69	60	70	60.7	
	Min	44	45	37	56	39	24	40	40	58	53	40	34	38	44	41	50	58	57	50	38	48	35	24	36	25	28	20	31	30	32	27	39 3
Harlan	Max	67	69	76	84	77	53	63	77	78	70	66	68	69	62	71	76	73	69	59	56	53	49	60	52	50	52	51	63	66	68	68	65.0
	Min	46	43	48	52	45	33	47	57	65	55	39	37	49	49	44	55	44	47	42	39	43	32	22	42	29	31	20	27	26	33	32	41.1
Hopeville	Max	72	77	75	85	73	53	64	82	78	70	71	69	69	56	71	77	79	77	62	58	55	49	58	53	49	55	55	65	70	72	72	66.8
	Min	50	47	52	60	47	35	44	59	65	60	44	40	42	48	44	52	52	47	41	41	37	33	27	37	35	34	26	33	36	38	40	43.4
Humboldt	Max	70	74	75	71	64	48	60	65	77	71	58	64	66	58	68	76	75	72	61	56	55	50	56	51	48	48	51	62	66	62	70	62.8
	Min	49	50	42	51	42	27	46	55	58	55	40	37	45	48	46	56	50	46	49	40	45	38	26	41	26	35	22	30	28	34	38	41.8
Ida Grove	Max	68	66	77	80	68	56	63	70	66	70	75	67	68	63	71	75	75	60	57	55	55	49	58	52	50	49	50	64	63	65	67	63.6
	Min	46	50	44	65	39	30	47	51	45	40	47	35	50	52	49	58	48	50	40	38	43	34	24	42	26	34	20	25	25	30	35	40.7
Independ	Max	73	64	67	80	68	54	62	76	78	70	62	60	60	64	74	77	74	64	53	48	47	47	50	41	52	48	59	68	60	68	36	62.3
	Min	47	49	38	55	41	30	42	54	59	56	45	39	38	39	42	48	54	48	49	39	38	36	25	39	28	28	23	29	27	32	36	40.7
Indianola	Max	70	71	76	80	73	52	65	75	78	..	67	65	66	56	71	78	80	77	63	57	54	52	57	53	49	57	53	64	66	64	72	65.0
	Min	50	47	47	59	45	33	43	61	68	..	44	49	44	46	42	43	54	63	44	46	44	34	26	41	28	35	24	34	32	57	39	42.9
Inwood	Max	73	63	80	61	56	57	68	62	75	68	58	65	66	64	62	70	66	67	66	53	60	58	62	56	50	43	50	58	60	58	65	61.9
	Min	50	42	45	44	28	30	48	53	55	41	40	45	46	49	52	50	40	51	34	38	39	26	32	29	26	26

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR OCTOBER, 1904—Continued.

STATIONS.		DATE.																													MEAN
		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	
Keokuk	Max.	70	73	71	80	72	57	66	81	82	81	70	65	65	62	68	75	79	75	67	56	56	48	55	58	48	56	52	64	66	62	69	66.1
	Min	58	50	50	59	53	40	43	59	69	64	53	50	45	44	43	49	58	50	52	44	43	40	32	47	34	35	32	38	38	38	40	46.8
Keosa'qua	Max.	70	75	72	80	62	58	74	80	82	81	81	66	64	62	67	75	78	75	68	56	56	50	55	55	48	56	52	64	67	65	69	66.4
	Min	48	47	45	46	57	36	38	43	55	60	51	41	40	40	36	47	51	46	49	44	45	37	27	33	29	29	25	25	30	30	29	40.6
Larrabee	Max.	71	65	81	77	66	49	62	65	74	67	62	67	64	64	73	81	72	57	49	56	53	51	56	49	53	47	53	64	64	65	69	62.8
	Min	45	48	39	4	36	27	46	53	56	51	41	39	49	50	50	57	47	49	40	35	41	32	25	45	25	31	24	33	34	35	32	40.8
Le Mars	Max.	71	68	82	80	61	49	65	65	75	69	61	67	67	65	70	76	70	58	48	55	55	48	56	48	54	51	50	64	65	67	67	62.8
	Min	42	46	44	49	39	27	46	48	59	53	40	37	43	49	47	58	46	48	38	35	40	29	24	38	26	31	20	28	28	29	35	39.4
Lenox	Max.	67	74	75	85	78	52	64	80	76	71	70	68	66	59	70	75	76	78	64	58	55	49	58	58	49	55	52	62	66	68	68	65.5
	Min	50	47	51	61	45	36	45	60	66	59	44	40	46	49	43	53	54	48	44	38	43	32	27	42	27	31	25	34	36	38	38	43.6
Leon	Max.	66	74	73	80	77	54	65	79	78	75	70	65	65	57	69	74	76	74	69	57	55	49	56	53	48	54	51	63	66	66	68	65.4
	Min	50	48	51	60	47	36	43	58	60	58	45	40	42	48	42	52	55	47	44	41	45	34	28	43	29	33	25	32	38	38	38	43.5
Lit. Sioux	Max.	72	73	82	89	69	58	65	73	79	73	70	73	66	66	72	79	74	60	57	60	56	51	64	58	55	54	54	68	72	72	73	67 3
	Min	47	51	52	61	45	36	44	55	67	59	39	44	54	53	50	60	53	50	41	31	47	34	27	43	27	29	23	33	26	32	46	43.8
Logan	Max.	64	71	79	85	72	55	69	75	76	66	68	70	65	66	71	75	67	75	69	57	66	56	61	54	52	54	51	65	67	69	69	66.4
	Min	47	47	49	57	46	35	49	67	55	40	42	33	42	50	47	53	33	55	43	37	30	31	24	32	32	34	22	32	30	29	35	40.6
Maquoketa	Max.	77	67	68	79	62	57	64	75	81	79	68	61	58	62	67	75	80	76	61	51	50	50	52	54	49	57	51	63	71	55	67	64.1
	Min	45	47	33	50	53	29	33	41	58	66	53	38	35	35	37	38	52	42	43	41	41	37	25	26	30	29	20	22	24	21	30	37.9
Marshlt'n	Max.	75	73	72	85	59	58	63	78	80	67	69	67	68	54	69	79	80	78	67	58	53	53	54	53	48	57	52	62	68	62	72	64.6
	Min	47	48	38	41	47	28	30	44	60	63	43	38	39	40	40	40	54	46	47	40	42	38	25	28	28	28	22	22	28	30	33	38.6
Mason C.	Max.	72	65	65	67	65	53	52	62	75	70	60	60	63	55	63	74	73	70	60	55	48	48	50	45	43	45	50	60	63	58	67	59.9
	Min	48	49	41	57	45	27	42	50	55	53	45	38	43	47	45	42	43	52	50	40	42	40	30	40	28	30	28	35	35	36	35	42.0
Massena	Max.	70	75	77	85	77	53	..		75	74	69	70	69	61	72	76	78	75	60	57	53	49	59	..	.	..	..	..	..	..	..	....
	Min	50	47	50	58	46	35	..	..	50	58	39	48	46	49	45	55	53	47	45	40	45	33	25	..	..	..	..	..	..	..	..	....
Mt. Ayr	Max.	74	78	79	86	75	57	68	81	79	72	78	75	72	62	76	80	82	80	68	62	57	53	58	55	58	58	57	70	78	73	73	70.0
	Min	49	46	52	59	47	36	49	59	66	59	43	41	44	48	43	53	54	50	43	39	41	33	28	42	28	27	26	31	40	40	40	43.7
Mt. Pl'snt	Max.	69	73	70	78	70	58	64	71	82	79	69	65	65	64	66	74	78	75	70	53	55	49	55	55	49	55	50	62	65	57	67	64 9
	Min	49	47	45	56	48	35	40	52	62	61	49	44	41	41	41	48	56	55	50	41	41	37	28	43	29	33	26	32	36	35	39	43.2
Mt. Ver'n	Max.	78	74	72	79	68	63	61	77	77	72	67	68	68	61	68	75	80	73	54	46	50	47	48	51	45	60	52	65	69	65	73	64.7
	Min	45	46	40	54	50	30	40	55	64	58	48	41	40	39	43	48	56	43	47	34	40	34	26	38	28	32	24	29	35	32	32	41.0
New H.	Max.	77	64	62	74	68	50	54	62	76	75	59	61	62	60	63	72	73	71	64	57	49	48	48	48	43	49	48	59	64	59	67	60 8
	Min	52	46	38	52	44	29	40	44	49	51	44	45	45	48	45	50	51	49	49	37	39	36	26	35	28	29	24	31	34	35	3	40.5
Odebolt	Max.	68	67	77	80	64	48	62	72	77	74	61	66	65	61	70	76	72	64	57	55	53	49	56	52	48	49	49	63	65	67	69	63.1
	Min	44	52	43	58	43	29	45	51	60	55	41	35	47	49	46	57	51	46	42	36	44	32	25	41	25	32	21	35	28	32	34	41.9
Ogden	Max	70	69	74	83	70	48	60	75	78	69	62	64	65	55	69	76	75	71	61	57	52	52	55	52	48	54	50	63	67	65	70	63.7
	Min	58	52	44	52	41	31	44	58	63	56	52	40	44	47	42	52	51	47	47	40	44	35	25	42	36	32	25	36	38	32	37	43.2
Olin	Max	72	66	66	77	72	53	62	77	79	75	..	..	62	62	63	74	75	73	63	63	51	48	51	54	47	53	47	59	64	56	65	62.7
	Min	48	46	35	54	51	33	43	56	64	63	52	49	38	38	40	48	55	45	51	42	42	37	26	41	30	30	28	29	27	32	31	42.1
Omaha, N	Max.	69	76	79	87	63	53	69	75	78	68	69	73	62	63	72	78	70	64	58	58	56	49	64	59	52	53	52	63	70	71	70	65 9
	Min	51	53	54	63	45	42	52	59	66	55	48	48	53	53	50	60	54	55	42	39	43	36	34	40	35	37	32	39	38	40	46	47.2
Onawa	Max.	74	73	83	85	75	52	70	70	80	73	70	71	63	66	73	79	73	59	55	59	55	54	64	56	56	55	55	66	69	70	72	66.9
	Min	50	50	49	58	45	40	48	52	65	57	43	42	53	52	49	59	47	52	40	39	47	34	30	44	32	33	29	32	33	36	40	44.5
Osage	Max.	73	64	63	70	65	51	50	60	76	69	60	59	62	64	64	73	73	72	65	52	48	47	47	44	40	44	47	59	62	57	66	59.2
	Min	44	47	37	54	43	27	41	50	53	54	44	39	40	42	44	52	50	48	52	39	38	37	26	37	28	27	24	39	34	39	33	40.5
Osceola	Max.	78	66	75	86	80	72	66	84	82	84	80	80	72	73	82	80	74	80	73	55	61	59	70	49	51	60	65	63	67	73	73	71 4
	Min	59	48	49	54	51	41	40	49	64	60	46	39	40	45	42	40	66	48	41	46	45	34	27	47	28	29	40	29	32	34	34	43 5
Oskaloosa	Max.	68	71	71	82	..	..	..	75	80	74	70	68	66	66	67	77	81	78	66	57	53	52	55	55	49	57	53	65	66	62	71	65.8
	Min	49	48	46	60	..	..	..	60	67	57	46	41	41	43	42	54	58	51	48	43	47	39	25	44	29	35	25	34	29	37	34	44.0
Pacific J'n	Max	72	76	80	87	70	52	66	83	76	78	76	76	63	63	74	78	79	66	57	56	55	48	62	55	52	52	54	65	67	70	69	67.0
	Min	50	49	51	58	48	42	50	60	63	59	40	43	52	51	53	59	47	54	40	35	44	31	27	38	28	30	22	30	26	34	34	43.5
Perry	Max.	70	68	75	84	70	50	61	74	78	70	62	65	68	57	70	77	76	77	59	58	53	50	56	52	50	53	52	62	64	62	70	64.3
	Min	47	48	45	55	45	31	45	58	66	58	44	37	48	48	42	53	50	48	45	40	48	36	27	42	29	34	23	33	30	15	33	42.4
Plover	Max.	72	71	75	70	60	48	61	64	78	65	60	60	65	68	70	75	70	65	64	55	50	51	55	51	48	45	48	63	65	68	66	62.1
	Min	52	50	40	55	42	25	45	47	55	42	40	35	40	52	42	45	50	48	40	38	40	35	24	40	24	33	24	30	30	29	33	39.5
Pocah'tas	Max.	70	65	76	72	63	48	60	64	78	68	60	65	64	57	68	75	72	64	68	56	52	50	57	49	49	46	52	63	67	63	70	62.9
	Min	48	50	40	53	40	26	45	50	56	52	43	38	42	50	47	54	49	48	57	39	42	36	26	36	25	32	25	34	33	44	35	41.8
Red Oak	Max.	69	71	76	81	78	55	65	77	78	71	67	68	69	63	69	75	75	70	61	55	62	55	56	55	48	53	49	60	65	63	64	65.8
	Min	53	51	50	62	49	44	51	62	67	57	46	47	53	54	50	61	53	57	43	41	43	38	32	44	37	38	30	37	33	38	38	47.1
Ridgeway	Max.	75	65	66	76	68	54	54	69	75	70	65	58	66	59	65	78	80	80	60	52	45	47	53	45	42	52	50	61	66	60	67	61.9
	Min	47	48	41	57	42	30	42	54	55	54	50	40	43	44	48	52	53	52	44	38	40	36	27	38	28	29	25	32	36	33	37	41.8
Rock R.	Max.	76	74	76	78	54	50	67	68	75	64	64	68	68	66	70	78	70	62	48	50	40	40	48	51	42	56	64	65	70	66	68	62.5
	Min	48	58	46	46	34	25	45	50	55	48	42	38	48	46	48	48	50	48	36	34	38	33	26	27	28	30	28	28	30	30	34	39.5
R. City	Max.	70	65	75	78	65	50	60	70	80	72	60	60	65	60	78	75	70	70	60	55	54	50	50	50	55	50	50	55	63	64	65	62.7
	Min	45	45	40	55	45	31	45	51	55	53	43	36	45	48	52	48	45	45	45	39	41	40	28	35	25	34	25	34	35	34	35	41.2
Sac City	Max.	69	66	77	78	66	47	60	68	76	72	61	66	68	60	70	77	71	66	56	55	52	49	58	53	50	48	52	63	66	66	70	63.1
	Min	46	51	40	57	42	31	45	52	58	55	45	35	47	49	44	54	47	46	44	38	38	33	27	41	27	35	24	34	32	34	35	41.5
St. Cha'les	Max.	74	73	77	89	78	52	63	76	78	70	69	69	71	56	74	79	82	79	65	50	56	54	59	55	53	59	58	71	77	69	76	67.9
	Min	50	49	49	60	45	34	44	62	67	58	47	41	43	47	43	55	53	50	54	41	40	35	29	42	29	35	24	37	36	35	41	44.4
Sheldon	Max.	75	75	85	83	60	47	65	65	77	72	68	68	60	64	71	80	75	60	50	57	54	52	58	52	57	49	54	72	73	70	76	65.3
	Min	45	46	42	44	40	26	44	47	55	52	41	38	48	50	48	55	44	48	39	35	40	32	25	37	24	31	22	27	29	34	36	39.5
Sibley	Max.	..	81	81	74	50	48	52	68	75	57	62	51	58	63	67	78	72	54	44	55	..	57	52	44	50	52	44	65	70	63	70	64.0
	Min	48	..	40	40	37	28	33	47	52	52	41	36	39	51	48	52	48	52	43	35	33	.	25	36	22	22	23	28	30	32	34	38.2
Sioux C'y	Max.	70	69	84	82	64	51	72	67	7.	66	63	70	59	64	70	78	68	58	47	58	58	47	60	53	53	49	52	66	67	68	69	63.5
	Min	47	53	49	51	36	35	51	5	66	51	44	44	52	53	50	60	51	47	38	40	39	34	30	38	31	36	31	37	32	32	42	43.5
Sioux C'r	Max.	72	65	82	77	60	49	65	62	75	71	59	67	57	65	69	75	68	57	47	54	54	46	56	49	51	45	50	63	66	65	67	61.5
	Min	45	48	42	47	39	29	45	50	57	55	42	39	50	51	49	55	47	48	38	35	41	32	27	38	26	30	26	32	38	36	37	41.1
Stockport	Max	78	69	70	78	72	59	67	76	81	78	70	66	63	61	66	75	79	75	69	53	55	48	53	53	52	55	52	65	66	59	69	65.5
	Min	61	51	48	58	48	37	41	57	67	60	50	46	43	43	43	49	58	49	53	43	45	39	29	45	31	34	27	33	33	36	36	44.9
Storm L.	Max.	70	67	77	79	52	50	63	68	74	54	60	65	63	60	69	75	70	59	49	55	51	49	55	48	50	47	50	65	67	65	69	61.1
	Min	46	48	42	46	42	27	34	47	50	56	46	38	40	47	42	50	50	49	47	38	36	34	29	32	26	27	26	29	32	36	36	39.6
Stuart	Max	67	68	74	82	78	52	53	75	76	75	63	57	66	60	70	75	77	75	62	57	53	50	55	56	49	52	50	60	62	65	66	63.9
	Min	50	50	48	59	48	34	46	39	65	59	47	40	48	49	43	49	54	48	45	39	44	34	31	44	30	35	26	37	36	35	41	44.3
Thurman	Max.	65	74	78	86	73	55	69	83	77	73	70	72	66	63	73	78	77	68	62	58	56	51	65	60	52	55	53	63	67	69	68	67.1
	Min	55	46	52	60	49	42	51	63	68	57	39	42	52	52	46	60	43	57	42	35	38	30	25	38	27	32	22	35	28	33	32	43.6
Tipton	Max.	75	71	75	78	71	60	65	73	80	77	69	63	65	63	68	76	80	71	66	51	52	46	51	55	49	58	51	63	65	61	68	65.0
	Min	51	..	43	54	50	36	40	56	65	60	53	45	43	42	42	50	55	51	47	40	40	35	27	42	30	32	29	32	37	35	35	43.2
Toledo	Max.	71	72	70	82	70	58	61	75	80	70	68	65	67	56	67	77	80	79	64	57	55	53	53	52	47	58	52	63	69	68	71	65.3
	Min	48	47	35	56	42	29	43	58	65	56	42	37	41	44	41	53	56	48	47	40	43	38	22	42	28	32	19	32	27	32	30	41.1
Vinton	Max.	70	72	70	81	81	58	61	72	80	79	66	58	6	61	68	76	80	76	69	55	53	49	51	52	45	50	51	63	70	68	70	65.0
	Min	52	51	35	66	50	30	46	54	65	39	45	36	40	40	45	56	57	56	51	40	40	39	25	43	30	31	19	32	26	32	31	42.0
Wapello	Max.	65	65	67	75	71	53	62	72	78	71	70	61	61	59	63	71	74	73	72	52	53	46	50	51	48	52	47	58	58	57	64	61.9
	Min	53	56	45	55	51	38	41	57	67	60	54	45	44	45	45	49	59	55	51	49	44	38	31	46	33	37	29	36	34	39	38	45.9
Washi'ton	Max.	72	68	71	78	68	58	65	76	82	77	70	66	66	63	63	76	80	76	63	53	54	48	54	53	50	57	52	66	67	61	71	65.3
	Min	50	47	43	57	44	34	41	57	66	57	47	43	41	41	42	50	56	49	47	41	40	36	27	41	29	33	26	32	32	34	35	42 5
Waterloo	Max	76	68	69	81	60	58	61	80	80	73	66	64	67	65	69	80	81	78	77	57	53	52	52	55	45	55	53	64	70	64	73	66.0
	Min	48	45	38	58	45	29	43	56	61	60	45	38	40	41	45	51	56	48	47	40	42	39	27	39	30	29	23	30	29	32	32	41.5
Waukee	Max.	54	80	..	96	75	52	62	76	80	70	72	73	70	57	74	83	84	80	61	62	57	57	62	53	56	58	62	75	74	70	80	69.8
	Min	49	48	..	45	45	32	44	60	62	50	44	38	44	47	42	53	54	50	45	40	44	34	27	39	27	35	24	34	34	36	40	42.2
Waverly	Max.	72	63	66	78	67	55	57	72	79	70	60	63	64	68	66	76	77	75	66	55	50	49	50	50	42	52	50	60	65	60	68	62.7
	Min	48	51	40	56	42	30	44	56	59	55	45	40	43	44	47	53	55	50	49	40	42	39	26	38	30	28	23	33	29	33	35	42.0
Whitten	Max	70	66	70	78	74	59	60	74	79	71	62	62	64	56	65	74	74	74	63	55	51	50	50	51	46	53	49	59	63	59	65	62.8
	Min	47	48	40	55	42	35	41	55	61	55	41	39	40	45	41	49	49	47	47	38	41	37	23	40	26	28	21	30	30	34	35	40 6
Wilton J.	Max.	72	70	70	82	61	65	68	77	84	80	70	67	66	65	66	68	67	78	72	55	54	48	53	55	50	56	50	62	65	61	66	65.3
	Min	47	46	38	52	39	33	38	57	68	58	53	40	40	40	39	48	49	52	50	43	43	34	25	43	30	32	24	30	28	34	30	41.4
Winte'set	Max.	74	78	75	90	75	52	64	78	79	70	73	68	69	58	65	78	80	78	62	59	56	56	57	54	53	57	57	66	70	71	76	67.5
	Min	46	44	45	67	45	30	43	60	65	58	42	53	43	46	48	44	56	50	44	45	42	28	25	42	25	32	20	35	31	38	41	42.9
Zearing	Max.	71	67	72	83	74	51	60	76	79	70	59	64	65	55	66	77	79	75	63	57	51	50	52	51	47	54	51	63	68	63	70	64.0
	Min	46	47	38	55	44	30	43	59	62	55	40	38	38	45	41	52	52	48	45	39	43	37	24	41	28	29	21	34	32	33	41	41.3

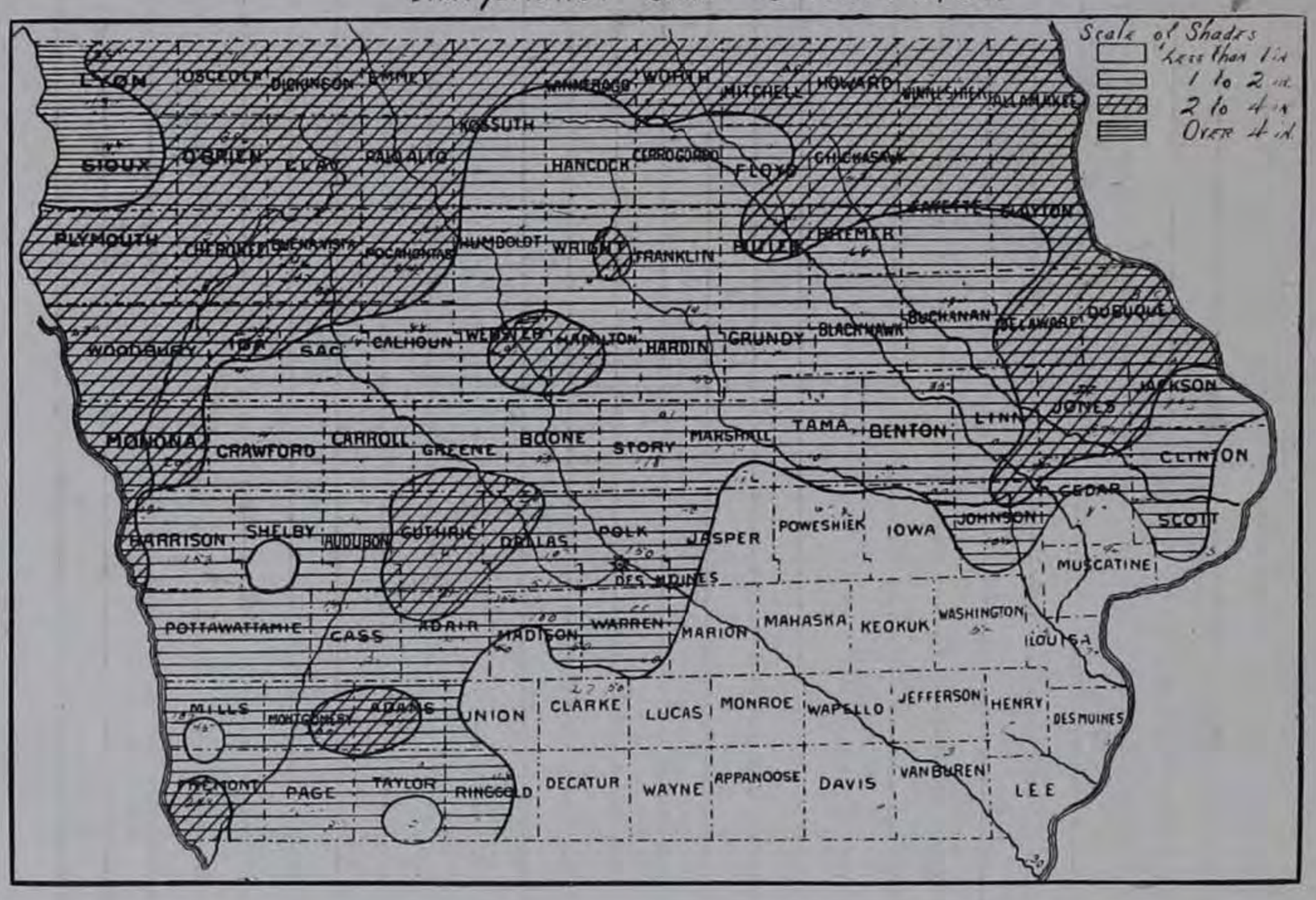
DAILY AND MONTHLY PRECIPITATION FOR OCTOBER, 1904.

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	....	....	....	....	....	....	....	..	.20	....	..	....	....	....	....	....	....	.61	04	....	....	....	....	....	....	..	....	....	....	....	....	.85
Albia	.06	....	....	....	.04	....	....	....	....	.02	....	....	....	....	.04	....	....	....	.05	....	....	....	....	..	....	....	....	....	....	....	....	.21
Algona	..	..	....	....	....	....	T	....	.51	.11	....	....	....	.14	....	....	.12	.03	.20	.36	....	....	....	..	....	....	..	....	....	....	...	1.47
Allerton	.35	....	....	....	.04	....	T	....	.02	T	....	....	....	.06	....	....	..	T	.02	.03	....	....	....	....	....	....	....	....	....	....	....	.52
Alta	.	....	....	....	....	....	.04	.	.72	.09	....	....	.10	.03	....	....	.21	.83	.34	.10	....	....	....	....	....	....	....	....	....	....	....	2.46
Alta [near]	....	....	....	....	....	....	....	....	.70	.08	....	....	.10	.04	....	....	.23	.92	.38	....	....	....	....	....	....	....	....	....	....	....	....	2.45
Amana	....	..	....	.03	.08	....	T	....	.42	.06	....	..	....	T	....	....	....	....	.34	.06	.01	....	....	..	....	....	....	....	....	....	....	1.00
Ames	...	....	..	....	....	....	.46	....	.26	.14	....	....	....	.06	....	....	....	....	.86	...	....	....	....	..	....	....	....	...	..	....	....	1.78
Atlantic	..	....	....	.	....	....	....	....	.55	....	....	....	T	....	....	....	....	.70	15	...	....	....	....	....	....	....	....	....	....	....	....	1.40
Audubon	....	..	....	....	....	....	T	..	.19	.52	....	....	....	.07	..	....	.10	.22	.64	.08	....	....	....	..	....	....	....	....	....	....	....	1.82
Baxter	....	...	...	...	.30	....	....	..	.25	.20	....	....	....	.15	...	....	....	....	.50	....	....	....	....	..	....	....	....	....	....	....	....	1.40
Bedford	....	..	....	T	T	T	.04	....	.11	T	....	....	.07	....	....	....	....	.29	.07	....	....	..	....	....	....	....	....	....	....	....	....	.58
Belle Plaine	..	..	....	.09	.24	....		....	1.04	....		....	..	....	....	....	....	....	.10	.08	T											1.55
Bonaparte	....	....	..	....	....	....		....	....	....	....	....	..	....	....	....	....	....	..	....	14	.	....	....	....	..	....	....	....	..	....	.14
Britt	....	..	....	....	....	....	.16	....	.51	.07	....	....	....	.14	....	....	.10	.09	.46	.11	.01	....	....	....	....	....	....	....	....	....	....	1.65
Buckingham	..	....	....	.25	....	....	.04	.26	.20	.44	....	....	....	.06	..	....	....	....	.45	.09	.04	T	....	....	....	....	....	....	....	....	....	1.83
Burlington	....	....		T	.01	....	....	....	T	....	....	....	....	....	..	....	....	....	.39	.02	.01	...	....	....	....	....	....	....	....	....	....	.43
Carroll	.17	....	....	....	....	....	.12	T	.15	....	....	..	....	.15	T	....	.50	.72	T	.18	..	....	....	....	....	....	....	....	....	....	..	1.99
Cedar Rapids	....	....	....	.04	.06		....	T	.52	06	....	....	....	....	T	....	....	....	T	.36	T	T	....	....	....	....	....	....	....	....	....	1.04
Chariton	..	....	....		T	....	T	....	T	T	....	....	....	T	....	....	....	T	.45	T	....	....	....	....	....	....	....	....	....	....	....	.45
Charles City	....	....	....	.04	..	....	T	.72	.12	.20	.10	....	T	....	.15	....	....	.12	.22	.22	.03	.02	....	....	....	....	....	....	....	....	....	....	1.94
Clarinda	.49	....	...	....	....	....	.03	....	.05	....	....	....	....	.08	....	...	....	....	97	.10	T	....	....	....	....	....	....	....	....	....	....	..	1.72
Clinton		....	....	....	.26	....	....	....	....	....	....	....	....	....	....	..	....	....	.12	04	.17	....	....	....	....	....	....	....	....	....	....	.59
College Springs	.70		...	....	....	....	T	....	T	T	....	..	....	.02	....	....	....	.55	.07	....	....	....	....	....	....	....	....	....	....	....	....	1.84
Columbus Junct'n	....	....	...	T	.15	....	....	....	....	....	....	....	....	....	....	....	....	....	.40	.19	T	....	....	....	....	....	....	....	....	....	....	.74
Corning	.27	....	....	T	....	....	T	.03	T	....	....	..	....	.06	....	..	....	...	1.65	.12		....	....	....	....	....	....	....	....	....	....	2.13
Corydon	.09	....	..	T	....	....	....	....	T	.02	....	....	....	.02	....	....	....	....	.01	....	....	....	....	....	....	....	....	....	....	....	....	.14
Cresco	....	....			....		.50	....	....	.30	.25	..	....	....	....	....	....	....	.80	....	.40	....	....	....	....	....	....	....	....	....	....	2.25
Cumberland	....	....	T	....	T	....	T	T	.01	....	..	....	....	....	..	....	....	1.00	.31			....	....	....	....	....	....	....	....	....	....	1.32
Davenport	....		....	T	.64	..	T	T	....	.01	....	..	....	....	....	....	....	....	.35	10	.05	T	T	....	....	....	....	....	....	....	....	1.15
Delaware	....	....	..	.07	.96	.	.07	..	.55	.20	....	....	....	....	....	....	....	....	.65	....	.12	....	....	....	....	....	....	....	....	....	....	2.62
Denison	.01	....	..	....	....	....	....	....	.07	.01	....	....	T	....	....	....	.57	.40	.30	.05	....	....	....	....	....	....	....	....	....	....	....	1 41
Des Moines	.03	....	..	.01	.29	....	.01	.09	35	.19	T	....	..	.14	.01	....	....	....	40	T	T	T	....	....	....	....	....	....	....	....	....	1.50
De Soto	.06	....	....	...	.16	....	.03	....	T	.29	....	....	..	.11	....	....	....	T	.88	.04	....	....		....	....	....	....	....	....	....	....	1.57
Dows	....	....	..	....		....	.66	....	.33	T	....	..	....	.03	....	....	.35	.05	.61	.10	T		....	..	....	....	....	....	....	....	....	2.13
Dubuque	....	T	....	.02	1.11	....	.04	T	.86	.40	.02	T	....	....	....	....	....	....	.60	.01	.10	02		...	....	....	....	....	....	....	....	3.18
Earlham	.12	....	..	....	.21	....	.05	T	.06	T	....	....	....	.15	....	....	....	.86	.10	....	....	....	....	....	....	....	....	....	....	....	....	1.55
Elkader	....	....	....	.23	....	....	.14	....	.66		....	....		....	....	....	....	.04	.49	....	.18	....	....	....	....	....	....	....	....	....	....	1.74
Estherville	....	....	....	....	....	....	....	.12	.60	.10	.18	T	....	.29	....	....	....	.14	1.10	.32	T	T	....	....	....	....	....	....	....	T	....	2.85
Florence	....	....	....	....	....	....	.33	....	.29	.01	....	....	....	.02	....	....	.10	.01	.80	.12	.01	....	....	....	....	....	....	....	....	....	....	1.69
Forest City	....	....	....	....	....	....	....	.27	.84	.36	....	....	....	.14	....	....	....	....	.48	.30		....	....	....	....	....	....	....	....	....	....	1.89
Fort Dodge	....	....	....	.18	.02	....	T	.30	.15	.11	....	....	..	.17	.08	....	....	.12	.70	.25		....	....	....	....	....	....	....	....	....	....	2.08
Fort Madison	...	....	....	....	.27		....	....	....	....	....			....	....	....	....	....	.25	....	T	....	....	....	....	....	....	....	....	....	....	.52
Galva	...	....	...	....	....	....	....	....	1.35	.10	....	....	.08	.01	....	....	.13	.75	.39	.12	....	....	....	....	....	....	....	....	....	....	....	2.93
Gilman	....	....	....	....	.25	....	T	T	.15	.04	....	....	....	.07	..	....	....	....	.25	T	T	....	....	....	....	....	....	....	....	....	....	.76
Glenwood	....	....	....	....	....	....	....		T	....	....	..	T	....	....	....	....	.10	.35	....	....	....	....	....	....	....	....	....	....	....	....	.45
Grand Meadow	....	....	....	....	....	....	.50		.47	1.30	..	....	....	....	....	....	T	....	.50	.06	.26	....	....	....	....	....	....	....	....	....	....	3.09
Greene	....	....	....	....	....	....	.63		.48	.12	....	....	....	.16	....	....	.	.20	.60	.15		.	....	....	....	....	....	....	....	....	....	2.34
Greenfield	.16	....	....	....	....	....	.01	.07	12	.01	....	....	....	.14	....	....	....	.03	.91	.04	..	....	....	....	....	..	....	....	....	....	....	1.49
Grinnell	....	....	....	....	.30	....	.02		.09	....	....	....	..	.01	....	....	....	....	.22		....	....	....	....	....	....	....	....	....	....	....	.64
Grinnell (near)	....	....	....	T	....	.35	....	T		.10	T	....	....	....	.03	....	....	....	....	.35	T	....	....	....	....	....	....	....	....	....	....	.83
Grundy Center	...	....	....	.14	.05	....	.05	...	.24	.37	....	....	....	.08	....	....	....	....	.71	.06	....	....	....	....	....	....	....	....	....	....	....	1.70
Guthrie Center	.09	....		....	.98	....	.02	....	.20	.17	....	....	....	.23	.01	....	....	.03	.82	.13	..	....	....	....	....	....	....	....	....	....	....	2.68
Hampton	....	....	....	....	....	....	.66	.12	.11	....	....	....	....	.04	....	....	.12	.88	.20	....	....	....	....	....	....	....	....	....	....	....	....	2.13
Hanlontown	....	....	....	..	....	....	.32	....	.56	.30	....	....	....	T	....	....	....	.08	.82	T	.15	....	....	....	....	....	....	....	....	....	....	2.23
Harlan	.09	....	....	....		..	T		.16	.11		....	T	.18	....	....	.04	.10	.20	.04	....	....	....	T	....	..	..	....	....	....	....	.92
Hopeville	.09	....	....	....	....	....	.01	....	.15	T	....	....	....	.23	....	....	....	....	.42	....	....	....	....	....	....	....	....	....	....	....	....	.90
Humboldt	....	....	....	....	....	....	.22	....	.38	.03	....	..	....	.19	....	....	.21	.04	.30	.22	....	....	....	....	....	....	....	....	....	....	....	1.59
Ida Grove	....	....	..	..	....	....	.10	..	....	....	....	..	T	....	....	....	.60	.40	.30	.	....	....	....	....	....	....	....	....	....	....	....	1.40
Independence	....	..	.12	.40	....	....	T	....	.35	50	....	....	....	....	....	....	....	....	.50	..	.02	T	....	....	....	....	....	....	....	....	....	1.89
Indianola	.03	....	....	.01	.50	....	T	T	.03	T	....	....	....	.16	....	....	....	....	.36	T		....	....	....	....	....	....	....	....	....	....	1.09
Inwood	..	....	..	....	....	....	.03	....	1.05	.20	....	....	.50	....	....	....	....	2.56	....	....	....	....	....	....	....	....	....	....	....	....	....	4.34
Iowa City	....	....	....	T	.38	....	T	26	.05	T	....	....		....	....	....	....	....	.17	.60	.13	T	....	....	....	....	....	....	....	....	....	1.59
Iowa Falls	....	...	....	T	.08	T	.01	.21	.06	.82	T	....	....	....	.05	....	T	.60	...	.09	T	T	....	....	....	....	....	....	....	....	....	1.92
Keokuk	.02	....		....			..	T	....	....		..	....	....	..	....	....	....	.28	T	T	....	....	....	....	....	....	....	....	....	....	.30
Keosauqua	.14	....	T	....	.07	....	....	....	....	T	....	....	....	....	....	....	....	....	....	.18	T	T	....	....	....	....	....	....	....	....	....	.39
Knoxville	..	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Lacona	.03	....	....	.41	....	....	T	T	....	01	....	....	....	.12	....	....	....	....	.63	....	....	....	....	....	....	....	....	....	....	....	....	1.20
Larrabee	....	....	....	....	....	....	.15	....	.45	.48	....	....	.22	....	....	T	.30	....	1.58	....	..	....	....	....	....	....	....	....	....	....	....	3.18
Lenox	.80	....	....		....	....	.03	....	T	....	....	....	....	.17	....	....	..	....	50	.03	....	....	....	....	....	....	....	....	....	....	....	1.03
Le Claire	....	..	..	T	.07	....	....	T	....		.41	....	....	....	....	....	....	....	....	.30	.09	T	....	....	....	....	....	....	....	....	....	.87
Little Sioux	.08	....	....	....	....	....	....	....	.26		....	....	.14	.07	....	....	.16	.54	.06	.03	....	....	....	....	....	....	....	....	....	....	....	1.34
Leon	.18	....	....	....	T	....	....	....	T	T	....	....	....	....	.15	....	....	T	.41	....	....	....	....	....	....	....	....	....	....	....	....	.74
Logan	....	....	....	....	....	....	....	.23	....	.07	....	....	....	....	....	....	..	.48	.42	.33	....	....	....	....	....	....	....	....	....	....	....	1.53
Maquoketa	....	....	....	.03	.10	....	..	....	1.01	.07	....	....	....	....	....	....	....	....	....	.47	....	.15	....	....	....	....	....	....	....	....	....	1.83
Marshalltown	....	....	..	.19	.22	....	....	....	.22	.09	.45	....	....	....	.09	....	....	....	.40	.05	T	.02	....	....	....	....	....	....	....	....	....	....	1.78
Mason City	....	....	....	....	....	....	.30	....	.52	.20	....	....	....	.07	....	....	.15	....	.50	.07	.04	....	....	....	....	....	....	....	....	....	....	....	1.85
Muscatine	....	....	....	....	.10	....	....		....	T	....	....	....	....	....	....	....	....	T	.65	.15	.10	..	....	....	....	....	....	....	....	....	....	1.00
Mt. Vernon	...	..	....	.02	.11	....	T	....	1 30	.14	....	....	....	....	....	....	....	....	.90	....	.02	....	..	....	....	....	....	....	....	....	....	....	2.49
Mount Ayr	.35	....	..	.05	.03	.02			.03	T	....	..	....	.25	....	....	....	....	33	.02	....	....	....	....	....	....	....	....	....	....	....	....	1.08
Mt. Pleasant	....	....	....	T	.23	....	....	.02	T		....	..	....	....	....	....	....	.05	....	.13	T	....	....	....	....	....	....	....	....	....	....	.43
New Hampton	....	....	..	..	....	....	.34	T	1.20	.03	....	....	....	T	....	....	....	.02	.67	.04	.04	....	....	....	....	....	....	....	....	....	....	2.34
Odebolt	....	....	....	..	..	....	....	T	....	....	.15	....	....	.20	....	....	....	.23	.38	.16	.12	....	....	....	....	....	....	....	....	....	....	1.24
Ogden	..	....	..	....	....	....	.11	....	.70		....	....	..	....	....	....	....	....	.72	....		....	....	....	....	....	....	....	....	....	....	1.53
Olin	....	....	....	.02	....	...	T	....	3 00	T	....	....	....	....	..	..	....	....	.74	T	.01	.01	....	....	....	....	....	....	....	....	....	....	3.78
Omaha, Neb	.10	....	....	....	T	....	T	.06	46	07	.	...	.08	.07	...	....	.06	.33	.17	....	..	..	....	..	....	..	....	....	....	....	....	....	1.40
Onawa	.04	....	....	....		....	T	....	.34	...	....	....	.30	.08	....	..	.18	.95	.15	.03	....	....	....	....	....	....	....	....	....	....	....	....	2.07
Osage	..	...	....	....	....	..	.57	....	.28	.26	....	....	...	.13	....	....	.09	....	.64	.07	.03	.01	....	....	....	....	....	....	....	....	....	....	2.08
Osceola	.05	....	....	....	T	..	..	....	T		....	....	....	.22	....	....	....	....	....				....	....	....	....	....	....	....	....	....	....	.27
Pacific Junction	.24	..	....	....	....		..	....	.07	.07	..	....	.07	....	....	....	T	.33	.29	....	....		....	....	....	....	....	....	....	....	....	....	1.07
Perry	.04	....	....	....	.10	....	.14	....	.50	.24	....	....		.18	....	....	T	T	.65	.16	T	....	....	....	....	....	....	....	....	....	....	....	2.01
Plover	....	....	....	....	....	....	.16	....	1.03	.16	....	....	.18	..	....	.	.26	.22	.61	...	...	....	....	....	....	....	....	....	....	....	....	....	2.62
Pocahontas	....	....	....	....	....	....	.08	....	.80	.08	....	....	....	.30	....	....	.13	.58	.43	....	....	..	....	....	.	....	....	....	....	....	....	....	2.40
Red Oak	.33	....	....	....	T	....	T	.07	.04	T	....	....	T	.09	....	....	....	.05	1.38	.04	....	....	....	....	....	....	....	....	....	....	....	....	2.00
Ridgeway	..	....	.01	....	.01	....	.54	....	.82	.15	..	....	....	.02	.03	....	.04	....	.75	.12	.18	.04	..		....	....	....	....	....	....	....	....	2.71
Rock Rapids	....	..	....	....	....	....	....	....	.40		....	....	....	1.35	.90	..	....		....		....		..	.	....	....	....	....	....	....	....	....	2.65
Rockwell City	....	..	....	....	....	....	.30	....	.35	...	....	...		.23		....	.25	.50		.25	....	....	....	....	....	....	....	....	....	....	....	....	1.88
Sac City	....	....	.03	....	....	....	.04	....	.12	T		....	T	.20		....	15	.23	.30	.11	..	..	....	....	....	....	....	....	....	....	....	....	1.18
St. Charles	.12	....	....	....	.70	....	.05	....	.01	.03	....	....		.18		....	....		.38	.03	....	....	....	....	....	....	....	....	....	....	....	....	1.50
Sheldon	....	....	....	..	....	....	.09	....	1.15	.20	.01		.12	.13	....	....	.08	.53	1.45	.05	...	....		....	....	....	....	....	....	....	....	....	3.86
Sibley	....	....	..	....	....	....	.12	.04	1.72	.06	.06		.03	.27	....	.01	.01	.21	.75	.65	....	....	..	....	T	.	....	....	....	..	....	....	3.96
Sioux Center	....	....	....	....	....	....	.03	....	1.30	T	....	....	.51	.06	....	.02	.06	.60	1 85	....	....		....	....	....	....	....	....	....	....	....	....	4.43
Sioux City	....	....	....	....	....	....	T	....	.70	....	..		.64	.13	T	....	.05	.33	.54	....	..	....	.	....	....	..	....	....	....	..	....	....	2.39
Stockport	.02	....	....	T	.	....	T	....	T	T	....	...	....	T	....	....	....	.30	T	.02	T	....	....	....	....	....	....	....	....	....	....	....	.34
Storm Lake	....	..	....	.07	....	....	....	T	.61	1.04	.08	....	.05	.12	..	....	....	.21	57	.34	..	....	....	....	....	....	....	....	....	....	....	....	3.09
Stuart	....	...	....	....	..	....	....	.	.98	....	....	....	.16	....	....	....	....	.87	.16	....		....	....	....	....	....	....	....	....	....	....	....	2.17

DAILY AND MONTHLY PRECIPITATION FOR OCTOBER, 1904--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	
Thurman	.56			.10			T	T	.32	T			T	T	T			.38	1.08													2.44
Tipton									.44										.41	.04												.89
Toledo				.10	.40		T		.05	.10				.05					.40	T												1.10
Vinton				.01	.42				.92																							1.35
Wapello					.10														.40	.27												.77
Washington				.05															.34	.15												.54
Washta							T		1.00				T				.10	.60	.80													2.50
Waterloo				.15	.10		.05		.21	.07				.04			T		.56	.05	.01											1.24
Waukee	.04			T			T	.14	.06					.15					.63	.05												1.07
Waverly				.01			.20		.58	.02				.02			.12		.56	.10	.07											1.68
Whitten					.55		T		.10	.12				.21			T		.47	.05	T											1.50
Wilton Junction									T										.66	.16	.12											.94
Winterset	.12				.15				.11						.13				.49													1.00
Woodburn	T			T	T		T	T	T	T				.15					.35													.50
Zearing				T	.18		.05	T	.04					.11					.58	.05												1.01

Precipitation Chart October 1904.



NOVEMBER, 1904. No. 11

CONTENTS.

CENTRAL STATION, DES MOINES, IOWA.

J. R. SAGE,
DIRECTOR.

GEO. M. CHAPPEL,
LOCAL FORECASTER,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

THE IOWA WEATHER AND CROP SERVICE

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

STATE BOARD OF AGRICULTURE,

CONSTITUTED AS FOLLOWS:

OFFICERS.

W. W. MORROW, PRESIDENT, Afton.
C. E. CAMERON, VICE-PRESIDENT, Alta.
G. D. ELLYSON, TREASURER, Des Moines.
JOHN C. SIMPSON, SECRETARY, Des Moines.

EX-OFFICIO DIRECTORS.

ALBERT B. CUMMINS, Governor of Iowa.
H. R. WRIGHT, Dairy Commissioner.
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U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

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IOWA CROPS—FINAL REPORT, 1904.

TOTAL YIELD FOR THE STATE—VALUE OF SOIL PRODUCTS AT FARM PRICES DECEMBER 1ST.

Despite somewhat adverse conditions at the outset, and belated growth of the cereal crops, the final report for the season of 1904 makes a satisfactory exhibit of the agricultural resources of the state. The warmth and dryness of the autumn made partial amends for low temperature and slow progress during the summer.

CORN.—The area planted this season was 9,052,450 acres. The loss of acreage from various causes was relatively small compared with recent seasons, and it is probable that practically about nine million acres were harvested. The average yield for the state appears to have been about 36 bushels per acre. The total yield is 323,853,330 bushels, which is 93,342,000 above the yield last year and the largest crop produced since 1900. During the past fifteen years there have been two larger crops; viz.: 345,000,000 bushels in 1900, and 335,000,000 bushels in 1901. This year's output is 62,000,000 bushels above the fifteen year average.

The average price per bushel, at the farms December 1st, was about thirty-five cents; total value of the crops, $113,348,665.

WHEAT.—This crop was badly damaged by rust and blight. The area of winter wheat was about 71,030 acres, and the average yield 14.3 bushels per acre; total yield, 1,017,000 bushels. The acreage of spring wheat was 775,040 acres; yield 9.1 bushels per acre; total output for the state, 7,080,430 bushels. Farm prices, winter wheat 92 cents; spring wheat, 86 cents. Total value of wheat crop, $7,024,809.

OATS.—Area seeded, 4,018,980 acres; yield per acre 29.4 bushels; total bushels, 118,435,570. The farm value, 26 cents; total value December 1, $30,793,284.

RYE.—Area seeded, 99,590 acres; yield per acre, 15 bushels; total yield, 1,517,090 bushels. Value, at 54 cents per bushel, $819,228.

BARLEY.—Area seeded, 493,370 acres; yield per acre, 25 bushels; total yield, 12,317,710 bushels. Value, at 34 cents per bushel, $4,188,021.

FLAX. Area, 51,370 acres; yield, 11 bushels per acre; total yield, 591,140 bushels. Va'ue, at $1.15 per bushel, $679,811.

POTATOES.—Yield per acre, 125 bushels; total output, 14,255,680 bushels. Value, at 28 cents per bushel, $3,991,590.

HAY (TAME).—Area harvested, 2,797,640 acres; total yield, 4,499,090 tons. Value, at $5.62 per ton, $25,284,885.

HAY (WILD).—Total amount cut, 1,091,590 tons. Value, at $4.50 per ton, $4,912,155.

PASTURAGE AND GRAZING.—The value of pasturage and grazing, harvested by live stock, in pastures and in grain fields, cornfields and meadows after harvest, is placed at $90,000,000, or about $400 per farm of 160 acres. This is believed to be a very low estimate, for reasons set forth in a separate article.

TABULATED CROP SUMMARY.

CROPS.	Total Products.	Farm value December 1st.
Corn	323,853,330 bushels	$113,348,665
Wheat	8,097,430 bushels	7,023,809
Oats	118,435,570 bushels	30,793,284
Rye	1,517,090 bushels	819,228
Barley	12,317,710 bushels	4,188,021
Flax	591,140 bushels	679,811
Potatoes	14,255,680 bushels	3,991,590
Hay (tame)	4,499,090 tons	25,284,885
Hay (wild)	1,091,590 tons	4,912,155
Pasturage and grazing (cornfields, etc.)		90,000,000
Buckwheat (estimated)		250,000
Sweet potatoes		850,000
Sorghum and broom corn		260,000
Timothy seed		950,000
Clover and millet seed		175,000
Flax seed		679,810
Fruits and garden truck		7,500,000
Total soil products		$291,207,258

In this estimate no account is made of the profits derived from the consumption of the staple crops in the dairy and live stock industry.

The average farm value of milch cows is $28, and of horses, $92 per head.

NOVEMBER WEATHER AND CROPS.

