

CLIMATOLOGICAL DATA.

IOWA SECTION

In cooperation with

IOWA WEATHER AND CROP SERVICE

CHARLES D. REED, Meteorologist

VOL. XXXV DES MOINES, IOWA, JANUARY, 1924 No. 1

GENERAL SUMMARY

Wintry weather prevailed in January. The month was the coldest since January, 1918, and many places reported the lowest temperatures since January, 1912. The cold wave at the close of December continued unbroken till the 7th. This was the coldest period of the month and the lowest temperature occurred over all portions of the State on the 5th. A welcome relief of the extremely cold weather set in on the 7th and continued over the eastern portion of the State till the 11th. During the rest of the month temperature fluctuations were frequent, but the warm periods were of very short duration until the 27th, when the warmest period of the month set in that continued into February. At the beginning of the month there was little ice and some streams had not frozen over, but the continued cold weather caused ice to form rapidly so that by the end of the first week it was thick enough to cut over all portions of the State and the harvest began in some localities during the mild weather that followed. By the end of the month the harvest had been completed, though the work was hampered somewhat by cold weather.

The precipitation averaged below the normal, though a large number of stations reported material excesses due to a storm on the 9th-10th, attended by moderately heavy rains in the central and eastern portions. Most of the precipitation in the northern division was snow and several stations reported more than 10 inches. The snow was generally light and dry and even with only moderate winds it drifted badly, especially over northern sections during the storm on the 9th-10th and over the eastern portion during the storm of the 15th. Traffic over these sections was interfered with to a great extent and over much of the north-central, northeast, and east-central sections travel was impossible much of the time. Deep drifts blocked the roads and in some sections made detours through fields necessary. Sleighing was possible over the northern and portions of the central division during almost the entire month. About half of the State was snow covered the entire month and the rest of the State an average of about 20 days, though a small area in the southwest, where the snowfall was light, the cover remained only 10 days. The warm period that set in on the 27th melted the snow rapidly, so that at the end of the month the southern division and much of the central was bare, though many deep drifts remained in protected places and on south slopes. Three sleet and ice storms damaged trees and wires very little, but there was considerable damage to automobiles by skidding. Streets and sidewalks over much of the State were slippery much of the time. The rise in temperature at the end of the month was accompanied by unusually dense fogs and on the morning of the 28th a remarkable deposit of frost occurred over a large portion of the State that looked like

a fall of snow. Stone and brick buildings were generally covered.

The weather was too cold for outdoor operations and only such work as was absolutely necessary was performed. Winter wheat was protected generally by an ample snow cover during the most severe weather and it probably escaped with very little damage.

F. L. D.

TEMPERATURE

The mean temperature for the State, as shown by the records of 97 stations, was 13.9°, or 4.0° lower than the normal. By divisions, three tiers of counties to the division, the means were as follows: Northern, 9.6°, or 5.0° lower than the normal; Central, 14.1°, or 4.1° lower than the normal; Southern, 17.9°, or 3.0° lower than the normal. The highest monthly mean was 21.6°, at Keokuk, and the lowest was 7.2°, at Estherville. The highest temperature reported was 59°, at Keokuk, on the 8th, and the lowest was -36°, at Washta, on the 5th. The temperature range for the State was 95°.

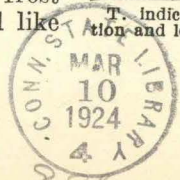
PRECIPITATION

The average precipitation for the State, as shown by the records of 100 stations, was 0.89 inch, or 0.16 inch less than the normal. By divisions, the averages were as follows: Northern, 0.75 inch, or 0.09 inch less than the normal; Central, 0.87 inch, or 0.24 inch less than the normal; Southern, 1.05 inches, or 0.14 inch less than the normal. The greatest amount, 2.47 inches, occurred at Waverly, and the least, 0.06 inch, occurred at Storm Lake. The greatest amount in any 24 hours, 1.62 inches, occurred at Humboldt, on the 10th.

COMPARATIVE DATA FOR THE STATE—JANUARY

YEAR	Temperature				Precipitation					Number of Days			
	Mean	Departure	Highest	Lowest	Total	Departure	Greatest	Least	Snowfall	With pre. of in. or more	Clear	Partly cloudy	Cloudy
1880	19.7	+1.8	61	-27	2.03	+0.98	3.46	0.35					
1891	26.0	+8.1	58	-4	1.75	+0.70	3.99	0.61					
1892	15.3	-2.6	76	-38	1.09	+0.04	3.13	0.10	6.9	5	13	7	11
1893	9.3	-8.6	54	-34	0.74	-0.31	3.20	0.13	6.9	6	11	9	11
1894	19.3	+1.4	69	-37	1.09	+0.04	2.24	0.31	6.0	5	14	9	8
1895	13.6	-4.3	68	-31	0.85	-0.20	2.65	0.09	8.7	4	15	7	9
1896	23.4	+5.5	68	-20	0.48	-0.57	2.10	T.	2.8	3	10	10	11
1897	17.2	-0.7	66	-30	2.01	+0.96	6.16	0.15	8.2	7	12	7	12
1898	23.4	+5.5	52	-11	1.60	+0.55	5.32	T.	12.6	5	15	6	10
1899	19.8	+1.9	68	-34	0.28	-0.77	1.15	T.	1.5	3	15	10	6
1900	25.6	+7.7	66	-20	0.53	-0.52	2.47	T.	2.3	3	16	7	8
1901	23.7	+5.8	60	-21	0.74	-0.31	2.34	0.04	6.2	4	14	9	8
1902	22.4	+4.5	63	-31	0.88	-0.17	2.83	0.19	9.4	4	17	8	6
1903	23.0	+5.1	60	-12	0.28	-0.77	1.46	T.	2.0	4	13	7	11
1904	14.0	-3.9	57	-32	1.18	+0.13	3.68	0.02	6.1	6	12	8	11
1905	11.2	-6.7	56	-30	0.91	-0.14	1.82	0.12	11.1	7	14	7	10
1906	24.6	+6.7	69	-19	1.52	+0.47	4.71	0.28	11.3	5	14	6	11
1907	18.8	+0.9	68	-22	1.52	+0.47	5.30	0.10	6.0	7	8	7	16
1908	24.9	+7.0	60	-18	0.44	-0.61	1.60	0.06	4.6	2	17	8	6
1909	21.2	+3.3	72	-25	1.66	+0.61	3.74	0.41	7.8	6	9	6	16
1910	18.1	+0.2	56	-35	1.57	+0.52	3.15	0.55	12.6	6	13	7	11
1911	20.2	+2.3	66	-35	0.97	-0.08	3.73	0.11	7.3	5	9	8	14
1912	4.2	-13.7	49	-47	0.53	-0.52	1.90	T.	5.5	5	14	7	10
1913	20.9	+3.0	62	-25	0.77	-0.28	2.05	0.04	7.2	5	14	9	8
1914	27.8	+9.9	64	-10	0.88	-0.17	2.34	0.27	5.1	5	11	8	12
1915	17.5	-0.4	59	-32	1.63	+0.58	3.15	0.10	7.3	8	13	8	10
1916	17.8	-0.1	63	-34	2.62	+1.57	6.07	0.85	7.2	10	12	6	13
1917	17.0	-0.9	60	-28	0.83	-0.22	2.07	0.17	7.2	4	17	8	6
1918	8.6	-9.3	53	-35	1.02	-0.03	2.79	0.26	11.2	7	13	8	10
1919	26.8	+8.9	64	-32	0.24	-0.81	0.86	T.	2.8	2	20	5	6
1920	16.7	-1.2	58	-26	0.42	-0.63	1.05	T.	4.6	4	12	8	11
1921	28.4	+10.5	67	-9	0.51	-0.54	1.92	0.10	4.1	4	17	7	13
1922	19.8	+1.9	57	-29	0.89	-0.16	2.30	0.32	5.3	4	17	6	8
1923	26.7	+8.8	58	-10	0.85	-0.20	2.34	T.	6.5	6	10	7	14
1924	13.9	-4.0	59	-36	0.89	-0.16	2.47	0.06	5.5	5	17	7	7

T. Indicates an amount too small to measure, or less than .005 inch precipitation and less than .05 inch snowfall.



CLIMATOLOGICAL DATA: IOWA SECTION

Climatological Data for January, 1924.

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precipitation, in Inches				Number of Days			Prevailing direction of wind	Observers		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear			Partly cloudy	Cloudy
<i>Northern Division</i>																				
Algona	Kossuth	1,213	51	10.0	-4.3	42	31	-29	5	45	1.24	+0.44	0.84	13.0	3	21	4	6	sw.	W. E. Laird.
Allison	Butler	1,044	12	10.6		44	30	-30	5	42	0.67		0.40	6.0	4	20	6	5	sw.	J. A. Bell.
Alta	Buena Vista	1,513	33	10.5	-3.6	44	30	-31	5	39	0.23	-0.38	0.12	3.0	3	19	7	5	s.	D. E. Hadden.
Alton	Sioux	1,305	19	10.5	-4.7	44	30	-30	5	47	0.30		0.20	3.0	3	16	11	4	nw.	W. S. Slagle.
Belmond	Wright	1,205	14	9.0		41	29†	-29	5	41	0.72		0.20	6.1	7	12	13	6	w.	Geo. P. Hardwick.
Britt	Hancock	1,236	37																	L. M. Goodman.
Charles City	Floyd	1,015	33	8.3	-3.1	41	31	-23	5	40	1.18	+0.21	0.87	13.2	8	15	9	7	w.	U. S. Weather Bureau.
Cherokee	Cherokee	1,196	2	9.6		45	30	-32	5	45	0.23		0.10	2.5	3	14	16	1	sw.	J. E. Wirth.
Decorah	Winneshiok	875	31	8.1	-5.8	40	31	-29	17	42	1.20	-0.02	0.80	12.0	3	19	6	6	nw.	M. D. Whitney.
Estherville	Emmet	1,298	29	7.2	-5.5	45	30	-30	5	49	0.30	-0.31	0.30	3.0	1	14	15	2	nw.	A. O. Peterson.
Fayette	Fayette	1,003	34	9.2	-4.3	40	8†	-27	5	42	0.60	-0.64	0.25	5.0	3	21	5	5	sw.	R. Z. Latimer.
Forest City	Winnebago	1,226	30	10.0	-2.5	45	30	-31	5	44	0.68	-0.10	0.35	6.5	4	21	3	7	nw.	Dr. M. B. Neil.
Humboldt	Humboldt	1,095	36	9.8	-6.2	45	30	-29	5	43	1.99	+1.20	1.62	9.5	3	17	4	10	s.	H. O. Snitkey.
Inwood	Lyon	1,474	20	8.7 ^d	-5.1	45 ^b	30	-34 ^e	5	43 ^o	0.25	-0.29	0.15	2.5	3	24	4	3	nw.	F. B. Hanson.
Le Mars	Plymouth	1,224	28	10.8	-5.4	45	30	-30	4	52	1.39	+0.84	1.30	1.7	3	24	1	6	sw.	Mrs. M. C. Woolley.
Mason City	Cerro Gordo	1,148	27	8.4	-6.1	43	30	-31	5	47	1.13	+0.08	0.70	9.2	6	16	4	11	nw.	Northern Sugar Corp.
Milford (near)	Dickinson	1,430	4	8.8		43	30	-30	5	44	0.23		0.15	2.6	2	17	11	3	sw.	Dr. F. J. Smith.
New Hampton	Chickasaw	1,169	27	9.0	-4.3	40	30	-30	5	44	0.64	-0.26	0.32	8.0	3	16	5	10	w.	A. F. Kemman.
Nora Springs	Floyd	1,064	12	10.9		44	31	-28	5	46	1.26		0.61	6.6	7	18	7	6	s.	Arthur Betts.
Northwood†	Worth	1,222	28			41 ^t	29†	-30 ^b	5	44 ^t	0.40	-0.64	0.30	3.0	2	17	5	9	nw.	Chas. Dwelle.
Oelwein	Fayette	1,036	1	13.0		44	31	-25	5	39	1.12		0.50	8.0	3	23	3	5	nw.	John T. Ridler.
Pocahontas	Pocahontas	1,248	20	10.0	-5.5	45	30	-33	5	45	0.50	-0.15	0.16	4.5	6	20	7	4	sw.	F. E. Hronek.
Postville	Clayton	1,180	25	9.0	-5.4	40	30	-31	5	42	0.50	-0.66	0.35	3.5	3	17	8	6	nw.	F. L. Williams.
Rock Rapids	Lyon	1,358	25	9.4	-3.2	47	29	-32	5	49	0.62	+0.11	0.25	6.2	4	22	7	2	nw.	J. K. Medberry.
Sanborn	O'Brien	1,553	10	8.0		45	30	-32	4	47	0.10		0.10	1.0	1	23	4	4	sw.	J. W. Dow.
Sioux Center	Sioux	1,426	25	9.8	-4.8	46	29	-30	5	49	0.70	+0.11	0.50	7.0	4	15	6	10	nw.	J. de Ruyter.
Spencer	Clay	1,319	10	8.6		48	29	-32	5	46	0.40	-0.10	0.30	4.0	2	26	2	3	nw.	E. W. Little.
Storm Lake	Buena Vista	1,440	35	12.6 ^a	-2.7	44 ^a	29	-18 ^a	1	37 ^a	0.06	-0.62	0.06	0.5	1				nw.	Geo. H. Fracker.
Washta	Cherokee	1,157	26	9.8	-6.6	47	30	-36	5	48	0.10	-0.42	0.05	1.5	2	23	4	4	s.	H. L. Felter.
Waverly	Bremer	936	28	10.6	-4.4	41	31	-28	5	52	2.57	+1.57	1.50	5.5	6	25	2	4	nw.	D. H. Murphy.
West Bend	Palo Alto	1,197	31	9.1	-5.6	44	29†	-33	5	46	0.41	-0.52	0.25	5.0	4	15	12	4	nw.	Jos. Dorweiler.
Means and extremes				9.6	-5.0	48	29	-36	5	52	0.75	-0.09	1.62	5.4	4	19	7	5	nw.	
<i>Central Division</i>																				
Ames	Story	926	47	13.2	-4.9	44	30	-26	5	42	1.02	+0.09	0.40	8.0	5	15	8	8	w.	Iowa State College.
Audubon	Audubon	1,297	29	12.0	-5.9	45	30	-29	5	40	0.98	+0.22	0.50	8.0	4	18	9	4	sw.	Geo. Kibby.
Baxter	Jasper	998	24	15.0	-3.0	46	30	-26	5	42	1.12	+0.21	0.88	9.0	5	16	6	9	w.	Henry Geise.
Belle Plaine	Benton	866	34	15.6	-1.9	55	9	-26	5	43	1.11	-0.54	0.74	4.4	7	16	6	9	nw.	O. C. Burrows.
Boone	Boone	1,134	19	12.5	-4.3	48	30	-28	5	47	0.80	+0.01	0.39	5.5	5	20	3	8	s.	C. F. Henning.
Carroll	Carroll	1,265	34	13.0	-4.0	46	30	-29	5	43	0.69	-0.12	0.45	6.5	3	22	1	8	sw.	Mrs. Jos. J. Wolfe.
Cedar Rapids	Linn	737	42																	
Clinton	Clinton	595	51	15.8	-4.8	47	8†	-23	5	42	1.41	-0.42	0.58	10.4	6	19	3	9	s.	Dr. A. P. Bryant.
Davenport	Scott	580	53	17.2	-4.6	47	8	-21	5	39	1.27	-0.30	0.51	8.7	9	11	10	10	nw.	U. S. Weather Bureau.
Davenport No. 2)	Scott	690		16.8		47	8	-23	5	40	1.60		0.65	7.7	9				nw.	Rex Shriner.
Denison	Crawford	1,171	30	12.4	-5.4	44	29†	-30	5	42	0.32	-0.29	0.18	9.0	5	21	5	5	nw.	V. L. Byers.
Dubuque	Polk	861	46	17.0	-3.1	51	30	-22	5	35	1.02	-0.19	0.72	4.5	6	15	7	9	nw.	U. S. Weather Bureau.
Des Moines	Dubuque	698	51	13.6	-5.5	44	8	-24	5	39	0.63	-0.86	0.28	4.3	8	10	11	10	nw.	U. S. Weather Bureau.
Fairport	Muscatine	567	3	17.3		47	30	-22	5	40	1.92		0.60	8.8	10	7	9	15	nw.	Bureau of Fisheries.
Fort Dodge	Webster	1,114	24	9.6 ^b	-5.4	45	30	-32	5	45 ^c	0.78	+0.03	0.33	10.0	6	25	0	6	nw.	Samuel Sampson.
Grinnell	Poweshiek	1,031	30	16.1	-2.8	48	30	-25	5	42	1.24	-0.06	0.62	4.5	7	15	9	7	nw.	Paul P. Meyers.
Grundy Center	Grundy	976	33	14.8	-2.1	44	31	-27	5	43	1.20	+0.28	0.50	12.0	6	20	6	5	nw.	M. G. Heiberger.
Guthrie Center	Guthrie	1,077	29	14.6	-5.0	50	30	-27	5	42	1.28	+0.48	0.96	10.0	3	22	3	6	sw.	E. L. Nesselroad.
Harlan	Shelby	1,192	25	13.8	-4.9	46	30	-28	5	43	0.67	0.00	0.50	6.7	8	27	1	3	s.	W. K. Colburn.
Independence	Buchanan	921	60	13.7	-1.9	44	31	-27	5	44	0.51	-0.71	0.14	5.1	7	20	0	11	sw.	Dr. Geo. Boody.
Iowa City	Johnson	733	64	16.4	-1.2	48	31	-23	5	41	1.35	-0.30	0.31	5.5	9	12	10	9	s.	Prof. J. F. Reilly.
Iowa Falls	Hardin	1,107	31	11.2	-2.6	43	30†	-27	5	43	1.00	-0.21	0.45	6.5	5	19	6	6	nw.	J. B. Parmelee.
Jefferson	Greene	1,052	25	11.8	-6.1	46	30	-28	5	44	1.00		0.60	8.5	5	15	7	9	nw.	W. I. Lyon.
Little Sioux	Harrison	1,040	19	13.6	-5.6	49	29	-35	5	44	0.16		0.10	1.5	2	16	7	8	nw.	S. B. Terry.
Logan	Harrison	1,035	57	14.2	-5.2	48	29†	-30	5	44	0.50	-0.56	0.30	5.0	4	16	8	7	sw.	Mary Jean Stern.
Marshalltown	Marshall	947	32	15.2	-1.0	46	30†	-24	5	40	1.04	-0.10	0.56	5.7	6	21	4	6	nw.	C. C. Pigman.
Monroe	Jasper	922	12	17.7		53	30	-26	5	45	0.89	+0.06	0.48	3.2	5	19	2	10	s.	J. A. Dibel.
Olin	Jones	760	25	12.4 ^b	-6.5	44 ^c	31	-25	5†	51 ^c	0.40	-0.98	0.30	3.0	2	15	5	11	sw.	Mrs. L. Stingley.
Onawa	Monona	1,051	23	11.8		47	30	-31	5	45	0.16	-0.84	0.08	2.0	2	20	4	7	s.	Mrs. H. E. Colby.
Perry	Dallas	975	23	14.1	-4.6	45	30	-26	5	40	0.61	-0.52	0.24	3.6	4	22	5	4	nw.	F. N. Bartlett.
Rockwell City	Calhoun	1,134	28	11.1	-6.5	45	30	-30	5	45	1.10	+0.15	0.60	10.0	5	12	6	13	w.	A. W. McIsaac.
Sac City	Sac	1,278	43	11.7	-5.1	45	30	-28	5	45	0.50	-0.46	0.30	5.0	3	19	7	5	sw.	F. P. Kessler.
Sioux City	Woodbury	1,135	35	13.0	-4.8	48	29	-25	5	46	0.13	-0.42	0.05	1.6	4	14	10	7	nw.	U. S. Weather Bureau.
Tipton	Cedar																			

IN CO-OPERATION WITH IOWA WEATHER AND CROP SERVICE.

Climatological Data for January, 1924—Continued.

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precipitation, in Inches				Number of Days			Prevailing direction of wind	Observers		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear			Partly cloudy	Cloudy
<i>Southern Division</i>																				
Afton	Union	1,212	30	19.0	-2.0	57	30	-26	5	42	1.03	+0.19	0.60	3.5	5	20	6	5	sw.	S. R. Brown.
Albia	Monroe	959	26	19.0	-0.4	53	30	-22	5	42	0.80	-0.49	0.34	4.7	7	18	4	9	sw.	O. E. McBride.
Atlantic	Cass	1,164	33	16.0	-3.4	50	30	-25	5	42	0.20	-0.58	0.07	3.5	4	10	13	8	sw.	Miss Oza Cunningham.
Bonaparte	Van Buren	563	33	18.6	-3.4	52	31	-20	5	48	0.95	-0.65	0.35	3.0	4	15	6	10	sw.	B. R. Vale.
Burlington	Des Moines	544	28	20.2	-2.2	49	8	-20	5	39	1.86	+0.13	0.70	9.0	8	15	8	8	sw.	J. A. Donnelly.
Centerville	Appanoose	1,013	19	20.0	-----	52	8	-21	5	41	0.66	-0.33	0.28	0.4	6	13	11	7	nw.	W. E. Van Syoc.
Chariton	Lucas	1,042	29	18.0	-2.7	55	30	-23	5	53	1.12	-0.04	0.52	3.0	5	15	12	4	sw.	C. O. Burr.
Clarinda	Page	1,009	34	18.9	-0.8	50	28	-25	5	42	0.80	-0.15	0.66	1.1	6	19	5	7	s.	A. S. Van Sandt.
Columbus Jet.	Louisa	595	23	17.6	-4.4	50	31	-23	5	43	1.69	-0.45	0.50	3.0	10	17	6	8	sw.	H. L. Lewis.
Corning	Adams	1,117	32	17.0	-2.7	53	30	-27	5	41	1.10	+0.21	0.65	3.0	2	21	3	7	w.	Jerome Smith.
Corydon	Wayne	1,101	31	18.8	-3.0	50	30	-23	5	39	0.63	-0.70	0.28	3.2	6	13	10	8	nw.	May C. Miller.
Creston	Union	1,312	19	18.3	+0.3	50	30	-23	5	40	-----	-----	-----	-----	-----	-----	-----	-----	sw.	Mrs. S. O. Stanley.
Cumberland (near)	Cass	1,225	25	-----	-----	-----	-----	-----	-----	-----	0.56	-0.32	0.31	2.0	3	15	7	9	nw.	Carl E. Pollock.
Earlham	Madison	1,126	22	15.5	-3.6	54	30	-29	5	42	1.11	-0.14	0.60	4.6	7	19	4	8	sw.	Geo. Phillips.
Fairfield	Jefferson	780	40	19.1	-2.7	51	31	-23	5	34	1.14	-0.41	0.60	8.5	6	17	3	11	s.	Prof. R. M. McKenzie.
Glenwood	Mills	1,100	26	16.2	-----	50	30	-25	5	40	0.59	-----	0.51	4.8	5	16	9	6	sw.	Dr. Geo. Mogridge.
Greenfield	Adair	1,308	32	15.0	-4.2	51	30	-29	5	41	0.53	-0.37	0.34	-----	4	13	15	3	nw.	P. C. Cornell.
Indianola	Warren	972	33	17.6	-2.8	52	30	-24	5	43	0.55	-0.66	0.30	5.0	6	19	5	7	nw.	Seth F. Shenton.
Keokuk	Lee	614	53	21.6	-3.3	59	8	-19	5	41	1.31	-0.38	0.65	9.0	9	10	8	13	sw.	U. S. Weather Bureau.
Keosauqua	Van Buren	644	32	18.8	-2.1	50	9†	-20	5	42	1.29	-0.05	0.40	5.3	8	15	3	13	nw.	J. H. Landes.
Knoxville	Marion	920	29	18.3	-2.7	53	30	-24	5	44	0.78	-0.42	0.23	5.2	7	15	7	9	nw.	W. J. Casey.
Lacona	Warren	-----	25	-----	-----	-----	-----	-----	-----	-----	2.01	+0.29	0.92	5.0	8	7	13	11	nw.	J. B. Alter.
Lamoni	Decatur	1,123	17	-----	-----	-----	-----	-----	-----	-----	0.55	-0.15	0.10	2.0	9	21	4	6	nw.	O. E. Wight.
Lenox	Taylor	1,250	29	18.0	-2.4	50	28†	-25	5	41	0.55	-0.15	0.10	2.0	9	21	4	6	nw.	J. L. Hurley.
Mt. Ayr	Ringgold	1,245	31	18.9	-2.9	55	30	-26	5	44	0.77	-0.30	0.50	1.5	6	18	2	11	sw.	Alex Maxwell.
Mt. Pleasant	Henry	729	43	19.4	-2.7	51	30	-20	5	39	0.73	-0.78	0.33	7.8	6	13	6	12	sw.	J. H. Jericho.
Oakland	Pottawattamie	1,105	5	14.8	-----	48	31	-27	5	42	1.00	-----	0.60	10.0	2	20	3	8	n.	M. E. Gray.
Oskaloosa	Mahaska	835	48	17.4	-2.6	51	30	-24	5	43	1.02	+0.06	0.44	6.1	10	12	8	11	nw.	Roy R. Robinson.
Ottumwa	Wapello	649	29	19.8	-----	55	30	-20	5	44	0.88	-0.71	0.44	1.6	6	18	2	11	nw.	O. L. Mikes.
Pella	Marion	877	31	-----	-----	45 ^d	22	-24 ^d	5	46 ^d	0.98	-0.04	0.24	6.0	7	-----	-----	-----	nw.	J. H. Ver Steeg.
Sigourney	Keokuk	790	28	17.0	-3.8	48	30	-24	5	44	1.04	-0.28	0.35	3.4	8	18	4	9	nw.	W. E. Utterback.
Stockport	Van Buren	745	22	17.2	-4.8	50	30	-22	5	43	1.71	+0.34	0.80	7.0	8	11	9	11	nw.	C. L. Beswick.
Thurman	Fremont	975	27	14.2	-6.7	47	9	-29	5	38	1.07	+0.45	0.72	9.5	4	7	18	6	nw.	O. R. Paul.
Washington	Washington	769	42	17.0	-3.6	50	31	-24	5	44	1.18	-0.32	0.34	5.3	7	14	8	9	nw.	Wm. A. Cook.
Wescott (Near)	Lee	-----	2	19.8	-----	46	31	-19	5	38	2.10	-----	0.70	12.5	7	13	8	10	nw.	Geo. H. Smith.
Winterset	Madison	1,129	33	18.2	-2.7	54	30	-26	5	41	0.48	-0.48	0.20	4.0	3	24	1	6	nw.	E. S. Ely.
Omaha, Nebr.	-----	1,103	53	17.4	-4.5	51	30	-20	5	44	0.62	-0.03	0.47	5.5	7	14	11	6	nw.	U. S. Weather Bureau.
Means and extremes	-----	-----	-----	17.9	-3.0	59	8	-29	5	53	1.05	-0.14	1.34	5.2	6	16	7	8	nw.	-----
State means and extremes	-----	-----	-----	13.9	-4.0	59	8	-36	5	53	0.89	-0.16	1.62	5.5	5	17	7	7	nw.	-----

The departures from normal temperature and precipitation are computed only for such stations as have ten or more years of record, but all complete records are used in determining means.

Reference letters a, b, c, etc., appearing in the table indicate the number of days missing; for example b represents two days, etc.

†Also other dates. ‡Received too late to be included in means and summaries.

T. Precipitation is less than 0.01 inch rain or melted snow.

PRESSURE RELATIVE HUMIDITY, WIND AND SUNSHINE.

Stations	Barometric Pressure, Inches (Sea level)				Relative Humidity (%)			Wind				Sunshine			
	Mean	Highest	Date	Lowest	Date	Mean		Total movement	Maximum		Per cent of possible	Departure from normal			
						7 p. m.	7 a. m.		Miles	From					
Charles City	30.19	30.97	5	29.69	10 92	78 88	65	16	4,991	6.7	24	nw.	25	66	+19
Davenport	30.21	30.99	5	29.47	10 85	72 79	39	21	5,745	7.7	27	nw.	25	48	0
Des Moines	30.20	31.04	5	29.55	10 87	75 78	43	5	5,600	7.5	27	sw.	6	66	+17
Dubuque	30.21	30.96	5	29.60	10 80	69 73	43	1	4,914	6.6	26	nw.	25	53	+4
Keokuk	30.23	31.05	5	29.51	10 80	67 73	32	5	6,034	8.1	30	sw.	22	58	+7
Sioux City	30.22	31.04	5	29.67	15 82	66 73	50	25	8,504	11.4	37	nw.	10	67	+12
Omaha, Neb.	30.22	31.05	5	29.68	9 82	69 73	36	16	6,249	8.4	36	nw.	10	64	+9
Means and extremes	30.21	-----	-----	-----	83 70	76 76	-----	-----	-----	8.1	-----	-----	-----	60	+10
Normals and records	30.14	-----	25th 1905	29.47	10	-----	32	5	-----	-----	37	nw.	10	-----	-----
	-----	31.09	1905	28.71	1906	-----	78	-----	-----	8.7	-----	-----	6th 1903	50	-----
	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

†Sioux City. *Omaha. \$Dubuque. ‡Local mean time. †And other dates.

SNOWFALL

The average snowfall for the State was 5.5 inches, or 1.4 inches less than the normal. The greatest amount, 13.2 inches, occurred at Charles City, and the least, 0.4 inch, at Cumberland.

MISCELLANEOUS PHENOMENA

Aurora: 29th, 30th, 31st.
Fog: 2d, 3d, 7th, 8th, 9th, 24th, 26th, 28th, 29th, 31st.
Halos (lunar and solar): 3d, 4th, 12th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22d, 23d, 25th.
Sleet: 8th, 10th, 24th.

RIVERS

Low stages prevailed on the Mississippi and the river was frozen the entire month, and low and nearly stationary stages prevailed on all interior rivers. On the Missouri River there was a rising tendency with the highest stages at the end of the month.

Daily Precipitation for January, 1924.

Stations	Drainage Basin	Day of Month																															Totals	
		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		
<i>Northern Division</i>																																		
Algona	Des Moines	.84	.30							.10																								1.24
Allison	Cedar		.20					.05	.40	T.			T.												.02								0.67	
Alta	Raccoon	.12							.12	.25			.04																				0.28	
Alton	Floyd		.20						.05				.05												T.								0.30	
Belmond	Iowa		.18					.12	.20	T.			.04	.02	.12										.04								0.72	
Britt	Iowa																																	
Charles City***	Cedar	.01	.15					.07	.80	.01			.01	T.	.12										.01								1.18	
Cherokee	Little Sioux	.05	.08					T.	.10	T.			T.	T.													T.						0.23	
Decorah	Mississippi		.10					T.	.80	T.			T.		.30									T.									1.20	
Estherville	Des Moines		.30					T.		T.																							0.30	
Fayette	Mississippi		.20					T.	.25					T.	T.	.15									T.								0.60	
Forest City	Cedar		.35					.03	.25	.05																							0.68	
Humboldt	Des Moines		.25					.12	1.62	T.			T.	T.	T.																		1.99	
Inwood	Big Sioux							.10	.05			T.		.10																			0.25	
Le Mars	Floyd	T.	1.30					T.	T.	T.			.05														T.	T.			.04		1.39	
Mason City	Cedar		.25					.02	.70	.02					.12										.02								1.13	
Milford (near)	Little Sioux		.08					.15	T.				T.																				0.23	
New Hampton	Wapsipinicon		.16						.32							.16																	0.64	
Nora Springs	Cedar		.20					.21	.61	.03			.01		.15	.16									.05								1.26	
Northwood	Cedar		T.		T.			.10	.30	T.				T.											T.								0.40	
Oelwein	Wapsipinicon		.50						.32						.30																		1.12	
Pocahontas	Des Moines		.16					.15	.08	.05	T.		.03		T.										.03								0.50	
Postville	Mississippi		.10					T.	.35						.05																		0.50	
Rock Rapids	Big Sioux	.25	.20					.12	.32				.05																				0.62	
Sanborn	Floyd							.10																							T.		0.10	
Sioux Center	Floyd	.10	.50						.05				.05																				0.70	
Spencer	Little Sioux		.30						.10																								0.40	
Storm Lake	Raccoon							T.				.06																					0.06	
Washta	Little Sioux	T.	.05						T.					.05																			0.10	
Waverly	Cedar		.02					.10	1.50	.10				.50	.35																		2.57	
West Bend	Des Moines		.25					.04	.04				.08																				0.41	
<i>Central Division</i>																																		
Ames	Skunk	.05	.09					.40	.28	T.			.20		T.																		1.02	
Audubon	Nishnabotna		.20					.18	.50				.10																				0.98	
Baxter	Skunk	.24	.24		T.			.28	.60				.24																				1.60	
Belle Plaine	Iowa		.08		T.			.13	.61	T.	T.		.12	T.	.08																		1.11	
Boone	Des Moines	.02	.06		T.			.28	.39	T.			.05																				0.80	
Carroll	Raccoon							.06	.45				.18																				0.69	
Cedar Rapids	Cedar																																	
Clinton	Mississippi				.06			.08	.39		T.	T.	.13			.58									.17								1.41	
Davenport***	Mississippi		.01		.02			.25	.18	T.	T.		.04	T.	.25	.26									.23								1.27	
Davenport (No. 2)	Mississippi		.02		.04			.24	.30	.01			T.	.05		.65									.26	T.							1.60	
Denison	Missouri		.06					.09	.09				.04		.04																		0.32	
Des Moines***	Des Moines	.09	.05	T.	.02	T.		.46	.29	T.			.11	T.	T.	T.									.23	T.						1.02		
Dubuque***	Mississippi		.03					.17	.12	T.	T.		.02	T.	.12	.10									.06	T.							0.63	
Fairport	Mississippi		T.	.02	.04			.22	.32	T.	T.		.02	.08		.60									.40	.06							1.92	
Fort Dodge	Des Moines		.11					.10	.33				.10	.04																	.16		0.78	
Grinnell	Iowa		.10					.23	.62	T.			.10	T.	T.	.05									.12								1.24	
Grundy Center	Cedar	.50	.20						.20	.10	T.		.10	T.	.10																		1.20	
Guthrie Center	Raccoon							.16	.96				.16																					1.28
Harlan	Nishnabotna		.15						.50				.02																					0.67
Independence	Wapsipinicon		.14						.14				.03	.07	.05										.01	.07							0.51	
Iowa City	Iowa		.05					.28	.31	.01			.10		.04	.26									.22								1.35	
Iowa Falls	Iowa		.20					.25	.45	T.			.07	T.	.03																		1.00	
Jefferson	Raccoon	.05	.10		T.			.15	.60	T.			.10																				1.00	
Le Claire|||	Mississippi																																	
Little Sioux	Little Sioux	T.	.10					.06					T.																				0.16	
Logan	Missouri		.07					.03	.30				.10																					0.50
Marshalltown	Iowa	T.	.09		T.			.17	.56	T.	T.		.17		.02										.03								1.04	
Monroe	Des Moines		.02					.12	.48				.14												.13								0.89	
Muscataine|||	Mississippi																																	
Olin	Wapsipinicon															.30																		0.40
Onawa	Missouri		.08							T.	T.	T.	.08		T.																			0.16
Perry	Raccoon	T.	.07					.22	.24	T.	T.		.08																					0.61
Rockwell City	Raccoon		.20		T.			.10	.60				.10		T.	.10																	1.10	
Sac City	Raccoon		.10					T.	.30				.10																					0.50
Sioux City***	Missouri	.05	T.	T.				.03	T.	T.		.01	.04			T.											T.	T.					0.13	
Tipton	Cedar		.04		T.			.20	T.				.10	.05		.05									.18								0.72	
Toledo	Iowa		.10					.15	.58				.15			.05																		1.03
Van Meter|||	Raccoon																																	
Waterloo	Cedar		.07																															

Daily Precipitation for January, 1924—Continued.

Stations	Drainage Basin	Day of Month																															Totals		
		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	Grand		.16						.11	.60	T.			.12		T.																.04	1.03		
Albia	Des Moines		.02		.02				.04	.34	T.			.08		T.	.04			T.					.26	T.						T.	0.80		
Atlantic	Nishnabotna	.06	.02	T.					T.	.05	T.			.07																			T.	0.20	
Bonaparte	Des Moines		T.						.12	.27	T.			T.		T.	.21			T.					.35	T.						T.	0.95		
Burlington	Mississippi		T.		.05				.33	.30				.10	.05		.70		T.						.23	.10							T.	1.86	
Centerville	Chariton		.03		T.				.06	.28	T.	T.		.03		.01	T.			T.					.25	T.								0.66	
Chariton	Chariton	.12	.10							.52				.10											.28									T.	1.12
Clarinda	Nodaway	.05	.04		T.				.03	.66		.01		.01						T.					T.	T.							T.	0.80	
Columbus Jet	Iowa		.05		.10				.32	.17			T.	.10		.05	.50							.20	.10							.10		1.69	
Corning	Nodaway	T.	.30						.15	.65				T.																					1.10
Corydon	Chariton		.07		.01				.03	.25	T.			.04		T.	T.			T.					.23	T.				T.			T.	0.63	
Creston	Missouri		T.							.05				.20																				T.	0.05
Cumberland (near)	Nodaway	T.	T.		T.				.05	.31	T.			.20																				T.	0.56
Earlham	Des Moines	.05	.01	.05					.10	.60	T.			.20	.10																				1.11
Fairfield	Skunk				.15				.24	.65				.10		.30	.30								T.								T.		1.14
Glenwood	Missouri	.02	.03						.11	.40				.03																				T.	0.59
Greenfield	Nodaway	T.	.04						.05	0.34	T.			.10																					0.53
Indianola	Des Moines	.05	.05		.10				.03	T.				.30			T.								.02										0.55
Keokuk***	Mississippi	.01	T.		.02				.62	.03	T.	T.		.11	T.	.26	.16			T.	T.				.09	T.							.01	1.31	
Keosauqua	Des Moines		.05		.03				.15	.16	T.	T.		.10	T.	.10	.30								.40										1.29
Knoxville	Des Moines		.10		.05				.12	T.				.20	.05	.03				T.					.23								T.	0.78	
Lacona	Des Moines	.10	.10	.20	.10				.24	.68															.57								.02	2.01	
Lamoni	Grand																																		
Lenox	Missouri	.04	.04		.04				.10	.10	.03			.05											.10								.05	0.55	
Mt. Ayr	Grand	T.	.06		T.					.50	.05			.04		T.	T.							.10		.10							.02	0.77	
Mt. Pleasant	Skunk			T.	.10				.16	.03				.03			.33								T.							T.	.08	0.73	
Oakland	Nishnabotna	.40							.60					T.																					1.00
Oskaloosa	Des Moines	T.	.04		.02				.09	.35	T.	T.		.09	.01	.03	.03				T.				.32	T.						.04	1.02		
Ottumwa	Des Moines		.03		.03				.08	.36	T.	T.		T.	T.	T.	.08								.30									0.88	
Pella	Skunk		.12		.04				.15	.24	T.	T.		.24		T.		.04		T.				.15										0.98	
Sigourney	Skunk		T.		.04				.10	.35	T.	T.		.07	.02	T.	.16								.24							T.	.06	1.04	
Stockport	Skunk		.05		.05				.10	.26	T.			.05		.05	.75								.40										1.71
Thurman	Missouri	.20	.05						.10	.72	T.			T.																				T.	1.07
Washington	Skunk		.02						.10			.25		.15		.34																		.10	1.18
Wescott(near)	Mississippi	.20	.15						.42	.40							.70							.20		.22							.03	2.10	
Winterset	Des Moines	T.	.20						.08	.20	T.			T.																					0.48
Omaha, Nebr.***	Missouri	.07	T.	.03					.12	.36	.01			.02			T.								T.	T.						.01	T.	0.62	

Except as otherwise indicated, observations are generally made late in the afternoon, near sunset, and precipitation recorded is for 24 hours ending at the time of observation.

|||Precipitation measured in the morning; amount then recorded is for the preceding 24 hours.

**Regular Weather Bureau Station; precipitation is for 24-hour period, midnight to midnight.

*Incomplete.

*Precipitation included in the next following measurement.

Daily Maximum and Minimum Temperature for the Month of January, 1924.

Stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean
<i>Northern Division</i>																																
Algona	10	2	-2	-10	26	33	35	33	28	21	21	16	25	20	7	15	8	5	9	38	28	32	16	11	28	37	41	41	42	20.5		
Alta	10	0	3	8	31	33	36	37	25	21	10	13	17	14	11	13	9	0	14	39	30	32	8	17	31	40	43	44	40	20.4		
Alton	5	2	-2	9	36	33	35	33	28	24	15	10	15	30	25	11	11	9	4	12	40	37	33	18	15	30	38	43	44	39	21.3	
Belmond	14	1	5	-11	24	31	38	35	34	18	18	0	17	21	20	5	17	9	4	8	35	28	32	15	10	28	38	41	41	19.5		
Charles City	19	0	6	-13	27	31	37	38	32	18	9	8	18	23	19	8	17	8	-3	9	35	23	31	2	8	24	39	40	40	18.8		
Decorah	16	10	-1	-10	21	33	36	38	38	22	15	16	17	25	25	4	14	9	-2	2	34	27	30	23	3	19	35	30	40	19.4		
Forest City	15	5	0	-10	26	33	37	35	35	18	15	12	12	25	23	18	18	11	7	8	37	35	32	25	12	25	38	44	45	31.9		
Inwood	6	3	5	5	38	40	33			22	12	12	16	29	12	9	0	14	38	35	20	12	14	31	41	44	45	37	19.8 ^b			
Mason City	15	5	5	15	27	31	35	35	34	20	17	9	20	22	20	7	9	7	1	9	35	30	31	14	8	23	39	28	43	42	19.3	
Milford (near)	7	2	0	0	31	32	35	27	27	21	13	10	14	27	17	10	9	9	5	10	36	31	31	10	12	28	38	42	43	20.9		
New Hampton	16	4	-6	-10	22	29	36	36	34	20	16	9	17	25	24	10	17	10	4	3	34	27	30	30	7	24	38	37	40	38	20.0	
Northwood	17	20	-30	-22	12	22	26	36	16	10	7	-17	9	10	12	-22	-2	-3	-18	-23	2	14	13	-14	-13	-4	15	18	18	27	-1.9	
Pocahontas	11	7	-3	6	30	34	39	38	27	22	21	13	19	28	19	8	15	8	5	10	39	31	33	12	15	29	41	43	45	41	21.8	
Postville	17	1	-4	-14	19	30	37	38	34	19	13	7	17	29	29	6	17	8	1	2	34	29	30	28	4	18	37	37	40	38	19.4	
<i>Central Division</i>																																
Belle Plaine	21	9	5	-9	25	38	44	55	38	23	20	14	21	35	33	15	22	15	6	10	43	35	33	33	18	29	39	40	48	50	26.3	
Boone	20	3	2	9	27	36	42	39	37	18	18	16	22	27	27	12	26	12	5	14	38	34	34	29	20	32	41	43	48	45	24.5	
Carroll	16	12	8	-4	30	35	39	40	31	19	15	20	23	27	22	10	20	12	7	16	38	43	43	21	30	33	42	44	46	39	25.1	
Davenport	24	11	6	-11	26	33	47	42	40	23	23	16	27	38	31	5	24	18	2	9	37	33	36	24	14	31	43	40	45	41	25.5	
Des Moines	11	2	-16	-21	13	18	25	37	23	21	3	2	13	27	-6	10	0	-2	-6	-13	9	21	21	-1	-1	6	31	33	32	35	8.9	
Dubuque	20	7	4	-8	27	38	44	41	36	22	16	18	31	33	28	15	24	13	7	19	42	35	37	13	21	35	43	45	51	45	26.1	
Fort Dodge	9	5	1	-14	21	33	44	43	38	21	20	12	25	33	30	5	17	12	1	8	38	30	34	24	7	26	38	39	41	40	22.5	
Grinnell	2	9	5	-2	12	28	34	38	37	36	20	18	7	20	21	7	10	16	7	34	7	18	19	-11	9	2	12	17	21	26	-1.1	
Guthrie Center	22	14	3	-8	25	37	45	42	37	23	21	16	22	34	31	13	22	20	10	11	43	39	33	30	31	40	40	48	45	46	23.3	
Independence	18	18	2	-8	23	31	39	41	41	31	21	20	32	30	20	19	19	10	4	37	28	33	32	26	33	38	37	42	44	45	2.0	
Iowa City	24	18	5	-8	24	36	43	43	39	25	21	13	22	37	32	6	23	20	8	4	42	33	34	28	16	29	43	44	47	48	26.0	
Iowa Falls	18	3	-3	-13	25	32	38	38	34	19	14	19	26	24	8	17	11	4	8	37	33	33	26	12	28	39	38	43	43	21.7		
Little Sioux	18	6	4	-3	36	38	40	42	30	38	24	16	21	30	27	13	22	14	12	18	42	38	34	24	22	36	44	49	48	41	26.6	
Marshalltown	20	7	3	-12	25	37	43	40	36	20	19	13	22	34	31	12	21	15	6	12	39	33	33	28	14	30	38	39	46	46	24.3	
Olin	17	14	15	-	28	30	38	35	32	21	10	14	27	25	-	19	18	12	11	23	38	32	34	1	11	32	39	39	44	25.0 ^c		
Sioux City	6	1	-1	-3	43	33	36	34	17	24	10	10	17	32	7	15	14	13	6	21	42	31	34	8	18	33	42	48	45	41	22.1	
<i>Southern Division</i>																																
Albia	24	17	8	-4	28	40	47	43	40	27	23	20	26	36	32	13	28	20	10	14	44	37	37	33	23	37	45	48	53	49	29.2	
Atlantic	15	9	5	-3	31	38	42	42	38	27	18	18	28	27	23	15	24	14	9	19	38	38	35	26	28	42	44	45	50	40	27.0	
Burlington	26	25	9	0	28	36	49	45	40	33	25	23	25	37	33	5	29	28	14	6	35	33	36	36	19	13	23	26	35	5.0		
Columbus Jet.	25	21	8	10	26	40	46	45	44	26	24	18	23	38	31	15	24	22	12	6	37	35	35	35	19	30	42	44	49	50	28.3	
Corning	23	9	8	-5	28	39	45	41	40	33	20	20	30	33	26	25	28	18	10	20	43	38	35	31	33	46	48	53	41	29.2		
Corydon	7	23	17	7	-9	26	37	45	43	40	26	23	20	27	35	31	11	27	21	10	42	38	36	34	24	43	44	47	50	47	28.5	
Fairfield	26	21	13	-2	26	38	47	45	40	26	25	18	24	38	30	9	25	15	47	7	37	33	37	35	20	35	44	45	47	51	29.8	
Keokuk	25	15	12	-4	32	40	59	46	46	27	27	24	32	41	31	10	32	25	5	15	38	39	39	31	22	42	47	45	50	31.1		
Lamoni	15	2	-13	-19	-9	20	30	38	24	21	8	6	9	31	-3	-6	-2	4	-5	-8	10	23	29	4	3	17	41	35	34	12.0		
Pella	22	15	6	4	26	36	44	43	38	25	23	22	23	34	32	32	25	24	21	19	45	37	35	35	22	31					26.9 ^d	
Sigourney	4	25	18	7	12	25	35	44	42	38	26	23	16	22	35	31	6	25	21	10	6	40	36	33	34	19	29	45	45	48	46	27.3
Thurman	4	5	6	-4	29	39	46	47	32	18	18	12	24	24	11	30	20	9	19	32	37	37	29	29	34	40	44	41	25.3			
Winterset	21	17	5	0	28	50	44	42	40	21	20	21	26	35	30	16	24	18	6	15	42	40	35	30	28	40	48	45	54	45	29.2	
Omaha, Nebr.	14	6	3	-2	41	39	44	41	26	23	16	14	26	29	26	13	21	15	13	28	42	36	36	13	28	39	44	49	51	43	26.6	

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

CLIMATOLOGICAL DATA.

IOWA SECTION

In cooperation with

IOWA WEATHER AND CROP SERVICE

CHARLES D. REED, Meteorologist

VOL. XXXV DES MOINES, IOWA, FEBRUARY, 1924 No. 2

GENERAL SUMMARY.

Despite the fact that February, 1924, was a warm month, the weather for the most part was very disagreeable. The month opened with a brief warm period and the warmest day occurred generally on the 2d. There were no protracted cold spells; the periods of zero weather were of short duration; and at several stations in the east-central and southeast sections the temperature did not reach zero.

The precipitation for the State averaged slightly above normal, though there was a deficiency over about half of the State, the excess being mainly in a strip running from Audubon to Jefferson counties. The outstanding feature of the month was the destructive glaze storm that set in on the evening of the 3d and caused great damage to telephone, telegraph, and electric wires and poles. A storm of considerable energy passed south of the State on the 3d-4th and gave light rain during the early evening and night of the 3d that froze to all exposed objects. The rain was so light in limited areas that it caused no damage, but over large areas the precipitation was sufficiently heavy to form a heavy coating of ice and by midnight of the 3d most of the wires and objects to the windward were covered with a coating of ice about one-eighth inch in thickness. This was followed by heavy snowfall and high winds and wires and poles went down in nearly all sections of the State except most of the northern division. The Northwestern Bell Telephone Company suffered the greatest damage and inconvenience. In Iowa and Nebraska this company reported 3,800 poles broken down, 34,000 miles of wires out of commission, and a property loss of \$200,000.00, the greatest damage resulting to the lines running east and west. Rural telephone lines also suffered greatly and although there is no way of estimating the damage it probably amounted to \$100,000.00. Telegraph companies did not fare so badly. The principal loss consisted of about 250 poles broken off and the inconvenience resulting from numerous breaks in wires. Most of the State was without telephone and telegraph communication for periods ranging from a few hours to nearly a week. Another general glaze storm occurred on the 16th. The ice deposit was heavier and more general than the previous storm, but there were no high winds accompanying and the damage was of a trifling nature. The deposit of ice continued on wires and trees over portions of the southern division until the 24th. The greatest property damage resulting from this storm was to automobiles skidding on paved roads and streets. Many broken limbs resulted to pedestrians and walking was possible only by exercising the greatest care.

The monthly snowfall also was out of the ordinary. Only once in the last 35 years has a greater fall occurred in February. Following the glaze of the 3d a general snow occurred throughout the State accompanied by strong winds that caused the snow to drift badly so that large areas were practically bare and many drifts were reported that were from 10 to 15 feet deep and cuts on highways were completely filled. As a result of these conditions travel throughout the State was

almost impossible by automobile. Rail traffic was maintained on the main lines with very little delay, but great trouble and delay was encountered on branch lines. Delivery of rural mail was impossible and automobile bus service had to be suspended part of the time. The snow had generally disappeared by the middle of the month but many drifts still remained and they formed the foundation for immense drifts from the snow that fell from the 18th to the 23d, being the deepest in Warren, Marion, Mahaska, and Wapello counties, where travel over highways had to be temporarily suspended. During the last week of the month frost was fast leaving the ground; dirt roads were in the worst condition possible; travel over them was practically impossible; and the moving of tenant farmers, that occurs this time of the year, was delayed.

Conditions were unfavorable for all outdoor occupations. No plowing was accomplished during the month in any portion of the State and new construction was at a stand still.

F. L. D.

TEMPERATURE.

The mean temperature for the State, as shown by the records of 96 stations, was 25.8°, or 5.3° higher than the normal. By divisions, three tiers of counties to the division, the means were as follows: Northern, 23.5°, or 6.4° higher than the normal; Central, 26.2°, or 5.5° higher than the normal; Southern, 27.7°, or 4.1° higher than the normal. The highest monthly mean was 30.9°, at Clarinda, and the lowest was 20.8°, at Decorah. The highest temperature reported was 70, at Clarinda, on the 2d, and the lowest was -15°, at Decorah, on the 22d. The temperature range for the State was 85°.

COMPARATIVE DATA FOR THE STATE—FEBRUARY.