The month was unusually warm and the driest November on record for the state. The mean temperature, as shown by records of 110 stations, was 41.0 degrees, which is 6.3 degrees above normal. The average in 1902 was .2 of a degree higher and 2.9 degrees higher in 1899. The average precipitation for the state at 119 stations was .15 of an inch, which is 1.25 inches below normal. Nine stations reported no rain in measurable amount. Practically all the precipitation fell on the 9th and 10th, and the average number of clear days was twenty. The conditions were ideal for husking corn and drying out the surplus moisture. At the close of the month the bulk of the crop was harvested. Conditions were also favorable for fall plowing and general farm work of the late autumn period. The pasturage was better than usual, though the fields were brown. Winter wheat and rye suffered some damage for want of moisture.

FINAL CROP REPORT, 1904.

TOTAL YIELD AND AVERAGE PER ACRE—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 bushels.	Bushels per acre.	Total bushels.	Bushels per acre.	Total bushels.	Bushels per acre.	Total bushels.	Tons per acre.	Total tons	Tons per acre.	Total tons
Adair	15	4,050	8	75,200	36	3,754,440	25	774,500	18	3,060	26	9,360			110	128,700	1.5	68,410	1.2	2,230
Adams	18	18,080	12	38,640	30	2,182,500	22	337,700	19	8,930					100	58,000	1.7	77,530	1 0	2,140
Allamakee	9	1,080	10	31,900	37	1,491,740	35	1,771,350	15	18,750	26	162,500	8	3,280	120	130,800	1.6	62,830	1.5	3,460
Appanoose	15	18,300			33	1,823,250	23	287,000	12	21,720					150	162,000	1.7	71,580	1.2	1,080
Audubon			6	114,960	35	3,309,950	30	934,500	15	310	30	68,400			90	88,200	1.5	38,790	1 0	4,130
Benton			10	15,200	33	3,969,240	30	1,918,800	15	10,650	28	451,920			140	249,200	1.2	46,930	1.0	7,210
Black Hawk			8	3,260	37	3,596,400	29	1,522,790	15	24,750	29	107,010			150	207,000	1.8	72,270	1.4	12,050
Boone			8	27,320	35	3,556,350	34	1,695,240	15	5,100	30	9,300			150	175,500	2 0	42,940	1.5	22,100
Bremer			8	3,360	36	2,198,520	35	1,817,300	18	22,860	28	46,840	10	7,400	130	174,200	1.5	25,890	1.5	19,140
Buchanan			12	4,920	33	2,885,850	33	1,628,880	19	9,690	32	52,240	9	720	130	137,800	1.5	53,770	1.2	14,240
Buena Vista			10	72,800	31	3,389,540	32	1,959,630	16	5,020	25	81,500	8	4,160	110	144,100	1.5	27,850	1.3	21,200
Butler			10	3,600	32	3,592,000	28	2,039,800	17	22,270	24	19,680	8	3,600	160	203,200	1.7	31 600	1.2	16,920
Calhoun			10	41,900	33	3,653,430	34	2,127,880	20	4,600	27	114,120			125	132,500	1.8	29,610	1.5	19 160
Carroll			12	196,320	41	4,599 380	32	1,555,840	20	4,800	28	85,960			130	228,600	1.6	33,930	1.5	22,680
Cass	20	10,200	8	174,000	35	4,068,750	30	822,300	15	5,700	25	24,000			110	174,900	1.5	51,780	1.2	4,110
Cedar	20	13,400	10	14,200	42	4,654,860	35	1,233,750	15	22,200	28	321,480			160	193,600	1.8	70,470	1.5	1,220
Cerro Gordo			9	10,530	33	3,275,910	30	2,154,300	15	7,350	20	41,000	7	5,670	120	160,800	2.0	46,300	1.5	16,800
Cherokee			10	193,200	40	4,502,000	35	1,756,300	14	1,260	28	132,360	8	960	140	175 000	1 8	41,670	1 5	14,300
Chickasaw			12	12,960	35	2,369,050	40	2,414,800	17	10,710	32	80,320	12	50,160	110	138,600	1.8	34,110	1.3	13,170
Clarke	20	6,400			32	1,847,040	20	317,000	15	7,050					150	81,000	1.7	77,320	1.2	600
Clay			10	52,500	33	3,118,830	37	2,007,640	15	13,650	27	439,600	8	2,880	120	116,400	1.6	30,570	1 4	29,700
Clayton	14	17,500	12	68,760	37	2,845,670	34	2,135,540	19	76,760	33	195,030			130	245,700	1.8	81,370	1.5	3,130
Clinton	20	8,400	11	36,960	42	4,397,240	35	1,328,250	20	46,200	30	142,500			120	140,800	1.4	61,990	1.0	4,180
Crawford			9	363,680	36	4,348,080	34	1,428,340	18	10,620	30	65,400			110	209,770	1.8	58,840	1.5	12,460
Dallas	12	17,160	10	43,200	40	4,431,200	29	934,480	17	8,160	20	16,400			115	110,400	1.6	39,450	1.5	12,690
Davis	15	23,100			35	2,043,650	28	427,000	15	30,600					105	70,350	1.4	65,290	1.0	210
Decatur	20	12,400			32	2,245,760	20	322,200	18	11,520					100	67,000	1.4	76,130	1.0	890
Delaware	20	24,200			37	3,308,910	33	1,513,710	22	40,920	30	124,500			120	139,700	1.2	44,950	1.2	6,400
Des Moines	15	45,600	8	3,680	38	1,927,260	30	725,400	20	15,600	25	505,680			95	102,600	1.5	30,210	1 0	1,100
Dickinson			9	74,970	24	1,044,240	27	728,190	20	6,400	25	380,250	12	25,440	100	52,000	2.0	15,840	1.5	27,350
Dubuque	18	1,980	15	54,300	39	2,656,490	40	2,046,400	21	39,690	33	80,520			130	240,900	1.5	67,680	1.4	8,820
Emmet			12	35,160	30	1,611,600	45	1,631,700	20	4,400	35	287,350	11	15,070	90	44,800	1.8	20,610	1.5	23,410
Fayette	20	2,600	8	24,080	30	2,763,600	31	2,236,080	20	19,200	33	193,380	9	9,360	110	180,400	1.5	71,860	1.2	8,210
Floyd			9	5,220	31	2,535,490	30	2,044,200	21	24,570	22	103,620	8	15,440	95	188,100	2 0	34,320	1 2	9,020
Franklin			13	18,860	36	3,592,440	35	2,607,850	18	9,720	25	26,500	9	8,280	130	137,800	1 6	32,200	1.3	18,110
Fremont	12	26,760	8	12,880	35	3,866,100	22	244,640	15	9,150					150	103,500	1.8	25,390	1.5	8,560
Greene			12	29,400	41	3 715,420	23	964,510	15	1,800	25	51,250			120	90,400	1.7	30,970	1.2	14,120
Grundy			8	18,160	38	3,720,960	25	1,598,250	16	1,760	24	219,120			150	229,500	2.0	42,430	1.2	7,500
Guthrie	15	4,800	9	60,390	33	2 711,280	30	1,116,900	20	2,800	25	52,500			150	85,500	1 5	43,050	1.0	7,850
Hamilton			15	60,300	39	3,699,930	30	1,527,300	20	1,200	25	24,500	12	5,400	150	216,000	2 0	37,220	1.5	28,250
Hancock			8	32,160	25	2,203,000	28	2,057,440	18	4,680	25	62,750	9	9,540	160	152,000	1 3	22,690	1.0	20,130
Hardin			12	36,720	33	3,237,630	28	1,556,350	12	2,520	26	18,980			120	166,800	1.5	30,480	1 5	21,120
Harrison	20	420	9	280,890	38	4,955,960	33	495,550	15	13,650	30	31,800			110	169,400	2.0	24,570	1.8	20,130
Henry	14	28,840	12	480	43	2,805,750	35	990,850	20	70,800	25	38,250			140	74,200	1.8	37,870	1.0	210
Howard			12	14,280	26	1,322,760	30	1,805,100	20	2,240	30	105,600	12	48,960	100	95,000	1.5	44,550	1.5	15,210
Humboldt			12	94,080	38	2,588,560	35	1,277,200	20	2,800	33	63,030	12	11,040	160	73,600	1.5	22,660	1.2	18,210
Ida			10	190,100	37	3,427,680	40	1,286,000	20	5,200	30	123,900			100	95,000	2.0	40,420	1.5	7,210
Iowa	28	5,880	13	21,840	41	3,530,920	32	1,059,840	14	7,280	27	106,650			150	184,500	1.5	66,120	1.5	1,900
Jackson	12	3,120	10	32,200	40	2,844,800	28	957,040	16	33,280	25	90,250			110	128,700	1.5	66,030	1.5	3,200
Jasper	10	8,200	9	62,190	37	4,266,840	24	991,440	22	11,660	25	16,250			120	241,200	1.3	44,340	1.2	2,610
Jefferson	15	29,400	12	600	43	2,541,730	32	726,7 0	16	65,120	30	61,800			120	70,800	1.5	45,520	1.0	2,310
Johnson	15	11,420	13	13,390	42	4,448,640	31	1,317,810	16	45,920	32	185,920			130	170,300	1.7	62,260	1.0	1,910
Jones			10	9,800	40	3,665,200	31	1,086,550	18	31,500	30	154,200			130	126,100	1.3	58,810	1.0	2,100
Keokuk	14	19,740	10	9,200	37	3,570,500	27	949,050	14	42,980	20	91,200			140	120,400	1.4	55,560	1.0	470
Kossuth			12	194,160	28	4,161,360	34	4,258,500	15	3,150	28	177,800	12	38,640	160	254,400	1.5	32,340	1.2	68,000
Lee	15	96,150			35	1,869,350	28	628,600	15	72,160					120	141,600	1.5	57,310	1.0	180
Linn			10	12,100	34	3,771,280	32	1,611,520	15	16,200	25	23,000			110	203,500	1.5	60,420	1.0	4,110
Louisa	15	33,600			40	2,407,400	33	666,930	16	48,640	30	46,800			90	53,100	1.6	27,360	1.2	1,520
Lucas	14	8,680			30	1,521,300	25	345,250	14	8,680	22	7,480			85	44,200	1.3	54,730	1.0	220
Lyon			8	290,600	28	2,443,560	33	1,443,850	16	2,560	25	1,131,750	9	1,980	120	148,800	1.5	13,660	1.5	20,550
Madison	10	7,500	5	20,600	40	3,178,000	25	478,750	15	7,350	26	39,260			150	103,500	1.8	69,150	1.5	6,150
Mahaska	15	22,800	9	16,290	40	4,087,600	30	964,200	15	27,150	25	75,500			110	100,110	1.5	51,180	1.0	910
Marion	18	37,880	10	30,900	39	3,642,990	30	844,800	17	24,480	25	20,250			120	117,700	1.5	42,150	1.2	1,530
Marshall			11	55,110	42	4,630,340	33	1,707,420	15	6,450	24	60,240			140	161,000	1.4	39,420	1.2	2,800
Mills	12	21,600	7	42,840	35	2,625,350	20	229,600	10	3,200					90	75,600	2.0	32,280	1.0	2,410
Mitchell			12	29,640	35	2,152,150	34	2,215,440	12	6,120	28	334,880	10	83,400	110	191,400	1.5	36,180	1.0	2,410
Monona	21	14,900	10	287,100	36	4,523,400	35	632,100	16	14,560	30	152,400			110	134,200	1.9	8,320	1.5	27,630
Monroe	15	3,750	8	960	37	1,897,360	25	280,750	16	13,280					100	62,000	1 5	45,310	1.0	480
Montgomery	12	33,720	7	102,970	35	3,363,850	22	294,800	12	6,120					80	72,800	1.5	48,610	1.5	2,240
Muscatine	18	28,620	12	176,520	40	3,048,400	34	720,060	14	70,140	28	171,360			100	212,000	2.0	48,040	1.5	2,210
O'Brien			10	147,100	30	3,307,500	33	1,757,910	15	3,300	25	650,750	9	2,520	110	136,400	1.5	26,860	1.5	18,030
Osceola			11	101,420	30	2,440,500	34	1,115,900	15	1,650	26	704,860	8	5,360	120	78,000	1.7	18,920	1.5	16,410
Page	15	128,550	8	36,720	31	3,570,890	20	325,400	12	14,400	22	18,040			120	108,200	1.8	61,570	1.5	4,050
Palo Alto			10	38,100	30	2,457,300	30	1,652,700	15	4,650	30	156,300	9	18,090	140	124,600	1.2	12,130	1.2	42,140
Plymouth			10	901,200	40	6,555,600	35	1,786,050	14	5,460	25	239,250	10	2,100	110	212,300	1.5	26,940	1.0	26,150
Pocahontas			12	33,720	27	2,927,070	36	2,467,440	15	6,150	28	87,080	10	16,200	100	108,800	1.8	21,970	1.2	36,160
Polk	15	13,950	10	51,110	40	4,432,800	32	1,239,040	12	11,340					100	192,000	1.8	38,350	1.2	10,670
Pott'wattamie	15	13,050	8	305,520	40	8,051,200	32	963,840	12	6,120	20	16,600			120	312,200	1.6	53,580	1.0	13,260
Poweshiek	13	910	12	27,120	40	4,352,800	30	1,203,300	15	5,850	25	86,250			140	149,800	1.4	58,950	1.0	650
Ringgold	13	9,360	10	850	25	1,982,000	20	416,400	15	9,300					100	51,000	1.5	78,280	1.2	910
Sac			12	94,080	34	4,094,280	35	1,756,300	20	2,800	30	143,100	12	960	150	160,500	1.7	42,680	1.5	21,910
Scott	17	35,020	14	85,680	43	3,350,130	30	641,700	15	27,150	22	518,760			150	721,500	1.4	36,690	1.2	6,330
Shelby			10	30,120	40	4,808,400	30	818,400	15	1,350	25	34,500	10	3,100	140	193,200	1.5	31,810	1 5	6,240
Sioux			7	421,260	33	4,920,960	35	1,754,200			30	864,300	8	3,280	120	169,200	1.5	15,610	1.5	30,910
Story	20	1,800	10	17,400	42	4,721,200	32	1,645,120	20	9,800	30	15,300			150	123,000	1.5	33,780	1.0	18,380
Tama	20	800	8	50,480	40	4,807,600	33	1,719,630	15	6,150	25	720,250			140	245,000	1.5	60,270	1 0	5,240
Taylor	15	47,400	5	400	25	1,828,000	15	252,200	12	14,850	20	13,400			120	78,000	2.0	68,220	1.5	2,100
Union	15	2,700	8	720	29	1,853,400	23	408,760	16	2,720	20	10,200			120	97,200	1.7	74,250	1.0	1,290
Van Buren	13	28,860			42	2,105,140	30	517,200	12	45,960					150	63,000	1.8	65,010	1.0	1,520
Wapello	15	31,050	10	1,100	41	2,575,620	40	647,200	20	83,200	25	39,500			100	92,000	1.5	48,420	1.0	210
Warren	16	9,760	10	30,800	40	3,644,800	26	1,532,520	15	18,900	20	26,600			140	113,400	1.7	69,780	1.2	420
Washington	20	18,400	10	2,800	43	3,177,270	30	978,300	15	42,150	21	84,210			130	89,700	1.8	47,280	1.0	240
Wayne	20	1,800			28	1,857,800	22	336,330	15	12,300					130	72,800	1.7	100 980	1.0	460
Webster			12	61,400	35	4,241,300	40	3,021,200	20	3,600	23	21,1 0	10	8,100	120	135,600	2.0	38,440	1.0	24,110
Winnebago			8	66,000	25	1,253,000	28	1,125,880			25	81,000	6	11,340	105	64,050	1.5	18,150	1.2	26,110
Winneshiek	15	1,350	7	42,840	39	2,627,820	33	2,276,670	20	5,200	30	307,800	10	73,100	110	129,800	1.3	58,860	1.0	11,200
Woodbury			9	379,620	41	6,979,020	35	996,450	12	7,920	30	197,700	7	1,470	120	177,600	2.0	22,180	1.2	14,120
Worth			10	30,200	30	1,298,400	40	2,287,600	15	1,650	35	192,850	12	75,480	150	111,000	1.8	28,990	1.0	14,240
Wright			14	68,180	36	3,593,520	33	2,274,030	15	1,800	20	80,600	11	18,260	110	92,400	1.9	35,910	1.5	28,160
Totals, state		1,017,000		7,080,430		323,853,330		118,435,570		1,517,090		12,317,710		591,140		14,255,680		4,099,090		1,091,590
Av. per acre	14.3		9.1		36		29.4		15		25		11		125		1.5		1.2	

VALUE OF PASTURAGE AND GRAZING.

In net value the grass crop is easily foremost among the soil products of this state. Conservative figures show that the hay crop, both cultivated and wild, was worth on December 1st, $30,197,040, at the low prices current at the farms on that date. But pasturage and grazing can not be measured by the ton or bushel, and the value must be estimated by taking into account the value of the farm animals and the output of the dairy industry. Here is one statement of the problem to be solved: If the grass crop when made into hay is worth $30,000,000, cut from less than 4,000,000 acres, what is the relative value of over 8,000,000 acres in pastures harvested by stock seven months in the year, plus the immense amount of grazing obtained from about 16,000,000 acres of grain fields, corn fields, meadows, etc., after harvest and through a portion of the winter season? It is not an exaggerated statement to say that pasturage and grazing count three fold the value of the hay crop in the production of live stock and in the dairy. According to the United States census the value of live stock and dairy products disposed of in Iowa in 1899 was approximately $150,000,000. Unquestionably two thirds of that amount must be credited to pasturage and grazing. That would signify a total value of about $100,000,000, or a little over $430 per farm.

MRS. MILLICENT B. STERN.

This office has been saddened by receipt of a note announcing the death of Mrs. Millicent B. Stern, who passed away at her home in Logan, November 12, 1904, in the 84th year of her age. She was the wife of Jacob T. Stern, who served as volunteer weather observer from 1860 till his decease in 1892. For the period of about twelve years the station has been kept with rare fidelity by Mrs. Stern, whose record bore evidence of the possession of a bright intellect until the final summons came. The records of the Logan station are of inestimable value to the people of that place and the state at large.

THE MUSKRAT AS A LONG-RANGE WEATHER PROPHET.

A valued correspondent inclosed the following clipping from a Minnesota paper, requesting the opinion of the editor of this publication as to the reliability of the muskrat as a true prophet of the character of the coming winter. The writer said: "I know from personal experience that the muskrat builds larger houses some years than others, but I had attributed it to the abundance or lack of material."

Following is the clipping referred to:

BEMIDJI, Minn., Dec. 2.—The muskrat as a weather prophet never misses. The little animals have about completed their winter building now and their houses are flimsy affairs, a sure sign of an open winter. The Indians and old settlers have more confidence in the little furry creatures than in human weather prognosticators. They say muskrats can tell months ahead what the weather will be and in Northern Minnesota they have shown their foresight by building thin walls to their winter homes.

REPLY.

DEAR SIR,—I am in receipt of your letter of the 3d inst., and the clipping relative to the muskrat as a long-range weather prophet. Responding to your request, I venture the opinion that the muskrat is quite like his biped brother of the human species—he works under stress of necessity. If his house is thinner than usual just now, it is due to the fact that October and November were phenomenally mild; the muskrat was out enjoying the sunshine. Possibly he had heard some of the talk that the climate is changing and the winters are growing milder since the old pioneer days. He concluded that the good time had come—sure, and what's the use building thick houses any more? From this point of view we may regard thin muskrat houses as signs of mild autumns, and not as sure indications that the coming winters will be of the same sort. When zero pinches the musky rodent may wish he had thatched up betimes in better shape. Really, now, I don't believe the animal, however strong his instinct may be, knows any more about the coming winter than the almanac-maker, or other long-range weather fakir.

Very respectfully,
J. R. SAGE.

WEATHER BUREAU STATION AT CHARLES CITY, IOWA.

A new Weather Bureau station was opened at Charles City, Floyd county, Iowa, on November 1, 1904. The longitude of Charles City is 92° 38′ W., latitude 43° 04′ N. and elevation 1015 feet above mean sea level. The city is situated in the valley of the Cedar River, and is partially surrounded by hills ranging in height from 50 to 68 feet above street level. The station is located one block from the river. It is furnished with a full instrumental equipment, the wind instruments and electrical sunshine recorder being mounted on a 50 foot steel tower, in the base of which the thermometer shelter is suspended. The rain gauges have a ground exposure in the yard. Two observations will be taken daily and the usual records kept.

CLARENCE J. ROOT,
Assistant Observer, Weather Bureau.

CONCERNING WEATHER FORECASTS.

Benjamin Franklin was a pioneer in meteorology, as well as in the correlated science of electricity. His kite experiment, demonstrating the identity of lightning with artificial electric sparks, gave him world-wide fame; but no less important from a scientific point of view, and of greater practical value, was his discovery of the rotary circulation of winds in the general storms of the Atlantic coast, and a progressive movement in a northeasterly direction. By inquiries addressed to numerous correspondents and travelers in the colonies he reached the conclusion that the northeast storms of that region began at extreme southwest points about a day earlier than at Boston. From a careful study of the mass of facts thus laboriously collected he formulated his tentative philosophy of storms.

Franklin's contemporaries, and the people generally, were not deeply impressed by this new theory. There was nothing spectacular about it, appealing to the popular imagination like his famous kite-flying experiment performed amid thunder and lightning. He was a century in advance of his age. And the bulk of the people were biased by the teachings of the oldtime astrologers that the moon is the dominant force, with the planets as adjuncts, in the production of storms and weather changes. But Franklin was unique among the philosophers of the eighteenth century. Though a great reader of books and current literature, in scientific studies he consulted chiefly the book of nature. His methods were characterized by simplicity and directness. He was richly endowed with the genius of common-sense. He gave little heed to the occult doctrines and mysticisms of ancient philosophy. To him the vaporings of the oldtime astrologers were of less value than the soughing of the east wind, which was a portent of a coming storm from the westward.

In the field of meteorology Franklin was essentially an explorer, setting up landmarks for guidance of future investigators. Following his line of research, in the first half of the nineteenth century a number of able scientists brought some measure of order out of chaos, and were able to discern regular lawful sequence in the apparently erratic sweep of wind currents and storm-eddies. With the rapid advance of settlements to the westward, and construction of railways and telegraph lines, conditions were made favorable for collecting and making a scientific analysis of climatic data. This was done by scores of observers and scientists under the auspices of the Franklin Institute of Philadelphia, and the Smithsonian Institution, aided in some measure by the government. Upon the foundation thus prepared the structure of the National Weather Bureau was begun in 1870. From a small beginning, with an initial expenditure of $20,000, this branch of the public service has been enlarged in its scope until it has become of vital importance to all interests and all classes of people. The annual appropriation for its support is about a million and two hundred thousand dollars, and this great Bureau has won the admiration of the civilized world. Its field of observation now embraces the continent from the Arctic circle to the northern coast of South America. And today marine interests, inland commerce and agriculture share about equally the benefits of the service.

It is a Bureau of applied science, with ample provision for original research. It is both progressive and conservative—proving all things and holding fast that which is good. It has been founded upon well-attested scientific principles. All the discoveries and generalizations in meteorology made by the most eminent scientists of America and Europe have been utilized and reduced to practical form in the work of the forecast division. Inventive skill has been called into requisition to construct instruments for recording automatically the most minute changes in atmospheric pressure, temperature, humidity, precipitation, wind velocity and direction, sunshine, etc. These complex and almost infallible instruments have been installed at about 200 regular stations within the territory covered by this service, in charge of thoroughly trained observers who have become experts in this line. Simultaneous observations are collected by telegraph twice daily, and oftener when needed; and by this means the forecast officials are enabled to note the actual weather conditions in all parts of the continent. On prepared maps lines are drawn showing areas of low and high pressure, noting differences of temperature and direction of wind at the various stations. Storm centers are thus located, and the graphic pictures show the area of disturbance, energy and direction of movement. Upon this basis of actual conditions, thus graphically presented to the eye of the official in charge the forecast is made as to the weather changes that are likely to occur in the different parts of the country within the coming twenty-four, thirty-six or forty-eight hours.

In the methods of forcasting there is nothing even remotely akin to occult science or the practice of astrology. No storm forecast is issued until a storm actually appears, or is in the initial stage of development. When the weather map reveals the outlines of a storm at the far west or northwest the problem to be solved by the forecaster relates to its probable future course, its velocity of translation, its increase or decrease in extent and force, and the disturbance of elements likely to be caused during its progress across the continent. This is something of a complex problem, requiring in its solution a very thorough study and the application of well established principles of meteorological science. Due consideration must be given to the results of experience and observation of weather processes in previous storms, but that does not insure perfect accuracy of the forecast. There are different types of storms, and those belonging to a certain type of form and combination of lows and highs on the map frequently display very eccentric behavior in their translational movement. Nature's great law of diversity holds true in the weather to a remarkable degree. No exact duplicate of any general storm has been issued. And this extreme variability of movement, under quite similar conditions at the outset, has prevented an overproduction of perfectly successful weather forecasters. It is indeed marvelous that in this country, with its widely variant storm-types, they have achieved from 80 to 90 per cent of accuracy in their work.

Well now, having made so good a record at short range, why not extend the period a full week or month? This is a question often propounded. The answer of experience is that those who venture further usually fare worse. Just beyond what is shown on the daily weather chart is an illimitable realm of uncertainty, wherein those who enter must walk by faith not by sight. Forecasters take large risks if they attempt to hit storm centers offhand, or by random shots; to hit even at short range they must take very deliberate aim with the weather map as a rest.

Unquestionably there is a general desire for an extension of the range of forecasts, to cover the near future, and if possible the coming season. If some explorer in meteorology and astronomy should discover a fundamental law, whereby he could accurately calculate the time of arrival, the force and pathway of all storms for weeks and months in advance, and could warn the people of future floods or drouths in defined localities, he would at once take rank as the greatest scientist in the world. And then if he would reveal the secret of his discovery for the benefit of future generations, he would be honored as the greatest of philanthropists as well as the wisest of mankind. But alas, up-to-date this great man has not arrived, and as yet we have not even a postal card notification of the date of his coming.

In ancient times astrologers worked a profitable "graft" to satisfy the public demand for knowledge of the future, representing that all human events, and even weather changes, were due to the influence of the moon and planetary bodies, and that they alone knew how to read the celestial cipher. Isaiah, the great Hebrew prophet, referred to that guild in rather uncomplimentary terms, as "Stargazers, astrologers, and monthly prognosticators." Since the middle ages this practice has fallen into disrepute, but we have some "modern instances" indicating a survival of the superstitious beliefs which formed the basis of old-time astrology. Our modern stargazers and monthly prognosticators refer in mysterious phrase to the moon, Mercury, Venus, Saturn and even the hypothetical Vulcan, as the powers of the air which brings storms and all weather changes and earthquakes. These men peddle their long-range forecasts in almanacs and other publications, profiting by practice on human credulity and ignorance of natural laws. Their alleged predictions are usually very indefinite as to the exact date of arrival of storms, and their line of travel when they arrive; and by skillful ambiguity of language they may claim a verification if a storm crosses the continent anywhere between Hudson's Bay and the Gulf of Mexico, at any time within an alleged storm period of three to five days.

Some of the ablest scientists of this country and Europe have devoted much time and labor to the study of this problem. They have consulted weather records of all countries, taking note of the dates of heavy storms, making comparison with the position of the moon and planets, to determine if there in any discoverable connection between the movement of those minor bodies and the sweep of storm-eddies in earth's atmosphere. The consensus of opinion has been that there is no foundation of fact or philosophy for that system of long-range forecasts. So thus far there has been an entire failure to establish a scientific and practical basis for any kind of trustworthy predictions as to the occurrence of storms, floods or drouths in specified localities and at certain dates in future months or seasons. Though such foreknowledge is very desirable, yet at the pre-

sent stage of human progress it is beyond possibility of realization. In this field of scientific research the wisest students have been most deeply sensible of the limitations of human knowledge; but charlatans and pretenders claim to hold a key to mysteries in earth and the heavens that are hidden to the balance of mankind. Quackery in meteorology as well as in medicine is indicated by the extravagant pretensions of its practictioners.

Modern astrologers, following closely the lines of their ancient prototypes, give the sun a minor or passive role, while the moon and planets form an all-star aggregation in the ever-shifting scenes of earth's drama. To each planet is assigned some specialty act on the stage, each producing a different type of weather; and when two or three act in conjunction the complex results are startling. In the program as presented by a long-range almanac the leading role in developing regular storm periods is given to "Vulcan", though that hypothetical planet modestly keeps out of sight. The almanac says: "The Vulcan period is the foundation and frame work around which all storm disturbances grow."

According to this almanac the planet Mercury is in control of the sprinkling apparatus, causing mist and drizzles in summer, and damaging sleet in winter. Just how Mercury produces such an effect on the earth is one of the curious things in occult science. The almanac says: "Mercury moves and operates at such distance from the sun as to admit of much vapor and humidity. At the same time its nearness to the sun causes perpetual evaporation and steam and vapor in its atmosphere and skies, and this is in some as yet indefinable way communicated to our own and other planets in our system. * * * This peculiar infection infused into the sun by the Mercury perturbation, we hold, may reasonably take on such forms as to be thrown out by the solar energy, being reconverted into something like its original elements in our own globe and atmosphere. Hence our thick prolonged cloudiness, our mist and drizzling rains and sleet storms during the Mercury disturbances.

This abstruse statement translated into plain English signifies that the planet Mercury when it gets into a "disturbance," throws water into the face of the sun, and that body retaliates by turning his hose on the whole planetary family! That relieves great Jupiter Pluvius from some measure of blame for excessive humidity.

Another extract from the almanac will throw more light on this problem. It says: "The disturbances of each and all the planets are communicated to all the rest of the planets, not directly, but through the perturbations caused by the planetary equinoxes to the sun. * * * When the plane of each planet's equator cuts the sun, this force is violently antagonized, the center of energy is put out of balance in the great solar orb, and perturbing waves react upon all bodies in our system, resulting in the phenomena which we witness in our earth and skies and which we denominate as meteorological."

There we have the gist of the system,—straight! The planents are dynamos revolving swiftly in space, each projecting from its equator tremendous electric force. When that equinoctial stream of planetary thunder and lightning strikes the sun squarely in the face it makes old Sol hot, and of course he strikes back! Who wouldn't? It's no very pleasant thing to be cut in the face by that sort of electric buzzsaw! This theory accounts not only for terrestrial storms and extreme heat, but also for the great spots that appear occasionally on the sun's face. The noxious planetary equinoxes cause all that disfigurement. Science is a great thing when it aids us in solving such problems as that! In reading over this almanac's dramatic story of how the planets are continually "perturbing" the sun, and how the sun hurls it back at all creation, one is reminded of a lot of boys poking sticks into a mammoth hornet's nest, and the stinging "reactionary disturbance" issuing from that previously passive body!

Really, it is difficult to treat such ludicrous matter with becoming dignity and seriousness. The chapter of the almanac descriptive of "Each planet's peculiar phenomena" is absolutely irresistible as a mirth-provoker to any reader who possesses a sense of the ridiculous and some elementary knowledge of meteorology and astronomy. One is impressed by the evident earnestness of the author, and yet it seems that he must be too intelligent to believe in his absurdly fantastic theories. They are no more believable than the myths and legends of the ancients. It is inconceivable that a learned astronomer and meteorologist actually believes that the sun is passive except when it is "perturbed" by some planet's equinox; that mists and vapors are injected and infused into the sun by Mercury's perturbation, and then thrown out by solar energy to form mists and sleet on earth; and that during the so-called "Jupiter period" the carrying capacity of earth's atmosphere becomes disordered and weakened, so that it cannot transport and diffuse humidity, thereby causing consuming drouths in places and destructive cloudbursts in other localities. One who actually believes that kind of absurdity is beyond the reach of influence by evidence and argument. The bare statement of such propositions is a sufficient refutation.

Students in the primary class in meteorology learn that the ever-changing phenomena of the weather are all referable to the action of the sun upon the earth and its atmosphere, vapors and gases; that the constantly radiated energy of the sun supports heat, light and electric force in the solar system. The planets possess no form of independent energy whereby they may "perturb" the sun and increase its potency. Gravitation is only a name given to the statical relation of all matter in the universe, and it is a physical constant. There is absolutely no proof of any "perturbation" or increase in storm energy when the sun crosses the equator of the earth or any other planet. That is merely a hypothesis, supported by a priori assumptions and occasional coincidences. People often confound coincidence with consequence.

Planetary weather forecasts are too-far fetched to be practicable. The prophets in that line work at the wrong end of the problem. When there is more than the usual degree of heat or storminess, they peer into the nebular spaces to see what caused the disturbance on earth, and then allege that it was done by Jupiter, or was the malign work of Saturn, which in their philosophy causes epidemics and pestilential contagious diseases. Possibly also they may in time discover that it is due to Saturnian potency that we have rings and combines in human affairs; why not?

True science, in the last analysis, is plain common sense applied to the study of nature's problems. In erecting philosophical structures the foundation should rest on the earth. Begin with facts as the solid basis of theories. Reason from the known to discover the unknown. In forecasting a storm, observe the good old recipe of the cook book for cooking a hare—first catch your storm, and then predict its future course and time schedule. A storm in hand (i. e., on the map), is worth two in some nebular hypothesis! It's mighty easy forecasting storms if one is allowed a broad range as to the exact locality and a long range as to the date. Storms are coming and going all the time, somewhere; on all dates as well as the specified days of the almanac's storm period.

It is probably true that cyclones or storm eddies, are as much in evidence one day as another, considering the earth as a whole. So one may safely predict storms for every day in the year with the certainty that they will rage somewhere. It would keep the moon and planets mighty busy with their equinoxes to maintain the continual stream of atmospheric eddies flowing over the face of the earth. But really the moon and planets are not charged with that duty. In respect to light, heat and power of gravitation these bodies are infinitesimal as compared with the sun, which is the prime cause of weather phenomena on earth.

J. R. SAGE.

CLIMATOLOGY OF THE MONTH OF NOVEMBER, 1904.

BAROMETER.—Mean pressure, 30.10 inches; highest observed, 30.56 inches, at Sioux City, on the 11th; lowest observed, 29.49, inches, at Davenport, on the 28th; range for state, 1.07 inches.

TEMPERATURE.—The monthly mean temperature for the state, as shown by records of 110 stations, was 41.0°, which is 6.3° above normal. By sections the mean temperatures were as follows: Northern section, 39 3°, which is 7.0° above normal; Central section, 40.7°, which is 6.1° above normal; Southern section, 43.1°, which is 5.4° above normal. The highest monthly mean was 45.8°, at St. Charles; lowest monthly mean, 37.4° at Maquoketa. The highest temperature reported was 80°, at Ruthven and Waukee, on the 18th; lowest temperature reported, 4°, at Britt, on the 30th. The average monthly maximum was 71.1°; average monthly minimum, 9.6°. Greatest daily range, 56°, at Rock Rapids, average of greatest daily ranges, 37.8°.

PRECIPITATION.—Average precipitation for the state, as shown by records of 119 stations, was 0.15 of an inch, which is 1.25 inches below normal. The averages by sections were as follows: Northern section, 0.17 of an inch, which is 1.19 inches below normal; Central section, 0.15 of an inch, which is 1.28 inches below normal; Southern section, 0.14 of an inch, which is 1.30 inches below normal. The largest amount reported was 0.50 of an inch, at Bonaparte and Glenwood; least amount reported, none, at Rockwell City. The greatest daily rainfall reported, was 0.50 of an inch, at Bonaparte and Glenwood, on the 9th and 10th respectively. Average number of days on which .01 of an inch or more was reported, 1.

WIND AND WEATHER.—Prevailing direction of the wind, northwest; highest velocity reported, 43 miles per hour, from the northwest, at Sioux City, on the 29th. Average number of clear days, 20; partly cloudy, 6; cloudy, 4.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES.			
		Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Charles City	30.08	30.50	10	29.52	28
Davenport	30.07	30.45	11	29.49	28
Des Moines	30.13	30.54	26	29.61	28
Dubuque	30.09	30.48	11	29.53	28
Omaha, Neb	30.12	30.58	10	29.61	28
Keokuk	30.11	30.48	26	29 51	28
Sioux City	30,11	30.56	11	29 55	28
Means	30.10	30.56	11	29.49	28

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Charles City	5.139	36	NW	23
Davenport	4.557	31	W	29
Des Moines	4.913	27	SW	19
Dubuque	4.266	33	NW	23
Keokuk	4.543	34	NW	29
La Crosse, Wis	5.294	27	NE	9
Omaha, Neb	5.284	36	NW	29
Sioux City	8.016	43	NW	29

OBSERVERS' NOTES.

ALLERTON.—*Rex Shriver.* Weather during the month has been unusually fine.

ALTA.—*David E. Hadden.* An ideal November. One of the finest on record here. The daily mean temperature of the month was 8° above the average of the preceding 14 years. There was only one storm of rain and snow during the month and the greatest number of clear days and the least number of cloudy days on record.

AMANA.—*Conrad Schadt.* Indian summer weather prevailed throughout the month. The nights were cool and often foggy and the days mild and hazy. The ground seems to be as dry as ever at this time of the year. The roads are as dry, hard and even as paved streets.

ATLANTIC.—*J. W. Love.* This has been the finest November of which I have any record. Pasturage good for this season of the year. Roads never were in better condition. Dandelions in bloom on the 29th.

AUDUBON.—*Geo. E. Kellogg.* First snow of season on the 10th.

BONAPARTE.—*Hon. B. R. Vale.* A pleasant and profitable month. Only .64 inch of rain since September 27th.

BRITT.—*Geo. P. Hardwick.* An ideal month. But one cloudy day.

CHARITON.—*C. C. Burr.* November was a month of sunshine; no storms. Farm work is well advanced. Water for stock is getting to be an object, surface water being exhausted; but a trace of rain during the entire month.

CLINTON.—*Luke Roberts.* The month was almost rainless and cloudless.

FOREST CITY.—*J. A. Peters.* The most delightful November for years—no snow. Most of corn cribbed and fall work on farm well finished.

GRUNDY CENTER.—*E. S. King.* A very remarkable month for lack of storms.

IOWA FALLS.—*J. B. Parmelee.* A twelve-year record does not show such fine weather for November.

LARRABEE.—*H. B. Strever.* November has been very mild and clear, enabling farmers to carry forward fall work at a good pace.

MOUNT VERNON.—*Rev. Jos. W. Hubbard.* Remarkable for clear skies, moderate temperature and small amount of rainfall.

OSKALOOSA.—*Jas. Boyd.* November was a very dry and pleasant month. The least precipitation I have recorded for the past 14 years.

RIDGEWAY.—*Arthur Betts.* Wild geese going south on 17th. There were 13 days without a cloud and 15 days of uninterrupted sunshine. Drouth conditions prevailed.

ROCK RAPIDS.—*W. C. Wyckoff.* Finest fall in 23 years.

SHELDON.—*A. W. Beach.* First snow on 9th. Ground not frozen to prevent plowing.

WASHTA.—*H. L. Felter.* Unusually fine weather all during the month. All clear days but one. Could plow up to the 30th.

WAUKEE.—*E. J. Leonard.* Weather remarkably fine all the month. One light rain and no snow. Only 3 cloudy days and 2 partly cloudy since October 21st, or 36 clear days out of 41.

WAVERLY.—*H. S. Hoover.* No snow until the 29th; then only a trace.

BELATED REPORTS.

NORTHWOOD—September—Total precipitation 1.40 inches; greatest in 24 hours .50 inch on the 1st; prevailing direction, northwest; number of clear days 10, partly cloudy 9, cloudy 12, rainy 5.

CLEAR LAKE—October—Mean temperature 51.6°; highest 76° on the 16th; lowest 26° on the 25th and 27th; greatest daily range 25°; total precipitation 2.65 inches; greatest in 24 hours 1.25 inches; prevailing direction southeast; number of clear days 8, partly cloudy 17, cloudy 6, rainy 4.

NORTHWOOD—October—Total precipitation 2.30 inches; greatest in 24 hours .80 inch; number of rainy days 4.

SPIRIT LAKE—October—Mean temperature 50.4°; highest 78° on the 16th; lowest 22° on the 24th; greatest daily range 40°; total precipitation 2.38 inches; greatest in 24 hours .97 inch; prevailing direction, south; number of clear days 10, partly cloudy 7, cloudy 14, rainy 4.

WHAT CHEER—October—Mean temperature 55.2°; highest 86° on the 4th; lowest 24° on the 29th; greatest daily range 49°; total precipitation .27 inch; greatest in 24 hours .22 inch; number of rainy days 2.

CLIMATOLOGICAL DATA FOR NOVEMBER, 1904.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Algona	Kossuth	1,213	28	38.5	† 6.6	68	2,3	7	30	31	.32	- .94	.20	1.0	2	....	....	....	NW	
Alta	Buena Vista	1,513	11	40.0	† 8.4	70	18	8	30	35	.31	- .86	.31	1.5	2	20	8	2	NW	
Alta (near)	Buena Vista	.....	....	.....	.....	.....	.....	.....	.....	.....	.10	.....	.10	...	1	...	...	...	.....	
Britt	Hancock	1,236	5	37.8	† 4 7	68	1,2,3	4	30	35	.26	- .72	.16	1.3	2	14	15	1	N, NW	
Charles City	Floyd	1,012	11	38.2	† 5.2	70	3	8	30	38	.25	-1.25	.25	T	2	14	11	5	NW	
Clear Lake	Cerro Gordo	1,241	....	38.4	.....	65	4,18	9	30	29	.25	.....	.25	T	1	17	10	3	NW	
Decorah	Winneshiek	857	..	38.8	† 6.5	68	1,2	10	30	35	.35	-1 24	.29	....	2	....	....	....	.....	
Dows	Wright	1,142	....	38.8	† 5.1	69	1,3	8	30	40	.05	-2.29	.05	.5	1	24	1	5	NW	
Elkader	Clayton	727	21	38.7	† 6.1	75	4	9	30	45	.14	-1.54	.14	T	1	14	12	4	NW	
Estherville	Emmet	1,298	....	39.2	†10.1	72	2	9	30	41	.14	-1 03	.14	1.5	1	21	1	8	NW	
Florence	Wright	1,226	8	.....	.....	...	.....	...	.....	.....	.19	...	.15	T	2	9	19	2	SW	
Forest City	Winnebago	1,226	8	38.4	† 7.1	71	3	8	30	36	.22	-1.14	.22	T	2	20	5	5	W	
Grand Meadow	Clayton	1,180	11	39.4	† 7.2	66	1,2,3	8	30	29	.18	-1 41	.18	T	1	12	14	4	NW	
Greene	Butler	924	5	39.6	† 4.4	70	2,3	9	30	38	.33	- .96	.25	....	2	11	7	12	W	
Hampton	Franklin	1,155	12	41.4	† 9.3	74	2	9	30	41	.40	-1.21	.35	0.2	2	18	11	1	NW	
Hanlontown	Worth	.....	....	38.5	.....	72	3	5	30	40	.13	.....	.13	....	1	22	4	4	SW, NW	
Humboldt	Humboldt	1,095	10	40.0	† 6.5	72	2	10	30	40	.20	-1.26	.20	....	1	26	1	3	NW	
Inwood	Lyon	.....	....	38.4	....	65	19	9	29	37	T	.....	T	T	0	21	1	8	NW	
Larrabee	Cherokee	1,236	11	38.8	† 6.9	69	1,2,3	8	30	40	.29	- .69	.29	2.9	2	25	3	2	SW	
LeMars	Plymouth	1,224	6	38.6	† 5.2	68	1	9	30	40	.05	-1.01	.03	T	2	18	10	2	NW	
Mason City	Cerro Gordo	1,132		39.8	....	67	1,2,3	10	30	28	.20	.....	.20	....	1	16	12	2	SW	
New Hampton	Chickasaw	1,169	...	40.7	† 5 9	67	3	7	30	31	.10	-1.69	.10	....	1	14	11	5	W	
Northwood	Worth	1,222		38.6	† 6.7	67	19	9	30	32	.25	-1.31	.25	...	1	13	7	10	NW	
Osage	Mitchell	1,184	11	38.4	† 9 2	63	1,2,3	9	30	33	.17	-1.28	.11	T	2	17	8	5	NW	
Pocahontas	Pocahontas	1,190	5	40.2	.....	70	2	9	30	41	.11	.....	.10	1.0	2	25	3	2	NW	
Plover	Pocahontas	.....	....	38.6	† 4.8	68	2,4,18	8	30	36	.20	-1.37	.10	1.0	1	25	3	2	N	
Ridgeway	Winneshiek	1,215	....	41.7	† 4.5	75	1	7	30	39	.29	-1.66	.26	.1	3	18	10	2	S	
Rock Rapids	Lyon	1,021	...	41.4	†13.4	70	3,5,7,15,23	9	30	56	T	- .29	T	T	0	...	...	...	.....	
Ruthven	Palo Alto	.....	....	40.6	....	80	18	8	30	41	.05	.....	.05	.5	1	29	0	1	N	
Sheldon	O'Brien	1,422	....	40.2	† 4.6	74	6	6	30	48	.16	.....	.10	.2	2	26	2	2	NW	
Sibley	Osceola	1,212	....	38.0	† 7.1	70	2,3	6	30	39	.05	- .82	.05	.5	1	19	9	2	NW	
Sioux Center	Sioux		...	39.4	† 3.9	67	2,3	9	30	35	.10	- .47	.05	1.0	2	17	5	8	N	
Storm Lake	Buena Vista	1,440	7	40.0	† 3.6	69	2	10	30	39	.03	- .93	.03	.3	1	27	0	3	NW	
Washta	Cherokee	1,157	....	.....	.....	.....	.....	....	.....	.....	.10	- .95	.10	1.0	1	29	0	1	N, S	
Waverly	Bremer	942	6	39.5	† 5.0	70	1	10	30	36	21	-1.27	.17	T	2	14	12	4	S	
West Bend	Palo Alto	1,197	8	....	...	.....	.....	.....	.....	.....	.08	-1.31	.08	.3	2	21	6	3	N, NW	
Average	.....	....	....	39.3	† 7 0	69.7	.....	8.2	.....	37.5	0.17	-1.19	..	0.5	1	19	7	4	NW	

SOUTHERN SECTION.

Afton	Union	1,212	....	42.8	†6.9	68	1,2	13	30	36	T	-1.11	T	....	0	23	3	4	SW	
Albia (a)	Monroe	957	..	43.6	....	72	1,2,18,19	10	30	39	.08	.....	.08	....	1	21	3	6	NW	
Allerton	Wayne	.....	....	43.4	...	75	2	11	30	39	.06	.....	.06	T	1	27	1	2	NW	
Atlantic	Cass	1,164	11	40.4	†5.9	72	4	9	30	46	.08	- .78	.08	.8	1	15	10	5	NW	
Bedford	Taylor	.....	....	41.8	.....	74	2	10	30	39	.08	.	.07	T	2	24	4	2	NW	
Bonaparte	Van Buren	.....	10	42.4	†4.2	74	19	12	30	38	.50	-1.50	.50	....	1	..	...		.....	
Burlington	Des Moines	544	....	43.8	.....	74	1,2	13	30	35	.13	.....	.13	..	1	24	3	3	SW	
Chariton	Lucas	1,042	7	43.1	†4.5	74	2	9	30	39	T	-1 41	T	....	0	22	5	3	N	
College Springs (a)	Page	.....	10	44 0	†5.6	70	1,3,4,18	14	30	32	.10	- .94	.10	....	1	26	1	3	...	
Columbus Jct	Louisa	596	....	42.4		79	4	12	30	37	.16	.	.16	....	1	23	5	2	S, NW	
Corydon	Wayne	992	9	44.3	†6.2	76	2	9	30	40	.05	-1.45	.05	....	1	21	7	2	NW	
Clarinda	Page	1,069	....	42.2	†4.8	77	18	12	30	48	.09	- .94	.09	T	1	24	0	6	NW	
Cumberland	Cass	.....	...	.....	.....	.....	.....	...	.....	.....	T	.....	T	....	0	28	0	2	S	
Fort Madison	Lee	516	51	.....	.....		.....	.....	.....	.....	.43	-1.73	.43	..	1	22	3	5	N, SW	
Glenwood	Mills	.....	15	45.0	†6.4	71	2	20	12	35	.50	- .10	.50	....	1	11	18	1	NW	
Hopeville	Clarke	.....	11	43.3	†7.8	73	2	11	30	37	.02	- .96	.02	....	1	15	13	2	SW, NW	
Indianola	Warren	969	11	43 1	†1.5	72	18	11	30	35	.03	-1.27	.03	T	1	14	9	7	SW	
Keokuk	Lee	619	31	44.8	†6.0	73	19	16	30	32	.21	-1.91	.21	....	2	22	4	4	NW	
Keosauqua (a)	Van Buren	664	10	39 8	†0 5	73	20	12	30	44	.14	-1.49	.14	....	1	14	8	8	.....	
Lacona	Taylor	1,250	7	.....	.....	.....	.....	.....	.....	.....	.03	.....	.03	...	1	13	12	5	.....	
Leon	Decatur	1,120	....	43.5	....	68	2,18,19	14	30	35	.09	.....	.09	T	1	15	6	9	N	
Massena	Cass	.....	....	41.2		70	1	10	30	36	.06	.	.06	....	1	28	0	2	S	
Mount Ayr	Ringgold	1,236	6	45.4	†7.5	76	2,18	13	30	41	.41	- .87	.41	T	1	18	10	2	NW	
Mount Pleasant	Henry	729	20	41.8	†7.1	72	19	11	30	30	.22	-1.37	.20	T	2	20	3	7	SW	
Omaha, Neb	Douglas	1,113	32	44 8	†8.2	70	18	21	30	31	.10	- .96	.10	0.3	2	15	10	5	NW	
Osceola	Clarke	1,130	6		.....		.....		.....	.....	.06	-1.40	.06	....	1	22	6	2	SW	
Oskaloosa	Mahaska	843	18	42.0	†5.3	73	10	11	30	38	.03	-1.52	.03	....	1	24	3	3	NW	
Pacific Junction	Mills	960	..	40.6	.....	69	1	12	30	42	.18	.....	.13	1.8	2	20	8	2	S	
Red Oak	Montgomery	1,033	....	42.2	†0.6	64	3,4	19	30	31	.07	- .97	.07	T	1	15	13	2	NW	
St. Charles	Madison	1,070	....	45.8	.....	79	18	12	30	49	.09	.....	.07	....	2	27	2	1	NW	
Stockport	Van Buren	.....	...	42.7	.....	75	18	14	30	36	.15	.....	.15	T	1	21	3	6	NW	
Thurman	Fremont	.....	....	40.9	†2.7	69	1	10	30	42	.18	- .91	.10	1.8	2	21	5	4	SW	
Wapello † (e)	Louisa	588	....	43.6	.....	70	19	15	30	31	.12	.....	.12	....	1	....	..	...	.....	
Washington (g)	Washington	769	20	40.2	†4 6	73	3	12	30	34	.23	-1.16	.23	....	1				.....	
Winterset †	Madison	1,129	11	43.8	†5.4	79	6	9	30	52	.30	- .91	.30	....	1	22	5	3	SW, NW	
Woodburn	Clarke	961	....		.....	.....	.....	....	.....	.....	.12	.	.12	T	1	21	2	7	SW	
Average	.....	.....	....	43.1	†5.4	72.8	.....	12.7	.....	38.2	0.14	-1.30	.....	0.3	1	20	6	4	NW	
Average for state	.....	.....	....	41.0	†6.3	71.1	.....	9.6	.....	37.8	0.15	-1.25	.....	0.5	1	20	6	4	NW	

CLIMATOLOGICAL DATA FOR NOVEMBER, 1904—CONTINUED.

CENTRAL SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Amana	Iowa	721	25	40.2	†7.0	71	19	10	30	35	.19	-1.56	.11	....	2	20	8	2	NW	
Ames	Story	926	20	41.3	†8.1	73	2	11	30	44	.02	-1.08	.01	....	2	19	7	4	SW, NW	
Audubon	Audubon	1,301	8	39.6	†5.1	70	3, 18	8	30	48	.17	-1.31	.17	1.3	1	22	4	4	..	
Baxter	Jasper	998	....	40.7	.....	72	3	9	30	34	.08	.....	.08	....	1	24	3	3	NW	
Belle Plaine	Benton	826	12	39.3	†4.9	70	2	6	30	37	.20	-1.63	.20	....	1	16	10	4	NW	
Buckingham	Iowa	....	....	....	.....	.....	.....	....	.....	.....	.18	.....	.18	T	1	14	4	12	.....	
Carroll	Carroll	1,265	12	41.6	†8.4	74	18	6	30	44	.18	- .97	.18	1.0	2	23	5	2	.....	
Cedar Rapids	Linn	733	19	39.6	†3.8	72	19	12	30	40	.09	-1.33	09	....	1	18	7	5	NE, SW	
Clinton	Clinton	609	34	38.9	†3.4	69	3, 19	11	30	38	.10	-1.80	.10	....	1	18	7	5	SW	
Davenport	Scott	606	31	42.3	†5.5	71	19	14	30	31	.18	-1.88	.18	....	2	17	9	4	NW	
Delaware	Delaware	1,083	11	38.2	†6.2	67	2, 3, 19	7	30	29	.09	-1.52	.09	....	1	17	9	4	SW, NW	
Denison	Crawford	1,180	8	40.8	†6.4	71	3, 18	9	30	42	.15	- 75	.10	1.0	2	27	1	2	S	
Des Moines	Polk	861	24	42.9	†6.5	71	18	13	30	36	.06	-1.65	.06	T	1	18	6	6	SW	
De Soto	Dallas	866	..	43.8		77	18	10	30	42	.10	.....	.10	....	1	22	5	3	NW	
Dubuque	Dubuque	655	29	41.2	†6.2	69	1	15	30	31	.08	-2 02	.08	T	2	12	11	7	NW	
Fort Dodge (a)	Webster	.....	....	40.6	.....	71	1	10	30	35	.20	.....	.20	.5	1	23	5	2	NW	
Galva ‡ (c)	Ida	1,126	8	36.7	†4.5	68	18	7	30	44	.09	-1.24	.09	.5	1	28	0	2	.....	
Gilman	Marshall	1,290	...	.....	...	.....	.....	.....	.....	.....	.25	.....	.25	T	1	18	9	3	S	
Grinnell	Poweshiek	1,052	9	41.4	†5.6	68	1, 12, 19	11	30	27	.12	-1.40	.12	T	1	22	6	2	NW	
Grinnell (near)	Poweshiek	1,023	....	42.0	.....	74	2, 3	11	30	34	.10	.	.10	....	1	22	4	4	NE	
Grundy Center	Grundy	.....	11	40.7	†7.9	72	2	6	30	37	.23	-1.05	.12	....	2	24	3	3	W	
Guthrie Center	Guthrie	976	6	41.9	†5.3	71	18	19	30	38	.13	- 92	.08	.8	2	25	4	1	NW	
Harlan	Shelby	1,077	....	39.4	.....	68	1	8	30	42	.17	- .72	.14	1.0	2	16	12	2	NW	
Ida Grove	Ida	1,192	....	38.3	.....	67	2, 3	8	29	39	.....	.....	.....	....	...	25	3	2	S	
Independence	Buchanan	1,220	38	39.2	†6.0	70	2	8	30	34	.05	-1.47	.03	T	2	26	1	3	SW, NW	
Iowa City	Johnson	921	45	39.4	†3.9	73	19	10	30	45	.25	-1.07	.25	....	1	14	5	11	N	
Iowa Falls	Hardin	683	90	37.8	†5.6	68	1, 2, 3	7	30	41	.23	-1.05	.23	T	1	24	2	4	NW	
Little Sioux	Harrison	.....	....	42.2	.....	73	3	10	30	44	.20	.....	.18	1.5	2	24	4	2	SE	
LeClaire	Scott	576	....	...	.....	.....	... .	.....	.....	.....	.31	.....	.31	....	1	....	....	....	SW	
Logan	Harrison	928	35	40.5	†4.9	68	1, 3, 18	12	30	42	.20	- 96	.20	2.0	1	22	4	4	NW	
Maquoketa	Jackson	688	9	37.4	-3.4	73	3, 4	10	14, 30	44	.22	-1.23	.22		1	17	6	7	NE, SW	
Marshalltown	Marshall	947	9	39.6	†3 9	72	1, 2	10	30	37	.17	-1.16	.17	T	1	19	3	8	NW	
Muscatine	Muscatine		....	.....	.....	.....	.....	.....	.....		.20	.....	.20	....	1	....	....	....	S	
Mt. Vernon	Linn	847	35	40.7	†7.5	73	3, 4	8	30	39	.13	- .99	.10	....	2	22	0	8	S	
Newton	Jasper	944	14	41.1	†6.6	68	2	10	30	33	.08	-1.72	.08	....	1	23	6	1	N	
Odebolt	Sac	1,356	5	40.2	-4.2	70	18	9	30	41	.24	- .88	.18	1.8	2	27	2	1	.....	
Ogden	Boone	1,088	8	40.8	†5.6	70	2	9	30	34	.02	-1.09	.02	.2	1	27	1	2	NW	
Olin	Jones	760	....	39.6	†2.7	70	19	10	30	35	.01	-1.19	.01	T	1	17	8	5	NW	
Onawa	Monona	1,053	....	42.2		72	6	12	30	41	.30	- .83	.25	2.5	2	27	1	2	NW	
Perry	Dallas	975	..	41.2		70	2	10	30	38	T	.....	T	T	0	18	10	2	.....	
Rockwell City	Calhoun	....	....	41.0	†7.0	68	2, 3, 18	9	30	36	.00	.....	.00	0	0	26	0	4	.....	
Sac City	Sac	1,278	22	41 4	†8.9	70	18	10	30	39	.24	- .87	.20	2.0	2	24	4	2	SW	
Sioux City	Woodbury	1,165	13	41.6	†7.3	70	1	15	30	36	.05	- .77	.05	T	2	19	8	3	N W	
Stuart	Guthrie	1,316	5	43.2	†8.4	67	2	13	30	28	.10	- .78	.10	T	1	6	20	4	W	
Tipton	Cedar	807	....	41.8	.....	70	1, 3, 19	12	30	31	.12	.	.12	....	1	24	3	3	NW	
Toledo	Tama	856	8	40.6	†4.5	72	1, 2, 3	9	30	41	.15	-1 38	.15	....	1	18	7	5	NW	
Vinton	Benton	810	12	41.2	†6.8	72	1, 3, 4	8	30	39	.10	-1.05	.10		1	24	0	6	SW	
Waterloo	Black Hawk	862	15	40.6	†5.4	75	2, 3	10	30	42	.21	-1.23	.21	T	1	18	8	4	NW	
Waukee	Dallas	1,039	....	45.2	.....	80	18	10	30	44	.10	.....	.10	....	2	25	2	3	SW, NW	
Wilton Junction	Muscatine	683	7	40.2	†2.8	70	3, 19	10	30	37	.35	.....	.35	....	1	18	5	7	NW	
Whitten	Hardin	1,036	..	39.5	4.7	68	2, 3	9	30	33	T	-1.29	T	T	0	19	7	4	SW	
Zearing	Story	718		41.5	.....	71	2	7	30	37	.16	.....	.13	T	2	22	4	4	.....	
Average	.....	... ..	....	40.7	†6.1	70.9	.....	7.9	.....	37.7	.15	-1.28	.....	0.7	1	21	5	4	NW	

† Above no rmal. ‡ Received too late to be computed with means. *a*. One day missing; *b*, two days, etc. § Not supplied with self-registering instruments.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR NOVEMBER, 1904.

STATIONS.		DATE.																													MEAN.
		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	Max..	68	68	66	67	61	64	61	57	45	39	38	46	40	50	57	64	62	67	67	55	58	60	59	59	45	40	40	50	47	40	..	54.7
	Min ..	35	39	41	44	38	33	36	37	36	32	20	18	27	18	30	28	38	32	48	31	27	34	42	25	26	20	24	25	27	13	..	30.8
Albia.	Max..	72	72	70	70	69	68	62	52	49	43	40	46	43	51	62	67	63	72	72	53	57	61	62	50	41	42	37	52	35	..	..	56.3
	Min ..	42	46	40	42	42	38	34	29	30	35	22	19	28	22	23	35	36	41	42	34	32	32	36	25	25	18	20	24	28	10	..	31.0
Algona. ..	Max..	67	68	68	65	63	57	56	52	39	35	35	44	40	47	48	55	61	66	60	51	51	52	45	29	31	24	42	..	37	35	..	49.1
	Min .	37	37	38	37	35	31	35	27	32	27	19	21	25	18	24	31	35	27	42	37	29	35	21	22	18	19	24	..	18	7	..	27.9
Allerton .	Max.	73	75	72	69	65	68	65	55	50	42	42	47	43	52	63	66	66	72	72	62	58	64	63	55	41	43	40	53	44	43	..	57.4
	Min ..	38	40	39	41	35	29	33	28	34	34	23	18	26	18	28	31	38	35	42	32	26	32	37	21	25	16	22	25	28	11	..	29.5
Alta.	Max..	68	68	68	66	65	66	59	53	39	32	34	43	39	50	60	57	64	70	57	51	51	55	56	48	34	34	37	46	40	39	..	51.6
	Min ..	39	41	40	39	39	35	34	28	29	27	13	21	24	22	29	31	33	35	37	27	33	32	30	22	23	20	22	24	12	8	..	28.3
Amana. ..	Max..	67	68	68	67	53	52	59	50	46	41	39	45	42	47	54	60	61	61	71	56	53	55	60	48	40	34	32	43	39	32	..	51.3
	Min ..	32	34	33	34	31	37	31	34	28	34	22	20	26	18	29	26	42	29	41	36	21	31	42	26	26	16	22	25	24	10	..	29.2
Ames	Max..	70	73	70	69	65	56	61	55	42	41	39	51	44	50	58	64	66	70	66	53	58	56	59	49	36	37	34	47	44	40	.	54.1
	Min ..	33	37	33	34	34	31	30	28	27	29	24	21	28	23	35	28	34	27	41	34	26	29	42	23	25	19	21	24	23	11	..	28.5
Atlantic..	Max..	70	70	71	72	67	68	65	58	45	37	35	50	44	51	60	64	67	70	64	56	58	61	61	52	41	43	43	54	44	43	..	56.1
	Min ..	26	29	27	26	24	23	25	20	33	31	26	20	25	12	27	21	24	21	49	30	23	23	34	16	20	12	26	29	28	9	..	24.6
Audubon.	Max..	68	68	70	69	66	68	62	55	43	36	33	46	43	50	59	62	65	70	62	54	56	59	59	50	38	39	41	50	42	32	..	53.8
	Min ..	37	33	28	28	26	24	37	25	35	30	21	20	26	14	25	21	25	22	38	32	29	32	37	16	19	13	22	25	24	8	..	25 4
Baxter. ..	Max..	70	70	72	68	65	50	60	52	43	41	38	44	44	48	56	64	63	66	65	53	57	53	60	48	39	37	33	47	42	37	..	52 8
	Min ..	38	40	39	40	32	34	32	25	31	30	20	17	27	17	31	30	38	32	40	33	27	30	39	22	24	18	19	22	23	9	..	28.6
Bedford ..	Max..	72	74	71	68	66	66	63	56	45	38	37	46	43	49	58	65	64	68	67	54	58	60	60	53	43	41	43	54	46	41	..	55.6
	Min ..	35	35	33	34	31	28	33	26	36	31	22	14	27	14	28	32	30	31	49	30	24	30	38	19	24	14	27	29	27	10	..	28.0
Belle Pl'e	Max..	69	70	68	65	56	54	60	47	45	42	35	45	41	48	55	60	61	64	69	52	54	54	58	48	40	33	33	44	28	32	..	51.0
	Min ..	37	36	35	35	33	35	32	31	29	32	19	18	25	16	28	23	33	32	43	31	21	29	40	24	26	15	20	23	22	6	..	27.6
Bonapar'e	Max..	72	73	72	69	55	55	62	47	47	42	41	47	43	52	62	64	64	71	74	61	59	61	63	51	44	42	33	45	41	38	..	55.0
	Min ..	36	38	34	40	35	37	32	31	27	36	20	24	26	18	28	30	41	33	48	35	24	29	41	24	26	17	20	25	24	12	..	29.7
Britt.	Max..	68	68	68	65	62	54	57	50	45	35	36	43	39	47	57	58	62	65	67	48	53	53	55	44	42	36	34	43	37	36	..	50.9
	Min .	33	33	33	33	32	29	31	21	29	27	15	20	21	16	22	28	26	28	36	29	28	23	28	19	24	13	20	23	16	4	..	24.7
Burling'n	Max.	74	74	73	72	56	57	64	50	42	44	46	45	46	52	61	61	65	70	72	65	56	64	66	53	47	44	31	45	45	37	..	55.9
	Min ..	39	40	38	44	35	33	37	35	32	37	23	21	27	21	32	33	44	35	50	37	32	33	44	22	28	18	20	27	25	13	..	31.8
Carroll ...	Max.	70	72	72	71	70	70	64	68	40	36	37	46	42	52	65	60	68	74	62	64	57	58	60	54	38	41	38	42	29	41	..	55.4
	Min ..	40	40	35	36	30	31	30	25	26	29	24	21	25	13	29	25	30	30	48	30	34	27	36	20	24	16	24	25	23	6	..	27.7
Cedar R..	Max..	70	71	70	69	45	51	60	47	47	41	40	46	47	49	57	62	61	63	72	54	55	57	58	48	38	33	29	41	31	33	..	51.5
	Min ..	34	35	36	37	33	32	31	31	30	30	23	22	22	21	21	27	29	31	32	37	25	25	32	31	29	20	22	22	19	12	..	27.7
Chariton .	Max.	73	74	73	70	65	66	63	55	46	42	41	48	44	51	63	66	65	72	72	62	59	62	63	54	47	42	38	52	45	41	..	57.1
	Min ..	38	37	36	42	33	30	36	28	33	34	22	16	27	17	32	31	27	33	47	33	26	32	38	23	24	17	20	25	27	9	..	29.1
Charles C.	Max.	70	69	70	67	62	54	56	48	38	39	38	45	39	48	56	57	62	66	62	49	56	55	51	47	36	24	27	37	37	33	..	50.1
	Min ..	35	36	33	32	31	33	32	27	28	26	20	23	22	19	25	26	31	28	39	28	26	26	33	27	19	18	20	24	15	8	..	26.3
Clarinda..	Max.	75	73	71	71	68	71	64	61	46	40	37	51	62	55	64	67	70	77	69	57	61	63	62	55	41	44	47	57	42	45	..	58.9
	Min ..	25	32	33	32	31	29	30	29	29	31	27	13	15	15	16	28	32	29	29	31	26	27	27	20	20	17	25	30	22	12	..	25.5
Clear L ..	Max..	64	64	63	65	61	55	51	49	43	32	32	41	39	45	53	59	50	65	57	54	52	52	52	45	37	30	30	39	35	32	..	46.5
	Min ..	42	43	43	38	38	33	34	29	32	29	20	25	25	26	32	30	35	36	46	31	33	31	38	25	28	21	20	23	15	9	..	30.2
Clinton ...	Max..	68	68	69	68	51	51	58	48	45	43	44	45	43	46	53	62	59	61	69	55	54	55	61	48	42	35	29	42	36	29	..	51.2
	Min ..	30	31	32	33	31	26	29	35	28	29	20	19	23	18	24	25	34	25	33	31	40	26	33	31	26	16	15	25	19	11	..	26.6
Col. Sprgs	Max..	70	68	70	70	68	65	66	56	53	45	35	49	45	52	60	65	65	70	68	54	60	64	63	56	50	45	49	58	41	46	..	57,5
	Min ..	39	41	43	39	..	..	36	30	38	31	25	18	25	20	29	35	35	40	34	35	28	34	40	25	23	19	23	30	27	14	..	30 6
Colum. J.	Max..	68	68	69	79	59	57	60	50	46	43	41	45	42	48	58	63	60	65	71	61	57	56	61	48	41	38	33	46	39	34	..	53.5
	Min ..	41	42	41	42	36	34	34	32	33	34	21	20	27	20	31	32	44	38	50	35	28	31	41	27	26	17	21	26	22	12	..	31.3
Corydon..	Max..	74	76	74	73	71	70	66	60	51	44	43	48	48	52	64	66	67	73	72	62	59	63	64	54	50	45	40	52	49	43	..	59.1
	Min ..	41	42	34	41	36	30	35	29	35	34	21	11	21	13	30	34	40	36	49	32	27	32	37	22	23	17	22	25	27	9	..	29.5
Davenpo't	Max..	70	70	71	69	50	48	60	49	42	40	43	41	42	48	57	64	59	65	71	57	54	58	62	49	42	34	28	43	39	31	..	52.0
	Min ..	42	46	41	44	38	28	35	36	33	35	25	25	29	25	35	33	42	36	53	38	29	34	36	32	24	22	21	26	22	14	..	52.6
Decorah. .	Max.	68	68	67	65	48	52	54	42	39	38	38	43	41	47	53	55	61	66	61	53	56	56	52	48	34	30	28	33	37	29	..	48.7
	Min ..	43	40	35	32	31	32	32	33	32	28	22	23	28	19	27	24	37	31	32	35	27	28	40	39	24	20	18	26	20	10	..	28.9
Delaware.	Max..	65	67	67	65	50	44	56	46	42	38	39	44	41	45	52	58	59	62	67	52	52	54	55	45	36	30	25	35	32	30	..	48.4
	Min ..	35	36	39	38	32	25	29	32	30	26	20	20	26	18	37	28	38	38	42	35	25	27	35	30	24	14	14	21	20	7	..	28.0
Denison ..	Max..	69	70	71	69	66	68	61	55	48	36	35	45	40	51	53	60	65	67	69	53	55	59	58	51	40	39	42	49	45	43	..	54.5
	Min ..	26	35	31	32	26	26	29	22	34	30	20	21	25	17	36	31	28	24	46	30	33	24	39	18	24	19	24	27	25	9	..	27.0
Des M....	Max..	70	71	70	68	64	56	62	55	44	41	38	50	43	50	59	66	66	71	66	54	58	58	61	49	38	40	36	50	46	40	..	54 7
	Min ..	41	42	37	38	37	33	34	34	35	29	24	21	29	22	34	32	39	35	44	36	30	34	38	26	23	20	25	27	20	13	..	31.1
De Soto ..	Max..	71	73	72	70	65	63	64	57	43	40	40	50	45	55	64	67	72	77	67	55	59	60	62	54	39	63	38	51	45	42	..	57.4
	Min ..	38	40	33	37	35	31	35	32	37	31	24	21	28	17	34	28	35	35	50	34	27	30	43	24	24	16	23	26	25	10	..	30.1
Dows. ...	Max..	69	71	69	67	64	55	58	50	45	39	35	46	40	49	59	58	63	68	62	50	55	52	54	47	36	32	29	41	37	36	..	51.2
	Min ..	35	31	34	33	36	29	30	24	30	28	16	21	25	19	26	28	30	30	42	31	27	25	38	20	24	16	18	22	18	8	..	26.3
Dubuque.	Max..	69	68	68	66	47	48	56	47	41	40	42	46	40	48	55	56	60	63	68	54	53	56	56	48	40	30	31	39	37	30	..	50.1
	Min ..	40	42	41	37	34	28	35	40	37	30	25	25	31	24	35	30	39	32	43	37	28	36	41	38	28	24	20	26	23	15	..	32.1
Elkader ..	Max..	73	74	72	75	45	44	55	48	40	42	42	47	44	50	57	58	62	70	68	53	56	58	54	45	37	36	26	35	25	32	..	50.8
	Min ..	30	32	31	30	29	29	28	37	28	30	19	20	24	16	29	22	40	27	35	32	22	25	34	38	25	14	15	25	22	9	..	26.6
Esthervil.	Max..	70	72	70	67	65	68	59	54	38	32	38	46	39	51	63	54	65	63	69	65	54	52	51	47	34	30	32	42	24	36	..	51.7
	Min ..	33	34	42	36	31	27	34	28	29	25	17	18	25	20	28	25	30	33	35	38	33	27	29	20	20	18	20	22	15	9	..	26.7
Forest C'y	Max..	70	70	71	68	65	69	57	50	38	36	38	43	39	48	60	56	58	70	68	55	57	50	47	33	29	30	40	40	25	33	..	50 4
	Min ..	35	35	36	37	37	30	33	27	27	26	18	22	25	18	24	27	30	32	28	30	31	33	22	29	18	18	22	15	20	8	..	26.4
Ft. Dodge	Max.	71	70	70	66	62	61	62	53	40	36	36	45	42	49	58	59	63	69	63	50	55	54	56	46	33	36	34	43	21	..	..	51.8
	Min ..	41	42	37	36	31	30	34	31	40	30	22	23	28	22	25	31	34	34	34	32	33	31	33	24	24	20	23	25	20	10	..	29.3
Galva	Max..	..	..	..	..	66	63	58	53	43	33	33	43	38	50	58	58	62	68	58	50	52	58	56	48	34	35	38	36	28	40	..	48.4
	Min ..	31	..	..	45	26	25	30	23	31	28	14	21	24	17	22	28	25	24	40	28	31	23	36	12	22	18	25	24	20	7	..	25.0
Glenw'd .	Max..	70	71	69	67	68	68	63	59	57	40	33	50	43	54	60	63	66	70	65	55	63	60	62	61	63	47	46	47	56	44	..	58 0
	Min ..	41	42	43	37	33	35	34	30	28	27	24	20	28	25	33	36	34	34	39	31	37	33	38	26	37	22	28	30	27	32	..	32.1
Grand M.	Max..	66	66	66	65	55	48	55	46	38	38	38	45	49	44	57	55	59	62	63	56	54	54	51	46	37	31	26	33	30	28	..	48.7
	Min ..	38	44	40	41	35	29	33	31	38	27	20	22	26	21	28	28	39	36	45	39	30	31	38	36	26	19	15	23	19	8	..	30.0
Greene...	Max..	69	70	70	66	60	56	58	50	45	38	38	46	39	47	58	57	62	65	62	57	53	55	53	48	40	31	30	39	35	33	..	51.0
	Min ..	36	39	34	35	32	34	34	33	29	29	19	22	25	19	27	27	32	30	38	34	27	27	40	25	27	18	20	24	20	9	..	28.2
Grinnell.	Max..	68	68	67	67	62	49	59	48	42	40	37	47	40	47	54	60	69	63	68	57	58	55	58	43	37	30	31	43	39	33	..	50.6
	Min ..	43	45	46	43	36	35	38	32	35	32	21	20	31	23	33	34	43	39	48	33	32	35	41	27	27	20	20	22	23	11	..	32.3
Grinnell(near	Max..	71	74	74	70	63	53	63	51	47	41	41	48	42	50	58	62	64	70	69	57	55	61	61	50	37	30	31	43	39	33	..	53.6
	Min ..	41	41	40	40	35	33	35	30	30	31	19	18	27	19	31	35	39	35	41	32	28	40	39	27	27	20	20	22	23	11	..	30.3
Grundy C	Max..	71	72	71	71	63	54	62	51	40	42	38	50	42	47	57	60	65	68	67	56	54	59	59	49	39	36	30	43	37	85	..	52.9
	Min ..	39	39	38	36	34	33	32	31	29	30	19	19	27	19	28	31	35	31	45	33	28	28	40	24	25	16	19	21	20	6	..	28.5
Guthrie C	Max..	68	68	68	67	64	66	62	55	44	39	34	49	41	49	58	63	66	71	60	63	56	60	60	55	39	40	38	50	45	40	..	54.6
	Min ..	37	41	33	41	33	30	33	30	36	31	26	20	27	17	32	25	34	33	38	34	30	29	42	21	25	15	24	25	24	10	..	29.2
Hampton.	Max..	73	74	72	73	70	60	58	52	40	43	40	48	42	50	61	61	65	72	64	53	55	60	54	50	37	33	31	42	34	36	..	53.4
	Min ..	39	41	43	38	37	32	35	30	32	24	20	22	27	21	30	28	31	31	42	33	31	32	40	25	24	20	21	22	19	9	..	29.3
Hanlontown .	Max..	70	71	72	66	61	61	55	50	38	35	40	47	38	48	61	55	64	68	61	49	58	57	51	49	35	29	27	39	36	34	.	50.8
	Min ..	36	36	33	33	31	30	32	28	29	26	18	22	25	19	26	25	28	28	39	31	28	26	36	22	21	15	20	21	16	5	..	26.2
Harlan....	Max..	68	67	67	67	64	65	61	54	45	35	33	45	40	51	53	60	62	66	62	50	56	59	57	47	40	40	42	50	44	42	..	53.1
	Min ..	30	34	31	33	29	26	28	23	33	29	22	14	26	15	22	28	26	24	38	30	26	25	36	17	23	15	24	28	25	8	..	25.6
Hopeville.	Max..	71	73	70	69	64	68	62	55	45	40	39	48	41	51	62	66	66	72	69	53	58	61	61	54	39	42	39	52	42	42	..	55 8
	Min ..	39	40	42	42	35	34	36	30	36	33	22	17	29	20	30	33	38	35	46	31	27	34	41	25	23	18	24	27	25	11	..	30.8
Humboldt	Max..	68	72	70	66	64	58	60	53	50	56	37	44	42	50	55	59	52	62	64	50	53	53	55	46	40	34	34	45	40	48	..	52.7
	Min ..	36	34	32	36	31	34	31	26	32	30	18	22	28	20	24	29	28	27	40	31	30	21	40	20	26	18	20	25	18	10	..	27.2
Ida Grove	Max..	62	67	67	66	64	64	59	53	48	38	39	38	40	43	49	51	52	56	55	52	46	47	52	52	41	33	35	42	43	30	..	49.5
	Min ..	37	39	31	34	25	25	30	25	40	32	29	22	27	18	25	27	26	28	43	29	33	23	38	17	25	20	25	20	8	16	..	27.1
Independ.	Max..	69	70	68	67	52	51	57	51	43	40	39	46	43	47	55	57	62	65	67	63	54	57	54	46	43	33	27	38	33	30	..	50.9
	Min ..	35	36	34	33	30	33	25	33	25	30	20	17	27	16	24	27	35	30	37	37	22	32	37	32	28	17	19	22	20	8	..	27.4
Indianola.	Max..	71	71	70	69	65	59	63	55	44	41	38	49	48	51	61	67	65	72	68	54	58	59	61	50	39	41	37	50	45	41	..	55.4
	Min ..	41	41	39	43	35	32	34	29	36	33	22	19	28	18	32	32	40	35	49	33	27	32	42	24	25	18	22	26	25	11	..	30.8
Inwood...	Max..	58	61	60	60	61	63	58	48	36	31	37	50	48	53	55	56	63	61	65	60	58	60	52	44	38	38	33	44	26	36	..	50.4
	Min ..	33	36	35	37	41	43	26	34	26	14	18	22	21	23	31	32	30	21	34	23	28	29	22	25	23	24	22	17	9	10	..	26.3
Iowa City	Max..	72	72	72	70	46	50	60	50	47	43	42	48	43	51	59	65	63	67	73	53	56	61	61	50	40	35	30	44	29	31	..	52.8
	Min ..	31	32	34	35	32	33	29	30	27	34	22	21	24	18	18	26	27	28	28	36	23	25	29	27	25	12	19	23	26	10	..	26.1
Iowa Falls	Max.	68	68	68	67	62	53	59	51	40	39	35	48	40	47	55	59	61	67	63	50	50	54	55	46	34	32	28	42	23	35	..	50.0
	Min ..	31	35	31	31	30	30	31	27	28	29	21	20	24	15	23	24	29	26	32	32	24	27	39	21	28	15	20	23	18	7	..	25.7
Keokuk ..	Max..	71	72

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR NOVEMBER, 1904—CONTINUED.

STATIONS.		DATE.																														MEAN.
		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		
Le Mars..	Max..	68	67	67	65	65	64	58	52	45	32	35	48	44	51	56	56	62	65	57	51	56	54	55	46	37	35	34	45	40	39	..	51.6
	Min ..	34	29	32	27	25	25	28	22	32	27	13	20	24	23	23	28	26	27	42	25	34	24	36	18	21	25	24	25	20	9	..	25.6
Leon......	Max..	67	68	66	67	63	64	62	56	51	40	38	46	41	48	58	64	65	68	68	61	56	60	60	52	44	41	39	51	46	39	..	55.0
	Min ..	39	40	42	44	40	29	37	31	38	34	27	17	29	19	31	34	40	36	50	33	28	37	40	26	26	20	25	25	28	14	..	32.0
Lit. Sioux	Max..	72	71	73	70	67	71	64	57	46	37	35	47	43	53	64	58	67	69	63	55	58	58	60	52	42	41	45	54	48	45	..	56.2
	Min ..	42	51	33	32	31	27	29	21	36	29	22	23	25	22	28	28	26	27	49	25	32	25	32	19	19	18	28	33	28	10	..	28.3
Logan....	Max..	68	67	68	67	64	65	61	55	44	38	34	45	42	50	54	59	63	68	60	52	56	60	58	50	40	42	45	52	43	42	..	53.7
	Min ..	32	32	33	33	28	27	28	24	32	30	23	19	29	18	26	28	28	26	48	30	31	26	38	20	23	18	26	30	26	12	..	27.3
Maquoketa ..	Max..	71	70	73	73	48	49	62	52	43	42	46	47	45	48	55	62	60	66	70	51	54	61	62	53	41	36	26	40	29	33	..	52.3
	Min ..	26	27	29	29	30	21	22	27	25	30	11	17	20	10	15	21	22	23	23	38	20	21	23	32	23	16	15	22	25	10	..	22.4
Marshlt'n	Max..	72	72	71	70	65	51	61	52	41	42	38	49	43	49	55	61	63	68	66	53	55	58	58	47	37	36	32	44	27	35	..	52.4
	Min ..	33	38	34	35	33	33	31	30	29	30	20	20	22	17	18	29	30	31	31	34	25	30	31	25	25	19	19	22	22	10	..	26.9
Mason C..	Max..	67	67	67	65	61	55	55	47	43	35	37	43	40	47	55	54	58	63	60	54	53	53	50	46	38	30	27	37	32	28	..	48.9
	Min ..	42	42	40	38	37	35	35	33	33	28	21	24	26	25	30	30	36	35	45	34	33	31	37	26	28	20	20	25	18	10	..	30.6
Massena..	Max..	70	69	69	69	64	66	62	55	45	39	36	49	42	51	58	64	64	64	63	53	56	60	58	50	43	40	41	52	45	43	..	54.7
	Min ..	34	35	33	36	30	28	32	34	36	31	26	19	27	16	31	30	30	26	30	28	28	28	36	19	24	15	26	28	24	10	..	27.7
Mt. Ver'n	Max..	70	71	73	73	52	54	60	50	45	40	43	42	43	43	57	58	61	65	70	63	63	39	58	49	39	31	38	39	35	33	.	52.6
	Min ..	36	38	43	44	35	24	32	33	31	30	19	18	25	19	27	32	38	34	38	36	24	31	39	29	27	16	18	19	21	8	..	28.8
Mt. Ayr..	Max..	73	76	75	72	68	71	65	58	48	40	42	49	43	55	65	71	71	76	71	57	58	61	64	56	45	45	44	53	47	46	..	58.8
	Min ..	40	45	47	44	40	39	37	30	36	33	24	15	28	19	28	31	40	35	46	31	30	38	39	25	26	19	26	27	26	18	..	31.9
Mt. Pl'snt	Max..	69	69	70	67	53	50	60	49	48	45	41	45	42	48	56	63	62	67	72	63	57	56	61	49	42	40	32	45	40	33	..	53.1
	Min ..	40	42	40	41	36	36	36	33	31	35	21	18	21	19	29	36	42	36	48	34	27	31	41	25	25	17	20	24	24	11	..	30.6
New H. ..	Max..	67	66	67	66	57	52	58	52	42	38	35	45	40	46	53	57	60	63	65	60	55	54	52	45	42	32	27	37	37	30	..	50.0
	Min ..	36	37	37	37	37	34	33	34	28	28	20	20	25	18	20	31	34	31	38	36	27	28	38	32	28	18	17	23	18	7	..	28.0
Newton..	Max..	62	68	67	66	62	56	54	48	46	40	38	47	44	48	55	63	60	64	67	61	56	60	59	54	42	34	33	47	44	35	.	52.7
	Min ..	38	40	39	40	36	34	35	29	33	32	20	17	27	18	29	30	40	33	45	33	27	31	39	25	22	18	20	23	23	10	..	29.5
Northw'd	Max..	63	62	60	62	60	66	55	53	49	49	39	37	39	38	46	56	49	56	67	60	46	55	54	47	45	38	34	28	37	26	..	49.2
	Min ..	34	36	38	37	34	32	33	31	33	33	20	24	26	20	26	28	31	29	37	30	28	29	34	25	29	20	20	21	16	9	..	28.1
Odebolt ..	Max..	68	69	68	66	65	66	60	50	44	35	32	41	40	49	60	59	64	70	58	50	48	57	56	50	40	36	40	46	44	41	..	52.4
	Min ..	39	42	35	35	32	32	31	25	34	29	16	22	24	20	28	27	31	29	43	28	32	26	37	18	22	18	25	26	22	9	..	27.9
Ogden ...	Max .	69	70	69	67	65	61	61	54	45	40	37	49	41	49	57	63	64	69	65	51	57	52	58	47	38	37	33	47	41	40	..	53.2
	Min ..	36	41	37	36	32	32	31	26	35	31	23	20	26	20	30	30	33	35	43	32	29	28	38	20	20	17	10	25	20	9	..	28.5
Olin	Max.	66	66	67	66	54	44	58	51	44	42	38	44	41	45	53	59	59	60	70	61	53	55	49	48	41	33	29	42	43	31	..	52.1
	Min .	30	32	32	32	31	24	25	35	26	36	18	20	25	17	27	29	37	27	38	33	21	27	36	33	24	17	19	24	23	10	..	27.2
Omaha, N	Max..	70	68	66	69	65	69	63	54	48	34	33	49	42	52	58	61	66	70	60	53	59	58	59	53	38	40	46	55	48	43	..	55.0
	Min ..	44	46	43	43	38	40	40	34	32	30	25	25	31	30	35	37	41	39	41	32	36	39	41	31	28	26	31	34	26	21	..	34.6
Onawa. ...	Max.	71	71	71	69	68	72	63	54	47	36	38	48	47	52	61	57	66	67	60	54	59	55	60	54	41	42	45	58	43	45	..	55.6
	Min ..	39	39	39	37	34	31	31	26	35	28	18	20	26	22	26	27	30	29	42	29	33	29	32	22	21	20	25	31	27	12	..	28.7
Osage.....	Max.	66	66	66	65	59	52	55	49	43	36	36	41	38	45	55	55	59	61	59	55	54	51	48	44	39	27	26	37	36	30	..	48.4
	Min ..	37	38	37	36	33	33	34	32	31	26	21	22	25	19	25	29	35	28	39	34	26	31	38	28	27	19	20	23	16	9	..	28.4
Oskaloosa	Max..	72	70	70	68	63	55	62	49	47	42	39	48	43	51	60	65	63	69	73	57	58	58	62	49	42	42	36	50	42	38	..	54.8
	Min ..	36	39	32	38	32	31	30	29	29	34	20	19	26	15	32	30	43	34	48	34	23	31	40	25	26	17	21	26	24	11	..	29.2
Pacific J'n	Max	69	66	68	66	64	68	61	54	45	36	31	43	43	52	57	61	63	68	58	51	59	58	59	59	40	40	46	54	40	43	.	54.1
	Min ..	34	34	31	30	26	26	30	24	35	30	26	19	26	18	25	26	28	26	44	28	30	26	32	22	25	16	26	30	25	12	..	27.0
Perry.....	Max..	69	70	68	67	63	59	61	54	43	44	38	40	41	51	53	63	65	68	65	52	53	57	60	49	47	37	36	49	44	41	..	53.9
	Min ..	33	40	33	36	33	33	32	29	34	30	25	20	26	19	23	28	34	30	45	34	30	25	39	21	24	18	28	25	22	10	..	28.5
Plover. ...	Max..	65	68	66	68	64	66	60	51	39	36	32	45	41	48	50	57	63	68	60	50	51	53	51	42	37	32	34	45	36	28	..	50.2
	Min ..	33	35	36	35	34	30	32	30	35	26	22	20	25	20	24	28	30	28	43	29	28	29	28	19	24	19	20	25	13	8	..	27.1
Pocah'tas	Max..	69	70	69	67	65	66	58	55	42	34	37	38	40	49	60	59	64	69	60	52	52	54	54	48	30	34	35	45	39	38	..	51.7
	Min ..	38	39	39	36	34	33	35	27	32	30	24	23	25	22	27	29	32	31	41	30	31	30	36	21	22	20	21	24	19	9	..	28.7
Red Oak..	Max..	62	63	64	64	62	58	60	53	48	39	33	45	42	48	53	56	59	62	62	50	55	58	58	47	44	40	47	51	43	43	..	52.3
	Min .	36	38	36	35	35	34	36	32	38	32	27	25	31	23	30	32	32	31	49	35	32	31	40	25	27	23	33	35	29	19	..	32.0
Ridgeway	Max..	75	72	73	70	58	56	59	51	43	43	40	45	47	49	59	60	68	72	67	60	55	61	52	52	41	35	28	36	33	33	..	53.1
	Min ..	39	41	44	41	35	34	36	33	33	26	20	23	26	21	28	30	38	33	41	36	28	33	40	35	26	20	18	24	20	7	..	30.3
Rock R...	Max..	64	68	70	68	70	66	70	57	45	45	48	52	42	56	70	54	67	68	67	68	52	50	70	54	50	45	40	55	44	65	..	58.0
	Min ..	34	28	30	26	25	28	25	25	26	15	20	24	22	20	22	28	26	26	35	34	26	24	24	26	22	24	24	25	17	9	..	24.7
R. City...	Max..	63	68	68	65	65	67	65	55	45	35	35	45	40	50	58	55	65	68	65	58	58	50	57	58	48	35	39	49	40	41	..	53.7
	Min ..	36	42	40	36	33	28	23	26	33	23	23	21	26	23	28	28	34	32	32	31	30	28	37	36	22	20	22	24	19	9	..	28.2
Ruthven.	Max..	70	76	77	73	70	66	63	56	38	37	50	48	49	65	52	67	75	80	50	53	52	68	41	44	33	32	42	27	29	31	..	53.8
	Min ..	43	38	41	32	30	30	31	25	25	18	23	25	24	27	30	31	34	45	27	34	27	36	21	25	19	20	22	15	16	8	..	27.4
Sac City..	Max..	69	69	69	67	65	65	60	54	51	33	34	42	45	49	59	58	63	70	63	53	53	56	56	50	48	35	37	46	40	40	..	53.3
	Min .	37	41	40	40	36	31	37	29	31	28	20	22	26	21	28	29	35	31	41	30	32	32	40	22	25	21	24	25	21	10	..	29.5
St. Cha'les	Max..	76	76	77	75	70	71	67	61	46	42	42	51	48	55	67	69	72	79	69	60	60	63	65	54	40	43	38	51	43	45	.	59.2
	Min ..	43	44	43	46	37	30	40	32	37	33	25	21	28	23	33	32	39	89	49	34	30	36	43	25	24	16	23	28	25	12	.	32.3
Sheldon..	Max..	78	73	72	72	70	74	64	58	45	33	40	54	46	53	67	60	68	71	60	55	65	58	50	50	40	39	38	46	43	40	..	55.8
	Min ..	40	31	36	30	29	26	31	23	32	27	10	22	21	20	22	26	30	26	39	25	34	25	12	15	22	21	23	25	12	6	..	24.7
Sibley	Max..	67	70	70	66	68	..	60	55	34	29	39	50	41	51	65	55	66	69	56	51	58	54	52	47	36	..	36	43	34	88	..	51.8
	Min ..	38	31	34	32	30	29	..	23	22	27	11	15	24	21	23	29	26	28	35	23	24	25	26	19	23	19	21	24	15	6	..	24.2
Sioux C'r.	Max..	64	67	67	65	64	64	59	53	43	32	35	50	59	51	58	57	63	65	57	48	56	55	54	45	35	32	39	32	45	38	..	51.1
	Min	36	34	36	37	35	36	33	27	30	27	13	20	21	22	26	31	34	30	40	23	32	32	37	21	24	22	23	22	17	9	..	27.7
Sioux C'y.	Max..	70	69	69	66	65	66	58	51	44	30	36	51	42	54	58	57	67	69	60	50	59	57	56	49	36	38	43	51	41	42	..	53.5
	Min ..	39	38	35	40	34	30	36	31	28	24	18	25	26	27	26	37	35	33	40	27	39	30	33	22	24	24	28	32	18	15	..	29.8
Stockport	Max	70	70	70	70	53	54	61	48	46	42	44	44	43	51	62	66	65	75	74	64	57	61	62	54	43	41	32	47	41	37	..	54.9
	Min ..	36	39	35	43	35	39	34	36	29	36	22	19	28	19	32	30	32	35	49	37	24	30	43	28	25	18	21	21	26	14	..	30.5
Storm L..	Max..	62	69	68	67	65	68	59	54	39	33	29	44	40	50	63	61	59	68	61	58	52	54	56	50	35	35	57	46	28	40	..	52.3
	Min ..	38	43	43	38	34	35	34	29	29	27	15	15	23	24	24	29	32	34	35	29	28	28	30	20	22	21	22	23	18	10	..	27.7
Stuart ...	Max	66	67	65	65	61	62	63	62	54	39	34	47	48	49	54	60	61	66	62	62	55	58	57	49	44	42	38	49	44	39	..	54.0
	Min ..	40	45	44	45	38	36	36	34	33	32	27	22	22	28	34	32	40	38	45	44	32	35	41	25	22	21	25	26	25	13	..	32.5
Thurman.	Max..	69	66	65	68	64	68	53	55	44	38	34	48	43	51	57	62	64	68	63	53	57	58	60	50	41	41	49	53	45	42	..	54.3
	Min ..	30	33	30	29	27	26	31	24	37	30	24	19	29	17	26	24	31	26	50	33	25	26	39	20	27	17	29	33	24	10	..	27.5
Tipton....	Max..	70	69	70	68	57	49	60	51	48	45	43	45	46	45	55	63	59	64	70	62	53	58	60	50	41	35	29	41	38	32	..	52.6
	Min ..	40	41	43	43	38	25	32	36	32	34	21	20	22	22	30	32	40	36	45	36	29	32	41	30	30	20	20	23	22	12	.	30.9
Toledo....	Max..	72	72	72	71	64	53	62	48	42	43	40	48	43	50	57	63	63	70	66	54	54	59	59	49	42	37	31	44	39	34	..	53.4
	Min ..	36	38	31	34	31	34	31	30	27	31	19	19	27	14	30	27	36	29	47	32	22	29	41	27	24	16	19	23	22	9	..	27.8
Vinton. ..	Max.	72	71	72	72	63	56	60	52	43	41	40	48	44	50	58	60	62	68	68	63	54	61	58	50	44	32	30	39	42	35	..	53.6
	Min ..	39	39	35	33	30	34	32	34	28	32	20	20	29	19	20	26	39	35	41	35	23	30	42	30	27	17	20	25	22	8	..	28.8
Wapello..	Max..	64	63	63	64	55	46	59	55	43	45	46	45	47	50	57	62	60	65	70	..	..	62	66	55	..	..	..	45	40	38	..	54.6
	Min	42	44	38	41	39	33	34	40	30	32	26	26	23	22	33	34	39	34	53	..	..	29	28	29	..	..	..	21	25	15	..	32.5
Washi'ton	Max..	72	72	73	71	50	55	63	50	48	45	45	46	45	51	61	..	..	..	..	..	..	66	62	51	43	40	31	45	39	35	..	52.5
	Min ..	39	40	39	39	36	36	34	33	31	31	21	19	28	19	31	..	..	..	..	..	..	..	39	26	24	16	20	24	23	12	..	27.8
Waterloo.	Max .	73	75	75	71	60	57	61	50	41	41	41	50	42	50	59	62	65	69	67	54	54	58	58	50	38	33	30	41	30	35	..	53.0
	Min ..	31	35	35	34	32	34	32	33	28	29	21	22	28	18	25	27	35	28	40	34	25	28	39	31	27	19	20	24	21	10	..	28.2
Waukee..	Max..	.7	78	76	75	74	74	69	68	46	44	44	55	51	59	69	69	73	80	65	61	60	60	62	58	36	40	41	51	43	47	..	60.0
	Min ..	40	42	38	42	35	33	35	29	36	30	24	19	27	21	32	32	36	36	48	33	29	33	40	22	24	18	22	25	23	10	..	30.4
Waverly..	Max..	70	69	69	62	58	53	57	47	40	39	39	48	41	48	54	58	61	65	65	52	53	54	54	47	36	30	80	38	32	32	..	50.0
	Min ..	33	38	34	33	32	35	34	34	29	30	21	21	28	28	26	26	34	29	40	34	26	31	39	32	27	19	21	25	21	10	..	29.0
W. Bend.	Max..	66	68	66	65	63	61	59	53	45	34	35	45	39	48	58	56	61	66	59	50	51	52	52	44	39	31	34	43	39	36	..	50.6
	Min ..	36	37	37	33	31	31	32	24	33	23	21	22	25	21	24	30	31	29	39	28	32	27	35	20	23	17	20	19	15	7	..	26.9
Whitten..	Max.	67	68	68	67	61	58	58	51	43	38	36	48	40	47	53	60	61	63	65	57	55	54	56	55	40	34	33	42	39	35	..	51.7
	Min .	36	58	35	35	31	33	30	28	30	29	17	18	27	17	26	30	35	30	42	32	27	27	24	22	25	16	19	32	19	9	..	27.3
Wilton J.	Max..	67	68	70	69	57	46	60	50	44	43	41	45	42	47	55	62	64	64	70	62	55	56	60	49	44	35	32	44	41	32	..	52.5
	Min ..	37	37	33	36	33	25	27	34	25	33	19	20	24	17	28	28	30	40	46	37	21	27	40	29	24	15	16	23	23	10	..	27.9
Winte'set	Max..	75	75	73	71	76	79	74	68	40	41	40	38	50	55	64	65	67	74	70	56	60	62	63	59	46	43	37	39	41	39	..	58.0
	Min ..	40	43	37	41	29	27	34	38	33	31	22	22	24	19	30	33	35	33	38	32	47	30	38	35	27	19	14	15	13	9	..	29.7
Zearing ..	Max..	70	71	70	69	65	64	60	54	43	40	38	50	41	49	57	62	65	68	65	53	57	56	59	59	48	36	37	57	39	37	..	54.6
	Min ..	41	41	40	36	37	32	36	26	33	30	21	19	27	19	29	30	34	32	47	34	30	28	30	24	11	18	17	21	21	7	..	28.4
....		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....
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DAILY AND MONTHLY PRECIPITATION FOR NOVEMBER, 1904.

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									T																							T
Albia										.08																						.08
Algona									.12	.2																						.32
Allerton									T	.06																						.06
Alta										.31																						.31
Alta [near]									.10																							.10
Amana									.08	.11																						.19
Ames									.01	.01																						.02
Atlantic										.08																						.08
Audubon										.17																						.17
Baxter										.08																						.08
Bedford									.01	.07																						.08
Belle Plaine									.20																							.20
Bonaparte									.50																							.50
Britt									.10	.10																						.26
Buckingham									.18	T																						.18
Burlington									.13																							.13
Carroll										.18																						.18
Cedar Rapids										.09																						.09
Chariton									T	T																						T
Charles City									.22	.03																						.25
Clarinda									.09	T																						.09
Clear Lake									.25																							.25
Clinton									.10																							.10
College Springs									T	.10																						.10
Columbus Junct'n									T	.16																						.16
Corydon										.05																						.05
Cumberland									T																							T
Davenport									.15	.03																						.18
Delaware									.09																							.09
Decorah									.29	.06										T												.35
Denison									.05	.10																						.15
Des Moines									T	.06																						.06
De Soto									T	.10																						.10
Dows									T	.05																						.05
Dubuque									.05	.03																			T			.08
Elkader									.14																			T				.14
Estherville										.14																				T		.14
Florence									.04	.15																						.19
Forest City										.22																						.22
Fort Dodge									T	.20																						.20
Fort Madison									.43																							.43
Galva										.09																						.09
Gilman						T				.25	T																	T				.25
Glenwood										.50																						.50
Grand Meadow									.18																							.18
Greene									.25	.08																						.33
Grinnell									.12	T																						.12
Grinnell (near)										.10																						.10
Grundy Center									.11	.12																						.23
Guthrie Center									.05	.08																						.13
Hampton								.05	.35																			T				.40
Hanlontown									.13																							.13
Harlan									.03	.14																						.17
Hopeville									.02																							.02
Humboldt										.20																						.20
Independence									.02	.03																			T			.05
Indianola									T	.03																						.03
Inwood									T																			T			T
Iowa City										.25																						.25
Iowa Falls									T	.23																			T			.23
Keokuk									.09	.12																						.21
Keosauqua									T	.14																						.14
Lacona									.03	T																						.03
Larrabee									.29																							.29
Le Claire										.31																						.31
Little Sioux									.02	.18																		T				.20
Le Mars									.03	.02																						.05
Leon									T	.09																						.09
Logan										.20																						.20
Maquoketa										.22																						.22
Marshalltown										.17																						.17
Mason City										.20																						.20
Massena									T	.06																						.06
Muscatine										.20																						.20
Mt. Vernon									.10	.03																						.13
Mount Ayr										.41																						.41
Mt. Pleasant									02	.20																						.22
New Hampton									.10																							.10
Newton									T	.08																						.08
Northwood									T	.25																						.25
Odebolt									.06	.18																						.24
Ogden										.02																						.02
Olin									.02																				T			.02
Omaha, Neb									.03	.07																						.10
Onawa									.05	.25																						.30
Osage									.11	.06																						.17
Osceola										.06																						.06
Oskaloosa									T	.03																						.03
Pacific Junction									.05	.13																						.18
Perry									T	T																						T
Plover									.10	.10																						.20
Pocahontas									.01	.10																						.11
Red Oak									T	.07																						.07
Ridgeway						.01			.26	.02																						.29
Rock Rapids											T	T																				T
Rockwell City																																.00
Ruthven									.05																							.05
Sac City									.04	.20																						.24
St. Charles									.02	.07																						.09
Sheldon									.06	.10																						.16
Sibley										.05																						.05
Sioux Center									.05	.05																		T				.10
Sioux City									.02	.03																						.05
Stockport									T	.15																						.15
Storm Lake										.03																						.03
Stuart									.10	T																						.10

DAILY AND MONTHLY PRECIPITATION FOR NOVEMBER, 1904--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	
Thurman	....	....	....	....	....	....	....	....	.10	.08	T	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.18
Tipton	..	...	...	....	....	....	....	....	.12	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.12
Toledo	....	....	..	....	....	....	....	....	.15	....			..	....	.	....	....	....	....	....	..	....	..	....	....	....	....	....	....	....	....	.15
Vinton	....	...	....	....	..	....	....	..	....	.10	....	....	..	....	....	....	..	..	....	....	..	..	....	....	....	....	....	....	....	....	....	.10
Wapello	....	....	....	..	..	....	....	....	T	.12	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	..	..	.12
Washington	....	...	.	...	...	....	....	....	..	.23	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.23
Washta	....	....	....	....	....	..	...	....	.10	....	....	....	..	....	..	....	....	....	....	....	....	..	....	..	...	....	..	....	T	..	....	.10
Waterloo	....	..	....	....	....	..	....	..	.21	....	....	....	....	....	....	....	....	..	....	....	....	....	..	....	....	..	....	....	T	....	....	.21
Waukee	....	....	..	..	....	....	....	....	.05	.05	....	..	..	....	....	....	....	....	....	..	..	....	..	....	....	....	....	..	....	....	....	.10
Waverly	....	.	....	....	..	....	.	..	.17	.04	.	..	....	....	....	....	.	....	....	....	....	..	..	..	....	....	....	....	T	....	....	.21
Whitten	....	.	....	....	....	....	.	....	T	T	...	....	....	....	....	....	...	....	....		..	....	...	....	....	...	T	....	T	....	....	T
Wilton Junction	....	....	....	....	....	.	....	....	.35	....	....	....	....	....	....	..	....	....	....	....	....	....	....	..	....	....	..	....	....	....	..	.35
Winterset	....	....	....	.	....	....	....	....	.30	....	..	..	....	....	....	....	....	...		....	....	....	....	....	..	....	....	....	....	....	....	.30
West Bend	....	....	....	....	....	..	....	....	.05	.03	....	....	....	....	....	....	....	....	..		..	....	....	....	....	....	....	....	....	....	....	.08
Woodburn	....	....	....	....	....	....	..	....	T	.12	....	..	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.12
Zearing	...	.	-		....	....	..	..	.03	.13	....	....	....	...	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....	.16

Precipitation: Chart: November, 1904.