YEAR	Temperature				Precipitation				Number of Days				
	Mean	Departure	Highest	Lowest	Total	Departure	Greatest	Least	Snowfall	With pre-.01 in. or more	Clear	Partly cloudy	Cloudy
1890	26.0	+5.5	67	-24	0.83	-0.32	2.18	0.11					
1891	19.4	-1.1	70	-31	1.16	+0.01	2.41	0.55		3	13	7	8
1892	28.1	+7.6	68	-20	1.20	+0.05	2.18	0.12	5.0	6	6	7	16
1893	16.4	-4.1	60	-28	1.39	+0.24	2.91	0.06	8.1	6	10	8	10
1894	19.7	-0.8	60	-19	0.89	-0.26	2.41	T.	8.4	3	16	8	4
1895	16.4	-4.1	73	-33	0.49	-0.66	1.34	0.02	3.3	4	13	9	6
1896	27.4	+6.9	78	-13	0.71	-0.44	2.40	0.04	5.4	4	12	9	8
1897	24.7	+4.2	61	-24	0.89	-0.26	1.81	0.22	8.0	5	6	10	12
1898	24.2	+3.7	62	-18	1.20	+0.05	3.65	0.10	7.8	5	10	9	9
1899	12.2	-8.3	75	-40	0.89	-0.26	4.32	0.12	7.1	5	11	10	7
1900	14.8	-5.7	60	-27	1.30	+0.15	4.57	0.18	9.9	6	10	8	10
1901	17.5	-3.0	49	-21	1.01	-0.14	3.00	0.12	9.7	4	15	7	6
1902	17.6	-2.9	62	-21	0.73	-0.42	2.39	0.02	2.6	4	13	8	7
1903	19.8	-0.7	56	-21	1.18	+0.03	3.25	0.30	7.9	4	13	7	8
1904	14.8	-5.7	70	-26	0.41	-0.74	1.99	T.	4.5	4	10	9	10
1905	12.8	-7.7	69	-41	1.57	+0.42	2.97	0.44	15.5	7	14	6	8
1906	23.6	+3.1	66	-32	1.29	+0.14	2.91	0.20	6.1	5	14	7	7
1907	25.0	+4.5	65	-31	0.71	-0.44	1.95	0.06	4.6	4	14	6	8
1908	24.3	+3.8	59	-16	1.09	+0.54	3.95	0.23	8.9	6	12	6	11
1909	26.2	+5.7	62	-26	1.54	+0.39	4.72	0.30	7.7	5	11	6	11
1910	17.8	-2.7	58	-21	0.46	-0.69	2.09	T.	4.0	3	14	8	6
1911	27.3	+6.8	71	-13	2.76	+1.61	5.46	0.50	7.0	6	12	6	10
1912	18.1	-2.4	57	-30	1.21	+0.06	3.25	0.04	11.2	5	10	9	10
1913	20.2	-0.3	70	-24	0.82	-0.33	2.39	0.07	7.3	4	14	7	7
1914	16.8	-3.7	59	-29	0.87	-0.28	1.99	0.32	9.2	6	10	9	9
1915	29.1	+8.6	62	-8	2.93	+1.78	5.39	0.43	9.4	9	9	5	14
1916	19.0	-1.5	62	-32	0.55	-0.60	1.38	0.05	6.0	4	14	8	7
1917	15.2	-5.3	68	-37	0.36	-0.79	1.19	T.	3.5	3	14	8	6
1918	23.0	+2.5	70	-36	0.95	-0.20	2.10	0.09	6.0	5	14	7	7
1919	24.9	+4.4	65	-16	2.42	+1.27	4.12	1.32	9.9	8	11	5	12
1920	24.0	+3.5	59	-22	0.56	-0.59	1.75	0.04	4.1	5	9	6	14
1921	31.0	+10.5	76	-5	0.77	-0.38	2.00	T.	6.5	5	13	7	8
1922	23.7	+3.2	70	-20	1.59	+0.44	4.56	0.40	1.3	4	14	7	7
1923	20.1	-0.4	61	-23	0.40	-0.75	1.71	0.00	3.2	3	13	8	7
1924	25.8	+5.3	70	-15	1.27	+0.12	4.00	0.30	11.2	7	15	5	9

T. Indicates an amount too small to measure, or less than .005 inch precipitation and less than .05 inch snowfall.

1924
FEBRUARY
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Climatological Data for February, 1924

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit					Precipitation, in Inches				Number of Days			Prevailing direction of wind	Observers			
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more			Clear	Partly cloudy	Cloudy
<i>Northern Division</i>																				
Algona	Kossuth	1,213	51	23.4	+ 5.8	52	2	- 4	21	29	0.30	-0.79	0.20	3.0	2	17	0	12	ne.	W. E. Laird.
Allison	Butler	1,044	12	23.6		55	2	- 5	8	36	1.10		0.50	8.0	4	16	2	11	nw.	J. A. Bell.
Alta	Buena Vista	1,513	33	24.2	+ 8.1	58	2	- 5	21	31	1.09	+0.17	0.58	10.5	7	16	8	8	ne.	D. E. Hadden.
Alton	Sioux	1,305	19	23.8	+ 6.1	57	2	- 8	25	40	0.90		0.30	9.0	5	15	6	6	nw.	W. S. Slagle.
Belmond	Wright	1,205	14	23.2		51	2	- 5	21	33	1.03		0.25	9.3	9	5	14	10	nw.	Geo. P. Hardwick.
Britt	Hancock	1,236	37	24.6	+ 7.9	56	2	- 6 ^a	21	35 ^a	0.33	-0.48	0.20	3.3	6	13	6	10	se.	L. M. Goodman.
Charles City	Floyd	1,015	33	22.4	+ 7.3	47	2	- 8	22	40	1.14	+0.13	0.46	12.8	6	11	7	11	nw.	U. S. Weather Bureau.
Cherokee	Cherokee	1,196	2	24.0		60	2	- 7	21	38	0.91		0.35	6.5	7	12	7	10	ne.	J. E. Wirth.
Decorah	Winnesiek	875	31	20.7	+ 3.1	40	2	- 15	22	43	0.90	-0.13	0.50	9.0	3	16	5	8	nw.	M. D. Whitney.
Estherville	Emmet	1,238	29	24.2	+ 9.2	58	2	- 8	6	35	0.85	+0.07	0.30	8.5	6	16	12	1	nw.	A. O. Peterson.
Fayette	Fayette	1,003	34	22.2	+ 4.8	46	2	- 9	22	36	1.12	-0.64	0.50	10.3	6	15	6	8	nw.	R. Z. Latimer.
Forest City	Winnebago	1,226	30	23.2	+ 8.1	53	2	- 3	21	38	1.13	+0.29	0.25	11.3	7	15	2	12	se.	Dr. M. B. Neil.
Humboldt	Humboldt	1,065	36	24.6	+ 5.4	58	2	- 3	8 [†]	38	2.25	+1.41	0.60	7.3	6	13	5	11	nw.	H. O. Snitkey.
Inwood	Lyon	1,474	20	23.2	+ 7.0	56 ^a	2	- 11	21	35 ^a	0.85	+0.10	0.30	8.5	8	17	6	6	nw.	F. B. Hanson.
Le Mars	Plymouth	1,224	28	24.3	+ 6.0	57	2	- 6	5 [†]	40	0.59	-0.18	0.15	4.0	5	19	1	9	sw.	Mrs. M. O. Woolley.
Mason City	Cerro Gordo	1,148	27	21.8	+ 4.5	53	2	- 13	22	44	1.23	+0.12	0.38	11.2	7	13	7	9	ne.	Northern Sugar Corp.
Milford (near)	Dickinson	1,430	4	22.1		51	2	- 6	21	30	0.91		0.25	9.5	7	10	11	8	nw.	Dr. F. J. Smith.
New Hampton	Chickasaw	1,169	27	22.9	+ 6.3	46	2	- 4	22	29	1.70	+0.78	0.60	17.0	5	11	6	12	nw.	A. F. Kemman.
Nora Springs	Floyd	1,064	12	24.0		52	13	- 13	22	46	1.86		0.46	11.5	9	12	6	11	s.	Arthur Betts.
Northwood	Worth	1,222	28	22.8 [†]	+ 6.5	47 ^a	2	- 5 [†]	22	34 ^a	0.80	-0.52	0.20	8.0	5	16	5	8	ne.	Chas. Dwell.
Oelwein	Fayette	1,036	1	24.2		51	2	- 2	21	31	0.80		0.50	8.0	2	15	8	6	sw.	John T. Ridler.
Pocahontas	Pocahontas	1,248	20	24.2	+ 6.6	56	2	- 5	25	40	0.68	-0.17	0.20	5.8	6	18	4	7	nw.	F. E. Hronek.
Pocahontas	Clayton	1,180	25	21.9	+ 4.2	45	27	- 8	22	32	1.00	-0.14	0.40	10.0	6	9	9	11	sw.	F. L. Williams.
Rock Rapids	Lyon	1,358	25	23.3	+ 7.7	55	2	- 8	5 [†]	38	0.75	+0.35	0.30	8.5	6	17	4	8	ne.	J. K. Medberry.
Sanborn	O'Brien	1,553	10	23.8		57	2	- 10	21	34	1.15		0.30	10.5	8	18	4	7	nw.	J. W. Dow.
Sioux Center	Sioux	1,426	25	23.2	+ 6.2	58	2	- 10	5	33	0.97	+0.27	0.30	9.7	6	16	3	10	s.	J. de Ruyter.
Spencer	Clay	1,319	10	24.2		58	2	- 8	21	39	0.90	-0.00	0.25	9.0	5	16	4	9	nw.	E. W. Little.
Storm Lake	Buena Vista	1,440	35	25.0	+ 7.9	57	2	- 4	21	31	0.74	-0.01	0.50	7.2	6	18	4	7	ne.	Geo. H. Fracker.
Washta	Cherokee	1,157	26	24.9	+ 6.2	58	2	- 7	25	44	0.91	+0.09	0.50	7.5	4	17	2	10	n.	H. L. Felter.
Waverly	Bremer	936	28	23.6 ^b	+ 5.0	51 ^b	2	- 7 ^b	22 [†]	43 ^b	0.84	-0.28	0.32	10.5	6				nw.	D. H. Murphy.
West Bend	Palo Alto	1,197	31	23.8	+ 6.3	57	2	- 4	6 [†]	35	0.39	-0.50	0.18	4.5	3	15	5	9	nw.	Jos. Dorweiler.
Means and extremes				23.5	+ 6.4	60	2	- 15	22	46	0.99	+0.08	0.60	8.8	6	15	5	9	nw.	
<i>Central Division</i>																				
Ames	Story	926	47	25.6	+ 4.9	59	2	- 8	25	44	0.97	+0.06	0.30	9.5	7	14	7	8	w.	Iowa State College.
Audubon	Audubon	1,297	29	25.4	+ 4.7	58	2	- 4	6	33	2.10	+1.14	0.50	18.0	6	15	5	9	sw.	Geo. Kibby.
Baxter	Jasper	998	24	25.8	+ 4.7	58	2	- 5	22	40	1.08	+0.16	0.40	15.0	5	14	6	9	n.	Henry Geise.
Belle Plaine	Benton	866	34	26.2	+ 5.4	61	2	- 8	8	33	1.26	-0.36	0.46	14.5	10	14	5	10	nw.	O. C. Burrows.
Boone	Boone	1,134	19	25.2	+ 6.2	59	2	- 14	25	52	1.28	+0.38	0.40	17.5	9	17	3	9	nw.	C. F. Henning.
Carroll	Carroll	1,265	34	27.0	+ 8.0	57	2	- 5	25	42	0.75	-0.32	0.50	7.0	4	19	0	10	sw.	Mrs. Jos. J. Wolfe.
Cedar Rapids	Linn	737	42																	
Clinton	Clinton	595	51	26.4	+ 3.5	52	2	- 1	22	33	1.13	-0.94	0.48	11.0	8	19	4	6	s.	Dr. A. P. Bryant.
Davenport	Scott	580	53	27.2	+ 2.3	54	2	- 5	22	24	1.46	-0.15	0.85	11.7	8	8	7	14	nw.	U. S. Weather Bureau.
Davenport No. 2	Scott	690		26.8		54	2	- 1	22	28	1.37		0.46	9.6	7				nw.	Rex Shriner.
Denison	Crawford	1,171	30	26.4	+ 6.3	56	2	- 6	25	42	0.34	-0.58	0.17	5.0	5	15	7	7	nw.	V. L. Byers.
Des Moines	Polk	861	46	27.2	+ 3.5	65	2	- 4	25	36	1.98	+0.86	0.82	19.3	9	12	4	13	nw.	U. S. Weather Bureau.
Dubuque	Dubuque	698	51	25.7	+ 3.5	47	27	- 2	22	32	0.74	-0.70	0.24	8.6	9	6	5	18	nw.	U. S. Weather Bureau.
Fairport	Muscatine	567	3	27.2		56	2	- 2	22	34	1.66		0.60	14.5	8	11	5	13	nw.	Bureau of Fisheries.
Fort Dodge	Webster	1,114	24	24.4	+ 6.8	54	2	- 7	25	43	1.03	+0.41	0.23	7.0	6	18	2	9	nw.	Samuel Sampson.
Grinnell	Poweshiek	1,031	30	26.6	+ 4.5	60	2	- 1	7 [†]	31	1.63	+0.52	0.50	14.4	8	13	9	7	ne.	Paul P. Meyers.
Grundy Center	Grundy	976	33	26.8	+ 7.2	58	2	- 0	21	34	1.20	+0.31	0.40	11.0	5	17	3	9	nw.	M. G. Heiberger.
Guthrie Center	Guthrie	1,077	29	27.4	+ 5.8	64	2	- 5	8 [†]	38	1.93	+0.91	0.68	20.0	9	17	2	10	sw.	E. L. Nesselroad.
Harlan	Shelby	1,192	25	26.8	+ 6.2	59	2	- 7	25	38	1.02	-0.09	0.60	10.2	6	17	6	6	n.	W. K. Colburn.
Independence	Buchanan	921	60	25.0	+ 5.7	51	2	- 4	22	30	0.86	-0.20	0.21	8.6	6	16	1	12	ne.	Dr. Geo. Boody.
Iowa City	Johnson	733	64	26.4	+ 5.9	57	2	- 4	8	31	0.83	-0.70	0.32	8.5	6	9	11	9	nw.	Prof. J. F. Reilly.
Iowa Falls	Hardin	1,107	31	24.8	+ 8.0	55	2	- 9	8	35	1.44	-0.20	0.55	11.0	6	15	4	10	nw.	J. B. Parmelee.
Jefferson	Greene	1,052	25	25.0	+ 3.8	60	2	- 13	25	46	1.17		0.60	11.0	7	16	4	9	sw.	W. I. Lyon.
Little Sioux	Harrison	1,040	19																	
Logan	Harrison	1,035	57	23.3	+ 7.3	62	2	- 1	6 [†]	42	0.93	-0.29	0.40	10.0	5	15	7	7	sw.	S. B. Terry.
Marshalltown	Marshall	947	32	26.6	+ 7.5	60	2	- 1	8	33	1.25	+0.11	0.66	14.3	9	17	3	9	nw.	Mary Jean Stern.
Monroe	Jasper	922	12	27.4		65	2	- 12	8	42	1.87	+0.64	0.48	22.9	6	16	4	9	s.	C. C. Pigman.
Olin	Jones	760	25	25.4	+ 3.5	50	2	- 2	8	32									nw.	J. A. Dibel.
Onawa	Monona	1,051	23	26.0		58	2	- 6	25	39	0.95	-0.25	0.55	11.0	3	18	1	10	nw.	Mrs. L. Stingley.
Orwell	Dallas	975	23	26.0	+ 4.7	56	2	- 9	25	43	0.79	-0.59	0.29	9.0	6	17	4	8	nw.	Mrs. H. E. Colby.
Rockwell City	Calhoun	1,134	28																	
Sac City	Sac	1,273	48	25.1 ^a	+ 6.0	56 ^a	2	- 6 ^a	25	41 ^a	1.05	+0.01	0.60	10.5	5				s.	F. N. Bartlett.
Sioux City	Woodbury	1,135	35	26.6	+ 5.6	59	2	- 5	5	32	1.01	+0.49	0.57	9.7	7	18				

Climatological Data for February, 1924—Continued.

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precipitation, in-Inches				Number of Days			Observers				
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear		Partly cloudy	Cloudy	Prevailing direction of wind	
<i>Southern Division</i>																					
Afton	Union	1,212	30	29.0	+ 5.6	68	2	- 1	6	38	1.12	-0.03	0.48	6.1	5	17	2	10	nw.	S. R. Brown.	
Albia	Monroe	959	26	27.4	+ 5.3	64	2	- 5	8	36	2.22	+0.66	0.74	21.5	10	14	2	13	nw.	O. E. McBride.	
Atlantic	Cass	1,164	33	28.2	+ 6.5	63	2	- 5	25	41	0.83	-0.31	0.32	5.8	8	14	4	11	nw.	Miss Oza Cunningham.	
Bonaparte	Van Buren	563	33	27.6	+ 2.9	62	2	- 4	8	35	1.00	-0.41	0.23	4.7	7	16	2	11	w.	B. R. Vale.	
Burlington	Des Moines	544	28	29.6	+ 4.7	55	3	- 1	7	28	2.00	+0.02	0.50	19.0	7	13	5	11	ne.	J. A. Donnelly.	
Centerville	Appanoose	1,013	19	28.6	---	63	2	- 5	8	34	1.78	+0.19	0.64	16.7	7	14	7	8	nw.	W. E. Van Syoc.	
Chariton	Lucas	1,042	21	26.9	+ 3.5	58	2	- 3	8	30	0.76	-0.44	0.19	6.0	5	16	2	11	nw.	O. C. Burr.	
Clarinda	Page	1,009	34	30.9	+ 9.1	70	2	- 1	6	41	1.42	+0.35	0.51	8.1	7	15	5	9	ne.	A. S. Van Sandt.	
Columbus Jct.	Louisa	595	23	26.8	+ 2.0	58	2	- 0	7	36	1.65	+0.06	0.90	16.5	5	19	2	8	ne.	H. L. Lewis.	
Corning	Adams	1,117	32	27.0	+ 5.4	66	2	- 5	25	42	0.85	-0.31	0.50	4.0	3	16	5	8	w.	Jerome Smith.	
Corydon	Wayne	1,101	31	27.7	+ 3.3	60	2	- 1	7	37	1.64	+0.18	0.48	14.0	8	16	4	9	nw.	May C. Miller.	
Creston	Union	1,312	19	28.6	+ 7.8	59	2	- 1	6	30	1.78	-0.44	0.80	---	5	13	5	11	n.	Mrs. S. O. Stanley.	
Cumberland (near)	Cass	1,225	25	---	---	---	---	---	---	---	0.39	-0.72	0.39	4.0	1	16	1	12	sw.	Carl E. Pollock.	
Earlham	Madison	1,126	22	26.4	+ 4.6	65	2	-12	25	49	1.64	+0.22	0.60	1.60	8	16	2	11	nw.	Geo. Phillips.	
Fairfield	Jefferson	780	40	25.6	+ 0.8	59	2	- 6	8	39	2.96	+1.28	0.80	23.0	8	18	1	10	n.	Prof. R. M. McKenzie.	
Glenwood	Mills	1,100	26	29.1	---	62	2	- 5	25	41	1.50	---	0.60	8.8	7	16	3	10	sw.	Dr. Geo. Mogrige.	
Greenfield	Adair	1,368	32	27.0	+ 5.5	64	2	- 5	6	36	0.85	-0.29	0.20	3.0	7	14	10	5	nw.	P. C. Cornell.	
Indianola	Warren	972	33	26.9	+ 3.8	64	2	- 5	8	37	---	---	---	---	---	---	---	---	nw.	Seth F. Shenton.	
Keokuk	Lee	614	53	29.8	+ 1.4	62	3	- 2	7	27	0.93	-0.75	0.36	12.0	7	14	2	13	n.	U. S. Weather Bureau.	
Keosauqua	Van Buren	644	32	27.0	+ 3.7	61	2	-11	8	40	1.60	0.00	0.50	16.0	6	15	6	8	ne.	J. H. Landes.	
Knoxville	Marion	920	29	27.0	+ 2.6	65	2	- 6	8	41	2.50	+1.30	0.70	22.5	6	17	1	11	ne.	W. J. Casey.	
Lacona	Warren	---	25	---	---	---	---	---	---	---	4.00	+2.35	1.00	27.0	8	---	---	---	---	---	J. B. Alter.
Lamoni	Decatur	1,123	17	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	C. E. Wight.
Lenox	Taylor	1,250	29	29.3	+ 6.5	66	2	- 2	6	36	1.03	-0.03	0.40	7.8	8	14	7	8	nw.	J. L. Hurley.	
Mt. Ayr	Ringgold	1,245	31	29.0	+ 4.4	64	2	- 1	6	33	1.57	+0.19	0.89	6.8	7	15	3	11	nw.	Alex Maxwell.	
Mt. Pleasant	Henry	729	43	27.5	+ 2.6	62	2	- 1	7	31	1.01	-0.50	0.22	12.0	6	18	2	9	nw.	J. H. Jericho.	
Oakland	Pottawattamie	1,105	5	28.4	---	59	2	- 5 ^a	25	50 ^a	0.80	---	0.40	8.0	3	17	0	12	n.	M. E. Gray.	
Oskaloosa	Mahaska	835	48	26.4	+ 3.0	61	2	- 3	8	40	2.33	+1.20	1.28	28.1	7	11	7	11	ne.	Roy R. Robinson.	
Ottumwa	Wapello	649	29	27.6	+ 0.8	64	2	-11	8	40	2.74	+1.23	1.48	20.3	7	17	1	11	nw.	O. L. Mikesh.	
Pella	Marion	877	31	25.6 ^a	+ 1.9	56	2	-12	8	42	2.32	+1.02	0.65	18.0	7	---	---	---	s.	J. H. Ver Steeg.	
Sigourney	Keokuk	790	28	25.4	+ 1.5	60	2	- 8	25	42	2.71	+1.20	1.02	24.7	6	14	4	11	nw.	W. E. Utterback.	
Stockport	Van Buren	745	29	25.9	+ 0.8	62	2	-11	8	39	1.68	+0.05	0.40	15.5	8	14	4	11	n.	C. L. Beswick.	
Thurman	Fremont	975	27	---	---	---	---	---	25	---	0.84	-0.42	0.40	7.2	6	10	10	9	nw.	C. R. Paul.	
Washington	Washington	769	42	26.2	+ 2.4	58	2	- 2	8	35	1.55	+0.24	0.47	14.5	8	15	4	10	nw.	Wm. A. Cook.	
Wescott (near)	Lee	---	---	27.8	---	50	3	- 0	8	35	1.22	---	0.35	10.0	7	14	4	11	w.	Geo. H. Smith.	
Winterset	Madison	1,129	33	28.5	+ 5.4	67	2	- 0	6	36	1.70	+0.67	0.50	17.0	5	18	3	8	sw.	E. S. Ely.	
Omaha, Neb.	---	1,103	53	29.8	+ 4.2	62	2	- 2	5	32	0.98	+0.19	0.54	9.6	8	14	5	10	nw.	U. S. Weather Bureau.	
Means and extremes	---	---	---	27.7	+ 4.1	70	2	-12	8	50	1.62	+0.27	1.48	1.35	7	15	4	10	nw.	---	
State means and extremes	---	---	---	25.8	+ 5.3	70	2	-15	22	52	1.27	+0.12	1.48	11.2	7	15	5	9	nw.	---	

The departures from normal temperature and precipitation are computed only for such stations as have ten or more years of record, but all complete records are used in determining means.

Reference letters a, b, c, etc., appearing in the table indicate the number of days missing; for example b represents two days, etc.

†Also other dates. †Received too late to be included in means and summaries.

T. Precipitation is less than 0.01 inch rain or melted snow.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea level)				Relative Humidity (%)			Wind				Sunshine				
	Mean	Highest	Date	Lowest	Date	Mean		Total movement	Maximum		Per cent of possible	Departure from normal				
						7 a. m.	12 Noon		Miles	From						
Charles City	30.19	30.66	24	29.53	3	91	75	53	14	5,024	7.2	26	ne.	4	53	- 1
Davenport	30.16	30.64	25	29.41	3	90	77	52	18	6,180	7.9	40	ne.	4	40	- 14
Des Moines	30.16	30.66	25	29.34	3	90	73	76	44	5,458	7.5	28	n.	4	32	+ 6
Dubuque	30.19	30.66	24	29.54	3	84	71	72	53	5,025	7.2	27	ne.	4	33	- 20
Keokuk	30.16	30.66	8	29.34	3	78	65	69	33	5,770	8.3	27	nw.	9	53	+ 3
Sioux City	30.20	30.64	25	29.37	3	82	67	69	40	7,631	11.0	44	nw.	9	62	+ 4
Omaha, Neb.	30.18	30.66	25	29.30	3	81	64	69	29	6,779	9.7	44	n.	4	62	+ 5
Means and extremes	30.18	---	---	---	---	85	70	74	---	---	8.6	---	---	---	53	- 2
	---	30.66	18	29.30	3	---	---	29	15	---	---	44	nw.	9	---	---
Normals and records	30.10	---	21 st	---	28 th	84	---	76	---	224	---	9.3	---	4 th	55	---
	---	331.07	1918	*28.60	1902	---	---	---	---	---	---	---	---	---	---	---
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

§Sioux City. *Davenport. †Des Moines. ‡Local mean time. †And other dates.

Daily Precipitation for February, 1924—Continued.

Stations	Drainage Basin	Day of Month																															Totals		
		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			
<i>Southern Division</i>																																			
Afton	Grand				.01												.48		.20	T.			.21	.22										1.12	
Albia	Des Moines		.74	.73	.02											.14	.10	.05	.12	.02				.24	.06									2.22	
Atlantic	Nishnabotna		T.	.08	.02											.10	.09	.07	.08	T.				.32	.07									0.88	
Bonaparte	Des Moines		.19	.12	T.											.20	.10		.23					.11	.05									1.00	
Burlington	Mississippi		.10	.30	.20											.50				.40	.10					.40								2.00	
Centerville	Chariton			.23	.64											.20	.22		.14	T.				.10	.25									1.78	
Chariton	Chariton			.19												.14	.11		.14					.18											0.76
Clarinda	Nodaway			.30	.12											.51		.04	.05	T.				.21	.19									1.42	
Columbus Jct.	Iowa			.15	.90											T.	T.		.35					.15	.10									1.65	
Corning	Nodaway			T.	.20											.50									.15										0.85
Corydon	Chariton			.22	.14	T.								T.		.30	.21	T.	.17	.02	T.		.10	.48										1.64	
Creston	Missouri				.50											.80		.14		T.			.22	.12											1.78
Cumberland (near)	Nodaway		T.	T.												T.	T.	T.	T.					.39											0.39
Earlham	Des Moines		.20	.60	.10											T.	.04	.05	.05	T.				.40	.20										1.64
Fairfield	Skunk		.80	.50												.35	.18		.23	.20				.50	.20										2.96
Glenwood	Missouri			T.	.02	.03										.50	.12	.03						.60	.20										1.50
Greenfield	Nodaway			.20	.10											.15	.08			.05				.17	.10										0.85
Indianola	Des Moines		**	**												.05	T.	T.	.30	T.				.37	.39										**
Keokuk***	Mississippi		.20	.25	T.											.20	T.	.02	.12	T.				.11	.03										0.93
Keosauqua	Des Moines		.30	.88	.07											.25			.30	T.				.30											1.60
Knoxville	Des Moines		.60	.70												.30		T.	.25	.05				.60											2.50
Lacona	Des Moines		1.00	.50												.80	.70	.05	.25	.10				.60											4.00
Lamoni	Grand																																		
Lenox	Missouri		.15	.10												.25	T.	.03	.07	.03				.20	.20										1.03
Mt. Ayr	Grand		.30	.05	T.											.45	.44	T.	.11	T.				.10	.12										1.57
Mt. Pleasant	Skunk			.08	.20											.22	.12		.20	T.				.19											1.01
Oakland	Nishnabotna				.20											T.								.40	.20										0.80
Oskaloosa	Des Moines		T.	.80	.48	T.								T.	T.	.18	.09	T.	.18	T.	T.			.52	.08										2.33
Ottumwa	Des Moines		.29	1.48	T.											.14	.23	T.	.10	T.				.48	.02										2.77
Pella	Skunk		.62	.65	T.											.05	.18	T.	.15	T.				.45	.22										2.32
Sigourney	Skunk		1.02	.59	.03										T.					.24				.65	.18										2.71
Stockport	Skunk		.30	.30	T.											.06	.09		.31	.02				.40	.20										1.68
Thurman	Missouri		T.	.20	.05											.15	.02	.02	T.	T.				.40	T.										0.84
Washington	Skunk		.32	.16	.03											.47		.23	.02	.02				.22	.10										1.55
Wescott (near)	Mississippi		.20	.10												.20	.02	.30	.05					.35											1.22
Winterset	Des Moines			.50	.30												.20	T.	T.					.40	.30										1.70
Omaha, Nebr.***	Missouri		T.	.03	.03											T.	.11	.01	.13	.02	T.			.14	.51										0.98

Except as otherwise indicated, observations are generally made late in the afternoon, near sunset, and precipitation recorded is for 24 hours ending at the time of observation.
 |||Precipitation measured in the morning; amount then recorded is for the preceding 24 hours.
 ***Regular Weather Bureau Station; precipitation is for 24-hour period, midnight to midnight.
 **Incomplete.
 *Precipitation included in the next following measurement.

PRECIPITATION.

The average precipitation for the State, as shown by the records of 97 stations, was 1.27 inches or 0.12 inch greater than the normal. By divisions, the averages were as follows: Northern, 0.99 inch, or 0.08 inch greater than the normal; Central, 1.21 inches, or 0.01 inch greater than the normal; Southern, 1.62 inches, or 0.27 inch greater than the normal. The greatest amount, 4.00 inches, occurred at Lacona, and the least, 0.30 inch, occurred at Algona. The greatest amount in any 24 consecutive hours, 1.48 inches, occurred at Ottumwa on the 5th.

SNOWFALL.

The average snowfall for the State was 11.2 inches, or 3.8 inches greater than the normal. This amount has been exceeded but once in February, 15.5 inches having occurred in February, 1905. In 1912 the average was the same as the current month. The greatest amount, 28.1 inches, occurred at Oskaloosa, and the least, 3.0 inches, occurred at Algona and Greenfield.

MISCELLANEOUS PHENOMENA.

Birds (migration of) : Corydon, robins, 19th; Earlham, wild ducks, 3d, bluebirds, 29th; Oskaloosa, bluebirds, 29th.
 Fog: 1st, 2d, 3d, 8th, 15th, 25th, 26th, 27th.
 Hail: 16th.
 Halos (lunar and solar) : 3d, 5th, 12th, 15th, 17th, 23d, 28th.
 Parhelia: 5th.
 Sleet: 3d, 4th, 9th, 12th, 16th, 17th.

THE WINTER OF 1923-1924.

The mean temperature for the three winter months was 24.4°, which is 3.6° higher than the normal for the State, and 0.8° higher than the mean for 1922-1923. The highest temperature reported was 70°, at Clarinda, on February 2d, and the lowest was -36°, at Washta, on January 5th.

The average monthly precipitation for the State was 0.97 inch, and the average total precipitation was 2.92 inches, or 0.50 inch less than the normal. The average total snowfall was 21.1 inches, or 0.6 inch more than the normal.

The number of days with 0.01 inch or more of precipitation was 16, or 4 more than the winter of 1922-1923. The average number of clear days was 46, partly cloudy 18 and cloudy 27, as compared with 39 clear days, 22 partly cloudy days and 29 cloudy days during the winter of 1922-1923.

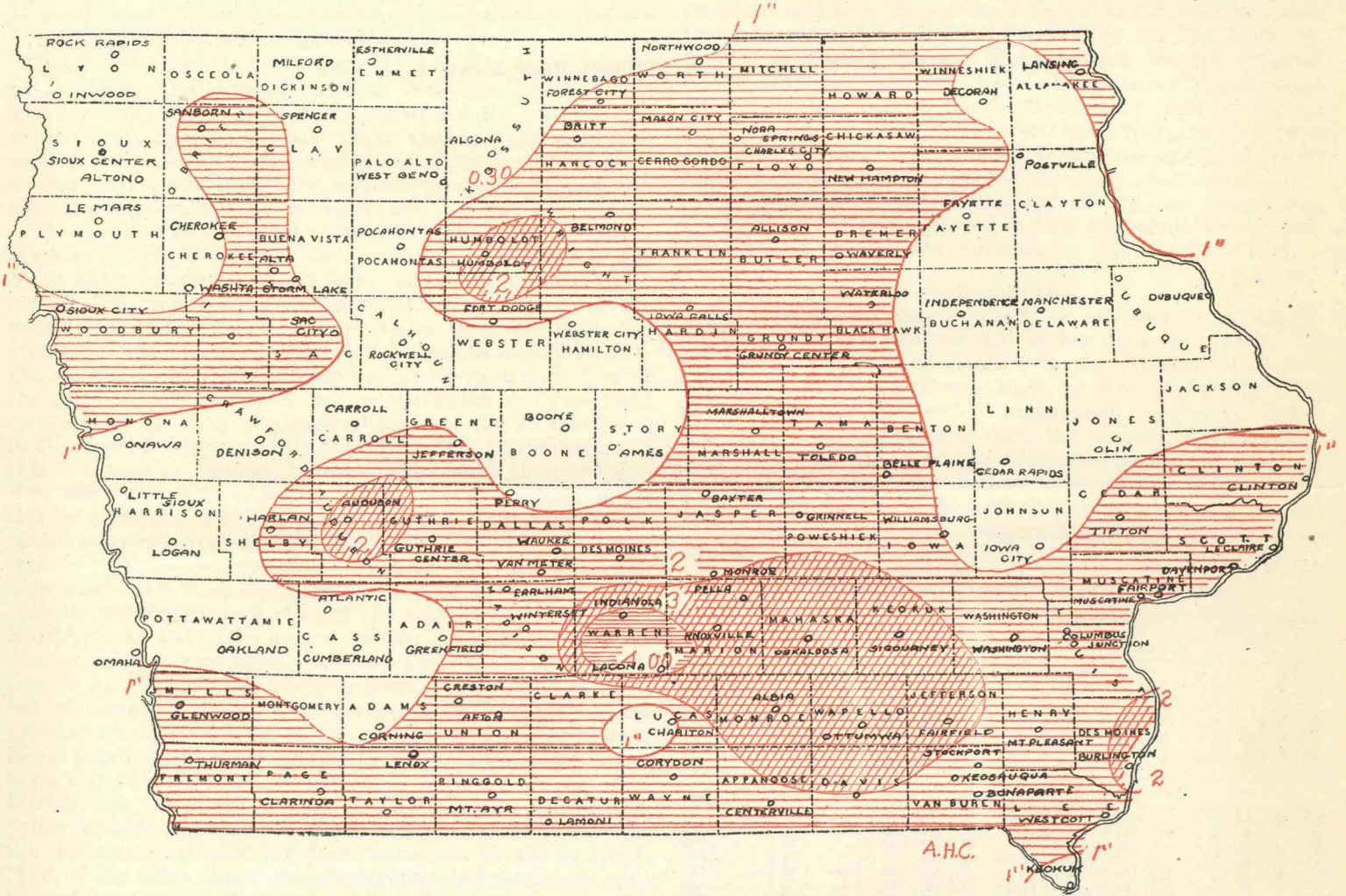
RIVERS.

Low stages, with but slight fluctuations, prevailed on the Mississippi River, the extremes being but 0.3 foot at Dubuque and 0.8 foot at Davenport. The extremes at Keokuk were over 2.5 feet, due to the influence of the dam. Moderate and nearly stationary stages prevailed on the Missouri River the first part of the month after which a rise occurred that amounted to over 2.5 feet. Low and nearly stationary stages prevailed on the interior rivers except a gradual rise occurred in the lower Des Moines from the 1st to the 15th that amounted to more than 3.0 feet after which there was a gradual fall. All rivers remained frozen throughout the month.

Daily Maximum and Minimum Temperature for the Month of February, 1924.

Stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean	
<i>Northern Division</i>																																	
Algona	44	52	46	32	14	11	17	24	33	38	38	47	41	36	24	29	25	30	24	17	27	25	27	33	38	43	47	42					32.6
Alta	49	58	37	21	8	17	21	29	34	40	41	45	51	47	32	24	29	26	27	20	22	30	27	28	36	41	44	48	40				33.5
Alton	46	54	50	20	8	17	21	33	34	39	41	45	51	48	40	28	28	28	25	20	27	26	28	32	38	40	49	43				33.9	
Belmond	32	30	20	8	6	5	0	8	25	10	20	30	31	28	20	15	15	15	11	9	5	7	17	2	8	3	8	20	25			13.6	
Belmond	44	51	41	32	16	12	18	24	31	36	37	34	49	42	38	24	31	24	28	22	24	25	21	28	35	41	44	50	38			32.2	
Charles City	27	32	32	14	6	1	0	-3	5	11	26	19	29	31	16	24	11	11	9	-5	-1	17	10	5	2	8	18	26	30			14.2	
Charles City	39	47	37	30	13	14	20	20	32	37	36	34	44	41	30	24	29	26	28	23	16	24	24	26	35	39	45	44	36			31.0	
Decorah	34	40	35	33	20	15	19	25	31	34	34	38	36	31	24	28	27	30	24	21	23	25	25	32	37	40	39	36				30.1	
Decorah	21	30	30	9	9	6	7	3	15	11	23	21	24	25	8	13	16	9	13	11	-2	-15	-1	-11	4	7	15	22				11.3	
Forest City	48	53	47	35	18	10	18	23	30	39	38	41	46	44	30	24	29	26	26	24	20	22	23	29	37	43	46	48	38			33.1	
Inwood	44	56	37	20	9	29	37	44	51	46	44	51	46	36	36	32	28	25	27	21	19	23	27	27	34	59	44	49	43			33.4a	
Mason City	40	53	37	35	14	10	18	23	29	37	36	35	44	41	30	18	14	18	10	-3	-11	6	15	0	-1	6	14	24	27			13.1	
Mason City	23	31	31	13	5	2	0	-7	15	10	25	18	26	29	11	18	30	25	28	22	14	23	24	28	36	41	47	46	37			31.4	
Milford (near)	45	51	42	27	9	8	13	25	33	37	39	40	46	49	32	24	26	25	27	19	15	25	22	28	33	38	40	47	37			30.9	
Milford (near)	24	32	27	9	-3	-5	-3	0	17	9	23	18	31	31	14	24	14	16	16	17	-6	4	15	-2	4	9	15	24	29			13.3	
New Hampton	35	46	39	35	15	15	19	27	31	35	36	35	43	40	36	24	28	25	28	24	17	23	24	26	34	40	45	44	36			31.2	
Northwood	25	28	31	14	10	7	3	4	15	9	23	1	25	27	12	14	10	18	13	-3	-4	13	7	5	11	21	23	29				14.6	
Pocahontas	44	47	35							35	36																					33.6b	
Pocahontas	24	28	28	13	4	2	-2	-3	10	14	27																					11.9f	
Postville	47	56	43	31	12	11	19	25	35	40	42	42	52	44	34	28	29	25	27	22	21	28	27	28	35	41	44	49	41			33.7	
Postville	26	32	31	12	5	3	0	0	10	12	26	22	35	31	18	22	13	16	16	5	-3	6	19	3	-5	9	14	26	28			14.6	
Postville	34	44	36	32	16	16	19	25	33	34	37	34	41	40	31	24	28	27	24	23	17	22	25	25	33	41	45	37	34			30.2	
Postville	23	30	31	14	10	7	4	3	14	11	23	16	25	26	10	13	15	11	18	13	-2	-8	8	4	4	9	17	20	25			13.6	
<i>Central Division</i>																																	
Belle Plaine	48	61	48	34	18	20	22	24	39	41	42	36	48	45	33	30	30	27	30	30	23	24	26	33	32	42	48	51	50			35.7	
Boone	28	30	35	18	12	9	-3	-8	15	10	23	21	27	28	23	24	20	14	13	2	5	14	19	1	10	17	27	31			16.8		
Boone	46	59	47	38	18	16	22	24	39	40	44	42	52	50	38	31	31	28	29	26	22	30	29	28	38	43	47	50	50			36.3	
Carroll	25	25	30	18	8	-1	-7	-11	17	7	27	19	26	24	23	24	22	20	20	8	-2	4	22	17	-1	5	19	25			14.0		
Carroll	49	57	45	32	14	17	22	28	37	46	44	47	54	53	42	37	28	26	28	26	31	29	24	37	43	46	52	58			37.4		
Davenport	28	32	32	14	3	-1	2	5	20	15	23	23	33	30	32	24	17	14	20	3	-2	6	21	13	-5	10	13	25	28			16.6	
Davenport	36	54	43	34	18	20	22	28	37	38	41	35	45	44	34	28	31	29	27	22	20	26	29	29	33	40	46	46	47			33.9	
Des Moines	30	33	32	18	14	9	6	9	22	18	25	25	29	31	23	22	24	24	22	15	6	5	20	18	12	16	26	30	31			20.5	
Des Moines	50	65	44	34	15	15	20	24	39	40	45	41	54	49	35	26	31	27	30	22	22	32	29	28	32	40	45	50	51			35.8	
Dubuque	31	35	34	15	9	2	4	-1	20	18	27	28	32	32	26	25	24	22	18	8	6	14	22	9	-4	7	11	30	34			18.6	
Dubuque	36	46	37	31	19	19	21	27	36	38	38	34	42	41	34	27	31	28	27	22	19	23	29	28	34	42	47	35	40			32.1	
Fort Dodge	24	34	31	17	14	12	10	15	22	19	28	27	32	32	17	20	23	23	20	17	7	-2	17	13	4	10	20	27	31			19.3	
Fort Dodge	45	54	49	35	18	8	20	25	35	39	42	39	51	44	42	28	29	28	28	25	21	28	28	29	36	41	45	48	44			34.6	
Grinnell	24	30	33	15	3	-2	-2	-5	17	10	21	20	28	29	20	21	15	15	19	4	-3	6	18	10	7	13	24	29			14.2		
Grinnell	45	60	55	37	20	12	19	26	38	38	40	39	49	47	42	30	29	28	29	27	23	30	27	30	33	40	44	47	49			35.6	
Guthrie Center	30	32	33	19	10	6	1	16	16	23	21	26	31	32	22	23	23	18	22	9	2	7	21	17	2	10	15	27	30			17.7	
Guthrie Center	52	64	59	34	18	18	25	26	37	40	45	47	55	50	42	31	27	27	29	26	24	34	31	25	31	43	47	54	54			37.8	
Independence	29	34	34	16	4	-2	0	-5	19	15	27	23	34	31	26	24	20	20	20	3	0	11	22	11	-5	5	16	29	35			17.1	
Independence	43	51	49	35	22	20	20	24	36	36	37	36	45	43	40	34	28	28	31	25	24	24	27	28	35	40	35	46	45			34.0	
Independence	27	30	32	17	11	9	2	2	14	14	22	19	27	24	17	14	21	13	20	14	-1	4	19	14	8	10	15	25	29			15.9	
Iowa City	40	57	45	37	19	18	21	27	39	37	40	37	46	44	32	28	30	28	29	25	21	27	28	30	35	40	47	49	49			34.7	
Iowa City	29	29	33	17	14	8	1	-4	17	15	20	22	29	27	25	22	24	21	23	16	4	0	21	18	4	10	20	27	31			18.1	
Iowa Falls	45	55	45	35	16	10	19	23	35	36	38	37	45	41	34	26	30	26	30	24	18	27	25	29									

TOTAL PRECIPITATION, FEBRUARY, 1924.



SCALE OF SHADES—IN INCHES



CLIMATOLOGICAL DATA.

IOWA SECTION

In cooperation with

IOWA WEATHER AND CROP SERVICE

CHARLES D. REED, Meteorologist

VOL. XXXV DES MOINES, IOWA, MARCH, 1924 No. 3

GENERAL SUMMARY.

The usual March characteristics were lacking during almost the entire month and the principal features were the uniformity of temperature, excessive cloudiness, and frequency of precipitation.

The month opened with a moderate warm period that continued for the first five days and this was followed by a remarkable period of uniformly cool weather that continued over practically the entire State till the 24th. From the 25th till the 28th a moderately warm period prevailed, which was followed by three days of cold weather, during which the coldest weather of the month occurred over most of the State, with a cold wave over portions of the eastern and southern sections. While the temperature averaged below normal, there was no severe cold weather, and this March was one of the few in the last 35 years in which the temperature did not reach zero in some section of the State.

The precipitation was above normal, and like the temperature was characterized by unusual uniformity. There were no stations in the northern division, only two in the central, and only small areas in the southeastern and extreme southwestern portions that showed a deficiency in precipitation. The precipitation was distributed throughout the month and an unusual fact is that in some portions of the State precipitation was recorded on every day of the month, but the principal periods occurred on the 3d-4th, 17th, 25th, and the 28th-30th. Most of the precipitation in the northern division was snow and in small areas in this division the ground was snow covered for 25 days while in portions of the east-central and southern divisions the snow cover remained for less than five days. The precipitation that occurred on the 28th-30th, occurred in connection with a disturbance that gave unusually low barometric readings, and at a number of places the lowest readings ever recorded during the month of March. At Des Moines the lowest reading was recorded, 28.79 inches, which is within 0.03 inch of the lowest ever recorded in any month. An unusual circumstance in connection with this storm was the lack of strong winds over practically the entire State; and a maximum velocity of 56 miles per hour, that blew down a number of chimneys and trees at Keokuk, was the only velocity reported that could be expected under the circumstances. This storm gave rain over the southern and most of the central divisions but over the northern division it began as a cold rain, that turned to sleet and then to snow. The ice coat varied from one-eighth inch to three-fourths inch in diameter on wires and twigs and while the damage to trees was not great due to the absence of strong winds, the overhead wires in most of the northern division were severely damaged. The Northwestern Bell Telephone Company re-

ported property damaged to the extent of \$50,000 and the local lines also were greatly damaged. Complete wire communications were not restored until after about 10 days. The greatest damage occurred in the northeastern portion of the State. An unusual phenomenon in connection with this storm was a copious deposit of brown dust. At Charles City it gave a reddish hue to the snow, at Dubuque there was a moderate deposit of light brown dust of a claylike nature that fell during the early morning of the 29th and again later in the forenoon, which was plainly discernible on flat roofs, automobile tops and windows. At Keokuk the deposit was described as reddish-brown mud and was plainly discernible. At Des Moines the deposit occurred before the morning of the 29th and was general on all streets and flat top buildings, but no trace was noted in the snow that fell later on the 29th or 30th. At Sigourney it looked like spots of rust or clay on all exposed objects.

From an agricultural standpoint the month was unfavorable. Farming operations were practically suspended and the only plowing or seeding reported was in a small area in Wayne county on the 27th. During the last three days of the month the ground was frozen. The cold, wet weather was unfavorable for livestock and many lambs and young pigs died. The main highways of the State that are not paved were said to have never been worse than they were during this month. Graveled roads were almost as bad as the dirt roads and most of the bus lines were forced to cease operations.

F. L. D.

COMPARATIVE DATA FOR THE STATE—MARCH.

YEAR	Temperature				Precipitation					Number of Days			
	Mean	Departure	Highest	Lowest	Total	Departure	Greatest	Least	Snowfall	With pre. of in. or more	Clear	Partly cloudy	Cloudy
1890	28.0	-5.3	75	-24	1.57	-0.20	3.67	0.32					
1891	26.8	-6.5	66	-19	2.60	+0.83	4.58	1.33		10	6	8	27
1892	31.9	-1.4	84	-6	2.22	+0.45	4.58	0.57	3.9	6	11	8	12
1893	31.8	-1.5	84	-8	2.14	+0.37	4.40	0.64	4.0	8	9	11	11
1894	41.0	+7.7	84	-5	2.03	+0.26	4.52	0.26	2.7	6	13	10	8
1895	34.4	+1.1	94	-11	0.83	-0.94	2.60	0.22	2.9	4	16	8	7
1896	30.9	-2.4	81	-12	1.10	-0.67	3.99	0.16	5.4	5	12	9	10
1897	32.0	-1.3	72	-22	2.89	+0.62	6.16	0.29	5.5	8	9	8	14
1898	37.5	+4.2	73	-2	1.94	+0.17	6.21	0.33	3.7	6	12	9	10
1899	23.0	-10.3	75	-16	1.62	-0.15	5.90	0.37	8.0	6	7	12	12
1900	30.7	-2.6	81	-13	2.06	+0.29	5.15	0.45	6.6	5	12	9	10
1901	34.2	+0.9	76	-8	2.64	+0.87	5.25	0.70	12.6	7	10	8	13
1902	39.1	+5.8	79	-12	1.45	-0.32	4.33	0.13	1.3	7	9	11	11
1903	38.8	+5.5	82	6	1.83	-0.39	3.90	0.15	3.9	7	11	7	13
1904	34.8	+1.5	78	3	2.18	+0.41	4.57	0.50	4.4	7	8	8	15
1905	41.5	+8.2	84	1	2.04	+0.27	3.70	0.89	4.1	7	8	8	15
1906	27.1	-6.2	65	-14	2.34	+0.57	4.55	0.53	8.9	10	8	7	16
1907	40.6	+7.3	92	-7	1.85	-0.42	5.05	0.23	4.1	6	14	7	10
1908	37.9	+4.6	85	-8	1.53	-0.19	3.74	0.45	1.1	6	13	7	11
1909	32.5	-0.8	71	-15	1.53	-0.24	5.00	0.28	9.8	6	12	10	9
1910	48.9	+15.6	92	-10	0.17	-1.60	1.37	0.00	T.	1	23	6	2
1911	39.4	+6.1	83	2	0.93	-0.84	4.84	T.	1.9	5	16	9	6
1912	24.9	-8.4	70	-19	2.01	+0.24	5.25	0.60	19.1	7	15	6	10
1913	31.9	-1.4	78	-23	2.48	+0.71	5.88	0.74	5.3	9	11	10	10
1914	34.7	+1.4	78	-5	1.69	-0.08	3.84	0.28	1.8	7	12	8	11
1915	29.3	-4.0	61	-5	0.96	-0.81	2.12	0.17	8.8	5	8	9	14
1916	35.2	+1.9	80	-18	1.57	-0.20	5.80	0.23	2.9	6	11	9	11
1917	34.6	+1.3	85	-12	1.84	+0.07	4.35	0.57	6.2	6	14	8	9
1918	42.9	+9.6	85	0	0.63	-1.14	2.12	0.03	2.6	3	19	7	5
1919	37.5	+4.2	78	-11	2.33	+0.56	5.40	0.81	1.1	6	15	8	8
1920	38.0	+4.7	80	-21	3.02	+1.25	5.70	0.47	2.4	7	15	7	9
1921	42.8	+9.5	86	4	1.57	-0.20	6.62	0.17	0.2	7	14	8	9
1922	38.3	+5.0	74	-5	1.97	+0.20	3.73	0.76	3.4	7	13	6	13
1923	29.4	-3.9	78	-22	2.87	+1.10	5.08	0.71	18.5	7	13	9	9
1924	31.9	-1.4	72	3	2.65	+0.88	4.76	1.26	10.5	8	8	8	15

T. indicates an amount too small to measure, or less than .005 inch precipitation and less than .05 inch snowfall.



Climatological Data for March, 1924

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precipitation, in Inches				Number of Days				Observers		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear	Partly cloudy		Cloudy	Prevailing direction of wind
<i>Northern Division</i>																				
Algona	Kossuth	1,213	51	30.8	+ 0.2	55	27	10	31	23	2.97	+1.48	2.74	4	14	8	9	ne.	W. E. Laird.	
Allison	Butler	1,044	12	29.5	---	60	27	9	8†	28	3.57	---	0.85	18.5	8	7	12	12	nw.	J. A. Bell.
Alta	Buena Vista	1,513	33	29.6	- 0.5	60	27	10	31	29	3.19	+1.67	1.20	16.0	9	9	10	12	n.	D. E. Hadden.
Alton	Sioux	1,305	19	29.8	- 1.5	55	27	9	31	27	2.06	---	0.52	15.2	9	8	11	12	ne.	W. S. Slagle.
Belmond	Wright	1,205	14	29.0	---	57	27	10	7	24	2.74	---	0.65	15.9	10	2	17	12	nw.	Geo. P. Hardwick.
Britt	Hancock	1,236	37	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	L. M. Goodman.
Charles City	Floyd	1,015	33	29.2	+ 0.8	55	27	10	8	24	3.27	+1.35	1.09	14.0	8	4	12	15	n.	U. S. Weather Bureau.
Cherokee	Cherokee	1,196	2	29.4	---	60	27	10	31	31	1.37	---	0.44	8.5	7	12	10	9	ne.	J. E. Wirth.
Decorah	Winneshiek	875	31	27.3	- 2.9	54	28	3	16	33	2.88	+1.08	0.60	25.0	8	11	10	10	nw.	M. D. Whitney.
Estherville	Emmet	1,298	29	28.2	- 0.4	50	28	8	31	24	2.57	+1.28	0.50	22.7	9	6	17	8	nw.	A. O. Peterson.
Fayette	Fayette	1,003	34	29.3	- 1.3	56	27	10	7	26	4.76	+2.72	2.25	---	7	9	10	12	nw.	R. Z. Latimer.
Forest City	Winnebago	1,226	30	29.4	+ 0.5	56	27	7	31	26	2.35	+0.91	0.67	17.5	8	5	7	19	se.	Dr. M. B. Neil.
Humboldt	Humboldt	1,095	36	30.1	- 2.2	60	27	12	7†	29	2.34	+0.87	0.56	11.0	7	3	13	15	n.	H. C. Snitkey.
Inwood	Lyon	1,474	20	29.4	- 1.2	55	26†	5	31	28	3.06	+2.05	1.20	18.8	14	14	5	12	nw.	F. B. Hanson.
Le Mars	Plymouth	1,224	28	30.4	- 1.7	57	27	6	31	27	1.43	+0.22	0.45	9.5	7	13	4	14	sw.	Mrs. M. C. Woolley.
Mason City	Cerro Gordo	1,148	27	28.6	- 1.5	54	27	6	10	28	2.67	+1.27	1.07	14.2	7	8	12	11	nw.	Northern Sugar Corp.
Milford (near)	Dickinson	1,430	4	28.4	---	48	26†	8	16	27	1.54	---	0.56	14.4	8	5	13	13	ne.	Dr. F. J. Smith.
New Hampton	Chickasaw	1,169	27	29.0	- 0.6	57	27	8	8	28	2.74	+0.81	1.04	19.0	7	10	9	12	n.	A. F. Kemman.
Nora Springs	Floyd	1,064	12	30.2	---	59	27	6	10	28	3.63	---	1.18	9.1	12	6	14	11	nw.	Arthur Betts.
Northwood	Worth	1,222	28	28.4†	- 1.0	44†	26	8†	10†	20m	2.60	+0.84	0.60	23.0	6	7	11	13	ne.	Chas. Dwelle.
Oelwein	Fayette	1,036	1	30.8	---	60	27	12	7	26	3.23	---	2.16	---	6	11	10	10	nw.	John T. Ridler.
Pocahontas	Pocahontas	1,248	20	30.1	- 0.9	59	27	12	7†	26	2.96	+1.68	0.75	19.1	9	9	8	14	ne.	F. E. Hronck.
Postville	Clayton	1,180	25	27.6	- 0.9	52	27	6	8	26	3.59	+1.68	1.00	18.5	9	3	16	12	ne.	F. L. Williams.
Rock Rapids	Lyon	1,358	25	29.8	0.0	53	27	9	30	25	2.76	+1.70	0.75	17.8	9	16	4	11	nw.	J. K. Medberry.
Sanborn	O'Brien	1,553	10	30.0	---	58	27	6	8	29	1.68	---	0.50	14.0	6	13	6	12	ne.	J. W. Dow.
Sioux Center	Sioux	1,426	25	28.4	- 2.4	63	26†	7	31	25	2.85	+1.59	0.60	1.88	10	16	3	12	nw.	J. de Ruyter.
Spencer	Clay	1,319	10	30.2	---	56	27	10	7†	26	2.45	+1.21	0.70	16.0	7	8	11	12	nw.	E. W. Little.
Storm Lake	Buena Vista	1,440	35	29.8	- 1.0	58	27	11	8†	27	2.49	+1.17	0.90	11.6	8	12	4	15	e.	Geo. H. Fracker.
Washta	Cherokee	1,157	26	30.8	- 0.9	60	27	7	31	33	1.92	+0.99	0.95	10.0	6	10	9	12	n.	H. L. Felter.
Waverly	Bremer	936	28	30.4†	- 1.1	60†	27	11†	3†	32†	3.65	+1.83	1.43	16.2	6	---	---	---	nw.	D. H. Murphy.
West Bend	Palo Alto	1,197	31	30.3	- 0.5	59	27	9	9	28	1.97	+0.30	0.65	13.5	6	6	12	13	ne.	Jos. Dorweiler.
Means and extremes				29.5	- 1.0	60	27	3	16	33	2.71	+1.18	2.74	1.58	8	9	10	12	nw.	
<i>Central Division</i>																				
Ames	Story	926	47	31.2	- 2.8	64	27	11	10	31	3.09	+1.57	0.90	8.8	7	7	8	16	n.	Iowa State College.
Audubon	Audubon	1,297	29	29.0	- 4.6	64	27	7	31	31	3.19	+1.57	1.60	9.0	6	7	10	14	nw.	Geo. Kibby.
Baxter	Jasper	998	24	32.2	- 1.7	66	27	10	31	32	2.89	+0.93	1.45	13.0	7	3	15	13	n.	Henry Geise.
Belle Plaine	Benton	866	34	33.0	- 0.3	67	27	12	31	36	2.85	+0.52	0.65	12.2	10	5	15	11	se.	O. C. Burrows.
Boone	Boone	1,134	19	31.0	- 1.4	66	27	10	16	40	3.27	+1.74	1.35	7.5	6	5	9	17	n.	C. F. Henning.
Carroll	Carroll	1,265	34	30.6	- 1.4	65	27	7	7	34	2.85	+0.99	0.85	14.0	7	14	1	16	nw.	Mrs. Jos. J. Wolfe.
Cedar Rapids	Linn	737	42	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Clinton	Clinton	595	51	33.8	- 1.0	65	27	15	7†	33	3.13	+0.28	1.20	5.5	14	7	7	17	n.	Dr. A. P. Bryant.
Davenport	Scott	580	53	34.2	- 1.9	66	27	16	7	28	2.71	+0.50	1.24	6.0	12	4	6	21	nw.	U. S. Weather Bureau.
Davenport (No. 2)	Scott	690	---	34.4	---	67	27	15	7	32	2.60	---	1.38	6.5	14	---	---	---	nw.	Rex Shriver.
Denison	Crawford	1,171	30	29.6	- 4.2	62	27	8	7	32	9.09	+0.49	0.78	20.0	7	8	9	14	nw.	V. L. Byers.
Des Moines	Polk	861	46	33.2	- 2.7	68	27	15	31	32	3.10	+1.45	1.14	7.0	10	5	8	18	nw.	U. S. Weather Bureau.
Dubuque	Dubuque	698	51	32.0	- 2.0	62	27	15	7	26	9.85	+0.64	0.99	10.1	13	4	7	20	nw.	U. S. Weather Bureau.
Fairport	Muscatine	567	3	35.2	---	66	27	16	7	31	3.34	---	1.55	2.5	16	7	5	19	nw.	Bureau of Fisheries.
Fort Dodge	Webster	1,114	24	30.2	- 0.9	62	27	11	7†	33	3.64	+1.91	0.91	17.0	7	12	2	17	nw.	Samuel Sampson.
Grinnell	Poweshiek	1,031	30	33.0	- 2.0	66	27	12	31	33	3.01	+1.28	1.20	6.2	8	5	11	15	nw.	Paul P. Meyers.
Grundy Center	Grundy	976	33	31.6	- 1.0	62	27	12	7	29	9.45	+0.64	0.75	17.0	8	16	4	11	nw.	M. G. Heiberger.
Guthrie Center	Guthrie	1,077	29	31.3	- 3.1	67	27	11	7	35	3.63	+2.04	1.10	12.5	8	6	8	17	n.	E. L. Nesselroad.
Harlan	Shelby	1,192	25	31.6	- 2.2	66	27	9	31	37	---	---	---	10.0	---	---	---	---	n.	W. K. Colburn.
Independence	Buchanan	921	60	31.8	- 0.6	61	27	12	7†	31	2.45	+0.70	0.91	8.0	8	12	1	13	ne.	Dr. Geo. Boody.
Iowa City	Johnson	733	64	33.8	+ 0.6	66	27	15	16†	33	2.10	- 0.29	0.70	4.5	11	5	8	18	nw.	Prof. J. F. Reilly.
Iowa Falls	Hardin	1,107	31	29.9	- 0.7	61	27	8	8	32	3.84	+1.98	1.09	18.1	9	10	4	17	n.	J. B. Parmelee.
Jefferson	Greene	1,052	25	30.6	- 3.3	64	27	10	7	34	3.35	---	0.95	11.0	6	5	7	19	n.	W. I. Lyon.
Little Sioux	Harrison	1,040	19	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	S. B. Terry.
Logan	Harrison	1,035	57	33.4	- 1.8	68	27	9	31	38	---	---	---	12.0	---	---	---	---	nw.	Mary Jean Stern.
Marshalltown	Marshall	947	32	32.2	- 0.2	65	27	14	7†	30	9.20	+1.51	1.08	19.0	9	10	5	16	nw.	C. C. Pigman.
Monroe	Jasper	922	12	34.2	---	70	27	9	31	35	1.79	- 0.21	0.76	8.8	6	4	3	24	nw.	J. A. Dibel.
Olin	Jones	760	25	33.0	- 1.3	63	27	13	7	34	2.30	- 0.03	0.75	4.5	8	2	10	19	se.	Mrs. L. Stingley.
Onawa	Monona	1,051	23	30.6	---	61	27	5	31	33	3.63	+1.97	1.70	20.0	4	12	0	19	nw.	Mrs. H. E. Colby.
Perry	Dallas	975	23	31.8	- 2.2	65	27	13	7†	34	2.66	+0.68	0.87	3.6	8	10	10	11	nw.	F. N. Bartlett.
Rockwell City	Calhoun	1,134	28	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	A. W. McIsaac.
Sac City††	Sac	1,278	48	30.5†	- 1.8	61†	27	12†	31	28†	1.81	+0.32	0.70	14.0	6	---	---	---	nw.	F. P. Kessler.
Sioux City	Woodbury	1,135	35	31.4	- 1.3	59	27	8	31	27	1.82	+0.56	0.86	11.1	10	8	4	19	nw	

Climatological Data for March, 1924—Continued.