DECEMBER, 1904. No. 12

CONTENTS.

AND ANNUAL SUMMARY 1904.

CENTRAL STATION, DES MOINES, IOWA.

J. R. SAGE,
DIRECTOR.

GEO. M. CHAPPEL,
LOCAL FORECASTER,
U. S. WEATHER BUREAU, ASS'T DIRECTOR.

THE IOWA WEATHER AND CROP SERVICE

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

STATE BOARD OF AGRICULTURE,

CONSTITUTED AS FOLLOWS:

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C. E. CAMERON, VICE-PRESIDENT, Alta.
G. D. ELLYSON, TREASURER, Des Moines.
JOHN C. SIMPSON, SECRETARY, Des Moines.

EX-OFFICIO DIRECTORS.

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H. R. WRIGHT, Dairy Commissioner.
DR. J. I. GIBSON, State Veterinarian.

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Third District—W. C. BROWN, Clarion.
Fourth District—R. T. ST. JOHN, Riceville.
Fifth District—S. B. PACKARD, Marshalltown.
Sixth District—T. C. LEGOE, What Cheer.
Seventh District—M. J. WRAGG, Waukee.
Eighth District—JOHN LEDGERWOOD, Leon.
Ninth District—M. McDONALD, Bayard.
Tenth District—O. A. OLSON, Forest City.
Eleventh District—H. L. PIKE, Whiting.

METEOROLOGICAL STATIONS AND OBSERVERS.

From the following, weekly and monthly reports of Metorological data are received by the Iowa Weather and Crop Service.

Afton	Hon. N. W. Rowell
Albia	E. R. Reeve
Algona	Dr. F. T. Seeley
Allerton	Rex Shriver
Alta	D. E. Hadden
Alta (near)	W. J. Minard
Amana	Conrad Schadt
Ames	Exp. Station
Atlantic	J. W. Love
Audubon	Geo. E. Kellogg
Baxter	W. T. Thorp
Bedford	E. E. Healy
Belknap	A. W. Rankin
Belle Plaine	S. P. Vandike
Bonaparte	Hon. B. R. Vale
Boone	Carl Fritz Henning
Britt	G. P. Hardwick
Buckingham (Traer P. O.)	Dr. W. A. Daniel
Burlington	I. S. Shontz
Carroll	Moses Simon
Cedar Rapids	Electric Light and Power Co.
Chariton	C. C. Burr
Charles City	*Clarence J. Root
Clarinda	A. S. Van Sandt
Clear Lake	E. C. Schrader
Clinton	Luke Roberts
College Springs	A. M. Finley
Columbus Junction	J. B. Johnston
Corning	Jerome Smith
Corydon	Miss May Miller
Cresco	L. G. Krumm
Cumberland	Agent C., B. & Q. R'y
Davenport	*J. M. Sherier
Delaware	Wm. Ball
Decorah	F. H. Baker
Denison	Prof. W. C. Van Ness
Des Moines	*Geo. M. Chappel
De Soto	R. D. Minard
Dows	A. C. Fuller
Dubuque	*Orin Parker
Earlham, R. F. D.	Geo. Phillips
Elkader	Chas. Reinecke
Estherville	Earle W. Peterson
Fayette	R. Z. Latimer
Florence (Clarion P. O.)	H. Du Bois
Forest City	J. A. Peters
Fort Dodge	Tobin College
Ft. Madison	Miss L. A. McCready
Galva	C. E. B. Roberts
Gilman	Jas. L. Wylie
Glenwood	J. P. Jackson
Grand Meadow (Postville P.O.)	F. L. Williams
Greene	J. L. Cole
Greenfield	J. G. Culver
Grinnell	Prof. J. S. Buck
Grinnell (near)	A. O. Price
Grundy Center	Ed King
Guthrie Center	D. G. Beardsley
Hampton	E. C. Grenelle
Hanlontown	Miss G. M. Paschen
Harlan	C. A. Reynolds
Hopeville	M. T. Ashley
Humboldt	H. S. Wells
Ida Grove	J. E. Conn
Independence	E. F. Wulfke
Indianola	Prof. J. L. Tilton
Inwood	Geo. M. Larsen
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Iowa Falls	J. B. Parmelee
Keokuk	*Fred Z. Gosewisch
Keosauqua	Prof. J. A. Landes
Knoxville	Casey & Bellville
Lacona	Agent C., B. & Q. R'y
Larrabee	H. B. Strever
Lenox	J. L. Hurley
Le Mars	Dr. T. E. Cole
Leon	Millard F. Stookey
Little Sioux	G. H. Gibson
Logan	Glenn H. Stern
Maquoketa	Frank W. Keeney
Marshalltown	Branch S. Jones
Mason City	J. S. Mills
Massena	Fred. T Knott
Montezuma	C. J. Griffin
Monticello	C. E. Heisey
Mount Vernon	Rev. J. W. Hubbard
Mt. Ayr	A. F. Beard
Mt. Pleasant	Prof. J. W. Edwards
New Hampton	A. F. Kemman
Newton	Hon. J. P. Beatty
Northwood	Dr. E. R. Young
Odebolt	E. Starner
Ogden	C. L. Zollinger
Olin	Hon. Nathan Potter
Omaha, Neb	*L. A. Welsh
Onawa	C. G. Perkins
Osage	G. D. Pattingill
Osceola	Mrs. S. Lewis
Oskaloosa	Jos. Boyd
Ottumwa	Dr. W. B. La Force
Pacific Junction	Agent C., B. & Q. R'y
Perry	J. A. Harvey
Plover	J. S. Smith
Pocahontas	F. E. Hronek
Red Oak	J. S. Cole
Ridgeway	Arthur Betts
Rock Rapids	W. C. Wyckoff
Rockwell City	C. M. Randall
Ruthven	F. M. Fitzgerald
Sac City	Frank Stouffer
St. Charles	C. W. Minard
Sheldon	Dr. A. W. Beach
Sibley	H. G. Doolittle
Sigourney	Mrs. R. F. Ashbaugh
Sioux Center	Jacob de Ruyter
Sioux City	*U. S. Purssell
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Stockport	C. L. Beswick
Storm Lake	L. E. Burdick
Stuart	Hon. John Herriott
Thurman	C. R. Paul
Tipton	F. K. Gregg
Toledo	Herbert Giger
Vinton	H. G. Haines
Wapello	Geo. W. Schofield
Washington	Wm. A. Cook
Washta	H L. Felter
Waterloo	M. L. Newton
Waukee	E. J. Leonard
Waverly	H. S. Hoover
What Cheer	R. S. Alexander
Whitten	Dr. Frank P. Butler
Wilton Junction	J. M. Rider
Winterset	B. L. Sprinkle
West Bend	Phil Dorweiler
Woodburn	C. B. McDonough
Zearing	H. E. Burkhart

*U. S. Weather Bureau.

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Agency	J. H. Van Zandt
Albia	Wm. Mercer
Allerton	James Piper
Alta	Jonas Cushman
Audubon	A. H. Edwards
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Burt	R. Jain
Cedar Rapids	Hon. A. J. Fuhrmeister
Centerville	Jacob Harter
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Clarksville	F. M. Russell
Correctionville	Hon. W. B. Chapman
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Danville	Sherman Matthews
Dunlap	Hon. B. F. Roberts
Emerson	D. B. Nims
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Fruitland	R. T. Hummel
Goldfield	D. M. Stephens
Geneva	Wm. H. Thompson
Hartford	H. E. Slack
Hartwick	Fred McCulloch
Harlan	H. B. Kees
Hesper	G. E. Dillingham
Humeston	Hon. S. H. Moore
Independence	Geo. H. Wilson
Indianola	H. D. Guthrie
Ireton	J. M. Sherman
Lake City	C. B. Hamilton
Le Mars	Hon. Henry Schrooten
Long Grove	Hon. Chris Marti
Manson	J. D. Skinner
Marshalltown	Hon. S. B. Packard
Mt. Pleasant	W. S. Wright
Milton	Hon. E. C. Holland
Monroe	J. A. Dibel
Nevada	Geo. C. White
Northwood	T. L. Bolton
Orange City	H. J. Vande Waa
Pella	J. H. Ver Steeg
Pittsburg	G. C. Duffield
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Platte (Creston R. D.)	M. H. Dibel
Red Oak	Hon. C. L. Stratton
Rock Rapids	D. E. F. Merrill
Seymour	L. B. Sager
Shenandoah	Reuben Mullison
State Center	E. P. Thompson
Stuart	W. W. Bailey
Toledo	W. G. Malin
Van Horne	Spencer Smith
Waukon R. D	T. B. Wiley
Weldon	Ed Worden
Winterset	H. A. Kinsman
West Branch	Wrigley Smith
West Union	H. B. Blackman
Wilton	Thos. Boot
Wiota	I. S. Coomes
Woodward	George Swisher

U. S. DEPARTMENT OF AGRICULTURE—WEATHER BUREAU.

MONTHLY REVIEW

OF THE

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DECEMBER WEATHER AND CROPS.

December was nearly normal as to temperature and precipitation. The mean temperature for the state was half a degree above normal, and the precipitation 0.15 of an inch above the average. The first decade was dry and fair, with ideal conditions for finishing corn husking, and the usual farm operations of the early winter period. For about half the month the ground was well covered with snow, which afforded protection to winter grain and the grasses during the coldest weather. The bulk of the precipitation ca e in form of snow and sleet, and fell mostly on the 11th, 16th, 26th and 27th. But one severe storm visited the state, and that was the blizzard that swept over all sections from the 26th to the 28th. It was unusually severe, causing blockades of railways in many localities. Farm animals, not well sheltered, suffered severely, and newspaper reports indicate some loss of valuable stock As a whole December was a fairly good and pleasant winter month.

EDITORIAL NOTES.

In the production of a ton of apples the soil loses less than thirty cents' worth of nitrogen, potash and phosphoric acid. The bulk of the crop is the product of sunshine, air and water.

A ton of butter, worth bout $500, robs the soil of less than one dollar's worth of crop growing material while a ton of wheat takes away $7 50 worth of fertility.

In the final crop report of the Illinois Board of Agric lture, that state is credited with 7,825,000 acres of corn. The average yield was 36 bushels per acre. The total yield for that state was 281,700,000 bushels. The government statistician credited Illinois with 9,428,000 acres, and a total yield of over 344,000,000 bushels. The state report of acerage planted was based on the returns of assessors, and is more likely to be correct than estimates of crop reporters on the basis of the census of 1899.

Again the astronomers note the appearance of a comet sweeping into the domain of old Sol's planetary system. And now if there should be anything unusual in the line of weather on our planet, the "star gazers and monthly prognosticators" may attribute it to the perturbing influence of this new celestial nomad. Who knows but it had a hand in getting up that blizzard which came with the expiring gasps of the old year?

In the annual report of the U. S. Department of Agriculture for 1904, Secretary Wilson makes a summary of the value of agricultural products as follows:

"After a laborious and careful estimate of the value of the products of the farm during 1904, made within the census scope, it is safe to place this amount at $4,900,000,000, after excluding the value of farm crops fed to live stock in order to avoid duplication of values. A similar estimate made for 1903 gives $4,480,000,000, and the census total for 1899 is $3,742,000,000. It is by no means to be admitted that these figures represent fully the value of the wealth produced on farms. Within the limits of ascertainable values, the farms of 1904 produced an aggregate wealth with a farm valuation that was 9.65 per cent above the product of 1903, and 31.28 per cent above the figures for the census year 1899. An occupation that has produced such an unthinkable value as one aggregating nearly $5,000,000,000 within a year may be better measured by some comparisons. All of the gold mines of the entire world have not produced since Columbus discovered America a greater value of gold than the farmers of this country have produced in wealth in two years; this year's product is over six times the amount of the capital stock of all national banks; it comes within three-fourths of a billion dollars of equaling the value of the manufactures of 1900, less the cost of materials used; it is twice the sum of our exports and imports for a year; it is three times the gross earnings from the operations of the railways; it is four times the value of all minerals produced in this country."

Mr. Carl Fritz Henning, volunary observer at Boone, Iowa, who is a recognized local authority on birds, contributed an interesting article to the *Boone Republican* relative to the wholesale destruction of English sparrows during the blizzard, December 27th and 28th. He attributed this unusual fatality among these hardy "tramps of our streets" to the fact that the blizzard was preceded by heavy mist and sleet, which covered the ground and trees with thick ice, rendering it impossible to obtain their usual supply of food.

CLIMATOLOGY OF THE MONTH OF DECEMBER, 1904.

BAROMETER.—Mean pressure, 30.07 inches; highest observed 30.52 inches, at Dubuque and Sioux City, on the 3d; lowest observed, 29 09 inches, at Dubuque on the 27th; range for state, 1.43 inches.

TEMPERATURE.—The monthly mean temperature for the state, as shown by records of 114 stations, was 23 4 degrees, which is 0.5° above normal. By sections the mean temperatures were as follows: Northern section 20.6° which is 0.5° above normal; central section 23.5°, which is 0.3° above normal; southern section 26.1° which is 0 4° above normal. The highest m nthly mean was 29.9° at Keokuk; lowest monthly mean, 18.2°

at Forest City. The highest temperature reported was 67°, at Albia on the 22d; lowest temperature reported 19°, at Elkader on the 14th, The average monthly maximum was 55 5°; average monthly minimum, -8.8°. Greatest daily range, 57° at Maquoketa; average of greatest daily ranges 36.8.

PRECIPITATION.—Average precipitation for the state, as shown by records of 119 stations, as 1 44 inches, which is 0 15 of an inch above normal. The averages by sections were as follows: Northern section, 1.19 inches, which is 0.16 inch below normal; central section, 1.66 inches, which is 0.32 above normal; southern section, 1.48 inches, which is 0.32 inches above normal. The largest amount reported was 3.68 inches at Newton; least amount reported, .06 inch at Storm Lake. The greatest daily rainfall reported was 2 53 inches at Newton on the 27th. Average number of days on which .01 of an inch or more was reported, 5.

WIND AND WEATHER.—Prevailing direction of the wind, northwest; highest velocity reported, 57 miles per hour, from the northwest, at Sioux City on the 27th. Average number of clear days, 12; partly cloudy, 7; cloudy, 12.

ATMOSPHERIC PRESSURE.

STATIONS.	Mean barometer reduced.	EXTREMES.			
		Highest reduced barometer.	Date.	Lowest reduced barometer.	Date.
Charles City	30.05	30.50	3	29.53	27
Davenport	30.04	30.45	14	29.27	27
Des Moines	30.10	30.51	3	29.64	27
Dubuque	30.06	30.52	3	29.09	27
Omaha, Neb	30.09	30.53	3	29.64	22
Keokuk	30.06	30.46	4	29.45	27
Sioux City	30.09	30.52	3	29.69	31
Means	30.07	30.52	3	29.09	27

WIND MOVEMENT.

STATIONS.	Number of miles.	Maximum velocity.	Direction.	Date.
Charles City	6.578	37	NW	27
Davenport	6.945	39	NW	27
Des Moines	7.033	34	NW	27
Dubuque	5.292	28	W	20
Keokuk	7.405	36	NW	27
La Crosse, Wis	6.050	38	W	20
Omaha, Neb	8 132	39	NW	27
Sioux City	10.792	57	NW	27

OBSERVERS' NOTES.

AFTON.—*N. W. Rowell.* The blizzard commenced at 8 P.M. on 26th and continued to the 28th; the worst in my ten years' record.

ALLERTON.—*Rex Shriver.* The blizzard on the 27th blocked roads and paralyzed traffic.

ALTA.—*David E. Hadden.* Ideal weather most of the month; the blizzard on 27th raged all day, but was quickly followed by fine weather.

ATLANTIC.—*J. W. Love.* Month was very mild except during the heavy wind and snowstorm on 27th.

BONAPARTE.—*B. R. Vale.* Precipitation, 2.25 inches; a pleasant month with a bad storm on 27th; ground bare and without frost at close of month.

BRITT.—*Geo. P. Hardwick.* The summer of 1904 was cool; autumn warm and late, with insect life until close of December; very high wind, blizzard and drifting snow on 27th and 28th.

CHARITON.—*C. C. Burr.* On 26th had light sleet, some rain with thunder, followed by one of the worst blizzards on record.

CLARINDA.—*A. Van Sandt.* Storm of the 26th-28th was a hard one, with wind 35 to 40 miles, and snow drifts above fences.

CLINTON.—*Luke Roberts.* Temperature normal; precipitation 2.85 inches. Most of it coming on 26th and 27th.

CRESCO.—*L. G. Krumm.* The blizzard on 27th was the worst in recent years; the papers say it was the worst since 1873.

ELKADER.—*Chas. Reinecke.* Mean temperature for the year, 44.4°; total precipitation 25.36 inches; highest temperature 93° on July 17th; lowest, 32° below zero on January 27, 1904; total snowfall for the year, 44 inches.

ESTHERVILLE.—*Earl W. Peterson.* Beginning on the 26th at 3 P. M., we had the worst blizzard that has visited this place during the past twelve years; storm ceased during night of 27th.

GREENFIELD.—*J. G. Culver.* A blizzard, commencing 9 P. M. on the 26th and ending on the 28th, was the worst storm for years; roads and railway lines badly blocked by drifts.

HAMPTON.—*E. C. Grenelle.* Hard blizzard all day the 27th; worst since 1880.

HANLONTOWN.—*Miss G. M. Paschen.* The blizzard on the 27th was the most severe storm in this section since 1885. Drifts ten feet high where wind had full sweep, and objects were invisible four rods distant.

HOPEVILLE.—*M. L. Ashley.* Very severe storm on 27th and roads were blockaded.

HUMBOLDT.—*H. S. Wells.* Precipitation for year, 28 26 inches.

INDEPENDENCE.—*E. F. Wulfke.* On 27th the heaviest blizzard in 20 years visited this section; all roads blocked.

LARRABEE.—*H. B. Strever.* The month was mild and pleasant, except during the blizzard on 27th.

LOGAN.—*Glen H. Stern.* Fierce blizzard visited Logan on 27th; drifts in places 5 feet deep.

OLIN.—*N Potter.* Roads were blockaded two days by storm on 27th.

POCAHONTAS.—*F. E. Hronek.* The blizzard on 27th reminded us of old times; not enough snow to do much damage.

RIDGEWAY.—*Arthur Betts.* Warmest of eight Decembers, except in 1900. There were 148 hours of sunshine. The blizzard on 27th was the worst since December 11 and 12, 1899.

SHELDON.—*A. W. Beach.* A splendid month; only one bad storm, and that lasted but 24 hours.

STOCKPORT.—*C. L. Beswick.* A fine month, except on 26th and 27th, the latter being equal to any bad day on record here.

WATERLOO.—*M. L. Newton.* The storm on 27th was the worst in 20 years.

WAUKEE.—*E. J. Leonard.* The sensational feature of the month was the blizzard on the 27th; stock suffered much and roads drifted full in many places.

WAVERLY.—*H. S. Hoover.* A very heavy blizzard all day the 27th and snow drifted badly.

WHAT CHEER.—*R. S. Alexander.* Worst blizzard in years on 27th and 28th; terrific wind; roads blocked several days.

BELATED REPORTS.

LENOX—November—Mean temperature 42.2°; highest 68° on the 2d, 3d and 18th; lowest 11° on the 30th; greatest daily ra ge 35°; total precipitation .11 inch; greatest in 24 hours .11 inch; total snowfall, trace; prevailing direction, south; number of clear days 27, partly cloudy 1, cloudy 2, rainy 1.

EARLHAM—November—Mean temperature 40.2°; highest 72° on the 3d and 17th; lowest 7° on the 30th; greatest daily range 45°; total precipitation .13 inch; greatest in 24 hours .13 inch; total snowfall, trace; prevailing direction, southwest; number of clear days 25, partly cloudy 3, cloudy 2, rainy 1.

GREENFIELD—November—Mean temperature 42.1°; highest 70° on the 3d and 19th; lowest 8° on the 30th; greatest daily range 35°; total precipitation .24 inch; greatest in 24 hours .24 inch; total snowfall .3 inch; prevailing direction, south; number of clear days 26, partly cloudy 3, cloudy 1, rainy 2.

OTTUMWA—November—Mean temperature 44.6°; highest 78° on the 19th; lowest 16° on the 30th; greatest daily range 37°; total precipitation .13 inch; greatest in 24 hours .13 inch; prevailing direction, northwest; number of clear days 21, partly cloudy 5, cloudy 4, rainy 1.

CLIMATOLOGICAL DATA FOR DECEMBER, 1904.

NORTHERN SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Algona (a)	Kossuth	1,213	28	19.6	-0.7	52	8	-10	28	46	1.27	† .22	.60	11.0	3	10	7	14	S	
Alta	Buena Vista	1,513	11	21.6	†0.8	56	8	-12	28	31	.52	- .51	.25	5.0	7	13	9	9	NW	
Alta (near)	Buena Vista										.40		.20	4.0	4					
Britt	Hancock	1,236	5	19.8	†2.7	50	8	-10	28	33	.83	† .04	.45	8.3	8	5	16	10	SW	
Charles City	Floyd	1,012	11	18.6	-2.4	44	31	-12	14	35	2.24	† .88	1.20	23.6	9	7	9	15	NW	
Clear Lake	Cerro Gordo	1,241		20.8		45	8	-12	28	32	1.40		.60	14.0	4	8	10	13	SW	
Cresco	Howard		31	19.8	†1.6	43	23	-13	14	31	1.26	- .03	.89	14.5	4	11	6	14	SW	
Decorah	Winneshiek	857	10	21.2	†0.8	45	23	-12	14	31	1.74	† .38	.97	16.0	4					
Dows	Wright	1,142		20.8	†1.0	50	8	-12	27	35	1.97	†1.08	1.00	19.0	6	14	3	14	NW	
Ellader	Clayton	727	21	20.6	-1.0	48	31	-19	14	45	2.30	† .37	1.45	24.5	5	11	11	9	NW	
Estherville	Emmet	1,298	12	18.8	†2.4	56	8,31	-10	13,14	39	.62	† .03	.12	11.8	10	14	1	16	NW	
Florence	Wright	1,226	8													1	7	23	NE	
Forest City	Winnebago	1,226	8	18.2	-1.2	47	8	-10	28	37	.70	- .21	.40	7.0	3	12	4	15	N, W	
Grand Meadow	Clayton	1,180	11	19.0	-2.5	46	23	-16	15	30	1.75	† .19	1.00	15 5	4	10	9	12	SW	
Greene	Butler	924	5	20.3	†1.5	47	8	- 8	14	34	1.34	† 36	.56	20.0	6	10	6	15	W	
Hampton	Franklin	1,155	12	21.4	†0.5	51	8	-10	28	35	1.86	† .51	1.00	23.8	5	10	11	10	SW	
Hanlontown	Worth			19.6		48	8,31	-10	4,28	37	1.40		.60	14.0	5	11	11	9	NW	
Humboldt	Humboldt	1,095	10	23.0	†0.2	54	8	- 8	13	36	.78	† .02	.30	7.0	4	17	3	11	NW	
Inwood	Lyon			21.0		58	8	-15	28	39	.35		.20	3.5	2	23	1	7	NW	
Larrabee	Cherokee	1,366	11	21.6	-0.3	58	8	-12	28	34	.63	- .44	.20	4.9	7	15	9	7	SW	
LeMars	Plymouth	1,224	6	23.0	†1.5	57	8	-12	28	36	.15	- .94	.08	1.7	1	15	7	9	S	
Mason City	Cerro Gordo	1,132	7	21.2	†0.8	44	8	- 8	28	26	1.62	† 96	1.00	16.2	4	9	9	13	SW	
New Hampton	Chickasaw	1,169		20.6	†2.7	46	23	-11	28	31	2.22	†1.55	1.00		7	4	11	16	S, NW	
Northwood	Worth	1,222		18.6	-0.5	44	9	-10	28,29	34	1.01	† .10	.70	10.1	6	7	1	23	NW	
Osage	Mitchell	1,184	11	19.4	†0.3	41	8,31	-10	28	30	2.29	†1.01	1.50	22.9	5	10	5	16	S	
Pocahontas	Pocahontas	1,190	5	22.5		55	8	- 8	28	33	.78		.38	7.8	4	12	8	11	S	
Plover	Pocahontas			20.4	†0.5	54	8	- 8	28	34	.69	- .19	.40	5.5	3	17	2	12	SW	
Ridgeway	Winneshiek	1,215	5	22.7	†1.5	49	23	- 8	28	32	2.75	† .25	2.00	16.9	7	9	14	8	S	
Rock Rapids	Lyon	1,021	6	21.2	†1.5	58	8	-12	28	54										
Sheldon (a)	O'Brien	1,422		22.6	†3.6	61	8	-13	28	40	.46	- .44	.25	5.8	5					
Sibley	Osceola	1,212		18.4	-0.7	58	8	-12	28	44	.50	- .36	.50	5.0	6	18	8	10	NW	
Sioux Center	Sioux			21.5	†1.8	58	8	-13	28	36	.60	- .23	.30	6.0	4	11	3	17	S	
Storm Lake	Buena Vista	1,440	7	20.7	†0.5	56	8	-13	28	38	.06	- .87	.02	.8	4	17	0	14	NW	
Washta	Cherokee										.30	- .87	.20	3.0	2	16	9	6	S	
Waverly	Bremer	942	6	20.7	‡0.0	47	22	-11	14	36	2.40	†1.32	1.00	21.8	7	10	7	14	S	
West Bend (a)	Palo Alto	1,197	8	21.3		54	8	- 8	28	34	1.30		.50	12.5	5	8	9	14	S	
Average				20.6	†0.5	50.9		-11.0		36.0	1.19	-0.16		11.6	5	11	7	13	NW	

SOUTHERN SECTION.

Afton	Union	1,212	7	25.6	†0.8	57	22	- 8	28	33	2.30	†1.02	1.00	23.0	3	9	9	13	SW	
Albia	Monroe	957		23.5		61	22	- 6	28,29	41	1.17		.58	14.5	5	14	0	17	NW	
Allerton	Wayne			26.4		61	22	- 7	13	35	1.23		.50	11.6	5	17	3	11	S, NW	
Atlantic	Cass	1,164	11	24.8	†2.3	64	22	- 9	13	41	1.05	- .33	.60	10.5	3	6	11	14	NW	
Bedford	Taylor			26.1		63	20	- 8	28	35	.70		.30	3.8	4	17	2	12	NE	
Bonaparte	Van Buren		10	26.6	-1.2	58	23	- 2	28	33	2.25	† .80	1.12	4.0	4					
Burlington	Des Moines	544		28.1		57	22,23	- 2	28,29	37	2.48		.76		9	15	5	11	SW, NW	
Chariton	Lucas	1,042	7	25.8	†0.2	60	22	- 7	13	37	1.20	- .32	.65	8.0	3	15	9	7	NW	
College Springs (a)	Page		10	27.4	†0.3	66	22	- 7	28	36	.83	- .76	.47	8.3	3	16	6	9	SW	
Columbus Jct	Louisa	586		26.1		56	23	- 3	15,28	34	2.54		1.20	7.8	7	21	3	7	NE, NW	
Corning	Adams	1,127	10	24.3	-2.9	62	22	- 8	28	42						10	11	10	SW	
Corydon	Wayne	992	9	26.6	†0.8	61	22	- 6	13,28	36	1.39	- .23	.67	14.0	5	16	4	11	NW	
Clarinda	Page	1,069	12	24.0	-2.5	65	22	- 7	28	44	.88	- .36	.30	10.3	7	17	4	10	S	
Cumberland	Cass										1.20		.50	12.0	3	15	9	7	N, NW	
Earlham	Madison			22.5		60	22	-16	14	36	1.29		.60	15.0	4	17	4	10	NW	
Fort Madison	Lee	516	51								1.78	- .22	1.38	7.0	3	10	5	16	N	
Glenwood	Mills		15	28.4	-0.7	64	22	- 7	28	43	.20	- .53	.10	2.0	2	9	13	9	NW	
Greenfield	Adair		11	24.6	†0.1	59	22	- 9	28	32	1.26	- .09	58	13.6	4	18	3	10	SW	
Hopeville	Clarke		11	25.3	-0.2	59	22	- 8	13	35	1.33	† .22	.60		4	7	13	11	NW	
Indianola	Warren	969	11	25.8	†0.6	60	22	- 9	13	34	1.57	† .16	.50	15.8	5	12	3	16	SW	
Keokuk	Lee	619	31	29.9	†0.1	60	22	- 1	28	33	1.45	- .51	1.08	3.7	7	13	8	10	SW	
Keosauqua	Van Buren	664	10	24.7	-2.3	59	22	- 4	15,16	49	2.24	† .70	1.70	6.5	4	10	3	18		
Knoxville	Marion	920	6	26.2	†0.9	60	22	- 6	28	28	2.00	† .64	1.00	19.0	5	14	3	14	SW	
Lacona	Warren										1.61		.60	14.0	6	7	18	6		
Lenox	Taylor	1,250	7	24.9	†0.7	62	23	-10	28	40	.80	- .48	.40	8.0	4	19	3	9	S	
Leon	Decatur	1,120		26.4		59	22	- 6	28	32	1.70		.80	17.0	3	16	4	11	N, S	
Massena	Cass			24.8		60	22	- 9	28	37	.71		.40	8.5	3	14	5	12	S	
Mount Ayr	Ringgold	1,236	6	26.8	†2.2	65	22	- 8	28	38	1.97	† .65	.88	22.0	6	11	9	11	SW	
Mount Pleasant	Henry	729	20	26.3	†0.5	57	22,23	- 3	28	30	3.34	†2.13	1.83	7.7	7	11	7	13	NE	
Omaha, Neb	Douglas	1,113	32	27.5	†0.8	61	22	- 5	28	34	.57	- .44	.30	6.3	3	7	13	11	N	
Oskaloosa	Mahaska	843	18	25.1	-0.7	59	22	- 4	14,28	36	1.09	- .19	.46	12.5	7	15	2	14	NW	
Ottumwa	Wapello	649	8	27.2	-0.2	61	22	- 1	14,28	33	1.52	† .15	.80	15.2	5	8	12	11	NW	
Pacific Junction	Mills	960		25.6		63	22	- 6	28	39	.58		.34	5.7	4	13	9	9	S	
Red Oak	Montgomery	1,033		28.2	†3.4	62	22	- 5	28	35	.94	- .28	.65	11.0	3	8	17	6	S	
St. Charles	Madison	1,070		26.9		61	22	- 6	13,28	41	2.44		1.04	22.9	7	16	4	11	NW	
Stockport	Van Buren			27.4		59	23	- 1	15,28	38	2.08		1.70	9.0	7	11	8	12	NW	
Thurman	Fremont			26.6	†3.4	65	23	- 5	27,28	40	.40	-1.38	.30		2	11	10	10	SW	
Wapello (a)	Louisa	588		27.2	†0.2	56	23	0	28	30	2.27	† .93	1.00	7.0	5				SW	
Washington	Washington	769	20	26.2	†2.2	56	22	- 4	28	34	2.01	† .54	1.45		4				SW	
Woodburn	Clarke	961									1.50		.80	15.5	3	16	2	13	SW	
Average				26.1	†0.4	60.6		- 5.9		36.4	1.48	†0.32		11.2	5	13	7	11	NW	
Average for state				23.4	†0.5	55.5		- 8.8		36.8	1.44	†0.15		12.3	5	12	7	12	NW	

CLIMATOLOGICAL DATA FOR DECEMBER, 1904—Continued.

CENTRAL SECTION.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIP., IN INCHES.				Number rainy days	SKY.			Prevailing direction of wind.	DATES OF THUNDER STORMS.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).		Number clear days.	Number partly cloudy days.	Number cloudy days.		
Amana	Iowa	721	25	23.4	†1.4	53	23	-13	15	36	1.62	† .13	.68	13.9	5	12	7	11	NW	
Ames ‡	Story	926	20	22.2	†0.4	53	8	- 6	15,28	36	.79	- .23	.25	8.5	5	15	9	7	NW	
Audubon	Audubon	1,301	8	23.2	†0.1	60	22	- 8	28	41	.45	- .80	.17	7.2	3	12	9	10	SW	
Baxter	Jasper	998	....	23.4	.....	54	22	- 8	28	35	1.40	.....	.50	15.0	4	12	7	12	NW	
Belle Plaine	Benton	826	12	21.4	-2.6	50	22	-14	15	40	3.15	†1.66	1.60	30.5	5	13	12	6	Ne,Se,W,Nw	
Boone	Boone	....	....	24.3	.....	54	22	- 7	28	37	1.65	.....	.84	18.1	3	19	3	9	NW	
Buckingham	Iowa	.....	....	.....	.....	.....	.....	.....	.....	.....	1.99	.....	1.20	32.8	5	14	11	6	.....	
Carroll	Carroll	1,265	12	22.9	-0.1	59	22	-11	28	35	1.45	† .37	.60	14.5	6	14	3	14	.....	
Cedar Rapids	Linn	733	19	21.8	-3.5	55	22	-11	15,16	55	1.75	† .14	.71	20.0	5	14	6	11	NE	
Clinton	Clinton	609	34	24.1	-1.0	52	22	- 7	14	32	2.85	†1.04	2.00	10.0	5	11	7	18	W, NW	
Davenport	Scott	606	31	26.7	-1.1	58	22	- 4	28	32	2.21	† .48	1.58	7.1	7	13	3	15	SW	
Delaware	Delaware	1,083	11	20.1	-1.1	45	22,23	-10	15	27	1.77	† .25	.90	17.0	4	14	7	10	NW	
Denison	Crawford	1,180	8	24.4	†2.6	59	22	-10	28	41	.62	† .02	.20	...	4	18	3	10	.....	
Des Moines	Polk	861	24	25.3	-1.5	58	22	- 6	18	33	2.02	† .58	.98	22.4	6	11	8	12	SW	
De Soto	Dallas	866	...	25.2	.....	59	22	-14	14	40	2.30	.....	1.20	23.0	3	15	3	13	SW	
Dubuque	Dubuque	655	29	23.4	-2.5	53	22	-12	14	26	2.37	† .56	1.32	15 5	9	12	8	11	NW	
Fort Dodge	Webster	1,126	....	20.6	.....	53	8	- 6	28	40	1.00	.....	.30	10.0	6	....	....	....	.....	
Galva	Ida	1,290	8	22.8	†1.2	56	8	-11	28	36	.32	- .52	.25	3.3	2	20	5	6	.....	
Gilman	Marshall	1,052	..	....	....	.....	.....	.....	.....	.....	2.07	.....	.70	20.0	5	12	9	10	W	
Grinnell (*a*)	Poweshiek	1,023	9	24.2	‡0.0	55	22	- 5	28	35	2.68	†1.39	1.08	17.0	3	12	11	8	N,W,Nw	
Grundy Center	Grundy	976	11	21.5	-0.7	50	22,23	-11	13,14	33	1.73	† .45	.70	21 0	6	14	4	13	NE, NW	
Guthrie Center	Guthrie	1,077	6	24.8	†3.5	60	22	- 9	13,14,28	36	1.14	- .13	.41	...	5	15	9	7	NW	
Harlan	Shelby	1,192	....	23.5	.....	60	22	-11	28	39	.60	- .82	.27	7.5	3	7	12	12	S	
Independence	Buchanan	921	38	19.8	-1.9	45	8	-12	15	34	2.10	† .62	.80	21.0	4	17	5	9	SW	
Iowa City	Johnson	683	45	22.4	-1.7	55	22	- 7	15	38	1.96	† .30	.95	11.0	4	14	2	15	N	
Iowa Falls	Hardin	1,170	9	20.4	-0.1	48	8,22	-11	14	41	1.85	† .69	.70	18.0	5	12	6	13	SW	
Little Sioux	Harrison	.....	....	25.6	.....	60	8	- 9	28	38	.07	.....	.07	.7	1	15	5	11	SE	
LeClaire	Scott	576	....	.....	.....	.....	.....	.....	.....	.....	1.67	.....	1.08	8 0	6	....	....	....	NE	
Logan	Harrison	928	35	25.4	†0.5	56	8,22	- 6	26	42	.60	- .75	.30	6.0	3	14	7	10	NW	
Maquoketa	Jackson	688	9	21.3	-3.8	54	22	-17	14	57	1 74	† .13	.93	13.5	4	16	3	12	NE	
Marshalltown	Marshall	947	9	20.0	-5.5	52	22	- 9	14,15	48	2.59	†1.11	.86	....	6	12	5	14	NW	
Muscatine	Muscatine		45	.....	.....	.....	.....	.....	.....	.....	2.12	- .16	1.56	1.5	5		....	....	S	
Mt. Vernon	Linn	847	35	22.8	-1.1	53	23	- 8	28	34	2.10	† .44	.80	17.0	5	14	5	12	.....	
Newton	Jasper	944	14	23.2	†1.2	52	22	- 7	28	34	3.68	†2.35	2.53	28.0	3	18	5	8	S	
Odebolt	Sac	1,356	5	24.0	†2.7	57	8	-11	28	35	.65	- .45	30	6.5	3	19	5	7	.....	
Ogden	Boone	1,088	8	24.5	†1.1	58	22	- 8	28	36	1.20	† .19	.50	12.0	3	13	7	11	NW	
Olin	Jones	760	....	23 0	†0.2	53	23	-12	15	39	2.00	† .54	1.00	11.0	4	13	7	11	NW	
Onawa	Monona	.....	....	25.3	.....	59	8	- 9	28	37	.42	- .66	.20	2.2	4	19	2	10	SE, NW	
Perry	Dallas	975	..	24.0		58	22	-10	13	34	1.35	.....	.60	13.5	3	7	14	10	.....	
Rockwell City	Calhoun	.....	....	23.2	†2.3	55	8	-10	28	32	.71	- .59	.40	7.6	4	16	2	18	.....	
Sac City (*g*)	Sac	1,278	22	27.5	†4.1	64	23	-10	28	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Sioux City	Woodbury	1,165	13	23.8	-4.0	60	8	-10	27	40	.20	- .68	.11	2.6	4	8	11	12	S	
Stuart	Guthrie	1,316	5	25.3	†4.5	57	22	- 7	28	33	.....	.....	.....	.....	.....	1	21	9	SW	
Tipton	Cedar	807	....	25.2	.....	54	22,23	- 4	28	32	2.06	.....	83	13.0	5	12	11	8	NE	
Toledo	Tama	856	8	22.2	-1.0	54	22	-13	15	36	.....	.....	.....	20.5	5	13	6	12	NW	
Vinton	Benton	810	12	23.4	-0.5	50	23	-18	14	38	1.60	† .39	.50	16.6	4	14	0	17	NW	
Waterloo	Black Hawk	862	15	22.4	†1.3	49	8,22	-14	14	49	2.66	†1.52	1.50	23.0	5	16	6	9	S, NW	
Waukee	Dallas	1,039	....	26.2	.....	59	7	-12	13	38	1.90	.....	.60	17.5	5	18	5	8	NW	
Wilton Junction	Muscatine	683	7	24.8	-0.8	55	23	- 6	15	34	2 28	† .83	1.43	....	3	14	1	16	W	
Whitten	Hardin	1,036	..	21.0	†1.7	46	22	-10	13	36	2.30	†1.13	1.20	23.0	4	13	5	13	NW	
Zearing	Story	718	.	22.1	.....	51	8	- 8	15	33	1.60	.....	.80	17.3	4	13	8	10	SW	
Average		....	....	23.5	†0.3	54.9	.....	- 9.6	.....	37.9	1.66	†0.32	.....	14.1	4	13	7	11	NW	

† Above normal. ‡ Received too late to be computed with means. *a*. One day missing; *b*, two days, etc. § Not supplied with self-registering instruments.

ERRATA IN OCTOBER REVIEW.

Clarinda—Maximum temperature recorded on the 5th, page 7, should have been the 4th.

Belknap—Number of days missing marked as [H], page 7, should have been [G].

Marshalltown—Mean temperature recorded 51.6° on page 8, should have been 52.1°. Mean maximum temperature recorded 64.6° on page 10, should have been 65.6°.

Clear Lake—Mean temperature recorded as 51.6° on page 8 of the November Review, should have been 51.0°.

ERRATA IN NOVEMBER REVIEW.

Clear Lake.—Mean minimum temperature recorded 30.2° on page 11, should have been 30.3°.

Delaware.—Minimum temperature recorded 37° on the 15th, page 11, should have been 35°.

Independence.—Minimum temperature recorded 28° on the 25th, page 11, should have been 22°. Mean minimum temperature recorded 27 4° on page 11, should have been 27.2°. Mean temperature recorded 39.2° on page 10, should have been 39.0°.

New Hampton.—Mean temperature recorded 40.7° on page 9, should have been 39.0°.

Wapello.—Maximum temperature recorded 43° on the 9th, page 12, should have been 45°. Mean maximum recorded 54.6° on page 12, should have been 54.7°.

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR DECEMBER, 1904.

STATIONS.		DATE.																														MEAN.
		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	Max..	40	33	29	31	34	44	52	54	45	35	33	30	14	23	23	35	28	41	32	39	36	57	56	29	32	30	30	13	32	40	45	35.3
	Min ..	22	19	13	15	19	13	23	30	25	14	29	1	- 5	- 3	1	16	16	16	7	24	16	29	23	17	27	28	- 3	- 8	4	26	35	15.8
Albia	Max..	41	23	29	25	35	46	52	54	34	37	33	15	18	23	28	30	29	40	37	36	43	61	34	28	32	30	12	15	33	43	48	33.7
	Min ..	12	23	20	14	12	15	18	22	28	14	14	11	- 2	- 2	0	3	15	14	7	8	11	20	33	22	22	23	1	- 6	-6	15	30	13.3
Algona	Max..	26	21	22	26	27	41	45	52	42	32	32	21	17	19	20	23	21	35	24	36	34	48	..	25	32	29	9	6	30	42	45	29.4
	Min .	19	13	15	- 2	15	14	16	22	14	7	20	-1	- 6	- 1	3	16	13	18	-1	14	2	2	..	11	24	9	- 6	-10	0	20	32	9.7
Allerton	Max.	46	39	30	29	36	46	54	56	45	38	34	30	24	26	25	32	31	39	34	38	41	61	58	29	31	32	32	10	36	43	50	37.3
	Min ..	22	21	19	13	17	14	19	25	28	11	28	5	- 7	- 1	2	16	17	14	5	23	14	31	26	20	22	19	0	- 6	3	28	36	15.6
Alta	Max..	31	23	22	29	31	42	45	56	81	32	30	15	22	21	27	26	24	35	35	38	40	54	39	25	28	28	3	5	31	44	51	31.1
	Min ..	16	11	15	11	16	16	18	25	16	11	12	-1	- 1	- 1	11	18	10	17	0	19	17	29	11	12	24	3	- 6	-12	0	26	30	12.0
Amana	Max..	34	28	32	25	32	43	42	46	41	34	31	30	16	19	23	29	29	38	26	35	35	50	53	31	32	33	33	6	26	38	42	32.7
	Min ..	22	19	17	9	17	7	20	24	28	15	28	9	- 6	-10	-13	10	16	17	4	21	-3	27	24	25	26	30	2	- 5	-3	21	34	14.1
Ames	Max..	35	24	30	25	32	46	48	53	43	34	34	31	15	24	23	27	23	38	26	36	37	50	47	43	35	30	26	11	13	25	21	31.8
	Min ..	20	17	13	11	16	11	21	25	24	11	28	4	2	11	- 6	14	13	15	2	20	1	23	17	13	27	23	- 1	- 6	-1	10	8	12.5
Atlantic	Max..	38	29	33	32	36	48	51	56	40	35	35	26	21	25	29	32	25	41	31	43	43	64	55	30	31	31	15	8	36	47	56	36.2
	Min ..	21	20	8	13	10	7	12	28	21	6	26	0	- 9	- 7	0	22	19	14	3	25	9	35	18	17	27	15	- 3	- 8	2	27	35	13.3
Audubon	Max..	34	28	30	31	32	46	48	57	44	34	35	25	18	22	27	36	22	39	30	38	40	60	53	28	30	29	17	14	33	44	49	39.6
	Min ..	20	16	9	13	14	10	13	19	20	5	25	-4	- 6	- 7	- 2	21	14	17	3	26	6	22	12	15	26	11	- 7	- 8	3	25	32	11.7
Baxter	Max..	34	29	34	25	33	46	48	50	44	34	32	30	15	18	23	28	30	29	40	37	36	43	61	34	28	32	30	12	15	33	43	48	33.7
	Min ..	20	17	10	7	17	11	20	23	23	10	27	3	- 7	- 6	- 2	14	12	16	3	20	6	26	27	18	25	26	- 2	- 8	0	24	36	13.4
Bedford	Max..	45	36	30	30	36	45	43	55	45	38	35	31	18	19	27	33	27	41	34	63	59	40	61	30	31	31	19	10	35	43	50	37.1
	Min ..	24	22	14	12	19	10	14	22	26	8	29	5	- 3	0	12	21	19	18	7	31	14	27	23	17	28	16	- 5	- 8	0	29	36	15.7
Belle Pl'e	Max..	35	23	33	24	31	42	43	47	35	35	32	13	13	15	29	28	32	36	33	36	40	50	32	29	32	32	18	8	29	39	43	30.8
	Min ..	20	18	9	5	14	7	17	22	24	10	27	9	- 6	- 9	-14	12	9	12	0	15	0	25	28	20	25	26	10	- 7	-5	20	32	12.1
Bonaparte	Max..	43	34	31	28	38	45	51	52	40	38	32	28	22	24	28	31	31	39	33	36	40	57	58	32	32	32	32	9	33	42	49	35.8
	Min ..	21	23	23	17	19	12	21	27	29	19	28	15	0	0	0	13	12	9	8	22	7	30	27	26	27	29	3	- 2	2	30	39	17.3
Boone	Max..	35	26	28	29	31	45	47	53	48	35	33	27	14	21	21	24	24	39	28	35	38	54	52	28	31	30	22	12	31	42	48	33.3
	Min ..	21	17	15	15	10	15	20	27	24	16	26	7	- 3	1	3	17	17	18	5	25	14	29	15	15	26	20	- 1	- 7	5	28	35	15.3
Britt	Max.	23	20	30	27	28	39	43	50	42	33	31	23	18	22	24	24	23	34	23	35	38	48	38	27	32	28	18	7	26	40	47	30.4
	Min ..	18	13	13	- 6	12	9	14	20	15	9	21	-1	- 7	- 3	3	14	12	15	-4	15	0	24	8	8	25	15	- 7	-10	-4	17	25	9.1
Burling'n	Max.	45	35	31	32	40	48	47	51	43	35	34	30	26	24	28	32	32	38	35	35	40	57	57	33	32	34	34	12	35	45	52	37.2
	Min ..	24	24	25	19	22	17	23	27	29	23	27	10	7	6	4	18	18	17	8	22	11	25	30	28	26	30	5	- 2	-2	30	39	19.0
Carroll	Max..	23	25	26	34	37	54	46	57	33	38	33	16	20	24	28	31	33	40	34	39	42	59	22	29	30	29	0	14	34	47	54	33.3
	Min ..	14	15	11	15	16	15	16	22	17	7	26	-5	- 8	- 6	2	15	13	15	0	22	11	25	19	15	22	26	- 4	-11	0	28	33	12.5
Cedar R.	Max..	33	24	32	27	32	43	43	47	33	34	31	18	15	18	22	28	27	37	36	29	33	55	38	31	34	35	24	6	29	41	45	31.6
	Min ..	12	21	18	21	10	12	24	22	27	18	16	16	- 3	- 9	-11	-11	13	17	6	3	-1	0	31	25	25	27	21	- 5	-5	6	24	11.9
Chariton	Max..	45	38	27	28	35	47	54	54	45	36	34	29	20	26	25	31	28	39	34	37	38	60	56	29	32	31	30	7	32	41	47	36.0
	Min ..	23	20	18	13	19	10	19	24	27	12	28	4	- 7	0	0	14	16	14	6	22	13	31	25	20	27	29	0	- 5	4	27	35	15.7
Charles C.	Max.	23	21	24	22	28	38	42	44	30	34	30	22	-2	-10	-12	- 3	12	13	11	-2	5	-3	24	15	19	24	15	- 5	- 9	-4	14	27	8.6
	Min ..	18	14	9	- 6	7	7	17	24	18	9	22	-2	-10	-12	- 3	12	13	11	-2	5	-3	24	15	19	24	15	- 5	- 9	-4	14	27	8.6
Clarinda	Max..	46	26	32	31	35	40	55	57	37	37	33	17	22	26	28	34	30	43	35	42	46	65	37	30	32	29	2	13	38	47	55	35.5
	Min ..	14	21	13	13	16	12	16	18	25	10	10	6	- 1	- 1	- 1	15	19	18	7	7	16	16	25	17	21	29	- 3	- 7	-6	10	29	12.4
Clear L	Max..	32	22	25	26	28	36	39	45	44	32	31	28	20	21	21	24	23	33	22	27	35	43	42	25	30	30	26	1	27	39	43	29.7
	Min ..	18	12	16	- 2	15	16	17	23	17	14	26	3	1	3	1	12	12	15	-1	12	6	21	10	12	23	26	1	-12	1	21	31	11.9
Clinton	Max..	35	29	32	27	37	41	39	42	39	33	31	29	19	17	20	30	31	37	27	31	35	52	45	36	33	35	35	11	30	42	45	33.1
	Min ..	20	20	17	14	15	9	20	24	25	21	25	15	8	- 7	- 6	6	11	14	5	14	3	24	31	28	25	28	10	- 2	1	24	30	15.1
Col. Sprgs	Max..	48	36	31	33	37	46	56	57	47	38	36	30	18	24	31	35	30	44	38	44	44	66	59	33	34	33	15	12	36	46	52	38.4
	Min ..	24	22	14	15	19	15	22	28	26	12	30	6	0	4	15	26	18	20	9	..	..	32	23	17	..	15	- 4	- 7	4	24	30	16.4
Colum. J.	Max..	41	31	32	27	35	42	44	48	42	36	33	27	8	3	- 2	- 3	16	16	14	5	21	7	21	27	26	27	30	3	- 3	3	27	36	17.0
	Min ..	23	21	23	15	20	14	23	26	29	23	27	8	3	- 2	- 3	16	16	14	5	21	7	21	27	26	27	29	3	- 2	2	30	39	17.3
Corning	Max..	43	32	29	30	30	46	56	63	44	34	34	34	31	15	21	24	32	23	40	82	39	38	62	36	29	31	31	19	9	33	42	42	34 5
	Min ..	22	20	13	9	15	11	14	21	25	8	29	2	- 5	- 2	3	20	11	16	3	26	12	32	21	16	27	18	- 5	- 8	3	26	34	14.1
Corydon	Max.	44	40	30	30	38	48	55	56	48	38	34	30	23	24	26	32	30	39	33	40	40	61	59	29	31	31	31	9	35	43	49	37.8
	Min ..	22	21	19	12	16	12	19	25	27	11	29	8	- 6	0	- 1	14	16	15	4	22	14	31	26	21	27	29	- 1	- 6	2	27	36	15.8
Cresco	Max..	25	22	24	24	26	36	37	39	34	30	29	28	16	18	14	22	23	33	25	33	29	41	43	24	29	29	29	8	20	35	41	27.9
	Min ..	17	12	17	0	16	12	16	24	15	11	25	7	- 3	-13	3	5	13	16	-1	13	1	25	19	17	22	26	6	- 8	-3	18	32	19.8
Davenpo't	Max..	37	28	32	25	34	42	42	47	38	34	32	29	21	22	25	32	30	38	30	33	38	58	57	35	31	35	35	5	32	44	48	34.5
	Min ..	26	22	23	16	20	17	25	28	28	25	26	14	6	4	4	15	19	18	7	17	11	32	33	27	26	29	3	- 4	4	28	38	18.9
Decorah	Max..	27	33	28	23	28	38	39	42	29	33	34	30	20	19	18	25	27	34	24	27	27	44	45	28	32	30	18	8	23	38	43	29.5
	Min ..	12	16	6	1	16	14	19	25	19	9	27	8	- 9	-12	- 2	8	14	21	1	12	-2	24	22	19	23	27	8	- 6	-2	19	26	12.8
Delaware	Max..	29	28	35	25	25	33	39	43	38	30	28	28	11	18	15	24	26	35	23	30	27	45	45	29	30	31	31	9	32	39	40	29.1
	Min ..	20	12	10	7	12	10	9	22	20	10	22	11	- 6	- 5	-10	4	12	16	-1	12	0	22	24	20	21	26	8	- 7	-5	19	30	11.1
Denison	Max..	36	24	27	33	32	47	57	58	48	34	35	25	17	24	28	28	23	39	32	39	43	59	55	28	31	49	14	9	34	47	53	35.7
	Min ..	20	15	16	15	19	16	16	22	17	5	25	0	- 8	- 4	- 4	20	12	17	4	25	9	32	16	14	27	14	- 5	-10	4	29	32	13.2
Des M	Max.	36	25	32	27	34	48	52	53	43	34	34	22	18	23	24	30	25	40	35	40	39	58	53	30	31	33	13	10	34	43	47	34.4
	Min ..	25	20	17	16	19	16	24	30	22	14	22	6	- 6	1	1	22	18	20	6	21	9	33	20	21	27	18	- 1	- 6	5	30	38	16.2
De Soto	Max..	36	26	30	30	36	48	54	57	41	38	34	26	16	26	26	31	32	40	27	39	40	59	55	55	31	30	26	8	32	42	48	36.1
	Min ..	23	19	13	17	19	13	20	27	23	10	26	0	-11	-14	- 5	16	15	18	4	23	9	33	19	17	27	26	- 2	- 7	4	27	37	14.4
Dows	Max..	27	21	25	27	28	43	44	50	44	32	30	28	14	19	20	22	22	34	23	35	35	46	44	25	29	29	26	7	26	39	45	30.8
	Min ..	18	14	15	2	18	12	16	22	18	8	27	2	- 9	- 6	- 3	14	12	15	-4	13	0	22	12	13	24	26	-12	..	0	20	30	11.3
Dubuque	Max..	28	24	34	27	32	41	40	42	32	34	29	29	15	11	13	27	26	36	24	33	29	53	53	30	31	34	32	8	26	38	45	30.8
	Min ..	24	18	15	10	19	16	23	29	24	19	26	15	0	-12	-10	7	18	20	9	20	8	27	30	22	26	29	8	- 3	2	26	31	16.0
Earlham	Max.	38	30	28	28	34	47	52	56	45	35	32	25	18	20	28	30	28	24	30	38	41	60	53	25	26	31	25	18	32	42	48	34.4
	Min ..	15	16	8	10	7	5	13	22	22	20	15	0	-15	-16	-12	8	12	3	-4	18	22	28	18	18	21	23	- 5	- 9	8	26	32	10.6
Elkader	Max..	27	24	32	25	34	41	40	44	35	35	32	32	29	14	20	25	27	35	24	28	33	47	45	29	30	32	31	9	25	40	48	31.4
	Min ..	15	16	3	5	14	7	9	21	23	9	26	11	-16	-19	-18	- 4	18	16	3	13	-6	12	26	20	25	29	9	- 5	-5	18	31	9.9
Esthervil.	Max..	21	17	20	30	29	40	45	56	26	35	30	10	20	19	23	23	32	34	38	30	40	49	20	27	28	28	- 2	18	36	44	56	29.6
	Min ..	12	8	6	- 8	6	17	16	18	14	8	14	-5	-10	-10	2	12	11	11	-1	0	3	20	12	9	20	26	- 6	- 9	-2	18	31	8.0
Forest C'y	Max..	21	23	21	27	23	36	42	47	28	32	26	8	2	- 4	0	8	12	8	14	-2	0	2	16	11	10	19	24	0	-10	-8	1	19	7.8
	Min ..	16	12	13	- 8	13	9	14	15	15	12	32	31	13	19	22	24	34	26	36	29	33	38	51	25	27	31	29	0	10	30	42	48	30.2
Ft. Dodge	Max..	32	25	21	29	31	40	45	53	31	32	31	13	19	22	24	34	26	36	29	33	38	51	25	27	31	29	0	10	30	42	48	30.2
	Min ..	12	16	13	16	15	16	20	20	19	10	11	0	- 5	- 5	5	11	16	11	4	4	9	10	22	14	24	27	- 1	- 6	-5	10	24	10.9
Galva	Max..	28	24	22	31	30	43	48	56	43	35	31	19	21	26	30	28	24	37	37	39	40	55	42	28	31	30	9	9	34	45	50	33.1
	Min ..	20	11	15	16	19	14	13	22	17	5	18	1	- 2	- 1	10	18	11	19	1	23	7	28	13	13	28	7	- 4	-11	0	23	31	12.4
Glenw'd	Max..	47	35	31	32	38	48	58	58	54	35	37	27	22	25	28	30	25	44	35	45	47	64	59	26	42	32	22	16	32	52	54	38.7
	Min ..	26	22	19	14	22	17	22	27	23	10	25	7	1	4	16	24	12	32	8	28	25	35	16	14	24	12	- 5	- 7	22	33	34	18.1
Grand M.	Max..	25	22	28	21	28	37	37	38	34	31	32	26	15	17	12	22	27	35	21	31	31	44	46	26	29	30	29	5	20	37	41	28.3
	Min ..	19	14	8	2	14	10	17	22	17	11	22	8	- 3	-10	-16	6	8	16	0	10	1	23	23	17	22	26	5	- 8	-5	15	31	9.8
Greene	Max..	31	22	27	25	28	40	43	47	44	34	31	29	17	18	20	23	22	33	25	26	34	42	39	26	31	30	27	4	25	38	43	29.8
	Min ..	21	15	16	1	17	12	17	23	20	9	17	-6	- 6	- 8	- 5	10	10	17	-2	15	0	23	15	15	24	27	2	- 7	-2	15	30	10.8
Greenfield	Max..	38	31	32	33	34	45	49	54	43	35	34	26	17	23	25	38	25	42	30	40	42	59	52	28	31	30	28	9	33	40	45	35.0
	Min ..	22	18	9	17	17	14	20	25	18	9	26	-2	- 6	- 1	3	18	15	15	2	22	21	29	20	15	26	23	- 4	- 9	3	18	33	14.1
Grinnell	Max..	35	27	30	28	31	43	43	48	44	34	31	30	13	18	23	27	25	37	25	32	36	55	54	30	31	32	..	9	26	37	40	32.7
	Min ..	21	18	11	6	19	18	22	27	25	13	28	6	- 3	0	2	13	12	18	4	22	11	28	19	19	25	28	..	- 5	3	25	35	13.7
Grundy C	Max..	32	25	31	28	32	45	44	48	43	34	30	29	14	18	20	24	36	25	25	35	35	50	50	27	31	31	31	7	26	39	44	31.9
	Min ..	18	16	8	3	18	19	15	21	21	10	27	4	-11	-11	- 5	10	12	7	-2	17	2	26	18	17	25	27	- 1	- 7	-3	22	31	11.1
Guthrie C	Max..	35	29	39	30	33	41	48	55	48	35	39	27	27	24	26	32	23	41	32	38	39	60	56	30	31	31	24	10	35	43	47	35.7
	Min ..	21	19	13	16	18	13	18	25	22	8	25	0	- 9	- 9	- 8	18	15	15	4	28	13	32	17	16	26	22	- 4	- 9	3	27	36	13.9
Hampton	Max.	26	23	29	29	28	43	46	51	39	34	31	24	23	20	23	24	22	35	22	36	37	47	45	25	30	30	19	7	28	40	47	31.1
	Min ..	20	15	17	1	16	13	18	24	20	12	24	3	- 4	- 6	1	10	14	14	-1	15	2	23	15	14	24	19	- 5	-10	1	24	33	11.8
Hanlontown	Max..	25	20	25	24	28	39	42	48	37	35	31	25	18	20	22	24	24	34	21	34	36	44	42	24	29	30	22	7	27	40	48	29.8
	Min ..	16	12	15	-10	12	8	11	21	15	7	23	2	- 9	- 7	2	12	10	10	-2	17	-1	18	9	12	22	19	- 4	-10	-3	20	30	9.3
Harlan	Max..	37	27	29	33	31	46	51	58	44	35	34	25	20	24	30	31	23	40	32	40	42	60	44	29	33	30	9	10	38	45	49	34.8
	Min ..	22	16	10	15	14	9	15	23	19	5	25	0	- 6	- 4	7	21	12	16	2	22	14	27	17	14	26	9	- 7	-11	-1	19	27	12.2
Hopeville	Max..	44	30	28	30	35	47	54	56	44	37	32	26	14	22	23	34	30	40	31	39	38	59	56	28	31	31	21	8	33	43	47	35.2
	Min ..	23	19	15	15	20	15	21	28	22	12	26	-2	- 8	- 1	1	18	15	19	5	27	15	28	21	18	27	21	- 3	- 7	4	27	35	15.4
Humboldt	Max..	32	22	25	30	30	44	40	54	46	31	32	30	18	25	25	30	22	36	25	40	38	50	50	26	32	30	22	10	32	40	48	32.8
	Min ..	20	15	18	10	20	15	18	24	18	8	28	0	- 8	- 4	4	16	15	18	1	22	4	25	14	14	26	20	- 2	- 6	0	20	32	13.1
Independ.	Max..	30	22	30	27	29	41	41	45	43	31	27	27	15	14	15	23	23	34	27	33	31	43	43	28	29	31	31	4	- 7	-7	15	27	10.1
	Min ..	18	15	9	4	13	7	18	24	20	9	23	8	- 6	- 8	-12	5	8	15	0	0	-3	22	21	21	24	27	4	- 7	-7	15	27	10.1
Indianola	Max.	37	31	30	27	35	40	55	57	37	37	33

DAILY MAXIMUM AND MINIMUM TEMPERATURES FOR DECEMBER, 1904—Continued.

STATIONS.		DATE.																													MEAN.
		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	
Keokuk ..	Max..	45	38	31	29	38	45	49	50	44	37	35	30	25	26	30	32	31	39	36	37	44	60	58	53	33	35	34	17	39	47	54	38.1
	Min ..	25	27	27	23	25	19	28	31	33	22	30	11	7	9	7	19	21	19	10	26	17	27	31	29	28	29	17	-1	6	32	40	21.7
Keosauqua ..	Max..	44	28	32	28	47	44	50	51	40	36	32	18	21	26	27	32	28	39	36	37	41	59	45	31	33	34	11	11	34	43	48	35.0
	Min ..	12	22	24	18	17	12	21	20	28	20	24	18	2	-1	-4	-4	21	11	9	8	8	10	17	27	28	28	10	-2	-2	11	32	14.4
Knoxville	Max..	39	31	31	28	33	46	53	53	37	37	34	30	..	25	26	31	31	41	26	37	40	60	52	32	34	31	28	8	32	43	49	34.8
	Min ..	23	20	19	16	22	14	21	29	27	15	29	6	-1	1	2	17	15	26	7	25	14	32	23	20	28	28	0	-6	5	29	38	17.5
Larrabee.	Max..	30	22	26	31	32	41	46	58	36	34	32	15	22	25	30	29	23	39	34	34	41	54	42	27	29	32	5	7	32	46	55	32.5
	Min ..	18	10	8	10	17	16	13	14	16	3	15	-1	-2	0	1	22	10	20	0	21	13	22	12	8	27	5	-5	-12	-2	22	30	10.7
Le Mars..	Max..	34	21	22	32	30	42	48	57	45	32	32	22	22	24	30	27	25	36	36	41	41	50	40	30	30	28	8	6	35	45	52	33.0
	Min ..	20	11	9	15	22	18	18	21	20	7	20	2	-5	2	14	20	10	19	2	24	24	32	14	14	10	6	-7	-12	2	21	27	12.9
Lenox....	Max..	43	33	28	31	34	45	53	55	45	34	34	31	14	20	28	33	25	39	32	38	38	61	62	29	31	31	21	8	34	42	47	35.3
	Min ..	23	19	12	13	16	12	18	25	24	9	28	0	-5	-2	5	18	17	16	2	22	17	31	22	16	27	19	-7	-10	2	27	34	14.5
Leon.....	Max..	43	38	28	29	34	44	53	53	48	34	33	30	18	21	22	31	29	35	34	38	37	59	57	29	32	31	30	7	32	40	47	35.4
	Min ..	24	21	18	15	21	15	22	30	28	14	28	6	-3	2	2	16	20	18	7	23	18	31	25	20	28	30	-1	-6	4	26	35	17.3
Lit. Sioux	Max..	38	31	26	34	33	50	55	60	46	34	37	24	24	29	29	30	25	42	38	43	47	59	50	26	32	31	7	14	39	53	55	36.8
	Min ..	24	12	15	12	14	17	17	22	19	7	18	5	-3	4	18	23	12	19	3	22	20	35	13	13	25	7	-6	-9	8	31	34	14.5
Logan....	Max..	38	30	30	34	31	48	45	56	45	35	55	24	22	27	32	33	25	42	36	43	44	56	48	27	32	36	8	15	59	49	51	36.6
	Min .	23	17	17	13	17	13	15	24	21	8	22	4	2	5	14	22	13	17	5	27	17	33	15	15	26	-6	-4	-2	4	14	32	14.2
Maquoketa ..	Max..	35	24	37	29	37	43	40	45	31	37	29	22	21	22	20	28	31	37	35	30	30	54	37	31	32	34	32	8	41	39	..	32.4
	Min .	10	18	18	11	13	7	14	20	22	19	18	17	-7	-17	-16	-15	16	11	5	5	-5	-3	27	24	24	27	30	-5	-5	-1	35	10.2
Marshlt'n	Max..	34	23	31	27	32	44	44	48	34	34	31	14	16	20	24	26	31	38	36	38	37	52	32	29	33	31	8	9	30	41	46	31.2
	Min ..	11	17	10	5	7	10	18	20	23	12	9	9	-8	-9	-9	-6	12	14	1	1	-1	4	30	18	23	26	4	-6	-6	5	27	8.7
Mason C..	Max.	28	22	25	23	28	36	40	44	40	33	31	27	18	20	20	23	23	33	20	32	34	42	40	25	29	29	25	5	25	37	42	29.0
	Min .	18	15	18	1	18	16	20	26	20	15	27	5	-2	2	3	11	13	17	3	15	8	22	15	15	23	25	0	-8	1	20	31	13.3
Massena..	Max..	41	30	31	33	34	45	50	54	45	36	31	28	17	22	27	32	32	41	32	33	39	60	57	32	31	30	18	9	34	44	49	35.4
	Min ..	23	18	12	15	18	15	18	23	19	9	26	1	-2	-1	9	21	17	18	4	6	11	31	20	19	27	16	-5	-9	3	26	33	14.1
Mt. Ver'n	Max..	32	25	34	24	34	43	42	47	35	36	30	26	21	21	26	28	27	33	15	33	28	46	58	30	30	30	28	9	27	39	45	31.5
	Min ..	20	18	19	8	15	9	20	25	25	15	25	11	-3	-2	-2	13	14	18	3	9	1	21	26	26	26	24	10	-8	-2	20	34	14.1
Mt. Ayr..	Max..	45	35	31	32	42	49	55	56	48	38	35	30	17	23	27	29	28	41	34	41	42	65	58	32	34	33	27	10	38	47	50	37.8
	Min ..	24	20	15	15	20	11	20	30	25	12	26	4	-3	2	6	19	10	16	6	23	20	30	23	18	27	23	-5	-8	1	25	34	15.8
Mt. Pl'sant	Max	42	34	32	30	37	42	45	47	42	36	33	30	28	25	25	33	32	40	35	35	37	57	57	33	32	33	32	8	31	42	46	35.7
	Min ..	21	22	24	15	19	13	21	26	27	19	28	7	0	0	0	15	16	15	5	21	10	28	27	26	26	29	3	-3	2	27	36	16.9
New H. ..	Max.	30	25	27	25	28	39	39	43	43	32	32	31	16	20	19	23	25	36	26	26	31	41	46	28	32	31	29	7	22	36	40	29.9
	Min	20	18	17	-1	14	10	16	23	13	10	25	5	-3	-1	-2	8	11	16	-2	18	0	23	18	18	23	27	5	-11	-5	16	27	11.2
Newton..	Max..	36	32	30	29	31	44	48	49	47	34	32	30	16	21	23	28	27	37	35	34	36	52	51	29	31	31	31	8	28	38	42	33.5
	Min ..	20	17	11	9	12	10	20	26	24	12	25	5	-4	-2	-2	14	12	14	2	20	8	26	20	18	25	27	-2	-7	-2	22	22	13.0
Northw'd	Max.	31	24	22	24	28	27	36	40	44	24	33	31	17	20	23	24	29	28	31	35	22	35	40	22	30	32	29	12	10	27	39	28.1
	Min ..	13	13	15	-2	5	10	18	20	15	11	20	5	-3	-2	4	8	9	16	0	8	0	15	10	18	16	27	5	-10	-10	7	20	9.1
Odebolt ..	Max.	36	24	26	32	31	45	46	57	47	35	33	25	20	24	27	24	23	38	32	39	40	45	56	40	30	30	15	6	34	46	51	34.1
	Min ..	19	14	16	17	19	18	16	22	18	6	25	1	-2	0	6	20	12	16	3	24	14	20	31	14	26	15	-4	-11	2	26	32	14.0
Ogden ..	Max.	35	25	28	28	32	47	48	53	43	33	33	33	12	23	20	23	22	39	25	33	38	58	52	26	32	30	21	8	30	42	47	32.9
	Min ..	20	17	12	14	16	23	28	25	24	13	31	5	-3	8	6	18	18	15	20	19	10	22	16	15	26	20	8	-8	-1	25	34	15.7
Olin	Max	32	29	32	29	32	41	41	44	39	31	30	30	17	19	20	28	28	37	34	33	30	52	53	32	31	33	33	10	25	37	41	32.4
	Min ..	20	18	20	9	13	8	21	24	25	16	23	14	-2	-9	-12	-11	18	12	2	15	-5	19	29	24	26	29	10	-5	-2	29	30	13.2
Omaha, N	Max..	39	25	27	33	31	49	57	57	41	37	38	19	24	27	29	29	28	42	40	43	47	61	49	27	32	31	3	15	41	52	54	36.4
	Min ..	23	19	17	20	22	22	28	33	23	19	17	7	4	9	20	23	12	20	12	32	30	35	15	16	27	3	-5	-5	11	32	36	18.6
Onawa ...	Max..	37	27	26	34	36	50	55	59	46	33	35	24	25	26	29	30	25	40	39	42	46	56	48	26	31	30	5	12	35	50	55	35.9
	Min ..	23	16	12	16	16	14	18	23	20	11	21	5	0	4	17	25	12	18	7	26	18	30	14	14	25	6	-5	-9	5	24	29	14.7
Osage.....	Max..	27	23	24	20	26	36	39	41	40	31	31	27	16	19	18	24	21	33	23	34	31	40	40	24	30	28	27	5	22	36	41	28.3
	Min ..	17	13	18	-1	15	10	9	24	15	10	26	5	-5	-3	-1	-10	12	16	0	14	1	24	18	15	23	27	4	-10	-5	15	15	10.5
Oskaloosa	Max..	42	31	29	25	34	45	51	52	43	39	34	29	20	25	25	32	29	40	27	37	40	59	57	30	32	32	31	8	31	42	46	35.4
	Min .	21	21	18	13	20	9	19	22	27	12	29	6	-3	-4	-3	14	12	15	6	23	0	20	22	21	26	29	2	-4	2	26	37	14.8
Ottumwa.	Max..	45	26	31	27	37	46	53	54	36	38	35	16	24	27	28	30	30	40	26	39	44	61	59	30	32	33	10	10	34	45	51	34.7
	Min ..	23	25	23	19	23	17	24	32	32	19	31	5	2	-1	0	23	18	19	10	26	18	38	26	26	29	31	3	-1	1	32	41	19.6
Pacific J'n	Max.	43	30	29	34	29	45	54	56	40	37	37	23	23	28	30	30	25	42	35	42	46	63	50	27	33	31	8	15	38	49	52	36.1
	Min ..	22	20	13	12	14	10	15	21	25	9	23	8	3	6	20	23	10	20	5	25	18	32	15	15	27	8	-4	-6	7	26	29	15.2
Perry.....	Max..	34	25	33	34	33	47	50	55	42	36	34	26	17	22	24	31	23	40	28	37	38	58	51	28	32	30	18	8	31	42	46	33.4
	Min ..	22	18	13	22	18	14	18	24	24	10	25	2	-10	-7	-1	18	16	16	3	28	24	32	17	16	27	16	-1	-8	1	25	34	14.5
Plover....	Max..	25	22	22	28	30	43	44	54	45	35	..	.	29	24	25	20	25	36	27	31	36	58	40	25	30	30	8	0	32	42	48	31.3
	Min ..	12	12	15	7	11	9	15	23	17	15	..	..	-4	-2	7	10	12	18	-3	12	7	14	7	10	25	8	-7	-8	-2	21	30	10.0
Pocah'tas	Max..	31	23	26	32	30	43	45	55	45	34	32	18	21	25	25	28	22	36	31	39	39	54	43	26	31	30	7	9	33	43	51	32.5
	Min ..	19	13	16	12	12	15	17	24	16	9	18	0	-3	0	5	19	14	19	9	19	10	21	12	12	26	7	-4	-8	1	25	31	12.5
Red Oak..	Max..	42	33	30	33	33	44	49	56	44	37	40	31	21	24	37	41	29	40	32	42	46	62	55	31	34	38	18	14	34	45	48	37.5
	Min ..	28	21	16	20	22	20	21	28	26	14	30	9	1	3	13	26	18	23	12	29	19	36	20	20	31	12	3	-5	11	29	35	18.9
Ridgeway	Max..	32	27	32	27	32	42	40	47	33	40	35	27	23	25	28	25	33	35	22	33	33	46	49	28	33	35	35	8	27	41	45	32.8
	Min ..	18	13	18	2	15	10	16	24	15	10	27	10	0	-5	3	7	13	16	0	15	1	28	22	18	22	28	8	-8	-5	20	31	12.6
Rock R...	Max..	25	15	25	40	38	31	36	58	40	36	30	15	49	28	32	32	37	36	45	43	45	52	24	35	22	20	-2	10	30	40	45	33.0
	Min ..	10	5	7	1	10	15	16	24	16	10	8	-1	-5	4	11	14	15	6	3	15	21	20	8	15	16	7	-7	-12	5	10	22	9.3
R. City...	Max..	35	23	28	33	32	32	46	55	43	35	33	26	18	20	28	30	30	35	28	35	35	54	35	28	33	30	20	10	34	40	50	32.7
	Min	19	14	19	22	19	22	21	25	16	10	24	-2	-5	-2	12	18	19	21	-2	14	25	23	15	13	26	19	-5	-10	2	25	25	13.6
Sac City..	Max..	30	24	25	32	31	43	45	55	52	50	..	..	..	..	..	..	..	38	34	44	39	45	64	48	32	36	18	14	32	53	50	39.8
	Min ..	19	14	17	15	19	15	19	25	18	10	..	..	..	..	..	..	..	14	3	21	13	30	14	12	22	18	-3	-10	5	28	28	15.2
St. Cha'les	Max.	37	31	30	30	41	52	55	58	46	41	33	30	17	24	32	31	37	42	31	40	49	61	57	28	31	31	28	13	34	44	50	37.5
	Min ..	23	19	11	17	20	11	22	29	25	13	29	3	-6	-2	1	13	17	17	6	26	19	32	21	18	27	26	-1	-6	7	29	38	16.3
Sheldon..	Max..	30	20	28	33	35	43	47	61	42	35	31	20	23	21	28	27	25	36	33	40	42	50	37	..	..	..	30	10	33	48	55	34.4
	Min ..	11	9	6	8	19	15	12	21	15	7	20	-1	-3	0	10	20	8	18	-1	20	12	25	9	..	..	..	10	-13	-4	20	27	10.7
Sibley	Max	21	16	23	30	32	38	46	58	27	31	27	14	25	26	25	22	32	33	38	31	41	47	18	25	27	25	0	7	33	46	54	29.6
	Min ..	6	8	6	-2	11	15	13	17	14	7	9	-4	-4	-3	8	19	10	9	-1	1	8	21	8	6	18	24	-7	-12	-11	6	24	7.2
Sioux C'r.	Max..	33	18	23	32	30	40	46	58	40	32	28	15	24	22	29	25	22	35	36	40	41	47	38	25	29	28	13	6	38	47	53	31.9
	Min ..	10	8	7	12	19	16	17	25	15	9	14	0	-3	2	11	20	8	18	0	23	14	28	6	9	25	2	-9	-13	-2	22	32	11.1
Sioux C'y.	Max..	30	22	21	35	29	44	50	60	32	32	35	17	23	23	30	27	24	39	47	46	45	53	28	24	30	29	-2	8	40	56	60	33.5
	Min .	20	11	11	18	20	20	22	29	18	11	10	4	-1	8	20	19	9	14	7	26	23	28	8	12	23	-2	-10	-10	9	26	32	14.0
Stockport	Max..	44	38	30	28	37	46	50	53	42	41	33	30	22	27	27	34	31	40	37	36	40	58	59	32	33	33	32	11	33	44	49	37.1
	Min .	21	28	24	17	21	11	23	30	29	20	29	10	1	1	-1	11	20	14	8	21	6	20	28	27	28	30	4	-1	3	30	38	17.8
Storm L..	Max.	30	24	26	30	32	42	46	56	30	32	31	17	21	20	27	25	33	35	39	35	40	54	22	27	29	22	6	14	33	45	51	31.4
	Min .	11	11	11	12	16	18	18	19	15	10	16	-1	-4	-3	6	16	9	10	1	3	15	22	14	11	20	25	-6	-13	-12	12	29	10.0
Stuart ...	Max	35	40	30	29	33	44	48	53	46	44	34	31	15	19	23	32	25	39	36	36	35	57	54	29	31	31	28	10	32	40	45	35.0
	Min	22	20	13	19	26	18	22	28	13	18	30	2	-4	-1	4	16	12	16	6	25	20	30	20	11	27	22	-1	-7	1	26	35	15.6
Thurman.	Max..	40	31	30	33	33	46	57	55	45	36	37	27	21	25	30	32	28	43	36	43	46	55	65	55	32	32	9	15	38	50	45	37.7
	Min ..	21	20	13	14	17	8	14	22	25	8	19	8	3	4	18	23	14	21	9	27	13	25	29	15	26	9	-5	-5	10	23	33	15.5
Tipton....	Max	34	29	35	28	35	42	42	46	40	36	30	29	21	20	25	30	31	36	27	33	32	54	54	33	31	34	35	7	27	40	45	38.6
	Min ..	21	20	22	12	16	10	21	27	26	20	26	9	5	4	2	12	18	16	5	19	7	28	30	27	27	29	7	-4	2	24	37	16.9
Toledo....	Max..	35	26	35	24	33	44	44	49	43	35	31	27	16	18	23	26	26	38	25	36	38	54	53	29	32	32	31	7	29	41	46	33.1
	Min ..	20	18	8	4	17	6	20	26	24	8	27	5	-8	-10	-13	13	9	12	3	20	-1	-2	19	19	25	28	-1	-6	0	23	34	11.2
Vinton. ..	Max..	34	30	27	28	33	44	45	48	42	35	35	29	19	20	22	25	25	35	30	35	32	46	50	30	30	32	33	5	25	40	46	34.2
	Min .	20	17	17	14	15	7	19	25	25	10	27	9	9	-18	-16	9	10	15	1	14	-1	23	22	22	26	28	3	-7	-4	20	34	12.5
Wapello..	Max..	43	35	32	30	37	44	45	51	..	42	33	31	24	27	29	32	33	36	35	35	35	55	56	33	31	33	33	18	30	40	48	36.0
	Min ..	24	24	21	18	21	14	24	21	..	25	28	12	4	4	9	15	16	15	9	22	6	30	31	28	28	30	7	0	5	28	36	18.5
Washi'ton	Max.	41	29	32	26	36	44	46	50	41	38	32	30	22	24	27	32	32	39	26	34	40	56	55	33	31	34	33	10	32	44	48	35.4
	Min .	22	22	20	12	19	12	23	26	27	24	28	6	0	-1	-1	15	17	18	5	19	6	29	29	26	26	30	4	-4	0	27	37	16.9
Waterloo.	Max..	34	26	34	26	34	46	45	49	45	45	32	26	20	15	20	26	31	37	34	30	35	49	32	30	32	34	32	42	25	45	45	34.1
	Min ..	21	16	10	5	12	9	20	25	22	12	26	8	-9	-14	-11	0	6	13	2	10	-2	22	20	22	25	27	1	-7	-6	15	31	10.7
Waukee..	Max.	41	26	30	30	39	51	59	56	43	36	33	30	20	27	28	32	28	39	30	38	46	58	54	36	31	30	29	11	32	47	56	37.0
	Min ..	22	18	11	16	18	13	26	22	23	11	29	2	-12	-3	0	16	18	16	4	24	14	32	18	26	28	28	-1	-8	3	27	36	15.4
Waverly..	Max..	30	23	29	24	28	41	42	45	40	33	31	28	17	18	17	24	24	35	25	34	33	47	44	28	30	31	28	8	24	38	48	30.2
	Min ..	22	15	12	4	16	10	18	28	20	10	27	6	-7	-11	-8	10	10	15	0	17	-3	23	17	16	24	28	0	-8	-7	14	30	11.2
W. Bend.	Max..	30	21	24	28	29	41	44	54	47	33	31	23	18	24	23	24	22	35	25	37	37	52	45	24	30	29	15	10	33	42	49	31.6
	Min ..	19	14	16	2	19	13	15	..	16	9	..	-1	-6	1	4	17	14	15	-2	20	8	24	12	12	24	15	-5	-8	-1	22	30	11.0
What Ch.	Max.	..	34	..	31	39	..	..	55	45	41	..	..	..	..	..	34	38	42	34	42	45	63	60	32	31	35	40	32	37	49	50	41.3
	Min ..	..	21	..	10	12	..	..	24	27	11	..	..	..	..	..	26	26	10	5	20	0	25	25	24	27	29	28	-2	5	24	28	17.1
Whitten..	Max..	30	24	30	25	29	44	43	42	43	34	31	30	14	24	21	27	26	35	27	36	36	46	45	28	32	31	28	7	28	35	41	31 4
	Min ..	18	15	8	2	15	8	17	22	22	9	28	4	-10	-7	-5	11	10	13	-2

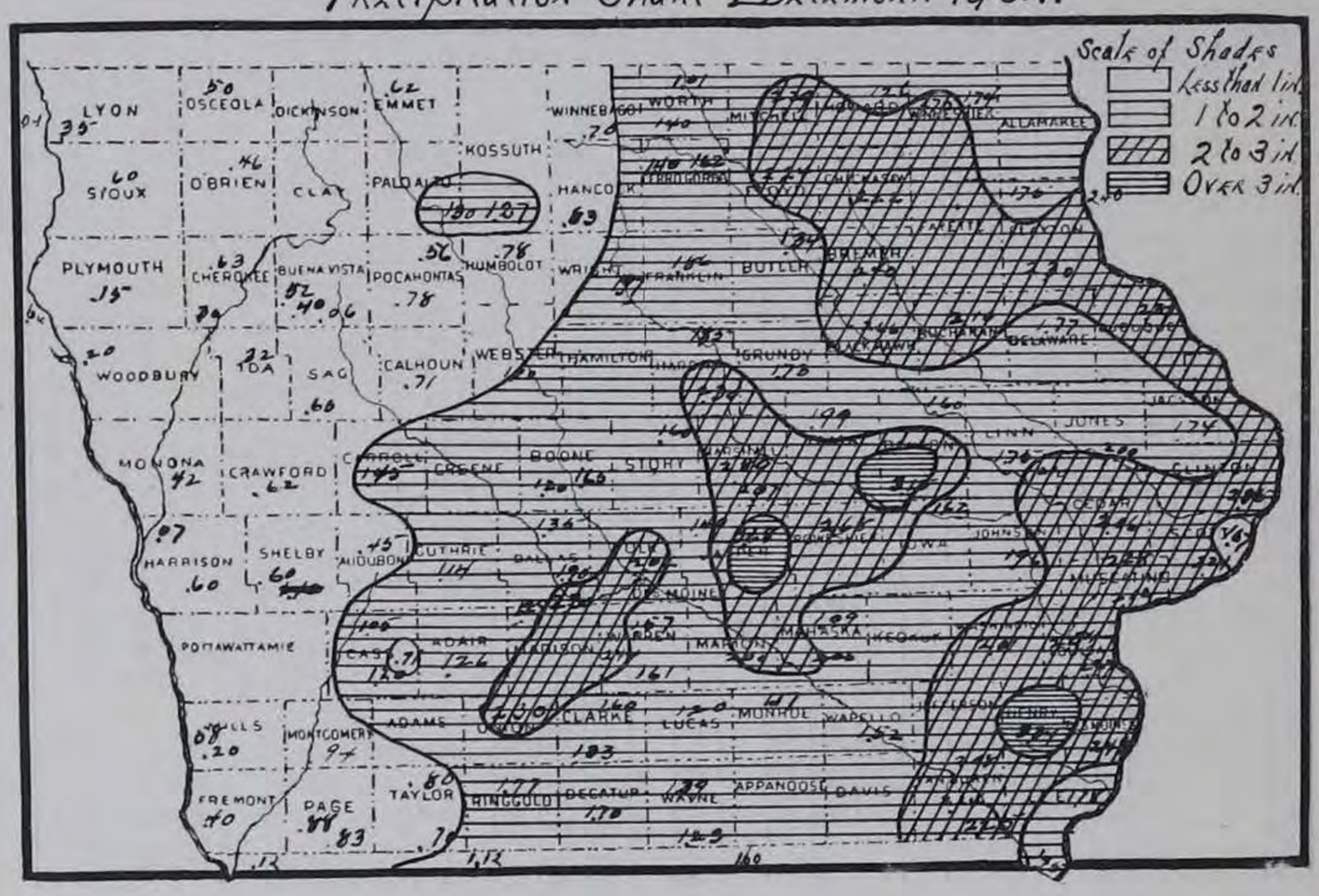
DAILY AND MONTHLY PRECIPITATION FOR DECEMBER, 1904.

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	....	..	....	....	....	....	....	....	T	....	.85	....	....	....	....	.45	...	....	...	....	....	....	...	T	....	....	1.00	....	....	....	....	2.30
Albia	....	....	...	....	....	....	..	..	....	....	....	.19		....	..	.05	19	..	....	....	....	....	....	T	T	T	.58	.16	..	....	..	1.17
Algona	T	T	....	....	....	....	....		..	T	.12	....	....	T	....	.60	..	....	....	....	....	....	....	T	T	T	.55	....	....	....	....	1.27
Allerton	....	....	....	..	....	....	....	..	..	....	.43	T	....	....	....	.18	.05	....	....	....	....		T	T	T	.07	.50	....	....	.	.	1.23
Alta	..	....	.03	....	....	....	....	....	....	....	.02	....	....	....	....	.25	T		....	....	....	....	....	.02	....	.05	.15		....	....	..	.52
Alta [near]	....	....	.05	....	....	....	....	..	....	....	T	....	....	....	....	.20	....	....	....	....	....	....	....	....	T	.05	10	....	....	....	....	.40
Amana	....	....	....	..	....	....	....		..	....	.20	....	....	....	....	.39	.20	T	....	.	....	....	....	....	T	.15	.68	....	....	....	....	1.62
Ames	.17	....	..	.02	....	..	....	....	....	..	.25	....	....	....	....	.15	....	...	....	....	....	....	....	....	...	.20	....	....	....		....	.79
Atlantic	....	....	....	..	....	....	..	....	....	....	.15	....	....	....	....	.30	....	....	.	.	....	....	..	....	....		.60	....	..		....	1.05
Audubon	....		....	..	....	....		....	.	....	.13	..	....	..	....	.17	....	....	....	....	....	..	....	....	..	T	.15	..	....	....	....	.45
Baxter	....	T	....	....	..	....	....	..	....	..	.50	....	....	..	.30	....	....	....	....	....	....	..	....	....	....	.10	.50	....		....	....	1.40
Bedford	..	....	....	....	....	....	....	....	..	....	.27		..	....	....	.10	....	....	....	....	....	....	....	T	T	.03	30	....	....	....	....	.70
Belle Plaine	....	T	....	....	....	.	....	....	..	....	.60	T	..	....	....	.70	.15	T	....	....	....	....	T	....	T	.10	1.60	....	....	....	....	3.15
Bonaparte	....	....	..	....	....	..	....		....	.	.10	..	....	.	....	.25	....		....		..	....	T	....	....	.78	1.12	....	....	....		2.25
Boone	....	T	....		....	....	....	....	..	....	.38	..	....	..	....	.43	....	T	....	....	....	....	..	....	....	T	.84	....	....		....	1.65
Britt	.08	.01	.03	T	....	....	..	....	....	....	.08	....	....	....		.45	....	.03	....	....	....		....	....	....	.02	.13	....	..	....	....	.83
Buckingham	....	T	....	....	....	....	....	..	....		.27	....	....	..	....	46	....	T	....	....	....		....	.03	....	.03	1.20	....			....	1.99
Burlington	....	....		....			....	....	....	..	.30	.03	....	....	..	.16	.08	....	....	....	....		.10	.07	...	.64	.76	.34	....	....	....	2.48
Carroll	....	....	T	....	..	....	....		....	....	.60	....	....	....	....	.45	....	T	....	....	..	....	....	....	....	..	..	.40	....	..	....	1.45
Cedar Rapids	....	T	....	....	....	....	....	....	....	....	.02	.19	....			T	41	....	....	....	....	..	....	....	T	T	.71	.42	....	....	....	1.75
Chariton		....	....					....	T	....	.45					....	....	....	....	....	....	....	....	....	T	.10	.65		..	..	....	1.20
Charles City	.14	.02	T	T	T	....	....	..	....	....	.19	T	....	.01	T	.56	.04	T	T	T	....	....	T	T	T	.04	1.20	.04	....	....	....	2.24
Clarinda	....	....	....	....	....	....	....	....	....	....	.10	.10	....	....	....	.18	....	....	....	....			....	....	T	T	.20	.30	....	....	....	.88
Clear Lake	.10	T	..	....	....	..	....	....	....	....	.10	....	..	T	....	.60	....	..	....	....	....	....	....	....	....	....	.60	....	..	..	..	1.40
Clinton	...	.01	....	....	....	....	....	....	....	..	.38	....	..	....	....	.21	....		....	....	....	....	....	....	....	....	2.25		....	....	....	2.85
College Springs	....	..	..	....	....		....	....	....	....	....	.20	....	..	....	....	.16	T	....	....	....	..		T	T	T	.47	....	....	....	....	.83
Columbus Junct'n	....	..	....	....	..	....	....	....	....	..	.50	....	....	....	....	.15	.13	....	....	....		....	T	.04	T	.47	1.20	.05	....	...	....	2.54
Corydon		....		....	....	....	....	....	T	.	.44	.03	..	....	....	....	.19		....	....			....	T	T	.06	....	.67		....		1.39
Cresco	T	T	T	..	....	....	....	....	....	....	.18	....	....	T	....	.15	.04	T	..	....	..	T	....	....	....	T	.89	....	....	....	....	1.26
Cumberland	....	....	..	.	....	....	....	....		....	.30	....	....	....	.	.40	....	....	....	....	....	..	....	....	....	....	.50	....	....	..	....	1.20
Davenport	....	T	....	....	....	....	..	....	....		.06	.01	T	....	....	.10	.10	....	T	....	....	..	T	T	T	.34	1.58	.02	....	....		2.21
Delaware	....	T	....		....	....	....	..	....		.46	..	....	....		.31	..	....	....	....	....	..	....	....	T	.10	.90	....	....	....	....	1.77
Decorah	....	.04	....	....	....	....		..	....		.30	..		T	....	.45	..	T	....	....	....	....	....	....	....		.97	....	....	....	....	1.74
Denison	..	....	....	....	....	....	....	....	....	....	.20	....	....	....	....	.20	....	....	....	....	....	....	....	....	T	.05	.17	T	....	....	....	.62
Des Moines	....	T	...	T	....	..	....	....	..	..	.40	T	....	T	....	.38	T	T	....	....	....	....	....	T	.01	.07	.98	.18	....	....		2.02
De Soto	....	T	...	..	....	..	....	....	....	....	.50		..	....		.60	....	....	....	....	....		....	....	T	T	1.20	T	....	....	....	2.30
Dows	....	T	T	..	....	....	....	....	....		.30	..		....	....	.60	.40	....	....	....	....	....	....	....	..	.07	.40	.20	....	....	....	1.97
Dubuque	T	.01	.01	....	....	....	....	....	T	T	.61	T	T	....	T	.14	.14	T	....	....	....	..	....	....	....	.02	.17	1.20	.07	....	....	....	2.37
Earlham	....	T	....	....	....	....	..	....	....	....	.35	....		....		.28	....	....	....	....	....	..	....	....	T	T	06	.60	....	....	....	....	1.29
Elkader	.03	T	...		....	....	....	...	....	....	.40	....	.	T	....	.40	....	....	....	....	..	..	....		....	....	.02	1.45	....	....		....	2.30
Estherville	....	.04	.06	.04	....	..	....	....	....	....	.06	T	....	T	T	.10	.12	..	....	....	....	....	..	....	.04	.06	.05	.05	....	....	....	.62
Forest City	....	.10	T	..	.	....	....	....	....	....	.20	....	....	....	....	....	.40	..	....	....	....	....	....	....	....	T					....	.70
Fort Dodge	....		....	....	....	....	....	....	....	....	.05	.05	..	.	20	.20	....	....	....	....	....	..	....	....	....	T	.30	.20	....	....	....	1.00
Fort Madison	....	....	..	....	....	....	....	....	....	..	....	.05	....	....	....	.35	....	....	....	....	....	....	T	....	....	....	1.38	....	....	....	....	1.78
Galva	....	....	....	....	....	....	....	....	....	....	....	T	..	....	....	.25	....	....	....	....	..	....	....	T	....	T	07	....	....	....	....	.32
Gilman	....	T	....	....		....	....		....		.40	....	....	T	....	.60	T	....	....			....	....	....	T	.07	.70	.30	....	....	....	2.07
Glenwood	....		....	....	....		....	....	....	....	T	....	....	T	..	.10	....	T		..	....	....	....	....	....	T	.10			....		.20
Grand Meadow	....	.02	....	....	....	....	....	....	....	....	33	....	....	....		.40	....	....	....	....	....	....	....	..	....	T	1.00	....	....			1.75
Greene	T	.05	....	....	....	....	....	..	....	..	.19	..	....	T	....	.40	.10	....	....	....	....	....		....	....	....	.56	.04		....	....	1 34
Greenfield	....	T		...	....	....	.	....	....	....	.22	....	..	....	....	.58	....	....	..	..		....	T	T	.01	.45	..	....		....		1 26
Grinnell		T	....	....	....	....	....	....	....	....	.72	..	....	....	....	1.08	....	....	....	....	....	....	....	T	T	T	.88	....	....	....	....		2.68
Grundy Center	....	T	....	....	....	....	....	....	....	....	.40	....	....	T		.36	.15	..	....	....	....	..	....	....	....	.02	.70	.10	...	....	....	1.73
Guthrie Center	....	T	....	....	....	....	....	....	....	....	.28	....	....		....	.32	....	..	....	....	....	....	....	....	T	.07	.41	.06	....	....		1.14
Hampton			....	....	..	....	....	....	....	.12	.05	....		....	....	.62	....	....	....	....	....	....	....	..	....	.07	1.00	....	....	....	....	1.86
Hanlontown	.20	T	T	.	...	..	...	....	....	....	.15	....	....	....	....	.45	..	....	....	....	....	....	....	T	....	....	.60	....	....		....	1.40
Harlan	....		T		....		....	....	....	....	.15	....		..	..	.18	T		....	....	....	....		T	T	T	.27	T	....	....	....	.60
Hopeville		....	....	....	....	....	....	..	T	....	.58	....	....	..	..	.14		....	....	..	..	....	...	T	....	.01	.60	....	....	....	....	1.33
Humboldt	....	....	....	....			..	....	....	....	.20	.08	....	..	..	....	.30	....	....	....	....	....		....	....	....	.20	....	....		....	.78
Independence	....	T	....	....	...	....	....	....	..	..	.60		....	T	....	....	.70	....	....	....	....	....	..	....	....	....	.80	..	....		....	2.10
Indianola	....	T	....	T	....	..	....	..	..		.55		....	....		30	....	....	....	....	....	....	....	.02		1	.50	.20	....	..	....	1.57
Inwood	T		....	....	....	....	....		....	....	T	....	....		T	.15		....	....	....	....	....	..	....	T	....	.20	..	....	....	....	.35
Iowa City	...	..		....	....	....	....	....	....	..	T	.05	....	....	....	T	.36	....	....	....	....	....	....	..	T	T	.95	.60	...	..	....		1.96
Iowa Falls	....	T	T	....	T	....			T	....	.20	.30	....	....	T	....	.70	....	T	....		..	T	....	....	T	.15	.50	...		....		1.85
Keokuk	.	....	....	....	....	....	....	....	..	....	.02	T	....	....	....	.10	.07	....	....		....	....	.02	02	T	.56	.66	T	....		..	1.45
Keosauqua	....	....	....	....	....	....	....	....	....	..	....	.11	T	...		T	.26	.	....	....	....	..		....	T	T	1.70	.17		....	...	2.24
Knoxville	....	....	....	T	....	....	...	..	....	....	.30	T	....	....	....	.40	....		....		....	....	....	T	T	.10	1.00	.20	....	....	....	2.00
Lacona	....	....	....	....	....	..	....	....	..	....	.40	....	....	....	....	.40	....	....	....	....	....		.02	.04	....	.15	.60	..	....	....		1.61
Larrabee	....	....	.03	....	....	....	....	....	....	....		....	....	....	....	.20		T	....	....	..		....	.06	.15	....	.19	..	....	....	....	.63
Logan	....	....	....	....	....	....	..	....	....	....	T	....	....	....	....	.30	....	....	....	....	....	....	....	....	....	.10	.20	....	....	....		.60
Le Claire	....	....	T	...	....	....	....	....	....	....	.01	.18	T	....	....	....	.19	....	..	T	....	....	....	....	T	.02	1.08	.19	....	....		1.67
Little Sioux	..	....	....	....	....	..	....	....	..	..	....	....	....	....	....	.07	....	....	....	....	....	....	....	....	....	T	T	....		....		.07
Le Mars	....	....	....	....	....		....	....	....	....	....	....	..	....	....	.08	....	T	....	....	....	....		T	....	.03	.04	....	....	....	..	.15
Leon	....	....	....	....	....	....	.	....	....	....	.80	..	....	....	....	.10	....	....	....	....	....	..	..	T	T	T	.80	....	....	....	....	1.70
Lenox	....	...	....	..	....	....	....	....	....	...	.30	...	..	....	....	.10		....	....	....		....		T	..		.30	.10	....	....	..	.80
Maquoketa	..	..	....		....	....	....	....	....	....	T	.30	....	....	.	..	.26	....	....	....	....	....	....	....	....	....	.93	.25	....	....	....	1.74
Marshalltown	....	....	T	....	....	....	....	....	....	..	.20	.27	....		....	.18	.49	....	..	....	....	....	....	....	T	....	.86	.64		....	....	2.59
Mason City	.12	....	T	....	....	....	. ..	....	....	....	.10	....	....	....	....	.40	....	..	....	....	....	....	....	....	....	....	1.00		....	....	....	1.62
Massena	....	....	....		....	...	....	....	....	....	.11	....	....	....	....	.40	.	....	....	....	....	....	....	....	....	T	T	.20	....	....	....		.71
Muscatine	....	..	..	....	....	....	....	..	..		....	.02	....	....	..	....	.28	....	....	....	....	....	....	..	.01	T	1.56	.25	....	....	....	2.12
Mt. Vernon	....	T	...	....	....	....	....	....	....	..	.20	....		T	....	.30	.20	T	....	....	..	....	....	....	....	.60	.80	..	..	....	....	2.10
Mount Ayr	....	....	..	....	....	....	....	....	T	....	.65	....	....	....	....	.25	....	T	....	....	....	....	....	.02	.02	.15	....	.88	..	....	....	1.97
Mt. Pleasant	....	....	....	....	....	....	..	....	....	....	.17	T	....		....	.05	.20	...		....	....	..	.07	.10	T	92	1.83	...	..	....	....	3.34
New Hampton	.05	....	....	....	....	....	....	....	....	....	.17	....	..	.10		.30	.10	....	....	....	....	....	....	....	....	....	1.00	.50	....	....	....	2.22
Newton	....	....	...	....	...	....	....	....	....	..	.35	..	....	....	....	.80	....	....	....	...	....	....	....	....	....	....	2.53	..	..	....	....	3.68
Northwood	....	T	.02	.05	....	....	....	....	....	....	.20	..	....	....	....	.02	.02	....	T	.	....	..	..	....	....	T	.70	....	...	..	....	1.01
Odebolt	...	....	T	....	....	...	....		....	....	....	....	...	T	....	.20	....	....	....	....	....	....	....	....	....	.15	.30	....	..	...	....	.65
Ogden	....	T	....	....	..	..	....	....	....	....	.40	....	....		....	.30	....	....	....	....	....	....	....	....	....	....	.50	....	....	....		1.20
Olin	....	T	....	....	....	...	....	....	....	....	.20	....	....	....	....	.30	....	....	....	....	....	....	....	....	....	1.00	.50	....	....	....	.	2.00
Omaha, Neb	....	....	....	....	..	....	....		....	....	T	....	....	T	T	.30	T	T	...	...	....	....	T	T	T	.05	.22	....	....	....	....	.57
Onawa	....		T	....	....	.	....	....	..	....	....	.02	....	....	..	.20	....	..	..	....	....	....	....	....	....	.05	.15	....	....	....		.42
Osage	.20	T	T	....	....	....	....	....	....	..	.14	....	....	T		.35	.10	....	..	....	....	....	....	....	....		1.50	..	....	....	....	2.29
Oskaloosa	....	....	....	....	....	....	....	....	....	....	.20	....	..	...	.22	.09	....	.	....		..	....	.01	....	T	.02	.46	.09		....	....	1.09
Ottumwa	....	....	....	....	....	....	....	....	....	....	.30	..	....	....	....	....	.42	....	....	....	....	....	....	....	....			.80	....	....	....	1.52
Pacific Junction	....		....	....	....	....	....	....	....	....	.02	....	....			.20	....	T	....	....	....	....	T	T	T	.02	.34	....	....	....	....	.58
Perry	....	T	...	....	....	....	....	..	....	....	.35	....	....	....	..	.40	T	....	..	....	....	..	....	....	....	T	....	.60	....	....	....	1.35
Plover	....	T	...	....	....	....	....	....	..	....		..	....	....	....	.40	....	....	....	....	....	....	....	....	....	.14	.15	....	....	....	..	.69
Pocahontas	....	....	T	....	....		....		..	....	.05	..	..	....	....	.35	T	T	....	....	....	....	....	T		....	....	.38	....	....	....	.78
Red Oak	....	....		....	....	....	....	..	....	....	.09	....	....	....	....	.20	....	T	....	T	....	..	..	....	T	T	T	....	.65		....	....	.94
Ridgeway	T	.05	T	....	...	....	....	....	....	....	.29	....	....	.01	.01	.38	....	T	....	T	....	..	..	....	....	.01	2.00	....	....	..	....	2 75
Rockwell City	....	....	..	....		....	....	....	..	....	.20	....	....	....		.40	....	....	....	....	....	....	....	....		....	.05	.06		..	....	....	.71
St. Charles	....	T	....	....	....	....	....	..	....	..	.60	....	....		....	.35	.01	....	....	....	....	....	....	.35	T	.05	1.04	.04	....		...	2 44
Sheldon	T	T	.02	.	..	.	....	....	....	....	....	....	...	T	T	.15	.02	T	....	....	....	....	....	....	....	....	.25	.02	....		....	.46
Sibley	....	T	T	T	....	....	....	....	....	....	T	..	....	T	....	.15	.05	....	T	....	..	..	..	....	....	.10	.05	.10	.05	..		....	.50
Sioux Center	....	..	.05	....	....	....	....	....	....	....	....	....	....	T	....	.30	....	T	....	....	....	....	....	.10	....	.15	....	....	....	....	....	.60
Sioux City	T	..	.02	T	....	....	....	....	....	....	....	....	....	T	T	.11	T	T	....	....	....	....	T	T	T	.03	.04	....	....	....	....	.20
Stockport	....	....		....	....	....	....	....	....	....	.14	....	....	....	..	.04	.10	....	....	....	....	....	.01	T	.01	.48	1.80	....	....	....	....	2.08
Storm Lake	....	....	T	T	....	....	....	....	....	....	T	....	....	....	..	.02	.01	T	T	....	....	....	....	....	....	T	...	.02	.01	....	....	....	.06