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precipitation, in Inches				Number of Days				Observers		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear	Partly cloudy		Cloudy	Prevailing direction of wind
<i>Southern Division</i>																				
Afton	Union	1,212	30	33.0	- 2.9	70	27	14	7†	38	3.22	+1.30	1.41	3.5	8	9	8	14	nw.	S. R. Brown.
Albia	Monroe	959	26	35.4	+ 0.4	70	27	13	7†	36	2.25	+0.48	0.63	4.5	10	4	4	23	nw.	O. E. McBride.
Atlantic	Cass	1,164	33	32.8	- 1.7	67	27	12	31	34	2.55	+0.88	0.80	6.2	9	9	8	14	n.	Miss Oza Cunningham.
Bonaparte	Van Buren	563	33	35.0	- 1.6	68	27	11	10	31	1.83	-0.48	0.84	2.5	7	7	3	21	nw.	B. R. Vale.
Burlington	Des Moines	544	28	35.9	- 1.2	69	27	13	7†	31	3.06	+0.41	1.00	7.0	10	6	5	20	ne.	J. A. Donnelly.
Centerville	Appanoose	1,013	19	36.3	-----	67	27†	13	10	35	1.26	-1.06	0.46	2.4	7	6	6	19	nw.	Thomas Wood.
Chariton	Lucas	1,042	29	33.2	+ 2.2	68	27	14	31	34	1.40	-0.21	0.56	2.0	4	5	7	19	nw.	C. C. Burr.
Clarinda	Page	1,009	34	36.4	+ 1.5	72	27	13	30	40	1.30	-0.45	0.50	2.0	4	10	6	15	nw.	Dr. H. C. Hawley.
Columbus Jet.	Louisa	595	23	34.8	- 1.6	67	27	9	10	31	2.92	+0.86	1.33	2.3	8	6	16	9	ne.	H. L. Lewis.
Corning	Adams	1,117	32	33.2	- 0.9	68	27	11	11	38	2.05	+0.25	0.79	0.9	5	14	6	11	nw.	Jerome Smith.
Corrydon	Wayne	1,101	31	34.8	- 2.0	69	27	13	10	34	1.75	-0.15	0.47	4.1	11	5	7	19	nw.	May C. Miller.
Creston	Union	1,312	19	32.5	- 1.7	66	27	13	30	34	2.61	-----	1.18	-----	7	5	9	17	nw.	Mrs. S. O. Stanley.
Cumberland (near)	Cass	1,225	25	-----	-----	-----	-----	-----	-----	-----	2.13	+0.39	1.08	3.0	6	9	5	17	nw.	Carl E. Pollock.
Earlham	Madison	1,126	22	32.5	- 1.9	68	27	8	31	44	2.66	+0.81	1.23	7.5	7	6	7	18	nw.	Geo. Phillips.
Fairfield	Jefferson	780	40	34.0	- 2.1	69	27	12	10	33	1.30	-1.05	0.26	6.4	10	8	5	18	n.	Prof. R. M. McKenzie.
Glenwood	Mills	1,100	26	34.4	-----	68	27	13	31	35	2.04	-----	0.68	4.0	7	7	15	9	nw.	Dr. Geo. Mogridge.
Greenfield	Adair	1,368	32	31.0	- 3.5	67	27	7	31	37	2.40	+0.42	1.35	-----	7	4	15	12	nw.	P. C. Cornell.
Indianola	Warren	972	33	33.0	- 2.7	68	27	10	31	35	1.80	+0.24	0.45	8.0	8	5	8	18	nw.	Seth F. Shenton.
Keokuk	Lee	614	53	36.2	- 2.7	68	27	15	19	31	1.96	-0.41	0.73	7.1	10	4	3	24	n.	U. S. Weather Bureau.
Keosauqua	Van Buren	644	32	34.8	- 1.0	69	27	9	10	33	2.79	+0.47	0.89	7.6	11	5	7	19	ne.	J. H. Landes.
Knoxville	Marion	920	29	34.0	- 2.2	68	27	12	7†	34	2.39	+0.74	0.76	6.0	8	6	7	18	nw.	W. J. Casey.
Lacona	Warren	-----	25	-----	-----	-----	-----	-----	-----	-----	1.86	-0.40	0.60	8.0	9	9	12	10	-----	J. B. Alter.
Lamoni	Decatur	1,123	17	34.7	- 2.3	70	27	15	7	36	2.15	+0.54	0.84	2.0	5	7	8	16	nw.	C. E. Wight.
Lenox	Taylor	1,250	29	33.4	- 2.1	69	27	10	10	39	2.68	+1.10	0.72	4.7	10	9	5	17	nw.	J. L. Hurley.
Mt. Ayr	Ringgold	1,245	31	34.0	- 2.8	67	27	15	7	35	2.06	+0.18	0.86	2.9	8	7	4	20	nw.	Alex Maxwell.
Mt. Pleasant	Henry	729	43	35.1	- 1.6	69	27	10	10	31	2.88	+0.67	1.68	2.0	10	5	6	20	nw.	J. H. Jericho.
Oakland	Pottawattamie	1,105	5	32.6	-----	66	27	12	31	36	2.39	-----	0.80	12.5	6	7	5	19	n.	M. E. Gray.
Oskaloosa	Mahaska	835	48	33.6	- 2.1	68	27	9	31	35	2.58	+0.78	1.08	8.3	11	3	8	20	nw.	Roy R. Robinson.
Ottumwa	Wapello	649	29	35.8	-----	68	27	15	10	33	2.41	+0.51	0.80	2.6	9	3	10	18	nw.	C. L. Mikesh.
Pella	Marion	877	31	33.3	- 2.5	66	27	7	31	31	1.87	+0.45	0.53	8.5	9	7	3	21	nw.	J. H. Ver Steeg.
Slgourney	Keokuk	790	28	32.8	- 3.1	66	27	11	31	34	2.62	+0.75	0.90	5.8	10	6	4	21	nw.	W. E. Utterback.
Stockport	VanBuren	745	22	34.4	- 1.9	68	27	9	10	32	2.75	+0.68	0.96	5.0	9	6	5	20	nw.	C. L. Beswick.
Thurman	Fremont	975	27	34.6 ^a	- 1.1	69 ^b	27	15	7†	43 ^b	2.74	+1.09	0.64	-----	7	6	15	10	nw.	C. R. Paul.
Washington	Washington	769	42	34.1	- 1.8	68	27	12	10	35	2.72	+0.68	1.15	7.6	8	5	9	17	nw.	Wm. A. Cook.
Wescott (near)	Lee	2	34.4	-----	-----	60	27	12	7	22	2.26	-----	0.62	6.5	10	3	10	18	w.	Geo. H. Smith.
Winterset†	Madison	1,129	33	33.4	- 2.0	62	27†	10	31	28	2.97	+1.17	1.00	8.0	8	11	8	12	nw.	H. S. Ely.
Omaha, Nebr.	-----	1,103	53	33.8	- 3.2	69	27	12	31	30	1.93	+0.54	0.71	10.5	11	6	8	17	nw.	U. S. Weather Bureau.
Means and extremes.	-----	-----	-----	34.1	- 1.6	72	27	7	31	44	2.26	+0.34	1.68	5.3	8	6	8	17	nw.	-----
State means and extremes.	-----	-----	-----	31.9	- 1.4	72	27	3	16	44	2.65	+0.88	2.74	10.5	8	8	8	15	nw.	-----

The departures from normal temperature and precipitation are computed only for such stations as have ten or more years of record, but all complete records are used in determining means. Reference letters a, b, c, etc., appearing in the table indicate the number of days missing; for example b represents two days, etc. †Also other dates. ††Received too late to be included in means and summaries. T. Precipitation is less than 0.01 inch rain or melted snow.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea level)				Relative Humidity (%)				Wind				Sunshine					
	Mean	Highest	Date	Lowest	Date	Mean			Total movement	Average hourly velocity	Maximum		Per cent of possible	Departure from normal				
						7 a. m.	12 Noon	7 p. m.			Miles	From			Date			
Charles City	30.00	30.35	24	28.95	29	89	70	77	37	17	4,914	6.6	22	ne.	28	42	15	
Davenport	29.96	30.38	8	28.89	29	89	74	76	30	27	5,752	7.7	28	e.	29	25	32	
Des Moines	29.98	30.38	8	28.79	29	84	65	69	33	27	5,506	7.4	24	e.	29	37	23	
Dubuque	30.00	30.39	24	28.97	29	84	67	69	34	27	5,007	6.7	22	e.	29	27	26	
Keokuk	29.98	30.40	8	28.86	29	76	63	64	19	27	6,679	9.0	56	sw.	29	32	23	
Sioux City	30.04	30.45	8	29.02	29	83	65	67	35	27	7,979	10.7	40	e.	28	48	10	
Omaha, Neb.	30.02	30.41	8	28.82	29	83	60	63	33	27	6,971	9.4	38	nw.	29	55	2	
Means and extremes	30.00	30.45	8	28.79	29	84	66	69	-----	-----	8.2	-----	-----	-----	-----	38	19	-----
Normals and records	30.04	-----	28 th	-----	29 th	80	-----	67	-----	-----	9.6	-----	-----	-----	-----	16 th	57	-----
	-----	30.82	1921	28.79	1924	-----	-----	-----	-----	-----	65	-----	-----	-----	-----	1920	-----	-----

†Sioux City. *Des Moines. ††Local mean time.

TEMPERATURE.

The mean temperature for the State, as shown by the records of 99 stations, was 31.9°, or 1.4° lower than the normal. By divisions, three tiers of counties to the division, the means were as follows: Northern, 29.5°, or 1.0° lower than the normal; Central, 32.1°, or 1.5° lower than the normal; Southern, 34.1°, or 1.6° lower than the normal. The highest monthly mean was 36.4°, at Clarinda, and the lowest was 27.2°, at Decorah. The highest temperature reported was 72°, at Clarinda on the 27th, and the lowest was 3°, at Decorah on the 16th. The temperature range for the State was 69°.

PRECIPITATION.

The average precipitation for the State, as shown by the records of 98 stations, was 2.65 inches, or 0.88 inch more than the normal. By divisions, the averages were as follows: Northern, 2.71 inches, or 1.18 inches more than the normal; Central, 2.97 inches, or 1.10 inches more than the normal; Southern, 2.26 inches, or 0.34 inch more than the normal. The greatest amount, 4.76 inches, occurred at Fayette, and the least, 1.26 inches, occurred at Centerville. The greatest amount in any 24 consecutive hours, 2.74 inches, occurred at Algona on the 3d.

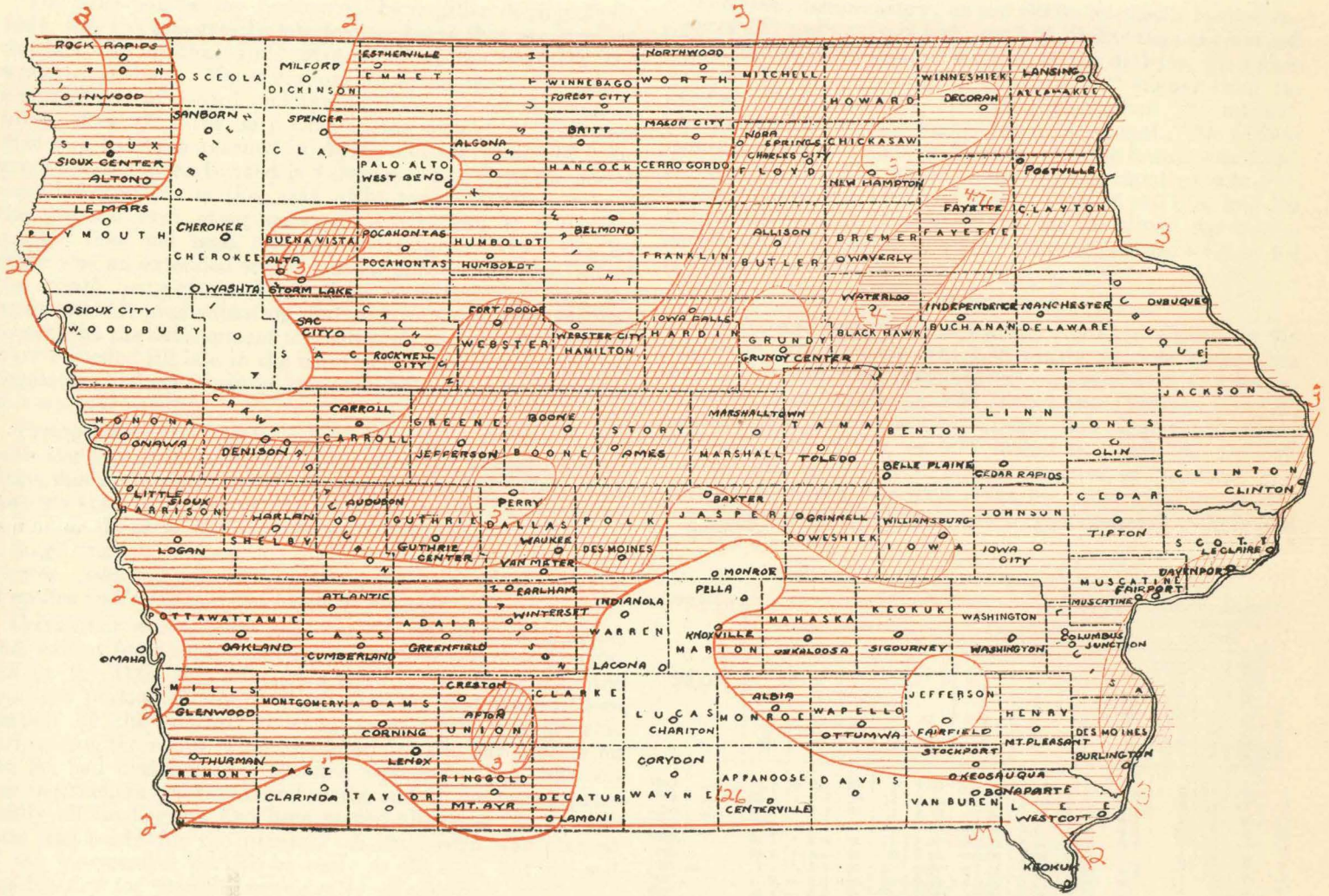
Daily Precipitation for March, 1924.

Stations	Drainage Basin	Day of Month																															Totals	
		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		
<i>Northern Division</i>																																		
Algona	Des Moines			2.74														.04								.13				.06			2.97	
Allison	Cedar		.70	.80		.05								T.			.50									.32			.19	.85	.20		3.57	
Alta	Raccoon		.55	.15		T.				T.							.50			T.	.08			.02		.22			.32	1.20	.15		3.19	
Alton	Floyd	T.	.20	.20		T.				.05	T.			T.	T.		.30			T.	.10				.02	.02			.11	.50	.10		2.06	
Belmond	Iowa		.52	.36						T.	T.	.02	T.			T.	.65								T.		.26		.48	.33	.08	.02	2.74	
Britt	Iowa																																	
Charles City***	Cedar		1.04	.05		.12	T.			T.	T.	T.	T.	T.	T.		.28	T.							T.	.62			.44	.66	.08	T.	3.27	
Cherokee	Little Sioux		.24	.05		T.				T.				T.	T.		.17			T.	.08				T.	.26			.13	.44	T.		1.37	
Decorah	Mississippi		.48	.48		.24				.16	T.						.32									.50			.10	.60			2.88	
Estherville	Des Moines		.40										.05		.02		.40									.90	.20		.40	.50	.10		2.57	
Fayette	Mississippi		1.30	.95						T.		T.					.35									.58			.25	1.25	.08		4.76	
Forest City	Cedar		.40	.35		T.				T.	.05	T.		T.	T.		.30									.40			.08	.67	.10	T.	2.35	
Humboldt	Wapsipicon		.54	.22	T.	T.	T.	T.	T.	T.	T.						.56	T.								.24			.31	.29	.18		2.34	
Inwood	Big Sioux		.10	.50	.10	.01	T.			.02	.01						.40	T.			.03					.45	.03		.45	.75	.20		3.06	
Le Mars	Floyd		.22	.04		T.				T.							.22	T.		.06						.20			.13	.40	T.		1.43	
Mason City	Cedar		.75	.32							.02	T.	T.				.33									.60			.20	.40	T.		2.67	
Milford (near)	Little Sioux		.28							.02			T.		.02		.20									.06	T.		.20	.17	.09		1.54	
New Hampton	Wapsipicon		.50	.20		.20											.20									.20			1.04	.20			2.74	
Nora Springs	Cedar		.88			.05	T.			.01	.05	.02	.04				.38									.78			.19	1.18	.05	.05	3.63	
Northwood	Cedar		.50	.60						T.	T.						.40									.40			.40	.30			2.60	
Oelwein	Wapsipicon		.05	2.16						.02							.20												.45	.35			3.23	
Pocahontas	Des Moines		.40	.30						T.					.01	T.	.70	T.			.02					.30			.33	.75	.05		2.96	
Postville	Mississippi		1.00	.40		.10	T.			.05	T.	T.					.30									.55			.09	1.00	.10		3.59	
Rock Rapids	Big Sioux		.40							.05							.27									.43	.08		.42	.75	.25		2.76	
Sanborn	Floyd		.00	.00						T.							.50									.20			.23	.35			1.68	
Sioux Center	Floyd		.30	.30		T.				.01	.10						.30									.47			.23	.58	.40		2.85	
Spencer	Little Sioux		.30	.30						T.							.20									.70			.30	.25	.30		2.45	
Storm Lake	Raccoon		.40							T.	.20						.50									.23			.19	.90	.02		2.49	
Washta	Little Sioux		.20	.17		T.				T.							.40									.10			.74	.95	.10		1.92	
Waverly	Cedar		1.43							T.							.60									.43			.13	.95		.11	3.65	
West Bend	Des Moines		.21	.26													.30												.15	.65			1.97	
<i>Central Division</i>																																		
Ames	Skunk		.89	.27		T.				T.	T.	T.					.30	T.								.15			.48	.90	.10	T.	3.09	
Audubon	Nishnabotna		1.60	.10													.48									.43			.48	.10			3.19	
Baxter	Skunk		1.45	.08	.05	T.				T.	T.						.70									.16			.35	T.	.10		2.89	
Belle Plaine	Iowa		.23	.65		.18	T.			.01	T.	T.					.35	T.								.29			.18	.55	.39	.02	2.85	
Boone	Des Moines		.77	.58		T.				T.	T.						.53									.12			1.10	.17	T.		3.27	
Carroll	Raccoon		.25	.85		.06											.68										.21			.38	.42			2.85
Cedar Rapids	Cedar																																	
Clinton	Mississippi		.26			.14			.02	.16	.02	.02	.22	T.	T.		.12									.43			.22	1.20	.10	T.	3.13	
Davenport***	Mississippi		.08	.05	T.	.14	T.			.11	T.	T.	T.				.22	T.								.25	T.	T.	.70	.79	.06	.03	2.71	
Davenport (No. 2)	Mississippi		.03	.09		.18				.11	.02	T.					.18	.03								.10			.22	1.38	.11	.02	2.60	
Denison	Missouri		.06	.64		.03				T.	T.						.29									.11			.11	.78	T.		2.02	
Des Moines***	Des Moines		1.09	.11	T.	.05	T.			.03	T.	T.					.33	T.								.19	T.		1.04	.10	.33	T.	3.10	
Dubuque***	Mississippi		.46	.17		.30	T.			.16	.01	T.	T.				.24	T.								.31	T.	.02	.44	.64	.04	T.	2.85	
Fairport	Mississippi		.15	.18		.20				.16	.02	T.	T.				.13	.03								.30			.24	1.55	.14	.02	3.34	
Fort Dodge	Des Moines		.79	.91						.16	.02	T.	T.				.48									.32			.25	.62	.27		3.64	
Grinnell	Iowa		.22	.50		.10				T.	T.	T.					.45	T.								.14			.20	1.20	.20		3.01	
Grundy Center	Cedar		.60	.10													.50									.10			.10	.75	.20	.10	2.45	
Guthrie Center	Raccoon		.08	.50						.04							.48									.19			.56	1.10	.08		3.63	
Harlan	Nishnabotna	**	.25	T.						T.							.70												**	**	**	**	**	
Independence	Wapsipicon		.91	.08		.15				.14	T.						.28									.31			T.	.50	.08	T.	2.45	
Iowa City	Iowa		.15	.24		.06				.07	T.	T.	T.	T.	T.		.39	T.								.26			.09	.69	.11	.03	2.10	
Iowa Falls	Iowa		.97	.65		.07				T.	T.	T.	T.	T.	T.		.40	T.								.23	.01		.26	1.02	.23	T.	3.84	
Jefferson	Raccoon		.30	.56		T.	T.			T.	T.	T.	T.	T.	T.		.50	T.								T.		.74	.95	.30	T.	3.35		
Le Claire|||	Mississippi		.30	.12	T.	.04	.10			.01	.12	.01	T.	T.	T.		.16									.08	.30		.74	.95	.30	T.	3.35	
Little Sioux	Little Sioux																																2.95	
Logan	Missouri	**	.36														.62									**			.10	.10	**	**	**	
Marshalltown	Iowa		.47	1.08		.02				T.	T.	T.	T.	T.	T.		.43	T.								.20			.23	.70	.24	T.	3.39	
Monroe	Des Moines		.23	.53	T.	T.				T.	T.	T.	T.	T.	T.		.28	T.								.14			.23	.38	T.		1.79	
Muscataine|||	Mississippi			.32	T.	T.	.12			.06	.05	T.			.07		T.	.25								.16	.07		.97	.23	.05		2.49	
Olin	Wapsipicon		.50				.15			T.	.02	T.					.30									.40			.09	.75	.09		2.30	
Onawa	Missouri			1.70		T.				T.	T.						.70												1.13		.10		3.63	
Perry	Raccoon		.65	.41		.01											.23									.07			.36	.87	.06		2.66	
Rockwell City	Raccoon																																	
Sac City	Raccoon		.20			T.				T.							.70									.05			.36	.30	.20			

Daily Maximum and Minimum Temperature for the Month of March, 1924.

Stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean
<i>Northern Division</i>																																
Algona	43	46	42	39	39	33	33	32	31	33	36	36	35	33	36	36	32	39	37	38	43	42	42	45	41	50	55	50	41	26	31	38.5
Alta	37	45	35	37	38	30	26	28	26	29	34	35	33	32	35	35	33	36	36	38	43	45	39	44	39	54	60	41	33	20	25	36.2
Alton	38	44	37	36	40	36	26	28	27	30	34	36	34	30	34	36	32	37	38	39	42	44	40	43	42	53	55	47	35	22	26	36.8
Belmond	40	45	36	36	36	31	27	28	28	30	31	33	34	30	33	35	31	37	35	33	39	40	41	44	39	50	57	42	33	21	30	35.6
Charles City	42	42	34	37	38	32	24	28	26	31	33	35	31	31	32	38	31	38	40	34	42	41	45	42	37	48	55	38	32	22	29	35.7
Decorah	37	39	38	36	35	32	22	30	32	32	35	32	33	30	30	36	30	35	39	35	36	40	41	40	39	41	50	54	36	25	31	35.5
Forest City	46	46	43	40	39	19	29	29	31	31	32	35	32	32	35	37	33	38	38	36	41	42	43	43	41	50	56	52	39	23	21	37.2
Inwood	37	45	35	40	41	32	28	29	32	36	39	38	36	34	37	35	32	40	34	40	44	38	37	38	38	55	55	43	32	28	27	37.3
Mason City	47	36	34	37	40	32	25	35	27	30	32	34	32	31	32	36	32	38	38	35	42	40	44	42	37	48	54	44	34	21	28	36.0
Milford (near)	39	47	47	42	39	32	26	27	26	28	34	34	30	30	32	39	35	30	37	38	37	39	41	37	45	39	48	42	32	20	23	35.5
New Hampton	41	42	38	37	38	32	26	28	28	31	34	34	30	28	30	37	30	38	39	32	40	40	42	40	37	47	57	50	32	24	30	35.9
Northwood	43	29	26	30	16	17	9	8	18	10	20	27	22	19	16	16	24	24	20	23	27	24	32	34	30	32	29	32	20	16	13	22.2
Pocahontas	39	47	38	37	39	31	28	28	29	30	33	35	35	33	35	36	33	38	37	38	42	43	40	43	40	52	59	48	36	21	28	37.1
Postville	38	39	36	37	36	32	24	30	27	31	35	36	33	27	31	36	29	37	39	32	37	39	39	40	36	42	52	42	32	24	29	34.7
<i>Central Division</i>																																
Belle Plaine	41	52	39	41	42	35	30	30	32	30	35	40	35	45	35	40	39	40	41	35	45	42	47	44	45	50	67	53	53	27	34	40.8
Boone	42	50	37	43	42	35	28	29	32	28	34	40	35	34	36	37	34	38	37	41	44	41	47	44	44	55	66	49	40	25	32	39.1
Carroll	46	58	36	40	40	34	28	32	30	33	38	37	35	38	37	35	35	39	43	39	46	42	55	65	54	40	26	26	39	0	11	23.0
Davenport	40	52	50	52	42	35	28	32	30	32	35	39	34	34	34	40	33	38	42	35	40	41	46	46	47	48	66	48	54	27	30	40.3
Des Moines	39	52	39	42	43	35	28	30	32	31	34	41	34	35	34	36	34	34	36	37	42	42	43	47	47	56	68	47	50	23	27	39.3
Dubuque	39	47	38	39	40	33	24	32	29	32	34	37	33	30	32	40	33	37	43	35	40	41	47	43	38	44	44	37	25	30	37.4	
Fort Dodge	41	47	41	48	39	33	28	37	29	31	33	37	33	34	34	35	34	37	38	36	41	50	40	45	42	52	62	51	38	24	28	38.6
Grinnell	45	49	45	40	43	41	27	26	31	29	32	37	37	34	34	40	36	35	39	39	42	41	43	47	47	52	66	64	55	30	30	40.5
Guthrie Center	45	52	40	38	44	36	27	17	27	30	34	41	36	32	34	34	34	36	35	35	39	45	41	42	45	56	67	60	41	25	26	38.9
Independence	40	46	42	38	40	36	29	28	32	34	36	35	34	32	32	39	37	36	40	41	40	41	45	44	41	47	61	59	40	34	39	39.3
Iowa City	43	51	42	44	43	38	27	33	30	33	36	38	35	35	36	42	34	37	42	37	45	43	47	44	46	49	66	59	56	33	33	41.2
Iowa Falls	36	46	38	37	38	33	24	26	30	31	34	34	34	34	35	37	33	39	39	35	40	39	39	44	42	49	61	56	37	28	30	37.2
Little Sioux	30	30	28	31	16	19	12	8	17	10	21	23	25	14	14	13	27	26	15	27	24	23	33	32	32	33	29	34	25	16	14	22.6
Marshalltown	37	50	40	40	43	35	27	26	31	30	32	40	34	34	34	40	35	36	40	36	41	40	43	46	43	51	65	55	44	25	31	38.8
Olin	45	39	50	40	39	42	25	34	33	34	35	39	34	34	35	43	31	39	42	38	43	42	49	43	41	48	63	51	47	33	33	40.1
Sioux City	39	46	38	40	43	30	26	29	25	30	35	39	36	32	36	33	32	36	34	39	42	45	40	45	42	59	59	42	37	21	25	37.3
<i>Southern Division</i>																																
Albia	44	55	54	55	47	41	30	37	35	29	32	42	36	35	37	37	35	35	52	52	50	46	46	50	54	56	70	57	54	29	27	43.7
Atlantic	41	52	41	40	43	38	30	29	31	36	41	38	35	37	34	37	36	36	39	43	50	42	47	48	58	67	51	45	25	26	40.2	
Burlington	46	55	54	54	44	41	39	33	31	36	39	40	35	35	42	37	35	42	41	42	43	45	50	54	54	69	60	54	31	32	43.4	
Columbus Jet.	43	51	50	51	46	48	30	32	30	31	36	40	34	36	35	41	36	35	45	36	44	45	47	48	51	52	67	54	35	34	42.6	
Corning	56	42	44	45	37	38	37	39	41	40	34	46	37	33	34	37	35	37	34	40	46	47	40	47	51	56	69	55	51	27	28	42.0
Corydon	43	54	56	56	45	40	31	30	31	29	33	43	37	35	35	35	35	36	36	39	46	46	42	49	55	58	69	62	53	28	25	42.3
Fairfield	35	53	54	53	44	38	31	32	30	34	37	35	36	36	39	39	35	34	44	37	47	42	47	52	54	53	69	53	54	29	29	41.8
Keokuk	39	57	65	67	44	41	32	34	31	35	39	36	36	35	40	37	34	43	36	45	43	46	50	58	55	68	57	60	29	30	48.3	
Lamoni	43	55	58	56	46	37	32	30	34	29	36	44	37	33	37	35	35	35	40	48	49	43	49	55	57	62	47	59	29	24	42.8	
Pella	35	52	46	41	39	36	30	32	33	30	33	40	36	35	31	37	34	35	39	36	45	42	42	46	51	55	66	53	31	31	40.3	
Sigourney	43	49	47	44	43	40	29	30	29	29	32	36	34	34	35	37	34	33	41	37	43	39	43	45	50	51	66	59	52	30	32	40.2
Thurman	46	53	46	44	42	40	31	31	28	31	38	42	39	37	38	34	37	36	37	41	44	48	45	48	51	53	69	68	60	28	43.5 ^a	
Winterset	44	55	44	42	45	39	29	30	33	30	35	44	38	40	37	35	33	36	34	38	45	48	41	47	48	58	62	62	46	26	26	41.0
Omaha, Nebr.	40	52	40	40	44	34	31	29	28	30	36	40	38	35	38	33	34	34	36	39	43	4										

TOTAL PRECIPITATION, MARCH, 1924



SCALE OF SHADES—IN INCHES



CLIMATOLOGICAL DATA.

IOWA SECTION

In cooperation with
CHARLES D. REED, Meteorologist

VOL. XXXV DES MOINES, IOWA, APRIL, 1924 No.4

GENERAL SUMMARY.

The most noteworthy feature of the weather during April, 1924, was the abnormally low temperatures that occurred on the first day of the month over much of the northern and western portions. Many stations reported the lowest April temperatures of record and three stations reported temperatures below zero, the only time in the history of the State that zero has been reached in April, and the record of 8 degrees below zero at Inwood is 9 degrees lower than the lowest recorded previous to this year. The range of 98 degrees is the greatest ever experienced in April, and is 8 degrees greater than has been recorded heretofore. After the 1st there was an extended warm period, and during the rest of the month temperature fluctuations were frequent with the warm periods predominating, but with sufficient cool weather to prevent the development of fruit buds too rapidly. Frosts were recorded till late in the month at frequent intervals, but vegetation had not advanced to a stage where it was susceptible to very much injury.

Precipitation was less than half the normal for April, and with the exception of April, 1907, when the average for the State was 1.32 inches, was the least ever recorded. Only three stations showed an excess and this was due to locally heavy rains that occurred on the 25th-26th. Hail was reported from a large number of places, but the damage was of no consequence. Lightning struck a planing mill at Dubuque, setting it on fire and causing a loss of about \$50,000.

Conditions were almost ideal for all out door occupations, and, except for a short suspension, due to a very heavy snowfall on the 11th, that affected a strip of the State over the southern portion of the northern division, and the northern portion of the central division, farm work was possible throughout the month after the effects of the hard freeze on the 1st had disappeared. Plowing was pushed and the soil was in excellent condition, and at the end of the month practically all small grain had been seeded and most of the corn land was ready for the planter. A little corn was planted in the west-central portion as early as the 22d, but the soil was too dry for planting over nearly all sections.

While the weather was favorable for farm work the lack of moisture prevented the germination of many fields of oats and barley, and while most of the early planting is up to a good stand, some fields show very uneven stands. The lack of moisture was also retarding the growth of winter wheat and grasses, and vegetation generally was showing the need of rain at the end of the month.

Fruit buds were a little in advance of the average, and at the end of the month plums and cherries were in full bloom over the southern and most of the central division. A good many apples of the earlier varieties also were in bloom. Peaches appear to have been severely injured by the severe January weather and grapes to a lesser extent. Bees came through the winter in poor shape, due mainly to the unusually mild weather in December that caused them to deplete their stores.

Roads were in unusually bad condition at the beginning of the month, but improved as the month advanced, and at the end of the month the main highways were in excellent condition generally. The average number of clear days was the greatest ever recorded in any April.

F. L. D.

TEMPERATURE.

The mean temperature for the State, as shown by the records of 103 stations, was 50.5°, or 1.8° higher than the normal. By divisions, three tiers of counties to the division, the means were as follows: Northern, 47.9°, or 1.2° higher than the normal; Central, 50.9°, or 2.0° higher than the normal; Southern, 52.7°, or 2.1° higher than the normal. The highest monthly mean was 55°, at Keokuk, and the lowest was 44.5°, at Northwood. The highest temperature reported was 90°, at Clarinda on the 15th and Mason City on the 23d, and the lowest was -8° at Inwood on the 1st, the lowest April temperature ever recorded in Iowa. The temperature range for the State was 98°.

PRECIPITATION.

The average precipitation for the State, as shown by the records of 104 stations, was 1.38 inches, or 1.48 inches less than the normal. By divisions the averages were as follows: Northern, 1.52 inches, or 1.16 inches less than the normal; Central, 1.35 inches, or 1.51 inches less than the normal; Southern, 1.28 inches, or 1.77 inches less than the normal. The greatest amount, 4.53 inches, occurred at Belmond, and the least, 0.38 inch, occurred at Harlan. The greatest amount in any 24 consecutive hours, 3.43 inches, occurred at Belmond on the 25th-26th.

COMPARATIVE DATA FOR THE STATE—APRIL.

YEAR	Temperature				Precipitation				Number of Days				
	Mean	Departure	Highest	Lowest	Total	Departure	Greatest	Least	Snowfall	With pre. .01 in. or more	Clear	Partly cloudy	Cloudy
1890	51.8	+ 3.1	88	2	1.80	-1.06	4.46	0.33	-----	6	14	9	7
1891	50.6	+ 1.9	93	13	2.15	-0.71	5.06	0.59	-----	8	14	7	9
1892	45.4	- 3.3	88	14	4.75	+1.89	8.33	2.43	5.7	9	8	9	13
1893	45.5	- 3.2	96	15	4.21	+1.35	8.51	1.24	6.0	10	8	9	13
1894	51.7	+ 3.0	93	12	3.07	+0.21	6.91	0.55	0.2	9	11	11	8
1895	54.2	+ 5.5	98	8	2.02	-0.24	5.88	0.23	2.1	5	14	8	8
1896	54.5	+ 5.8	94	10	2.02	+2.16	9.67	2.35	4.5	11	11	10	9
1897	47.9	- 0.8	89	19	5.35	+2.49	9.86	2.22	T.	11	9	9	12
1898	48.1	- 0.6	91	14	2.56	-0.30	4.82	0.27	T.	8	13	9	8
1899	48.9	+ 0.2	89	1	2.40	-0.46	5.76	0.56	2.0	7	12	11	7
1900	52.2	+ 3.5	89	12	2.67	-0.19	6.62	0.43	0.9	6	12	9	9
1901	49.9	+ 1.2	92	15	1.79	-1.07	3.47	0.66	2.0	5	14	8	8
1902	48.2	- 0.5	96	9	1.71	-1.15	4.15	0.40	T.	5	14	11	5
1903	49.3	+ 1.1	86	17	2.98	+0.12	6.00	0.74	0.8	9	11	9	10
1904	44.1	- 4.6	86	13	3.63	+0.77	8.97	1.52	1.4	7	15	6	9
1905	47.5	- 1.2	90	10	3.03	+0.17	5.49	0.63	1.2	8	12	8	10
1906	52.5	+ 3.3	94	22	2.42	-0.44	5.55	0.53	0.6	8	14	9	7
1907	41.5	- 7.2	80	10	1.32	-1.54	3.22	0.24	2.7	6	12	8	10
1908	50.5	+ 1.3	91	8	2.24	-0.62	4.59	0.67	0.3	8	14	8	8
1909	43.8	- 4.9	86	14	4.58	+1.72	9.43	0.83	3.1	12	9	9	12
1910	52.5	+ 3.8	99	15	1.48	-1.38	4.86	0.10	3.0	7	14	7	9
1911	46.7	- 2.0	86	3	3.09	+0.23	6.04	1.33	3.6	9	11	8	11
1912	49.9	+ 1.2	84	20	2.66	-0.20	5.66	0.78	1.1	8	13	8	9
1913	50.2	+ 1.5	88	16	3.23	+0.42	7.43	1.12	2.7	9	15	5	10
1914	48.6	- 0.1	88	11	2.52	-0.34	5.03	0.37	0.3	8	10	8	12
1915	57.2	+ 8.5	95	18	1.41	-1.45	4.02	0.05	T.	7	15	10	5
1916	47.1	- 1.6	90	11	2.62	-0.24	5.92	1.13	1.1	10	10	9	11
1917	45.5	- 3.2	88	17	4.55	+1.69	7.84	2.05	3.8	11	9	7	14
1918	44.8	- 3.9	79	12	2.32	-0.54	4.20	1.01	3.5	9	12	8	10
1919	48.4	- 0.3	81	20	4.78	+1.92	9.00	1.94	0.7	14	8	8	14
1920	42.4	- 6.3	78	22	4.59	+1.73	7.13	1.93	2.0	12	8	9	13
1921	52.4	+ 3.7	88	14	3.34	+0.48	6.69	0.99	3.6	10	13	7	10
1922	49.9	+ 1.2	87	21	3.06	+0.20	6.70	1.04	1.0	9	11	9	10
1923	48.4	- 0.3	85	11	2.09	-0.77	4.26	0.47	0.8	8	15	7	8
1924	50.5	+1.8	90	8	1.38	-1.48	4.53	0.38	1.4	7	16	8	6

T. indicates an amount too small to measure, or less than .005 inch rainfall and less than .05 inch snowfall.



Climatological Data for April, 1924—Continued

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precipitation, in Inches				Number of Days				Observers			
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear	Partly cloudy		Cloudy	Prevailing direction of wind	
<i>Southern Division</i>																					
Afton	Union	1,212	30	52.8	+ 2.2	84	15 [†]	13	1	42	1.12	-22.3	0.47	0	8	17	9	4	nw.	S. R. Brown.	
Albia	Monroe	959	26	52.8	+ 3.2	85	24	20	1	40	1.75	-1.10	0.71	T.	6	15	6	9	nw.	O. E. McBride.	
Atlantic	Cass	1,164	33	51.8	+ 2.2	84	15	14	1	41	0.99	-1.94	0.51	0	6	12	12	6	sw.	Miss. Oza Cunningham.	
Bonaparte	Van Buren	563	33	53.4	+ 2.1	84	24	21	1	36	1.03	-2.18	0.22	T.	8	15	10	5	s.	B. R. Vale.	
Burlington	Des Moines	544	28	54.7	+ 3.5	85	24	22	1	38	2.42	-0.82	1.15	T.	10	16	8	6	sw.	J. A. Donnelly.	
Centerville	Appanoose	1,013	19	53.4	-----	82	15 [†]	20	1	41	1.28	-2.02	0.41	0	5	15	11	4	nw.	Thomas Wood.	
Chariton	Lucas	1,042	29	51.9	+ 1.9	82	15	17	1	38	1.52	-1.60	0.55	0	4	16	8	6	w.	C. C. Burr.	
Clarinda	Page	1,009	34	53.8	+ 4.2	90	15	14	1	44	1.13	-1.70	0.78	0	4	23	3	4	-----	Dr. H. C. Hawley.	
Columbus Jct.	Louisa	595	23	52.8	+ 2.1	84	24	22	1	38	1.20	-1.74	0.35	0	7	20	7	3	nw.	H. L. Lewis.	
Corning	Adams	1,117	32	51.2	+ 1.6	83	15	12	1	47	0.81	-2.22	0.73	0	2	18	7	5	nw.	Jerome Smith.	
Corydon	Wayne	1,101	31	53.4	+ 2.2	84	15	18	1	41	1.06	-2.07	0.58	0	5	13	12	5	nw.	May C. Miller.	
Creston	Union	1,312	19	52.4	+ 4.1	86	20	13	1	52	0.83	-----	0.45	0	4	19	7	4	n.	Mrs. S. O. Stanley.	
Cumberland (near)	Cass	1,225	25	-----	-----	-----	-----	-----	-----	-----	0.90	-1.37	0.35	-----	6	14	9	7	w.	Carl E. Pollock.	
Earlham	Madison	1,126	22	50.4	+ 1.2	83	24	10	1	41	0.85	-2.61	0.35	T.	4	22	3	5	sw.	Geo. Phillips.	
Fairfield	Jefferson	780	40	53.0	+ 2.2	84	24	21	1	37	1.66	-1.99	0.50	T.	8	11	5	14	nw.	Prof. R. M. McKenzie.	
Glenwood	Mills	1,100	26	53.5	-----	86	15	14	1	40	1.19	-----	0.63	0	5	16	11	3	nw.	Dr. Geo. Mogridge.	
Greenfield	Adair	1,368	32	50.2	+ 0.4	82	24	14	1	41	2.14	-0.98	1.32	T.	7	13	13	4	nw.	P. C. Cornell.	
Indianola	Warren	972	33	51.9	+ 1.4	83	24	15	1	37	1.29	-1.92	0.56	0	10	14	13	3	nw.	Seth F. Shenton.	
Keokuk	Lee	614	53	55.0	+ 2.7	86	16	22	1	36	2.07	-1.27	1.06	T.	7	9	7	14	w.	U. S. Weather Bureau.	
Keosauqua	Van Buren	644	32	53.5	+ 3.0	85	24	21	2	42	1.41	-2.09	0.30	0	9	11	10	9	se.	J. H. Landes.	
Knoxville	Marion	920	29	52.9	+ 1.3	84	24	18	1	39	1.35	-1.64	0.30	T.	8	11	11	8	sw.	W. J. Casey.	
Lacona	Warren	-----	25	-----	-----	-----	-----	-----	-----	-----	1.19	-1.51	0.48	0	8	10	13	8	-----	J. B. Alter.	
Lamoni	Decatur	1,123	17	52.6	+ 1.6	83	15	12	1	38	1.41	-1.94	0.78	0	5	18	3	9	s.	Ray L. Roberts.	
Lenox	Taylor	1,250	29	51.9	+ 1.6	84	15	12	1	42	0.85	-2.09	0.27	0	6	16	10	4	nw.	J. L. Hurley.	
Mt. Ayr	Ringgold	1,245	31	51.8	+ 0.6	80	15	13	1	38	0.70	-2.45	0.31	T.	6	15	8	7	nw.	Alex Maxwell.	
Mt. Pleasant	Henry	729	43	54.4	+ 3.2	85	24	20	1	37	0.79	-2.11	0.20	0.5	8	6	16	8	nw.	J. H. Jericho.	
Oakland††	Pottawattamie	1,105	5	52.9	-----	86	15 [†]	15	1	44	1.31	-----	0.77	0	4	-----	-----	-----	-----	s.	M. E. Gray.
Oskaloosa	Mahaska	835	48	52.6	+ 2.0	85	24	21	1	40	1.28	-1.48	0.48	T.	8	11	10	9	nw.	Roy R. Robinson.	
Ottumwa	Wapello	649	29	54.1	-----	85	24	15	1	39	1.34	-1.41	0.45	0	8	16	6	8	nw.	C. L. Mikesh.	
Pella	Marion	877	31	51.2	+ 0.8	84	24	20	1	37	2.12	-0.71	1.30	T.	5	19	2	9	nw.	J. H. Ver Steeg.	
Sigourney	Keokuk	790	28	51.7	+ 0.7	82	24	20	1	37	1.03	-2.25	0.25	0	8	14	7	9	nw.	W. E. Utterback.	
Stockport	Van Buren	745	22	53.2	+ 2.7	84	24	22	1	39	1.02	-2.04	0.23	0	8	13	7	10	s.	C. L. Beswick.	
Thurman	Fremont	975	27	54.2	+ 3.0	88 ^a	15	15	1	42 ^a	0.96	-2.17	0.42	0	4	7	17	6	nw.	C. R. Paul.	
Tingley	Ringgold	1,275	0	51.9	-----	82	15 [†]	14	1	38	0.86	-----	0.26	0	7	16	6	8	nw.	James A. Verploegh.	
Washington	Washington	769	42	52.6	+ 2.0	86	24	23	1	39	1.22	-1.40	0.23	0	8	7	17	6	sw.	Wm. A. Cook.	
Wescott (near)	Lee	-----	2	52.9	-----	78	15	20	1	33	2.64	-----	0.60	0	8	14	12	4	sw.	Geo. H. Smith.	
Winterset	Madison	1,129	33	52.3	+ 1.6	84	24	12	1	45	1.04	-2.56	0.55	0	6	22	7	1	sw.	H. S. Fly.	
Omaha, Neb.	-----	1,103	53	53.4	+ 2.2	86	15	17	1	38	0.94	-2.07	0.51	0	7	10	14	6	nw.	U. S. Weather Bureau.	
Means and extremes	-----	-----	-----	52.7	+ 2.1	90	15	10	1	52	1.28	-1.77	1.32	T.	7	14	9	7	nw.	-----	
State means and extremes	-----	-----	-----	50.5	+ 1.8	90	15 [†]	8	1	52	1.38	-1.48	2.13	1.4	7	16	8	6	nw.	-----	

The departures from normal temperature and precipitation are computed only for such stations as have ten or more years of record, but all complete records are used in determining means.
 Reference letters a, b, c, etc., appearing in the table indicate the number of days missing; for example b represents two days, etc.
 †Also other dates.
 T. Precipitation is less than 0.01 inch rain or melted snow.
 ††Received too late to be included in means and summaries.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea level)				Relative Humidity (%)				Wind				Sunshine				
	Mean	Highest	Date	Lowest	Date	Mean			Total movement	Average hourly velocity	Maximum		Per cent of possible	Departure from normal			
						7 a. m.	12 Noon	7 p. m.			Miles	From			Date		
Charles City	29.90	30.36	1	29.38	16	78	52	59	30	+23	6,268	8.7	30	sw.	16	65	+ 7
Davenport	29.92	30.31	1	29.40	16	81	58	60	39	18	6,185	8.6	30	sw.	16	57	- 1
Des Moines	29.89	30.35	1	29.34	16	74	48	50	24	18	5,903	8.2	30	sw.	3	71	+ 11
Dubuque	29.90	30.31	1	29.37	16	74	51	55	28	18	5,483	7.6	25	se.	16	62	+ 5
Keokuk	29.93	30.36	1	29.44	16	69	45	52	26	6	6,476	9.0	35	nw.	21	69	+ 12
Sioux City	29.90	30.38	1	29.21	15	78	48	46	25	17	10,405	14.5	45	nw.	19	71	+ 13
Omaha, Neb.	29.90	30.37	1	29.21	16	70	46	43	18	17	6,620	9.2	38	n.	8	83	+ 25
Means and extremes	29.91	-----	-----	-----	-----	75	50	52	-----	-----	-----	94	-----	-----	-----	68	+ 10
Normals and records	29.98	-----	9 th	-----	20 th	76	-----	57	-----	-----	9.9	-----	-----	-----	25 th	58	-----
	-----	30.78	1918	28.80	1898	-----	-----	-----	-----	-----	-----	74	n.	-----	-----	-----	-----

§ Dubuque. * Davenport. †Sioux City. ‡ Local mean time. † And other dates.