DAILY AND MONTHLY PRECIPITATION FOR DECEMBER, 1904--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	
Thurman	..	....	....	....	...	...	....	....	....	....	T	....	....	....	.	.10	....	T	..	...	....	..	....	T	T	T	.30	....	....	....	....	.40
Tipton	....	....	....	....	....	....	....	..	..	..	.20	....	....	....	....	.45	.20	....	....	....	..	....		....	....	.83	.38		..	....	..	2.06
Vinton	.	....	....	....	..	....	....	....	....	.	.40		..	..	....	.40	.30	....	....	....	....	....	....		....	....		.50	....	..	....	1.60
Wapello	....		....	....			....	....	..	....	.14	....	....	..	....	.25	.19	....		....				..	..	.69	1.00	..	....		..	2.27
Washington	..		....	....	....	....	..	....	....	..	.18	....	....	....	....	.38	....	....	....	....	....	....	....	T	....	....	1.45	....	....	....	....	2.01
Washta	..	T	T	.	....	....	....	....	....		T	....	....	T	....	.20	....	T	....	....	....	..	....	....	T	....	.10	..	....	..	..	.30
Waterloo	....	.01		...	....	....	....	....	....	....	.51	....	....	..	....	.55	..	....	....	....	....	....	....	....	....	....	1.50	.09	....	....	....	2.66
Waukee	....	T		....	..	..	....	....	.	....	.60	....	....	..	....	.50	....	T	....	..	....	....	T	.05	..	.15	60	..	....	....	....	1.90
Waverly	T	.02	....	....	....	....	....	....	....	.80	T	....		.01	....	.75	.05	....	..	..	....	....	....	.	....	27	1.00	....	..	..	....	2.40
Whitten	....	T	....			....	....	....		....	.50	..	..	....	..	.50	.10	T	.	....	....	....	....	....	T	T	1.20	T	....	....		2.30
Wilton Junction	..		...		....	....	....	....		...	.30	....	....	....	....	.55	....	....	..	....	....	....	....	....	T	....	1.43	....		..	....	2.28
West Bend	....	T	.05	....	....	....	....	....	....	....	.20	....	....	....	....	.50	T	T	....	..	....	....	T	T	....	.30	.25	....	....	..	....	1.30
Woodburn		..	....	....	....	..		....	T	....	.55	....	..	..	....	.15	....	....	....	....	....	....	..	T	....	T	.80	....	....	....	....	1.50
Zearing	T	....	..	..		....	....	....	....	....	.23	....	....	....	..	.42	....	T	....	....	....	....	....	....	....	.15	.80	..	..	....	..	1.60

Precipitation Chart December 1904.



APPENDIX.

ANNUAL SUMMARY, 1904.

CLIMATOLOGY OF THE YEAR 1904.

BAROMETER.—The mean pressure for the year was 30.04 inches. The highest observed pressure was 30.85 inches on February 10th, at Sioux City; lowest pressure, 29.09 inches on December 27th, at Dubuque. Range for the state 1.76 inches.

TEMPERATURE.—The mean temperature for the state was 46.8, which is 0.4 below normal. The highest temperature reported was 100° on July 17th, at Marshalltown. The lowest temperature reported was 32° below zero on January 27th, at Elkader and Fayette. Range for the year 132°.

PRECIPITATION.—The average amount of rain and melted snow for the year, as shown by complete records of 96 stations, was 28.74 inches, which is 2.68 inches below the normal, and 6.92 inches below the average amount in 1903. The greatest amount recorded at any station for the year was 38.93 inches, at Keokuk. Least amount recorded 19.34 inches, at Vinton. The greatest monthly rainfall was 11.97 inches, at Thurman in July; least monthly amount, none, at Rockwell City, in November. The greatest amount in any 24 consecutive hours was 7.73 inches, at De Soto, July 19th. The average number of days on which .01 of an inch or more of rain fell was 75.

WIND AND WEATHER.—The prevailing direction of wind was northwest. Highest velocity reported, 68 miles an hour, in Sioux City, from the northwest on March 2d. Average daily movement, 216 miles. There were 164 clear days, 97 partly cloudy, and 105 cloudy days; as against 156 clear days, 100 partly cloudy, and 109 cloudy days in 1903.

CLIMATE AND CROP REVIEW—1904.

The year 1904 was cooler than usual, the mean temperature being 46.8° which is 0.4° below normal. The average precipitation was 28.74 inches, which is 2.68 below normal.

The winter was colder than usual. In January the average daily temperature was 14°, which is 4.2° below the state normal. The lowest temperature recorded was 32° below zero, on January 27th, at Elkader and Fayette. In February the mean temperature was 4.8° below normal, and the lowest was 26° below zero on the 1st. The soil was frozen to an unusual depth. March brought moderate temperature, but the prevalence of cloudiness prevented rapid thawing of the soil, and the ground was generally too wet for seeding operations.

April was abnormally cold, the records of 115 stations showing a daily deficiency of 5.2° in temperature. The average rainfall was 3.63 inches, which is an excess of .74 of an inch above the April average. There were some dry periods, however, with sufficient sunshine to afford ample opportunity for seeding and preparing the ground for planting corn. Seeding of spring wheat, oats and barley begun generally from the 1st to the 4th, and that work was practically completed in the larger part of the state about the 20th or 23d. Germination of seed was unusually slow, but at the close of April there were indications of a good stand, except on low, wet fields. Fruit buds appeared healthy and promising, but there were only a few blossoms visible prior to the 1st of May. The pastures and meadows were unusually late in starting, and there was but little grass for stock at the end of the month. On the whole, though the growth of vegetation was much belated, the month was more favorable than the corresponding month in 1903.

May was nearly normal, the daily mean temperature showing a deficiency of only 0.8°. The average rainfall, 3.78 inches, was .35 of an inch below the May normal. In portions of the west central district, and in some of the southern counties, there were some heavy downpours, which caused much delay in planting, the great excess of moisture being due in large part to the saturated condition of the subsoil, resulting from abnormal rainfall in the preceding season. On the whole it was a favorable month, with sufficient warmth and moisture for grass and small grain, and general conditions favorable for farm work and the germination of the better qualities of seed. Except in quite limited areas, the corn crop was planted about as early as usual, and the soil was in very good condition. The month was especially favorable for the growth of grass in meadows and pastures, and for the small grain crops on well drained lands. The hay crop was well assured; oats and spring wheat stooled out fairly well, potatoes made a fine start; garden truck was well advanced at close of the month, and the fruits promised a better yield than has been produced in recent years.

June was cooler than usual, with less than the normal amount of rainfall, and a large percentage of cloudiness in portions of the state. The daily average temperature was 2.5 degrees below normal. The precipitation was quite unequally distributed; the nothern section receiving an average of 4.53 inches, the central section 2.74, and the southern section 3.08 inches. The week ending June 6th brought excessive rains in all parts of the state, except portions of the east central district. The wet and cloudy weather of that week caused much delay in the cultivation of corn, and in large portions of the state the fields became weedy and the growth of corn was considerably retarded by cold nights and wet, cloudy weather. The second week was generally very favorable for field work and the growth of crops, the days being bright and warm with ideal conditions for cleaning out the corn fields. The week ending the 20th was also favorable, though the temperature was below normal. There was but little interruption of work, and fair progress was noted in the growth of all crops. From the 20th to the close of the month the temperature was abnormally low and there was more than usual cloudiness in the larger part of the state. Despite all drawbacks, however, the corn crop advanced steadily, and at the close of the month the fields were generally clean and the stand was but little below the average of the past fifteen years. The month as a whole was favorable especially to small grain, which headed out about the usual time, though short in straw. The hay crop was well advanced and fairly good, especially in quality. Potatoes and garden vegetables were usually promising.

July was unseasonably cool, the mean temperature being 3.6° below normal. The warmest period was the second decade. The average rainfall for the state, 4.41 inches, was .18 of an inch above normal. The northern section received an average of

3.77 inches; central section 4.47; southern section 5 00 inches. Rain in measurable quantity fell at one or more stations every day during the month. And yet the average number of clear days was 16, partly cloudy, 9, and cloudy, 6. Generally there was sufficient sunshine to promote plant growth. The days were warm, and nights unusually cool. The heaviest storm of the month, in respect to rainfall, occurred on the night of the 19th, but the excessive downpour was limited to a few counties. On the whole the month was favorable for crops and field work. Corn was laid by from the 4th to the 15th,—about a week later than usual. During the showery period in the early half of the month spring wheat and oats were attacked by rust. The wheat crop was damaged seriously, but oats were not very badly injured. The latter half of the month was favorable for harvest operations and most of the small grain was in shock or stack before August 1st. Haying progressed quite favorably and though the yield was lighter than the average the quality was superior, and most of it was secured in good order. Corn made notably fine progress, despite the cool weather, and at the close of the month that crop was much more advanced than was deemed possible earlier in the season. Potatoes, garden truck, apples, small fruit and all minor crops made normal advancement.

The average temperature of August, 1904, was exactly the same as August, 1903, 1902 and 1891. The mean temperature was 2.7° below the August normal. In the southern section it was 67.3°; central section, 69.2°; southern section, 70.7°. The month was mostly clear and warm by day, though unseasonably cool at night. The average rainfall was normal for the state, but in its distribution the larger amount was received in the south and eastern districts, where it was most needed. The bulk of the rainfall came about the 17th to 21st and the 29th. There were, on the average, 17 clear days, 8 partly cloudy, and 6 cloudy, affording an ample amount of fair weather for harvesting, stacking, threshing, cutting wild hay, millet, etc., and fall plowing. In all these farm operations very good progress was made The pastures were revived and made green as in June by the copious showers in the latter half of the month. The corn crop made fair advancement during the month, though in view of its belated condition its progress was not as rapid as seemed desirable. The most advanced portion of the crop was well filled and dented at the close of the month. Reports at that time indicated that about one-third of the crop, with favorable conditions, would be mature by September 20th, while the balance required abundant warmth and sunshine until October 1st to be safe from harm by killing frost. The crop was unusually rank, green and heavily eared. The minor crops were in good condition. Potatoes made heavy yield, and early apples were especially good and abundant. The yield of tomatoes and green corn for canning has been better than usual. Garden truck, cucumbers for pickling and melons yielded abundantly.

The average temperature of September was about normal for the state, the southern and central sections showing an excess, and the northern section a small deficiency. The coldest period was from about the 11th to the 22d. The average rainfall for the state was 2.78 inches, which amount is about 0.52 of an inch below the normal for September. In its distribution there was much inequality, ranging from less than a tenth of an inch at one station in the northwest to over eight inches in the southeast district. The southeast and northeast districts received the heaviest rainfall. The week ending September 12th was normal in temperature and sunshine, with very light rainfall, and generally favorable conditions for ripening the belated corn crop, a considerable portion of which was well dented, with husks and blades putting on the brown shade of autumn. The week ending the 19th brought several days of good ripening weather, but much anxiety for the safety of the immature portion of the corn crop was caused by the occurrence of light to heavy frosts on the mornings of the 12th, 14th and 15th, the cold wave extending to all districts in the state. A few stations also reported frost on the 21st. The lowest temperature recorded was 30° at four stations. The observed effects proved that the frosts were not "killing," and that the damage to the corn crop was limited to late planted fields in the bottom lands of the central valleys of the state. Broadly stated, the actual damage by frost affected less than one-fourth of the area planted, and the shrinkage of the frosted portion of the crop was probably less than 20 per cent. This would indicate possible loss of 5 per cent of the crop for the state, as the direct result of frost. The cold weather of that period, however, retarded the development of the crop, and made it desirable to extend the ripening weather beyond the 1st of October. During the month good progress was made in the usual farm operations, such as plowing, seeding fall wheat and rye, harvesting potatoes, apples and millet, and threshing small grain. The yield of potatoes, and fall apples has been very satisfactory. The grape crop was heavy, and there has been a good yield of plums. The growth of all kinds of garden truck has been unusually heavy. The pastures have been much better than usual for September. At the close of the month it was estimated that ninety per cent of the corn crop was practically safe.

October was warmer and drier than usual, the daily mean temperature being about 1° above normal, and the average rainfall of the state was 0.73 of inch below normal. The northern section received the largest amount, the average being about 0.29 of an inch above the October normal. The first frost of the month occurred on the morning of the 6th, and was heavy enough to kill vines and most of the cornstalks remaining green in the northern half of the state. In the southern half the frost was light, causing no damage. The first general killing frost covering the state occurred on the morning of the 23d, all crops being safe at that time. The bulk of the rainfall came in the first and second decades—mainly between the 5th and 20th, the balance of the month being dry and favorable for farm work, for drying out the corn crops and harvesting the minor crops. No better weather could be desired for preparing corn for cribbing than was prevalent from the 20th to the 31st. Good progress was made in harvesting the corn during the last week though the heavier ears contained considerable moisture. But the weather was cool by night, though moderate and clear by day. The heavy potato crop was harvested in good condition, the quality of the product being unusually good. Pastures were very good throughout the month. Good progress was made in fall plowing. The small acreage in fall wheat and rye showed an excellent growth and good stand. On the whole, October was a very mild and favorable month, crowning a fairly productive crop season.

The month was unusually warm and the driest November on record for the state. The mean temperature, as shown by records of 110 stations, was 41.0°, which is 6.3° above normal. The average in 1902 was .2 of a degree higher and 2.9° higher in 1899. The average precipitation for the state at 119 stations was .15 of an inch, which is 1.25 inches below normal. Nine stations reported no rain in measurable amount. Practically all the precipitation fell on the 9th and 10th, and the average number of clear days was twenty. The conditions were ideal for husking corn and drying out the surplus moisture. At the close of the month the bulk of the crop was harvested. Conditions were also favorable for fall plowing and general farm work of the late autumn period. The pasturage was better than usual, though the fields were brown. Winter wheat and rye suffered some damage for want of moisture.

The first decade of December brought continued fine weather with favorable conditions for gathering the corn and cribbing

the entire crop. The season as a whole was favorable for the production of a fair output of the staple crops. Though germination and growth were belated, the warmth and dryness of the autumn brought ample compensation to the patient and faithful tillers of the soil.

ERRATA IN ANNUAL SUMMARY, 1903.

BAXTER.—Annual temperature on page 16, omitted, should have been 47.6°.

BEDFORD.—Annual temperature on page 16, omitted, should have been 48.8°.

BELLE PLAINE.—Dec.—Mean temperature recorded 16 4° on page 6, should have been 16.5°.

CHARITON.—Dec.—Mean temperature recorded 22.4° on pages 7 and 21, should have been 22.3°.

CHARLES CITY.—Feb.—Mean temperature recorded 18.8° on page 21, should have been 19.8°.

COLUMBUS JUNCTION.—Dec.— Mean temperature recorded 21.5° on pages 7 and 21, should have been 21.6°.

CORNING.—Dec.—Mean temperature recorded 23.2° on pages 7 and 21, should have been 23.4°.

DECORAH.—Annual mean temperature recorded 44 7° on page 21, should have been 44.9°.

EARLHAM.—May.—Mean temperature recorded 60.6 on page 21, should have been 60.0°.

Mean temperature for December, and annual mean temperature recorded 21.5° and 46 7°, respectively, on pages 7 and 21, should have been 21.2° and 46.6°.

FOREST CITY—Dec.—Mean temperature recorded 13.8° on pages 6 and 11, should have been 13.9°.

GALVA.—Dec.—Mean temperature recorded 19.° on pages 6 and 21, should have been 19.1°.

GRINNELL (near).—Dec.—Mean temperature recorded 19.6° on pages 6 and 21, should have been 19.1°.

GRUNDY CENTER.—Mean temperature for June and annual mean temperature recorded 60.6° and 47.3° on page 21, should have been 63.6° and 46.4°, respectively.

HAMPTON.—Sept.—Mean temperature recorded 61.05° on page 21, should have been 61.4°.

INDEPENDENCE.—March.—Mean temperature recorded 37.6° on page 21, should have been 37.4°.

MOUNT VERNON.—Annual mean temperature recorded 47.4° on page 21, should have been 47.5°.

ONAWA.—Dec —Mean temperature recorded 26.4° on pages 6 and 21, should have been 24.0°.

Annual mean temperature recorded 49.3° on page 21, should have been 49.1°.

OSKALOOSA.—Dec.—Mean temperature recorded 20.2° on pages 7 and 21, should have been 19 9°.

Annual temperature recorded 48.5° on page 21, should have been 48.4°.

OTTUMWA.—Nov.—Mean temperature on page 21, omitted, should have been 37.7°.

Dec.—Mean temperature recorded 25.0° on pages 7 and 21, should have been 24.5°.

PACIFIC JUNCTION.—Annual temperature recorded 49.5° on page 21, should have been 49.1°.

PRIMGHAR.—Dec.—Mean temperature recorded 16.7° on pages 6 and 21, should have been 17.0°.

RIDGEWAY.—Dec.—Mean temperature recorded 16.3 on page 6 and 21, should have been 16.2°.

KEOSAUQUA.—June.—Mean temperature recorded 65.0° on page 21, should have been 65.1°.

LE MARS.—Dec.—Mean temperature recorded 19.8° on page 6 and 18.8° on page 21, should have been 20.2°.

Annual temperature recorded 45.7° on page 21, should have been 45 6°.

Dec.—Minimum temperature on 3d, page 9, recorded -5 should have been 15°.

Dec.—Mean minimum temperature recorded 8.8° on page 9, should have been 9.5°.

LEON.—June.—Mean temperature recorded 64.2° on page 21, should have been 66.2°.

Annual temperature recorded 49.7° on page 21, should have been 49.9°

RUTHVEN.—Sept.—Mean temperature recorded 60.6° on page 21, should have been 60.0°.

VILLISCA.—March.—Mean temperature recorded 40.6° on page 22, should have been 40.2°

WATERLOO.—Annual temperature recorded 46.7° on page 22, should have been 46.6°.

WHITTEN.—Dec.—Mean temperature recorded 17.4° on pages 6 and 22, should have been 17.8°.

BELLE PLAINE.—March.—Total precipitation recorded 2.00 inches on page 23 should have been 2.10 inches.

Annual precipitation recorded 34.33 inches on pages 16 and 23, should have been 34.43 inches.

CLEAR LAKE.—Annual precipitation omited, page 23, should have been 36.18 inches.

GRINNELL (near)—Total precipitation for July recorded 3.97 inches on page 23, should have been 3.79 inches.

IDA GROVE.—July.—Total precipitation recorded 4.41 inches on page 23, should have been 4.31 inches.

LEON—Dec.—Total precipitation on page 23, omitted, should have been .60 inch.

Annual precipitation on pages 16 and 23, omitted, should have been 34.30 inches.

OLIN.—Dec.—Total precipitation recorded .99 inch on pages 6, 10 and 23, should have been 1.09 inches.

Annual precipitation recorded 35 53 inches on pages 17 and 23, should have been 35.63 inches.

OSKALOOSA.—Dec.—Total precipitation recorded .32 inches on pages 7, 10 and 23, should have been .34 inch.

Annual precipitation recorded 28.01 inches on pages 17 and 23, should have been 28.03 inches.

OTTUMWA.—Dec.—Total precipitation on pages 7 and 23, omitted, should have been .81 inch.

RUTHVEN.—Nov.—Total precipitation on page 24, omitted, should have been Trace.

SAC CITY.—Nov.—Total precipitation on page 24, recorded .16 inch, should have been .26 inch.

Annual precipitation recorded 36.24 inches on pages 17 and 24, should have been 36.34 inches.

DATES OF LAST AND FIRST KILLING FROST, 1904.

	Last in spring.	First in autumn.
Afton	April 21	.....
Albia	April 26	Oct. 6
Algona	April 27	Oct. 6
Allerton	April 21	Oct. 23
Alta	April 26	Oct. 6
Amana	April 21	Oct. 6
Ames	April 21	Oct. 6
Atlantic	April 28	Sept. 14
Audubon	May 15	Sept. 15
Baxter	April 27	Oct. 6
Bedford	April 27	Oct. 22
Belknap	April 21	.....
Belle Plaine	April 27	Oct. 23
Bonaparte	April 21	Oct. 23
Britt	May 15	Oct. 6
Burlington	April 21	Oct. 23

Carroll	May	14	Oct. 6	Logan	May	10	Oct. 21
Cedar Rapids	April	22	Oct. 23	Maquoketa	May	15	Sept. 15
Chariton	April	21	Oct. 23	Marshalltown	April	27	Oct. 6
Charles City	May	15	Oct. 6	Mason City	April	21	Oct. 6
Clarinda	April	27	Oct. 22	Mt. Ayr	April	21	Oct. 23
Clear Lake	April	26	Oct. 6	Mt. Pleasant	April	21	Oct. 23
Clinton	April	21	Oct. 14	Mt. Vernon	April	21	Oct. 6
College Springs	April	21	Oct. 22	New Hampton	May	15	Sept. 15
Columbus Junction	April	25	Oct. 23	Newton	April	21	.....
Corning	April	27	Oct. 23	Northwood	April	27	Oct. 23
Corydon	April	21	Oct. 6	Odebolt	May	14	Oct. 6
Cresco	May	15	Oct. 6	Odgen	May	14	Oct. 6
Davenport	April	21	Oct. 23	Olin	April	21	Oct. 23
Decorah	May	15	Oct. 6	Onawa	April	27	Oct. 23
Delaware	May	15	Oct. 6	Osage	May	15	Oct. 6
Denison	April	28	Oct. 6	Osceola	May	14	Oct. 23
Des M ines	April	21	Oct. 23	Oskaloosa	April	21	Oct. 23
Dows	May	15	Oct. 6	Ottumwa	April	21	.....
Dubuque	April	21	Oct. 27	Pacific Junction	May	14	Oct. 22
Earlham	May	15	Oct. 6	Perry	April	27	Oct. 6
Elkader	May	15	Sept. 15	Plover	April	27	Oct. 6
Estherville	May	15	Oct. 6	Primghar	May	14	.....
Fayette	May	15	.....	Red Oak	April	19	Oct. 23
Forest City	May	10	Oct. 6	Ridgeway	April	27	Oct. 6
Fort Madison			Oct. 27	Rock Rapids	April	27	Oct. 6
Fort Dodge	April	28	Oct. 6	Rockwell City	April	21	Oct. 6
Galva	May	14	Oct. 6	Sac City	April	26	Oct. 6
Glenwood	April	20	Oct. 23	St. Charles	April	21	Oct. 23
Grand Meadow	May	15	Oct. 6	Sibley	April	28	Sept. 21
Greenfield	April	21	Oct. 22	Sigourney	April	21	Oct. 23
Grinnell	April	21	Oct. 23	Sioux City	April	26	Oct. 23
Grundy Center	April	21	Oct. 6	Spirit Lake	April	26	Oct. 3
Guthrie Center	April	28	Oct. 23	Stockport			Oct. 23
Hampton	April	27	Oct. 6	Storm Lake	April	27	Oct. 6
Hanlontown	May	15	Sept. 15	Stuart	April	8	Oct. 23
Harlan	April	28	Oct. 22	Thurman	April	27	Oct. 22
Hopeville	April	21	Oct. 23	Tipton	April	21	Oct. 23
Humboldt	April	28	Oct. 6	Toledo	April	27	Oct. 6
Independence	May	15	Sept. 15	Villisca	April	27	.....
Indianola	April	21	Oct. 23	Vinton	April	27	Oct. 6
Inwood	April	26	Oct. 5	Wapello	April	21	Oct. 23
Iowa City	April	26	Oct. 23	Washington	April	21	Oct. 23
Iowa Falls	May	15	Sept. 15	Waterloo	April	27	Oct. 6
Jefferson	April	29	.....	Waukee	April	21	Oct. 6
Keokuk	April	21	Oct. 27	Waverly	May	15	Oct. 6
Keosauqua	April	22	Oct. 23	West Bend	April	27	Oct. 6
Knoxville	April	21	.....	Whitten	April	21	Oct. 23
Larrabee	May	14	Oct. 6	Wilton Junction	April	21	Oct. 23
Lemars	April	27	Oct. 6	Winterset	April	27	Oct. 6
Lenox	April	31	Oct. 22	Zearing	April	21	.....
Leon	April	21	Oct. 22				

CLIMATOLOGICAL DATA FOR YEAR ENDING 1904.

STATIONS	COUNTIES	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.					PRECIPITATION, IN INCHES.						SKY.					Prevailing direction of wind.	Last killing frost in spring.	First killing frost in autumn.
				Annual mean.	Highest.	Date.	Lowest.	Date.	Length of record, years	Total, for 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	10	....	94	July 18	-18	Jan. 25	11		5.61	Apr.	T	Nov.	....	....		....	..	SW	Apr. 21	.....
Albia	Monroe	957	...	47.0	92	July 16	-19	Jan. 25	7	30.75	5.55	Sept.	.08	Nov.	....	79	..	....	..	NW	Apr. 26	Oct. 6
Algona	Kossuth	1,213	29	43.8	90	July 16	-28	Jan. 24	32	22.76	3.75	July	.28	Feb	23.5	71	....	....	..	NW	Apr. 27	Oct. 6
Allerton	Wayne	.....	....	48.6	95	Aug. 13	-21	Jan. 29	.....	.....	.....	.....	.06	Nov	29.2	....	.....	.....	..	NW	Apr. 21	Oct. 23
Alta	Ruena Vista	1,513	12	44.1	92	July 16	-26	Jan. 25	14	29.59	6.39	May	.31	Nov	18.6	93	150	142	74	S	Apr. 26	Oct. 6
Alta (near)	Buena Vista	.....	....	....	....	....	....	.....	.....	29.52	6.34	May	.10	Nov	....	73	....	....	..	.....	.....	.....
Amana	Iowa	721	26	46.7	93	July 17	-18	Jan. 25	29	28.02	6.64	July	.19	Nov	34.3	88	155	129	82	NW	Apr. 21	Oct. 6
Ames	Story	926	21	46.4	94	July 18	-24	Jan. 26	27	25.58	4.19	Apr.	.02	Nov	20.5	83	216	80	70	NW	Apr. 21	Oct. 6
Atlantic	Cass	1,164	12	47.1	94	Aug. 14	-31	Jan. 29	14	31.03	5.47	July	.08	Nov	22.6	64	....	....	....	S	Apr. 28	Sept. 14
Audubon	Audubon	.....	....	45.9	93	July 17	-23	Jan. 29	..	24.92	4.98	July	.15	Feb	20.1	83	168	74	124	NW	May 15	Sept. 15
Baxter	Jasper	998	....	46.4	92	July 16	-21	Jan. 24	..	27.51	6.70	July	.08	Nov	21.4	67	162	86	118	NW	Apr. 27	Oct. 6
Bedford	Taylor	.....	..	48.3	94	Aug. 14	-23	Jan. 29	....	38.00	6.39	Aug	.08	Nov	16.2	80	174	62	130	SE	Apr. 27	Oct. 22
Belknap	Davis	877	8	....	91	Aug. 13	....	.....	.....	.....	5.61	Sept	.....	.....	.....	.....	.....	.....	.....	.....	Apr. 21	.....
Belle Plaine	Benton	828	13	45.4	93	July 16	-22	Jan. 26	15	30.24	3.99	July	20	Nov	68.6	87	123	154	89	SE	Apr. 27	Oct. 23
Bonaparte	Van Buren	.....	11	48.1	93	July 30	-21	Jan. 3	13	35.96	6.73	Sept	.14	Oct	17.5	65	....	....	.....	.....	Apr. 21	Oct. 23
Britt	Hancock	1,236	6	43.6	91	July 16	-28	Jan. 24	8	27.06	4.74	July	.26	Nov	21.5	108	81	205	80	NW	May 15	Oct. 6
Buckingham	Tama	.....	.....	.....	.....	.....	.....	.....	5	22.62	3.70	July	.18	Nov	38.9	68	.....	.....	.....	.....	.....	.....
Burlington	Des Moines	544	7	49.6	93	July 17	-15	Jan. 26	9	35.81	6.08	Aug	.13	Nov	....	103	193	72	101	NW	Apr. 21	Oct. 23
Carroll	Carroll	1,265	13	45.8	93	July 17	-25	Jan. 25	15	26.83	5.61	June	.18	Nov	32.0	82	190	48	128	.....	May 14	Oct. 6
Cedar Rapids	Linn	733	20	46.4	98	July 16	-19	Jan. 25	22	28.10	5.62	July	.09	Nov	....	72	137	137	92	NE	Apr. 22	Oct. 23
Chariton	Page	1,043	8	47.8	91	Aug. 14	-20	Jan. 26	10	29.03	5.14	July	T	Nov	....	52	167	108	91	SE	Apr. 21	Oct. 23
Charles City	Floyd	1,012	12	42.6	93	July 18	-31	Jan. 27	14	29.08	6.96	June	.25	Nov	38.7	81	167	49	150	E, W	May 15	Oct. 6
Clarinda	Page	1,069	13	47.9	95	July 17	-17	Jan. 29	15	34.48	7.28	July	.09	Nov	27.3	97	180	59	127	NW	Apr. 27	Oct. 22
Clear Lake	Cerro Gordo	1,241	....	44.7	92	July 16	-30	Jan. 24	6	24.42	5.30	June	.25	Nov	30.2	62	....	....	....	NW	Apr. 26	Oct. 6
Clinton	Clinton	609	35	46.7	95	July 16	-17	Jan. 3	37	30.10	5.86	Aug	.10	Nov	34.8	85	137	111	118	.....	A r. 21	Oct. 14
College Springs	Page	.....	11	49.8	98	July 10	-15	Jan. 25	13	.....	6.88	July	.....	.....	.....	.....	.....	.....	.....	.....	Apr. 21	Oct. 22
Columbus Jct.	Louisa	595	3	47.8	92	July 16	-14	Jan. 3	4	32.69	5.72	Aug	.16	Nov	21.6	87	218	103	45	NW	Apr. 25	Oct. 23
Corning	Adams	1,127	11	....	90	July 18 / Aug. 14	-24	Jan. 29	12	.....	6.31	July	.....	.....	.....	.....	.....	.....	.....	NW	Apr. 27	Oct. 23
Corydon	Wayne	992	10	48.6	93	Aug. 13	-23	Jan. 29	12	27.54	5.25	July	.05	Nov	27.7	79	178	87	106	NW	Apr. 21	Oct. 6
Cresco	Howard	....	....	....	90	May 23 / Aug. 24	-29	Jan. 24	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	NW	May 15	Oct. 6
Cumberland	Cass	.....	.....	.....	.....	.....	.....	.....	.....	29.14	4.71	July	T	Nov	29.0	53	235	39	92	SW	.....	.....
Davenport	Scott	606	32	48.1	92	July 16	-18	Jan. 25	14	27.05	3.98	Sept.	.18	Nov	25.4	94	139	114	113	SW	Apr. 21	Oct 23
Decorah	Winneshiek	875	9	43.9	92	July 16	-31	Jan. 27	11	29.38	5.44	Sept.	.95	Nov	38.0	61	....	....	....	.....	May 15	Oct. 6
Delaware	Delaware	1,083	12	44.1	92	July 17	-25	Jan. 25	14	24.74	3.42	May	.09	Nov	37.3	84	154	146	66	NW	May 15	Oct. 6
Denison	Crawford	1,180	9	46.6	92	July 16 / Aug. 24	-23	Jan. 26	10	21.28	4.02	June	.15	Nov	....	85	...	....	...	N, S	Apr. 28	Oct. 6
Des Moines	Polk	861	26	47.7	93	July 18	-18	Jan. 25	26	28.43	6.94	July	.06	Nov	35.6	97	113	138	115	SW	Apr. 21	Oct. 23
De Soto	Dallas	886	..	....	93	July 17	....	.....	5	.....	9.98	July	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dows	Wright	1,142	....	44.0	91	July 16	-27	Jan. 24	5	30.39	5.52	June	.05	Nov	36.5	88	207	40	119	NW	May 15	Oct. 6
Dubuque	Dubuque	655	30	46.3	94	July 17	-23	Jan. 25	32	28.03	3.86	May	.08	Nov	36.0	100	140	127	99	NW	Apr. 21	Oct. 27
Earlham	Madison	.....	....	44.9	90	July 17	-22	Jan. 26	..	31.77	6.33	July	.13	Nov	30.7	68	....	....	.....	.....	May 15	Oct. 6
Elkader	Clayton	727	22	45.1	99	July 17	-32	Jan. 27	25	25.96	4.89	Sept.	.14	Nov	45.0	69	176	128	62	NW	May 15	Sept. 15
Estherville	Emmet	1,298	8	42.3	94	Aug. 13	-31	Jan. 27	....	28.40	5.27	June	.14	Nov	...	90	178	24	164	NW	May 15	Oct. 6
Fayette	Fayette	....	...	...	93	July 17	-32	Jan. 27	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	May 15	.....
Forest City	Winnebago	1,220	9	43.1	91	July 16	-29	Jan. 24	11	23.62	4.76	July	.22	Nov	13.5	66	173	46	147	W	May 10	Oct. 6
Fort Madison	Lee	516	52	.....	.....	.....	.....	.....	55	36.32	5.32	Aug	.35	Feb	23.2	62	101	132	133	SW	.....	Oct. 27
Fort Dodge	Webster	1,126	...	45.1	95	July 17	-25	Jan. 24	..	35.79	7.73	June	.20	Nov	....	81	....	....	....	.....	Apr. 28	Oct. 6
Galva	Ida	1,290	9	....	93	June 24 / July 18	-27	Jan. 24	11	.....	7.81	May	.09	Nov	....	....	....	....	....	.....	May 14	Oct. 6
Gilman	Marshall	1,052	..	....	....	.....	.....	.....	6	22.97	5.56	July	.25	Nov	....	68	175	97	96	S	.....	.....
Glenwood	Mills	.....	....	49.3	90	July 18 / Aug. 14 / Sept. 27	-18	Jan. 25	..	25.92	5.35	May	.02	Feb	10.2	48	..	....	...	NW	Apr. 20	Oct. 23
Grand Meadow	Clayton	1,080	12	43.7	92	July 17	-29	Jan. 25	14	33.81	6.51	May	.18	Nov	35.0	80	117	129	120	SW	May 15	Oct. 6
Greene	Butler	924	6	....	94	July 16	....	.....	8	.....	.....	.....	.....	.....	....	....	....	..	..	.....	.....	.....
Greenfield	Adair	.....	12	47.3	92	July 17	-20	Jan. 25	14	29.65	5.28	Apr.	.09	Nov	33.5	..	....	..	..	S	Apr. 21	Oct. 22
Grinnell	Poweshiek	1,023	10	....	94	July 17	-20	Jan. 24	....	.....	.....	.....	.12	Nov	.....	.....	.....	.....	.....	.....	Apr. 21	Oct. 23
Grundy Center	Grundy	976	12	45.1	93	July 17	-26	Jan. 24	14	26.15	5.38	July	.23	Nov	36.5	87	162	88	116	NW	Apr. 21	Oct. 6
Guthrie Center	Guthrie	1,077	7	48.2	94	July 18	-23	Jan. 29	9	31.34	6.90	July	.13	Nov	.....	102	211	72	83	NW	Apr. 28	Oct. 23
Hampton	Franklin	1,155	18	45.5	95	July 17	-27	Jan. 24	15	31.54	4.79	July	.40	Nov	45.9	84	108	189	69	SW	Apr. 27	Oct. 6
Hanlontown	Worth	....	....	42.7	90	July 16	-31	Jan. 27	....	.....	.....	.....	.....	.....	.....	.....	195	70	101	NW	May 15	Sept. 15
Harlan	Shelby	1,192	.	46.6	93	June 19 / July 17	-20	Jan. 25	6	24.27	5.20	July	.17	Feb / Nov.	20.0	89	112	146	108	NW	Apr. 28	Oct. 22
Hopeville	Clarke	.....	12	48.1	95	Aug. 14	-20	Jan. 29	14	31.24	5.24	July	.02	Nov	....	85	101	171	94	.....	Apr. 21	Oct. 23
Humboldt	Humboldt	1,095	11	45.5	93	July 16	-28	Jan. 24	16	28.26	8.35	June	.20	Nov	14.9	.	226	55	85	SE	Apr. 28	Oct. 6
Ida Grove	Ida	1,220	....	....	95	July 16	-26	Jan. 24	....	.....	.....	.....	.....	.....	....	....	....	....	...	.....	.....	.....
Independence	Buchanan	921	39	..	92	July 17 / Aug. 24	-26	Jan. 27	37	21.62	3.73	July	.05	Nov	41.5	70	210	82	74	NW	May 15	Sept, 15
Indianola	Warren	969	12	48.0	94	July 17	-19	Jan. 26	....	33.43	7.98	Apr.	.03	Nov	35.2	96	....	....	....	.....	Apr. 21	Oct. 23
Inwood	Lyon	.....	....	44.0	94	July 16	-26	Jan. 24	....	21.08	4.34	Oct.	T	Nov	16.0	50	182	41	143	S, NW	Apr. 26	Oct. 5
Iowa City	Johnson	685	44	46.4	96	July 16	-21	Jan. 29	42	28.96	5.49	Apr.	.25	Nov	.....	82	.....	.....	.....	N	Apr. 26	Oct. 23
Iowa Falls	Hardin	1,117	10	43.6	93	July 17	-26	Jan. 3	12	29.36	5.45	June	.23	Nov	42.3	83	175	64	127	NW	May 1:	Sept. 15
Keokuk	Lee	619	32	50.2	93	July 30	-13	Jan. 22	33	38.93	8.33	Sept.	.21	Nov	25.8	100	165	114	87	SW	Apr. 21	Oct. 27
Keosauqua	Van Buren	664	11	47.5	94	July 30 / Aug. 12	-24	Jan. 29	13	37.45	6.26	Sept.	.14	Nov	....	77	118	95	153	.....	Apr. 23	Oct. 23
Knoxville	Marion	.....	...	....	93	July 18	-17	Jan. 25	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Apr. 21	.....
Lacona	Warren	.....	....	...	....	.....	...	.....	6	34.24	6.47	July	.03	Nov	....	99	...	...	...	.....	.....	.....
Larrabee	Cherokee	1,366	..	45.1	95	July 16	-27	Jan. 24	15	27.08	5.39	June	.16	Jan	14.8	72	151	145	70	SW	May 14	Oct. 6
Le Claire	Scott	576	....	....	....	.....	...	.....	...	26.14	4.89	Aug	.31	Nov	....	....	....	....	...	.....	.....	.....
Le Mars	Plymouth	1,224	7	.	93	July 16 / Aug. 14	-23	Jan. 24	9	.....	.....	.....	.05	Nov	....	....	....	....	..	.....	Apr. 27	Oct. 6
Lenox	Taylor	1,250	8	47.6	90	Aug. 13	-21	Jan. 25	10	31.37	5.16	Aug	.09	Feb	...	....	....	....	...	S	Apr. 21	Oct. 22
Leon	Decatur	1,120	....	48.6	91	Aug. 13	-17	Jan. 26	....	31.77	5.34	July	.05	Feb	37.5	79	220	64	82	...	Apr. 21	Oct. 23
Logan	Harrison	928	36	48.1	98	Aug, 27	-17	Jan. 25	5	.....	.....	.....	.....	.....	28.0	64	181	67	118	NW	May 10	Oct. 21
Maquoketa	Jackson	688	10	44.7	96	July 17	-22	Jan. 3	12	25.54	4.47	Aug	.22	Nov	26.8	80	174	63	129	NE	May 15	Sept. 15
Marshalltown	Marshall	947	10	45.6	100	July 17	-22	Jan. 26	11	27.10	4.50	July	.17	Nov	...	92	151	54	161	NW	Apr. 27	Oct. 6
Mason City	Cerro Gordo	1,132	....	44.8	96	July 16	-26	Jan. 24	...	26.75	6.60	June	.20	Nov	33.2	69	110	166	90	NW	Apr. 21	Oct. 6
Mt. Ayr	Ringgold	1,236	9	49.6	97	Aug. 13	-18	Jan. 26	11	36.07	6.51	May	.24	Feb	48.8	97	134	114	118	NW	Apr 21	Oct. 23
Mt. Pleasant	Henry	729	21	48.6	97	July 17	-20	Jan. 29	11	37.59	6.97	Sept.	.22	Nov	....	87	158	121	92	SW	Apr. 21	Oct. 23
Mt. Vernon	Linn	847	36	46.9	94	July 31	-19	Jan. 25	9	26.71	4.07	Aug.	.13	Nov	44.8	88	180	65	121	.....	Apr. 21	Oct. 6
New Hampton	Chickasaw	1,169	....	42.7	90	July 18	-29	Jan. 24	8	23.66	3.35	June	.10	Nov	31.0	79	....	....	...	NW	May 15	Sept. 15
Newton	Jasper	944	15	....	....	.....	-23	Jan. 25	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Apr. 21	.....
Northwood	Worth	1,222	7	....	91	July 17	-28	Jan. 27	9	27.16	6.16	June	.25	Nov	32.7	73	..	....	..	NW	Apr. 27	Oct. 23

CLIMATOLOGICAL DATA FOR YEAR ENDING 1904—CONTINUED.

STATIONS.	COUNTIES.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.						PRECIPITATION, IN INCHES.				SKY.							
				Annual mean.	Highest.	Date.	Lowest.	Date.	Length of record, years.	Total 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.	Prevailing direction of wind.	Last killing frost in spring.	First killing frost in autumn.
Odeboldt	Sac	1356	6	46.5	96	July 16	-25	Jan. 24	7	22.69	4.07	June	.24	Nov	18.5	69	223	75	68		May 14	Oct. 6
Ogden	Boone	1088	9	....	92	July 17	-30	Jan. 26	10	.....	.....	.....	.....	.....	....	....	...	....	....	.....	May 14	Oct. 6
Olin	Jones	760	....	46.1	94	July 16	-23	Jan. 29	6	25.49	3.78	Oct	.01	Nov	....	76	...	...	...	NW	Apr. 21	Oct. 23
Omaha, Nebr.	.....	1113	33	49.6	93	July 18 / Aug. 14	-17	Jan. 25	34	25.48	4.86	May	.10	Nov	7.8	103	122	111	133	N	Apr. 17	Oct. 27
Onawa	Monona	1053		49.0	96	Aug. 14	-16	Jan. 25	5	31.30	8.15	May	.29	Feb	17.2	90	248	41	77	SE	Apr. 27	Oct. 23
Osage	Mitchell	1184	12	43.5	92	July 16	-28	Jan. 24	17	27.83	6.10	June	.17	Nov	40.6	92	....	....	...	.....	May 15	Oct. 6
Osceola	Clarke	1130	7		95	Aug. 14	-19	Jan. 26	....	.....	5.67	Aug	.05	Feb	....		....	....	...	.....	May 14	Oct. 23
Oskaloosa	Mahaska	843	19	47.5	92	July 17	-23	Jan. 29	27	.....	5 89	July	.03	Nov	26.7	....	....	....	..	NW	Apr. 21	Oct. 23
Ottumwa	Wapello	649	9		95	July 16 / Aug. 12	....	.....	11	....	4.58	Sept	.13	Nov	....	....	...	....	..	NW	Apr. 21	... .
Pacific Junction	Mills	960	..	48 3	93	Aug. 14	-16	Jan. 25	6	27.38	5.36	Apr	.07	Feb	...	83	151	150	65	S	May 14	Oct. 22
Perry	Dallas	975		47.0	94	July 18	-23	Jan. 24	....	30.59	6.52	July	T	Nov	....	....	....	....	....	.....	Apr. 27	Oct. 6
Plover	Pocahontas	1190	6	44.1	94	July 16	-30	Jan. 25	8	28.80	4.74	May	.20	Nov	19.5	56	208	51	107	NW	Apr. 27	Oct. 6
Primghar	O'Brien	....	....	....	90	July 16	-25	Jan. 24	....	.....	.....	.....	.....	.....	....	....	....	....	..	.....	May 14	.....
Red Oak	Montgomery	1033	....	49.5	89	July 18	-14	Jan. 25	8	28.56	6.66	July	.05	Feb	27.5	82	103	201	62	S	Apr. 19	Oct. 23
Ridgeway	Winneshiek	1215	....	46.2	99	July 16	-28	Jan. 24	7	32.20	5.16	Sept	.29	Nov	41.8	127	161	148	57	S	Apr. 27	Oct. 6
Rock Rapids	Lyon	....	....	44 8	92	June 19 / July 16	-24	Jan. 24	..	.....	3.95	July	T	Nov	...	....	....	....	.	.....	Apr. 27	Oct. 6
Rockwell City	Calhoun	.....	.....	45.8	95	July 17	-28	Jan. 24	9	29.55	5.95	Aug	.00	Nov	21.1		204	78	84	.....	Apr. 21	Oct. 6
Sac City	Sac	1278	23	46.2	94	July 16	-26	Jan. 24	29	.....	5.48	Aug	.24	Nov	....	61	....	....	.	.....	Apr. 26	Oct. 6
St. Charles	Madison	1070	...	48.6	93	July 17	-18	Jan. 25	4	34.05	8.97	Apr	.09	Nov	....	107	197	93	76	NW	Apr. 21	Oct. 23
Sibley	Osceola	1512	9	42.1	91	Aug. 24	-28	Jan. 24	11	25.23	4.98	June	.05	Nov	....	...	...	....	..	NW	Apr. 28	Sept. 21
Sigourney	Keokuk	787		...	95	Aug. 13	-20	Jan. 29	9	....	3.92	Apr	T	Nov	....	...		....	..	NW	Apr. 21	Oct. 23
Sioux City	Woodbury	1165	14	46.6	96	Aug. 14	-21	Jan. 25	16	21.46	5.49	July	.05	Nov	....	88	119	115	132	NW	Apr. 26	Oct. 23
Sioux Center	Sioux	....	...	44.4	91	July 16 / Aug 24	-25	Jan. 24	6	26.79	7.75	July	.10	Nov	..	....	....	....	..	....	....	
Stockport	Van Buren	.....	..	....	....	.....	....	.....	3	37.23	7.08	Sept	.15	Nov	24.5	91	153	71	142	NW	.....	Oct. 23
Storm Lake	Buena Vista	1440	8	43.6	90	July 16	-30	Jan. 24	16	24.19	5.16	Aug	.02	Jan	....	69	....	..	..	NW	Apr. 27	Oct. 6
Stuart	Guthrie	1216	6		91	July 17	-19	Jan. 25	....		8.30	July	.10	Nov	...	....	....	....	....	.....	Apr. 8	Oct. 23
Thurman	Fremont	.	....	48.8	94	July 18	-20	Jan. 29	8	36.48	11.97	July	T	Feb	...	82	165	90	111	SW	Apr. 27	Oct. 22
Tipton	Cedar	807		48.0	96	July 17	-18	Jan. 3	7	27.15	4 22	Apr	.12	Nov	35.8	75	183	124	59	SW,NW	Apr. 21	Oct. 23
Toledo	Tama	856	9	46.1	95	July 17	-23	Jan. 29		.....	3.71	July	.15	Nov	42.5	70	147	111	108	NW	Apr. 27	Oct. 6
Vinton	Benton	810	13	....	94	July 17	...	.....	15	19.34	3 51	July	.10	Nov	36 6	....	....	....	....	.....	Apr. 27	Oct. 6
Wapello	Louisa	588	...	48.8	91	July 17	-12	Jan. 3	7	30.96	4 24	Sept	.12	Nov	....	67	....		....	.....	Apr. 21	Oct. 23
Washington	Washington	769	21	47.2	92	July 16 / Aug 13	-20	Jan. 29	14	27.87	4.39	Aug	.23	Nov	....	73	....	....	..	.....	Apr. 21	Oct. 23
Washta	Cherokee	1157		....	....	.....		.....	7	24.60	6.08	May	.10	Nov	....	..	....	....	...	S	.....	
Waterloo	Black Hawk	862	16	45.7	98	July 17	-25	Jan. 29	24	25.57	4.62	May	.21	Nov	40.0	88	161	124	81	NW	Apr. 27	Oct. 6
Waukee	Dallas	1039	....	49.2	97	July 17 / Aug. 13	-19	Jan. 26	....	33 10	9 31	July	.10	Nov	35.5	93	165	103	98	NW	Apr. 21	Oct. 6
Waverly	Bremer	942	7	44.6	93	July 17	-27	Jan. 27	9	28.63	4.69	May	.21	Nov	41.8	101	127	137	102	.....	May 15	Oct. 6
West Bend	Palo Alto	1197	9	44.3	92	July 16	-29	Jan. 24	11	28.27	6.93	June	.08	Nov	28.7	82	....	....	...	S	Apr. 27	Oct. 6
Whitten	Hardin	1036	....	45.5	94	July 16	-28	Jan. 26	7	.....	6.05	July	T	Nov	37.5	...	...	...	...	.....	Apr. 21	Oct. 23
Wilton Junction	Muscatine	683	8	47.5	96	July 17	-18	Jan. 3	10	...	5.15	Aug	.35	Nov	....	....	190	56	120	NW	Apr. 27	Oct. 23
Winterset	Madison	1129	12	..	95	July 18 / Aug. 13	-19	Jan. 25	14	.....	6.41	Apr	.30	Nov	....	....	....	..	..	.....	Apr. 27	Oct. 6
Woodburn	Clarke	961	...	....	...	....	....	.....	6	30.19	5.01	July	.12	Nov	30.9	79	196	61	109	NW	.....	
Zearing	Story	.....	..	....	93	July 18	....	.....		.....	4.73	July	.16	Nov	....	....	....	....	...	..	Apr. 21	Oct. 6
Average	.....	.....	....	46.4	100	July 17	-32	Jan. 27	....	28.74	11.97	July	.00	Nov	....	75	164	97	105	NW	.....	.....

46.3

MONTHLY MAXIMUM AND MINIMUM TEMPERATURES WITH DATES FOR 1904.

STATIONS.		Jan.		Feb.		March.		April.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
		Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.
Afton	Max.	50	7	47	6	..	..	75	30	87	24	90	*19	94	18	92	14	86	* 1	..	..	68	* 1	57	22
	Min.	-18	25	-10	1	..	..	23	16	36	14	49	* 6	49	1	45	* 8	35	15	..	..	13	30	- 8	28
Albia	Max.	50	7	63	6	68	21	81	28	84	*22	87	23	92	*16	92	12	90	10	82	4	72	* 1	61	22
	Min.	-19	*25	-12	1	8	* 3	22	14	33	14	48	7	50	2	46	8	40	*12	24	27	10	30	- 6	*28
Algona	Max.	41	7	42	5	59	23	77	30	88	22	85	19	90	*16	89	12	86	28	76	9	68	* 2	52	8
	Min.	-28	*24	-19	1	0	3	18	3	33	10	43	7	47	1	45	* 8	35	*15	22	27	7	30	-10	28
Allerton	Max.	51	19	62	6	72	21	77	23	84	24	86	20	91	*17	95	13	90	10	84	4	75	2	61	22
	Min.	-21	29	-16	1	8	3	24	* 3	37	14	48	* 7	51	* 2	47	* 8	36	15	23	27	11	30	* 7	13
Alta	Max.	41	7	53	5	60	23	75	30	85	22	86	23	92	16	89	14	87	9	78	* 3	70	18	56	8
	Min.	-26	25	-15	8	0	3	20	16	34	14	43	6	49	2	44	22	36	*15	25	*25	8	30	-12	28
Amana	Max.	45	7	53	6	56	23	79	23	86	22	89	23	93	17	91	*12	88	28	79	9	71	19	53	23
	Min.	-18	*25	-11	1	10	3	23	*16	36	15	47	* 7	44	2	43	8	33	15	22	27	10	30	-13	15
Ames	Max.	46	7	47	23	62	* 2	77	30	85	22	88	23	94	18	92	24	88	28	84	4	73	2	53	8
	Min.	-24	26	-13	1	5	3	22	17	35	15	46	22	44	27	40	8	34	15	23	27	11	30	- 6	*15
Atlantic	Max.	52	7	49	5	69	9	77	30	87	24	92	18	93	17	94	14	89	9	85	4	72	4	64	22
	Min.	-31	29	-12	1	2	15	20	* 3	33	15	43	14	45	*23	39	* 8	30	14	19	27	9	30	- 9	13
Audubon	Max.	48	7	47	5	67	2	76	30	88	24	89	*19	93	*17	91	*13	91	28	87	4	70	* 3	60	22
	Min.	-23	29	-16	1	0	15	21	3	31	15	41	14	44	24	36	8	31	15	19	27	8	30	- 8	28
Baxter	Max.	49	7	49	6	62	2	78	30	85	*22	87	*20	92	*16	91	13	88	28	83	4	72	3	54	22
	Min.	-21	*24	-10	16	5	3	20	* 3	35	15	46	7	45	2	44	8	36	15	23	27	9	30	- 8	28
Bedford	Max.	52	7	51	5	68	9	76	23	84	24	86	19	89	*18	94	14	87	* 9	85	4	74	2	63	20
	Min.	-23	29	-11	1	8	3	21	3	35	14	47	*14	48	1	43	26	33	15	25	23	10	30	- 8	28
Belknap	Max.	..	..	60	6	65	*21	80	23	83	24	85	*22	90	*17	91	13	89	1	82	8	..	..	..	..
	Min.	..	..	-11	1	10	3	27	* 3	40	14	50	14	54	* 1	50	9	41	22	32	*23	..	..	..	..
Belle Plaine	Max.	44	17	46	6	57	23	78	23	87	22	92	19	93	*16	90	* 5	88	28	81	4	70	2	50	22
	Min.	-22	26	-15	1	7	3	21	16	37	*10	45	7	47	2	47	26	35	15	22	27	6	30	-14	15
Bonaparte	Max.	45	19	63	6	69	21	83	23	84	22	88	20	93	30	92	12	90	28	83	9	74	19	58	23
	Min.	-21	* 3	-18	1	10	3	24	14	37	15	48	7	47	2	45	26	35	15	26	*23	12	30	- 2	28
Britt	Max.	40	7	43	28	57	23	73	*23	87	22	87	*18	91	*16	90	12	87	28	78	9	68	* 1	50	8
	Min.	-28	*24	-22	1	- 1	3	20	3	30	15	42	7	45	1	41	8	33	15	22	*23	4	30	-10	28
Burlington	Max.	46	19	65	6	67	21	83	23	83	*21	90	*19	93	17	91	21	90	*10	83	9	74	* 1	57	*22
	Min.	-15	26	-13	1	13	3	26	*14	41	10	52	22	51	2	50	26	39	5	28	*23	13	30	- 2	*28
Carroll	Max.	49	8	50	5	66	2	78	30	86	22	90	23	93	*17	90	*14	89	9	85	4	74	18	59	22
	Min.	-25	25	-14	1	2	3	19	16	31	14	45	* 6	47	* 2	41	8	36	14	24	27	6	30	-11	28
Cedar Rapids	Max.	45	7	54	6	59	23	80	23	89	22	90	23	98	16	94	*12	92	28	82	9	72	19	55	22
	Min.	-19	25	-12	2	10	3	23	16	35	15	47	* 7	48	2	47	8	36	15	25	27	12	30	-11	*15
Chariton	Max.	50	7	61	6	71	21	78	23	83	24	86	20	90	*16	91	14	89	*10	84	4	74	2	60	22
	Min.	-20	26	- 6	* 1	7	* 3	23	3	36	14	47	14	48	2	45	8	35	15	24	*23	9	30	- 7	13
Charles City	Max.	34	15	41	6	59	23	75	23	88	22	86	*18	93	18	90	24	88	28	78	9	70	3	44	31
	Min.	-31	27	-24	1	3	* 3	20	* 3	27	15	35	2	44	2	39	8	33	15	21	*27	8	30	-12	14
Clarinda	Max.	54	7	67	23	70	9	75	23	90	24	91	23	95	*17	95	14	91	28	90	4	77	18	65	22
	Min.	-17	29	- 6	1	5	15	23	* 3	36	*11	43	14	50	* 1	44	*23	34	15	25	27	12	30	- 7	28
Clear Lake	Max.	49	1	40	6	60	23	76	30	85	*20	88	16	92	16	89	14	89	28	76	16	65	* 4	45	8
	Min.	-30	*24	-21	1	- 2	3	18	3	35	14	46	7	50	* 1	47	22	39	21	26	*25	9	30	-12	28
Clinton	Max.	44	19	57	6	60	*24	88	23	90	22	94	23	95	*16	95	12	90	28	83	9	69	* 3	52	22
	Min.	-17	3	-10	* 1	11	3	21	4	33	15	45	7	42	2	42	8	33	15	26	*23	11	30	- 7	14
College Springs	Max.	53	7	49	* 5	70	9	77	23	85	24	90	19	98	10	94	13	90	27	85	* 4	70	* 1	66	22
	Min.	-15	25	- 2	4	8	3	22	16	35	14	49	6	53	* 1	48	*21	37	15	27	27	14	30	- 7	28
Columbus Junction	Max.	49	19	61	6	66	21	82	23	85	22	87	*19	92	*16	90	13	87	28	81	9	79	4	56	23
	Min.	-14	* 3	-11	1	- 3	3	23	*16	35	10	48	7	47	2	47	8	37	15	25	27	12	30	- 3	*15
Corning	Max.	52	7	49	23	68	9	75	23	83	24	86	23	90	18	90	14	87	28	83	4	..	..	62	22
	Min.	-24	29	-12	1	1	15	23	* 3	36	14	43	14	45	1	42	26	38	*14	22	27	..	..	- 8	28
Corydon	Max.	51	7	63	6	71	21	78	23	84	24	85	*18	90	18	93	*13	90	10	88	18	76	2	61	22
	Min.	-23	29	-17	1	3	3	18	3	35	14	49	* 7	51	* 1	45	8	38	15	22	27	9	30	* 6	*13
Cresco	Max.	38	8	40	28	52	23	73	30	90	23	90	20	90	*17	90	24	87	17	76	*10	..	..	43	23
	Min.	-29	*24	-22	1	0	3	18	1	32	*10	46	25	43	2	39	8	33	18	25	27	..	..	-13	14
Davenport	Max.	46	19	61	6	62	24	80	23	84	22	88	23	92	16	90	13	89	10	81	9	71	19	58	22
	Min.	-13	25	- 8	1	13	3	24	16	40	15	49	1	52	2	52	8	42	15	30	27	14	30	- 4	28
Decorah	Max.	38	7	43	28	57	23	77	29	86	22	87	23	92	*16	89	24	83	*10	88	10	68	* 1	45	23
	Min.	-31	27	-23	1	2	3	21	* 3	32	15	44	8	43	2	39	8	34	15	23	26	10	30	-12	14
Delaware	Max.	41	19	47	6	55	23	79	23	86	22	86	23	92	17	90	12	87	28	78	* 4	67	* 2	45	*22
	Min.	-25	25	-20	1	6	3	19	16	32	15	45	7	45	2	44	* 8	34	15	22	27	7	30	-10	15
Denison	Max.	47	7	57	5	68	* 2	74	30	86	*22	88	23	92	*16	92	24	91	9	85	4	71	* 3	59	22
	Min.	-23	26	-12	19	4	3	17	3	34	14	45	* 7	46	1	42	26	37	15	20	27	9	30	-10	28
Des Moines	Max.	50	7	47	6	63	2	74	30	85	24	87	28	93	18	91	24	89	1	86	4	71	18	58	22
	Min.	-18	25	- 9	1	8	3	26	3	38	14	52	6	54	2	49	26	38	15	28	27	13	30	- 6	13
De Soto	Max.	..	..	47	6	66	2	77	30	86	24	86	23	93	17	90	24	89	28	88	4	77	18	59	22
	Min.	..	..	-11	1	7	3	22	21	37	14	49	*14	51	* 2	44	8	37	15	22	27	10	30	-14	14
Dows	Max.	42	7	42	6	59	23	74	30	86	22	86	23	91	*16	89	24	87	28	79	4	69	* 1	50	8
	Min.	-27	*24	-21	1	1	3	18	16	32	15	42	7	48	* 1	40	8	34	15	20	27	8	30	-12	27
Dubuque	Max.	45	19	58	6	56	24	79	23	86	22	87	3	94	17	91	12	89	28	80	9	69	1	53	22
	Min.	-23	25	-11	1	8	3	24	16	39	16	47	7	47	2	45	8	39	15	29	27	15	30	-12	14
Earlham	Max.	49	7	46	28	63	2	73	30	84	24	85	23	90	*17	89	13	86	10	85	4	72	* 3	60	22
	Min.	-22	26	-14	1	5	3	18	3	31	15	41	14	43	* 2	35	8	30	15	16	27	7	30	-16	14
Elkader	Max.	42	19	47	28	57	23	79	30	90	22	89	24	99	17	94	12	93	28	82	17	75	4	48	31
	Min.	-32	27	-22	1	6	3	19	16	30	15	45	8	42	* 2	40	8	32	15	20	27	9	30	-19	14
Estherville	Max.	40	7	40	5	59	23	76	30	82	20	87	23	93	16	94	13	92	17	77	* 3	72	2	56	* 8
	Min.	-31	27	-20	11	- 2	3	20	* 3	32	15	42	7	44	15	44	*10	31	21	22	6	9	30	-10	13
Fayette	Max.	40	7	49	6	58	23	76	30	87	*20	88	23	93	*17	91	12	..	..	..	..	..	..	..	..
	Min.	-32	27	-26	1	2	3	18	*16	28	15	40	9	38	2	36	8	..	..	..	..	..	..	..	..
Forest City	Max.	40	7	40	* 5	59	23	86	23	89	22	85	23	91	16	89	12	90	28	88	3	71	3	47	8
	Min.	-29	24	-19	1	- 1	3	21	* 3	32	10	*43	7	48	* 1	43	8	34	15	24	*23	8	30	-10	28
Fort Dodge	Max.	43	7	47	5	61	23	76	30	86	22	87	23	95	17	91	5	88	9	77	* 9	71	1	53	8
	Min.	-25	*24	-17	1	3	3	21	3	35	*14	46	7	49	23	42	8	40	15	22	27	10	30	- 6	28
Galva	Max.	42	8	54	5	60	2	75	*28	88	22	93	24	93	18	90	*12	89	28	..	..	68	18	56	8
	Min.	-27	24	-18	19	0	3	15	9	32	14	44	* 6	43	23	39	8	33	*15	19	27	7	30	-11	28
Glenwood	Max.	55	7	57	5	71	* 2	76	23	86	24	88	23	90	18	90	14	90	27	85	4	71	2	64	22
	Min.	-18	25	- 4	* 8	5	3	22	16	35	14	48	6	53	23	49	22	39	14	26	27	20	12	- 7	28
Grand Meadow	Max.	40	7	45	* 6	50	*23	73	30	86	22	84	18	92	17	86	12	85	28	76	9	66	* 1	46	23
	Min.	-29	25	-20	1	3	3	19	16	32	15	46	7	45	2	40	26	36	14	25	27	8	30	-16	15
Greene	Max.	..	..	..	..	..	..	..	..	88	22	88	23	94	16	91	24	88	28	78	4	70	* 2	47	8
	Min.	..	..	..	..	..	..	..	..	30	15	44	7	46	2	40	8	34	15	23	27	9	30	- 8	14
Greenfield	Max.	47	8	45	*22	68	9	75	30	86	24	90	19	92	*17	89	*12	87	* 1	83	4	70	* 3	59	22
	Min.	-20	*25	-10	1	5	3	21	* 3	33	14	47	7	48	* 1	45	22	37	14	24	27	8	30	- 9	28
Grinnell	Max.	46	7	49	6	58	23	73	23	84	22	.	..	..	..	..	..	..	..	81	4	68	* 1	55	22
	Min.	-20	24	-10	1	7	3	21	16	37	14	..	..	..	..	..	..	..	..	25	27	11	30	- 5	28
Grinnell [near]	Max.	..	..	..	..	..	..	..	..	..	..	89	*20	94	*17	91	13	91	10	82	17	74	* 2	..	..
	Min.	..	..	..	..	..	..	..	..	..	..	47	7	49	1	47	* 8	37	15	24	27	11	30	..	..
Grundy Center	Max.	43	7	48	6	60	2	75	30	88	22	87	23	93	*17	91	24	89	28	81	4	72	2	50	*22
	Min.	-26	*24	-23	1	5	3	18	16	34	15	41	7	48	* 1	41	8	35	15	23	27	6	30	-11	*13
Guthrie Center	Max.	59	7	60	6	77	2	81	30	88	24	90	19	94	18	91	13	88	28	84	4	71	18	60	22
	Min.	-23	29	-15	1	5	3	20	3	33	14	46	* 7	47	2	41	8	36	15	22	27	10	30	- 9	*13
Hampton	Max.	41	7	44	28	60	23	80	30	89	22	87	23	95	17	92	24	91	28	86	4	74	2	51	8
	Min.	-27	24	-19	1	1	3	21	* 3	34	15	45	7	48	2	44	8	37	15	23	27	9	30	-10	28
Hanlontown	Max.	41	7	39	* 5	57	23	72	29	88	22	84	23	90	16	88	24	88	28	79	17	72	3	48	* 8
	Min.	-31	27	-24	1	- 1	3	21	3	29	15	44	7	45	2	41	8	30	15	20	27	5	30	-10	* 4

MONTHLY MAXIMUM AND MINIMUM TEMPERATURES WITH DATES FOR 1904—CONTINUED.

STATIONS.		Jan.		Feb.		March.		April.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
		Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.
Harlan	Max.	49	7	51	5	68	* 2	74	30	87	24	93	19	98	*17	91	14	89	28	84	4	68	1	60	22
	Min	-20	25	- 8	11	4	3	20	* 3	34	14	44	14	47	1	41	*22	34	15	20	27	8	30	-11	28
Hopeville	Max.	51	7	52	6	68	21	75	*23	84	24	87	23	91	18	95	14	89	* 1	85	4	78	2	59	22
	Min	-20	29	-12	1	8	3	23	16	37	14	49	7	51	1	47	8	37	15	26	27	11	30	- 8	13
Humboldt	Max.	46	7	45	6	60	23	76	30	88	22	88	23	93	*16	89	12	87	28	77	9	72	2	54	8
	Min	-28	24	-21	1	3	3	18	3	34	15	44	7	50	* 1	45	8	37	15	22	27	10	30	- 8	13
Ida Grove	Max.	47	7	50	* 5	62	9	74	*29	86	22	91	22	95	16	93	14	88	28	80	4	67	* 2	..	..
	Min	-26	*24	-15	19	3	3	19	4	34	14	47	6	46	23	43	* 8	37	15	20	27	8	29	..	..
Independence	Max.	40	7	50	6	..	..	75	23	85	22	85	23	92	*17	92	24	90	28	80	4	70	2	45	8
	Min	-26	27	-20	1	..	..	19	16	30	15	44	* 7	45	2	41	8	31	15	23	27	8	30	-12	15
Indianola	Max.	51	7	48	6	63	23	74	30	85	24	89	23	94	*17	91	*12	88	28	80	* 4	72	18	60	22
	Min	-19	*26	-11	* 1	12	* 3	21	16	37	14	50	* 7	50	2	45	8	36	15	24	27	11	30	- 9	13
Inwood	Max.	38	7	48	5	59	*23	75	30	81	22	89	19	94	16	92	*14	90	9	80	3	65	19	58	8
	Min	-26	24	-17	8	1	3	22	3	33	14	45	6	40	14	45	22	34	21	26	*22	9	29	-15	28
Iowa City	Max.	47	20	68	6	62	23	82	23	88	22	90	23	96	*16	94	12	91	*10	81	* 4	73	19	55	22
	Min	-21	*29	-14	2	10	4	23	*16	36	15	48	7	46	2	46	8	35	15	24	27	10	30	- 7	15
Iowa Falls	Max.	38	8	43	5	59	23	74	30	87	22	88	23	93	*17	90	24	89	28	79	9	68	* 1	48	* 8
	Min	-26	* 3	-23	1	1	3	22	* 3	30	15	43	7	47	2	39	8	31	15	19	27	7	30	-11	14
Keokuk	Max.	47	19	67	6	74	21	81	23	85	24	86	23	93	30	91	21	89	28	82	9	78	19	60	22
	Min	-13	22	-11	1	4	3	28	16	43	14	54	7	54	2	53	23	42	15	32	27	16	30	- 1	28
Keosauqua	Max.	47	9	70	6	70	21	83	23	87	22	87	*13	94	30	94	12	90	10	82	9	73	19	59	22
	Min	-24	*29	-16	* 1	11	* 3	22	14	35	15	50	* 7	47	2	46	* 8	35	15	25	*27	12	30	- 4	*15
Knoxville	Max.	50	7	56	6	70	21	76	30	..	..	..	..	93	18	92	21	89	10	..	..	..	..	60	22
	Min	-17	25	-10	1	8	3	23	16	..	..	..	..	49	* 2	45	8	38	15	..	..	..	..	- 6	28
Larrabee	Max.	41	* 7	56	5	61	29	79	30	90	22	94	24	95	*16	92	24	89	9	81	* 3	69	* 1	58	8
	Min	-27	24	-17	8	- 1	3	17	16	32	14	42	7	45	1	45	22	35	21	24	27	8	30	-12	28
LeMars	Max.	43	* 7	54	5	63	9	76	30	87	22	..	..	93	16	93	14	91	9	82	3	68	1	57	8
	Min	-23	*24	-15	19	0	3	17	16	33	14	..	..	45	23	41	10	35	21	20	27	9	30	-12	28
Lenox	Max.	51	7	45	* 6	67	9	78	23	83	24	86	20	89	*17	90	*13	86	28	85	4	68	* 2	62	23
	Min	-21	25	- 7	1	6	3	22	16	35	14	48	* 6	51	* 1	47	* 8	38	15	25	27	11	30	-10	28
Leon	Max.	50	7	55	6	63	* 9	78	23	83	24	85	*19	90	*16	91	13	86	1	80	4	11	* 2	59	22
	Min	-17	26	- 3	4	8	3	24	* 3	37	14	50	7	50	2	47	8	38	15	25	27	14	*30	- 6	28
Logan	Max.	50	7	58	5	69	9	78	30	90	25	93	23	98	27	95	14	92	9	85	4	68	* 1	56	* 8
	Min	-17	25	- 8	11	5	3	22	* 3	32	10	43	27	40	23	43	*26	34	15	22	27	12	30	- 6	26
Maquoketa	Max.	45	20	59	6	58	24	80	23	86	22	87	*13	96	17	93	13	90	10	81	9	73	* 3	54	22
	Min	-22	3	-14	1	10	4	20	*16	32	15	43	* 1	39	2	38	8	30	15	20	27	10	*14	-17	14
Marshalltown	Max.	45	7	50	6	61	23	77	*23	90	22	91	23	100	17	95	24	91	10	85	4	72	* 1	52	22
	Min	-22	*26	-17	1	5	3	20	4	34	15	45	7	46	7	40	8	38	15	22	*27	10	30	- 9	*14
Mason City	Max.	38	7	38	* 6	56	23	75	30	88	22	86	23	96	16	89	*12	87	28	75	9	67	* 1	44	8
	Min	-26	24	-14	1	2	3	23	3	35	15	46	7	50	* 1	48	* 8	37	15	27	6	10	30	- 8	28
Mount Ayr	Max.	53	7	50	23	72	21	78	30	88	24	89	23	93	*17	97	13	90	* 1	86	4	76	* 2	65	22
	Min	-18	26	- 7	1	7	3	23	16	36	14	50	* 6	51	2	48	8	40	14	26	27	13	30	- 8	28
Mount Pleasant	Max.	47	19	61	6	68	21	85	23	88	21	90	*20	97	17	92	13	89	10	82	9	72	19	57	*22
	Min	-20	29	-14	1	10	3	23	16	40	*10	49	7	50	2	47	8	38	15	26	27	11	30	- 3	28
Mount Vernon	Max.	43	7	59	6	61	23	84	30	91	20	92	*12	94	31	93	13	88	*10	80	17	73	* 3	53	23
	Min	-19	*25	-14	1	7	3	19	16	35	15	42	6	47	2	45	8	35	15	24	27	8	30	- 8	28
New Hampton	Max.	39	7	41	* 6	55	23	74	30	85	22	85	23	90	18	88	24	87	28	77	1	67	* 1	46	23
	Min	-29	24	-23	1	1	3	18	3	31	15	42	7	44	1	43	22	32	15	24	27	7	30	-11	28
Newton	Max.	47	7	47	6	58	2	76	30	..	..	..	..	..	..	..	..	..	..	..	..	68	2	52	22
	Min	-23	25	-15	1	5	3	21	* 3	..	..	..	..	..	..	..	..	..	..	..	..	10	30	- 7	28
Northwood	Max	..	..	46	28	56	23	77	27	85	22	88	23	91	17	87	4	..	..	..	..	67	19	44	9
	Min	-28	27	-19	1	0	3	22	* 3	34	15	44	7	47	2	43	22	..	..	..	..	9	30	-10	*28
Odebolt	Max.	44	7	53	5	65	* 2	79	30	89	24	92	23	96	*16	95	14	91	9	80	4	70	18	57	8
	Min	-25	24	-12	* 1	2	3	18	16	32	14	45	* 6	46	23	42	8	33	4	21	27	9	30	-11	28
Ogden	Max.	51	7	47	* 5	72	2	..	..	85	*23	86	23	92	17	91	24	88	28	83	4	70	2	58	22
	Min	-30	26	-22	1	1	3	..	..	30	14	47	6	49	* 1	46	* 8	40	15	25	*23	9	30	- 8	28
Olin	Max.	42	19	57	6	58	31	79	23	85	22	88	*24	94	16	91	13	87	28	79	9	70	19	53	23
	Min	-23	29	-14	1	9	3	22	16	33	15	45	1	47	2	42	8	32	15	26	23	10	30	-12	15
Omaha, Nebraska	Max.	54	7	60	5	74	2	73	30	88	24	90	23	93	18	93	14	89	28	87	4	70	18	61	22
	Min	-17	25	- 5	8	6	3	24	16	38	14	51	6	54	23	54	22	42	14	32	27	21	30	- 5	28
Onawa	Max.	50	7	58	5	66	9	81	30	88	24	92	23	95	16	96	*14	91	9	85	4	72	6	59	8
	Min	-16	25	- 7	8	4	3	19	16	35	14	48	6	52	* 1	49	22	41	14	29	27	12	30	- 9	28
Osage	Max.	39	7	38	* 6	51	23	76	30	87	22	86	*14	92	16	90	24	85	*17	76	9	66	* 1	41	* 8
	Min	-28	24	-20	1	1	3	21	* 3	31	15	48	8	44	2	42	8	34	15	24	27	9	30	-10	28
Osceola	Max.	42	19	55	6	70	20	80	23	87	*24	89	10	98	*17	95	14	90	1	86	4	..	..	..	..
	Min	-19	26	- 9	9	10	27	20	4	31	14	49	7	49	2	44	8	35	15	27	23	..	..	..	..
Oskaloosa	Max.	49	7	60	6	61	23	75	*23	84	22	88	23	92	17	90	*12	89	10	82	4	73	19	59	22
	Min	-23	29	-15	1	7	3	22	16	36	15	48	*14	48	2	45	* 8	35	15	25	*23	11	30	- 4	*14
Ottumwa	Max.	..	..	66	6	78	23	84	23	87	*22	88	23	95	*16	95	*12	92	10	..	..	78	19	61	22
	Min	..	..	- 8	1	10	3	25	16	38	15	51	* 1	50	2	50	* 8	39	15	..	..	16	30	- 1	*14
Pacific Junction	Max.	52	7	58	5	71	9	74	*23	88	24	90	23	92	*17	93	14	91	28	87	4	69	1	63	22
	Min	-16	25	- 5	11	6	3	22	16	32	14	47	* 6	49	* 1	45	*22	38	14	22	27	12	30	- 6	28
Perry	Max.	48	7	46	5	64	2	78	30	89	24	89	*18	94	18	91	24	87	10	84	4	70	2	58	22
	Min	-23	24	-13	1	6	3	23	* 3	36	14	49	* 6	50	2	44	8	37	15	23	27	10	30	-10	13
Plover	Max.	42	9	44	5	62	23	77	30	90	22	88	23	94	16	90	*12	88	28	78	9	68	* 2	54	8
	Min	-30	25	-18	1	0	3	20	*16	33	14	44	7	47	23	41	8	34	15	24	*23	8	30	- 8	28
Primghar	Max.	38	7	52	5	60	23	75	30	86	22	88	*14	90	16	89	*14	..	..	..	..	..	..	..	..
	Min	-25	24	-17	8	..	..	13	11	31	14	43	6	47	1	43	22	..	..	..	..	..	..	..	..
Red Oak	Max.	57	19	47	* 5	66	9	73	23	84	24	85	*18	89	18	88	*13	87	28	81	4	64	* 3	62	23
	Min	-14	25	- 1	11	10	3	27	16	40	*13	49	27	54	1	50	26	40	15	30	27	19	30	- 5	28
Ridgeway	Max.	41	7	46	28	59	23	83	30	93	22	94	23	99	16	94	24	90	17	80	*17	75	1	49	23
	Min	-28	*24	-20	1	0	3	19	3	35	15	48	7	48	1	50	* 8	38	15	25	27	7	30	- 8	28
Rock Rapids	Max.	40	* 7	49	5	60	*23	75	30	92	20	92	19	92	*16	90	14	88	* 9	78	* 4	70	* 3	58	8
	Min	-24	24	-15	* 8	0	3	18	17	34	14	40	7	45	23	40	20	30	21	25	6	9	30	-12	28
Rockwell City	Max.	43	* 7	47	5	60	* 2	78	*29	88	22	89	23	95	17	91	12	90	28	80	9	68	* 2	55	8
	Min	-28	24	-14	8	2	3	23	* 3	33	14	46	6	48	* 2	45	22	38	*14	25	*25	9	30	-10	28
Sac City	Max.	43	7	49	5	60	23	75	*29	86	22	89	23	94	16	91	14	89	9	78	4	70	18	64	23
	Min	-26	24	-12	* 1	3	3	21	16	34	14	46	* 6	49	* 2	44	8	37	15	24	27	10	30	-10	28
St. Charles	Max.	53	7	49	6	64	* 2	75	30	85	24	86	20	93	17	90	*13	89	28	89	4	79	18	61	22
	Min	-18	*25	- 8	1	7	3	22	16	37	14	51	7	52	2	49	8	41	15	24	27	12	30	- 6	*13
Sheldon	Max.	39	7	54	5	..	..	..	..	..	..	..	.	..	..	..	..	92	9	85	3	74	6	61	8
	Min	-27	24	-18	8	..	..	..	..	..	..	..	..	..	..	..	..	32	21	22	27	6	30	-13	28
Sibley	Max.	35	* 8	55	5	59	23	78	30	86	22	86	*19	90	*16	91	24	89	9	81	* 2	70	* 2	58	8
	Min	-28	24	-19	8	- 2	3	20	* 3	33	*10	39	7	44	23	38	22	31	21	22	*25	6	30	-12	28
Sigourney	Max.	48	7	57	6	65	21	86	24	86	28	92	20	94	17	95	13	91	10	80	4	70	* 1	..	..
	Min	-20	29	-14	1	8	3	22	16	36	15	42	7	46	2	46	8	36	15	25	27	10	30	..	..
Sioux City	Max.	46	7	58	5	67	9	75	30	88	22	88	23	94	16	96	14	92	9	84	3	70	1	60	8
	Min	-21	25	-13	8	2	3	20	16	37	14	49	6	50	* 1	46	10	40	21	30	23	15	30	-10	27
Sioux Center	Max.	40	* 7	51	5	59	9	76	30	86	22	89	*19	91	16	91	24	89	* 9	82	3	67	* 2	58	8
	Min	-25	24	-17	8	0	3	18	16	32	14	40	6	49	* 1	42	23	34	21	26	*25	9	30	-13	28
Spirit Lake	Max.	40	9	45	5	60	*23	80	30	..	..	..	..	..	..	89	24	89	9	78	16	..	..	..	..
	Min	-28	*24	-20	8	- 2	3	21	*13	..	..	..	..	..	..	44	*10	36	21	22	24	..	..	..	..
Stockport	Max.	..	..	..	..	..	..	..	..	92	7	84	*12	89	*17	89	13	88	10	81	9	75	18	59	23
	Min	..	..	..	..	..	..	..	..	38	15	54	7	56	*23	50	* 8	38	15	27	27	14	30	- 1	*15
Storm Lake	Max.	41	7	53	4	58	23	74	30	84	22	85	28	90	*16	88	14	86	9	79	4	69	3	56	8
	Min	-30	*24	-16	8	0	* 3	19	16	34	13	43	7	45	23	44	10	34	21	26	*25	10	30	-13	28

MONTHLY MAXIMUM AND MINIMUM TEMPERATURES WITH DATES FOR 1904—CONTINUED.

STATIONS.		Jan.		Feb.		March.		April.		May.		June.		July.		Aug.		Sept.		Oct.		Nov.		Dec.	
		Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp.	Date.	Temp	Date.
Stuart	Max.	54	8	..	..	..	..	75	*23	88	24	93	*19	97	17	90	24	87	28	82	4	67	2	57	22
	Min.	-19	25	..	..	..	..	25	16	36	13	44	6	47	2	48	8	38	15	26	27	13	30	- 7	28
Thurman	Max.	53	7	54	5	68	9	76	23	89	24	91	23	94	18	93	14	89	28	86	4	69	1	65	23
	Min.	-20	29	- 8	4	2	14	23	14	35	14	46	14	52	* 1	44	26	37	14	22	27	10	30	- 5	*27
Tipton	Max.	45	19	59	6	60	23	78	23	88	22	89	20	96	17	94	13	90	10	80	* 9	70	* 1	54	*22
	Min.	-18	3	-10	1	11	* 3	23	16	38	15	48	7	50	2	51	* 8	39	15	27	23	12	30	- 4	28
Toledo	Max.	46	7	52	6	60	* 2	78	*23	86	22	87	23	95	17	92	*13	93	10	82	4	72	* 1	54	22
	Min.	-23	29	-18	1	7	3	20	*16	34	15	43	7	44	2	40	8	31	15	19	27	9	30	-13	15
Vinton	Max.	..	..	..	..	58	23	78	23	87	22	88	23	94	17	92	*13	91	28	81	* 4	72	* 1	50	23
	Min.	..	..	..	..	8	3	21	17	33	15	45	* 7	43	2	40	8	33	15	19	27	8	30	-18	14
Wapello	Max.	47	19	59	6	64	21	79	23	82	*20	86	*23	91	*17	88	*12	89	17	78	9	70	19	56	23
	Min.	-12	* 3	- 5	16	15	3	26	16	40	15	51	9	49	2	49	8	40	15	29	27	15	30	0	28
Washington	Max.	50	19	62	6	65	21	81	23	85	22	88	23	92	*16	92	*13	88	*10	82	9	73	3	56	22
	Min.	-20	29	-16	1	7	3	22	16	39	10	51	* 7	54	*23	48	* 8	38	15	26	27	12	30	- 4	28
Wate loo	Max.	42	7	49	29	58	23	74	30	89	22	89	23	98	17	93	24	93	28	81	* 4	75	* 2	49	* 8
	Min.	-25	29	-18	1	6	3	19	16	33	15	45	7	46	* 2	43	8	33	15	23	27	10	30	-14	14
Waukee	Max.	49	7	50	5	67	2	80	30	90	24	91	23	97	*17	97	13	93	10	96	4	80	18	59	7
	Min.	-19	26	- 7	19	6	3	21	*14	35	14	50	6	52	* 1	45	* 8	38	15	24	27	10	30	-12	13
Waverly	Max.	39	7	43	6	58	23	73	*23	87	22	86	23	93	17	90	24	89	28	79	9	70	1	47	22
	Min.	-27	27	-22	1	4	3	21	* 3	32	15	46	7	48	2	41	8	37	15	23	27	10	30	-11	14
West Bend	Max.	42	7	46	5	60	23	76	30	86	22	87	19	92	*16	88	*12	87	28	77	9	68	2	54	8
	Min.	-29	24	-19	1	0	3	20	16	33	14	42	7	44	23	42	8	34	21	22	27	7	30	- 8	28
Whitten	Max.	43	7	46	6	61	2	75	30	89	22	90	18	94	*16	90	*12	89	28	79	9	68	* 2	46	22
	Min.	-28	26	-22	1	2	3	19	16	34	*10	47	22	48	* 1	42	8	38	12	21	27	9	30	-10	13
Wilton Junction	Max.	47	18	60	6	61	21	75	29	87	22	90	*20	96	17	93	*12	94	11	84	9	70	* 3	55	23
	Min.	-18	* 3	-13	1	11	3	21	16	33	15	46	8	48	2	43	8	32	12	24	27	10	30	- 6	15
Winterset	Max.	52	* 8	45	23	68	9	79	29	90	20	..	..	95	18	95	13	90	28	90	4	79	6	..	..
	Min.	-19	25	- 7	11	7	3	21	4	38	14	..	..	48	1	46	8	41	15	20	27	9	30	..	..
Zearing	Max.	..	..	..	..	..	..	79	30	85	22	86	23	93	18	91	24	89	28	83	4	71	2	51	8
	Min.	..	..	..	..	..	..	20	16	34	10	46	7	47	2	42	8	38	15	21	27	7	30	- 8	15

*And Other dates.

MONTHLY AND ANNUAL MEAN TEMPERATURES FOR 1904, WITH DEPARTURES.