Daily Precipitation for April, 1924.

Stations	Drainage Basin	Day of Month																															Totals				
		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					
<i>Northern Division</i>																																					
Algona	Des Moines																																		**		
Allison	Cedar				.13					.27						.29					.06						.15								0.97		
Altamont	Raccoon									.29						.03	T.											.25							0.78		
Alton	Floyd					.06				.30																		.39	.45						1.29		
Belmond	Iowa									.25				.08		.16	.08	.02	T.							.28	1.30	2.13							4.53		
Britt	Iowa																																				
Charles City***	Cedar	T.			.12					.12						.45		T.	.08			.02		.04	T.	.16	.19	.02							1.20		
Cherokee	Little Sioux				.06				T.	.42			T.		T.	.46	T.					T.			.25	.04	.34						.04		1.15		
Decorah	Mississippi					.15									T.	.08	.46		.10			.03				.05	.05	.05	.30	.26					1.48		
Estherville	Des Moines					.10				.15	.05					.05						.05				.03	.65	.15							1.23		
Fayette	Mississippi				.15					.14						.58		T.	.06			T.		T.	.09	.06	.06	.06	.06						1.14		
Forest City	Cedar					.23				.12	.05				T.	.12										.04	.99	.36							.04	1.89	
Humboldt	Des Moines				.11					.39						T.	T.	T.	T.							.04	T.	1.33						T.		1.87	
Inwood	Big Sioux					.03				.03	.01					.01										.05	.14	.91	.13							1.46	
Le Mars	Floyd				.01					.09								T.								T.	.09	.83	.02			T.				1.09	
Mason City	Cedar	T.			.02					1.11						T.	.15	T.		T.							.85	.01								2.14	
Milford (near)	Little Sioux				.05					.12							.16	T.									.16	.43							T.	0.76	
New Hampton	Wapsipinicon				.14					.14						.94	.05			.10						.07	.14	.02	.02							1.62	
Nora Springs	Cedar				.16					.13						.63			.01	.16	.05				.21		.44	.45								2.24	
Northwood	Cedar				.20					T.						.10	.10									.10	1.70	.40								2.60	
Oelwein	Wapsipinicon				.20					.15						.50											.20									1.05	
Pocahontas	Des Moines				.07					.60						.09										.10	.04	.48							.10	1.48	
Postville	Mississippi				.17					.10				T.		.59				T.						.17	1.02	.37	.39	.02						2.89	
Rock Rapids	Big Sioux				.07					.06						.04										.04	.35	.70								1.38	
Sanborn	Floyd				.05					.15																	.21	.64								1.05	
Sioux Center	Floyd			T.						.30							T.	T.									.38	.55					.02			1.47	
Spencer	Little Sioux									.10								T.	T.								.02	.57								0.93	
Storm Lake	Raccoon				.20					.36																	.01	.05	.56	.02				.03		1.05	
Washita	Little Sioux				.04					.10																	.35	.35								1.01	
Waverly	Cedar				.13					.17						.50	.02									.50	.04	.22	.04							1.22	
West Bend	Des Moines				.09					.27								T.	.09								.25	.53							.01	1.24	
<i>Central Division</i>																																					
Ames	Skunk				.05					.23						.03		.30									.86	.35	T.				.03			1.89	
Audubon	Nishnabotna				.04					.04						.38		.04									.02	.04							.05	.03	0.64
Baxter	Skunk				.07					.06						T.	.52										.55	1.37								2.66	
Belle Plaine	Iowa				.02					.23							.31										.01	.13	.01	.05						0.89	
Boone	Des Moines				.11				T.	.24						.08		.22		T.							.37	.14						.07	.03	1.15	
Carroll	Raccoon				.04					.10	.14					.35		.02									.36								.37	1.38	
Cedar Rapids	Cedar				.13					.18	.22	.15					.23										.11	.07	.05							1.17	
Clinton	Mississippi				.12					.18						.08		.08									.40	.06							.32	.03	1.26
Davenport**	Mississippi				.02					.12						T.	.12	T.	.09								.14	.05	.09							1.11	
Davenport (No. 2)	Mississippi				.04					.05	.08	.02				.02		.13									.07	.12	.11							T.	0.92
Denison	Missouri				.04					.05							.09										.04	.25							.03		0.50
Des Moines***	Des Moines				.03					.02						.14	.02	.23		T.	T.						.06	.14	.08	.07					.04		0.78
Dubuque**	Mississippi				.15	.01			.13	.09						.01		.01		T.	T.						.28	.07	.35							T.	1.12
Fairport	Mississippi				.09				.55	.09						.17		.14									.35	.26	.08							T.	2.01
Fort Dodge	Des Moines				.10					.28						.02		.04									.60	.10							.03		1.21
Grinnell	Iowa				.09					T.						.09	.53	.01									.56	.34	1.00					.03		2.67	
Grundy Center	Cedar				T.					.55						.55											.06	.15								1.41	
Guthrie Center	Raccoon				.04					.04						1.62											.48								.08	.04	2.30
Harlan	Nishnabotna				T.					.04																	.23								.15		0.38
Independence	Wapsipinicon				.06					.17						.08				.24	T.						T.	.18								0.87	
Iowa City	Iowa				.02					.11						T.	.06	.01	.06								.19	.11	.07							1.09	
Iowa Falls	Iowa				T.					.65	.05	.01				.18											1.55	.45								3.92	
Jefferson	Raccoon				.12					.15						.01											.48	.53	T.	.04				.16		1.66	
Le Claire	Mississippi				T.					.11						.08											.34	.52	.02	.23						1.36	
Little Sioux	Little Sioux				.08					.04						.04											.60								.01	.04	0.83
Logan	Missouri															.08											.42								.16	0.66	
Marshalltown	Iowa				T.					.30	.09					T.	.48										1.28	.04						.03		2.34	
Monroe	Des Moines				.16					T.						.62											.89	.60	T.						T.	1.77	
Muscatine	Mississippi				.05					.05						.15		.08									T.	.68	.08						.05		1.89
Olin	Wapsipinicon				.10					.23						.45												.52	.10							1.40	
Onawa	Missouri				T.																						.66	.09								0.75	
Perry	Raccoon				.02					.03						.12											.14	.24					</				

Daily Precipitation for April, 1924—Continued

Stations	Drainage Basin	Day of Month																															Totals
		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	
<i>Southern Division</i>																																	
Atton	Grand				.05							.16		.10		.15										.05	.08			.47	.11	1.12	
Albia|||	Des Moines	T.			T.	.10						.30	.03	T.		.71			T.	T.							.48		T.	.13	T.	1.75	
Atlantic|||	Nishnabotna					.06								.51		.02											.02	.16		.22		0.99	
Bonaparte	Des Moines	T.			.11			.22				.03				.20			T.	T.		.15				.20	.05	.07	T.	T.	1.03		
Burlington|||	Mississippi	.05	.03	T.		.15		.52				.03				.22					T.	.17				1.15		.02		.08	2.42		
Centerville	Chariton				.10						T.	.39	T.			.41			T.	T.						.37		T.	T.	.01	T.	1.28	
Chariton	Chariton				.11							.48				.55										T.	T.		.38	T.	1.52		
Clarinda|||	Nodaway					.05						.24			T.											.78	.06				1.13		
Columbus Jct.	Iowa				.15							.35			T.		.10	T.								.15	.30	.05	.10		T.	1.20	
Corning	Nodaway				T.							T.				T.										.73	.08				T.	0.81	
Corydon	Chariton				.08							.35				.58										T.	.04	.01	T.			1.06	
Creston|||	Missouri											.12	T.		.12											.14	.22	T.		.45	T.	0.83	
Cumberland (near)	Nodaway				.05							T.	T.	.09	.07	T.	T.	T.	T.	T.	T.					.35	.14			.20	T.	0.90	
Earlham	Des Moines				T.							T.			.35												.24	.07		T.	.19	T.	0.85
Fairfield	Skunk	T.			.20							T.			.50		.33										.27	.12	.05		.07	T.	1.06
Glenwood	Missouri				.02							T.				.02											.22	.30			.63		1.19
Greenfield	Nodaway				T.							T.	.06		.25		.17									1.32	.22			.07	.05	T.	2.14
Indianola	Des Moines				.04							T.	.04		.34		.56	.02									.10	.06	.05	.02		.06	1.29
Keokuk**	Mississippi	T.			.12			.35				T.			.15		.20			T.	T.	T.	.07			.59	.47	T.	T.	.20	.12	2.07	
Keosauqua	Des Moines				.12			.30				T.			.07		.26	T.	T.	T.	T.						.18	.17	.05		.14	.12	1.41
Knoxville	Des Moines				.10							T.	.05	.15	.20		.28		T.	T.						.19	.30	T.	T.	.08	T.	1.35	
Lacona	Des Moines				.10							T.	.25	.05	.05		.48		.05							.12	.13			.01		1.19	
Lamoni|||	Grand	T.				.05						.38					.78										.18	.02				1.41	
Lenox	Missouri				.15							.15			T.		T.										.15	.11			.27	.02	0.85
Mt. Ayr	Grand	T.			.11							.31				.09			T.	T.							.07	.08			.04	T.	0.70
Mt. Pleasant	Skunk	.0			.20			.01				.20					.16										.05	.06		T.	.08		0.79
Oakland	Nishnabotna				.04							.20																.30			.77		1.31
Oskaloosa	Des Moines	T.			.13							T.	.23	T.	.11		.48		.01	T.	T.					.12	.13	.02	T.	T.	T.	1.28	
Ottumwa	Des Moines				.14							.45			.03		.29										.02	.33		.01	.07		1.34
Pella	Skunk				.08							T.			.08		.54		T.								.12	1.30		T.	T.	2.12	
Sigourney	Skunk				.10							T.	.2	.02	.03		.24			T.	T.						.09	.20	T.	T.	.10	1.03	
Stockport	Skunk				.15			.02				.16				.23											.08	.20	.08	T.	.10		1.02
Thurman	Missouri				T.							.32						T.	T.	T.							.14	.42				0.96	
Tingley	Grand				.11							.26				.14											.06	.07			.16	.06	0.86
Washington	Skunk				.13							.23		.19		.22											.10	.07	.13	.15			1.23
Wescott (near)	Mississippi	T.			.35			.40								.25											.35	.60	.02		.56		2.64
Winterset	Des Moines				.10								T.	.55													.06	.06			.07	.20	1.04
Omaha, Nebr.***	Missouri				.04							T.	T.	.04		.07											.22	.32		.01	.24		0.94

Except as otherwise indicated, observations are generally made late in the afternoon, near sunset, and precipitation recorded is for 24 hours ending at the time of observation.

|||Precipitation measured in the morning; amount then recorded is for the preceding 24 hours.

***Regular Weather Bureau Station; precipitation is for 24-hour period, midnight to midnight.

**Incomplete.

*Precipitation included in the next following measurement.

SNOWFALL.

The average snowfall for the State was 1.4 inches, or 0.4 inch less than the normal. Practically no snow fell in the southern four tiers of counties and the principal amounts fell over a strip about two counties wide, running from Sioux and O'Brien southeastward to Jackson and Clinton counties. The greatest amounts reported were 9.0 inches at Webster City and Olin. The snow occurred mostly during the night of the 10th-11th.

MISCELLANEOUS PHENOMENA.

Fog: 1st, 5th, 12th.

Hail: 5th, 8th, 13th, 15th, 16th, 18th, 19th, 20th, 21st, 24th.

Halos (lunar and solar): 3d, 6th, 10th, 12th, 13th, 14th, 18th, 19th, 20th, 21st, 25th, 29th, 30th.

Haze: 4th, 7th.

Parhelia: 10th.

Rainbows: 5th, 10th, 13th, 14th, 18th.

Thunderstorms: 5th, 6th, 8th, 11th, 13th, 14th, 15th, 16th, 18th, 19th, 20th, 21st, 23d, 24th, 25th, 26th, 27th, 28th, 29th, 30th.

RIVERS.

There were no sudden or marked fluctuations on the Mississippi River and the average stages were less than the normal. The lowest stages occurred generally during the first week, after which there was a gradual rising tendency, and the highest stages were at the end of the month. On the Missouri River there was a gradual rise till the middle of the month and then a gradual fall till the end of the month to almost the same stages as at the beginning. The average stages were below the normal. On the interior rivers the highest stages occurred during the first week, after which there was a steady fall in all streams. The average stages were considerably below the normal. The first steamer arrived at Dubuque on the 4th and navigation was open the rest of the month.

ERRATA.

Report for January, 1924, page 3. In the small table at the bottom of the page, 7 p. m. and 7 a. m. under "Relative Humidity (%)" should be reversed. Report for February, 1924, page 11; the average snowfall for southern division recorded 1.35 inches, should be 13.5 inches.

Daily Maximum and Minimum Temperature for the Month of April, 1924.

Table with columns for Stations, days 1-31, and Mean. Rows are categorized by Northern Division, Central Division, and Southern Division, listing various Iowa cities and their daily temperature ranges.

a, b, c, etc., indicates respectively 1, 2, 3, etc., days missing.

BALL LIGHTNING.

By E. G. Larson, Observer,
Weather Bureau, Charles City, Iowa.

Ball lightning is believed to have been observed by Mrs. R. V. Zimmerman near her farm home about ten miles north-east of Charles City, Iowa, at about 9 p. m., March 28, 1924. She describes it as a ball of light, about the size of a hand lantern globe, two or three feet above the ground, which appeared in the southwest and approached slowly to within about 100 feet of her house, remained stationary for about two minutes, and then receded toward the southwest with diminishing brilliancy.

Meteorological conditions at Charles City at 9 p. m., March 28, 1924, were as follows: Cloudy, with rain falling steadily; wind from east at 16 miles per hour; temperature, 32 degrees, stationary from 8 p. m. to 1 a. m.; pressure, sea level, 29.45 inches, falling steadily, center of storm over southern Iowa next morning with sea level pressure below 29.00 inches; distant lightning flashes observed in southwest at 9:30 p. m. and probably could have been seen earlier.

Following is a copy of Mrs. Zimmerman's written report and replies to questions submitted:

"On Friday evening, March 28th, about 9 o'clock, I happened to look out of the window, to the southwest, and noticed that the reflection from what I thought to be the electric lights at Charles City seemed brighter than usual, then there seemed to be a fire there. I watched for a little while, thinking that it must be a fire somewhere, and I called my 14-year-old daughter to come and see it; she came and said, 'Yes, it looks like a fire.' She watched for perhaps two minutes, then went away. I remained at the window and watched. The fire seemed to raise and lower, then suddenly it shifted to one side for about one rod and started to come this way. I thought just at first my eyes might be at fault, that because I had been looking for some time it just seemed that way. But as it kept coming closer, I called Mildred again and she exclaimed, 'Why yes' (it had moved quite rapidly at first). And by this time it was almost to our lane and moving slower; it stopped in the road just outside the lane for perhaps 1½ or 2 minutes. It appeared to be a globe of light almost as large as a lantern globe and the reflection from it was sort of a white light which extended maybe 3 rods. It was 2 or 3 feet from the ground. As the men were all at the barn, Mildred and I were thoroughly frightened; Mildred was trembling.

"As quickly as it had come it began to recede, much to our relief. It went back to where it was at first but was not so

bright after this. The men came in the house then and as we watched for a short time longer it would come a little way then go back. We did not watch any longer.

"Afterwards I asked Mildred just how she felt about it, and she shuddered and said that she thought it was something coming to destroy us. It surely was quite an experience for us. We live 2½ miles east and ¼ mile south of Colwell.

"(Signed) MRS. R. V. ZIMMERMAN,

"Bassett, Iowa."

Q. Was it raining at the time you saw the light and did you see any ordinary lightning flashes or hear thunder that evening? A. Yes, it was raining. I had not noticed any lightning flashes but had not been watching so there might have been; neither did I hear thunder until during the night; I was awakened by it and the lightning was quite vivid then. I do not know what time this was but should judge it was between 1 and 2. One of the boys said he had heard distant thunder in the evening before I saw the ball lightning.

Q. Did it remain close to the ground all the time or did it move up in the air and how high? A. It remained about 3 or 4 feet from the ground all the time except when I first saw it, then it seemed to flare up and down much as a fire would, but never very high.

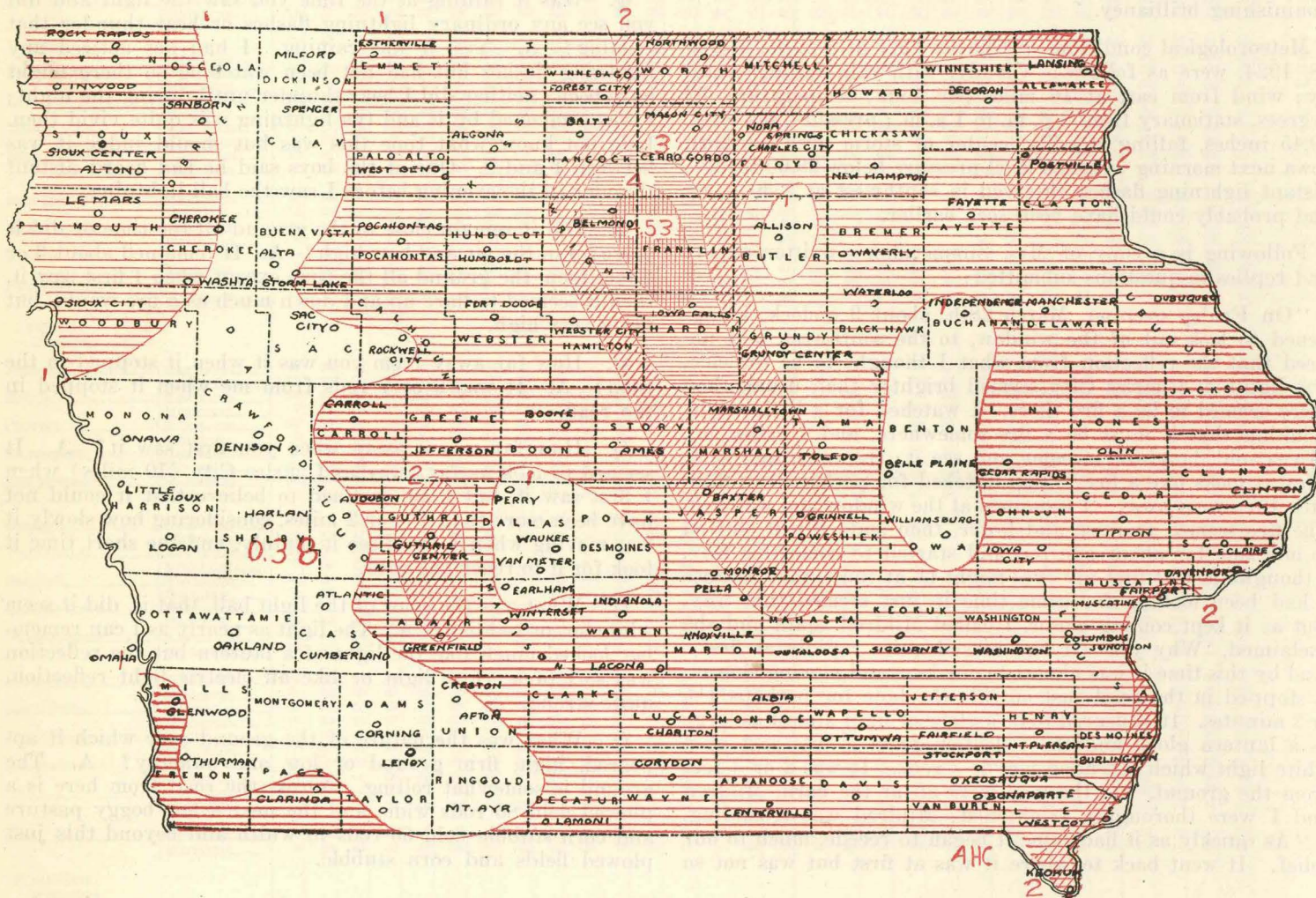
Q. How far away from you was it when it stopped in the road? A. It was 6 or 7 rods from me when it stopped in the road.

Q. How far was it away when you first saw it? A. It seemed to look as far away as Charles City (10 miles) when I first saw it, but I am inclined to believe that it could not have been more than 1½ or 2 miles, considering how slowly it was moving when I could see it plainly, and the short time it took for it to reach the road.

Q. What was the color of the light ball, that is, did it seem white hot or reddish? A. The light as nearly as I can remember looked much like the light of a lantern but the reflection was sort of a white light or like an electric light reflection, quite strong.

Q. What was the nature of the ground over which it appeared, high, firm ground or low and swampy? A. The ground is somewhat rolling. Across the road from here is a plowed field 80 rods wide, and the next a low boggy pasture and corn stubble field 60 rods in width and beyond this just plowed fields and corn stubble.

TOTAL PRECIPITATION, APRIL, 1924



SCALE OF SHADES—IN INCHES



CLIMATOLOGICAL DATA.

IOWA SECTION

In cooperation with
CHARLES D. REED, Meteorologist

VOL. XXXV DES MOINES, IOWA, MAY, 1924 No. 5

GENERAL SUMMARY.

May, 1924, was dry and cool. The mean temperature for the State was, with the exception of 1892 and 1907, the lowest of record. The month opened with a moderately warm period during most of the first week, and on the 5th unusually high temperatures occurred over nearly the entire State, exceeding 90° at many stations in the northern and western portions. This warm period was followed by an abrupt change to cooler and during the rest of the month a remarkably uniform cool period prevailed, the only days that showed a slight excess in temperatures were the 16th and 17th. No record breaking low temperatures were reported, but frosts of varying degrees occurred during every week of the month in nearly all portions of the State. The greatest damage occurred on the 11th and 24th. The fact that all vegetation was unusually backward prevented greater damage to crops and the loss was confined mainly to tomatoes and beans, though some corn in the west-central section was nipped to the ground on the 24th. Much vegetation susceptible to frost damage was undoubtedly saved due to the extreme dryness of the air, and moderately strong wind movement, and the development of cloudy conditions during the most critical periods. The damage reported was confined principally to crops on low ground and some unusual conditions relative to frost damage were reported. In some fields alternate plants in the same rows were killed while others showed no effects of frost whatever. Also during the hard freeze on the 24th, tender plants in fields suffered no damage, though ice formed on standing water and plants in cold frames were killed.

The most detrimental factor in regard to crop development was the extreme dryness. The average precipitation for the State was the least of record. Conditions would not have been so aggravated had the previous month received normal rainfall, but with less than half the normal in April and less than 40% of the normal in May a serious drouth developed. The precipitation was uniformly distributed throughout the month, and considering the decided deficiency, occurred on an unusually large number of days. Had the rains occurred less frequently, and had there been an occasional warm day, conditions would have been improved, but with but few exceptions the showers were light and were sufficient to wet only the surface soil and the moisture was soon absorbed by the dry air. The adverse weather conditions put the corn crop in nearly as bad condition as ever existed in the State on June 1st. Much of the seed lay in the ground and did not germinate; what came up showed a very uneven stand, and much replanting was necessary in all portions of the State. Cutworms were active in portions where the corn was up, and much that had not germinated was being attacked by wireworms, seed corn maggots and billbugs, and in the wetter portions of the State was rotting. A small per cent of the crop had been cultivated once, but there was still much replanting necessary at the end of the month. Other crops also were adversely affected. The hay crop, other than alfalfa, will be almost a total failure in much of the western and southern

portions; oats, wheat and barley will be short, and most truck crops had made very little progress. Fruit prospects were generally good, except apples in small areas in the northern division. Strawberries were injured somewhat by frost, but there were sufficient blooms uninjured to insure a good crop with favorable future weather conditions. Bees were able to work only part of the time and probably more honey was consumed than produced.

F. L. D.

TEMPERATURE.

The mean temperature for the State, as shown by the records of 105 stations, was 54.1°, or 6.4° lower than the normal. By divisions, three tiers of counties to the division, the means were as follows: Northern, 51.9°, or 7.1° lower than the normal; Central, 54.5°, or 6.2° lower than the normal; Southern, 56.0°, or 5.7° lower than the normal. The highest monthly mean was 57.6°, at Burlington and Clarinda, and the lowest was 48.8°, at Decorah. The highest temperature recorded was 94°, at Cedar Rapids, Humboldt and Spencer, on the 5th, and the lowest was 26°, at Inwood, on the 24th. The temperature range for the State was 68°.

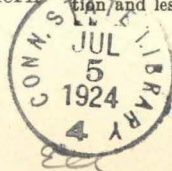
SNOWFALL.

Snow occurred over the northern and western portions of the State and practically all measurable snowfall occurred in the extreme northwest corner. Only one station in the southern division reported more than a trace and none in the central division. Three stations reported two inches or more, but it melted soon after falling.

COMPARATIVE DATA FOR THE STATE—MAY.

YEAR	Temperature				Precipitation				Number of Days				
	Mean	Departure	Highest	Lowest	Total	Departure	Greatest	Least	Snowfall	With pre-.01 in. or more	Clear	Partly cloudy	Cloudy
1890	57.7	-2.8	90	26	3.56	-1.01	6.44	1.61	0	9	10	13	8
1891	58.3	-2.2	94	21	3.18	-1.39	7.10	1.46	0	8	14	9	8
1892	54.0	-6.5	88	29	8.77	+4.20	12.64	4.87	T.	16	5	9	17
1893	56.6	-3.9	96	26	3.45	-1.12	5.82	1.65	0	9	13	9	9
1894	61.1	+0.6	96	22	1.87	-2.70	4.77	0.33	0	6	17	10	4
1895	61.7	+1.2	104	24	3.19	-1.38	5.79	0.84	0	9	11	12	8
1896	65.5	+5.0	100	34	6.69	+2.12	11.79	3.40	0	12	11	12	8
1897	58.5	-2.0	96	20	1.92	-2.65	3.59	0.21	0	5	16	10	5
1898	59.6	-0.9	92	26	4.67	+0.10	7.82	2.22	0	12	9	10	12
1899	60.2	-0.3	90	27	6.23	+1.66	11.47	3.09	0	13	9	12	10
1900	63.2	+2.7	98	22	3.31	-1.26	6.98	0.96	0	8	14	10	7
1901	60.7	+0.2	95	23	2.35	-2.22	4.57	0.72	0	7	16	9	6
1902	63.8	+3.3	97	25	5.39	+0.82	18.04	0.87	0	13	10	12	9
1903	61.6	+1.1	91	24	8.55	+3.98	15.45	2.88	0	16	9	12	10
1904	59.6	-0.9	93	27	3.78	-0.79	8.15	1.50	0	8	13	10	8
1905	58.3	-2.2	88	23	5.95	+1.38	10.83	2.57	0	14	12	11	8
1906	60.8	+0.3	95	24	3.54	-1.03	10.72	0.89	0	11	13	10	8
1907	53.5	-7.0	96	14	3.48	-1.09	7.68	0.71	1.0	10	11	10	10
1908	59.4	-1.1	93	13	8.34	+3.77	14.33	1.33	0	15	9	11	11
1909	57.9	-2.6	97	18	4.34	-0.23	7.85	1.86	0.1	9	12	12	7
1910	55.4	-5.1	89	18	3.41	-1.16	6.91	1.29	T.	10	15	7	9
1911	64.9	+4.4	98	23	3.76	-0.81	8.73	0.42	0.7	9	16	9	6
1912	62.7	+2.2	97	29	3.33	-1.24	6.41	0.72	0	10	14	11	6
1913	59.4	-1.1	102	30	6.24	+1.67	10.25	3.14	0	13	11	8	12
1914	62.2	+1.7	98	25	3.31	-1.26	6.90	3.00	T.	10	14	11	6
1915	56.1	-4.4	99	25	7.34	+2.77	13.21	2.82	T.	14	9	9	13
1916	59.9	-0.6	94	27	4.93	+0.36	10.44	2.14	T.	12	13	10	8
1917	55.1	-5.4	95	18	3.87	-0.70	7.33	1.69	0.6	10	15	8	8
1918	64.9	+4.4	98	25	6.87	+2.30	11.93	2.72	T.	13	13	11	7
1919	58.2	-2.3	93	30	3.11	-1.46	7.14	0.73	0	9	13	11	7
1920	59.4	-1.1	89	29	3.26	-1.31	5.73	0.62	0	8	14	9	8
1921	63.3	+2.8	99	25	4.23	-0.34	9.41	1.32	0	10	14	10	7
1922	63.4	+2.9	91	34	3.53	-1.04	8.36	0.47	0	12	13	10	8
1923	59.6	-0.9	90	20	2.84	-1.73	6.55	1.07	T.	10	14	10	7
1924	54.1	-6.4	94	26	1.71	-2.86	3.28	0.78	0.1	9	13	9	9

T. Indicates an amount too small to measure, or less than .005 inch precipitation and less than .05 inch snowfall.



Climatological Data for May, 1924.

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precipitation, in Inches				Number of Days			Prevailing direction of wind	Observers		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear			Partly cloudy	Cloudy
Northern Division																				
Algona	Kossuth	1,213	51	52.9	-6.4	91	5	31	24	36	1.80	-2.33	0.70	0	6	18	4	9	nw.	W. E. Laird.
Allison	Butler	1,044	12	52.1 ^a		91 ^a	5	33 ^a	11 ⁺	42 ^a	2.84	0.78	0	13				8	nw.	J. A. Bell.
Alta	Buena Vista	1,513	33	52.0	-7.0	92	5	30	24	39	2.06	-2.96	0.87	T.	9	6	17	8	nw.	D. E. Hadden.
Alton	Sioux	1,305	19	52.3	-7.2	93	5	29	24	41	0.78	0.28	T.	7	6	16	9	nw.	W. S. Slagle.	
Belmond	Wright	1,205	14	52.9		92	5	31	24	47	2.19		0.62	T.	12	5	18	8	n.	Geo. P. Hardwick.
Britt	Hancock	1,236	37																	L. M. Goodman.
Charles City	Floyd	1,015	33	51.2	-8.3	90	5	33	11	39	2.21	-2.73	0.85	0	15	8	9	14	nw.	U. S. Weather Bureau
Cherokee	Cherokee	1,196	2	51.8		91	5	30	22	41	1.88		0.73	T.	7	7	18	6	n.	J. E. Wirth.
Decorah	Winneshiek	875	31	48.8	-11.2	78	5	28	4 ⁺	42	2.79	-1.82	0.82	0	15	14	7	10	nw.	M. D. Whitney.
Estherville	Emmet	1,298	29	50.0	-7.6	90	5	30	9 ⁺	50	1.74	-3.33	0.45	0	14	12	10	9	nw.	A. O. Peterson.
Fayette	Fayette	1,008	34	51.2	-6.8	87	5	30	20	42	2.37	-2.69	0.75	T.	14	17	6	8	nw.	R. Z. Latimer.
Forest City	Winnebago	1,226	30	51.8	-6.7	91	5	30	24	40	2.85	-1.64	0.72	0	12	8	10	13	nw.	Dr. M. B. Neill.
Hampton	Franklin	1,145		52.4	-7.6	88	5	33	20 ⁺	37	2.16	-2.74	0.57	0	12	19	0	12	nw.	L. H. Davis.
Humboldt	Humboldt	1,095	36	53.4	-6.0	94	5	32	24	39	2.08	-2.32	0.78	T.	7	9	12	10	n.	H. O. Smitkey.
Inwood	Lyon	1,474	20	51.6	-7.5	93	5	26	24	38	1.13	-2.77	0.26	2.8	11	16	5	10	nw.	F. B. Hanson.
Le Mars	Plymouth	1,224	28	53.0	-6.9	92	5	31	22 ⁺	48	1.41	-3.09	0.50	T.	9	16	8	7	sw.	Mrs. M. C. Woolley.
Mason City	Cerro Gordo	1,148	27	52.2	-6.6	91	5	31	2	41	2.37	-2.29	0.61	T.	9	5	16	10	nw.	Northern Sugar Corp.
Milford (near)	Dickinson	1,430	4	50.6		90	5	31	24	36	1.42		0.29	T.	11	4	19	8	nw.	Dr. F. J. Smith.
New Hampton	Chickasaw	1,169	27	51.8	-6.7	90	5	32	24	43	2.54	-2.13	0.70	0	11	13	6	12	nw.	A. F. Kemman.
Nora Springs	Floyd	1,064	12	52.8		90	5	35	1 ⁺	38	3.28		0.80	T.	14	14	10	7	nw.	Arthur Betts.
Northwood	Worth	1,222	28	49.2 ^a	-9.2	85 ^a	5	30 ^a	4 ⁺	48 ^b	1.95	-3.14	0.50	2.0	10	10	8	13	nw.	Chas. Dwelle.
Oelwein	Fayette	1,036	1	52.4		88	5	31	20	47	1.07		0.30	0	7	16	7	8	sw.	John T. Ridler.
Pocahontas	Pocahontas	1,248	20	52.0	-7.3	93	5	31	24 ⁺	42	1.93	-2.36	0.70	T.	6	17	5	9	nw.	F. E. Hronek.
Postville	Clayton	1,180	25	50.9	-7.8	85	5	33	1 ⁺	41	2.95	-1.07	0.92	0	10	11	11	9	nw.	F. L. Williams.
Rock Rapids	Lyon	1,358	25	52.0	-6.5	92	5	28	24	40	1.61	-1.83	0.46	1.0	11	16	10	5	nw.	J. K. Medberry.
Sanborn	O'Brien	1,553	10	52.1		92	5	27	24	42	1.19		0.23	2.0	8	14	9	8	nw.	J. W. Dow.
Mason Center	Sioux	1,426	25	51.4	-7.4	90	5	28	24	39	1.32	-3.17	0.34	T.	9	16	7	8	nw.	J. de Ruyter.
Spencer	Clay	1,319	10	52.0		94	5	29	24	43	1.46	-2.60	0.52	0.4	9	10	12	9	nw.	E. W. Little.
Storm Lake	Buena Vista	1,440	35	53.0	-6.3	89	5	32	9 ⁺	37	1.83	-2.21	0.81	T.	7	18	5	8	n.	Geo. H. Fracker.
Washta	Cherokee	1,157	26	53.0	-6.0	93	5	28	1	44	2.03	-3.12	0.75	T.	10	18	5	8	n.	H. L. Felter.
Waverly	Bremer	926	28	52.6	-7.3	90	5	32	11 ⁺	39	2.56	-1.96	0.74	0	14	16	7	7	nw.	D. H. Murphy.
West Bend	Palo Alto	1,197	31	52.6	-6.6	93	5	28	24	41	1.69	-2.31	0.64	0	11	14	10	7	nw.	Jos. Dorweiler.
Means and extremes				51.9	-7.1	94	5	26	24	50	1.98	-2.50	0.92	0.3	10	12	10	9	nw.	
Central Division																				
Ames	Story	926	47	55.1	-6.1	90	5	34	24	42	1.72	-3.05	0.55	0	11	14	9	8	w.	Iowa State College.
Audubon	Audubon	1,297	29	53.0	-7.2	90	5	30	24	41	0.97	-3.44	0.35	0	6	9	16	6	nw.	Geo. Kibby.
Baxter	Jasper	998	24	54.9	-5.7	87	5	32	24	40	1.16	-4.14	0.41	0	9	12	13	6	nw.	Henry Geise.
Belle Plaine	Benton	866	34	55.1	-5.3	90	5	32	11	40	1.41	-3.22	0.41	0	11	16	6	9	nw.	O. C. Burrows.
Boone	Boone	1,134	19	54.0	-5.7	91	5	29	11	47	1.53	-3.59	0.42	0	9				nw.	C. F. Henning.
Carroll	Carroll	1,265	34	54.1	-5.1	91	5	31	24	41	2.24	-2.43	0.56	0	10	17	5	9	nw.	Mrs. Jos. J. Wolfe.
Cedar Rapids	Linn	737	42	55.2	-6.1	94	5	29	20	47	1.26	-3.23	0.32	0	11	10	9	12	nw.	J. T. Wurster.
Clinton	Clinton	595	51	55.8	-5.7	86	5	36	1 ⁺	43	1.74	-2.88	0.37	0	10	17	9	5	sw.	Dr. A. P. Bryant.
Davenport	Scott	58	53	55.9	-5.4	86	5	39	20	38	0.93	-3.26	0.23	0	13	10	7	14	nw.	U. S. Weather Bureau.
Davenport (No. 2)	Scott	69		56.4		89	5	35	10	42	1.25		0.27	0	15				nw.	Rex Shriver.
Denison	Crawford	1,171	30	54.6	-5.3	90	5	31	24	43	1.81	-2.39	0.73	0	9	16	6	9	nw.	V. L. Byers.
Des Moines	Polk	861	46	55.7	-5.6	88	5	36	24	35	1.26	-3.30	0.35	0	11	11	6	14	nw.	U. S. Weather Bureau.
Dubuque	Dubuque	608	51	53.8	-6.5	88	5	33	20	42	2.16	-2.16	0.80	0	11	6	9	16	nw.	U. S. Weather Bureau.
Fairport	Muscatine	547	3	56.6		85	5	37	10	36	1.13		0.25	0	11	15	5	11	nw.	Bureau of Fisheries.
Fort Dodge	Webster	1,111	24	52.6	-7.1	92	5	31	24	37	1.70	-3.63	0.45	0	11	17	2	12	nw.	Samuel Sampson.
Grinnell	Poweshiek	1,021	30	55.7	-5.7	88	5	33	24	36	1.46	-3.19	0.32	0	12	13	11	7	nw.	Paul P. Meyers.
Grundy Center	Grundy	976	33	54.6	-5.9	89	5	32	20	33	2.65	-2.26	1.10	0	11	12	12	7	nw.	M. G. Heiberger.
Guthrie Center	Guthrie	1,077	29	54.8	-6.6	89	5	32 ^a	24	40 ^a	0.93	-3.80	0.40	0	5	14	8	9	nw.	E. L. Nesselroad.
Harlan	Shelby	1,192	25	54.0	-6.2	91	5	32	12	44	1.74	-4.14	0.41	0	7	10	2	10	n.	W. K. Colburn.
Independence	Buchanan	921	60	54.0	-5.6	88	5	30	21	39	2.81	-1.43	1.11	0	13	17	0	14	nw.	Dr. Geo. Boody.
Iowa City	Johnson	732	64	54.8	-6.1	87	5	33	20	38	1.69	-2.76	0.93	0	10	11	9	11	nw.	Prof. J. F. Relly.
Iowa Falls	Hardin	1,107	31	52.6	-5.9	88	5	33	20 ⁺	35	1.67	-2.03	0.61	0	12	14	6	11	nw.	J. B. Parmelee.
Jefferson	Greene	1,052	25	53.6	-7.4	89	5	33	11 ⁺	41	1.74		0.61	0	7	9	12	10	nw.	W. I. Lyon.
Little Sioux	Harrison	1,040	19	54.4 ^a	-7.6	93 ^a	5	29 ^a	24	44 ^a	1.84		1.01	T.	7				nw.	S. B. Terry.
Logan	Harrison	1,035	57																	Mary Jean Stern.
Marshalltown	Marshall	947	32	55.4	-5.1	89	5	34	24	35	1.21	-3.30	0.30	0	10	19	4	8	nw.	C. C. Pigman.
Monroe	Jasper	922	12	77.5		91	5	33	24	42	1.84	-2.88	0.43	0	11	17	3	11	nw.	J. A. Dibel.
Olin	Jones	760	25	54.2	-6.3	88	5	30	20	43	0.93	-3.77	0.50	0	4				nw.	Mrs. L. Stingley.
Onawa	Monona	1,051	23	53.8		90	5	32	9 ⁺	39	1.93	-2.08	0.98	0	5	18	1	12	n.	Mrs. H. E. Colby.
Perry	Dallas	975	23	55.7	-5.7	90	5	32	11	40	1.11	-3.94	0.32	0	10	19	3	9	nw.	F. N. Bartlett.
Rockwell City	Calhoun	1,134	28	52.4	-8.0	91	5	32	24	37	2.16	-3.01	0.63	0	7	10	10	11	nw.	A. W. McIsaac.
Sac City	Sac	1,278	48	53.5	-6.5	92 ^a	5	32	24	35 ^a	1.98	-2.30	0.61	0	7				n.	F. P. Kessler.
Sioux City	Woodbury	1,135	35																	

Climatological Data for May, 1924—Continued.

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precipitation, in Inches			Number of Days				Observers			
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear		Partly cloudy	Cloudy	Prevailing direction of wind
<i>Southern Division</i>																				
Afton	Union	1,212	30	56.4	-5.4	88	5	33	24	40	2.16	-2.58	0.88	0	8	15	10	6	nw.	S. R. Brown.
Albia	Monroe	959	26	56.8	-4.4	89	5	34	23	41	1.32	-3.65	0.37	0	10	16	1	14	nw.	O. E. McBride.
Atlantic	Cass	1,164	33	55.3	-5.8	91	5	30	11	45	1.35	-3.08	0.63	T.	9	12	10	9	nw.	Miss Oza Cunningham.
Bonaparte	Van Buren	563	33	56.2	-5.8	86	5	35	1	36	1.78	-2.65	0.45	0	8	17	7	7	w.	B. R. Vale.
Burlington	Des Moines	544	28	57.6	-5.2	87	5	39	8†	35	1.74	-3.36	0.33	0	11	16	8	7	nw.	John W. Donnelly.
Centerville	Appanoose	1,013	19	56.2	---	86	5	32	1	38	1.32	-3.74	0.44	0	13	9	13	9	nw.	Thomas Wood.
Chariton	Lucas	1,042	29	56.0	-4.6	87	5	34	24	37	1.54	-3.17	0.55	0	4	12	11	8	nw.	O. C. Burr.
Clarinda	Page	1,006	34	57.6	-3.2	89	5	31	11	42	1.36	-3.77	0.60	0	8	14	10	7	nw.	Dr. H. C. Hawley.
Columbus Jet.	Louisa	595	23	55.4	-7.0	87	5	35	10	42	1.30	-2.80	0.40	0	5	21	5	5	w.	H. L. Lewis.
Corning	Adams	1,111	32	55.2 ^a	---	88 ^a	5	27 ^a	11	46 ^a	1.57	-3.65	0.69	0	5	---	---	---	nw.	Jerome Smith.
Corydon	Wayne	1,101	31	56.6	-5.3	86	5	34	24	38	1.39	-3.12	0.48	0	13	9	10	12	nw.	May C. Miller.
Creston	Union	1,312	19	55.3	-4.2	86	5	34	24	39	1.97	-2.83	0.76	0	9	12	13	6	n.	Mrs. S. O. Stanley.
Cumberland (near)	Cass	1,225	25	---	---	---	---	---	---	---	1.39	---	0.65	0	9	10	11	10	nw.	Carl E. Pollock.
Earlham	Madison	1,126	22	54.4	-5.5	88	5	29	11	47	1.17	-3.51	0.48	0	8	17	4	10	nw.	Geo. Phillips.
Fairfield	Jefferson	780	40	55.1	-6.6	88	5	35	24	35	2.11	-3.16	0.68	0	14	13	5	13	nw.	Prof. R. M. McKenzie.
Glenwood	Mills	1,100	26	56.2	---	90	5	33	24	41	1.42	---	0.61	0	8	9	16	6	nw.	Dr. Geo. Mogridge.
Greenfield	Adair	1,368	32	53.8	-7.5	81	5	29	11†	39	1.34	-3.56	0.80	0	10	8	18	5	nw.	P. C. Cornell.
Indianola	Warren	972	33	56.0	-5.6	88	5	34	24	39	1.26	-3.23	0.32	0	8	10	11	10	n.	Seth F. Shenton.
Keokuk	Lee	614	53	57.4	-6.4	86	5	41	24	32	2.39	-1.86	0.87	0	11	10	7	14	w.	U. S. Weather Bureau.
Keosauqua	Van Buren	644	32	56.0	-6.2	87	5	34	23	42	2.11	-3.16	0.65	0	8	8	11	12	ne.	J. H. Landes.
Knoxville	Marion	920	29	56.3	-6.4	88	5	35	24	43	1.38	-2.74	0.38	0	7	9	17	5	nw.	W. J. Casey.
Lacona	Warren	---	25	---	---	---	---	---	---	---	1.72	-3.45	0.44	0	11	7	19	5	---	J. B. Alter.
Lamoni	Decatur	1,123	17	56.6	-5.4	87	5	33	1†	39	1.64	-3.18	0.53	0	13	18	2	11	nw.	Roy L. Roberts.
Lenox	Taylor	1,250	29	55.8	-5.5	89	5	31	11	41	1.45	-3.41	0.58	0.1	7	14	9	8	nw.	J. L. Hurley.
Mt. Ayr	Ringgold	1,245	31	55.4	-6.8	85	5	32	24	39	1.57	-4.13	0.53	T.	8	11	7	13	nw.	Alex Maxwell.
Mt. Pleasant	Henry	729	43	57.0	-5.6	88	5	37	1	35	1.93	-2.54	0.55	0	11	5	13	13	nw.	J. H. Jericho.
Oakland	Pottawattamie	1,105	5	56.6	---	91	5	29	11	47	1.51	---	0.85	0	5	12	7	12	n.	M. E. Gray.
Oskaloosa	Mahaska	835	43	55.9	-5.7	88	5	34	24	35	1.31	-2.51	0.34	0	9	11	10	10	nw.	Roy R. Robinson.
Ottumwa	Wapello	649	29	57.4	---	87	5	38	1†	40	1.34	-3.30	0.41	0	12	19	3	9	nw.	O. L. Mikes.
Pella	Marion	877	31	54.8	-7.4	88	5	34	2	40	1.38	-3.40	0.33	0	10	17	0	14	nw.	J. H. Ver Steeg.
Sigourney	Keokuk	790	28	54.6	-7.6	86	5	34	24	39	1.22	-3.06	0.36	0	9	16	5	10	nw.	W. E. Utterback.
Stockport	Van Buren	745	22	55.2	-6.6	86	5	36	4†	40	1.09	-2.81	0.55	0	10	14	7	10	nw.	O. L. Beswick.
Thurman	Fremont	975	27	57.4	-5.3	92	5	30	11	44	1.54	-3.37	0.46	T.	7	6	18	7	nw.	O. R. Paul.
Tingley	Ringgold	1,275	---	55.2	---	87	5	33	24	39	1.56	---	0.62	0	9	16	8	7	nw.	James A. Verploegh.
Washington	Washington	769	42	56.0	-5.7	89	5	35	10	39	1.45	-2.58	0.42	0	10	11	10	10	nw.	Wm. A. Cook.
Wescott (near)	Lee	---	2	57.4	---	80	28	38	11†	30	2.09	---	0.53	0	9	9	14	8	sw.	Geo. H. Smith.
Winterset	Madison	1,129	33	56.4	-5.9	89	5	33	24	41	1.20	-3.44	0.48	0	8	16	9	6	nw.	H. S. Ely.
Omaha, Nebr.	---	1,103	53	55.7	-6.7	91	5	34	9	33	2.01	-2.49	0.63	T.	14	9	8	14	nw.	U. S. Weather Bureau.
Means and extremes	---	---	---	56.0	-5.7	92	5	27 ^a	11	47	1.58	-3.06	0.88	T.	9	13	9	9	nw.	---
State means and extremes	---	---	---	54.1	-6.4	94	5	26	24	50	1.71	-2.86	1.11	0.1	9	13	9	9	nw.	---

The departures from normal temperature and precipitation are computed only for such stations as have ten or more years of record, but all complete records are used in determining means. Reference letters a, b, c, etc., appearing in the table indicate the number of days missing; for example b represents two days, etc. †Also other dates. T. Precipitation is less than 0.01 inch rain or melted snow.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea level)				Relative Humidity (%)				Wind				Sunshine					
	Mean	Highest	Date	Lowest	Date	Mean			Total movement	Average hourly velocity	Maximum		Per cent of possible	Departure from normal				
						7 a. m.	12 Noon	7 p. m.			Miles	From			Date			
Charles City	29.87	30.26	30	29.40	23	74	48	53	18	4	4,619	6.2	27	sw.	5	51	-11	
Davenport	29.85	30.20	30	29.40	23	74	50	52	24	21	5,198	7.0	23	nw.	5	42	-22	
Des Moines	29.87	30.25	30	29.35	23	71	48	48	21	21	5,412	7.3	42	sw.	5	59	-2	
Dubuque	29.83	30.19	30	29.34	23	74	46	54	15	4	4,650	6.8	26	n.	5	49	-3	
Keokuk	29.88	30.23	30	29.45	23	71	47	51	22	22	5,734	7.7	36	sw.	5	63	-3	
Sioux City	29.92	30.32	30	29.37	5	72	47	45	23	4	9,011	12.1	51	nw.	17	57	-3	
Omaha, Neb.	29.91	30.26	30	29.35	23	73	56	55	20	3	6,801	9.1	37	nw.	23	68	+7	
Means and extremes	29.85	30.32	30	29.34	23	73	49	51	18	4	---	7.9	---	---	---	56	-5	
Normals and records	29.95	---	4th	---	7th	77	---	59	---	3d	---	87	---	---	---	21st	61	---
		*30.58	1910	§29.02	1875	---	---	---	---	---	---	---	---	---	---	---	---	---
						---	---	---	---	---	---	---	---	---	---	---	---	---

* Dubuque. § Omaha. ¶ Sioux City. † Local mean time.

Daily Precipitation for May, 1924—Continued.

Stations	Drainage Basin	Day of Month																															Totals
		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	
<i>Southern Division</i>																																	
Afton	Grand					.17		.10	.10			.10			.03		.10							.68						.88			2.16
Albia	Des Moines			.04			.06	T.	.02						.13			.15		T.	T.			.37	.37	.03			.15	T.		1.32	
Atlantic	Nishnabotna					.10		.04	.22					.02				.15	T.	T.			.02	.63			T.	.02	.15		1.35		
Bonaparte	Des Moines		T.			.10		T.	T.	.15					T.			.27	.29	T.	T.			.40		.03	T.	.09	.45		1.78		
Burlington	Mississippi			.16						.18	.05			T.			T.						.03	.26	.12	.08	T.	.02	.18	.33	1.74		
Centerville	Chariton			T.		.03		T.	.05	.15				.02		.10		.01	.06	T.	.02		.02	.44		.03		.02	.37		1.32		
Chariton	Chariton					.22	T.	T.	.55	T.										T.	T.			.55				.22	.22		1.54		
Clarinda	Nodaway			T.		.03			.10	.02	T.			.02					.09					.60				.05	.45		1.36		
Columbus Jet	Iowa			.15					T.	.40	T.			T.		T.								.40				.15	.20		1.30		
Corning	Nodaway							T.		.16			.07					.14				T.	T.		.69			T.	.51		1.57		
Corydon	Chariton		T.					.04	.07	.18	.01	T.	T.	T.	.12		.09	.02		.03			.01	.48	.01			.01	.32	T.	1.39		
Creston	Missouri		.10				.08	.02	.20				.05			.03								.76			.03	.70		1.97			
Cumberland (near)	Nodaway			T.		.05		.14	.12			.08	T.				.16			.05				.65			.04	T.	.10		1.39		
Earlham	Des Moines					.23		.05	.05	.02						.05	.16							.48			T.	.13		1.17			
Fairfield	Skunk			.28				.03	.33	.02				T.	.12	.07		.15	.01					.68		.05		.02	.02	.32		2.11	
Glenwood	Missouri				T.	.10			.16			.08												.61			.20	T.	.20	.03	1.42		
Greenfield	Nodaway					.03		.14	.10			.03					.14			.03				.80			.01		.01	.10		1.34	
Indianola	Des Moines			T.		.12		.10	.07	T.					T.	.25		.09					.05	.32		.01	T.		.30		1.26		
Keokuk	Mississippi		.27	T.		T.	T.		.01	.01	.03			T.	T.	.63		.01	T.				T.	.52		.02	T.	.02	.82		2.39		
Keosauqua	Des Moines					T.	T.	T.	.20	.20				T.	.15	.23	.16							.41			T.	.11	.65		2.11		
Knoxville	Des Moines		.16			.10		T.	.18	T.						.25	T.							.38		.05	T.		.26		1.38		
Lacona	Des Moines					.20		.12	.13	.15				.10	.20	.10							.06	.44		.12		.10		1.72			
Lamoni	Grand		.15		.11	.04	.10		.07	.07	.04		.01		T.			.12			.02	.02		.53				.36		1.64			
Lenox	Missouri			T.		.10		T.	.10			.05				.10								.58			T.	T.	.50	T.	1.45		
Mt. Ayr	Grand			T.		.08			.09	T.					.36	.11					.01			.53				T.	.34	T.	1.57		
Mt. Pleasant	Skunk			.26		.07				T.	.08					.02		.20		T.	T.		.05	.49		.07	T.	.10	.04	.55		1.93	
Oakland	Nishnabotna					T.	T.		.20			.06					T.						.85			.20		.20		1.51			
Oskaloosa	Des Moines		.18			.04		T.	T.	T.			T.	.24	.04		.11							.11	.34		.09	T.	.16		1.31		
Ottumwa	Des Moines			T.	.04			T.	.06	.11				T.	.15	.29	.03	.12			.01			.41		.06	.01	T.	.18		1.34		
Pella	Skunk			T.		.16		.12	.08	.08				T.	.15	.13								.02	.33	.10	T.		.21		1.38		
Sigourney	Skunk			.05			T.		.05	.13	.06			T.	.22	.14		.09					T.	.34		.14	T.		T.		1.22		
Stockport	Skunk			.02	.02			T.	.07	.07				T.		.08		.20	.08			T.		.42		T.		.18		.55		1.69	
Thurman	Missouri			T.		.42		T.	.16				.14				.02	.29						.46		T.	.16		.18		1.54		
Tingley	Platte					.19		.08	.07	.02					.10		.08					.02		.62					.38		T.	1.56	
Washington	Skunk			.13				.42	.02	.02				.04			.20							.25	.18	.10			.09		1.45		
Wescott (near)	Mississippi					.37	T.	T.		.10					.05	.25				T.	.02			.53		.04		.03	.70		2.09		
Winterset	Des Moines					.12		.11	.08	.08					.10		.10							.48					.13		1.20		
Omaha, Nebr.	Missouri			T.		.43	.01	.03	.03	T.			.03		T.		.08			.01				.62			.41	T.	.06	.19	.09	2.01	

Except as otherwise indicated, observations are generally made late in the afternoon, near sunset, and precipitation recorded is for 24 hours ending at the time of observation.

|||Precipitation measured in the morning; amount then recorded is for the preceding 24 hours.