STATIONS.	Jan.		Feb.		March.		April.		May.		June.		July.		August.		Sept.		October.		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	18.2	- 5.2	18.7	- 3.1	...	.....	45.4	- 5.9	61.2	- 1.9	69.5	- 2.1	72.6	- 3.5	71.0	- 2.9	65.2	* 0.1	....	.....	42.8	* 6.9	25 6	* 0.8	....	.....
Albia	15.8	.....	16.2	.....	35.5	.....	48.3	. .	59.1	.....	67.4	.....	70.2	.....	69.9	.....	65.2	.....	53.7	.	43.6	.....	23.5	.....	47.0	.
Algona	10.6	- 5.9	9.2	- 7.8	31.9	+ 1.9	42.9	- 5.4	58.7	- 0.8	65.6	- 4.1	69.4	- 4.3	67.5	- 3.6	61.6	- 0.9	50.4	- 0.2	38.5	* 6.6	19 6	- 0.7	43.8	- 2.1
Allerton	18.8	.....	19.8	.	37.6	.....	45 6	.....	60 0	.. .	68.4	.. .	71.1	.	71.2	.....	65.2	.....	55.4	.....	43.4	.	26.4	.	48.6	.....
Alta	11 1	- 5.7	11.6	- 7.6	31.9	+ 2.5	41.6	- 6.0	58.1	- 0.5	64.8	- 3.7	69.4	- 3.3	67.6	- 3.2	61.4	- 1.8	50.6	- 0 2	40.0	* 8.4	21.6	* 0.8	44 1	- 1.7
Amana	15.4	- 0.4	16.4	- 3.6	35.6	+ 4.2	45.0	- 3.7	60.2	- 0.2	67.8	- 1.9	70.8	- 3.2	68 8	- 2.0	64.5	* 1.8	52.6	* 3.0	40.2	* 7.0	23.4	* 1.4	46.7	* 0.2
Ames	14.0	- 3.1	14.9	- 6.7	35.0	+ 2.5	45 0	- 4.1	60.0	+ 0.4	67.4	- 2.6	70 2	- 4.8	69.0	- 3.2	64.5	* 1.1	53.6	* 2.7	41.3	* 8 1	22.2	* 0.4	46.4	- 0.8
Atlantic	17.6	- 2.6	17.9	- 2.8	36.4	+ 2.9	44.4	- 4.9	59.7	+ 0.1	67.1	- 2.6	70.5	- 3.2	69.8	- 1.1	64.0	* 4.9	52.4	* 0.4	40.4	* 5.9	24.8	* 2.3	47.1	- 0.0
Audubon	14.0	- 5.4	14.5	- 4.7	34.5	+ 1.9	43.7	- 6 2	59.2	- 1.1	65.6	- 3.2	69.8	- 3.1	69.8	- 2.1	63.6	* 0.2	53 0	* 1.8	39.6	* 5.1	23.2	* 0.1	45.9	- 1 4
Baxter	14.7	.....	15.4	....	35.4	.....	44.4	.....	59.8	....	67.2	.....	70.4	.....	68.5	.....	64.2	....	53.0	.....	40.7	.....	23.4	.....	46.4	.....
Bedford	19.0	.....	20.2	.	38.0	....	45 0	.....	59.6	.....	67 0	.....	70.4	.....	70 2	.....	65.6	.....	55 9	.....	41.8	.....	26.4	.	48.3	.....
Belknap	....	....	19.0	- 2 5	36.8	+ 0.5	45.6	- 7.0	31.9	- 1 0	68.4	- 2.6	71.9	- 3 6	71.8	- 2.2	68.6	* 1.9	58.4	* 2.8	....	.	....	.	....	.....
Belle Plaine	14.1	- 4.3	14 2	- 6 4	33.2	+ 0.7	42.9	- 2.8	58.4	- 0.9	67.3	- 2.5	69.4	- 4.2	68.4	- 2.2	63.4	- 0.3	52 3	* 1.7	39.3	* 4.9	21.4	- 2.6	45.4	- 1.6
Bonaparte	16.6	- 7.0	18.8	- 4.1	36.9	- 0.3	46.0	- 5.8	30.6	- 2.3	67.4	- 5 0	71.4	- 5.0	69.4	- 5.5	66.0	- 1.7	54.6	- 1.1	42.4	* 4.2	26.6	- 1.2	48.1	- 2.9
Britt	8.9	- 8.8	10.2	- 6.8	32.4	+ 3.6	42.2	- 4.6	57.6	- 1.5	66.4	- 1.4	69.4	- 3.5	66.6	- 3.4	61.4	- 0.2	50 9	- 0.8	37.8	* 4.7	19.8	* 2.7	43 6	- 1.7
Burlington	18.7	.....	21.0	.....	38.6	.....	47 2	....	62.4	.....	68.4	.....	73.4	.....	71.0	.....	67.3	....	55.8	...	43.8	.	28.1	.	49.6	.....
Carroll	13.0	- 6.6	14.6	- 4.4	34.4	+ 2.9	43 0	- 6.0	58.7	- 0.8	65.6	- 3.9	70.6	- 3.3	68.8	- 2.4	63.4	* 0.3	52.7	* 1.4	41.6	* 8.4	22.9	- 0.1	45.8	- 1.2
Cedar Rapids	12.8	- 5.5	14.2	- 6.3	34 0	+ 1.2	44.5	- 3.9	60.9	+ 0.9	68 9	- 1.8	72 6	- 3 2	70.1	- 2.6	65.0	* 1.4	52.8	* 1.3	39.6	* 3.8	21.8	- 3.5	46.4	- 1.6
Chariton	17.4	- 8.0	19.2	- 3.0	36.4	+ 0.7	45.0	- 6.7	59.1	- 3.6	67.2	- 3.2	70.2	- 4.9	69.6	- 4 1	65.4	- 0.2	54.8	† 0.0	43.1	* 4.5	25 8	† 0.2	47.8	- 2.4
Charles City	6.6	- 9.9	8 2	- 9.6	31.2	- 0.1	42.0	- 6.7	57.6	- 2.8	65.2	- 4.3	68.2	- 5.8	65.4	- 6.6	60.6	- 3.5	49 4	- 2.2	38.2	* 5.2	18.6	- 2.4	42.6	- 4.0
Clarinda	17.8	- 4.9	19.3	- 3.7	36.0	+ 0.8	44.8	- 7.2	59 6	- 2.1	68.1	- 3.7	72.0	- 4.3	71.2	- 3.2	65.0	- 1.0	54.4	- 0.2	42.2	* 4 8	24.0	- 2 5	47.9	- 2 3
Clear Lake	9.8	.....	9.8	.....	31.8	.....	43.4	.....	60.8	....	68.4	.....	71.2	.....	68.4	.....	62.8	....	51.0	.....	38.4	.....	20.8	.....	44.7	.....
Clinton	15.0	- 4.2	16 2	- 5.8	36.2	+ 3.4	44.8	- 3.8	61.0	+ 0.1	69.2	- 0.7	71.4	- 2.6	68.0	- 3.2	64.0	* 0.9	51 8	* 1.4	38.9	* 3.4	24.1	- 1.0	46.7	- 1.0
College Springs	19.6	- 4.6	20.7	- 3.1	37.8	+ 1.7	46.8	- 3.9	62 0	+ 0.6	69.5	- 2 0	73 4	- 2.0	73.3	- 0.9	66.9	- 0.2	56.6	- 1.1	44.0	* 5.6	27.4	* 0.4	49.8	- 0.8
Columbus Junction	17.6	.....	19.0	.	36.0	.....	45 2	.....	60.6	.	68.3	.	71.6	.....	69.1	.....	65.2	. .	53.1	.....	42.4	.	26.1	.....	47.8	.....
Corning	17.6	- 4.7	18.6	- 3.6	36.4	+ 0.7	44.2	- 6 5	59.2	- 1.3	66.7	- 3.7	70.1	- 4.4	69.4	- 3.4	64.8	- 0.3	54.6	* 0.6	....	.....	24.3	- 2.9	...	.....
Corydon	17.2	- 4.3	18.4	- 3.4	35.8	- 0.3	45.0	- 6.0	60.3	- 1.5	68.0	- 2.8	71.6	- 4.2	71 4	- 2.9	66.8	* 0.3	56.4	* 1.3	44.3	* 6.2	26.6	* 0.8	48.6	- 1.4
Cresco	10.0	- 1.0	11.2	- 3.9	27.0	+ 0.3	40.6	- 4.1	59.6	+ 2.9	65.4	+ 3.2	66 5	- 4.6	66 2	- 5.0	60 8	- 0.8	52.2	* 4.6	....	.	19.8	* 1.6	....	..
Davenport	16.4	- 3 6	17.2	- 8.1	36.0	+ 1.1	45 6	- 4.1	61.4	+ 0.7	69.0	- 1.9	72.9	- 2.1	70.0	- 2.8	65.6	* 0.9	54.4	* 2 3	42.3	† 5.5	26.7	- 1.1	48.1	- 1.1
Decorah	8.4	- 8 4	10.7	- 4.3	31.6	† 1.3	43.4	- 5 3	59.1	- 1.1	65 7	- 2.1	67.9	- 4.7	66.7	- 3.8	61.9	† 0.0	51.6	* 0.9	38.8	* 6.5	21.2	* 0.8	43.9	- 1.7
Delaware	11.2	- 4.6	11.6	- 4.6	32.0	† 1.7	42.4	- 3.6	58.6	- 0.1	66.0	- 2.6	69.0	- 3.6	66.9	- 2.9	62.6	* 1.2	50.4	* 1.4	38.2	* 6.2	20.1	- 1.1	44.1	- 1.0
Denison	14.6	- 6.5	16.8	- 1.8	35.0	† 3.1	42.6	- 6.7	59.4	- 1.2	66.2	- 2.7	71.8	- 2.0	69.7	- 2.4	64 2	* 0.8	53 3	* 2.5	40.8	* 6.4	24.4	* 2.5	46.6	- 0.7
Des Moines	15.6	- 1.9	16.7	- 6.4	36.2	* 1.5	45.4	- 5.1	60.6	* 0.2	68.4	- 1.7	71.6	- 2.9	70 2	- 1.8	65.2	* 1 1	54.6	* 2.4	42.9	* 6.5	25.3	- 1.5	47.7	- 0.8
De Soto	....	.....	17.6	.....	36.8	.....	45.4	....	60.8	.....	67.2	.....	70.7	....	70.0	. .	66.0	.	54 9	....	43.8	....	25 2	.	..	.....
Dows	10.3	- 9.0	10 8	- 4.6	32.6	* 2.7	42.6	- 5.8	57.8	- 1.9	65.0	- 2.7	69.1	- 3.9	66 4	- 3.6	62.4	* 0.8	51.3	- 1 3	38.8	* 5.1	20.8	* 1.0	44.0	- 1.9
Dubuque	13.4	- 3.9	14.4	- 8.2	33.8	* 0.9	44.4	- 4.2	60.2	- 0.8	67.5	- 2.0	71.2	- 3.1	68.8	- 2.8	64.2	* 1.0	52.8	* 2.2	41.2	* 6.2	23.4	- 2,5	46.3	- 1.3
Earlham	14.0	.....	15.2	.....	34.3	.....	41.4	.	56.8	.....	64.1	.....	67.9	.	67.2	.....	62.4	.....	52.8	.	40.2	.....	22.5	.....	44.9	.....
Elkader	10.2	- 4.2	12.0	- 6.1	33.0	* 2.2	43.8	- 4.4	60.2	- 0.7	67.2	- 2.3	71.0	- 3.0	68.5	- 2.3	64.5	† 2.5	51.8	* 2.3	38.7	* 6.1	20.6	- 1.0	45.1	- 0.9
Estherville	7.5	- 8.8	7.2	- 8.8	30.0	* 2.9	40.9	- 7.4	56.8	- 1.9	63.8	- 4.8	67.2	- 5.5	66.6	- 4.4	60.4	- 0.5	49.2	* 0.1	39.2	*10.1	18.8	* 2.4	42.3	- 2.2
.....	....	....	....	.....	....	....	....	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Forest City	8.7	- 9.5	7.4	- 7.6	31.3	* 2 9	42.4	- 5.6	58 2	- 1.4	65.4	- 2.7	69.2	- 3.7	66.0	- 4.8	60.8	- 1.5	51.0	* 0.5	38.4	* 7.2	18 2	- 1.2	43.1	- 2.3
Fort Dodge	12.4	.....	13.4	.....	34.2	.....	42.4	....	59.0	.....	66.0	.	70 6	.....	67 9	.....	62.2	.....	51 5	.....	40.6	.	20.6	.....	45.1	.....
Galva	11.8	- 6.7	12.6	- 5.2	30.8	- 1.7	41.4	- 7.9	58.3	- 2.4	66.6	- 2.4	70.0	- 4.0	67.8	- 3.6	60.9	- 3.6	....	.....	36.7	* 4.5	22.8	* 1 2	....	....
Glenwood	20.7	- 2.0	20.0	- 3.2	38.6	* 2.6	46.5	- 7.0	61.0	- 0.9	68.0	- 5.0	70.8	- 6.2	70.4	- 3.7	66.1	- 1.8	56.2	* 0.3	45.0	* 6.4	28.4	- 0.7	49.3	- 1,8
Grand Meadow	10.0	- 5.9	11.4	- 5.6	32.2	* 2.0	42.2	- 5.3	58.0	- 0.2	65.2	- 1.8	68.0	- 3.0	66.2	- 2.8	62.4	* 0.7	50.8	* 0.8	39.4	* 7.2	19.0	- 2.5	43.7	- 1.4
Greene	....	....	....	....	....	....	....	....	59.2	- 1.4	66.6	- 2.8	70.0	- 5.1	67.8	- 4.6	62.7	- 1.4	51.6	- 2.0	39 6	* 4.4	20.3	* 1.5	...	.....
Greenfield	16.8	- 4.9	16.8	- 4.5	35.6	* 1.7	44.6	- 6.0	60.0	- 0.5	67.7	- 2.9	71.0	- 3.6	69.6	- 3.0	65.0	- 0.8	54 1	* 0 5	42 1	* 6 2	24.6	* 0.1	47.3	- 1.5
Grinnell	14.9	- 2.6	15.3	- 5.8	34.8	* 2.1	44.6	- 5.8	59.8	- 0.4	...	.....	.	.....	.....		65 8	* 2.4	53.6	* 1.3	41.4	* 5.6	24.2	† 0.0	....	.....
Grundy Center	12.6	- 4.3	13.0	- 4.6	30.9	- 0.6	43.8	- 3.9	58.9	* 0.2	65.6	- 3.5	69.7	- 2.5	67 8	- 2.9	63.8	* 0.9	52.8	* 1.4	40.7	* 7.9	21.5	- 0.7	45.1	- 1.0
Guthrie Center	18.5	- 3.5	18.4	- 1.5	38.6	* 5.0	47.3	- 2.8	60.7	- 0.3	67.6	- 2.0	71.6	- 2.4	70.0	- 2.4	65.2	* 1.7	54.0	* 1.5	41.9	* 5.3	24.8	* 3.5	48.2	* 0.2
Hampton	10.8	- 4.7	11.9	- 5.6	33.1	* 4.5	44.2	- 3.4	59.6	* 1.2	66.2	- 2.0	71.0	- 1.7	69.4	- 0.8	64.2	* 1.9	53.2	* 2.6	41.4	* 9.3	21.4	* 0.5	45.5	* 0.1
Hanlontown	8.7	.. ..	8.4	.....	30.9	.....	41.6	.....	56.8	.....	63.8	.....	67.5	.....	65.4	... .	60.9	.....	50.0	.....	38.5	... .	19.6	.....	42.7	.....
Harlan	16.5	.....	17.0	.....	35.8	.....	43.6	....	59.9	.....	67.4	.....	71.0	... .	69 0	.....	63.6	....	53.0	.	39.4	.....	23.5	.....	46.6	.....
Hopeville	18.0	- 3.8	18.3	- 3.6	36.6	* 2.3	45.0	- 5.2	59.8	- 0.6	67.9	- 2.6	71.2	- 3.2	71.0	- 2.1	66.0	- 0.6	55.1	* 0.5	43.3	* 7.8	25.3	* 0.2	48.1	- 0.9
Humboldt	11.5	- 6.0	13.6	- 3.8	34.2	* 4.5	43.7	- 5.4	59.6	- 0.7	66.6	- 3.4	69.8	- 4.1	68.2	* 1.3	63.2	* 0.9	52.3	* 2.6	40.0	* 6.5	23.0	* 0.2	45.5	- 0.6
Ida Grove	14.5	. .	13.7	.	33.8	...	43.2	....	60.9	.....	68 4	.....	72.2	....	69.6	.....	64.1	.....	52.2	..	38.3	.....	....	....	....	.....
Independence	10.4	- 4.3	9.8	-12.0	....	....	42.7	- 4.5	57.8	- 1.9	65.2	- 3.9	67.9	- 5.5	67.6	- 2.6	62.6	* 1.3	51.5	* 3.3	39.0	* 5.8	19.8	- 1.9	....	.....
Indianola	16.8	- 2.2	17.2	- 5.3	36.3	- 1.7	45.4	- 6.3	60.6	- 0.3	68.3	- 2.1	71.9	- 3.7	70 2	- 2.5	66.2	* 0.6	54.0	- 0.2	43.1	* 1.5	25.8	* 0.6	48.0	- 1.8
Inwood	11.2	.....	11.0	.	32.3	.....	42.3	.....	57.4	.....	65.5	.	69.4	.....	68.3	.....	60.5	.....	50.6	.....	38.4	.....	21.0	....	44.0	. ..
Iowa City	13.7	- 5.4	13.8	- 9.1	35.2	* 1.6	44.3	- 2.0	61.0	* 0.7	68.8	- 0.5	71.6	- 2.6	69.4	- 2.2	64.3	* 0.9	53.2	* 2.1	39.4	* 3.9	22.4	- 1.7	46.4	- 1.2
Iowa Falls	9.6	- 5.8	10.7	- 4.6	32.4	* 1.6	42.6	- 4.9	57.5	- 2.2	65.4	- 3.1	68.9	- 4.1	65.8	- 4.4	61.6	† 0.0	50.4	* 0.1	37.8	* 5.6	20.4	- 0.1	43.6	- 1.8
Keokuk	18.6	- 4.6	21.6	- 6.7	38.6	* 1.0	47.0	- 5.0	62.4	- 0.2	69.7	- 2.8	74 0	- 2.9	71.9	- 2.6	67 2	* 0.8	56.5	* 2.4	44.8	* 6.0	29.9	* 0.1	50.2	- 1.2
Keosauqua	14 8	- 9.0	17.3	- 6.8	36.8	- 1.2	45.4	- 7.4	61.2	- 2.0	69.0	- 4.0	72.2	- 4.6	70.2	- 4.7	65.2	- 2.2	53.5	- 2.6	39.8	* 0.5	24.7	- 2.8	47.5	- 3.9
Larrabee	11.9	- 6.0	11.9	- 6.3	33.4	* 4.2	42.6	- 5.5	58 9	* 0.4	67.2	- 1.7	71.8	- 1.2	69.0	- 2.2	62.0	- 1.1	51.8	* 1.3	38.8	* 6.9	21.6	- 0.3	45.1	- 1.0
Le Mars	14.3	- 6.7	13.6	- 3.7	34.2	* 2.4	42.7	- 7.0	58.7	- 1.9	....	.....	69.6	- 4.3	69.2	- 2.8	62.0	- 0.9	51.1	* 1.4	38.6	* 5.2	23.0	* 1.5	...	.....
Lenox	17.6	- 7.3	18.4	- 3.6	36.6	* 1.7	44.8	- 6.4	59.5	- 2.6	67.0	- 3.2	70.5	- 4.2	69.9	- 3.3	65.2	- 0.1	54.6	* 0.3	42.2	* 4.8	24.9	* 0.7	47.6	- 1.9
Leon	19.2	.....	20.0	.....	36.6	.....	45.6	.....	61.0	.....	68.4	.....	71.6	... .	71.2	.....	65.8	.....	54.4	.....	43.5	.	26.4	.....	48 6	.....
Logan	17.4	- 1.8	19.0	- 4.6	37.4	* 3.3	46.0	- 4.0	60.8	- 0.4	68.9	- 1.2	71.6	- 3.4	71.2	- 1.3	65.5	* 1.5	53.5	* 1,2	40.5	* 4.9	25.4	* 0.5	48.1	- 0.4
Maquoketa	11.8	- 8.3	12.1	- 9.5	36.3	* 2.3	43.3	- 5.6	58.8	- 2.3	66.2	- 3.8	69.6	- 5.5	66.8	- 5.1	62.0	- 1 8	51.0	- 3.4	37.4	- 3.4	21.3	- 3.8	44.7	- 4.2
Marshalltown	13.1	- 7.0	13.1	- 6.9	34.0	* 1.8	43.7	- 5.9	59.6	- 0.5	67.6	- 1.8	71.4	- 2.4	69.0	- 3.0	63.4	- 0.8	52.1	- 0.9	39.6	* 3.9	20.0	- 5.5	45.6	- 2.4
Mason City	11.2	- 4.0	11.5	- 3.4	32.8	* 4.9	43.2	- 6.2	59.3	* 0.3	66.3	- 1.3	70.4	- 1.0	68.2	- 1.4	62.6	- 0.4	51.0	* 1.6	39.8	*10.4	21.2	* 0.8	44.8	† 0.0
Mt. Ayr	19.4	- 4.5	20.2	- 1.6	38.0	* 2.5	46.2	- 5.3	61.2	- 1.2	69.0	- 1.7	72.2	- 3.5	72.8	- 1.0	67.0	* 0.3	56.8	* 1.5	45.4	* 7.5	26.8	* 2.2	49.6	- 0.4
Mt. Pleasant	17 4	- 0 6	19.4	- 4.4	37.4	* 2.9	46.0	- 5.1	61.8	* 0.4	69.2	- 1.9	73.8	- 1.5	70.6	- 1.8	66.1	* 2.5	54.0	* 3.4	41.8	* 7.1	26.3	* 0.5	48 6	- 0.1
Mt. Vernon	14.0	- 2.7	15.2	- 6.4	34.4	* 4.5	46.6	* 0.1	61 1	* 1.7	68.6	- 0.8	71.9	- 1.5	70.1	- 0 1	64.7	* 3.0	52.8	* 5.5	40.7	* 7.5	22.8	- 1 3	46.9	* 0.8
New Hampton	7.8	-12.5	9.9	- 4.0	30.4	- 0.2	41.5	- 7.1	57.0	- 3.3	64.0	- 4 6	66.8	- 6.6	65.0	- 5.7	60.2	- 2.4	50.6	- 2.9	39.0	* 4.2	20.6	* 2.7	42.7	- 3.4
Odebolt	13.8	- 8.8	15.1	- 2.5	34.8	* 1.8	43.5	- 6.2	60.4	- 1.5	67.4	- 3.4	73.0	- 3.1	70.0	- 4.6	63.8	* 0.7	52.5	- 2.9	40 2	* 4.2	24.3	* 2.7	46.5	-12.0
Ogden	11.8	- 9.7	11.5	- 7.9	33.8	* 0.1	.....	.....	59.2	- 2.2	66.4	- 3.2	70.0	- 4.9	68 8	- 4.2	63.6	- 1.1	53.4	† 0.0	40.8	* 5.6	24.3	* 1.1	....	- 2.0
Olin	14.0	- 8.6	15.2	* 0.9	34.9	* 1.9	44.0	- 2.7	59.4	- 1.6	68.6	- 1.0	71.0	- 3.8	68.0	- 2.8	63.6	* 2.1	52.4	* 0.5	39.6	* 2.7	22.8	* 0.0	46.1	- 1.0
Omaha, Nebraska	19.8	* 0.6	19.8	- 5.2	38.2	* 2.7	45.8	- 5.2	62.0	* 0.3	69.1	- 2.4	73.1	- 3.1	72.4	- 1.3	66 3	* 1.5	56.6	* 3.7	44.8	* 8.2	27.5	* 0.8	49.6	† 0.0
Onawa	18.3	.....	19 0	.....	37.1	.....	45.8	.....	62.4	.....	69.4	.....	73.6	.....	72.8	.....	66.8	.....	55.7	.....	42.2	.....	25.3	.....	49.0	.....
Osage	9.6	- 4.4	10.0	- 4.4	31.6	* 4.2	42.3	- 3.2	58.0	* 0.9	65.4	- 1.0	68.6	- 2.4	67.6	* 0.1	61.1	* 1.7	49.8	* 2.9	38.4	* 9.2	19.4	* 0.3	43.5	* 0.3
Osceola	17.0	- 5.1	20.8	* 0.3	38.6	* 4.8	45.4	- 5.4	59.9	- 2.4	68.3	- 2.4	71.2	- 4.7	71.1	- 3.1	65.2	* 0.1	57.4	* 2.8	...	.....	....	.....	....	.....
Oskaloosa	15.6	- 3.4	16.8	- 4.5	36.1	* 1.9	45.8	- 4,5	60.2	- 0.2	67.8	- 2.1	70.2	- 5.2	69.8	- 2.0	65 4	* 1.0	54.9	* 3.0	42.0	* 5.3	25.1	- 0.7	47.5	- 1.0
Ottumwa	....	.....	19.6	- 3.3	38.6	* 1.0	47.8	- 5.0	62.0	- 1.8	69.2	- 3.2	73.9	- 2.9	72 9	- 2.1	68.2	* 1.6	....	.....	44.6	* 5.4	27.2	- 0.2	....	.....
Pacific Junction	18.7	.....	19.5	.....	37 6	....	44.7	.....	60.9	.....	68.3	.....	71.5	.	70.6	.....	66.4	.....	55.2	.....	40.6	.. .	25.6	.....	48.3	.....
Perry	14.4	.....	15.4	.....	35.4	.. .	45.0	.....	61.1	.....	68.4	.....	71.6	.....	70.0	.....	63.8	.....	53.4	.....	41.2	.....	24.0	.....	47.0	.....
Plover	9.9	-11.1	10.0	- 6.7	32.8	* 2.4	41.6	- 6.6	59.1	- 1.3	65.6	- 3.0	69.8	- 4.7	67.7	- 3.8	62.2	- 1.2	50.8	- 1.5	38.6	* 4.8	20.6	- 0.3	44.1	- 2.6
Red Oak	21.6	- 4.5	21.2	- 1.6	38.1	* 1.3	45.4	- 6.4	61.3	- 1.8	69.0	- 3.6	72 2	- 4.3	72 1	- 2.6	66.8	† 0.1	56.2	- 1.1	42.2	* 0.6	28.2	* 3.4	49.5	- 1.7
Ridgeway	11.3	-11.0	13.0	- 4.1	33.2	* 1.8	44.8	- 3.8	62.4	* 1.8	68 7	- 0.5	71.2	- 5.4	69 7	- 3.1	63.7	* 1 5	51.8	- 2,1	41.7	* 4.5	22.7	* 1.5	46.2	- 1.6
Rock Rapids	11.0	- 3.8	12.0	- 5 0	33.0	* 3.2	43.2	- 5 4	60.2	* 3.0	67.8	- 1.1	69.4	- 3.4	67.6	- 2.2	60.1	- 2.9	51.0	* 3.5	41.4	*13.4	21.2	* 1.5	44.8	* 0.1
Rockwell City	12.8	- 8.4	13.5	- 3.3	34 0	* 2.6	43.8	- 4.4	59.8	- 0.8	67.4	- 1.5	71.5	- 2.4	68 2	- 3.2	62.2	- 2.0	52.0	- 0.7	41.0	* 7.0	23.2	* 2.3	45.8	* 1.2
Sac City	13.2	- 3.3	13.7	- 3.9	33 4	* 3.6	43.2	- 5.0	59.8	*-2.1	66.4	- 2.2	70.4	- 2 9	69.3	- 0 7	63.7	* 2.1	52.3	* 2 4	41.4	* 8.9	27.5	* 4.1	46.2	* 0.4
St. Charles	17.7	.....	18.1	.....	36.8	.....	45.6	.....	60.4	.....	67.7	.	71.4	.....	70.8	.....	66.4	.	56.2	....	45.8	... .	26.9	.....	48.6	....
Sibley	7.5	- 9.1	8.6	- 6.8	30.4	* 0 8	40.2	- 7.8	56.4	- 2.2	63.7	- 3.4	66.8	- 4.5	65.0	- 4.1	59.0	- 2.2	51.1	* 0.2	38.0	† 7.1	18.4	- 0.7	42.1	- 2.7
Sigourney	16.8	- 7.3	18.4	- 3.0	37.8	* 1.9	46.6	- 5.6	61.6	- 2.6	68.7	- 3.6	71.7	- 5,9	70.8	- 3.4	65.6	* 0.5	54.0	- 1.4	41.4	* 2.6	....	.....	....	.....
Sioux Center	12.2	- 9.4	11.7

MONTHLY AND ANNUAL PRECIPITATION FOR 1904, WITH DEPARTURES FROM NORMAL.

STATIONS.	Jan.		Feb.		Mar.		Apr.		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	2.02	+1 21	0.15	- .89	....	.....	5.61	+1.94	4.20	- .51	2.55	-1.75	4 22	- .58	4.66	*1.15	2.80	-1.07	.85	-2.11	T	-1.11	2.80	*1.02	.....	.....
Albia	3.01	.....	0.26	.....	2 55	.....	5.26	.....	3.61	.....	1.67	.....	4.65	.....	3.73	.....	5.55	.....	.21	.....	.08	.....	1.17	.....	30.75	.....
Algona	0.40	+ .10	0.28	-1.02	1.34	- .22	2.14	- .42	3.06	- .39	3.71	- .68	3.75	* .08	2.95	- .76	2.07	-1.09	1.47	- .63	.32	- .94	1.27	* .22	22.76	- 5.75
Allerton	2.60	.....	0.26	....	3.18	.	4.74	.....	3.51	.....	2.36	.....	4.77	.....	3.90	.	.....	.....	.52	.....	.06	.....	1.23	.....	.....	.....
Alta	0.37	- .28	0.76	+ .01	1.50	- .32	4.44	+1.20	6.89	+2.17	3.63	-2.03	3.12	-1.59	4.92	*1.08	1.17	-1.50	2.46	* .29	.31	- .86	.52	- .51	29.59	- 2.34
Alta (near)	0.50	.....	0.55	.	1.31	.....	4.06	.	6.34	....	3.20	.	3.96	. .	4.96		1.69	.	2.45	.....	.10	....	.40	.	29.52	.....
Amana	1.73	+ .29	0.70	- .57	2.83	+ .83	4.22	+1.34	3.88	- .58	0.59	-3.90	6.64	*2.44	2.88	- .70	1.74	-1.62	1.00	-1.74	.19	-1.56	1.62	* .13	28.02	- 5.64
Ames	0.50	- .47	0.40	- .44	1.63	+ .15	4.19	+1 44	3.69	- .54	3.45	-1.30	2 39	-2.19	3.37	- .17	3.37	- .16	1.78	- 74	.02	-1.08	.79	- .23	25.58	- 5.73
Atlantic	1.36	+ .60	0.19	- .77	2.23	+ .27	4 35	+1 31	4 20	+ .03	3.84	-1.84	5.47	*1.12	3.80	* .74	3.06	* .39	1.40	-1.24	08	- .78	1.05	- .33	31.03	- .50
Audubon	0.33	- .33	0.15	- 65	0.81	- .97	3.44	+1.52	3.42	- .50	4.02	+ .25	4.98	*1.06	3.11	- .84	2.22	- .84	1.82	- .41	.17	-1.31	.45	- .80	24.92	- 3.82
Baxter	1.35	.....	0.84	.....	1.91	.....	5.03	....	3.37	.....	1.25	.....	6.70	.....	2.23	.....	2.45	.....	1.40	.....	.08	....	1.40	.....	27.51	.....
Bedford	2.87	.....	0.22	.....	4.57	.....	5.62	.....	4.50	.....	2.71	.....	5.36	....	6.39	.....	4.40	.....	.58	.....	.08	.....	.70	....	38.00	.....
Belknap	2 57	+ .79	0.50	-1.05	3.72	+1.69	4.51	+1.53	3 59	- .37	4.80	+ .72	4.28	- .38	4 25	- .41	5 61	*1.47	.....	.....	.....	.....	.....	.....	.....	.....
Belle Plaine	3.42	+1.90	1.26	- .04	3 36	+ .76	3.14	- .47	3 41	-1.03	1.55	-2.68	3.99	* .35	2.68	-1.68	2.53	- .37	1.55	- .73	.20	-1.63	3.15	*1.66	30.24	- 3.96
Bonaparte	2.61	+1.04	0.23	-1.01	2.73	+ .05	3.36	+ .03	4.17	+ .14	4.41	+ .07	4.43	* .83	4.40	* .57	6.73	*2.72	.14	-1.68	.50	-1.50	2.25	* .80	35.96	* 2.06
Britt	0.46	- .13	0.55	- .42	1.63	+ .29	3 05	+ .98	3.62	- .07	4 69	+ .21	4.74	* .42	2 39	-1 28	3.19	- .86	1.65	- .53	.26	- .72	.83	.04	27.06	- 2.07
Buckingham	0.75	....	0 47	...	2.46	.....	3.28	.....	2.74	... .	0.80	.....	3 70	.....	2.30	.....	2.12	.....	1.83	.....	.18	.. .	1.99	....	22.62	.....
Burlington	3.10		0.34	.....	3.05		3.28	.....	3.70	.	4.05	.....	5.19	.....	6.08	.....	3 98	.....	.43	.....	.13	....	2.48	.....	35.81	.....
Carroll	0.50	- .36	0.70	- .38	0.96	-1.39	3 43	- .09	3.27	-1.14	5.61	+ .78	3.92	* .02	3.16	- .61	1 66	-1.46	1 99	- .27	.18	- .97	1.45	* 37	26.83	- 5.50
Cedar Rapids	1.01	- .43	0.11	-1.44	2.07	- .11	1.85	-1.13	3.36	-1.16	2.64	-1.28	5.62	*1.75	2.54	- .71	1.02	-1.87	1.04	-1.55	.09	-1 33	1.75	* .14	23.10	- 9.12
Chariton	2.15	+1.04	0.02	-1.02	3.23	+1.73	4.66	+1.17	2.80	-1.41	3.40	- .87	5.14	-1.10	3.32	* .42	2.66	-1.07	.45	-2.37	T	-1.41	1.20	- .32	29.03	- 5.27
Charles City	0.44	- .55	0.57	- .52	1.67	- .18	1.95	- .59	3.58	- .47	5.96	+ .83	4.75	* .88	2.42	- .42	3.81	* .12	1.94	- .45	.25	-1.25	2.24	* .88	29.08	- 1.77
Clarinda	2.12	+ .15	0.14	- .88	2.88	+ .93	4 89	+1.58	4.11	- .68	4.86	- .25	7.28	*2.60	4.17	* .46	1.39	-1.17	1.72	-1.07	.09	- .94	.88	- .36	34.48	* 1.37
Clear Lake	0.62	.....	0.60	...	1.20	...	2.15	.....	1.50	.....	5.30	.....	4.70	.....	2.00	.....	2 05	.....	2.65	.....	.25	.....	1.40	.....	24.42	.....
Clinton	2.25	+ .40	0.95	-1.16	4.01	+ .99	3.40	+ 47	2.50	-2.10	1.64	-3.04	3.78	- .81	5.36	*2.31	2.67	- .43	.59	-1.82	.10	-1.80	2.85	*1.04	30.10	- 5.45
College Springs	2.39	+1.83	.....	.....	2.16	+ .31	4.74	+1.07	3.00	-1.94	5.04	+ .61	6.88	*1.15	4 19	* .75	1.12	-1.34	1.34	-2.77	.10	- .94	.83	- .76	.....	.....
Columbus Junction	1.98	.	0.51	.....	2.68	.....	2.91	.....	3.16	....	3.81	....	3.84	.	5.72	.....	4.61	.....	.74	.....	.16	. .	2.54	.....	32.69	.....
Corning	2.29	+1.54	0 08	- .72	2.91	+1.16	5.15	+2.06	5.55	+ .82	2.83	-1.36	6.31	*1.84	3.35	- .05	2 23	- .25	2.13	- .43	. .	.....	.....	.....	.....	.....
Corydon	2.33	+ .72	0.12	-1.30	3.24	+1.17	4.68	+1.56	3.06	-1.91	1.73	-2.60	5 25	* .85	2.82	-1.19	2.73	-1.13	.14	-2.78	.05	-1.45	1.39	- .23	27.54	- 8.24
Cresco	0.38	- .79	.....	.....	.....	.....	2.95	+ .52	5.35	+1.59	2.45	-2 51	.....	.....	2.66	- .19	4.95	*1.26	2 25	- .12	.....	.....	1.26	- .03	.....	.....
Cumberland	2.10	.....	0.10	.....	3.20	.....	4.10	.....	3.42	.....	3.71	.....	4.71	.....	3.25	.....	2.03	....	1.32	.....	T	.....	1.20	.....	29.14	.....
Davenport	2.20	+ .53	0.72	- .85	2.70	+ .54	2.05	- .73	2.64	-1.68	1.28	-2.11	3.84	- .32	3.60	* .02	3.98	* .80	1.15	-1.47	.18	-1.88	2.21	* .48	27.05	- 6.67
Decorah	0.64	- .44	0.48	- .50	2.22	+ .26	2.16	- .53	5.19	+ .82	2.34	-1.92	2 84	- .37	2.06	*0.38	5.44	*2.00	3.92	*1.58	.35	-1.24	1.74	* .38	29.38	* .42
Delaware	0.57	- .44	0 49	- .39	2.82	+ .99	1.93	-1.11	3.42	- .70	2.50	-1.78	3.38	- .30	2.50	- .36	2 65	- .59	2.62	* .40	.09	-1.52	1.77	* .25	24.74	- 5.55
Denison	0.53	- .03	0.30	- .34	0.83	- .80	2.20	-1.76	3.41	- .19	4.02	+ .44	3.33	- .99	2.95	- .43	1.53	-1.68	1.41	-1.00	.15	- .75	.62	* .02	21.28	- 7.51
Des Moines	1.22	- .12	0.22	-1.11	1.20	- .96	5.48	+2.69	3.16	-1.54	2 08	-3.28	6.94	*3.41	2.60	-0.66	1.95	-1.25	1.50	-1.54	.06	-1.65	2 02	* .56	28.43	- 5.68
De Soto	.....	.....	0.25	....	1.64	...	5.56	....	3.09	.....	2.14	. .	9.98	.....	3.08	.....	1.78	.....	1.57	.....	.10	.....	2.30	.....	.....	.....
Dows	0.70	+ .16	0.75	- .15	1.55	- .44	2 30	- .75	4.60	- .47	5.52	+ .44	3.65	- .70	2.57	-1.31	4.60	* .83	2.13	- .22	05	-2 29	1.97	*1.08	30.39	- 3.82
Dubuque	0.51	-1.17	0.73	- .73	2.86	+ .59	2.05	- .74	3.86	- .13	0.74	-4.46	1.86	-2.42	2.58	- .57	2.21	-1.88	3 18	* .47	.08	-2.02	2.37	* .56	23.03	-12 50
Earlham	1.37	.....	0.37	.....	1.69	.....	7.64	.....	2.78	.. .	2.41	.	6.33	.....	2.84	....	3.37	.....	1.55	.....	.13	.	1.29	.....	31.77	.....
Elkader	0.51	- .84	0.65	- .47	2.75	+ .92	1.52	-1.33	3.50	- .55	2.75	-1.45	3.05	-1.29	2.06	- .74	4.39	* .57	1.74	-1.01	.14	-1.54	2.30	* .37	25.36	- 7.36
Estherville	0.43	+ .08	0.39	- .23	1.98	+ .57	3.34	+ .88	3.57	+ .44	5.27	+2.18	4.50	* .62	3.96	* .66	1.35	-1.75	2.85	*1.23	.14	-1.08	.62	* .03	28.40	* 3.68
Fayette	0.08	-1.15	1.02	- .14	3.64	+1.38	2.33	- .87	4.99	+ .15	2.02	-3.83	4.37	* .67	3 81	* .91	....	.	.....	.....	.....	.....	.....	.....	.....	.....
Florence	....	.	.....	.....	.....	.....	2.51	.....	4.68	.....	7.59	.	4.00	.....	2 29	....	3.69	.....	1.69	.....	.19	.....	.....	.....	.....	.....
Forest City	0.40	- .24	0.70	- .07	1.33	- .15	2.35	- .25	2.44	-1.86	4.09	- .97	4.76	*1.33	2.97	* .76	1.77	-2.05	1.89	- .48	.22	-1.14	.70	- .21	23.62	- 4.83
Fort Dodge	0.30	.....	0.60	.	1.08	.....	4.66	.	5.16	.	7.78	.....	2.21	. .	6.75	.....	4 02	.....	2.08	.....	.20	.....	1.00	. .	35.79	.....
Fort Madison	3.15	+1.26	0.35	-1.61	3.73	+ .75	4 29	+1.00	3 58	-1 28	3.70	- 64	4.43	* .32	5.32	*1.66	5.04	*1.25	.52	-2.23	.43	-1.73	1.78	- .22	36.32	- 1.47
Galva	0.55	+ .20	0.50	+ .03	....	....	3.63	+ .87	7.81	+4.51	3 57	- .66	4.09	- .11	2.56	- .78	1.07	-2.93	2 93	*1.26	.09	-1.24	.32	- .52	.....	.....
Gilman	1.03	....	0.55	.....	1.74	.....	3.93	.....	2.05	.....	0.44	.	5.56	.....	2.92	.	1.67	.	.76	.....	.25	.....	2.07	.....	22.97	.....
Glenwood	0.55	- .30	0.02	- .66	0.75	- .51	3.50	+ .95	5.35	+ .86	3.03	- .88	5.20	*1.54	3.22	- .29	3.15	*1.02	.45	-2.13	.50	- .10	.20	- 68	25.92	- 1.08
Grand Meadow	0.60	- .58	0.83	- .29	3.01	+ .91	2.78	- .35	6.51	+1.36	1.99	-3.27	4 03	- .29	2.95	* .45	6.09	*2.92	3.09	* .52	.18	-1.41	1.75	* .14	33.81	* .16
Greene	...	.....	.....	.....	.....	.....	.....	.....	4.70	+ .56	4.30	+ .23	3.06	-1.13	2.59	- .56	3.39	* .05	2 84	* .20	.33	- .96	1.34	+ .36	.....	.....
Greenfield	1.71	+ .81	0.20	- .84	1.96	- .28	5 28	+2.15	4.16	- .44	2.61	-2.50	4.00	- .89	3.94	+1.12	2 80	- .48	1.49	- .81	.24	- .82	1.26	- .09	29.65	- 3.07
Grinnell	1.52	+ .36	0.73	- .14	2.80	+1.01	5.93	+2.41	2 61	-2.04	.....	.	.....	.....	.....	.....	.....	.....	.64	-1.81	.12	-1.40	2.68	*1.39	...	.....
Grinnell (near)	.....	.....	.....	.....	.....	.....	.....	.....	.	.	1.22	.	5.55	. .	2.56	.	1.00	.....	83	.	.10	.....	.....	.....	.....	.....
Grundy Center	0.78	+ .07	0.58	- .14	2.24	+ .58	2 28	-1.10	3.55	-1.40	1.89	-3.95	5.88	*1.20	2.61	- .96	3.18	- .14	1.70	- .99	.23	-1.05	1.73	* .48	26.15	- 7.40
Guthrie Center	0.91	+ .38	0.30	- .37	1.54	+ .14	3.72	+1.25	3.20	-1.37	5 06	+1.00	6.90	*2.36	4.12	- .44	1.64	-1.82	2 68	* .46	.13	- .92	1.14	- .13	31.34	* .54
Hampton	0.80	- .30	0 95	- .16	2 00	- .26	2.59	- .85	4.55	+ .38	4 78	- .50	4.79	* .65	2.50	- .65	4.24	* .74	2 13	- .50	.40	-1.21	1.86	* .54	31.54	- 2.12
Hanlontown	.....	.....	0.53	.....	1 34	.....	4.48	.	2.95	.....	5.16	.....	5.58	.....	2 33	.....	1.55	.....	2.23	.....	.13	.	1.40	.....	.....	.....
Harlan	0.93	+ .13	0.17	- .60	1.38	- .62	3.20	+ .86	3.07	+0.16	4.24	-1.90	5.20	- .80	1.91	-2.18	2.48	-2.12	.92	-2.26	.17	- .72	.60	- .82	24.27	-10.87
Hopeville	2.43	+1.53	0 04	- .73	2.74	+1.06	3.90	+ .48	5.04	+ .28	2.28	-2.07	5.24	* .62	4.97	*1.68	2.35	-1.18	.90	-1.53	.02	- .96	1.33	* .22	31.24	- .60
Humboldt	0.29	- .36	0.50	.20	1.19	- .26	3.45	+ .71	3.60	- .28	8.35	+3.68	2.65	-1.29	3.66	* .55	2.00	-1.44	1.59	- .14	.20	-1.26	.78	* .02	28.26	- .27
Ida Grove	0.46	.....	0.30	....	0.50	....	4 35	....	5.42	.....	2.57	.....	2.70	.....	2.28	.....	.09	.....	1.40	.....	.....	.....	.....	.....	.....	.....
Independence	0.68	- .74	0.40	- .65	2.51	+ .72	2.15	- .06	2.45	-1.72	2.05	-2.98	3.73	- .99	1.80	-1.63	1.86	-2.84	1.89	- .48	.05	-1.47	2.10	* .62	21.62	-12.22
Indianola	2.69	+1.54	0.61	- .14	2.55	+1.36	7 98	+4.70	3 08	-1.62	1.78	-2.35	5.37	*1.73	3.99	- .17	2.74	- .31	1.09	- .97	.03	-1.27	1.57	* .16	33.48	* 2.66
Inwood	0.40	...	0.30	.	0.76		2.40	.....	2 27	.....	4.08	....	3.78	....	1.99	.....	.41	.....	4.34	....	T	....	.85	.....	21.08	.....
Iowa City	1.74	+ .00	0.84	- .67	2.73	+ .25	5.49	+2.35	2.68	-1 66	2.14	-2.49	2.49	-2 01	3.93	- .33	3.12	- .71	1.59	- 95	.25	-2.07	1.96	* .30	28 96	- 7.99
Iowa Falls	0.67	- .17	1.03	+ .08	2.28	+ .67	2.40	- .75	5.29	+1.74	5.45	+ .68	3.86	* .02	2.14	-1.26	2.24	- .98	1 92	- .38	.23	-1.05	1.85	* .69	29.36	- .71
Jefferson	0.91	.....	0.83	.....	1.98	.....	3.45	....	2.76	....	3.94	.....	6.84	.....	4.07	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Keokuk	2.70	+ .98	0.70	-1.01	3.46	+1.28	5.11	+1.98	3.94	- .13	3 62	- .92	4.48	* .38	4.63	*1.80	8.33	*4.81	0.30	-2.46	.21	-1 91	1.45	- .51	38.93	* 4.21
Keosauqua	2.64	+1.72	0 52	- .90	3.59	+1.01	3.86	+ .02	4.39	+ .05	4.85	+ .79	4.72	* .75	3.85	* .36	6.26	*1.78	.39	-1.51	.14	-1.49	2.24	* .70	37.45	* 3.38
Knoxville	2 15	+1.22	0 45	- .43	2.68	+1.18	5.54	+2.38	....	.....	.....	.....	3.31	-1.15	4.85	* .83	4.00	* .49	.....	.....	.....	.....	2.00	* .64	.....	.....
Lacona	3.68	.....	0.63	.....	3.37	.....	4.12	.....	4.32	.....	2.00	.....	6.47	.....	3.61	.....	3.20	.....	1.20	.....	.03	.....	1.61	.....	34.24	.....
Lansing	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Larrabee	0.16	- .41	0.46	- .29	1.18	- .47	3.12	+ .13	4.74	+ .79	5.39	- .51	3.58	-1.08	3.38	* .04	.97	-1.91	3.18	*1.34	.29	- .69	.63	- .44	27.08	- 3.50
Le Claire	1.48	.....	0.68	....	2.99	.....	2.48	.	2.71	.....	1.02	.....	4.04	.....	4.29	.....	6.65	.....	.87	.....	.31	....	1.67	....	26.14	.....
Le Mars	0 35	- .34	0 80	* .19	1.40	- .97	3.50	- .12	3.25	- .84	.....	.....	3 27	-1.63	1.92	- .79	.85	-2.34	.....	.....	.05	-1.01	.15	- .94	.....	.....
Lenox	1.82	*1.19	0 09	- .56	2.49	* .64	4.94	*1.92	4.28	- .43	3.45	- .68	4.76	- .46	5.16	*1.56	2.44	- .53	1.03	-1.96	.11	-1.02	.80	- .48	31.37	- .51
Leon	0.72		0.05	.....	3.58	.....	5.01	.....	4.47	.....	3.43	.....	5.34	....	4.45	.....	2.19	.	.74	.....	.09	.....	1.70	. .	31.77	.....
Maquoketa	1.31	- .01	0.74	- .76	2.36	* .07	2.99	* .46	2.42	-2.11	0.99	-4.73	2.48	-1.61	4.47	*1.64	3.99	* .78	1.83	-1 11	.22	-1 23	1 74	* .13	25.54	- 8.48
Marshalltown	1.04	* .10	0.50	- .28	1.75	- .18	3.60	* 49	3.45	-1.29	0.85	-4.09	4.50	* .05	3.24	- .33	3.68	*1.01	1.73	- .74	.17	-1.16	2.59	*1.11	27.10	- 5.31
Mason City	0.62	- .57	0 77	* .21	1.56	- .22	2.32	-1.02	3.55	- .40	6.60	- .44	3.01	* .22	2.10	- .56	2.55	* .70	1 85	- .16	.20	- 80	1.62	* .96	26.75	- 1.64
Mt. Ayr	2 91	*1.88	0 24	- .92	3.20	*1.27	4.52	*1.37	6.51	*1.12	2.94	-1.50	4.14	- .97	5.87	*2.55	2.28	- .89	1.08	-1.31	.41	- 87	1.97	* .65	36.07	* 2.38
Mt. Pleasant	1.79	* .56	0.37	- .67	3.57	*1.24	4.14	*1.09	4 37	* .03	3.26	- .95	3.92	* .18	5.21	*1.30	6.97	*3.61	.43	-1.65	.22	-1.37	3.34	*2.13	37.59	* 5 50
Mt. Vernon	1.20	- .11	0.80	- .27	2.34	* .31	2.97	- .06	2.93	-1.16	2.71	-1.04	3.19	-1.44	4.07	- .50	1 78	-1.03	2.49	* .09	.13	- .99	2.10	* .44	26.71	- 5.76
New Hampton	0.50	- .33	0.70	- .37	2.18	* .53	1.90	- .03	3.31	-1.16	3 35	-1.13	2.47	-1.22	1.84	- .66	2 75	-1.00	2.34	- .21	.10	-1.69	2.22	*1.55	23.66	- 5.72
Newton	1.53	* .61	0.74	- .28	1.95	* .39	4.87	*1.49	.	.....	1.68	-3.29	.....	.	.	.	.....	.....	.....	.....	.08	-1.72	3.68	*2.35	.....	.....
Northwood	0.80	* .15	0.88	- .28	1.45	- .15	2.15	- .16	3.11	-1.31	6.16	*1.35	5 00	*1.01	2.65	- .97	1.40	-2.09	2.30	- .33	.25	-1.31	1.01	* .10	27.16	- 3.99
Odeboldt	0.40	* .08	0.58	- .19	1.06	- .93	3.71	*1.00	3.41	* .64	4.07	- .24	2.82	-2.30	3.36	- .33	1.17	-1.98	1.24	- .97	.24	- .88	.65	- .45	22.69	- 6.55
Ogden	0.80	* .21	0.28	- .33	1.61	* .09	. .	. .	2.63	-2 53	4.06	- .82	6 14	*2.02	2.51	-1.55	3.51	- .29	1.53	-1.13	.02	-1.09	1.20	- .09	.....	.....
Olin	1.57	* .49	1.18	- .15	3.22	* .77	2.16	- .02	2.46	-2.06	1.42	-2.10	2.59	-1.01	3.54	- .04	1.56	-1.82	3.78	*1.36	.01	-1.19	2.00	* .54	25.49	- 5.23
Omaha, Nebraska	.62	- .07	.10	- .69	1.32	- .18	3.20	* .07	4.86	* .49	3.11	-2.56	3.15	-1.60	4.45	*1.11	2.60	- .31	1.40	-1.07	.10	- .96	.57	- .44	25.48	- 6.21
Onawa	0.82	- .32	0.29	- .66	0.87	- .66	1.82	-1.17	8.15	*3.77	8.02	*2.82	3.33	-1.30	2.63	-1.26	2.58	- .79	2.07	- .32	.30	- .83	.42	- .66	31.30	- .78
Osage	0.53	- .35	0.66	- .52	1.82	* .25	1.87	- .70	3.03	-1.20	6.10	*1.58	3.21	- .33	1.91	-1.09	4.16	* .66	2.08	- .35	.17	-1.28	2.29	*1.01	27.83	- 2.32
Osceola	....	... .	0.05	-1.03	2.63	* .75	4.11	* .59	5.66	* .59	2.79	-1.49	4.35	- .79	5.67	*2.48	2.87	-1.31	.27	-2.80	.06	-1.43	.....	.....	.....	.....
Oskaloosa	1.58	* .70	0 19	- .88	1.76	- .13	4.11	*1.33	1.96	-1.61	1.49	-2.64	5.89	*1.84	2.36	- .78	3.46	* .36	. .	.....	.03	-1.52	1.09	- .19	... .	.....
Ottumwa	2.40	* .81	0.25	- .99	3.93	*2.02	4.42	*1.34	3.09	-1.73	2.76	-1.03	3.70	- .59	2.72	- .92	4.58	* .26	.....	.	.13	-1.55	1.52	* .15	... .	.....
Pacific Junction	0.59	.....	0.07	.....	1.46	.....	5.86	.....	4.68	.....	2.72	.....	5.00	....	3.24	.....	2.43	. .	1.07	.....	.18	.....	.58	.....	27.38	.....
Perry	0.66	.....	0.55	. .	2.10	.....	5.44	.....	2.28	.....	3.22	.....	6.52	.....	4.21	. .	2.25	. .	2.01	.....	T	.....	1.35	.	30.59	.....
Plover	0.60	* .09	0.66	* .01	0.97	- .41	3.79	*2.01	4.74	*1.46	4.42	* .39	1.28	-3.85	4.47	* .47	4.36	* .32	2.62	* .31	.20	-1.39	.60	- .06	28 80	- .65
Red Oak	0.97	* .25	0.05	- .73	1.88	- .38	4.67	*1.83	3.68	- .06	3.60	-1.56	6.66	*1.86	2.03	-1.06	2.01	- .95	2.00	-1.20	.07	- .97	.94	- .28	28.56	- 3.95
Ridgeway	1.29	- .41	1.99	- .68	2.95	* .46	1.77	- .34	4.39	- .76	2.98	-1.54	3.65	-1.44	2.27	- .43	5.16	*1.03	2.71	-1.17	.29	-1.66	2.75	* .25	32.20	- 6.69
Rock Rapids	0.30	- .33	0.65	* .51	0.80	- .79	1.11	-2.64	2.20	-1.19	3.30	-1.44	3.95	*1.43	2.40	* .64	.60	-1.70	2.65	* .90	T	- .99	.....	. .	.....	.....
Rockwell City	0.80	* .17	0.45	- .06	1.75	- .55	4.35	*1.94	3.70	* .36	5.35	* .85	2.86	-1.14	5.95	*2.41	1.75	-1.32	1.88	- .70	.00	- .85	.71	- .59	29.55	* 0.52

MONTHLY AND ANNUAL PRECIPITATION FOR 1904, WITH DEPARTURES FROM NORMAL.—CONTINUED.

STATIONS.	Jan.		Feb.		Mar.		April.		May.		June.		July.		August.		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.
Sac City	0.67	- .28	0.57	- .25	0.89	- .76	3.00	* .01	4.06	* .43	4.77	- .12	3.15	- .66	5.48	*2.12	1.47	-1.82	1.18	-1.38	.24	- .87	.....	.....	.....	.....
St. Charles	2.31	.....	0.33	.....	1.00	.....	8.97	.....	3.80	.....	2.09	.....	4.92	.....	4.33	.....	2.27	.....	1.50	.....	.69	.....	2.44	.....	34.05	.....
Sibley	0.37	- .17	0.4[illegible]	- .01	2.05	* .88	2.04	- .65	2.97	- .38	4.96	* .83	4.51	* .60	.66	-2 59	2.70	- .46	3.96	*2.29	.05	- .82	.50	- .36	25.23	- .84
Sigourney	2.21	* .97	0.29	-1.06	3.42	*1 53	3.92	* .32	3.09	- .89	1.53	-2.16	2.44	-2.23	3.62	- .11	2.99	* .02	.42	-2.60	T	-1.50	.....	.....	.....	.....
Sioux Center	0.50	* .23	0.28	- .50	1.85	* .60	2.32	- .81	2.21	-1.61	4.57	* .27	7.75	*2 37	1.47	-2.63	.71	-3.67	4 43	*2.87	.10	- .47	.60	- .23	26.79	- 3 58
Sioux City	0 09	- .54	0.33	- .22	0.50	- .74	2 32	- 70	8.09	- .58	3.46	- .34	5.49	*2.12	2.68	- .51	.86	-1 23	2.39	*0 69	.05	- .77	.20	- .68	21.46	- 3.50
Spirit Lake	0.55	* .04	0.55	† .00	1.39	* .59	2.97	* .35	.....	.....	.....	.....	3.90	- .50	3.08	- .93	1.03	-4.28	2.38	*1.03	.....	.....	.....	.....	.....	.....
Stockport	2.52		0.44	.....	3.61	.....	3.10	.....	4.32	.....	6.27	.....	3.65	.....	3.67	.....	7.08	.....	.34	.....	.15	.....	2.08	.....	37.23	.....
Storm Lake	0.02	- .68	0.08	- .57	1.54	* .16	3.26	* .06	3.74	* .22	3.66	-1.22	2.56	-1.72	5.16	*2 24	.99	-2 03	3.09	*1.33	.03	- .93	.06	- .87	24 19	- 3.11
Stuart	1.17	* .58	...	.....	1 65	-1.00	5.89	-2 68	2.56	-1.89	2 59	-1.38	8 30	*3.33	3.48	* .92	2 34	* .48	2.17	- .81	.10	- .78	.....	.....	.....	.....
Thurman	0.42	- .29	T	-1.32	1.85	* .07	6.10	*2 66	4.14	- .57	4.08	-3.46	11.97	*6.49	3.38	-2.05	1.52	-1.69	2.44	-1.60	.18	- .91	.40	-1.38	36.48	- 4.05
Tipton	1.89	.....	0.89	.....	2.83	.....	4.22	.....	2.37	.....	3.55	.....	2.25	.....	3.06	.....	3.02	.....	.89	.....	.12	.....	2.06	.....	27.15	.....
Toledo	0.97	* .16	0.53	- .16	2.85	*1.10	3.14	* .11	2.88	- .83	1.30	-2.30	3.71	* .48	3.00	- .82	1.65	-1 46	1.10	- .77	.15	-1.38	.....	.....	.....	.....
Vinton	1 04	- .11	0.64	- .37	2.86	*1.08	1.57	-1.35	2.39	-1.56	0.57	-3.41	3.51	* .12	2.41	- .20	1.30	-1.49	1 95	- .25	.10	-1.05	1 60	* .39	19.34	- 8.20
Wapello	1.71	*1.00	0.19	-1.27	3.68	*1.16	2 82	* .58	2.61	- .98	2.47	- .45	3.68	* .59	6 40	*1.15	4 24	*1.3[illegible]	.77	-1.45	.12	-1.34	2.27	* .93	30.96	* 1 24
Washington	2.28	* .83	0.53	- .63	2 70	* .53	2.74	* .12	3.01	- .42	1.22	-1.23	4.23	* .69	4.39	* .90	3.99	*1.37	.54	-1.59	.23	-1.16	2.01	* .54	27.87	- .05
Washta	0.35	- .06	0.40	- .22	0.83	- .42	3.45	*1.72	6.08	*2.87	4.55	* .14	2.51	-2.59	1.42	-1.49	2.11	-1.80	2.50	* .53	.10	- .95	.30	- .87	24.60	- 3.14
Waterloo	0.71	- .24	0.48	- .50	2.84	*1.01	2.74	- .25	4.62	* .24	1.43	-3.07	3.56	- .68	2.93	- .67	2.15	-1.34	1.24	-1.08	.21	-1.19	2.66	*1.52	25.57	- 6.25
Waukee	2.25	.....	0.36	.....	2.23	.....	4.71	.....	3.46	.....	2 67	.....	9.31	.....	3.35	.....	1.79	.....	1.07	.....	.10	.....	1 90	.....	33.10	.....
Waverly	0.7[illegible]	- .15	0.78	- .34	2.06	* .10	2.33	- .71	4.69	* .07	3 43	-1.05	4.07	* .23	2.42	- .11	3.78	* .58	1.68	- .96	.21	-1.27	2.40	*1.82	2[illegible].63	- 2.29
West Bend	0.59	- .03	0.72	- .09	1.76	* .12	3.64	* .83	3.55	* .71	6.93	*3.12	2.25	-1.59	3 18	- .45	2.69	- .49	1.58	- .18	.08	-1.31	1.30	* .31	28.27	* .95
Whitten	0.75	* .18	0.60	* .04	2.64	*1.70	2.71	* .65	3.49	- .2[illegible]	.55	.....	6 05	*2 28	3.24	.....	.....	.....	1.50	-1.12	T	-1.29	2.30	*1.13	.....	.....
Wilton Junction	.....	.....	0.50	- .90	2.77	* .06	3.11	* 24	2.79	-1 53	1.40	-1.88	2.14	-3.13	5.15	* .94	1.91	-1.27	.94	-1.13	.35	-1.45	2.28	* .83	.....	.....
Winterset	0.12	- .82	.....	.....	1.99	- .05	6.41	*2 75	2.32	-2 25	.....	.....	5.18	- .75	2 30	-1.24	2.72	- .63	1.00	-1.37	.30	- .91	.....	.....	.....	.....
Woodburn	3.70	.....	0.22	.....	2.24	.....	4.64	.....	4.55	.....	1.61	.....	5.0	.....	4.33	.....	2.77	.....	.50	.....	.12	.....	1.50	.....	30.19	.....
Zearing							3.46	.....	3.09	.....	1.79	.....	4.73	.....	3.48	.....	2.35	.....	1.01	.....	.16	.....	1.60	.....	.....	.....

* or † signifies plus. * or † signifies above normal. - below normal. - Minus.

Annual Precipitation Chart 1904.