***Regular Weather Bureau Station; precipitation is for 24-hour period, midnight to midnight.

**Incomplete.

*Precipitation included in the next following measurement.

PRECIPITATION.

The average precipitation for the State, as shown by the records of 107 stations, was 1.71 inches, or 2.86 inches less than the normal. By divisions, the averages were as follows: Northern, 1.98 inches, or 2.50 inches less than the normal; Central, 1.57 inches, or 3.02 inches less than the normal; Southern, 1.58 inches, or 3.06 inches less than the normal. The greatest amount, 3.28 inches, occurred at Nora Springs, and the least, 0.78 inch, occurred at Alton. The greatest amount in 24 consecutive hours, 1.11 inches, occurred at Independence on the 23d.

MISCELLANEOUS PHENOMENA.

- Fog: 8th, 11th.
- Frost: 1st, 2d, 4th, 8th, 10th, 11th, 12th, 20th, 21st, 22d, 24th, 25th, 28th, 29th, 30th.
- Hail: 10th, 12th, 13th, 14th, 15th, 17th, 20th, 22d.
- Halos (lunar and solar): 6th, 27th, 28th, 29th, 30th, 31st.
- Haze: 16th, 17th, 18th, 30th, 31st.
- Sleet: 13th, 14th, 19th, 20th, 25th.
- Thunderstorms: 2d, 3d, 5th, 6th, 12th, 13th, 14th, 15th, 17th, 18th, 22d, 23d, 26th.

RIVERS.

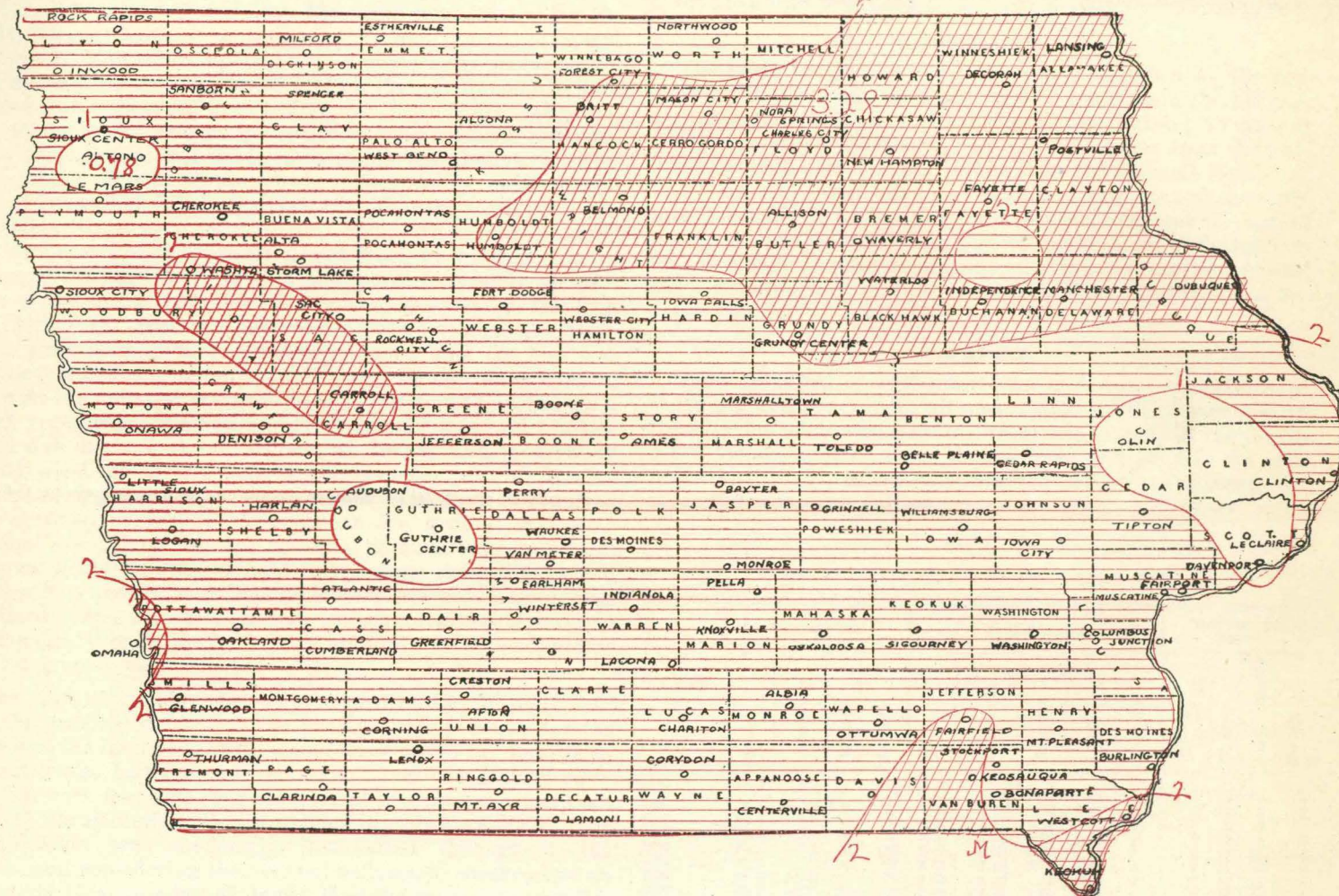
Moderate stages prevailed on both the Mississippi and Missouri rivers. On the Mississippi there was a moderate rise during the second week with a falling tendency till the end of the month, when the lowest stages occurred. On the Missouri the daily changes were slight with a gradual falling tendency till the middle of the month, when the lowest stages occurred, after which there was a gradual rise with the highest stages occurring during the last three days. Unusually low stages prevailed on all interior rivers, with very little fluctuation, but with a gradual falling tendency. The daily changes exceeded 0.1 foot on very few days.

CLIMATOLOGICAL DATA: IOWA SECTION

Daily Maximum and Minimum Temperature for the Month of May, 1924.

Stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean	
<i>Northern Division</i>																																	
Algona.....	66	67	69	67	91	80	57	49	45	51	67	70	53	61	71	77	73	82	52	65	62	68	59	56	62	54	66	70	68	70	69	64.4	
Alta.....	68	74	76	77	92	73	53	40	38	47	66	70	47	59	59	77	64	66	54	63	65	73	60	56	63	54	65	68	67	69	63	63.4	
Alton.....	59	74	77	75	93	82	56	42	38	48	68	71	54	58	69	79	69	68	53	64	66	73	66	57	63	60	67	69	69	66	65.2		
Belmond.....	40	42	42	38	59	48	38	36	32	36	31	42	35	34	43	38	45	38	37	38	36	32	40	29	36	48	43	34	49	35	48	39.4	
Charles City.....	65	67	71	68	92	78	56	51	43	52	67	70	50	64	71	77	71	67	57	65	64	68	61	57	65	56	71	72	70	73	70	65.5	
Decorah.....	64	59	57	66	78	77	50	47	45	56	69	70	53	64	67	73	70	64	52	60	57	66	56	51	59	58	66	69	63	71	70	62.2	
Forest City.....	65	67	66	66	91	82	53	50	43	50	66	67	57	63	68	76	72	66	56	63	66	65	64	53	61	60	66	71	67	69	67	64.2	
Inwood.....	71	74	76	73	93	69	48	41	37	50	69	73	50	57	74	80	65	63	57	62	67	62	63	59	62	62	72	71	73	71	69	64.9	
Mason City.....	64	60	64	65	91	80	59	54	45	50	66	70	62	66	67	76	70	60	55	63	59	70	70	56	60	59	67	72	75	72	68	65.0	
Milford (near).....	63	67	68	67	90	68	49	40	39	48	66	70	56	53	63	74	70	62	52	60	61	67	57	54	59	55	64	67	64	69	68	61.7	
New Hampton.....	65	59	64	67	90	81	55	48	44	54	67	69	53	66	67	75	67	60	54	62	57	65	62	53	59	59	66	70	65	69	70	63.3	
Northwood.....	61	61	61	64	85	74	55	49	40	52	66	61	48	63	61	75	65	60	51	63	69	63	56	53	59	52	66	69	65	70	68	61.5 ^a	
Pocahontas.....	67	74	74	71	93	81	55	43	41	49	68	72	52	63	70	79	67	66	56	66	63	72	67	55	64	57	67	70	72	67	65.5		
Postville.....	65	59	62	64	85	77	51	47	45	54	67	68	51	63	67	73	66	60	51	62	57	64	56	53	60	58	67	69	60	68	69	61.8	
<i>Central Division</i>																																	
Belle Plaine.....	69	74	71	71	90	77	64	59	50	61	69	74	57	65	71	78	73	65	57	62	63	69	66	58	63	68	72	72	65	72	73	67.7	
Boone.....	32	31	42	38	57	56	38	40	37	41	29	32	42	37	43	38	52	46	41	36	43	39	45	33	37	46	47	36	47	33	45	40.5	
Carroll.....	69	80	77	77	91	85	67	41	40	52	63	65	61	61	70	77	69	68	62	66	64	73	63	58	64	61	67	71	70	68	66.8		
Davenport.....	40	44	50	48	48	57	48	42	44	40	42	48	43	40	45	50	53	49	40	39	46	45	46	39	40	47	56	52	49	46	56	46.2	
Des Moines.....	70	76	74	71	88	71	53	46	45	57	64	73	50	61	68	76	72	70	52	61	63	70	64	57	64	71	69	72	70	72	71	65.8	
Dubuque.....	65	61	63	67	88	72	52	51	53	60	66	70	54	60	68	74	69	60	53	61	56	66	60	53	59	60	67	70	61	69	74	63.3	
Fort Dodge.....	67	71	72	71	92	83	57	46	43	52	65	73	60	60	69	78	70	67	57	60	63	70	65	56	63	58	67	70	69	72	67	65.6	
Grinnell.....	67	78	76	73	85	82	67	40	36	36	38	32	40	38	35	44	41	49	41	37	38	37	34	42	31	37	45	49	37	48	35	45	39.7
Guthrie Center.....	69	78	77	77	89	83	66	47	42	53	60	74	61	60	68	76	72	67	65	64	63	72	64	55	62	62	67	71	70	72	71	67.0	
Independence.....	65	64	65	65	88	86	66	37	34	38	64	57	44	69	69	62	69	73	62	62	61	59	64	63	57	60	59	67	68	67	68	70	66.1
Iowa City.....	67	72	63	69	87	77	63	54	50	59	68	71	65	61	70	75	72	64	58	62	59	69	67	55	60	70	69	72	64	71	75	66.4	
Iowa Falls.....	66	66	68	67	88	82	60	50	45	53	65	71	59	63	68	73	71	64	60	63	60	66	59	54	60	57	65	68	65	68	68	64.3	
Little Sioux.....	31	37	38	45	64	54	38	38	33	37	34	38	34	38	35	36	42	45	38	42	43	39	36	43	29	37	48	43	40	51	35	46	40.5 ^a
Marshalltown.....	67	74	70	71	89	81	61	50	46	57	66	73	60	62	70	76	69	65	63	64	62	69	67	57	62	60	69	71	62	71	66.5		
Olia.....	68	70	68	70	88	81	64	56	54	61	70	72	64	59	73	77	70	65	59	64	61	69	64	57	62	65	70	73	67	73	67.5		
Sloux City.....	69	75	82	78	92	70	44	43	39	49	64	71	48	56	72	79	63	70	54	62	66	74	64	58	65	60	67	68	70	69	62	64.6	
<i>Southern Division</i>																																	
Albia.....	64	78	74	74	89	78	63	50	47	60	67	73	67	59	71	76	76	67	65	64	64	73	75	59	65	75	75	76	74	78	69.5		
Atlantic.....	36	38	45	45	59	57	37	38	33	39	30	32	44	37	42	40	53	43	44	43	40	40	45	33	44	49	48	43	49	37	49	42.3	
Burlington.....	68	74	68	70	87	80	70	53	53	54	68	72	62	53	68	76	80	73	67	61	62	72	69	55	63	70	74	75	68	72	66	68.2	
Columbus Jet.....	64	75	68	66	87	79	66	54	55	63	68	70	64	56	70	75	75	65	64	65	62	69	69	56	62	70	73	74	65	71	75	67.1	
Corning.....	72	80	81	79	88	75	61	49	42	53	62	78	53	57	71	77	81	76	70	71	67	76	69	58	65	74	70	76	70	74	69.3 ^a		
Corydon.....	70	79	78	78	86	76	66	48	45	55	66	74	64	55	70	75	78	70	66	63	64	76	69	57	67	72	70	74	68	73	72	68.5	
Fairfield.....	66	68	67	71	88	78	61	53	47	58	66	72	64	53	69	74	76	65	62	63	61	70	69	58	62	70	72	73	67	71	75	66.7	
Keokuk.....	66	75	71	74	86	80	65	51	49	55	66	71	62	50	69	75	81	66	70	60	63	72	73	56	64	71	69	75	63	68	74	67.4	
Lamoni.....	70	78	79	80	87	75	69	43	45	53	65	74	70	56	70	76	80	69	69	65	67	76	76	57	67	73	70	77	69	75	73	69.5	
Pella.....	69	74	73	72	88	77	61	48	45	57	62	62	59	69	74	71	67	61	64	64	72	69	58	64	70	72	74	70	69	72	72	66.8	
Sigourney.....	67	76	69	73	86	75	62	50	46	58	69	72	65	56	67	68	72	65	57	63	60	71	67	55	61	70	72	73	66	73	74	66.4	
Thurman.....	73	86	83	86	92	88	71	48	42	54	61	74	67	59	72	78	77	72	68	64	69	78	77	62	69	72	66	71	71	70	70.5		
Winterset.....	70	82	78	75	89	83	66	46	44	56	65	75	63	61	70	77	76	70	60	65	65	74	69	58	66	73	72	75	71	73	74	69.2	
Omaha, Nebr.....	73	79	84	82	91	71	47	46	40	50	55																						

TOTAL PRECIPITATION, MAY, 1924



SCALE OF SHADES—IN INCHES



CLIMATOLOGICAL DATA.

IOWA SECTION

In cooperation with
CHARLES D. REED, Meteorologist

VOL. XXXV DES MOINES, IOWA, JUNE, 1924 No. 6

GENERAL SUMMARY.

June was cool and wet with many objectionable features such as violent wind squalls, severe thunderstorms, floods and destructive hail storms. The cool weather that prevailed throughout May continued till the 11th, when a moderately warm period set in that continued till the latter part of the third week, after which another cool period set in that continued through the rest of the month, with only an occasional day with the temperature normal or slightly above. The maximum temperature was 90°, or above, over less than one-third of the State, and at most of the stations having this temperature it occurred on but a single day.

There was a decided contrast in precipitation with the preceding month, May, being the driest month of that name in the history of the State's weather, and the current month had the greatest average precipitation of any June of record for the State as a whole. The excess was general throughout the State except over a small area in the northwest, and another in the northeast portion. The least amount reported from any station was 4.00 inches which is very unusual. The average number of days with .01 inch or more of precipitation, 14, has been equaled only once in the history of the State and never exceeded in June. Measurable precipitation was recorded at some station in the State every day of the month, and thunderstorms occurred on every day of the month except the 6th, 21st, and 30th. During the first week light scattered precipitation occurred frequently over all portions of the State, and on the 8th the first general drenching rain of the season occurred. During the rest of the month damaging, locally heavy to excessive rainfall occurred frequently causing destructive floods and great property losses. Owing to the previous dry condition of the soil, the heavy rainfall that occurred during the first half of the month was mostly taken up by the soil and the damage by overflow of the smaller streams was of no great consequence, but from the 13th till the end of the month floods occurred over portions of the central and southern divisions in rapid succession. Most of the overflow followed the heavy rains of the 23d-24th over a large area in the southern and west-central, and in the south-central, southeast, east-central; and in the eastern portion of the central division following the rain of the 28th. Following the heavy rains of the 23d-24th many miles of railroad track were submerged in Carroll, Denison, Guthrie, Audubon, Shelby, Harrison, Pottawattamie, and Cass counties in the western portion of the State, and in Monroe and Wapello counties in the southern portion. All railroads in the western portion of the State were injured but the C., M. & St. P. Ry. was the greatest sufferer, having about 16 miles of roadbed washed out in a stretch of about 75 miles north of Underwood, Pottawattamie county, to a depth of two to seven feet. The C. B. & Q. Ry. was also hit rather hard in the south-central and southeast portion. For many miles stretches of track from a few hundred to several thousand feet were washed out and bridges damaged. Nearly all roads in the flooded sections were compelled to make long detours and traffic was badly demoralized. Probably the most serious flood conditions followed the rain of the 28th and the C., R. I. & P. Ry. suffered

the greatest damage, though there was great damage over a large area in the eastern portion of the State. From Grinnell to a few miles east of Marengo the C., R. I. & P. Ry had about 10 miles of track and two bridges washed out. The losses from floods to railroad property is estimated at about \$1,200,000.00. The town of Marengo experienced the worst flood of record and some buildings were submerged to a depth of 10 feet, causing an estimated damage of about \$200,000.00. Many streams in the State reported the highest water ever experienced and thousands of acres of farm lands were flooded and heavy losses from floods occurred in the vicinity of Wapello, Columbus Junction, and Burlington. The losses from floods to crops and farm property cannot be approximated but it undoubtedly totals several million dollars.

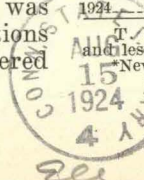
Unusually destructive winds were frequent, the storms of the 14th and 27th-28th being the most severe. On the 14th a large area west of a line running from Osceola county in the northwest to Appanoose county in the south-central were affected. In this storm countless numbers of trees were uprooted or torn to pieces, farm buildings, windmills and silos were broken down and crops badly damaged. In single counties the damage to farm property amounted to more than \$100,000.00. The wind storm that swept over the State on the 27th-28th was conceded to be the worst that ever visited the State. The entire State was affected, but a strip approximately 75 miles in width running east and west across the center of the State sustained the greatest damage. Des Moines received the worst damage from wind in its history. Falling trees paralyzed all wire systems and blocked streets, and 1,000 buildings were damaged, street car service was suspended; and

(Continued on page 43.)

COMPARATIVE DATA FOR THE STATE—JUNE.

YEAR	Temperature				Precipitation				Number of Days				
	Mean	Departure*	Highest	Lowest	Total	Departure*	Greatest	Least	Snowfall	With pre. .01 in. or more	Clear	Partly cloudy	Cloudy
1890.....	72.7	+3.4	106	44	7.76	+3.24	16.53	1.57	-----	11	12	10	8
1891.....	69.1	-0.2	99	37	5.39	+0.87	19.88	1.68	-----	11	8	10	12
1892.....	69.2	-0.1	102	42	5.19	+0.67	14.16	0.67	-----	10	12	11	7
1893.....	71.2	+1.9	100	40	3.91	-0.61	7.56	1.36	-----	8	15	11	4
1894.....	73.2	+3.9	104	34	2.67	-1.85	6.20	0.57	-----	7	16	10	4
1895.....	69.7	+0.4	102	34	4.32	-0.20	9.26	0.98	-----	10	11	11	8
1896.....	69.1	-0.2	100	40	3.11	-1.41	7.89	0.81	-----	9	12	13	5
1897.....	69.1	-0.2	103	29	3.81	-0.71	9.38	1.03	-----	10	10	12	8
1898.....	71.4	+2.1	99	42	4.72	-0.54	12.48	1.90	-----	9	13	10	7
1899.....	70.7	+1.4	100	42	5.04	+0.52	11.99	1.10	-----	10	12	13	5
1900.....	69.7	+0.4	102	38	3.98	-0.54	12.35	0.67	-----	5	17	10	3
1901.....	72.3	+3.0	106	30	3.71	-0.81	7.84	1.05	-----	9	15	11	4
1902.....	65.2	-4.1	97	32	7.16	+2.64	16.04	1.46	-----	14	8	11	11
1903.....	64.6	-4.7	96	30	2.86	-1.66	6.04	0.75	-----	10	13	10	7
1904.....	67.1	-2.2	94	35	3.45	-1.07	8.35	0.44	-----	7	13	10	7
1905.....	69.9	+0.6	100	36	5.53	+1.01	14.89	1.80	-----	10	12	11	7
1906.....	67.9	-1.4	99	37	3.92	-0.60	8.27	1.48	-----	8	15	10	5
1907.....	66.5	-2.8	98	36	5.35	+0.83	9.33	2.07	-----	11	14	9	7
1908.....	67.1	-2.2	94	35	5.66	+1.14	11.88	1.77	-----	13	12	10	8
1909.....	69.1	-0.2	96	40	6.41	+1.89	13.30	2.80	-----	13	12	10	8
1910.....	69.5	+0.2	105	33	1.99	-2.53	5.51	0.05	-----	7	18	7	5
1911.....	75.7	+6.4	108	36	1.82	-2.70	6.28	0.06	-----	5	20	8	2
1912.....	66.2	-3.1	101	34	2.74	-1.78	5.71	0.78	-----	7	15	9	6
1913.....	71.5	+2.2	102	33	3.31	-1.21	8.95	0.74	-----	7	19	8	3
1914.....	72.2	+2.9	101	40	5.57	+1.05	13.24	1.17	-----	13	12	14	4
1915.....	65.1	-4.2	91	31	4.16	-0.86	9.99	1.72	-----	11	12	12	6
1916.....	64.5	-4.8	96	38	3.71	-0.81	7.96	1.41	-----	10	13	11	6
1917.....	66.0	-3.3	100	32	6.65	+2.13	13.82	3.04	-----	12	13	10	7
1918.....	70.8	+1.5	104	38	5.29	+0.77	10.19	1.55	-----	11	16	10	4
1919.....	71.9	+2.6	98	41	6.13	+1.61	12.25	1.82	-----	13	12	12	6
1920.....	70.7	+1.4	99	40	3.56	-0.96	8.48	1.25	-----	9	16	10	4
1921.....	74.7	+5.4	100	40	3.76	-0.76	8.85	0.56	-----	9	16	10	4
1922.....	72.2	+2.9	104	38	1.82	-2.70	7.19	0.28	-----	6	19	8	3
1923.....	70.9	+1.6	100	40	4.93	+0.41	7.69	2.43	-----	12	14	10	6
1924.....	66.8	-2.5	96	35	8.10	+3.58	14.92	4.00	-----	14	11	14	5

*T indicates an amount too small to measure, or less than .005 inch rainfall and less than .05 inch snowfall.
New normals effective June 1, 1924. See page 47.



Climatological Data for June, 1924.

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precipitation, in Inches				Number of Days			Prevailing direction of wind	Observers		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear			Partly cloudy	Cloudy
Northern Division																				
Algona	Kossuth	1,213	51	66.2	-2.4	88	11	43	6	29	4.68	+0.17	1.56	0	17	20	6	4	se.	W. E. Laird.
Allison	Butler	1,044	12	65.4	-2.7	86	13	40	3	31	4.98	+0.03	0.75	0	10	5	20	5	nw.	J. A. Bell.
Alta	Buena Vista	1,513	33	65.0	-3.3	85	23	44	6	27	6.03	+0.87	1.68	0	16	4	17	5	nw.	D. E. Hadden.
Alton	Sioux	1,305	19	65.1	-3.3	88	22	41	1	34	4.03	+0.12	0.72	0	14	4	15	11	nw.	W. S. Slagle.
Belmond	Wright	1,205	14	66.0	-2.5	87	12	39	3	36	5.51	+0.75	1.30	0	19	1	24	5	se.	Geo. F. Hardwick.
Britt	Hancock	1,236	37																	L. M. Goodman.
Charles City	Floyd	1,015	33	64.8	-2.7	86	19	43	3	27	4.04	-0.64	1.04	0	15	5	17	8	se.	U. S. Weather Bureau
Cherokee	Cherokee	1,196	2	64.2	-2.7	88	23	42	1	31	5.95	+1.16	1.47	0	17	3	18	4	nw.	J. E. Wirth.
Decorah	Winneshek	875	31	63.7	-4.7	89	12	40	30	37	5.68	+1.16	1.02	0	18	3	18	4	nw.	M. D. Whitney.
Dubuque	Dubuque	698	51	66.0	-3.4	90	19	47	3	28	5.37	+1.02	1.93	0	14	3	11	16	se.	U. S. Weather Bureau.
Estherville	Emmet	1,298	29	63.0	-3.9	85	12	40	3	33	5.08	+0.74	0.95	0	14	10	18	2	s.	A. O. Peterson.
Fayette	Fayette	1,003	34	63.8 ^a	-3.5	85 ^a	19	44 ^a	2	28 ^a	4.90	+0.06	1.16	0	15				nw.	R. Z. Latimer.
Forest City	Winnebago	1,226	30	64.0	-3.8	84	12	41	6	33	5.61	+1.06	1.45	0	13	8	15	7	se.	Dr. M. B. Neil.
Hampton	Franklin	1,145	10	64.2	-3.8	84	13	40	3	30	6.52	+1.58	1.29	0	14	10	15	5	se.	L. H. Davis.
Humboldt	Humboldt	1,095	36	66.2	-3.1	87	13	43	6	32	6.99	+2.61	1.92	0	17	7	16	7	nw.	H. C. Smitkey.
Independence	Buchanan	921	60	65.0	-3.3	87	19	44	3	32	6.08	+1.46	1.50	0	15	17	6	7	se.	Dr. Geo. Boody.
Inwood	Lyon	1,474	20	64.6	-3.1	89	22	35	6	37	4.33	-0.98	0.73	0	20	16	7	7	s.	F. B. Hanson.
Le Mars	Plymouth	1,224	28	65.9	-2.7	89	22	41	3	35	5.34	+0.96	1.13	0	18	12	12	6	sw.	Mrs. M. C. Woolley.
Mason City	Cerro Gordo	1,148	27	64.0	-3.6	84	13	40	3	31	5.97	+0.83	1.84	0	12	5	18	7	se.	Northern Sugar Corp.
Milford (near)	Dickinson	1,430	4	63.7	-3.2	82	12	41	6	27	4.10	-0.77	0.81	0	17	6	17	7	nw.	Dr. F. J. Smith.
New Hampton	Chickasaw	1,169	27	64.5	-3.2	86	19	43	3	30	4.50	-0.07	0.90	0	15	9	17	4	nw.	A. F. Kemman.
Nora Springs	Floyd	1,064	12	65.9	-2.8	85	19	42	3	32	4.91	-0.18	1.30	0	15	11	15	4	s.	Arthur Betts.
Northwood	Worth	1,222	28	63.1 ^b	-3.6	85 ^b	12	40 ^c	3	33 ^c	7.39	+2.53	3.90	0	17	4	19	7	nw.	Chas. Dwelle.
Oelwein	Fayette	1,036	1	64.6	-3.6	86	19	42	30	25	5.15	-1.20	1.20	0	11	7	15	8	s.	John T. Ridler.
Pocahontas	Pocahontas	1,248	20	65.6	-2.7	85	12	41	6	33	5.78	+1.14	1.16	0	16	11	10	9	se.	F. E. Hronek.
Postville	Clayton	1,180	25	62.6	-3.1	82	19	41	3	29	5.17	+0.51	0.90	0	14	7	19	4	sw.	F. L. Williams.
Rock Rapids	Lyon	1,358	25	65.6	-2.3	88	22	39	6	34	4.81	+0.19	0.75	0	17	16	10	4	se.	J. K. Medberry.
Sanborn	O'Brien	1,553	10	66.0	-1.7	90	22	39	6	37	4.00	-0.73	0.78	0	18	4	13	13	w.	J. W. Dow.
Sioux Center	Sioux Center	1,426	25	64.6	-2.9	85	13	41	6	33	5.43	+1.37	0.95	0	15	13	14	3	s.	J. de Ruyter.
Spencer	Clay	1,319	10	65.3	-3.2	88	14	38	6	37	4.75	+0.55	0.93	0	18	2	20	8	sw.	E. W. Little.
Storm Lake	Buena Vista	1,440	35	65.7	-2.8	84	22	45	3	29	5.55	+0.55	1.10	0	14	22	6	2	s.	Geo. H. Tracker.
Washita	Cherokee	1,157	26	65.6	-2.5	87	22	40	3	35	6.17	+1.59	1.64	0	14	11	12	7	s.	H. L. Felter.
Waterloo	Blackhawk	854	41	67.0	-2.4	88	13	43	7	32	6.11	+1.98	1.40	0	12	15	10	5	se.	R. B. Slippy.
Waverly	Bremer	936	28	65.7 ^a	-2.5	88 ^a	19	43 ^a	6	30 ^a	7.18	+2.91	1.89	0	16				n.	D. H. Murphy.
West Bend	Palo Alto	1,197	31	66.0	-2.4	88	13	40	6	34	4.83	+0.54	1.43	0	17	8	17	5	nw.	Jos. Dorweller.
Means and extremes				65.0	-3.0	90	19	35	6	37	5.38	+0.77	3.90	0	15	9	15	6	se.	
Central Division																				
Ames	Story	926	47	67.6	-2.3	87	13	44	3	31	6.19	+1.82	1.56	0	11	13	15	2	s.	Iowa State College.
Audubon	Audubon	1,297	29	66.4	-1.9	88	23	42	6	32	12.59	+8.57	3.52	0	15	5	23	2	sw.	Geo. Kibby.
Baxter	Jasper	998	24	67.1	-2.5	89	13	44	3	31	9.53	+4.94	3.68	0	12	10	17	3	s.	Henry Geise.
Belle Plaine	Benton	866	34	67.7	-1.5	93	19	42	6	33	11.87	+7.52	2.90	0	16	9	18	3	se.	O. C. Burrows.
Boone	Boone	1,134	19	66.4	-2.6	88	13	40	6	36	6.36	+1.83	1.80	0	18	4	13	13	s.	C. F. Henning.
Carroll	Carroll	1,265	34	67.0	-1.4	89	14	44	6	30	9.13	+4.45	2.75	0	14	20	6	4	sw.	Mrs. Jos. J. Wolfe.
Cedar Rapids	Linn	737	42	66.8	-3.6	93	19	40	3	37	10.18	+5.83	3.79	0	15	5	12	13	se.	J. T. Wurster.
Clinton	Clinton	595	51	67.4	-3.0	92	19	46	2	33	8.75	+4.36	3.09	0	16	15	7	8	s.	Dr. A. P. Bryant.
Davenport	Scott	580	53	68.0	-2.5	92	19	48	3	27	9.01	+5.01	2.16	0	17	6	11	13	e.	U. S. Weather Bureau.
Davenport (No. 2)	Scott	690		67.6		94	18	45	3	35	9.80		1.72	0	18				sw.	Rex Shriver.
Denison	Crawford	1,171	30	66.6	-2.5	88	23	42	3	32	9.25	+5.16	2.46	0	17	13	15	2	nw.	V. L. Byers.
Des Moines	Polk	861	46	69.0	-1.6	88	13	47	6	26	9.30	+4.70	3.78	0	14	7	14	9	se.	U. S. Weather Bureau.
Fairport	Muscatine	567	3	68.4		91	19	46	3	28	10.96		2.00	0	17	14	8	8	sw.	Bureau of Fisheries.
Fort Dodge	Webster	1,114	24	65.5	-3.5	87	12	42	3	33	5.46	+1.04	1.00	0	16	20	7	3	sw.	Samuel Sampson.
Grinnell	Poweshiek	1,031	30	68.0	-1.6	91	19	45	6	29	14.17	+9.62	4.60	0	11	8	20	2	se.	Paul P. Meyers.
Grundy Center	Grundy	976	33	66.8	-2.9	86	12	43	3	31	6.79	+1.71	1.52	0	15	16	11	3	se.	M. G. Heiberger.
Guthrie Center	Guthrie	1,077	29	67.2	-1.8	85	22	42	3	34	11.01	+6.55	3.87	0	11	9	19	2	sw.	E. L. Nesselroad.
Harlan	Shelby	1,192	25	66.4	-2.7	89	23	42	6	32	11.35	+6.72	2.65	0	15	28	1	1	s.	W. K. Colburn.
Iowa City	Johnson	733	64	67.1	-2.0	91	19	42	6	33	8.71	+4.22	3.12	0	17	9	13	8	nw.	Prof. J. F. Reilly.
Iowa Falls	Hardin	1,107	31	65.0	-2.9	84	13	43	3	28	6.14	+0.68	1.30	0	15	15	10	5	se.	J. B. Parmelee.
Jefferson	Greene	1,052	25	66.2	-3.0	85	13	41	3	32	6.71	+2.51	2.11	0	14	10	13	7	sw.	W. I. Lyon.
Little Sioux	Harrison	1,040	19																sw.	S. B. Terry.
Logan	Harrison	1,035	57								10.49	+5.31	2.50	0	16	18	9	3	sw.	Mary Jean Stern.
Marshalltown	Marshall	947	32	67.6	-2.7	89	19	46	3	29	12.48	+7.91	4.90	0	17	18	5	7	se.	C. O. Pigman.
Monroe	Jasper	922	12	69.1	-0.7	90	23	46	3	36	7.52	+3.02	3.17	0	12	20	2	8	s.	J. A. Dibel.
Olin	Jones	760	25	66.0	-3.5	92	19	40	2	30	9.90	+5.72	2.05	0	12	8	11	11	se.	Mrs. L. Stingley.
Onawa	Monona	1,051	23	66.7 ^a	-3.3	89 ^a	22	41 ^a	1	32 ^a	9.36	+4.68	2.10	0	15				nw.	Mrs. H. E. Colby.
Perry	Dallas	975	23	68.1 ^b	-2.4	88 ^b	22	44 ^b	3	33 ^b	5.58	+1.16	1.71	0	14				sw.	F. N. Bartlett.
Rockwell City	Dalhous	1,134	28	67.1 ^f	-2.3	85 ^e	12	42 ^f	3	31 ^f				0					s.	A. W. McIsaac.</

Climatological Data for June, 1924—Continued.

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit							Precipitation, in Inches				Number of Days			Prevailing direction of wind	Observers	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear	Partly cloudy			Cloudy
<i>Southern Division</i>																				
Afton	Union	1,212	30	68.2	-1.2	90	14	42	1	32	11.23	+6.30	4.06	0	16	10	16	4	sw.	S. R. Brown.
Albia	Monroe	959	26	68.3	-2.1	91	19	43	6	31	8.40	+4.08	2.42	0	16	16	5	9	sw.	O. E. McBride.
Atlantic	Cass	1,164	33	68.0	-1.4	87	13†	43	3†	35	12.43	+7.37	4.40	0	20	7	19	4	sw.	Miss Oza Cunningham.
Bonaparte	Van Buren	563	33	68.6	-1.5	91	19	46	3	28	10.04	+5.68	2.10	0	13	17	8	5	e.	B. R. Vale.
Burlington	Des Moines	544	28	68.8	-1.9	94	19	44	3	29	13.91	+9.62	3.93	0	15	13	12	5	se.	John W. Donnelly.
Centerville	Appanoose	1,013	19	69.6	-0.9	91	19	46	6	29	8.54	+4.14	1.92	0	17	14	12	4	se.	Thomas Wood.
Chariton	Lucas	1,042	29	68.5	-0.3	88	19	48	2†	25	8.19	+3.81	2.58	0	10	8	18	4	sw.	C. C. Burr.
Clarinda	Page	1,009	34	69.0	-2.4	88	19	46	3	34	7.20	+2.49	1.00	0	19	14	15	1	sw.	Dr. H. C. Hawley.
Columbus Jct.	Louisa	595	23	69.6	-1.1	96	19	45	3	34	11.94	+7.64	4.20	0	15	17	7	6	nw.	H. L. Lewis.
Corning	Adams	1,117	32	68.8	-3.7	87	13†	40	6	35	9.26	+5.13	1.82	0	14	17	9	4	se.	Jerome Smith.
Corydon	Wayne	1,101	31	70.0	-0.2	90	19†	44	6	34	7.37	+2.73	1.52	0	18	15	7	8	se.	May C. Miller.
Creston	Union	1,312	19	68.0	-0.7	87	13	46	6	25	9.46	+4.51	2.40	0	19	11	17	2	s.	Mrs. S. O. Stanley.
Cumberland (near)	Cass	1,225	25								14.92	+10.60	4.35	0	15	6	22	2	se.	Carl E. Pollock.
Earlham	Madison	1,126	22	67.5	-1.0	86	19†	40	6	30	11.03	+6.60	2.26	0	13	18	4	8	se.	Geo. Phillips.
Fairfield	Jefferson	780	40	68.0 ^b	-1.8	93 ^c	19	45 ^b	6	28 ^c	9.83	+5.00	2.28	0	18				se.	Prof. R. M. McKenzie.
Glenwood	Mills	1,100	26	68.6	-1.8	88	15†	45	3†	33	9.55	+4.68	1.96	0	15	8	21	1	se.	Dr. Geo. Mogridge.
Indianola	Warren	972	33	68.4	-1.6	88	19	44	6	30	10.04	+5.60	2.57	0	10	12	13	5	nw.	Seth F. Shenton.
Keokuk	Lee	614	53	70.4	-2.1	93	19	50	3	27	5.94	+1.65	1.49	0	12	6	12	12	e.	U. S. Weather Bureau.
Keosauqua	Van Buren	644	32	69.4	-0.8	94	19	44	3†	33	8.81	+4.34	2.40	0	15	7	15	8	se.	J. H. Landes.
Knoxville	Marion	920	29																se.	W. J. Casey.
Lacona	Warren		25								11.50	+6.93	4.50	0	15	6	17	7	---	J. B. Alter.
Lamoni	Decatur	1,123	17	69.6	0.0	89	13†	46	6	32	8.44	+3.59	1.60	0	17	9	14	7	se.	Roy L. Roberts.
Lenox	Taylor	1,250	29	68.0	-2.8	88	13†	46	3†	33	8.58	+4.41	1.44	0	14	9	18	3	s.	J. L. Hurley.
Mt. Ayr	Ringgold	1,245	31	67.8	-2.2	89	14†	44	3†	33	9.24	+4.50	1.77	0	15	13	9	8	se.	Alex Maxwell.
Mt. Pleasant	Henry	729	43	68.4	-3.2	92	19	41	6	28	10.33	+5.30	2.52	0	12	8	16	6	sw.	J. H. Jericho.
Oakland	Pottawattamie	1,105	5	68.8	-1.4	89	14	44	3	38	10.26	-----	2.00	0	18	12	14	4	s.	M. E. Gray.
Oskaloosa	Mahaska	835	48	67.6	-2.0	90	19	46	3†	30	8.97	+4.99	1.60	0	13	7	13	10	se.	Roy R. Robinson.
Ottumwa	Wapello	649	29	69.8	-----	93	19	46	6	30	11.00	+6.99	2.73	0	15	15	8	7	se.	C. L. Mikes.
Pella	Marion	877	31	67.2 ^a	-2.1	89 ^a	19	43 ^a	3†	32 ^a	8.16	+4.15	1.67	0	13	17	3	10	nw.	J. H. Ver Steeg.
Sigourney	Keokuk	790	28	67.0	-2.7	91	19	44	3	32	7.23	+2.97	1.47	0	14	16	6	8	se.	W. E. Utterback.
Stockport	VanBuren	745	22	68.2	-1.5	90	19	42	6	31	9.13	+4.64	1.36	0	17	16	7	7	ne.	C. L. Beswick.
Thurman	Fremont	975	27	70.4	-1.4	90	22	46	3	30	8.98	+3.78	1.42	0	12	1	27	2	nw.	C. R. Paul.
Tingley	Ringgold	1,275	27	68.2	-----	88	19	46	3†	31	8.95	-----	2.21	0	14	16	10	4	se.	James A. Verploegh.
Washington	Washington	769	42	67.9	-2.3	91	19	44	6	29	11.66	+7.75	5.78	0	15	9	15	6	se.	Wm. A. Cook.
Wescott (near)	Lee		2								9.88	-----	3.50	0	9	13	13	4	nw.	Lester J. Larson.
Winterset	Madison	1,129	33	68.2	-2.2	88	19	43	6	33	10.20	+5.33	2.12	0	12	19	9	2	sw.	H. S. Ely.
Omaha, Nebr.		1,103	53	69.0	-2.6	90	22	47	7	30	9.08	+4.03	2.61	0	16	5	19	6	se.	U. S. Weather Bureau.
Means and extremes				68.5	-1.7	96	19	40	6	38	9.71	+5.22	5.78	0	15	12	13	5	se.	
State means and extremes				66.8	-2.5	96	19	35	6	39	8.10	+3.58	5.78	0	14	11	14	5	se.	

The departures from normal temperature and precipitation are computed only for such stations as have ten or more years of record, but all complete records are used in determining means. Reference letters a, b, c, etc., appearing in the table indicate the number of days missing; for example b represents two days, etc. †Also other dates. T. Precipitation is less than 0.01 inch rain or melted snow.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE.

Stations	Barometric Pressure, Inches (Sea level)				Relative Humidity (%)				Wind				Sunshine				
	Mean	Highest	Date	Lowest	Date	Mean			Total movement	Average hourly velocity	Maximum		Per cent of possible	Departure from normal			
						7 a. m.	12 Noon	7 p. m.			Miles	From			Date		
Charles City	29.90	30.25	30	29.42	28	81	60	64	28	1	4,272	5.9	30	se.	28	53	-16
Davenport	29.91	30.19	30	29.55	28	84	69	66	33	1	4,758	6.6	30	n.	13	49	-22
Des Moines	29.88	30.29	30	29.38	27	85	63	64	31	1	4,888	6.8	45	nw.	28	68	+1
Dubuque	29.89	30.17	30	29.48	28	82	60	64	23	1	3,881	5.4	31	n.	2	47	-17
Keokuk	29.90	30.24	30	29.57	28	81	65	64	33	6	4,818	6.7	36	nw.	20	62	-12
Sioux City	29.90	30.37	30	29.28	19	84	58	59	31	5	7,906	11.0	51	nw.	14	59	-15
Omaha, Neb.	29.89	30.35	30	29.31	19	84	70	67	46	4	5,600	7.8	52	nw.	†22	73	+5
Means and extremes	29.90	30.37	30	29.28	19	83	64	64	23	1	-----	7.2	52	nw.	†22	59	-9
Normals and records	29.93	30.61	1913	29.04	1880	79	60	60	30th	-----	7.6	-----	22†	-----	68	-----	-----

†Local mean time. †And other dates. *Dubuque. §Omaha. ¶Sioux City.

GENERAL SUMMARY.

(Continued from page 41.)

for a short period in the early morning all outside communication was shut off. The damage to property in Des Moines was in the neighborhood of \$1,000,000.00, of which plate glass

amounted to \$46,000.00 and window glass about half as much. Other communities suffered relatively as much damage as Des Moines so that the damage in the State was great. This storm appeared to be straight blows from the west and at Des Moines four violent gusts were noted, each lasting but a few seconds, but there were strong indications that tornadic action was present. Plate glass windows were blown outward on all sides of buildings, many being on the east side and well protected, many tops of trees showed a distinct twist and a hickory tree in Waveland Park, torn off about five feet from the ground, showed plainly that it had been twisted. Two steel flag poles in the city parks were bent nearly to the ground, and many standard steel posts supporting overhead wires were bent to an angle of more than 45° over a wide strip.

Frequent and excessive rains interfered with corn cultivation; many fields were overtaken by weeds and grass, and hundreds of acres were washed or drowned out. Small grain and grasses were greatly benefited by the cool, moist weather and all truck crops except tomatoes made excellent progress. One of the best crops of strawberries ever produced in the State was gathered, but the many wind squalls severely injured raspberries and cut the yield in some localities more than 50 per cent. Fruit trees were greatly injured by wind

(Continued on page 45.)

Daily Precipitation for June, 1924—Continued.

Stations	Drainage Basin	Day of Month																															Totals		
		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			
<i>Southern Division</i>																																			
Afton	Grand	.23	.02	.29	.71	1.13	.78			.12	.38		.06	1.11		.50			.58			.10	4.06		1.09		.07							11.23	
Albia	Des Moines			.13	.16	1.23	.05	.98	.25		.07	.12		.61		T. 1.31		.54	.16			2.10	.32	T.	.24	.13							8.40		
Atlantic	Nishnabotna	.19		.02	.76	.02	.20	4.40	T.		.33	.16	T.	2.17	.04	.68	.05	.25	.30	.13			.67	.35		1.35	.31						12.43		
Bonaparte	Des Moines	T.	.06		.51	1.52		.25	.91		T.	.16		1.19		.17			.06			.55	1.95	.61	T.		2.10					10.04			
Burlington	Mississippi	.02			.08	1.13			.24			T.	1.34	.06	.65			.17	T.				2.30	.18	2.35		.05	3.88					13.91		
Centerville	Chariton	.11	.07		.50	1.00		1.03	.93	.10	.04	.01	.38		.48		.82			.52			T. 1.92	.32	.30		.01	T.					8.54		
Chariton	Chariton		T.		.42	.85		.83	.44			.45		T. .63	T.	.72			.52				2.58		.75		T.						8.19		
Clarinda	Nodaway	.50		.01	.12		.10	.34	.42			.50	.38	.48		.98	.08		.29	.18		.19	.15		.57	1.00	.01	T.	.95				7.20		
Columbus Jet	Iowa			.20	.60			.75	.92	.10	T.		.47	.35		.45		.25			.10		.25	.70	1.40	1.20	T.		4.20				11.94		
Cornlng	Nodaway	.26	.11			.65	T.	1.39	.27	T.		.34	.53		.57	1.25		.57					.28	1.07			1.67							9.26	
Corydon	Chariton	.20	.01		.58	.98		.53	.34		.01	.10	.46		.06	.70		.39			.70	T.		1.52	.37	.35		.04	.03					7.37	
Creston	Missouri	.25		.17	.68	.48	.04	.32	1.50		.05	.10	.22		1.00		.30	.10		.35	.06		.11	2.40	.46		.82	.05						9.46	
Cumberland (near)	Nodaway	.15	T.	.08	.12	1.21	T.	1.58	4.35		T.	.48	T.	1.18	1.25	T.	.75	.19		.47		T.	1.31	T.	1.69	T.	.11						14.92		
Earlham	Des Moines		.12		.12	.82		1.82	1.42			.22	T.	.06	.79		1.02			.37				2.26	T.	1.84	T.	.17						11.03	
Fairfield	Skunk	.01	.05		.19	1.50		.98	.47	.02	.02		.22		.80	T.		.38	.01			.71		2.28	.92	.56		.53						9.83	
Glenwood	Missouri	.30		.10	.18	.70		1.30	.40			.76	1.20		.30	.90	T.	.56			.50		.75	.40		1.20								9.55	
Indianola	Des Moines				.53			1.54	2.04			.16			.57		.63			.65			2.57	T.	1.09		.26							10.04	
Keokuk**	Mississippi	.06			.09	1.49		.10	.73			.14	T.		.52		.40			T.		.56	T.	1.22		.15	T.	.48						5.94	
Keosauqua	Des Moines	T.	.35		.28	1.97	T.	.38	.92	.15		.22		.64		.24			.03			.12	1.87	.53	.05		1.06							8.81	
Knoxville	Des Moines				.33	.83		1.50	.15					.01	.98	.01	1.02				1.10	.09	.01	4.50		.70		.20						11.50	
Lacona	Des Moines	.07			.45		.41	.06	.50			.48	.19	.26		.76		.80	.12		.58	.28		.10	1.60	.25		1.19						8.44	
Lamon	Grand	.41			.10	.55		.84	.13			.60	.42		1.18	1.25	T.	.77			.53			.15	1.32		1.44	T.	T.					8.58	
Lenox	Missouri	.30			.67	.20	T.	1.21	.16		T.	.47	.40		.09	.89	.01	.46			1.05			.12	1.77	T.	1.26		T.	T.					9.24
Mt. Ayr	Grand	.48			.67	.20	T.	1.21	.16		T.	.47	.40		.09	.89	.01	.46			1.05			.12	1.77	T.	1.26		T.	T.					9.24
Mt. Pleasant	Skunk				.22	1.40		.48	1.15			.11			.78		T.			.02		.49		1.68	.88	.60		2.52							10.33
Oakland	Nishnabotna				1.10			.65	.82			.18	.33	.22	.20	1.00	.07	1.08	1.30			.18	.62	.04	2.00	.03	.12								10.26
Oskaloosa	Des Moines		T.		.23	.81		1.50	.47	.04		.11			.95		.21			.48		1.16		1.60		.86		.55							8.97
Ottumwa	Des Moines		.67		.45	1.44		.90	.45	.25		.22			.79		.76			.59		.23		2.73	.66	.19		.67							11.09
Pella	Skunk				T.	.50		1.67	1.40	T.		T.	.05		.85	T.	.20	.01		.75		.24		.84	.66	.35		.64							8.16
Sigourney	Skunk				.16	.51		.66	.99	.10		.10			.46	T.	.30			.30			.78		1.47	.01	.25		1.14						7.23
Stockport	Skunk	T.	T.		.51	.78	.58	.55	1.13	.09	.03	.22			.74	T.	.22			.11			.96		1.31	.55	.13	.03	1.19						9.13
Thurman	Missouri	.99	T.	T.	.06	T.		.94	.22		1.42		T.	T.	.72	.04	.80			.55			.92	1.16		1.16		T.						8.98	
Tingley	Platte	.29			.45	1.05		1.20	.34			.16	.39		.08	.75				.77			.07	2.21		.80									8.95
Washington	Skunk				.20	.42		.97	.64	.26		.27	.14		.50		.25			.43			.10	.05	1.58		.07		5.78						11.66
Wescott (near)	Mississippi				1.60	.15	.91								1.20		.30				.22		.70	3.50				1.30							9.88
Winterset	Des Moines		.27		T.	.80		1.57	.92			.20		.03	.97		.98					.28		2.12		1.95		.11							10.20
Omaha, Nebr.***	Missouri	.11	T.	.05		1.02	T.	1.22	T.	T.	2.30	.31	1.08	.09	.57	.06	.01	.67			.16		.39	T.	.22	T.	.82		T.						9.08

Except as otherwise indicated, observations are generally made late in the afternoon, near sunset, and precipitation recorded is for 24 hours ending at the time of observation.

|||Precipitation measured in the morning; amount then recorded is for the preceding 24 hours.

***Regular Weather Bureau Station; precipitation is for 24-hour period, midnight to midnight.

**Incomplete.

*Precipitation included in the next following measurement.

GENERAL SUMMARY.
(Continued from page 43.)

squalls, but the cherry crop was good, though in many cases harvested from fallen trees. Severe hail storms occurred in Keokuk and Scott counties, whole sections being completely hailed out. Two deaths were reported from lightning.

Dirt roads were in bad condition at frequent intervals. Hundreds of bridges were washed out in the central and southern division, one township in the western portion of the State reported 75 wooden bridges gone, and long stretches of roads were submerged for short periods. F. L. D.

TEMPERATURE.

The mean temperature for the State, as shown by the records of 101 stations, was 66.8°, or 2.5° lower than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 65.0°, or 3.0° lower than the normal; Central, 67.0°, or 2.6° lower than the normal; Southern, 68.5°, or 1.7° lower than the normal. The highest monthly mean was 70.4°, at Keokuk and Thurman, and the lowest was 62.6°, at Postville. The highest temperature recorded was 96°, at Columbus Junction, on the 19th, and the lowest was 35°, at Inwood, on the 6th.

PRECIPITATION.

The average precipitation for the State, as shown by the records of 104 stations, was 8.10 inches, or 3.58 inches greater than the normal. By divisions, the averages were as follows: Northern, 5.38 inches, or 0.77 inch greater than the normal; Central, 9.20 inches, or 4.74 inches greater than the normal; Southern, 9.71 inches, or 5.22 inches greater than the normal.

The greatest amount, 14.92 inches, occurred at Cumberland, and the least, 4.00 inches, occurred at Sanborn. The greatest amount in 24 consecutive hours, 5.78 inches, occurred at Washington, on the 28th.

MISCELLANEOUS PHENOMENA.

Aurora: 9th.

Fog: 1st, 3d, 12th 13th, 14th, 27th.

Hail: 2d, 3d, 5th, 8th, 12th, 13th, 14th, 15th, 19th, 20th, 22d, 23d, 27th, 28th.

Halos: 10th, 20th, 22d.

Thunderstorms: All days except 6th, 21st, 30th.

Winds, high: 5th, 7th, 12th, 14th, 15th, 17th, 19th, 22d, 23d, 24th, 27th, 28th.

RIVERS.

Moderate stages prevailed on the Mississippi River with very little fluctuation considering the heavy rainfall. A gradual rise occurred during the last few days of the month. On the Missouri River moderate stages prevailed during the first two weeks, with only slight fluctuations, after which a gradual rise occurred that continued till the middle of the last week and there was a general, though slight, fall in progress at the end of the month. The interior rivers and many small streams in most of the central and southern divisions were subject to sudden changes and flood conditions were experienced in the west-central division, most of the southern division and a large area in the east-central division. A number of places on the Boyer River, Bear Creek and small streams emptying into the Nishnabotna and Iowa Rivers experienced the highest stages ever recorded.

Daily Maximum and Minimum Temperature for the Month of June, 1924.

Stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean	
<i>Northern Division</i>																																	
Algona	75	75	72	74	73	67	60	58	73	79	88	85	82	86	82	82	77	74	82	77	83	82	80	78	77	74	79	78	74	71	71	76.6	
Alta	47	50	47	53	57	43	47	47	53	55	59	62	61	62	61	58	65	60	67	67	60	58	60	60	60	60	60	58	61	47	51	55.8	
Alton	45	49	46	55	56	44	45	46	52	50	56	63	64	65	59	61	62	63	66	65	59	56	61	58	53	59	60	55	48	47	55.3		
Belmond	41	46	43	53	59	45	41	48	51	44	54	63	64	64	59	60	64	64	64	57	52	64	57	57	60	60	58	60	81	75	44	54.8	
Charles City	45	50	39	54	56	42	48	42	43	51	59	63	63	60	63	53	64	58	69	61	56	61	60	61	53	59	58	62	47	44	54.8		
Decorah	46	49	43	51	50	44	48	48	52	50	56	63	63	62	62	58	60	57	63	60	56	60	60	59	53	60	59	55	48	48	54.8		
Dubuque	46	42	43	43	47	44	47	46	50	49	54	59	58	57	61	58	74	72	67	67	59	53	64	50	53	47	46	46	56	41	40	51.4	
Forest City	53	76	69	69	72	63	53	60	69	77	78	81	83	82	78	71	68	77	90	76	83	76	81	75	79	74	81	82	72	68	74.5		
Independence	48	47	48	48	52	49	48	48	54	54	61	63	62	60	64	57	62	59	70	63	59	61	60	60	60	60	61	63	62	64	56	52	57.5
Inwood	47	49	44	49	52	41	46	46	50	49	53	57	61	62	60	56	63	55	68	58	50	59	57	56	49	57	56	60	45	44	53.3		
Mason City	68	69	66	70	67	60	60	60	69	75	76	83	84	83	78	77	75	72	83	76	84	80	78	76	77	72	81	79	71	68	68	73.8	
Milford (near)	22	49	40	49	48	43	47	47	52	49	54	68	62	60	62	63	65	51	70	60	53	59	59	59	50	50	58	62	46	45	45	54.3	
New Hampton	73	75	72	76	69	62	57	54	67	73	71	82	80	80	76	79	76	73	75	73	81	82	80	70	70	77	73	68	68	68	68	72.8	
Northwood	46	51	46	49	57	41	46	47	50	47	55	61	62	62	60	59	61	62	64	59	55	58	57	61	51	59	58	58	49	46	46	54.6	
Pocahontas	73	74	71	73	72	64	56	65	73	77	78	81	81	82	79	78	75	72	86	80	83	79	76	76	71	76	74	81	78	72	68	75.2	
Postville	47	47	43	47	49	43	46	46	50	50	55	61	63	60	61	59	60	55	66	58	53	58	57	59	59	54	58	58	59	46	45	53.8	
Central Division	71	79	75	78	72	66	58	58	73	78	81	85	81	84	79	85	82	76	81	78	84	89	81	74	77	76	74	83	76	72	71	76.4	
Belle Plaine	45	42	46	45	57	35	46	47	46	46	48	56	64	64	58	60	67	62	60	55	55	61	54	60	47	59	58	56	44	44	53.1		
Boone	68	69	66	70	67	60	60	60	69	75	76	83	84	83	78	77	75	72	83	76	84	80	78	76	77	72	81	79	71	68	68	73.8	
Carroll	22	49	40	49	48	43	47	47	52	49	54	68	62	60	62	63	65	51	70	60	53	59	59	59	50	50	58	62	46	45	45	54.3	
Davenport	73	75	72	76	69	62	57	54	67	73	71	82	80	80	76	79	76	73	75	73	81	82	80	70	70	77	73	68	68	68	68	72.8	
Des Moines	46	51	46	49	57	41	46	47	50	47	55	61	62	62	60	59	61	62	64	59	55	58	57	61	51	59	58	58	49	46	46	54.6	
Fort Dodge	73	74	71	73	72	64	56	65	73	77	78	81	81	82	79	78	75	72	86	80	83	79	76	76	71	76	74	81	78	72	68	75.2	
Grinnell	47	47	43	47	49	43	46	46	50	50	55	61	63	60	61	59	60	55	66	58	53	58	57	59	54	58	58	59	46	45	45	53.8	
Guthrie Center	74	74	73	75	70	64	67	63	72	73	78	85	84	84	77	78	78	70	80	80	83	79	76	74	72	74	77	74	77	72	71	74.9 ^b	
Iowa City	45	48	40	45	45	40	44	44	48	48	50	58	58	58	58	53	57	53	53	53	52	57	56	58	50	56	58	61	45	45	51.3 ^c		
Iowa Falls	71	79	75	78	72	66	58	58	73	78	81	85	81	84	79	85	82	76	81	78	83	85	76	74	77	76	74	83	76	72	71	76.4	
Little Sioux	45	46	43	54	58	41	46	47	45	48	55	63	60	62	61	59	63	61	70	57	51	69	59	67	50	59	56	60	46	46	54.9		
Marshalltown	70	72	66	69	69	62	56	62	68	74	73	77	80	78	70	70	68	71	82	76	82	77	74	73	70	75	69	76	74	69	65	71.4	
Central Division	43	43	41	45	48	44	45	45	50	52	55	60	61	58	61	56	62	57	57	59	57	58	57	60	55	60	58	61	49	47	53.8		
Belle Plaine	76	79	76	75	72	70	60	64	75	78	82	84	86	86	81	82	76	81	93	86	85	82	84	79	78	77	83	81	75	72	72	78.6	
Boone	50	48	43	53	54	42	48	49	54	55	60	61	63	64	63	61	62	59	71	61	55	60	64	65	65	57	58	60	63	51	49	56.8	
Carroll	47	42	41	54	58	40	44	48	57	47	55	64	60	59	62	56	63	62	71	61	62	60	61	60	53	55	55	61	49	46	54.9		
Davenport	73	76	75	79	72	67	62	64	75	79	85	85	85	83	89	79	80	81	81	77	75	87	85	81	78	76	86	78	72	71	77.9		
Des Moines	45	49	45	55	58	44	45	46	55	56	65	65	63	63	58	60	62	63	70	60	56	62	61	63	53	57	60	60	48	47	56.0		
Fort Dodge	75	74	75	76	72	66	59	61	72	80	81	87	87	85	79	83	78	78	83	77	83	84	82	78	77	73	80	77	72	69	69	76.8	
Grinnell	43	48	42	47	57	42	45	45	54	48	57	62	62	61	62	57	62	59	69	60	53	58	60	60	61	51	58	55	60	46	44	54.2	
Guthrie Center	76	77	76	74	72	67	63	61	77	80	88	84	88	86	81	80	76	83	91	82	83	82	86	81	82	76	81	78	70	70	70	78.6	
Iowa City	54	49	47	55	55	45	47	49	55	57	59	65	65	62	62	61	62	59	71	61	58	61	62	64	57	61	58	61	51	49	49	57.4	
Iowa Falls	75	78	76	76	76	69	64	71	73	79	83	82	86	84	77	83	77	81	81	78	81	85	85	81	74	75	83	79	72	69	77.8		
Little Sioux	48	50	42	55	57	43	45	48	54	53	59	62	65	64	60	59	62	63	71	61	58	65	63	60	55	59	61	61	49	49	56.7		
Marshalltown	75	77	71	66	70	68	59	62	76	78	82	81	84	79	75	74	85	91	80	84	77	88	82	79	75	82	81	74	71	49	49	77.0	
Sioux City	53	44	43	52	54	42	47	50	56	55	59	64	63	61	64	59	61	60	71	62	55	61	61	67	61	67	60	59	65	56	51	57.2	
Central Division	72	71	70	71	71	65	61	60	71	77	78	81	84	83	79	77	75	74	82	77	80	81	79	75	76	72	80	77	71	68	68	7	

NEW TEMPERATURE NORMALS.

With this the June, 1924, issue of Climatological Data, the use of new temperature and precipitation normals is begun, and in the annual summary for the year, 1924, departures from normal will be recomputed for the earlier months of the year.

For cooperative observing stations, temperature records for the ten years ending with 1923 were corrected by comparison with the records at the regular Weather Bureau offices in, and near Iowa, running back 42 to 46 years, so that it is believed that as a rule they are within half a degree of what they would have been if records had been available under standard exposure of instruments through all these years. Errors and inconsistencies revealed by charting have been carefully adjusted.

Records for the 5-year period, 1919-1923, were used for Corn and Wheat Region stations at which evening observations for that period only are available. The old normals based on 7 a. m. observations are not at all comparable with the present series of 7 p. m. observations. Departures for these stations, published since about August, 1918, have been faulty.

Temperature normals for each station are published on this page. Precipitation normals will be published next month, with suitable discussion.

TEMPERATURE NORMALS.

Based on 10-year records, 1914-1923, of Cooperative stations, and 5-year records, 1919-1923, of Corn and Wheat Region stations, and other stations having a short record; all records reduced to homogeneous 46-year normals.

Northern Division.

Stations	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year
Algona	15.4	18.8	31.5	47.6	59.2	68.6	73.0	70.3	63.0	50.5	34.6	21.5	46.2
Allison	15.3	19.3	32.1	47.3	58.7	68.1	72.8	70.5	63.1	50.7	34.5	21.4	46.2
Alta	16.0	19.7	33.0	47.1	58.6	67.8	72.4	70.3	62.7	50.1	33.9	21.4	46.1
Alton	15.5	18.9	32.0	47.0	58.6	68.4	73.5	70.9	62.8	49.8	33.6	20.8	46.0
Belmond	14.7	18.3	31.3	46.7	58.6	68.5	73.6	69.8	63.6	50.6	34.2	20.9	45.9
Britt	14.2	17.6	30.5	46.2	58.0	67.4	71.2	69.9	62.4	49.7	33.5	20.5	45.1
Charles City	13.8	17.9	31.0	46.4	58.1	67.5	72.2	69.4	62.4	49.4	33.6	20.5	45.2
Cherokee	15.2	17.8	31.3	47.3	58.4	68.0	72.2	68.5	61.6	49.1	34.7	22.2	45.5
Decorah	19.1	22.2	34.0	48.6	60.3	69.4	74.1	71.7	64.0	51.9	37.0	24.7	48.1
Dubuque	13.1	17.9	31.6	44.9	57.0	66.9	71.9	68.8	61.7	49.1	34.0	20.3	44.8
Fayette	15.4	19.0	31.3	46.9	58.0	67.3	71.9	69.4	62.3	49.6	34.1	21.4	45.6
Forest City	14.3	18.6	31.8	46.3	58.1	67.8	72.2	70.2	62.7	49.1	33.5	21.3	45.5
Hampton	15.9	19.9	32.5	47.9	59.5	68.0	74.3	71.9	64.3	51.9	35.4	22.9	47.0
Humboldt	16.5	20.5	33.2	48.1	60.0	69.3	74.1	71.8	64.2	51.3	35.6	22.6	47.3
Independence	16.9	21.2	34.1	48.7	59.6	68.3	73.0	71.3	63.9	52.1	36.5	23.6	47.4
Inwood	14.0	17.8	32.7	46.7	57.7	67.7	72.6	70.5	63.1	49.8	33.0	19.4	45.4
Le Mars	17.1	20.9	33.3	47.8	59.0	68.6	73.3	71.0	63.7	51.1	35.0	22.4	47.0
Mason City	14.2	18.1	30.9	46.5	58.0	67.6	72.4	69.6	61.7	49.6	33.5	20.9	45.2
Milford	14.5	18.7	31.3	47.0	58.3	67.7	72.2	69.8	62.4	50.2	34.1	20.8	45.6
New Hampton	16.4	20.0	32.7	48.4	59.2	68.7	73.6	71.2	64.4	51.9	36.2	23.1	47.2
Nora Springs	12.7	16.3	29.2	45.1	57.3	66.7	71.2	68.5	61.0	48.2	32.4	19.7	44.0
Northwood	16.0	19.7	32.3	47.1	58.8	68.3	72.7	70.6	63.5	50.7	34.7	21.7	46.4
Oelwein	15.2	18.3	30.6	46.3	57.4	65.7	70.0	67.8	60.8	49.3	34.0	20.9	44.7
Pocahontas	13.5	17.9	31.5	46.3	58.0	67.9	72.6	69.7	61.7	48.9	33.2	19.7	45.1
Postville	14.6	18.5	31.6	46.5	58.1	67.7	72.8	70.5	62.8	49.4	32.5	19.4	45.4
Rock Rapids	15.1	18.7	31.5	46.5	58.2	67.5	73.0	70.5	63.0	49.8	33.5	20.8	45.7
Sanborn	14.7	18.5	32.4	47.0	58.5	68.5	73.4	70.6	63.5	50.2	33.6	20.7	46.0
Sioux Center	16.8	20.4	32.6	47.4	59.1	68.5	73.5	71.4	64.0	51.2	35.5	22.5	46.9
Spencer	16.6	20.8	33.3	47.5	58.3	68.1	72.3	70.6	63.5	50.5	35.0	22.1	46.6
Storm Lake	17.4	20.9	34.4	48.8	60.2	69.4	73.7	71.5	64.1	51.9	36.1	23.5	47.6
Washta	16.2	20.0	32.9	47.6	58.8	68.2	72.5	70.6	63.4	51.1	35.6	23.2	46.7
Waterloo	15.0	19.2	32.0	47.4	59.3	68.4	73.2	70.6	63.4	50.6	34.1	21.1	46.2
Waverly	15.3	19.1	32.1	47.1	58.6	68.0	72.7	70.3	62.9	50.3	34.4	21.5	46.0
West Bend	15.3	19.1	32.1	47.1	58.6	68.0	72.7	70.3	62.9	50.3	34.4	21.5	46.0
Means	15.3	19.1	32.1	47.1	58.6	68.0	72.7	70.3	62.9	50.3	34.4	21.5	46.0

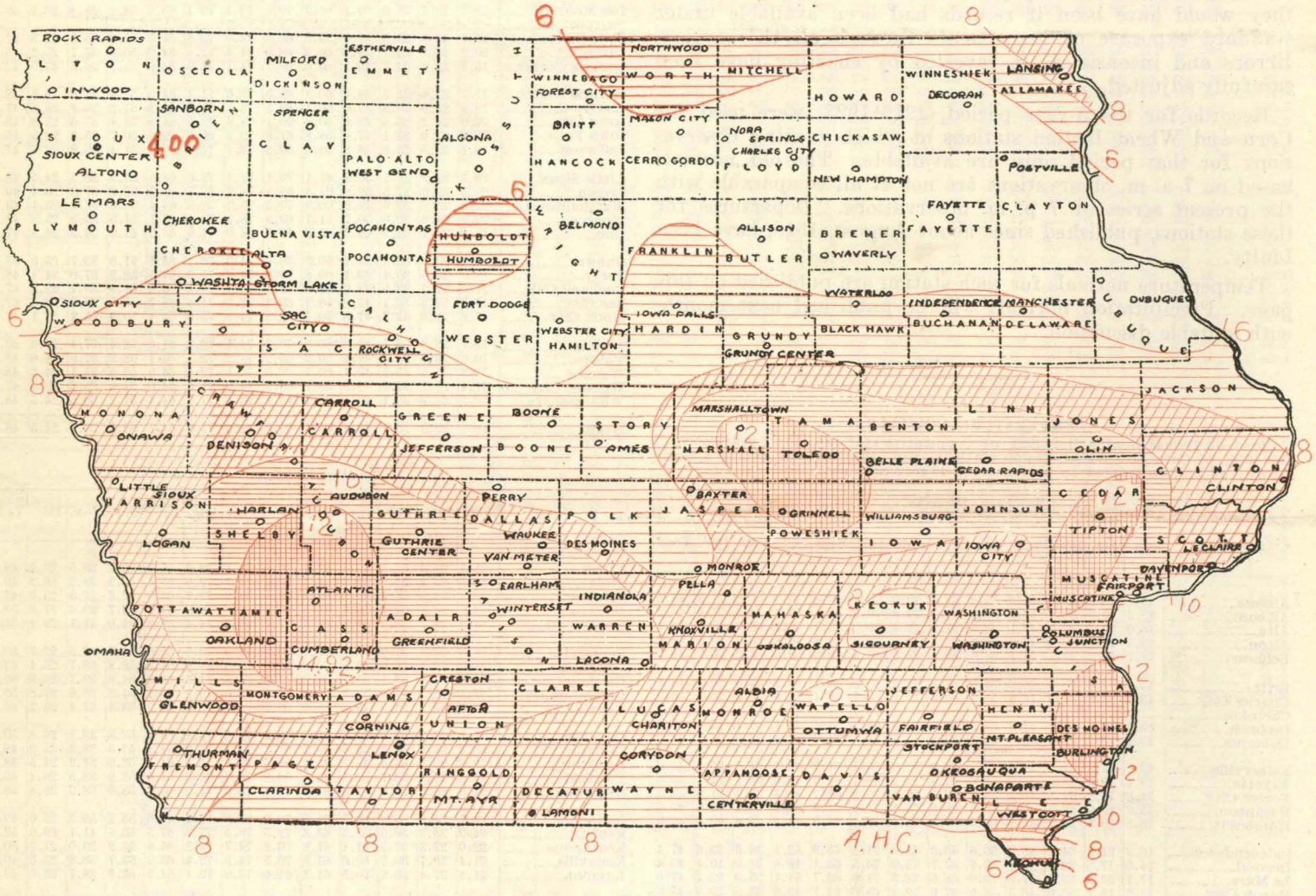
Central Division.

Stations	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year
Ames	18.5	22.5	35.0	48.8	59.8	69.9	74.0	71.8	64.4	51.7	35.9	23.8	48.0
Audubon	17.1	21.5	33.8	47.6	59.3	68.3	72.7	70.8	63.7	50.8	34.8	22.8	46.9
Baxter	19.4	22.9	35.0	49.0	60.5	69.6	74.2	72.2	64.6	52.4	37.2	24.4	48.4
Belle Plaine	18.8	22.9	34.9	49.4	60.4	69.2	73.5	71.5	64.4	51.9	37.0	24.2	48.2
Boone	17.9	23.3	36.0	49.0	59.9	69.0	73.5	70.9	63.8	51.7	36.6	24.0	48.0
Carroll	17.4	21.9	36.0	48.5	59.9	68.4	72.1	70.1	63.7	51.6	36.1	23.8	47.6
Cedar Rapids	19.9	23.8	35.7	50.4	61.6	71.4	75.9	73.3	66.2	53.6	37.8	25.9	49.6
Clinton	20.6	24.6	35.8	49.8	61.1	70.4	74.8	72.2	65.2	53.0	37.9	26.3	49.4
Davenport	21.8	24.9	36.1	49.9	61.3	70.5	75.3	73.1	65.6	53.7	39.0	27.1	49.9
Denison	18.2	22.4	35.0	49.2	60.1	69.1	73.4	71.5	64.0	51.7	35.6	23.8	47.8
Des Moines	20.1	23.7	35.9	50.1	61.3	70.6	75.4	73.1	65.6	53.4	38.4	26.0	49.5
Fairport	16.7	22.3	34.3	47.6	59.2	69.0	74.0	70.8	64.0	51.3	35.3	22.3	47.2
Fort Dodge	20.2	23.2	35.3	49.4	60.8	69.6	74.3	72.6	64.9	53.0	37.7	25.2	48.8
Grinnell	18.5	22.0	34.7	49.1	60.6	69.7	74.1	71.9	64.6	51.1	36.3	23.9	48.0
Grundy Center	17.7	23.6	35.2	49.4	60.5	69.0	73.6	71.7	64.6	52.5	37.0	24.5	48.3
Guthrie Center	18.1	22.9	35.3	49.0	60.1	69.1	73.1	71.0	63.8	51.2	35.8	23.6	47.8
Harlan	20.0	24.2	35.6	49.9	60.3	69.1	73.8	72.0	64.8	52.4	37.6	25.8	48.8
Iowa City	15.7	21.0	34.1	47.8	58.8	67.9	72.3	69.6	62.6	50.7	35.3	22.5	46.5
Iowa Falls	18.1	22.5	35.8	48.5	59.8	69.2	73.3	70.7	63.6	51.4	36.2	23.6	47.7
Jefferson	19.3	23.9	36.1	50.5	61.1	70.1	74.4	72.6	65.3	52.2	36.5	24.0	48.8
Little Sioux	20.3	25.0	37.2	50.8	61.3	69.8	74.2	72.7	65.7	53.2	37.3	25.4	49.4
Logan	20.0	23.6	35.6	49.6	60.9	70.3	75.3	72.8	65.4	53.0	37.4	25.1	49.1
Marshalltown	20.7	24.6	36.0	50.1	61.1	69.8	75.0	73.4	66.1	54.0	39.0	25.9	49.6
Monroe	18.2	22.1	34.5	49.2	60.3	69.5	74.0	71.6	63.7	51.0	36.3	24.9	47.9
Onawa	18.8	23.2	35.3	50.1	60.9	70.0	74.3	72.1	64.8	51.8	35.7	23.9	48.4
Perry	19.0	23.5	35.4	49.1	60.8	70.5	74.2	71.9	64.5	52.2	37.0	24.4	48.5
Rockwell City	17.3	21.2	33.8	48.2	58.8	68.1	73.1	71.1	63.8	51.8	35.7	22.8	47.2
Sac City	17.2	21.3	33.1	47.8	58.7	68.3	72.9	71.6	63.7	51.5	35.5	22.5	47.1
Sioux City	17.8	21.0	32.7	47.8	60.4	69.5	74.3	72.0	63.4	50.9	35.2	23.1	47.3
Tipton	19.7	23.8	35.5	50.0	60.8	70.7	74.5	72.2	64.8	52.4	37.4	25.6	49.0
Toledo	19.3	23.0	35.4	49.6	60.9	69.9	74.2	72.1	65.1	53.3	37.9	24.6	48.8
Waukegan	18.8	23.1	35.2	49.4	60.7	69.5	74.1	72.5	64.8	52.8	37.1	24.3	48.5
Webster City	17.4	21.2	34.0	48.5	59.7	69.2	74.0	71.6	64.0	51.4	35.6	23.0	47.5
Williamsburg	19.2	23.2	35.1	49.4	60.4	69.1	73.8	71.7	64.4	51.7	36.5	24.5	48.2
Means	18.8	22.9	35.1	49.2	60.4	69.6	74.0	71.9	64.5	52.1	36.7	24.3	48.3

Southern Division.

Stations	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year
Afton	21.1	25.6	36.5	50.2	61.4	69.4	73.8	72.6	65.1	53.3	38.5	26.2	49.5
Albia	20.9	25.4	36.2	50.7	61.3	70.4	74.5	72.6	65.4	53.5	38.2	26.2	49.6
Atlantic	19.3	23.9	36.0	49.8	60.7	69.4	74.2	72.7	65.0	52.2	37.5	25.7	48.9
Bonaparte	22.2	26.8	37.4	50.8	61.3	70.1	74.4	72.8	65.9	53.7	39.6	27.8	50.2
Burlington	24.2	28.7	38.9	52.1	62.9	71.7	76.0	74.4	67.2	54.9	41.1	29.4	51.8
Centerville	22.6	27.1	37.9	52.0	61.4	70.1	74.9	73.2	65.6	54.0	39.5	27.7	50.5
Chariton	21.0	25.1	36.0	49.5	60.1	68.8	73.3	71.9	64.8	52.8	38.7	26.4	49.0
Clarinda	22.4	27.8	38.1	51.1	62.9	71.4	75.5	74.6	66.3	54.0	39.7	26.9	50.9
Columbus Jct.	22.1	26.3	37.0	51.2	62.2	70.7	75.0	73.1	66.1	54.3	39.6	27.8	50.4
Corning	21.0	25.1	35.9	49.3	60.5	69.5	74.1	72.2	64.9	52.4	37.4	25.2	49.0
Corydon	21.9	26.2	36.6	50.5	61.3	70.2	74.6	73.2	65.7	53.8	38.8	26.8	50.0
Creston	20.1	24.7	35.6	49.5	60.7	69.7	73.4	72.0	64.7	52.5	38.2	25.0	48.7
Earlham	19.2	23.3	35.0	48.7	60.2	68.5	72.8	71.4	64.1	52.0	37.2	24.5	48.1
Fairfield	21.6	25.5	36.7	50.1	61.1	69.8	74.4	72.8	65.6	53.0	38.5	26.4	49.6
Glenwood	21.9	26.5	37.9	51.3	61.3	70.4	75.3	74.0	66.7	53.6	38.6	26.8	50.4
Indianola	19.7	24.6	36.3	50.5	61.5	70.0	74.8	73.1	65.6	53.2	38.3	25.6	49.4

TOTAL PRECIPITATION, JUNE, 1924



SCALE OF SHADES IN INCHES.



A.H.C.

CLIMATOLOGICAL DATA.

IOWA SECTION

In cooperation with
CHARLES D. REED, Meteorologist

VOL. XXXV DES MOINES, IOWA, JULY, 1924 No. 7

GENERAL SUMMARY.

Persistent low temperature was the chief characteristic of the weather of July. The first half of the month was almost entirely below normal, and during the rest of the month there were numerous fluctuations with only an occasional day above normal. The only period during the month that could be classed as warm occurred during the last week, and at no time during the month did warm periods, such as are common to July, occur. The mean temperature for the State, 70.2° was, with the exception of 1891, when the mean was 68.5°, and 1915 with a mean of 69.5°, the lowest July mean in the history of the State's weather. Temperatures of 90°, or higher, were not recorded in much of the northern half of the State and at many stations where this temperature occurred it was reached on only one day.

The average precipitation for the State was very nearly normal but the distribution was very uneven. Over a large area in the southeast, east-central, and a limited area to the north and west there was a decided excess, while there was a decided deficiency over most of the western and northern sections, and in the extreme northwest corner and portions of the central, south-central, and west-central sections pastures were drying up and crops generally beginning to need rain badly. Most of the excess was in the first part of the fourth week, when unusually heavy rains occurred. A number of stations reported more than 5.00 inches in 24 hours, and at Washington the heaviest 24-hour rainfall of record occurred, 5.80 inches having fallen in about 7 hours on the 24th. The lower reaches of the Wapsipinicon, Cedar, Iowa, and Skunk rivers were flooded as well as many of their tributaries, and the smaller streams emptying in the Mississippi south of Muscatine. The damage from floods embraced many hundred acres of corn and small grain, many highway bridges, railways, and some stock. The C., R. I. & P. Ry. was damaged in practically the same location as in June, but some washouts occurred that were not affected in the June floods. Train service was held up over the damaged section for two days, and the damage was placed at about \$60,000.

Wind and hail storms also were active during the month though less than half of the State was embraced in the affected portion, and practically all the damage was confined to an area north of a line drawn from Plymouth to Des Moines counties. Most of the damage from wind occurred on the 7th, and from the 21st to the 27th. The principal damage occurred from Kossuth county westward, from Marshall and Hardin counties eastward, and in limited areas in Clayton, Iowa, and Henry counties. On the 21st tornadic characteristics were reported though no funnel clouds were reported. Many acres of corn were flattened, small grain that had been harvested was scattered, and unharvested fields were flattened so it became necessary to cut in only one direction. Many wind mills, silos, and farm buildings were blown down or badly damaged, hundreds of telephone and telegraph poles were broken off, and wire service badly demoralized. Excluding local lines, it was necessary to spend over \$40,000 to put telephone lines in condition. Hailstorms were very destruc-

tive, and the principal ones were embraced in a strip from Plymouth, Lyon, and Emmet counties southeastward to Delaware, Linn, and Johnson counties. Damage to crops from hail exceeded \$1,000,000 and the heaviest damage occurred in Humboldt, Franklin, Hardin, Grundy, and Blackhawk counties. Reports were received from several counties of as many as three whole sections having crops completely ruined by the hail and some stones were of enormous size. In Grundy the hail drifted from a foot to 18 inches deep, and remained on the ground for 48 hours after the storm. Individual farm losses ranged from \$100 to as high as \$3,000. Hundreds of chickens were killed, hogs and cattle were bruised and bleeding, and many roofs were punctured by the hail.

The month was not without redeeming features. While the weather was not favorable for the best development of corn, there was a noticeable improvement in the crop in most of the State, and a decided improvement in the south-central counties. Cool weather crops promised unusually well, grain harvest progressed under generally favorable conditions; and an excellent crop of hay was harvested. Truck crops, especially cabbage and potatoes, were benefited by the cool weather, but tomatoes made slow progress. Bees were able to work most of the month, and a good honey crop is assured. Roads were good over most of the western and central portions of the State except for short periods, but the frequent rains in the eastern portion kept them in bad condition most of the time, and during the latter part of the month many detours were necessary on account of washouts. F. L. D.

COMPARATIVE DATA FOR THE STATE—JULY

Year	Temperature				Precipitation				Number of Days				
	Mean	Departure*	Highest	Lowest	Total	Departure*	Greatest	Least	Snowfall	With pre-.01 in. or more	Clear	Partly cloudy	Cloudy
1890.....	75.6	+1.8	110	45	1.98	-1.86	5.00	0.37	.....	3	18	8	5
1891.....	68.5	-5.3	99	41	4.22	+0.38	8.20	1.67	.....	8	13	13	5
1892.....	73.0	-0.8	104	38	5.29	+1.45	12.86	1.71	.....	9	16	10	5
1893.....	75.0	+1.2	102	47	3.33	-0.51	8.84	1.49	.....	7	19	10	2
1894.....	76.4	+2.6	109	39	0.63	-3.21	3.50	T.	.....	3	22	8	1
1895.....	72.1	-1.7	104	35	3.40	-0.44	10.10	0.45	.....	7	15	12	4
1896.....	73.6	-0.2	104	42	6.90	+3.06	12.67	1.61	.....	9	14	11	6
1897.....	75.6	+1.8	106	42	3.26	-0.58	7.60	1.01	.....	6	18	10	3
1898.....	73.4	-0.4	102	42	2.98	-0.86	12.88	0.55	.....	7	19	9	3
1899.....	73.1	-0.7	101	38	3.07	-0.77	8.66	0.42	.....	7	16	10	5
1900.....	73.4	-0.4	102	37	6.15	+2.31	18.45	1.80	.....	9	16	10	5
1901.....	82.4	+8.6	113	46	2.34	-1.50	5.97	0.27	.....	5	21	9	1
1902.....	73.1	-0.7	99	41	8.67	+4.83	13.57	4.82	.....	13	14	10	7
1903.....	72.9	-0.9	100	40	4.83	+0.99	12.72	0.94	.....	9	17	9	5
1904.....	70.6	-3.2	100	38	4.41	+0.57	11.97	1.28	.....	10	16	9	6
1905.....	70.6	-3.2	102	40	2.91	-0.93	7.08	0.69	.....	9	14	10	7
1906.....	70.9	-2.9	102	42	3.04	-0.80	7.05	0.26	.....	8	18	10	3
1907.....	73.7	-0.1	102	41	7.27	+3.43	13.66	3.97	.....	13	16	11	4
1908.....	73.0	-0.8	100	42	3.66	-0.18	9.21	0.70	.....	8	16	10	5
1909.....	72.3	-1.5	102	46	4.77	+0.93	12.20	1.20	.....	10	15	8	8
1910.....	74.5	+0.7	108	43	1.86	-1.98	5.69	0.12	.....	7	19	8	4
1911.....	75.5	+1.7	111	38	2.27	-1.57	6.62	0.08	.....	7	18	10	3
1912.....	74.6	+0.8	103	38	3.71	-0.13	7.56	1.17	.....	10	17	10	4
1913.....	76.1	+2.3	108	45	1.82	-2.02	6.23	T.	.....	5	21	8	2
1914.....	76.6	+2.8	109	43	2.27	-1.57	6.50	0.44	.....	5	20	8	3
1915.....	69.5	-4.3	92	40	8.32	+4.48	15.83	3.68	.....	14	10	12	9
1916.....	79.7	+5.9	105	48	1.78	-2.06	6.87	0.10	.....	5	23	7	1
1917.....	74.3	+0.5	106	38	2.27	-1.57	6.06	0.23	.....	7	21	8	2
1918.....	73.1	-0.7	105	40	3.17	-0.67	8.05	0.26	.....	8	19	8	4
1919.....	77.4	+3.6	104	41	2.86	-0.98	7.82	0.39	.....	6	22	8	1
1920.....	72.3	-1.5	102	45	4.22	+0.38	7.49	1.11	.....	9	19	9	3
1921.....	77.9	+4.1	104	41	2.53	-1.31	7.45	0.42	.....	7	19	9	3
1922.....	71.5	-2.3	98	40	6.31	+2.47	11.72	3.13	.....	11	14	12	5
1923.....	76.5	+2.7	102	47	1.75	-2.09	5.54	0.29	.....	5	19	9	3
1924.....	70.2	-3.6	99	41	3.67	-0.17	8.90	0.57	.....	9	16	11	4

T. indicates an amount too small to measure, or less than .005 inch rainfall and less than .05 inch snowfall.
*New normals effective June 1, 1924.



Climatological Data for July, 1924.

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precipitation, in Inches				Number of Days			Prevailing direction of wind	Observers		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear			Partly cloudy	Cloudy
<i>Northern Division</i>																				
Algona	Kossuth	1,213	51	69.6	-3.4	90	27†	46	2	36	2.47	-0.59	0.92	0	6	24	5	2	se.	W. E. Laird
Alison	Butler	1,044	12	68.4	-4.4	90	28	44	2	33	6.46	+2.71	1.70	0	10	13	13	5	nw.	J. A. Bell
Alta	Buena Vista	1,513	33	69.2	-3.2	89	28	49	1	30	1.30	-2.95	0.57	0	9	15	14	3	s.	D. E. Hadden.
Alton	Sioux	1,305	19	69.8	-3.7	94	27	43	2	41	0.89	-2.65	0.42	0	6	15	13	3	s.	W. S. Slagle.
Belmond	Wright	1,205	14	70.2	-3.4	90	28	45	2	34	3.19	-0.43	1.22	0	10	5	21	5	nw.	Geo. P. Hardwick.
Britt	Hancock	1,236	37	68.6 ^c	-2.6	90 ^o	28	46 ^o	2	37 ^o	3.66	-0.32	1.07	0	11	...	...	...	s.	L. M. Goodman.
Charles City	Floyd	1,015	33	68.2	-4.0	89	28	45	2	30	3.19	-0.65	1.04	0	14	14	13	4	nw.	U. S. Weather Bureau.
Cherokee	Cherokee	1,196	2	68.5 ^a	...	90 ^a	27†	45 ^a	1†	34 ^a	1.61	...	0.52	0	9	...	...	...	n.	J. E. Wirth.
Decorah	Winnesheik	875	31	67.6	-4.6	89	28	41	1†	35	2.94	-1.11	1.17	0	11	19	9	3	nw.	M. D. Whitney.
Dubuque	Dubuque	698	51	70.0	-4.1	88	16	49	1	29	4.11	+0.24	1.18	0	11	9	12	10	s.	U. S. Weather Bureau.
Estherville	Emmet	1,298	29	68.6	-3.3	92	28	43	2	36	1.77	-2.39	0.60	0	4	22	9	0	s.	A. O. Peterson.
Fayette††	Fayette	1,003	34	67.8	-4.1	88	28	43	1†	35	5.97	+2.14	2.73	0	5	22	5	4	nw.	R. Z. Latimer.
Forest City	Winnebago	1,226	30	67.8	-4.4	89	28	45	2	35	3.29	-0.28	1.37	0	9	13	12	6	se.	Dr. M. B. Neil.
Hampton	Franklin	1,145	...	67.1	-7.2	88	28	44	2	35	5.47	+1.82	2.16	0	11	20	8	3	se.	L. H. Davis.
Humboldt	Humboldt	1,095	36	69.8	-4.3	92	27	46	2†	36	3.48	-0.26	1.04	0	8	12	13	6	s.	H. C. Smitkey.
Independence	Buchanan	921	60	69.0	-4.0	89	13†	45	2	31	6.29	+2.15	2.88	0	8	23	4	4	sw.	Dr. Geo. Boody.
Inwood	Lyon	1,474	20	70.0	-2.6	95	27	43	1	39	1.04	-2.33	0.71	0	12	23	5	3	s.	F. B. Hanson.
Le Mars	Plymouth	1,224	28	69.5	-3.8	93	27	45	2	35	2.69	-1.39	1.11	0	8	26	4	1	sw.	Mrs. M. C. Woolley.
Mason City	Cerro Gordo	1,148	27	67.9	-4.5	88	23†	43	2	31	2.13	-1.39	0.65	0	8	7	22	2	sw.	Northwestern Sugar Corp.
Milford (near)	Dickinson	1,430	4	68.4	...	89	28	48	3	32	0.57	...	0.27	0	7	14	16	1	sw.	Dr. F. J. Smith.
New Hampton	Chickasaw	1,169	27	67.7	-4.5	91	28	45	1	35	3.75	-0.02	1.94	0	7	19	6	6	nw.	A. F. Kemman.
Nora Springs	Floyd	1,064	12	69.6	-4.0	95	28	45	2	34	2.97	-0.83	0.79	0	12	18	11	2	s.	Arthur Betts.
Northwood	Worth	1,222	28	67.6	-3.6	87	28	46	1	29	2.37	-1.46	1.10	0	11	12	17	2	sw.	Chas. Dwelle.
Oelwein	...	1,036	1	68.6	...	89	28	44	1	34	4.88	...	1.55	0	7	14	11	6	s.	John T. Ridler.
Pocahontas	Pocahontas	1,248	20	69.0	-3.7	92	27	45	2†	34	2.96	-0.49	0.68	0	9	18	10	3	se.	D. H. Hronek.
Postville	Clayton	1,180	25	66.2	-3.8	83	28	41	3	29	3.96	-0.43	1.52	0	8	14	11	6	sw.	F. L. Williams.
Rock Rapids	Lyon	1,358	25	69.8	-2.8	92	27	44	3	40	1.68	-1.69	1.10	0	5	25	5	1	sw.	J. K. Medberry.
Sanborn	O'Brien	1,553	10	70.1	-2.7	95	27	44	2	41	2.51	-0.99	1.80	0	7	19	7	5	e.	J. W. Dow.
Sioux Center	Sioux	1,426	25	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Spencer	Clay	1,319	10	69.7	-3.7	95	28	42	3	41	0.69	-2.81	0.61	0	3	8	15	8	sw.	J. de Ruyter. E. W. Little.
Storm Lake	Buena Vista	1,440	35	69.9	-3.6	90	28	48	2	28	1.13	-2.94	0.83	0	6	22	9	0	s.	Geo. H. Fracker.
Washita	Cherokee	1,157	26	68.8	-3.5	91	28	44	2	38	2.66	-1.57	1.22	0	9	20	8	3	s.	H. L. Felter.
Waterloo	Blackhawk	854	41	69.9	-3.8	92	23†	45	1†	36	7.69	+3.71	1.55	0	13	19	6	6	se.	R. B. Shippy.
Waverly	Bremer	936	28	69.1	-3.4	90	28†	45	1†	36	5.79	+2.04	1.90	0	11	...	...	...	nw.	D. H. Murphy.
West Bend	Palo Alto	1,197	31	69.4	-3.8	93	27	45	2	37	2.81	-0.66	0.84	0	8	12	17	2	s.	Jos. Dorweiler.
Means and extremes				68.9	-3.8	95	27†	41	1†	41	3.10	-0.69	2.88	0	9	16	11	4	s.	
<i>Central Division</i>																				
Ames	Story	926	47	70.6	-3.4	92	23	47	1	34	1.56	-2.30	0.50	0	7	21	5	5	s.	Iowa State College.
Audubon	Audubon	1,297	29	69.6	-3.1	92	28	47	2	32	5.21	-1.54	1.75	0	10	16	12	3	sw.	Geo. Kibby.
Baxter	Jasper	998	24	70.2	-4.0	91	16†	45	2	35	3.21	-0.68	0.80	0	8	13	16	2	s.	Henry Geise.
Belle Plaine	Benton	866	34	70.2	-2.3	91	21	45	2	35	5.53	+1.48	1.83	0	12	9	14	8	s.	O. C. Burrows.
Boone	Boone	1,134	19	68.8	-4.7	91	28	44	2	39	2.23	-1.49	0.58	0	10	15	9	7	s.	C. F. Henning.
Carroll	Carroll	1,265	34	70.0	-3.2	94	28	46	1	32	3.86	+0.28	1.12	0	8	24	4	3	se.	Mrs. Jos. J. Wolfe.
Cedar Rapids	Linn	737	42	70.2	-5.7	95	21	42	2	42	4.99	+1.09	1.63	0	12	15	6	10	sw.	J. T. Wurster.
Clinton	Clinton	595	51	71.4	-3.4	99	21	45	6	37	3.77	-0.12	1.67	0	7	15	13	3	s.	Dr. A. P. Bryant.
Davenport	Scott	580	53	72.0	-3.3	93	21	50	2	27	3.76	+0.27	1.51	0	11	13	12	6	s.	U. S. Weather Bureau.
Davenport (No. 2)	Scott	690	...	71.4	...	96	21	46	1†	35	4.14	...	1.74	0	9	...	...	...	...	Rex Shriver.
Denison	Crawford	1,171	30	69.4	-4.0	90	28	45	2	33	3.57	-0.18	1.16	0	9	19	8	4	nw.	V. L. Byers.
Des Moines	Polk	861	46	71.9	-3.5	93	28	51	3	29	0.98	-2.63	0.36	0	9	12	13	6	sw.	U. S. Weather Bureau.
Fairport	Muscatine	567	3	71.6	...	92	21	47	2	29	3.88	...	1.36	0	8	14	9	8	sw.	Bureau of Fisheries.
Fort Dodge	Webster	1,114	24	69.0	-5.0	91	23†	45	2†	36	2.28	-1.63	0.81	0	12	23	3	5	s.	Samuel Sampson.
Grinnell	Poweshiek	1,031	30	71.8	-2.5	95	10	48	2	31	7.25	+2.88	4.40	0	10	10	17	4	nw.	Paul P. Meyers.
Grundy Center	Grundy	976	33	69.7	-4.4	89	26†	46	2	31	5.68	+1.95	1.75	0	10	20	5	6	sw.	M. G. Heiberger.
Guthrie Center	Guthrie	1,077	29	70.2	-3.4	93	28	46	23	31	2.00	-2.22	0.55	0	8	18	11	2	sw.	E. L. Nesselroad.
Harlan	Shelby	1,192	25	69.3	-3.8	91	28	46	2†	34	4.83	+0.95	2.15	0	10	28	2	1	n.	W. K. Colburn.
Iowa City	Johnson	733	64	70.2	-3.6	94	21	46	2†	36	3.67	-0.45	1.45	0	12	14	10	7	nw.	Prof. J. F. Reilly.
Iowa Falls	Hardin	1,107	31	68.1	-4.2	86	4†	45	2	35	6.11	+2.17	1.84	0	12	17	8	6	s.	J. B. Parnelee.
Jefferson	Greene	1,052	25	68.8	-4.5	90	16	46	2†	32	2.90	-0.78	1.03	0	11	18	8	5	sw.	W. I. Lyon.
Little Sioux	Harrison	1,040	19	71.2	-3.2	93	28	45	2	36	2.56	-1.64	0.80	0	11	17	12	2	nw.	H. W. Kerr.
Logan	Harrison	1,035	57	72.0	-2.2	95	28	56	4	33	2.11	-2.30	0.38	0	11	20	8	3	sw.	Mary Jean Stern.
Marshalltown	Marshall	947	32	71.3	-4.0	92	21†	47	2	30	5.96	+1.95	1.73	0	16	17	8	6	nw.	C. C. Pigman.
Monroe	Jasper	922	12	72.1 ^d	-2.9	94 ^e	16†	47 ^e	1	33 ^e	1.96	-1.60	0.73	0	5	...	...	...	s.	J. A. Dibel.
Olin	Jones	760	25	69.7	-4.3	92	16†	44	1†	38	8.90	+5.05	4.00	0	7	17	7	7	sw.	Mrs. L. Stingley.
Onawa	Monona	1,051	23	70.2	-4.1	93	23	47	2	35	2.58	-1.57	0.65	0	10	20	4	7	s.	Mrs. H. E. Colby.
Perry	Dallas	975	23	70.6	-3.6	93	28	47	4	37	1.50	-2.54	0.29	0	11	19	9	3	nw.	F. N. Bartlett.
Rockwell City††	Calhoun	1,134	28	68.6	-4.5	89	23†	46	2	32	3.71	-0.08	1.04	0						

Climatological Data for July, 1924—Concluded.

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit							Precipitation, in Inches				Number of Days				Prevailing direction of wind	Observers
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear	Partly cloudy	Cloudy		
Southern Division																				
Afton	Union	1,212	30	71.8	-2.0	93	16†	47	2	37	2.47	-1.50	1.02	0	10	15	13	3	sw.	S. R. Brown.
Albia	Monroe	959	26	71.2	-3.3	94	16	46	1†	35	2.59	-1.55	0.62	0	12	20	7	4	nw.	O. E. McBride.
Atlantic	Cass	1,164	33	70.5	-3.7	92	28	45	2†	36	1.81	-1.73	0.82	0	9	12	13	6	sw.	Miss Oza Cunningham.
Bonaparte	Van Buren	563	33	71.0	-3.4	91	16	50	1†	30	6.88	+3.02	1.46	0	10	21	9	1	e.	B. R. Vale.
Burlington	Des Moines	544	28	72.5	-3.5	94	21	52	1†	28	6.96	+3.55	2.69	0	16	18	5	8	nw.	John W. Donnelly.
Centerville	Appanoose	1,013	19	72.0	-2.9	95	16	47	1†	31	4.36	+0.43	1.88	0	10	17	11	3	sw.	Thomas Wood.
Chariton	Lucas	1,042	29	70.8	-2.5	90	16†	48	1†	28	2.35	-1.96	1.22	0	5	14	14	3	sw.	C. C. Burr.
Clarinda	Page	1,009	34	70.8	-4.7	93	30	45	2	35	3.62	-0.71	0.99	0	11	22	8	1	s.	Dr. H. C. Hawley.
Columbus Jct.	Louisa	595	23	71.3	-3.7	91	16†	48	1	30	7.80	+4.23	5.40	0	8	21	8	2	sw.	H. L. Lewis.
Corning	Adams	1,117	32	71.3	-3.7	91 ^a	30	48	1	30	3.52	-0.61	0.88	0	7	.....	.....	.....	sw.	Jerome Smith.
Corydon††	Wayne	1,101	31	72.6	-2.0	96	16	49	2†	34	3.56	-0.25	1.40	0	11	15	13	3	sw.	Mrs. May Miller King
Creston	Union	1,312	19	70.6	-2.8	88	8	48	2	29	2.77	-1.23	1.35	0	8	16	15	0	s.	Mrs. S. O. Stanley.
Cumberland (near)	Cass	1,225	25	70.6	-2.8	88	8	48	2	29	1.06	-2.62	0.34	0	7	14	12	5	sw.	Carl E. Pollock.
Earlham	Madison	1,126	22	69.5 ^a	-3.3	92 ^a	29	43 ^a	3	36 ^a	1.57	-2.09	0.89	0	4	.....	.....	.....	sw.	Geo. Phillips.
Fairfield	Jefferson	780	40	70.2 ^a	-4.2	93 ^a	16	47 ^a	2	32 ^a	6.97	+3.15	2.53	0	14	12	10	9	sw.	Prof. R. M. McKenzie.
Glenwood	Mills	1,100	26	72.0	-3.3	92	23†	44	2	32	3.94	+0.34	1.16	0	10	17	11	3	se.	Dr. Geo. Mogridge.
Indianola	Warren	972	33	71.3	-3.5	92	28	48	2†	29	1.75	-2.04	0.72	0	7	19	11	1	sw.	Seth F. Shenton.
Keokuk	Lee	614	53	72.7	-4.2	94	16	52	4	27	4.85	+1.00	1.53	0	12	11	14	6	nw.	U. S. Weather Bureau.
Keosauqua	Van Buren	644	32	71.2	-3.5	94	16	47	1	34	8.02	+4.03	1.45	0	13	10	14	7	se.	J. H. Landes.
Knoxville	Marion	920	29	71.4	-3.1	93	28	46	2	36	1.73	-2.24	0.79	0	7	12	17	2	sw.	W. J. Casey.
Lacona	Warren	.....	25	.....	.....	.....	.....	.....	.....	.....	1.35	-2.43	0.54	0	9	11	15	5	.....	J. B. Alter.
Lamoni	Decatur	1,123	17	72.3	-1.6	94	16	47	3	33	3.57	-0.37	0.69	0	14	14	11	6	sw.	Roy L. Roberts
Lenox	Taylor	1,250	29	71.5	-3.6	96	16	47	2†	36	3.56	-0.65	1.87	0	9	17	11	3	nw.	J. L. Hurley
Mt. Ayr	Ringgold	1,245	31	70.5	-3.8	92	16	47	2	32	3.20	-1.22	1.19	0	12	20	6	5	sw.	Alex Maxwell.
Mt. Pleasant	Hingoyne	729	43	71.7	-4.0	93	21	49	2	31	7.06	+3.40	3.49	0	9	8	17	6	nw.	J. H. Jericho.
Oakland	Pottawattamie	1,105	5	71.0	-3.3	94	16	45	2†	36	2.04	.....	0.60	0	9	24	5	2	s.	M. E. Gray.
Oskaloosa	Mahaska	835	48	70.3	-3.4	92	16†	47	2	33	3.17	-0.55	1.06	0	8	8	13	10	nw.	Roy R. Robinson.
Ottumwa	Wapello	649	29	72.9	.....	98	22	49	1†	35	3.94	+0.38	1.10	0	11	20	6	5	sw.	C. L. Mikesh.
Pella	Marion	877	31	70.6	-2.7	94	16	42 ^a	1	38 ^a	2.40	-0.89	1.04	0	6	23	2	6	s.	J. H. Ver Steeg.
Sigourney	Keokuk	790	28	69.8	-4.3	95	16	47	2	32	4.75	+0.90	2.70	0	9	18	5	8	ne.	W. E. Utterback.
Stockport	Van Buren	745	22	70.4	-3.4	92	16	48	1†	30	6.56	+1.97	1.59	0	16	17	9	5	s.	C. L. Beswick.
Thurman	Fremont	975	27	73.2	-2.4	94	22	46	1†	38	4.01	-0.16	1.20	0	12	3	26	2	se.	C. R. Paul.
Tingley	Ringgold	1,275	.....	70.6	.....	91	16	47	2†	34	3.08	.....	1.04	0	9	19	9	3	sw.	James A. Verploegh.
Washington	Washington	769	42	70.8 ^a	-3.7	94 ^a	21	48 ^a	1†	31 ^a	8.33	+4.99	5.80	0	8	10	16	5	nw.	Wm. A. Cook.
Wescott (near)	Lee	.....	2	71.1	.....	93	21	46	2	28	6.57	.....	2.25	0	9	16	10	5	sw.	Lester J. Larson.
Winterset	Madison	1,129	33	72.0	-2.9	93	28	46	2	30	2.02	-2.38	1.22	0	7	24	6	1	sw.	H. S. Ely.
Omaha, Nebraska	.....	1,103	53	73.2	-3.5	96	23	52	2	28	2.79	-1.54	0.87	0	12	14	15	2	s.	U. S. Weather Bureau.
Means and extremes	.....	.....	.....	71.3	-3.3	98	22	42 ^a	1	38	3.98	+0.09	5.80	0	10	16	11	4	sw.	.....
State means and extremes	.....	.....	.....	70.2	-3.6	99	21	41	1†	42	3.67	-0.17	5.80	0	10	16	11	4	sw.	.....

The departure from normal temperature and precipitation are computed only for such stations as have ten or more years of record, but all complete records are used in determining means. Reference letters a, b, c, etc., appearing in the table indicate the number of days missing; for example b represents two days, etc. †Also other dates. ††Received too late to be included in means and summaries.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE.

Stations	Barometric Pressure, Inches (Sea level)				Relative Humidity (%)				Wind				Sunshine			
	Mean	Highest	Date	Lowest	Date	Mean		Date	Total movement	Average hourly velocity	Maximum		Per cent of possible	Departure from normal		
						7 a. m.	12 Noon†				Miles	From			Date	
Charles City	29.99	30.34	2	29.69	21	81	59	31	10	3,663	4.9	28	nw.	23	67	-8
Davenport	30.00	30.31	2	29.71	21	78	53	37	5	4,106	5.5	28	nw.	21	63	-12
Des Moines	29.99	30.33	2	29.65	21	80	58	37	2	4,401	5.9	33	sw.	16	76	+3
Dubuque	29.99	30.31	2	29.65	21	79	54	39	17†	3,569	4.8	39	nw.	21	65	+5
Keokuk	30.02	30.28	2	29.74	21	77	58	39	15	3,879	5.2	25	nw.	24	71	+8
Sioux City	29.99	30.37	2	29.62	11	77	50	32	10	7,110	9.6	59	e.	15	80	+10
Omaha, Neb.	29.99	30.34	2	29.67	12	76	60	32	5	4,689	6.3	42	nw.	11	82	+8
Means and extremes	30.00	.....	.....	.....	77	55	57	.....	.....	6.0	.....	.....	.....	.....	72	-2
Normals and records	29.95	.....	7th	.....	79	.....	57	.....	.....	6.7	.....	.....	.....	.....	74	.....
	.....	*30.47	1892	§29.37	1905	¶13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

*Davenport. §Charles City. ¶Des Moines. ||Omaha. †Local mean time. †And other dates.

TEMPERATURE.

The mean temperature for the State, as shown by the records of 101 stations, was 70.2°, or 3.6° lower than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 68.9°, or 3.8° lower than the normal; Central, 70.3°, or 3.7° lower than the normal; Southern, 71.3°, or 3.3° lower than the normal. The highest monthly mean was 73.2°, at Thurman, and the lowest was 66.2°, at Postville. The highest temperature recorded was 99°, at Clinton on the 21st, and the lowest was 41°, at Decorah on the 1st, 2d and 3d and at Postville on the 3d. The temperature range for the State was 58°.

PRECIPITATION.

The average precipitation for the State, as shown by the records of 104 stations was 3.67 inches, or 0.17 inch less than the normal. By divisions the means were as follows: Northern, 3.10 inches, or 0.69 inch less than the normal; Central, 3.92 inches, or 0.07 inch more than the normal; Southern, 3.98 inches, or 0.09 inch more than the normal. The greatest amount, 8.90 inches occurred at Olin, and the least, 0.57 inch, occurred at Milford. The greatest amount in 24 consecutive hours, 5.80 inches, occurred at Washington on the 24th.

Daily Precipitation for July, 1924.

Stations	Drainage Basin	Day of Month																															Totals
		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	
<i>Northern Division</i>																																	
Algona	Des Moines	.92							.06			.26			.20							.75								.28			2.47
Allison	Cedar	.76		.16				.01			.48			.38						.56	.18	1.52			1.70			T.		.71			6.46
Alta	Raccoon	T.	.08			.02			.10		.03			T.	.05				T.	.02	.54		.03		.25					.20			1.30
Alton	Floyd	.02									T.				.08				.12	.02	.42									.23			0.89
Belmond	Iowa	T.	T.	T.	T.			.03	.06		.17				.06					.12	.02	1.22			.72			.06		.73			3.19
Britt	Iowa	T.	T.		.02			.01	1.07		.07				.53	.01			.03		.95		.30	.02					.65			3.66	
Charles City***	Cedar	.30		.39			T.	.01	.03		.39	.06			.11			.02	.11	T.	.16		1.00	.04			.06		.51		T.	3.19	
Cherokee	Little Sioux	.14							T.		.07				.15	.02			T.	.02	.52			.08				.32	.29			1.61	
Decorah	Mississippi	.02			T.	.25			.06	.15		.27							.01		.83		.10	.08				.50	.67			2.94	
Dubuque***	Mississippi	.01	.07				T.	.06	T.	1.18		.19								.03	.99	.83		.19	.30			T.	.26		T.	4.11	
Estherville	Des Moines							T.				.60			.55				.02		.60											1.77	
Fayette	Mississippi				T.							.44								.13	2.73			2.42				.25			5.97		
Forest City	Cedar	T.	.06		T.	T.			T.	1.37		T.			.66				.03	.02	.67			.11				.10		.27		3.29	
Hampton	Cedar	.66		.05				.05	.13		.38				.26					.20	.91		2.16				.02	.48			5.47		
Humboldt	Des Moines	.03			T.			.14			.23						T.		.16	T.	.65			1.04			.52	.71			3.48		
Independence	Wapsipinicon						T.		.34		.48				.07				1.57	1.31	.67			1.44				.41			6.29		
Inwood	Big Sioux	.02	.02					.01		.02	.01				.02	.01	.14			.01	.71							.05		.02	1.04		
Le Mars	Floyd	.19									.03				1.11		.02		.10	.04	.48			T.			.16	.58			2.69		
Mason City	Cedar				.45			.65	T.		.05				.25					.26	T.		.36				.01	.10			2.13		
Milford (near)	Little Sioux	.01						T.			.15				.01		.08		.03	.02	.27						T.	T.			0.57		
New Hampton	Wapsipinicon	.05		T.				.10			.32									T.	.30			.98			.06	1.94		T.	3.75		
Nora Springs	Cedar	.16			.32			.13	.25		.07				.13				.27	.08	.31					.14	.79			2.97			
Northwood	Cedar	.10			.18			.20	.20		.03				.05	.03			.08	1.10	.17		T.			.28	.15			2.37			
Oelwein	Wapsipinicon							.10			.85				.15	.30	1.53						T.	1.55			.40	.40			4.88		
Pocahontas	Des Moines	.32			T.			T.	.16		T.				.50				.12	.68	.38			.62			.02	.16		T.	2.96		
Postville	Mississippi		.11					.22		.19		.40							.18	T.	1.52			.95				.39			3.96		
Rock Rapids	Big Sioux	.08						.07			.26				.03				.40		1.10										1.68		
Sanborn	Floyd	.12						.26							.02				.18		1.80							.08	.05		2.51		
Sioux Center	Floyd	.27												.05							1.07							.07			1.46		
Spencer	Little Sioux							.05			.03				T.						.61										0.69		
Storm Lake	Raccoon	.16	T.					T.	.01		.05								.06	.02	T.		T.				.83				1.13		
Washita	Little Sioux	.20							T.	.01		.26			.10	.06	.05	1.22			.05	1.22		.53			T.	.23		T.	2.66		
Waterloo	Cedar	T.	.37		.05			.02	.07		.36				.40				1.25	.05	1.37	1.55		1.35			.12	.65	.35		7.69		
Waverly	Cedar	.16		.03				.02			.39				.08	.40				.47	.97	.78		1.90			.98	.01			5.79		
West Bend	Des Moines	.42						.01	.02		.35								T.	T.	.84			.14			.80	.23			2.81		
<i>Central Division</i>																																	
Ames	Skunk	T.		T.				.12	.08		T.	T.							.50	T.	.30			.15			.25		.16			1.56	
Audubon	Nishabotna	.02						.22			.06			.04			.92		.40		1.75			1.12				.26			5.21		
Baxter	Skunk	.27		.05				.45			.50								.54	T.			.30				.30	.80			3.21		
Belle Plaine	Iowa	.26				.22	.36	1.10			.22								.48	.01	.20		1.83			T.	.12	.65	.08		5.53		
Boone	Des Moines	T.	.16		T.			.07			.05		T.				T.		.53		.11	.05	.13				.55	.54	.04		2.23		
Carroll	Raccoon		.19								.10								.72		1.12	.27		.98				.28	.20		3.86		
Cedar Rapids	Cedar	T.	T.		.04			T.	.22	T.	.15	.15							.35	.10		1.63		1.57	.02		.19	.01	.56		4.99		
Clinton	Mississippi						.05	.38			.21										1.67			1.21			T.	.06	.19		3.77		
Davenport***	Mississippi	.05		.03	T.	.03	T.	.01		.65		.20							.10	T.	1.51			.90				.22	.06		3.76		
Davenport (No. 2)	Mississippi			.08	.13		T.		T.	.65		.20		T.	T.				.15		1.74		.99				.02	.32	.06		4.14		
Denison	Missouri	.20						.02			.22				.45		.24	.13		1.16			.70					.45			3.57		
Des Moines***	Des Moines	.02		.07				T.	.36		T.			.01		.03	.09	.16	T.				.16					.08			0.98		
Fairport	Mississippi						.02	.54			.24						.31			.95			1.36				.44	.02			3.88		
Fort Dodge	Des Moines		.12			.01		.10			.07						.03			.17		.30	.22		.81			.08	.09	.28		2.28	
Grinnell	Iowa	.26				.04	.05	.97			.46						.22			.22		.22	4.40			.01	.14	.70	T.		7.25		
Grundy Center	Cedar	.35					.22	.12			.45								.44	.15	.85			1.75			.30	1.05			5.68		
Guthrie Center	Raccoon	.20						.14						.06		.13			.47		.03		.42					.55			2.00		
Harlan	Nishabotna	.12						.50			.36			.13		2.15		.46	.30		.46			.05			.30				4.83		
Iowa City	Iowa	.02	T.				.03	.05	.12	.52		.01						.05	T.			.38		1.45	T.		.06	.04	.94		3.67		
Iowa Falls	Iowa	T.	.01		.01			.06			.26							.25	.01	.41	1.37		1.84			.04	1.42	.43			6.11		
Jefferson	Raccoon	.30	.05	.03				.05	.11		T.	.01	T.		T.	T.	.17	.09		1.03			.92				.14				2.90		
Le Claire	Mississippi	.01	T.		T.	.42	T.		.20	.15	.59		.10	.06	T.			T.	.07	T.	2.26		.98	.38			.06		.32	T.	5.60		
Little Sioux	Little Sioux	.13						T.	.02		.12	.03	.08		.37		.05	.80		.20		.65		.03			.28				2.56		
Logan	Missouri	.20						.10		.17	.04	.25			.29			.12		.20		.01		.38			.35				2.11		
Marshalltown	Iowa		.24		.01	.02		.50	.12	.30	.07		.41	T.					.14		.19	.24	1.73	.01	T.		.92	.95	.11		5.96		
Monroe	Des Moines	T.									.22	T.			T.				.18		T.		.63				.20	.73		T.	1.96		
Muscatine	Mississippi						.02	T.	.11	.38		.34	T.						.34	.02		.83		1.25	.06		.33		.51		3.86		
Olin	Wapsipinicon							1.15			.27							.73		4.00			1.67			.33	.75				8.90		
Onawa	Missouri	.21									.18		T.	.10			.65		.12	.20		.35		.46			.03	.28			2.58		
Perry	Raccoon	.28		.03				.10	.09		.04	T.				.01		.07	.22		.17		.22				.27				1.50		
Rockwell City	Raccoon	.53						.30	.20									T.	.10	.04	.90			1.04			.60				3.71		
Sac City	Raccoon																																

Daily Precipitation for July, 1924—Continued.

Stations	Drainage Basin	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		
<i>Southern Division</i>																																		
Afton	Grand	.11							1.02				.05			.40	.06	.05	.49		.25			.02							.02			2.47
Albia	Des Moines		.18						.30	.04		T.	.01			.04	.03		.40	.22		.47		.48	.05				T.	.37			2.59	
Atlantic	Nishnabotna		.13						.25				.12			.82	.02		.23	.17				T.	T.					.03	.04		1.81	
Bonaparte	Des Moines	.28				T.	T.	.14	1.29			.40					T.	T.	1.25		.47	.05	1.46						T.	.33	1.21		6.88	
Burlington	Mississippi	.37		.03		.08	.26	.14	.06	.60		.30	T.	T.			.24		.66	.01		.92		2.27	.42			.03		.54			6.96	
Centerville	Chariton	.25	T.	T.					.39			.03	.01	T.		.10	.42	T.	1.88		T.	.12		.76				T.	.40			4.36		
Chariton	Chariton	T.							.42			T.	T.				.22	T.	1.22		.27		.22						T.	T.			2.35	
Clarinda	Nodaway		.09						.33			.41	.01	.10		.64	.38		.59	.99									.03	.05			3.62	
Columbus Jct.	Iowa					.60	.30		.33			.40							.17			.30	T.	5.40					.30	T.			7.80	
Corning	Nodaway	.26							.60				.10			.51		.60	.88		.57												3.52	
Corydon	Chariton					.10			.33				.01		.12	.63	.01	1.40			.54		.04					.06		.32			3.56	
Creston	Missouri		.02						1.35				.12		.32	.12		.38	.18			.28		T.					T.				2.77	
Cumberland (near)	Nodaway	.06		.08					.23				.04		.34		.17	.14			T.		T.							T.			1.06	
Earlham	Des Moines	T.		T.	T.				.89				.04		.41		T.	.23					T.										1.57	
Fairfield	Skunk	.55	T.	.14			.01	.14	.75			1.58	T.			.06			.29	T.	.27	.01	2.53				.03		.59	.02			6.97	
Glenwood	Missouri	.03							1.16			.44	.45	.05		.27	.70	.20	.58				.06				T.						3.94	
Indianola	Des Moines	.01							.72				T.	.01		.29		.25			T.			.17						.30			1.75	
Keokuk***	Mississippi	.02		T.				.13	.33			T.	.15	T.		.87		.69		1.52	.01		.96				.08	.02	T.	.07			4.85	
Keosauqua	Des Moines	.07						.28	.98			T.	.64		.83	T.	1.45		.22	.38			1.38					.06	.38	1.17	.18			8.02
Knoxville	Des Moines	.10					T.		.79			T.	T.	.07		.05			.12		T.		.23					T.	.37				1.73	
Lacona	Des Moines	.01		.20					.54			.02	.05		.20			.08					.05						.20				1.35	
Lamoni	Grand		.06				.04		.33	.05		.45		.09		.52	.56		.13	.69		.44		.06			.05	.09	.01				3.57	
Lenox	Missouri	.17			T.				.55			.17		.53	.20	.21	1.66			.05		.02							T.				3.56	
Mt. Ayr	Grand	T.	.05	T.	T.	.07			.58			.04	.03		.70	.32	.08	1.11		.10			.09						.03				3.20	
Mt. Pleasant	Skunk			.08				.16	.88			.55	T.				.71				.67		3.49					.47	.05				7.06	
Oakland	Nishnabotna	.20							.32			.14			.21	.06	.19	.41			T.		.37					.14					2.04	
Oskaloosa	Des Moines	.13		T.			T.	T.	.26			T.	T.	.04		T.	T.	.19			.15		.75				T.	1.06	.59				3.17	
Ottumwa	Des Moines	T.			.13			.03	.16			.15	.03	T.		.06	T.	.81			.72		1.10				T.	.03	.72				3.94	
Pella	Skunk		T.						.76			.32	T.		.01		.13				T.		1.04						.14				2.40	
Sigourney	Skunk	.17					T.	.12	.19	.18		.12	T.								T.	T.	2.70					.12	1.13	.02			4.75	
Stockport	Skunk	.23	T.	.05			.03	.19	1.14			.52		.02		.06	T.	1.14			.20	.22	1.59				.05	.07	.66	.39			6.56	
Thurman	Missouri	.02							.62			.42	.29	.06		.15	.85	.26	1.20	T.	.02						.06						4.01	
Tingley	Platt	.16							1.00			.04	.09		.34	.31		1.04		.06													3.08	
Washington	Skunk					.44	.26		.28			.12					.20						5.80						1.00	.23			8.33	
Wescott (near)	Mississippi						.40	.50				.22				.75		.50			1.50		2.25					.25	.20				6.57	
Winterset	Des Moines	.15							1.22			.01			.25			.23					.08						.08				2.02	
Omaha, Nebr.***	Missouri	.11							T.	.50		.87		.33		.10	.06	.08	.17	.25		.01		.02				T.	.29				2.79	

Except as otherwise indicated, observations are generally made late in the afternoon, near sunset, and precipitation recorded is for 24 hours ending at the time of observation.
 ||||| Precipitation measured in the morning; amount then recorded is for the preceding 24 hours.
 ***Regular Weather Bureau Station; precipitation is for 24-hour period, midnight to midnight.
 *Incomplete.
 *Precipitation included in the next following measurement.
 T. Precipitation is less than 0.01 inch rain or melted snow.

MISCELLANEOUS PHENOMENA.

Aurora: 26th.
 Fog: 4th, 7th, 19th, 20th, 30th, 31st.
 Hail: 1st, 3d, 4th, 7th, 11th, 21st, 23d, 24th, 27th, 28th, 29th.
 Halos (lunar and solar): 2d, 13th, 18th.
 Rainbows: 1st, 2d, 20th.
 Thunderstorms: 1st, 3d, 4th, 6th, 7th, 8th, 9th, 11th, 12th, 13th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22d, 23d, 24th, 27th, 28th, 29th.
 Winds (destructive): 21st, 24th, 27th, 29th.

RIVERS.

Gradually falling stages prevailed on the Missouri River though a moderate rise occurred during the first part of the third decade, the extreme stages ranging from 13.9 feet to 10.4 feet at Omaha and from 10.3 feet to 8.4 feet at Sioux City. Gradually falling stages also prevailed on the Mississippi River during the most of the month but a rather sharp rise occurred at Dubuque on the 22d due to a freshet in the Turkey River and at Davenport on the 24th and Keokuk on the 25th due to excessive rainfall that occurred in the lower basins of the Wapsipinicon, Cedar, Iowa and Skunk Rivers. Low and nearly stationary stages prevailed on the interior rivers except in the southeast and east central sections where destructive floods occurred in the lower reaches of the rivers and most of their tributaries in the area.

Daily Maximum and Minimum Temperature for the Month of July, 1924.

Stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean		
<i>Northern Division</i>																																		
Algona.....	Maximum..	71	73	77	79	81	80	83	81	80	85	83	83	76	78	88	85	77	70	73	84	82	86	89	86	86	82	90	90	85	85	75	81.4	
	Minimum..	49	46	55	52	52	57	56	58	63	55	60	63	54	55	56	62	55	55	55	64	68	58	53	63	55	54	60	62	67	63	65	57.7	
Alta.....	Maximum..	70	70	75	75	79	80	83	80	77	84	84	80	74	79	87	84	79	66	80	86	76	85	88	76	81	83	88	89	78	85	75	79.9	
	Minimum..	49	50	50	53	56	57	56	61	62	54	64	60	57	52	60	65	55	57	57	65	64	58	62	61	57	55	63	64	68	65	57	58.5	
Alton.....	Maximum..	71	72	78	80	82	82	85	82	79	88	88	81	75	81	89	85	79	74	85	88	80	89	91	84	85	86	94	92	85	85	79	83.0	
	Minimum..	45	43	46	45	50	59	59	62	51	47	63	57	65	49	60	65	54	58	58	63	63	55	65	61	52	51	61	59	68	64	55	56.5	
Belmond.....	Maximum..	73	75	81	81	84	83	83	83	84	85	83	87	81	82	87	88	79	73	78	87	82	88	89	83	86	86	82	90	81	88	78	82.9	
	Minimum..	48	45	50	52	51	57	58	58	66	54	59	63	55	50	57	64	55	55	57	65	67	58	61	63	52	55	58	63	68	61	56	57.5	
Charles City.....	Maximum..	69	71	73	76	80	82	81	84	78	84	84	82	74	75	85	85	75	73	68	83	79	87	88	77	80	81	86	89	76	85	72	79.4	
	Minimum..	46	45	51	51	52	58	57	58	60	54	58	62	55	50	56	62	56	54	56	64	63	57	62	61	55	57	58	62	68	63	60	57.1	
Decorah.....	Maximum..	71	76	76	80	83	82	80	83	78	86	82	79	78	80	76	84	81	76	73	85	79	88	87	77	83	85	86	89	83	85	75	80.8	
	Minimum..	41	41	41	47	50	58	53	54	63	52	56	63	53	49	49	62	52	45	55	56	64	55	58	65	54	55	53	59	65	63	58	54.5	
Dubuque.....	Maximum..	69	71	74	77	79	80	75	84	79	82	82	83	77	77	85	88	74	72	69	85	88	87	87	77	79	83	86	88	76	87	74	79.8	
	Minimum..	49	50	52	52	56	58	60	61	65	59	63	66	60	57	56	68	58	53	55	65	66	64	65	64	59	60	60	65	70	61	60.2		
Forest City.....	Maximum..	70	71	77	77	81	83	83	82	78	84	81	87	74	75	85	82	75	70	68	82	81	88	87	84	83	82	87	89	82	82	74	80.0	
	Minimum..	48	45	45	50	53	57	55	55	60	53	57	62	53	48	52	61	52	50	54	62	65	55	60	61	54	53	57	60	60	55	55.7		
Independence.....	Maximum..	71	71	74	70	79	80	78	80	80	81	81	81	81	81	81	85	82	84	81	84	81	84	87	84	84	78	81	85	89	86	80	84.0	
	Minimum..	47	45	48	48	56	58	59	57	61	54	57	62	58	53	53	64	57	51	51	64	67	54	67	64	57	59	57	62	61	63	62	57.3	
Inwood.....	Maximum..	74	74	75	79	83	85	84	82	84	90	82	78	83	91	87	80	81	87	89	81	89	82	82	87	87	87	87	85	92	86	88	83.7	
	Minimum..	43	47	47	44	51	57	58	63	58	49	63	55	53	49	60	63	53	57	57	61	63	56	65	58	52	48	62	62	70	66	56	56.3	
Mason City.....	Maximum..	70	71	76	76	79	81	83	83	76	83	84	84	82	74	74	86	83	75	72	68	81	79	87	88	84	80	81	86	88	82	83	73	79.6
	Minimum..	46	43	47	47	48	67	55	55	62	54	60	62	54	53	47	55	60	54	50	54	63	66	66	62	64	53	54	56	60	68	61	57	56.2
Milford (near).....	Maximum..	69	68	75	79	80	80	84	80	77	84	85	78	70	80	87	78	73	69	78	85	82	85	88	76	82	77	88	89	83	79	74	79.4	
	Minimum..	51	49	48	53	52	53	54	58	60	52	58	61	54	52	59	61	58	57	58	64	64	57	60	60	58	56	60	58	61	72	64	54	57.3
New Hampton.....	Maximum..	68	71	75	78	80	83	81	83	79	79	84	82	74	75	86	76	78	73	70	84	78	85	88	80	81	82	87	91	82	87	74	79.8	
	Minimum..	45	46	50	48	56	57	54	55	62	57	55	61	54	50	51	60	53	48	50	55	66	55	59	61	55	56	60	67	62	59	55	56.6	
Northwood.....	Maximum..	70	71	76	77	77	78	81	82	77	84	81	81	72	77	84	83	78	73	68	79	77	85	85	79	81	80	85	87	82	80	73	78.8	
	Minimum..	46	47	50	48	56	58	55	55	60	55	60	62	54	49	55	60	54	51	52	63	63	59	60	63	57	55	56	60	68	62	57	56.3	
Pocahontas.....	Maximum..	73	72	78	80	82	82	85	82	83	85	86	83	76	79	88	84	77	73	71	82	80	88	90	84	84	84	84	92	91	81	87	72	81.7
	Minimum..	48	45	45	50	50	52	52	57	63	51	60	62	55	49	55	62	51	54	58	63	66	57	61	62	54	54	58	61	69	62	56	56.2	
Postville.....	Maximum..	70	72	66	73	77	78	74	77	74	77	77	77	72	72	79	82	74	68	66	78	76	82	82	76	75	79	80	83	78	82	70	75.7	
	Minimum..	47	43	41	47	53	56	53	55	54	54	61	63	55	50	54	65	53	49	60	62	65	55	61	65	50	58	60	62	69	64	56	56.7	
<i>Central Division</i>																																		
Belle Plaine.....	Maximum..	75	72	75	77	84	88	81	83	77	84	81	85	76	78	87	91	81	78	71	91	94	89	91	82	84	84	91	92	84	89	78	82.8	
	Minimum..	47	45	47	49	54	57	58	59	61	53	58	63	56	52	63	56	53	54	65	70	58	61	67	53	57	57	57	62	68	69	62	57.5	
Boone.....	Maximum..	74	72	77	81	83	82	84	82	82	85	84	86	78	78	87	90	80	71	78	87	86	90	90	83	85	84	90	91	78	90	73	82.6	
	Minimum..	45	44	46	47	49	49	52	54	64	47	55	65	50	49	48	60	57	54	59	63	68	53	56	63	50	55	53	60	72	59	59	55.0	
Carroll.....	Maximum..	73	73	77	80	84	80	85	82	81	83	86	86	77	79	87	88	83	75	77	84	80	86	92	82	83	82	88	94	81	88	80	82.5	
	Minimum..	46	47	47	50	52	51	54	54	63	52	63	56	50	58	65	65	56	56	64	66	68	60	61	53	53	59	63	69	60	58	57	55.7	
Davenport.....	Maximum..	71	72	75	78	82	81	78	83	80	84	82	85	80	81	85	91	76	76	75	90	93	88	88	80	81	86	87	91	79	85	74	81.8	
	Minimum..	52	50	54	55	57	59	64	63	65	60	64	66	63	61	58	69	60	54	55	67	69	65	68	65	61	64	66	71	72	70	65	62.3	
Des Moines.....	Maximum..	74	72	73	77	80	81	83	85	83	82	85	87	78	79	85	92	79	77	87	89	91	90	81	85	83	88	93	80	91	74	82	82.4	
	Minimum..	52	52	51	52	57	57	59	62	62	57	63	68	59	58	60	67	63	58	61	67	70	62	66	67	60	64	62	67	71	66	64	61.4	
Fort Dodge.....	Maximum..	74	72	77	80	82	83	84	83	80	85	84	84																					

NEW PRECIPITATION NORMALS.

Beginning with June 1, 1924, new precipitation normals were used for computing departures for each station and for the State, and in the Annual Summary of Climatological Data the departures will be corrected for the earlier months of the year.

These normals were based on all available records up to the close of 1920 for stations other than regular Weather Bureau Offices, at which the records included 1923. The longest record, 75 years, is at Muscatine, and no record of less than 10 years was used.

All normals were charted, and where short record stations appeared to be much out of line the normals were smoothed to harmonize with long record stations nearby.

The new annual normal for the State, 32.24 inches, is 0.27 inch more than the old normal. The northern division, made up of the three northern tiers of counties, shows an increase of 0.82 inch in the annual normal, all months showing an increase except July, August, October, and December. The central division shows an increase of 0.17 inch and the southern division, a decrease of 0.18 inch. A decrease in July and August and an increase in September in all three sections brings out in the latter month a secondary maximum in the annual rainfall curve not shown in previous normals. The principal maximum is in May as heretofore.

It is interesting to note that the largest increase in rainfall is in the northern division where more water surface was originally exposed to evaporation and where drainage has steadily reduced this water surface for the last 35 years. At Algona near the center of this division the secular trend of the 51 years of precipitation record computed by least square method, shows an annual increase of about 0.06 inch, with wet tendencies culminating in 1875 and 1909, and dry tendencies culminating in 1886 and 1910. There seems to be no relationship between drainage and rainfall in this division.

Precipitation normals for all stations are published on this page.

Northern Division.

Stations	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year	Length record
Algona.....	0.82	1.09	1.42	2.62	4.28	4.51	3.06	3.55	3.32	2.27	1.36	0.95	29.25	44
Allison.....	1.20	1.44	1.80	3.04	5.09	4.95	3.75	3.40	3.50	2.50	1.56	1.20	33.43	10
Alta.....	0.76	1.02	1.55	3.09	4.91	5.16	4.25	3.58	3.28	2.23	1.42	0.91	32.16	31
Alton.....	0.76	0.96	1.10	2.49	4.82	3.96	3.54	3.10	2.96	1.76	1.37	0.80	27.62	16
Belmond.....	1.26	1.11	1.33	3.26	5.21	4.76	3.62	3.08	4.20	2.72	1.65	1.33	33.53	11
Britt.....	0.68	0.81	1.25	2.57	4.90	4.53	3.98	3.77	3.46	2.40	1.45	0.80	30.60	24
Charles City.....	1.03	1.14	1.84	2.56	4.37	4.68	3.84	3.43	3.52	2.43	1.60	1.25	31.70	33
Cherokee.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Decorah.....	1.24	1.05	1.80	2.55	4.66	4.52	4.05	3.30	4.11	2.82	1.84	1.28	33.22	33
Dubuque.....	1.56	1.50	2.19	2.68	4.02	4.35	3.87	3.33	3.27	2.58	1.83	1.51	33.29	72
Estherville.....	0.58	0.84	1.27	2.63	4.47	4.34	4.16	3.19	3.33	1.91	1.31	0.71	28.74	26
Fayette.....	1.25	1.28	2.11	3.10	4.86	4.84	3.83	3.54	3.67	2.53	1.72	1.41	34.14	33
Forest City.....	0.88	0.94	1.43	2.48	4.64	4.55	3.57	3.37	3.33	2.43	1.55	0.88	30.05	27
Hampton.....	1.21	1.30	1.75	3.19	5.00	4.94	3.65	3.45	3.43	2.55	1.60	1.25	33.32	.....
Humboldt.....	0.81	0.92	1.44	2.68	4.32	4.38	3.74	3.30	3.27	2.22	1.67	0.86	29.61	36
Independence.....	1.17	1.05	1.72	2.51	4.27	4.62	4.14	3.21	3.95	2.55	1.44	1.31	31.94	54
Inwood.....	0.65	0.87	1.20	2.53	4.20	5.31	3.37	2.59	2.79	1.91	1.12	0.66	27.20	17
Lansing.....	1.20	1.13	2.04	2.56	5.00	4.48	4.03	2.95	3.69	2.90	1.95	0.97	32.90	15
Le Mars.....	0.57	0.80	1.25	2.82	4.53	4.38	4.08	3.23	3.23	2.06	1.13	0.87	28.40	32
Mason City.....	0.97	0.95	1.37	2.55	4.69	5.14	3.52	3.74	3.51	2.20	1.48	0.88	30.30	23
Milford.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Hampton.....	0.98	1.05	1.92	2.60	4.83	4.57	3.77	3.50	3.50	2.57	1.69	1.09	32.16	23
Nora Springs.....	1.10	1.25	1.85	3.00	5.10	5.09	3.80	3.77	3.60	2.50	2.00	1.20	34.26	10
Northwood.....	1.14	1.38	1.85	2.74	5.09	4.86	3.83	3.96	3.53	2.64	1.97	1.23	34.22	25
Oelwein.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pocahontas.....	0.78	1.12	1.37	2.72	4.43	4.64	3.45	3.37	3.50	2.73	1.68	0.92	30.80	17
Postville.....	1.23	1.14	1.92	3.01	5.06	4.66	4.39	3.45	3.84	2.68	1.69	1.36	34.43	30
Rock Rapids.....	0.69	0.68	1.32	2.80	3.55	4.62	3.37	3.25	2.50	1.79	1.19	0.63	25.58	22
Sanborn.....	0.70	1.00	1.40	3.00	4.79	4.73	3.50	3.31	3.20	1.85	1.30	0.85	29.53	10
Sioux Center.....	0.74	0.97	1.26	2.82	4.71	4.06	3.83	2.82	2.95	1.84	1.18	0.88	28.05	22
Spencer.....	0.70	0.91	1.32	2.90	4.20	4.20	3.50	3.40	3.32	1.92	1.30	0.85	28.52	11
Storm Lake.....	0.70	0.99	1.30	2.93	4.49	5.00	4.07	3.14	3.25	2.04	1.30	0.82	30.03	26
Washita.....	0.61	0.94	1.01	2.62	4.62	4.58	4.23	2.94	3.30	2.11	1.32	0.83	29.20	24
Waterloo.....	1.12	1.18	1.67	2.53	4.09	4.13	3.98	3.31	4.04	2.44	1.49	1.20	31.18	39
Waverly.....	1.11	1.21	1.78	3.00	4.44	4.27	3.75	3.24	3.50	2.60	1.65	1.18	31.73	24
West Bend.....	0.95	0.98	1.56	2.87	4.19	4.29	3.47	3.69	3.14	2.03	1.49	1.16	29.82	30
Means.....	0.94	1.06	1.56	2.77	4.60	4.61	3.79	3.29	3.43	2.32	1.52	1.03	30.92	.....

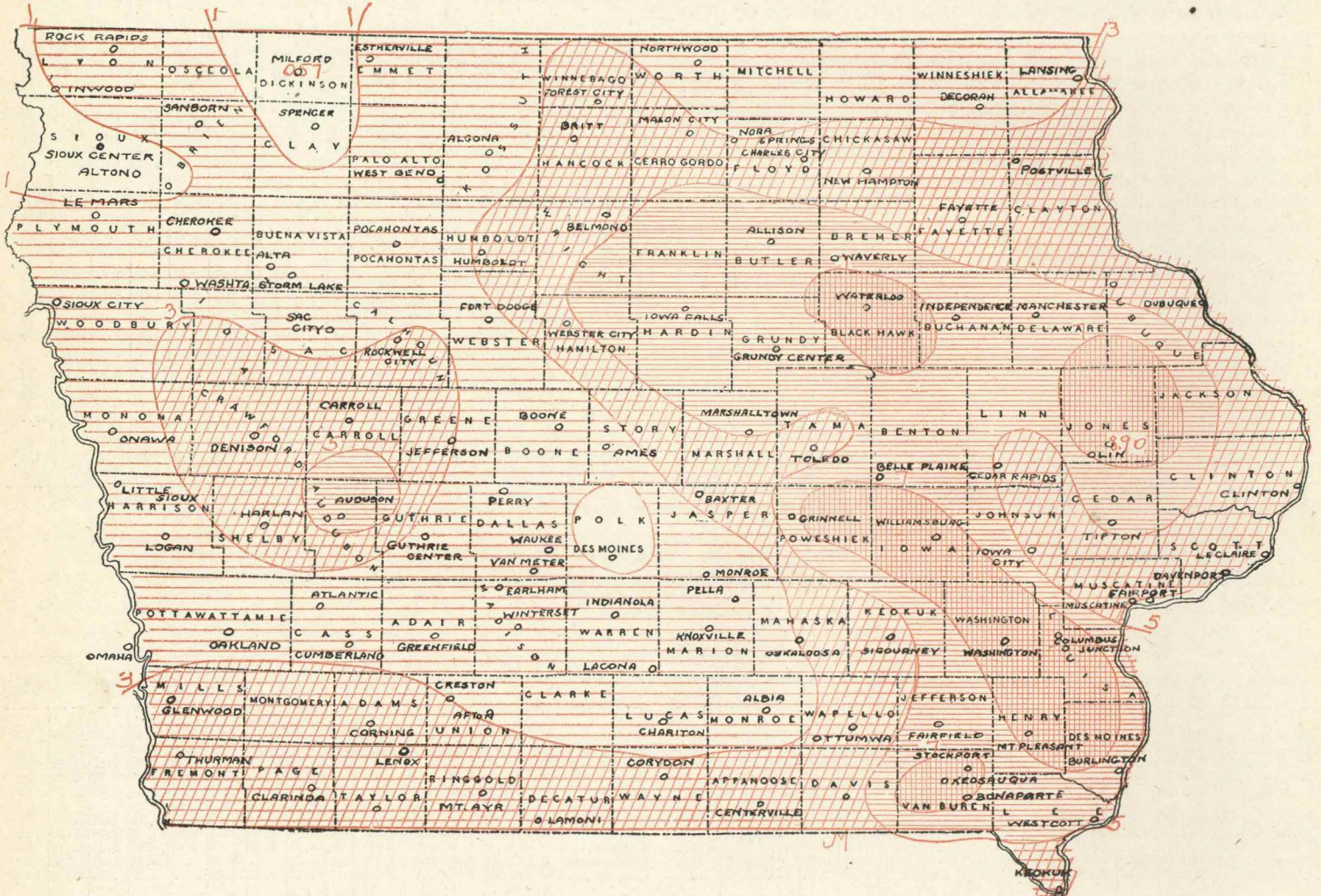
Central Division.

Stations	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year	Length record
Ames.....	0.90	0.94	1.42	2.98	4.51	4.37	3.86	3.44	3.67	2.61	1.29	1.06	31.05	45
Audubon.....	0.83	1.03	1.45	3.12	4.38	4.02	3.67	3.63	3.76	2.31	1.33	0.99	30.52	27
Baxter.....	0.90	1.02	1.84	3.06	5.36	4.59	3.89	3.23	3.97	2.42	1.43	0.95	32.66	22
Belle Plaine.....	1.56	1.60	2.28	3.41	4.81	4.35	3.95	3.23	3.57	2.49	1.69	1.35	34.29	31
Boone.....	0.84	1.00	1.44	2.88	5.03	4.53	3.72	3.56	4.05	2.79	1.37	0.89	32.10	27
Carroll.....	0.78	1.06	1.69	2.95	4.56	4.78	3.58	3.85	3.47	2.58	1.32	0.98	31.60	39
Cedar Rapids.....	1.40	1.40	2.30	3.25	4.70	4.35	3.90	3.50	3.60	2.45	1.65	1.31	33.81	39
Clinton.....	1.82	1.96	2.82	3.04	4.60	4.39	3.89	3.63	3.49	2.56	1.89	1.78	35.87	48
Davenport.....	1.55	1.50	2.31	2.79	4.10	4.00	3.49	3.41	3.45	2.30	1.80	1.51	32.21	52
Denison.....	0.66	0.94	1.53	2.83	4.28	4.09	3.75	3.81	3.12	2.23	1.35	0.87	29.44	29
Des Moines.....	1.13	1.15	1.70	3.01	4.74	4.60	3.61	3.54	3.53	2.56	1.47	1.21	32.25	45
Fairport.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fort Dodge.....	0.84	0.85	1.60	2.74	4.58	4.42	3.91	3.60	4.38	3.04	1.58	0.83	32.37	20
Grinnell.....	1.15	1.22	1.83	3.71	4.97	4.55	4.37	3.70	3.65	2.51	1.69	1.17	34.52	28
Grundy Center.....	0.97	0.94	1.80	3.23	4.94	5.08	3.73	3.30	3.77	2.79	1.44	1.16	33.15	30
Guthrie Center.....	0.78	1.11	1.50	3.13	4.70	4.46	4.22	3.86	3.77	2.66	1.45	1.11	32.75	26
Harlan.....	0.80	1.13	1.33	2.88	4.56	4.63	3.88	3.66	3.77	2.65	1.46	1.00	31.75	22
Iowa City.....	1.64	1.51	2.40	3.18	4.53	4.49	4.12	4.10	3.88	2.74	1.77	1.61	36.37	57
Iowa Falls.....	1.24	1.63	1.87	3.12	4.61	5.46	3.94	3.41	3.80	2.60	1.80	1.51	32.44	37
Jefferson.....	0.86	1.03	1.46	2.85	4.55	4.20	3.68	3.18	3.99	2.54	1.93	1.07	31.34	18
Le Claire.....	1.50	1.67	2.36	2.88	4.41	4.16	3.53	3.03	3.41	2.45	1.77	1.44	32.61	42
Little Sioux.....	0.75	1.28	1.32	2.67	4.44	4.26	4.20	3.74	3.17	2.05	1.57	0.88	30.33	17
Logan.....	1.00	1.19	1.66	2.79	4.24	5.18	4.41	3.69	3.16	2.38	1.40	1.13	32.23	55
Marshalltown.....	1.17	1.21	1.86	2.84	4.49	4.57	4.01	3.60	4.11	2.76	1.52	1.27	32.81	40
Monroe.....	1.10	1.20	1.80	3.25	4.95	4.50	3.56	3.40	4.10	2.50	1.50	1.06	32.92	10
Muscatine.....	1.84	1.92	2.60	3.28	4.42	4.43	3.71	4.14	3.60	2.65	2.30	1.96	36.85	75
Oliver.....	1.43	1.65	2.26	2.81	4.69	4.18	3.85	3.60	3.67	2.49	1.62	1.05	33.60	22
Onawa.....	0.99	1.28	1.62	2.67	4.83	4.68	4.15	4.06	3.51	2.18	1.38	1.10	32.45	33
Perry.....	1.02	1.32	1.74	2.99	4.84	4.42	4.04	4.07	3.77	2.72	1.82	1.52	32.47	20
Rockwell City.....	1.00	1.33	1.61	3.05	4.93	4.73	3.79	3.62	4.05	2.59	1.70	0.98	33.38	26
Sac City.....	1.01	1.11	1.43	2.94	4.16	4.75	3.67	3.39	3.36	2.17	1.30	1.12	30.41	45
Sioux City.....	0.65	0.83	1.16	2.67	3.94	3.70	3.44	3.14	2.91	1.76	1.05	0.82	26.07	34
Tipton.....	1.45	1.49	2.59	3.24	4.89	4.10	3.83	3.82	3.93	2.38	1.87	1.48	35.07	23
Toledo.....	1.10	1.13	1.80	3.06	4.69	4.52	3.54	2.93	3.97	2.51	1.60	1.12	31.97	27
Van Meter.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Waukee.....	1.15	1.23	1.65	3.80	4.67	4.09	4.54	3.36	3.94	2.16	1.57	1.12	33.28	21
Webster City.....	1.06	1.14	1.50	2.79	4.27	4.25	3.34	2.82	3.94	2.48	1.61	0.98	30.18	30
Williamsburg.....	1.40	1.30	2.11	3.35	4.60	4.50	3.95	3.50	3.65	2.45	1.70	1.25	33.76	10
Means.....	1.12	1.26	1.82	3.03	4.61	4.46	3.85	3.53	3.69	2.48	1.58	1.17	32.60	.....

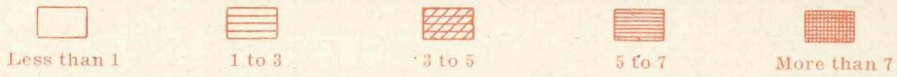
Southern Division.

Stations	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year	Length record
Afton.....	0.86	1.17	1.89	3.50	4.77	4.93	3.97	3.38	4.38	2.58	1.43	1.19	34.05	35
Albia.....	1.19	1.36	1.96	3.08	4.99	4.32	4.14	3.33	4.06	2.28	1.56	1.07	33.34	24
Atlantic.....	0.84	1.14	1.59	3.14	4.23	5.06	3.54	3.47	4.41	2.60	1.50	1.12	31.44	31
Bonaparte.....	1.54	1.26	2.25	3.20	4.63	4.36	3.86	3.49	4.13	1.88	1.80	1.26	33.66	30
Burlington.....	1.76	1.81	2.51	3.10	4.53	4.29	3.41	3.73	3.92	2.28	1.86	1.60	34.60	25

TOTAL PRECIPITATION, JULY, 1924



SCALE OF SHADES IN INCHES.



CLIMATOLOGICAL DATA.

IOWA SECTION

In cooperation with
CHARLES D. REED, Meteorologist

VOL. XXXV DES MOINES, IOWA, AUGUST, 1924 No. 8

GENERAL SUMMARY.

August was the warmest month of the season, though the temperature was just normal, and the only month since April with the average temperature up to normal. The three summer months were 2.0° below normal, and since May 1 the average daily deficiency in temperature was 3.1°. The month opened with the temperature slightly below normal but the next four or five days were rather warm, and during this period the warmest day of the month occurred over most of the State. During the rest of the month there were two prolonged periods of cool and warm weather of about equal length. Temperatures of 90 degrees, or higher, were experienced in all sections of the State except a few stations in the northern division. There were no periods of oppressive weather and the warmest days were generally followed by cool nights.

Precipitation was much above normal and the average for the State has been exceeded but three times in August. The greatest excess occurred in the eastern half of the State. The only extensive area having a deficiency in precipitation was in the southwestern portion, reaching from Pottawattamie to Wayne county. Thunderstorms were unusually active and much damage resulted from damaging winds, severe hail, floods and lightning. Many thunderstorms that set buildings on fire were accompanied by no rain. The greatest damage was due to floods and much of the State from the Iowa river basin eastward experienced destructive overflows following the heavy rains on the 18th. Locally heavy rains were frequent during the month till the 24th. When the heavy rains came on the 18th the soil was generally saturated and soon nearly all streams from the Iowa river eastward were out of banks and much of the adjacent territory was flooded. Cedar Rapids probably experienced the worst flood in its history; portions of the City were covered with as much as ten feet of water; and automobiles parked on streets in the worst flooded sections were entirely submerged. Many of the smaller towns in the flooded sections were partly submerged and in the country districts crops were destroyed, stock drowned, highways rendered impassable, and considerable farm property washed away. Railway traffic was seriously interfered with as there were long stretches of track washed out, bridges damaged, and miles of track submerged. The C. & N. W. Railway and the M. & St. L. Railway experienced the most damage, but all roads in the affected section suffered some damage. Thousands of acres of corn were ruined and much small grain in the shock was washed away and much that was left in the field either rotted or began to sprout. Threshing was greatly delayed, both on account of the wet condition of the grain and the difficulty in moving machines from place to place. Two men were drowned east of Cedar Rapids in attempting to cross a swollen stream and lightning caused the death of a girl at Keokuk. Lightning was also fatal to an unusual number of farm animals.

Destructive hail storms occurred over limited areas, mostly in the northern portion of the State. The most serious damage

occurred in Mitchell county on the 4th, Pottawattamie county on the 12th, Worth county on the 17th, Franklin, Hardin, and Lyon counties on the 18th, Emmet county on the 20th, Plymouth county on the 22d, and Hamilton county on the 23d. There were also numerous wind squalls at frequent intervals during the month. The most destructive storm occurred during the early morning of the 8th when much of the State was affected, though the greatest damage seemed to be confined to a strip running across the State in the southern portion of the central division. Pronounced tornadic characteristics were present at Granger and Colfax. A mile north of Granger a farm dwelling was moved from its foundation and brick falling from a chimney killed a woman who had sought safety in the cellar. The roof of the main portion of the house was carried about 2,000 feet and it mowed down corn as it skimmed along the ground. Another house in the same vicinity was unharmed, though trees that surrounded it were destroyed. At Colfax numerous small buildings were destroyed and a large grain elevator moved from its foundation. In other portions of the State many farm buildings were blown down, hundreds of trees were uprooted or broken off, corn fields leveled and much grain in the shock scattered. Telephone, telegraph, and electric wires were also greatly damaged.

Corn made rather good progress during the last two weeks, but owing to the general unfavorable conditions that prevailed the entire growing season, it was still in need of a month of favorable weather to mature half of the crop.

F. L. D.

COMPARATIVE DATA FOR THE STATE—AUGUST

Year	Temperature				Precipitation					Number of Days			
	Mean	Departure*	Highest	Lowest	Total	Departure*	Greatest	Least	Snowfall	With pre-.01 in. or more	Clear	Partly cloudy	Cloudy
1890.....	68.4	-3.3	102	36	3.41	-0.03	6.44	1.02	.....	8	15	10	6
1891.....	69.1	-2.6	106	34	4.24	+0.80	13.02	1.23	.....	8	13	12	6
1892.....	71.4	-0.3	102	40	2.24	-1.20	4.60	0.65	.....	18	9	14	4
1893.....	69.4	-2.3	101	30	2.32	-1.12	6.22	0.40	.....	5	19	9	3
1894.....	74.6	+2.9	108	38	1.58	-1.86	4.53	T.	.....	4	21	8	2
1895.....	71.9	+0.2	103	37	4.43	+0.99	10.63	0.67	.....	7	17	9	5
1896.....	71.7	0.0	104	34	3.52	+0.08	12.25	0.86	.....	6	15	11	5
1897.....	68.9	-2.8	104	35	1.85	-1.58	4.98	0.47	.....	6	15	11	5
1898.....	71.2	+0.5	103	40	3.44	0.00	10.55	0.58	.....	6	17	9	5
1899.....	74.4	+2.7	100	41	3.68	+0.24	10.45	1.12	.....	7	17	10	4
1900.....	77.4	+5.7	103	44	4.65	+1.21	10.43	1.26	.....	6	18	10	3
1901.....	73.8	+2.1	105	40	1.29	-2.15	4.46	T.	.....	5	20	9	2
1902.....	69.1	-2.6	98	37	6.58	+3.14	15.47	1.57	.....	11	11	11	9
1903.....	69.1	-2.6	101	41	6.64	+3.20	17.74	2.55	.....	11	12	10	9
1904.....	69.1	-2.6	97	35	3.43	-0.01	6.75	0.66	.....	7	17	8	6
1905.....	74.3	+2.6	104	44	4.05	+0.61	8.47	1.04	.....	9	16	9	6
1906.....	74.1	+2.4	101	33	3.95	-0.51	10.51	0.92	.....	9	17	9	5
1907.....	71.1	-0.6	99	37	4.33	+0.89	9.67	1.05	.....	9	17	9	5
1908.....	70.0	-1.7	101	38	4.77	+1.33	10.55	1.35	.....	9	17	9	5
1909.....	76.1	+4.4	103	33	1.81	-1.63	8.21	T.	.....	5	21	8	2
1910.....	71.9	+0.2	104	36	3.88	+0.44	11.22	0.37	.....	8	15	10	6
1911.....	71.7	0.0	107	34	3.32	-0.12	9.47	0.44	.....	9	16	10	5
1912.....	71.0	-0.7	101	40	3.78	+0.34	7.90	0.89	.....	10	15	10	6
1913.....	76.6	+4.9	108	40	2.68	-0.76	7.13	0.08	.....	6	17	10	4
1914.....	73.7	+2.0	103	40	2.19	-1.25	4.60	0.42	.....	7	17	10	4
1915.....	65.9	-5.8	91	30	2.81	-0.63	9.14	0.27	.....	8	16	8	7
1916.....	75.0	+2.3	106	35	2.58	-0.86	6.23	0.49	.....	7	18	9	4
1917.....	69.4	-2.3	102	31	2.29	-1.15	6.31	0.70	.....	7	19	8	4
1918.....	76.0	+4.3	113	38	3.61	+0.17	8.38	0.54	.....	8	16	10	5
1919.....	71.5	-0.2	103	38	2.59	-0.85	5.72	0.97	.....	7	19	9	3
1920.....	69.3	-2.4	98	39	3.35	-0.09	8.52	0.44	.....	7	18	8	5
1921.....	72.1	+0.4	102	37	5.04	+1.60	9.04	2.20	.....	8	16	11	4
1922.....	73.8	+2.1	102	42	3.06	-0.38	9.80	0.33	.....	8	19	8	4
1923.....	70.6	-1.1	102	38	5.42	+1.98	13.14	1.46	.....	12	15	9	7
1924.....	71.7	0.0	100	40	5.35	+1.91	12.38	1.90	.....	10	16	10	5

T. indicates an amount too small to measure, or less than .005 inch rainfall and less than .05 inch snowfall.
*New normals effective June 1, 1924



Climatological Data for August, 1924—Concluded.

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit							Precipitation, in Inches				Number of Days				Observers	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation .01 in. or more	Clear	Partly cloudy	Cloudy		Prevailing direction of wind
<i>Southern Division</i>																				
Afton	Union	1,212	30	74.0	+1.4	97	3	52	10	33	4.34	+0.86	1.30	0	10	17	11	3	sw.	S. R. Brown
Albia	Monroe	959	26	74.0	-1.4	97	3	52	10†	32	4.22	+0.89	1.32	0	8	18	6	7	se.	O. E. McBride
Atlantic	Cass	1,164	33	73.4	-0.7	96	30	51	10	33	4.07	+0.60	1.53	0	12	15	10	6	ne.	Miss Oza Cunningham
Bonaparte	Van Buren	563	33	73.2	-0.4	94	3†	52	14	27	4.80	+1.31	1.97	0	9	20	9	2	se.	B. R. Vale
Burlington	Des Moines	544	28	74.7	+0.3	97	4	53	14	26	4.07	+0.34	1.16	0	6	21	4	6	nw.	John W. Donnelly
Centerville	Appanoose	1,013	19	74.5	+1.3	95	3	53	10	29	5.04	+1.56	2.01	0	6	16	10	5	sw.	Thomas Wood
Chariton	Luce	1,042	29	73.0	-1.1	94	3	52	10†	28	4.88	+1.19	2.15	0	4	12	13	1	sw.	C. C. Burr
Clarinda	Page	1,009	34	74.4	-0.2	98	26	50	10†	33	2.38	-1.15	0.75	0	13	22	9	0	s.	Dr. H. C. Hawley
Columbus Jct.	Louisa	595	23	74.4	+1.3	100	21†	50	14	36	3.33	-1.01	1.45	0	5	20	6	5	se.	Gale Gentsler
Corning	Adams	1,117	32	73.2	-0.6	96	4	44 ^a	8	44 ^a	4.26	+0.48	1.02	0	9	17	11	3	sw.	Jerome Smith
Corydon	Wayne	1,101	31	74.9	+1.7	96	3	54	10†	31	2.72	-0.52	0.98	0	7	19	9	3	s.	Mrs. May Miller King
Creston	Union	1,312	19	72.6	+0.6	92	2	54	10	32	5.41	+2.15	1.08	0	12	17	13	1	sw.	Mrs. S. O. Stanley
Cumberland (near)	Cass	1,225	25								3.69	-0.24	1.23	0	10	14	12	5	sw.	Carl E. Pollock
Earlham	Madison	1,126	22	71.6	+0.2	96	3	48	10	29	5.32	+1.49	1.84	0	10	18	7	6	sw.	Geo. Phillips
Fairfield	Jefferson	780	40	73.2 ^a	+0.4	97 ^a	3	52	12†	36 ^a	4.55	+1.08	1.46	0	9	19	3	9	s.	Prof. R. M. McKenzie
Glenwood	Mills	1,100	26	75.2	+1.2	100	30	54	10†	30	1.90	-1.46	0.90	0	6	13	16	2	se.	Dr. Geo. Mogridge
Indianola	Warren	972	33	73.0	-0.1	97	3	52	10	27	4.32	+0.48	1.69	0	10	18	9	4	sw.	Seth F. Shenton
Keokuk	Lee	614	53	75.4	-0.4	97	5	54	14	28	5.60	-2.67	3.09	0	8	11	11	9	s.	U. S. Weather Bureau
Keosauqua	Van Buren	644	32	73.9	-0.7	97	3	52	11†	33	4.81	+1.54	1.95	0	8	15	12	4	se.	J. H. Landes
Knoxville	Marion	920	29	73.4	+1.0	97	3	50	10	32	5.43	+1.52	1.55	0	8	15	9	7	se.	W. J. Casey
Lacona	Warren		25								6.70	+3.25	2.28	0	12	7	18	6	.....	J. B. Alter
Lamoni	Decatur	1,123	17	75.0	+2.6	97	20	52	12	31	2.62	-1.16	1.06	0	9	18	5	8	se.	Roy L. Roberts
Lenox	Taylor	1,250	29	74.2	-0.5	95	3†	51	10	30	4.68	+1.32	1.50	0	8	17	13	1	ne.	J. L. Hurley
Mt. Ayr	Ringgold	1,245	31	73.7	-0.7	93	3†	52	17	28	3.27	-0.13	1.01	0	10	16	9	6	s.	Alex Maxwell
Mt. Pleasant	Henry	729	43	73.8	+0.2	95	3†	52	14	29	2.93	-0.34	0.98	0	7	13	13	5	se.	J. H. Jericho
Oakland	Pottawattamie	1,105	5	74.0 ^j	+1.1	96 ^m	3†	52 ^h	11	33 ^m	3.76	.....	1.20	0	6	.....	.....	.....	s.	M. E. Gray
Oskaloosa	Mahaska	835	48	71.8	-0.3	96	3	52	10†	34	4.82	+1.73	2.20	0	9	13	6	12	se.	Roy R. Robinson
Ottumwa	Wapello	649	29	74.5	.....	96	3	53	12†	30	4.58	+1.13	1.94	0	10	18	6	7	se.	C. L. Mikesh
Pella	Marion	877	31	71.6 ^a	0.0	95 ^a	3	49 ^a	10	40 ^a	5.02	+1.82	1.10	0	10	.....	.....	.....	s.	J. H. Ver Steeg
Sigourney	Keokuk	790	28					51	14		4.58	+1.48	1.60	0	8	17	4	10	sw.	W. E. Utterback
Stockport	Van Buren	745	22	73.0	+0.8	95	3	53	14	34	6.91	+3.81	2.00	0	10	18	9	4	s.	C. L. Beswick
Thurman	Freemont	975	27	75.9	+2.2	98	30	52	10	31	2.39	-1.68	0.87	0	10	6	25	0	se.	C. R. Paul
Tingley	Ringgold	1,275		73.6	.....	95	3	51	10	28	5.49	.....	1.76	0	10	19	6	6	se.	James A. Verploegh
Washington	Washington	769	42	71.6 ^b	-0.9	93 ^e	21	51 ^a	14	27 ^e	3.92	-0.27	1.30	0	6	.....	.....	.....	sw.	D. D. Sherman
Wescott (near)	Lee	2	74.0					51	12	35	3.75	.....	1.50	0	7	21	4	6	nw.	Lester J. Larson
Winterset	Madison	1,129	33	73.7	+0.5	97	3	53	10†	31	4.88	+1.39	1.48	0	10	21	9	1	sw.	H. S. Ely
Omaha, Nebraska		1,103	53	76.0	+1.6	99	3	59	16	28	1.67	-1.95	0.53	0	10	12	13	6	se.	U. S. Weather Bureau
Means and extremes				73.7	+0.7	100	21†	44	8	44	4.25	+0.76	3.09	0	9	16	10	5	se.	
State means and extremes				71.7	0.0	100	21†	40	11†	44	5.35	+1.91	5.24	0	10	16	10	5	se.	

The departures from normal temperature and precipitation are computed only for such stations as have ten or more years of record, but all complete records are used in determining means. Reference letters a, b, c, etc., appearing in the table indicate the number of days missing; for example b represents two days, etc.

†Also other dates.
T. Precipitation is less than 0.01 inch rain or melted snow.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE.

Stations	Barometric Pressure, Inches (Sea level)				Relative Humidity (%)				Wind				Sunshine				
	Mean	Highest	Date	Lowest	Mean		Lowest	Date	Total movement	Average hourly velocity	Maximum			Per cent of possible	Departure from normal		
					7 a. m.	7 p. m.					Miles	From	Date				
Charles City	29.94	30.22	13	29.62	21	84	59	71	36	31	4,226	5.7	26	sw.	15	69	-2
Davenport	29.96	30.19	14	29.75	5	84	60	67	36	27	4,478	6.0	34	nw	8	70	-1
Des Moines	29.92	30.19	10	29.66	8	85	65	67	35	31	5,027	6.8	32	sw.	30	67	-5
Dubuque	29.93	30.18	13	29.62	8	82	61	68	39	31	4,051	5.4	31	nw.	4	57	-7
Keokuk	29.95	30.18	14	29.76	8	84	59	67	44	12	4,377	5.9	34	sw.	5	75	+2
Sioux City	29.90	30.22	13	29.57	3	82	62	63	29	31	7,705	10.4	50	nw.	8	74	+4
Omaha, Neb.	29.90	30.21	11	29.64	8	79	58	64	29	31	5,085	6.8	44	nw.	8	78	+9
Means and extremes	29.93	30.22	13	29.57	3	83	61	67	.....	.....	6.7	.....	.....	.....	8	70	0
Normals and records	29.97	30.43	24th 1909	29.40	10th 1874	82	61	.....	5th 1918	.....	6.3	.....	.....	6th 1916	.....	70	.....

§Sioux City. §Omaha. ¶Des Moines. †Local mean time †And other dates.

TEMPERATURE.

The mean temperature for the State, as shown by the records of 102 stations, was 71.7°, which is the normal for the State. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 69.8°, or 0.5° lower than the normal; Central, 71.7°, or 0.2° lower than the normal; Southern, 73.7°, or 0.7° higher than the normal. The highest monthly mean was 75.9° at Thurman, and the lowest was 66.2° at Postville. The highest temperature recorded was 100° at Columbus Junction on the 21st and 26th, Glenwood on the 30th, and Inwood on the 26th, and the lowest was 40° at Hampton on the 11th and 13th. The temperature range for the State was 60°.

PRECIPITATION.

The average precipitation for the State, as shown by the records of 107 stations, was 5.35 inches, or 1.91 inches more than the normal. By divisions, the averages were as follows: Northern, 5.98 inches, or 2.69 inches more than the normal; Central, 5.82 inches, or 2.29 inches more than the normal; Southern, 4.25 inches, or 0.76 inch more than the normal. The greatest amount, 12.38 inches, occurred at Iowa Falls, and the least, 1.90 inches, occurred at Glenwood. The greatest amount in 24 consecutive hours, 5.24 inches, occurred at Iowa Falls on the 18th and 19th.

Daily Precipitation for August, 1924.

Stations	Drainage Basins	Day of Month																															Totals	
		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		
<i>Northern Division</i>																																		
Algona	Des Moines				.72	.26	.05		.54							1.30		.10	1.65			.08	.55											5.25
Allison	Cedar		.34		.03	.15	T.		1.05				.36		.33				.05	.65			.20	2.01			.30						5.47	
Alta	Raccoon		.20			.94		T.	1.82		.02		.52	.12	T.	1.40	.60							.96							.31		6.89	
Alton	Floyd	.27				.30	.21		2.53				.78	T.		.65						T.		.48						T.		6.12		
Belmond	Iowa		.20		.15	.24	.21	.02	1.51		.02		.47		.85			.04	2.24	.02				.70						T.		6.67		
Britt	Iowa	T.	.78		.83	.19	.10	T.	.95		T.	.01				.55	T.	.05	2.02					.50								5.98		
Charles City***	Cedar		.24		3.48	.17	T.		.97		T.		.05		.55		.28	.93	.29			.52		.41								7.59		
Cherokee	Little Sioux	.14	.01			.45		.05	1.49		.04		1.76		.03	1.32		T.	T.	T.			.50							.33	T.	7.24		
Decorah	Mississippi		.02		2.05	.10	.05		1.60	.02		.03		.10		.19	.18				2.00		.36	.54								7.05		
Dubuque***	Mississippi				1.41	.07	.68		.40				.11			.24	.01	.11	.47	2.43		.66	.11	.35										
Estherville	Des Moines		.40	.10		.30		.40								2.00	.25							.30						.30		4.75		
Fayette	Mississippi		.03			.75	.03	.04	.44				.19			.12			.65	1.16			.65	.05	.15							4.26		
Forest City	Cedar				2.05	.18	.37	.06	.72		T.			.06		.08	.44	.04	T.	T.				.66								5.85		
Hampton	Cedar		.36		.47	.59	.01		1.22			.09				.75		.03	1.03			2.42		.38								7.35		
Humboldt	Des Moines	T.	T.			.64	.02	T.	1.38		T.		.03		.04	.86		.06	.32				1.10									4.45		
Independence	Wapsipinicon		T.		.91	.94	2.11		.88				.61	.11		.21			1.00	.06			1.11	.24							8.18			
Inwood	Big Sioux		.48		.01	.17	.64		.95		.03								.25		T.		.08							.10		2.71		
Le Mars	Floyd	.78	.05			.68		.18	1.02				.76			1.38		T.					.78	.27					T.		6.02			
Mason City	Cedar		.35	1.75	.15	.20		.95	T.			.20				.96		T.	.81			.02	.29						T.		5.68			
Milford (near)	Little Sioux	.32	.29	T.		.25		T.	.75		.04					1.84		.01	1.07	.62			1.00						.03		6.22			
New Hampton	Wapsipinicon		.22		3.54	.10			1.32		T.		.44			.60			.88	.88		.17	1.82	.20	.28						10.45			
Nora Springs	Cedar		1.04	T.	1.25	.18	.25		.92		.01		.11		.10	.75		.10	.92	.22		.10	.38								6.33			
Northwood	Cedar		.28		1.15	.23	.20		.55		.05		.15			.57		.15	1.00	.40				.35							5.08			
Oelwein	Wapsipinicon				.60	.10			.80				.40			.20			.80	1.40			.80	.30							5.40			
Pocahontas	Des Moines	.10	.11			.53			3.15		.02		.13		.30	1.24		T.						.98								6.56		
Postville	Mississippi		.02		1.48	.08			.65			.44				.18	.05		.49	1.78			.53	.21	.15						6.06			
Rock Rapids	Big Sioux		.75			.17		.03	.71			.13				.27			.28	T.			.25								2.59			
Sanborn	Floyd	.45	.02			.30			.76			.02				1.36		.08	.36			.03		.12						.28		3.90		
Sioux Center	Floyd		.53	.25		.82	.08		2.25			1.04	T.			1.45			.36				.82							.12		7.36		
Spencer	Little Sioux		.25	.19		.02	.25		.78		.09		.05			1.69			.56				1.15							.46		5.49		
Storm Lake	Raccoon	.18	T.			1.03		.02	1.36		.02		.60	T.	.01	1.48						T.		.86			.01			.10		5.67		
Washita	Little Sioux		.23			.75	.23	.07	1.28		T.	.08		2.17		.37	1.27			T.		T.		.41						.51	.10	7.37		
Waterloo	Cedar			.25	.06	.90	T.		1.20	.10				.85				.03	T.	1.45			1.65								6.81			
Waverly	Cedar		.80		.25	.04			.63			1.01	.02			.20		.01	.67	.17		.17	1.15	.44							5.56			
West Bend	Des Moines		.21			.33	T.	T.	1.43		.02		.14		.03	1.25			.98	T.		.19								.02		5.84		
<i>Central Division</i>																																		
Ames	Skunk		T.			.63	.08	.04	1.36			.60		.09	.30				T.	T.		T.		1.49							4.59			
Audubon	Nishnabotna	.62				1.32	.62	.62	1.12		T.	T.		.02		.20	.35					T.	.04	T.	.93							5.84		
Baxter	Skunk				.31	.25	.05		.90			.33		.03		.40						.18		.14								2.79		
Belle Plaine	Iowa				.48	.02	.48		.76			.05				.36	.05	T.	1.08	.14			.86	.24								4.52		
Boone	Des Moines		.04			1.16	.07	.15	1.03	.08		T.	T.	.60		.17	.15				T.		.65		1.00							5.10		
Carroll	Raccoon		.63			.58			.88	.02		.03	1.33	1.06	.29	.43								1.09								6.34		
Cedar Rapids	Cedar			.01	.50	1.32	.02	T.	.82				.03	T.		.46		T.	.04	4.44		.76	.42		.02							8.84		
Clinton	Mississippi			.17		2.14		.59							.14	.20		.01	.60	3.64			1.69	.07							9.25			
Davenport***	Mississippi			.39	1.98	.60		1.47				.02	.08		.20	T.	.02	.33	2.63		T.		.30	.01							8.03			
Davenport (No. 2)	Mississippi			.53	.78	1.94		1.72	T.				.14		.26	T.	.02	.71	2.53			.49		.02								9.14		
Denison	Missouri	.23			.75	.04	.23	1.30		.04		.03			.94									1.00								4.56		
Des Moines***	Des Moines	.03			T.	.63	.27	.03	1.18	T.	T.		.85		.08	.12		T.	T.	.24		T.	.33	.39								4.15		
Fairport	Mississippi				1.30		1.72		1.39	.04					.12	.11	.36		.04	2.44			.04	.09								7.65		
Fort Dodge	Des Moines				.35	T.			2.17			.22	.15		.10	.60		T.	.89	.02			.10	.67								5.27		
Grinnell	Iowa			.33	.08	.33	T.	1.06				.12			.44	.01							.65									3.83		
Grundy Center	Cedar		.15		.40	.55	.08		1.04						.45			.08	4.68	.08		.20	1.04		.12							8.87		
Guthrie Center	Raccoon		.20			.71	.17	.20	1.33			.14		.38	.16								.50		.10							4.89		
Harlan	Nishnabotna	.60			.18	.60	.38	.38	1.10		.06	.20			1.07								1.25		.24							5.82		
Iowa City	Iowa				.48	1.65	.04	T.	1.04				.45			.52		T.	.42		.11		.72	.24								5.67		
Iowa Falls	Iowa			.04	.04	.93	.02		2.07	.10			T.			.40		.09	.01	5.23			3.20		.25					T.		12.38		
Jefferson	Raccoon	T.				.80	.20	.10	.40			.60		.50	.20							.70		.93								4.43		
Le Claire	Mississippi				.22	1.99	.55	.01	1.10					T.	.19		T.	2.76	.75			1.22										8.79		
Little Sioux	Little Sioux	.58	.76		T.	1.03	.15	.30	.80	.01	T.		.16			1.42	T.						.40	.03						T.	T.	5.64		
Logan	Missouri	.18	.08			1.23	.02	.52		1.30			.26			1.55																	5.14	
Marshalltown	Iowa			.03	.92	.07	T.	.70	.11					.03			.30			T.	.04	.45		.43							T.	3.41		
Monroe	Des Moines				T.	.16	.05		1.45						.41									1.10									3.55	
Muscataine	Mississippi				.93	2.18	.05		.96				.10			.45				1.32	.30		.06		.13							6.48		
Olin	Wapsipinicon				.85	.85		.66				.12			.20	.08			2.30	2.25			.45	T.	.15				</					

Daily Precipitation for August, 1924—Continued.

Stations	Drainage Basin	Day of Month																															Totals	
		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		
<i>Southern Division</i>																																		
Afton	Grand				.05	.13	T.	.41		T.	.06	.05		.66	.45					.28			1.30		.95									4.34
Albia	Des Moines					1.32	.26	.75	.18		T.		.02	.57	.11	.15					T.	.30			.96									4.22
Atlantic	Nishnabotna		.07		T.	.41	.17	.13	.79	.01				.12	.57	.11	.15						.01		1.53									4.07
Bonaparte	Des Moines		.04			.30	1.97		.92	.07			T.								.03				.81									4.80
Burlington	Mississippi					1.00	.09		1.16													.49		T.	.90									4.07
Centerville	Chariton		T.			.72		1.81	T.		.01	T.			.48						T.		T.	T.	2.01							.01	5.04	
Chariton	Chariton					1.35		.75						T.	.63						T.		T.	T.	2.15							T.	4.88	
Clarinda	Nodaway		.10	.15		.32	.02		.04		.06		.09		.06	.42	.01					.02	.34		.75								2.38	
Columbus Jet	Iowa				T.	.20	1.25		.73						.55						T.	.60											3.33	
Corning	Nodaway		.16			.08	.22	T.	.51	T.	T.		T.		.21	.80						1.02		.35		.91							4.26	
Corydon	Chariton					.17		.98	.41			.02			.11										.93							.10	2.72	
Creston	Missouri		T.		T.	1.00	.05	.55			.02		.10	.55	.75	.44	.44				.20	.05	.18		1.08								5.41	
Cumberland (near)	Nodaway		.48	.11		.07	.02	.12	.64	T.	T.		T.		.57	.30					T.		T.	.15	1.23								3.69	
Earlham	Des Moines		.08		.50	.63	.08	T.	1.41	T.					.31	.20							.26		.24	1.60							5.32	
Fairfield	Skunk		.01			.36	.75	T.	.94				.04		.42							.16			1.46								4.55	
Glenwood	Missouri		.90			.38			.10		.10	.12	T.	T.	.30						T.											T.	1.90	
Indianola	Des Moines		T.		T.	.02	.43	.03	1.41				.13		.02	.37								.05	1.64								4.32	
Keokuk***	Mississippi					.97	2.12		1.26						.20							.13		.06	.01	.85						T.	5.60	
Keosauqua	Des Moines		.03			.33	1.95		.72	.03		T.			.54						T.				.74								4.81	
Knoxville	Des Moines				.06		.88		1.20	T.			.48		T.	.46						.12		1.55	T.	.68							5.43	
Lacona	Des Moines					2.00	.28		1.08			.02	.03	.04	.50							.15		.50	.01	2.08	.01						6.70	
Lamoni	Grand		.02			.34	.02		T.		.02		.02		.64	.49								.01	1.06								2.62	
Lenox	Missouri		T.			.36	.36	T.	.35		T.	T.		.22	.85							.86		.18	1.50								4.68	
Mt. Ayr	Grand		T.			.03	.36	T.	T.	T.	.07	.03	.48	.54									.27	.44	.04	1.01						T.	3.27	
Mt. Pleasant	Skunk					T.	.98		.83			.06			.43	.02						.46				1.01						.15	2.93	
Oakland	Nishnabotna		.61			1.20		.30	.75						.30									.60									3.76	
Oskaloosa	Des Moines				T.	1.87	.33		.86		T.		.39		T.	.54						.15		.09	.03	.56							4.82	
Ottumwa	Des Moines					.02	1.94		.73			.05	.03	.45	.02							.16			1.14							.04	4.58	
Pella	Skunk				.04	.10	.44	T.	1.10	T.				.54	T.	.75						.34		.45	.33	T.	.93						5.02	
Sigourney	Skunk				.06	1.60	.53		.90		T.		.18		.44							T.	T.	.12		T.	.75					T.	4.58	
Stockport	Skunk				.13		1.80	2.00		.91	.54		T.	.04	.49							.18		T.		.60						.22	6.91	
Thurman	Missouri		T.	.24		T.	.10	.32	T.		T.	.20	.06	.52		.04	.87					.02		T.	T.	.02							2.39	
Tingley	Platt		.02			.04	.49		.37				.09		1.76	.70						.78		.12	1.12								5.49	
Washington	Skunk					1.30		.90						.13		.47								.47		.65							3.92	
Wescott (near)	Mississippi		.25			1.50		.75	.25					.45								.25			.30								2.75	
Winterset	Des Moines			.04		.21	.54		1.48				.10		.03	.25						.33			.42	1.48							4.88	
Omaha, Nebr.***	Missouri		.01	.39		T.	.58	.03	.09	.06	T.	.11		.12		.03	.25															T.	T.	1.67

Except as otherwise indicated, observations are generally made late in the afternoon, near sunset, and precipitation recorded is for 24 hours ending at the time of observation.
 |||Precipitation measured in the morning; amount then recorded is for the preceding 24 hours.
 ***Regular Weather Bureau Station: precipitation is for 24-hour period, midnight to midnight.
 **Incomplete.
 *Precipitation included in the next following measurement.
 T. Precipitation is less than .01 inch rain or melted snow.

MISCELLANEOUS PHENOMENA.

Fog: 6th, 19th, 20th, 21st, 25th, 26th.
 Hail: 4th, 8th, 12th, 17th, 18th, 20th, 21st, 23d, 24th, 31st.
 Halos (Lunar and Solar): 16th.
 Rainbows: 12th, 17th, 23d.
 Thunderstorms: All days of the month except 9th, 11th, 25th, 26th, 27th, 29th.
 Tornadoes: 8th, 22d.
 Winds, high: 3d, 5th, 8th, 18th, 19th, 20th, 21st, 23d, 24th, 28th, 30th, 31st.

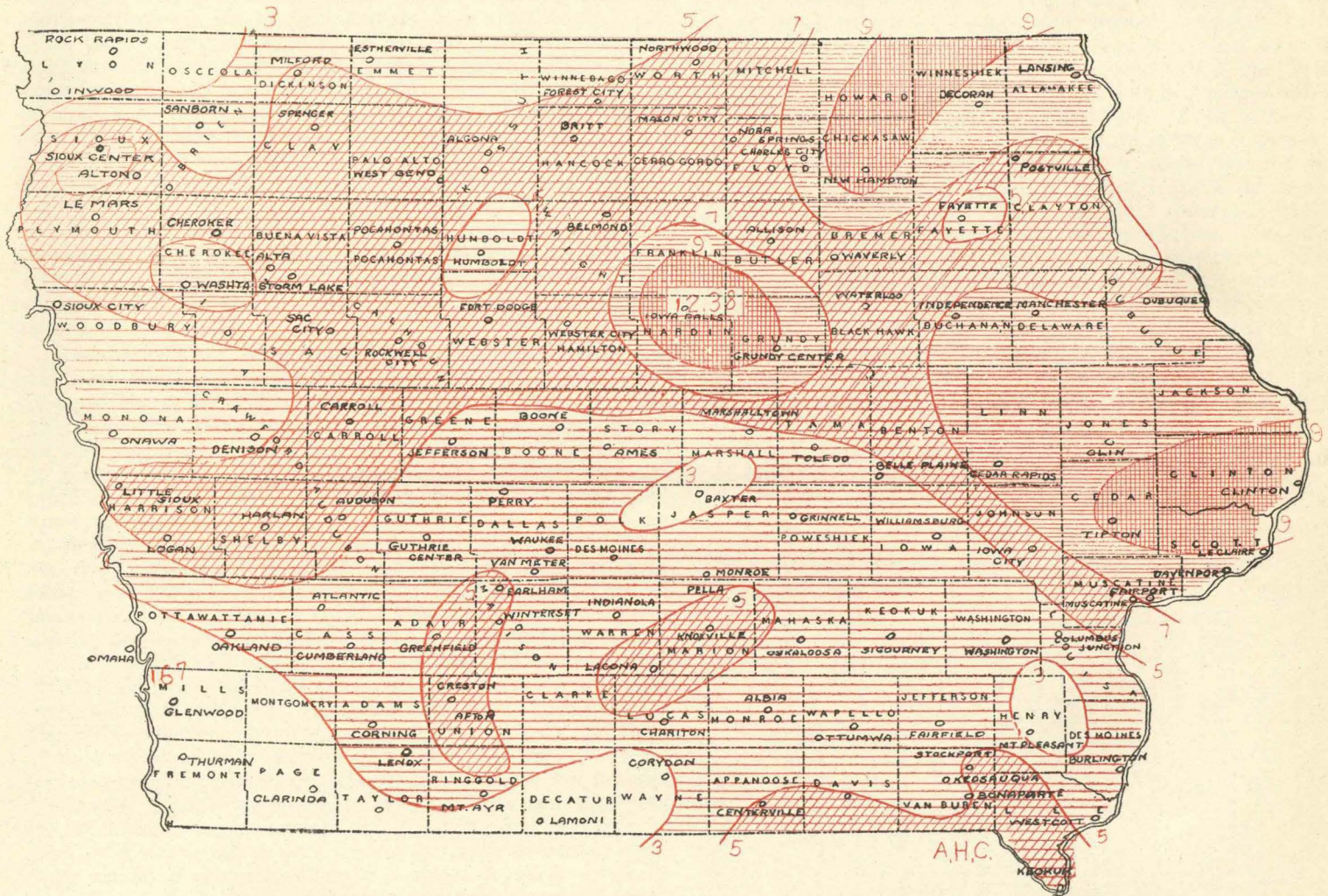
RIVERS.

Moderate stages with a falling tendency prevailed on the Missouri River the greater portion of the month. The highest stages occurred during the first part of the second week and the lowest stages on the last day of the month. The daily fluctuations were less than 0.5 foot except on one day. Low stages prevailed on the Mississippi River at the beginning of the month but rather high stages were general after the first week. A sharp rise occurred at Dubuque from the 4th to the 7th and another from the 18th to the 20th which were felt along the entire border of the State. Severe floods occurred in some of the smaller streams in the eastern portion of the State following the heavy rains of the 19th but the larger streams were not flooded except in small areas. In the rest of the State rather high stages for the season prevailed but no flood damage resulted.

Daily Maximum and Minimum Temperature for the Month of August, 1924.

Stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean	
<i>Northern Division</i>																																	
Algona.....	Maximum... 75	84	94	85	84	84	84	84	75	74	79	77	71	67	75	72	72	72	86	82	89	79	85	82	83	90	86	85	87	92	79	81.1	
	Minimum... 56	62	71	69	68	67	58	62	53	51	55	57	49	54	62	55	61	55	62	60	72	57	57	59	62	66	60	58	66	72	52	60.3	
Alta.....	Maximum... 75	86	92	87	82	78	77	82	73	70	78	75	72	79	71	72	73	67	81	82	87	80	85	83	89	91	84	86	84	86	73	80.0	
	Minimum... 57	61	75	70	64	63	60	59	54	55	52	58	50	57	62	51	56	59	63	62	73	54	59	57	63	67	63	59	69	61	55	60.3	
Alton.....	Maximum... 70	87	92	89	87	79	79	84	75	74	80	81	73	83	78	70	73	69	87	85	88	84	88	83	90	92	88	86	85	87	76	82.0	
	Minimum... 56	61	75	71	68	65	64	62	59	59	47	56	52	59	63	50	56	62	63	58	73	53	66	57	63	60	58	57	69	70	54	60.8	
Belmond.....	Maximum... 81	86	95	86	88	81	82	86	76	71	81	73	72	80	72	71	65	85	82	91	84	85	84	85	84	85	85	86	86	88	92	83	82.1
	Minimum... 59	61	74	71	68	52	57	63	54	49	52	54	51	55	62	51	52	53	62	61	73	59	56	59	62	67	61	54	64	73	50	59.3	
Charles City.....	Maximum... 73	82	93	83	81	78	80	80	72	70	74	75	70	74	69	70	71	66	76	83	90	78	83	81	84	90	79	81	89	91	75	78.7	
	Minimum... 58	58	72	69	69	60	56	61	54	50	53	54	48	52	62	52	50	52	60	59	69	61	57	60	60	66	58	52	62	70	55	58.7	
Decorah.....	Maximum... 75	80	90	90	84	83	83	85	75	72	77	78	73	74	72	70	69	61	73	78	85	83	83	81	84	88	83	83	87	90	81	79.7	
	Minimum... 51	54	69	65	65	63	50	60	55	45	51	52	46	43	62	52	44	52	56	59	64	62	51	57	55	66	58	47	56	74	54	56.1	
Dubuque.....	Maximum... 74	83	92	81	86	81	79	79	71	72	73	75	70	73	74	71	70	62	76	77	92	84	82	84	83	92	79	82	86	90	78	79.1	
	Minimum... 60	56	70	68	70	66	59	66	57	52	58	53	51	64	55	52	56	58	66	65	65	60	66	61	70	62	57	62	71	58	61.0		
Forest City.....	Maximum... 73	84	91	87	84	81	81	83	80	70	77	78	70	74	71	70	70	66	83	80	89	82	84	83	85	92	81	85	88	91	79	80.4	
	Minimum... 52	58	72	68	66	67	55	54	51	48	52	46	50	60	48	50	53	59	55	70	56	54	57	58	63	58	54	63	72	50	57.1		
Independence.....	Maximum... 75	81	92	90	84	89	80	81	80	77	75	74	75	75	74	70	74	70	72	81	91	91	81	81	82	91	87	81	87	91	87	81.3	
	Minimum... 58	55	69	67	66	67	55	63	57	51	55	55	51	47	62	55	51	51	54	60	64	64	56	60	59	65	64	54	61	71	63	59.0	
Inwood.....	Maximum... 70	87	93	90	88	82	82	86	76	77	83	83	74	86	80	74	75	68	87	87	92	86	92	90	96	100	92	90	87	91	79	84.6	
	Minimum... 58	62	70	64	68	63	56	60	51	52	45	58	50	58	64	49	55	61	63	57	75	49	59	56	61	57	55	58	69	60	45	58.3	
Mason City.....	Maximum... 73	83	94	85	83	80	82	82	75	65	76	78	70	74	71	70	70	64	82	82	88	91	81	86	83	85	91	81	84	93	82	80.1	
	Minimum... 52	58	72	67	68	67	54	62	52	50	51	62	46	50	62	49	48	51	59	55	62	73	58	54	57	56	65	59	68	73	50	58.4	
Milford.....	Maximum... 70	83	86	85	83	78	79	80	70	74	77	73	73	82	82	69	74	70	77	83	88	81	85	80	88	89	78	84	84	86	76	79.9	
	Minimum... 57	62	72	69	67	51	56	61	52	51	49	54	54	56	62	51	56	58	62	60	73	52	54	57	61	60	61	56	66	63	55	58.6	
New Hampton.....	Maximum... 73	83	94	83	80	79	80	81	77	70	75	76	71	74	69	70	72	65	74	82	51	79	84	82	87	91	84	84	90	91	83	79.8	
	Minimum... 54	55	67	66	68	65	53	61	55	49	53	52	48	48	62	52	48	48	57	58	66	61	55	58	60	58	52	54	53	54	56.8		
Northwood.....	Maximum... 74	81	89	84	82	76	79	81	71	66	74	77	71	74	74	69	67	60	78	79	87	83	83	88	84	81	84	81	86	82	78.2 ^c		
	Minimum... 52	57	70	67	67	63	55	62	53	48	50	55	46	50	50	49	52	57	55	71	55	55	55	63	63	60	53	61	72	57.1 ^d			
Pocahontas.....	Maximum... 77	85	96	86	81	80	82	85	75	74	79	79	70	79	75	72	72	66	88	84	90	81	82	84	88	91	84	86	87	90	77	81.5	
	Minimum... 53	63	72	69	67	66	56	61	53	50	50	56	48	54	63	50	50	59	63	61	70	52	55	57	59	63	66	54	66	71	49	58.9	
Postville.....	Maximum... 69	77	88	79	77	79	73	75	72	69	69	70	65	69	71	66	66	59	70	77	86	82	78	77	78	84	75	76	83	81	80	74.8	
	Minimum... 54	60	67	66	68	64	55	61	59	49	52	55	48	47	50	54	46	50	56	60	63	63	57	58	57	66	61	54	60	70	57	57.6	
<i>Central Division</i>																																	
Belle Plaine.....	Maximum... 76	85	97	89	92	84	81	78	73	78	79	76	73	77	73	74	73	72	78	82	96	84	85	83	89	94	87	87	92	95	83	82.7	
	Minimum... 58	61	71	74	70	68	57	65	59	50	56	53	52	63	56	50	52	52	67	72	68	57	61	58	64	66	53	63	73	60	60.7		
Boone.....	Maximum... 79	86	96	90	88	79	78	85	72	76	79	73	76	77	71	73	74	70	87	83	92	84	83	84	85	94	86	85	88	92	80	82.1	
	Minimum... 55	63	73	70	68	65	55	63	56	48	53	51	53	52	65	52	50	57	65	71	75	61	54	57	60	60	52	64	75	52	59.7		
Carroll.....	Maximum... 81	86	91	89	85	78	77	85	77	75	79	75	76	77	74	72	75	74	90	88	91	82	86	85	87	93	86	87	88	95	81	82.7	
	Minimum... 57	62	74	72	68	65	58	60	54	52	52	58	51	54	62	51	53	57	60	66	73	55	58	65	60	66	62	56	69	74	53	60.2	
Davenport.....	Maximum... 75	87	93	87	90	83	82	79	74	78	77	78	72	75	73	76	72	68	74	84	92	88	85	84	87	92	86	85	87	92	79	81.7	
	Minimum... 61	59	70	72	70	70	64	62	62	57	61	58	60	53	65	60	54	62	70	66	68	64	67	66	71	67	60	68	72	66	63.8		
Des Moines.....	Maximum... 77	88	97	92	90	81	77	86	71	77	78	73	75	77	71	74	73	69	88	86	94	84	83	83	86	93	87	86	91	94	80	82.6	
	Minimum... 62	64	76	77	73	67	62	63	60	55	60	58	58	56	64	58	58	59	68	70	76	67	62	61	64	70	67	62	68	74	63	64.6	
Fort Dodge.....	Maximum... 79	85	96	87	88	77	80	83	77	74	78	75	74	77	72	73	75	69	91	85	90	83	86	83	87	93	85	87	87	92	81	82.2	
	Minimum... 54	62	71	70	66	67	55	60	53	49	51	54	48	53	62																		

TOTAL PRECIPITATION, AUGUST, 1924



SCALE OF SHADES IN INCHES.



CLIMATOLOGICAL DATA.

IOWA SECTION

In cooperation with
CHARLES D. REED, Meteorologist

VOL. XXXV DES MOINES, IOWA, SEPTEMBER, 1924 No. 9

GENERAL SUMMARY

September, 1924, was unusually and persistently cool, the temperature deficiency being the greatest during any month of this year except May, and remarkably uniform, the range for all divisions being only 0.2 degree. The mean temperature, 59.1 degrees was, with the exception of 1896 and 1918, the lowest ever recorded in September. In the State as a whole there was an average of only five days when the temperature was above normal, and at no time was the excess marked. Light frost occurred as early in the month as the 5th, but there was very little damage in only a small area in the northern portion of the state. On the 9th an extensive area was visited by a frost that caused considerable damage to tender vegetation in the north-central and northeastern portions of the State, and considerable local damage resulted to corn in Webster county. From the 9th till the 28th, a few scattered frosts occurred over limited areas, but on the 28th a rather severe frost visited the western portion of the State, and on the 29th and 30th the rest of the State was covered, though upland corn escaped.

The precipitation, like the temperature, was very uniform, and the range for all divisions was only 0.11 inch. There were no heavy downpours. This was the only month since May that some part of the State was not visited by destructive floods, and the damage from hail was of no consequence. There was considerable damage from winds in the south-central division on the 11th, principally in Warren, Clarke, Lucas, Decatur, and Wayne counties. At Hartford, Warren county, and Lucas, Lucas county, tornadic characteristics developed, but in each case the tail of the funnel cloud did not reach the ground except possibly for a very short distance. Strong, straight winds that originated south of Ringgold and Decatur counties swept northeastward to Warren county, damaged farm buildings, scattered straw and hay stacks, leveled corn fields, and blew off a great many apples. From the 21st to the 26th strong winds were general over most of the State that blew down considerable corn and nearly stripped many apple trees, but they were very beneficial in drying corn which had made very slow progress during the month previous.

The greatest damage was due to the frost. When the killing frosts came less than one-half of the crop was out of danger and about one-third of the crop was in the milk or dough stage. As most of the latest corn was on low ground, the damage was rather severe and general, and the only hope of utilizing much of the crop lay in early feeding or filling silos. Some of the late corn that cannot be put into silos will have very little feed value. Truck crops fared better than staple crops. Tomatoes and beans in localities were very little injured while corn fields in the same vicinity were apparently completely killed.

The weather was generally favorable for fall plowing; the soil being in good condition good progress was made. Some winter wheat was seeded but as a rule farmers were waiting for a date when the danger from Hessian fly was past. A rather severe drouth that has prevailed more or less most of the season in Lyon county still continued. Pastures in that county were grazed completely bare; it was necessary to feed all stock; stock water was scarce; wells failed; and the soil was too dry to plow.

TEMPERATURE

The mean temperature for the State, as shown by the records of 102 stations, was 59.1°, or 5.2° lower than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 57.5°, or 5.4° lower than the normal; Central, 59.3°, or 5.2° lower than the normal; Southern, 60.4°, or 5.2° lower than the normal. The highest monthly mean was 61.8°, at Lamoni and Wescott, and the lowest was 55.0°, at Decorah and Postville. The highest temperature reported was 91°, at Cedar Rapids on the 21st, and the lowest was 25°, at Cedar Rapids on the 30th. The monthly range for the State was 66°.

PRECIPITATION

The average precipitation for the State, as shown by the records of 104 stations, was 3.13 inches, or 0.53 inches less than the normal. By divisions, the averages were as follows: Northern, 3.05 inches, or 0.38 inch less than the normal; Central, 3.19 inches, or 0.50 inch less than the normal; Southern, 3.14 inches, or 0.71 inch less than the normal. The greatest amount, 5.68 inches occurred at Logan, and the least 1.01 inches, occurred at Inwood. The greatest amount in 24 consecutive hours, 3.00 inches, occurred at Estherville on the 21st.

RIVERS

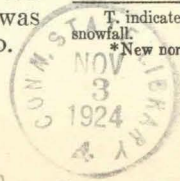
Rather high stages prevailed on the Mississippi River at the beginning of the month with gradually falling stages till the beginning of the last week, after which there was another slight rise. The mean stage averaged high for September. On the Missouri there was very little fluctuation, there being a slight fall during the greater portion of the month. Nearly stationary stages prevailed on the interior rivers except there were moderate rises following the heavier rain periods but there were no streams reported out of banks.

COMPARATIVE DATA FOR THE STATE—SEPTEMBER.

Year	Temperature				Precipitation					Number of Days			
	Mean	Departure*	Highest	Lowest	Total	Departure*	Greatest	Least	Snowfall	With pre-.01 in. or more	Clear	Partly cloudy	Cloudy
1890.....	59.3	-5.0	96	23	2.97	-0.69	4.85	1.36	.....	7	13	10	7
1891.....	67.3	+3.0	104	28	1.33	-2.33	3.60	0.13	.....	4	20	7	3
1892.....	64.7	+0.4	99	29	1.53	-2.13	4.15	0.16	.....	4	16	8	6
1893.....	64.7	+0.4	102	18	2.34	-1.32	5.49	0.74	.....	4	20	6	4
1894.....	65.1	+0.8	100	26	3.57	-0.09	7.43	0.67	.....	8	15	10	5
1895.....	66.8	+2.5	103	22	3.03	-0.63	7.43	0.85	.....	5	18	8	4
1896.....	58.5	-5.8	95	22	4.09	+0.43	9.96	1.82	.....	10	11	9	10
1897.....	70.9	+6.6	106	26	2.04	-1.62	5.88	0.00	.....	4	23	5	2
1898.....	65.3	+1.0	99	29	2.69	-0.97	8.45	0.41	.....	7	16	9	5
1899.....	62.5	-1.8	104	15	0.93	-2.73	4.32	T.	.....	4	16	9	5
1900.....	64.4	+0.1	99	26	4.98	+1.32	8.82	2.48	.....	9	15	8	7
1901.....	63.3	-1.0	102	26	4.77	+1.11	13.62	1.71	.....	9	13	9	8
1902.....	59.1	-5.2	88	23	4.35	+0.69	10.41	1.65	.....	9	15	6	9
1903.....	60.8	-3.5	94	28	3.81	+0.15	8.79	1.42	.....	10	14	6	10
1904.....	64.0	-0.3	94	30	2.78	-0.88	8.33	0.09	.....	7	13	8	8
1905.....	65.8	+1.5	96	36	3.81	+0.15	13.18	0.50	.....	8	14	8	8
1906.....	67.2	+2.9	100	27	4.16	+0.50	11.10	0.64	.....	8	16	8	6
1907.....	62.8	-1.5	98	25	2.75	-0.91	6.06	1.38	.....	8	15	9	6
1908.....	67.9	+3.6	98	20	1.20	-2.46	3.46	0.25	.....	3	21	6	3
1909.....	62.4	-1.9	94	30	3.58	-0.08	7.34	1.39	.....	9	14	8	8
1910.....	63.2	-1.1	99	30	3.59	-0.07	7.43	1.18	.....	9	14	7	9
1911.....	65.8	+1.5	103	32	5.12	+1.46	13.73	1.19	.....	10	11	9	10
1912.....	62.1	-2.2	104	24	3.98	+0.32	10.12	0.28	.....	11	12	8	10
1913.....	64.5	+0.2	107	19	3.31	-0.35	7.44	0.45	.....	9	15	8	7
1914.....	64.5	+0.2	99	30	7.88	+4.22	16.24	2.48	.....	10	16	7	7
1915.....	63.7	-0.6	91	30	6.03	+2.37	12.45	2.88	.....	11	11	8	11
1916.....	62.5	-1.8	98	21	3.89	+0.23	9.71	1.45	.....	7	17	8	5
1917.....	62.6	-1.7	97	28	2.90	-0.76	8.68	0.39	.....	7	15	7	8
1918.....	58.6	-5.7	93	20	1.87	-1.79	4.62	0.48	.....	6	16	8	6
1919.....	67.5	+3.2	99	33	5.34	+1.68	11.82	1.49	.....	8	16	6	8
1920.....	66.5	+2.2	98	24	3.30	-0.36	7.21	0.69	.....	8	17	8	5
1921.....	67.3	+3.0	99	31	6.72	+3.06	11.95	1.72	.....	11	14	8	8
1922.....	67.1	+2.8	103	31	2.03	-1.63	4.34	0.31	.....	6	20	6	4
1923.....	64.2	-0.1	92	28	5.79	+2.13	12.14	1.88	.....	11	14	8	8
1924.....	59.1	-5.2	91	25	3.13	-0.53	5.68	1.01	.....	8	16	7	7

T. indicates an amount too small to measure, or less than .005 inch rainfall and less than .05 inch snowfall.
*New normals effective June 1, 1924

F.L.D.



Climatological Data for September, 1924.

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit							Precipitation, in Inches				Number of Days			Prevailing direction of wind	Observers	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear	Partly cloudy			Cloudy
Northern Division																				
Algona	Kossuth	1,213	51	58.0	-5.0	76	26	35	28	30	4.93	+1.61	2.20	0	5	20	7	3	se.	W. E. Laird
Allison (near)	Butler	1,044	12	57.6	-5.5	81	21	30	30	33	3.46	-0.04	1.33	0	8	16	6	8	se.	J. A. Bell
Alta	Buena Vista	1,513	33	57.4	-5.3	77	20	33	28	31	2.94	-0.34	1.06	0	8	10	15	5	s.	D. E. Hadden
Alton	Sioux	1,305	19	57.6	-5.2	78	3	30	29	33	1.76	-1.20	0.72	0	8	11	13	6	se.	W. S. Slagle
Belmond	Wright	1,205	14	58.6	-5.0	81	4†	30	30	35	3.27	-0.93	1.90	0	7	10	14	6	nw.	Geo. P. Hardwick
Britt	Hancock	1,236	37	57.6	-4.8	79	21	30	29	36	2.83	-0.63	1.30	0	7	19	5	6	se.	Jas. S. Ross
Charles City	Floyd	1,015	33	56.8	-5.6	83	21	30	30	36	4.00	+0.48	1.97	0	11	11	10	9	se.	U. S. Weather Bureau
Cherokee	Cherokee	1,196	2	57.2	-5.3	78 ^a	20	29	28	32 ^a	2.46	-0.10	1.38	0	7	11	6	11	ne.	J. E. Wirth
Decorah	Winneshiek	875	31	55.0	-6.6	81	21	26	30	34	3.16	-0.95	0.85	0	10	14	6	10	se.	M. D. Whitney
Dubuque	Dubuque	698	51	58.2	-5.8	85	21	34	30	36	2.44	-1.43	1.03	0	11	8	8	14	se.	U. S. Weather Bureau
Estherville	Emmet	1,298	29	56.2	-5.5	80	3	32	9†	34	5.27	+1.94	3.00	0	9	13	11	6	nw.	A. O. Peterson
Fayette	Fayette	1,003	34	57.0	-5.3	81	21	26	30	36	2.23	-1.44	0.69	0	9	16	4	10	se.	R. Z. Latimer
Forest City	Winnebago	1,226	30	57.7	-5.0	81	21	30	30	33	2.92	-0.41	1.33	0	10	13	6	11	se.	Dr. M. B. Neil
Hampton	Franklin	1,145	57.3	-7.0	81	21	29	30	34	2.52	-0.91	1.10	0	7	17	6	7	nw.	L. H. Davis	
Humboldt	Humboldt	1,095	36	58.7	-5.5	81	7	30	30	36	2.90	-0.37	1.21	0	6	11	10	9	s.	H. C. Snitkey
Independence	Buchanan	921	60	58.2	-5.7	78	26	32	30	31	1.31	-2.64	0.41	0	7	17	2	11	se.	Dr. Geo. Boody
Inwood	Lyon	1,474	20	58.8	-4.3	87	3	28	28†	39	1.01	-1.78	0.55	0	9	18	7	5	s.	F. B. Hanson
Le Mars	Plymouth	1,224	28	58.2	-5.5	80	3	30	28†	36	3.13	-0.10	1.87	0	7	19	6	5	sw.	Mrs. M. C. Woolley
Mason City	Cerro Gordo	1,148	27	56.4	-5.3	82	21	27	30	36	3.66	+0.85	1.69	0	6	11	11	8	se.	Northern Sugar Corp.
Milford (near)	Dickinson	1,430	4	56.8	-5.5	76	3	33	28†	30	3.43	-0.85	1.95	0	6	8	17	5	nw.	Dr. F. J. Smith
New Hampton	Chickasaw	1,169	27	56.8	-5.6	80	21	30	30	34	3.07	-0.52	1.40	0	9	14	6	10	s.	A. F. Kemman
Nora Springs	Floyd	1,064	12	58.4	-6.0	82	21	29	30	36	4.61	+1.01	1.73	0	10	14	9	7	s.	Arthur Betts
Northwood	Worth	1,222	28	56.2 ^b	-4.8	78 ⁸	21	33 ^h	30	34 ^h	4.05	+0.52	1.60	0	9	10	11	9	se.	Chas. Dwelle
Oelwein	Fayette	1,036	1	57.2	-5.1	81	21	29	30	33	2.20	-0.65	0.65	0	6	17	3	10	s.	John T. Ridler
Pocahontas	Pocahontas	1,248	20	58.4	-5.1	79	20	30	30	37	2.71	-0.88	1.17	0	5	16	7	7	se.	F. E. Hronek
Postville	Clayton	1,180	25	55.0	-5.8	80	21	30	30	34	2.79	-1.05	0.66	0	9	9	13	8	se.	F. L. Williams
Rock Rapids	Lyon	1,358	25	57.8	-3.9	82	3	27	29	37	1.07	-1.52	0.55	0	6	18	8	4	se.	J. K. Medberry
Sanborn	O'Brien	1,553	10	57.5	-5.3	79	3	29	28	34	3.75	+0.55	2.50	0	6	13	11	6	se.	J. W. Dow
Sioux Center	Sioux	1,426	25	56.8	-6.2	77	3	32	28†	32	2.19	-0.76	1.32	0	7	15	7	8	s.	J. de Ruyster
Spencer	Clay	1,319	10	57.9	-5.6	80	3†	30	28	38	4.72	+1.40	2.20	0	7	10	12	8	se.	E. W. Little
Storm Lake	Buena Vista	1,440	35	58.8	-5.2	79	20	34	28	29	4.12	+0.92	2.38	0	7	19	3	8	s.	Geo. H. Fracker
Washta	Cherokee	1,157	26	57.5	-6.0	77	20†	28	28	36	3.04	-0.35	1.36	0	7	19	5	6	s.	H. L. Felter
Waterloo	Blackhawk	854	41	58.0	-6.1	82	21	27	30	41	2.28	-1.76	0.78	0	10	16	6	8	nw.	R. B. Shippy
Waverly	Bremer	936	28	57.4 ^a	-6.0	83 ^a	21	28 ^a	30	35 ^a	2.80	-0.70	1.34	0	7	16	6	8	nw.	D. H. Murphy
West Bend	Palo Alto	1,197	31	59.0	-4.4	80	7†	32	28	35	3.79	+0.65	1.30	0	7	14	12	4	se.	Jos. Dorweiler
Means and extremes				57.5	-5.4	87	3	26	30	41	3.05	-0.38	3.00	0	8	14	8	8	se.	
Central Division																				
Ames	Story	926	47	59.4	-5.0	81	26	30	30	32	3.81	+0.14	1.15	0	6	15	5	10	n.	Iowa State College
Audubon	Audubon	1,297	29	58.6	-5.1	83	20	32	28	32	3.42	-0.34	1.02	0	8	13	14	3	nw.	Geo. Kibby
Baxter	Jasper	998	24	59.4	-5.2	82	21	30	30	34	3.47	-0.50	1.32	0	6	13	12	5	s.	Henry Geise
Belle Plaine	Benton	866	34	58.3	-5.5	81	7†	27	30	40	2.98	-1.07	0.74	0	10	13	12	5	s.	O. C. Burrows
Boone	Boone	1,134	19	58.3	-5.5	81	7†	27	30	40	2.98	-1.07	0.74	0	10	13	12	5	s.	C. F. Henning
Carroll	Carroll	1,265	34	59.0	-4.7	82	7	32	28†	34	3.21	-0.26	1.24	0	9	19	4	7	nw.	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	737	42	58.6	-5.1	81	21	25	30	43	1.91	-1.69	0.45	0	8	12	5	13	se.	J. T. Wurster
Clinton	Clinton	595	51	60.4	-4.8	84	21	34	30	32	2.65	-0.84	1.62	0	8	18	5	7	n.	Dr. A. P. Bryant
Davenport	Scott	580	53	60.4	-5.2	84	21	36	30	33	2.23	-1.22	0.97	0	8	14	7	9	e.	U. S. Weather Bureau
Davenport (No. 2)	Scott	690	60.6			86	21	32	30	36	2.60		0.54	0	10					Rex Shriver
Denison	Crawford	1,171	30	59.0	-5.0	81	7	32	28†	34	3.67	+0.55	1.86	0	5	14	12	4	se.	V. L. Byers
Des Moines	Polk	861	46	60.5	-5.1	81	7	33	30	30	3.47	-0.06	1.16	0	10	11	8	11	e.	U. S. Weather Bureau
Fairport	Muscatine	567	3	60.6		83	21	34	30	30	2.86		0.66	0	9	17	2	11	s.	Bureau of Fisheries
Fort Dodge	Webster	1,114	24	58.2	-5.8	81	7	29	30	35	2.92	-1.46	1.14	0	9	20	2	8	se.	Samuel Sampson
Grinnell	Poweshiek	1,031	30	60.0	-4.9	82	21	32	30	32	2.60	-1.05	0.86	0	10	14	12	4	se.	Paul P. Meyers
Grundy Center	Grundy	976	33	58.4	-6.2	80	21†	29	30	33	2.94	-0.83	1.03	0	9	15	6	9	nw.	M. G. Heiberger
Guthrie Center	Guthrie	1,077	29	59.6	-5.0	84	7	30	30	35	3.50	-0.27	1.11	0	8	20	4	6	se.	E. L. Nesselroad
Harlan	Shelby	1,192	25	58.6	-5.0	84	7	30	30	35	3.50	-0.27	1.11	0	8	20	4	6	se.	W. K. Colburn
Iowa City	Johnson	733	64	58.8	-6.0	85	21	29	30	35	2.60	-1.28	1.09	0	11	17	5	8	se.	Prof. J. F. Reilly
Iowa Falls	Hardin	1,107	31	57.6	-5.0	80	21	30	30	32	3.10	-0.70	1.37	0	8	16	5	9	s.	J. B. Parnelee
Jefferson	Greene	1,052	25	57.8	-5.8	80	26	29	30	32	3.71	-0.28	2.00	0	5	17	5	8	sw.	W. I. Lyon
Little Sioux	Harrison	1,040	19	61.5	-3.8	83	4†	31	28	41	4.30	+1.13	2.01	0	7	13	10	7	se.	H. W. Kerr
Logan	Harrison	1,035	57	60.4	-5.3	80	20†	33	28†	35	5.68	+2.52	1.80	0	7	15	10	5	sw.	Mayr Jean Stern
Marshalltown	Marshall	947	32	59.8	-5.6	84	21	32	30	34	4.27	+0.16	1.48	0	10	21	2	7	se.	C. C. Pignman
Monroe	Jasper	922	12	60.4 ^a	-5.7	85 ^a	4	31 ^a	30	35 ^b	4.35	+0.25	1.47	0	9	16	3	11	s.	J. A. Dibel
Olin	Jones	760	25	58.5	-5.2	86	21	28	30	35	2.27	-1.40	0.95	0	6	15	9	6	se.	Mrs. L. Stingley
Onawa	Monona	1,051	23	59.4	-5.2	78	3†	33	28	34	3.77	+0.26	1.75	0	7	17	2	11	s.	Mrs. H. E. Colby
Perry	Dallas	975	23	58.8	-5.7	80														

Climatological Data for September, 1924—Concluded.

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precipitation, in Inches				Number of Days				Prevailing direction of wind	Observers	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear	Partly cloudy			Cloudy
<i>Southern Division</i>																				
Afton	Union	1,212	30	60.9	-4.2	88	7	32	30	36	3.96	-0.42	1.25	0	5	16	7	7	sw.	S. R. Brown
Albia	Monroe	959	26	60.6	-4.8	84	4†	30	30	35	2.74	-1.32	0.79	0	12	16	4	10	se.	O. E. McBride
Atlantic	Cass	1,164	33	60.0	-5.0	83	7†	29	30	42	4.52	+1.11	2.10	0	9	16	6	8	se.	Mrs. Minnie Cunningham
Bonaparte	Van Buren	563	33	60.0	-5.9	84	21	30	30	32	1.97	-2.16	0.63	0	7	17	7	6	se.	B. R. Vale
Burlington	Des Moines	544	28	61.2	-6.0	84	20	35	30	31	2.85	-1.07	0.94	0	10	17	4	9	ne.	John W. Donnelly
Centerville	Appanoose	1,013	19	61.3	-4.3	82	4†	30	30	31	2.33	-1.77	1.12	0	7	12	11	7	se.	Thomas Wood
Chariton	Lucas	1,042	29	59.8	-5.0	85 ^a	7	31	30	31 ^a	2.55	-1.39	0.95	0	5	16	8	6	u.	C. C. Burr
Clarinda	Page	1,009	34	60.7	-5.6	83	20	31	29	38	1.92	-1.55	0.96	0	7	16	10	4	e.	Dr. H. C. Hawley
Columbus Jct.	Louisa	595	23	61.4	-4.7	88	4	28	30	38	2.29	-1.37	0.71	0	7	18	7	5	nw.	Gale Gentzler
Corning	Adams	1,117	32	58.8 ^b	-6.1	87 ^a	7	28 ^b	30	49 ^b	3.41	-0.51	1.52	0	5	17	5	8	w.	Jerome Smith
Corydon	Wayne	1,101	31	61.4	-4.3	83	7	32	30	35	1.97	-2.12	0.54	0	8	8	14	8	ne.	Mrs. May Miller King
Creston	Union	1,312	19	59.2	-4.9	79	7	31	29	33	4.81	+0.81	2.30	0	8	14	11	5	n.	Mrs. S. O. Stanley
Cumberland (near)	Cass	1,225	25	60.4	-5.3	87	7	33	28†	36	3.65	-0.56	1.38	0	7	16	5	9	nw.	Carl E. Pollock
Earlham	Madison	1,126	22	57.9	-6.2	83	7	26	30	39	3.08	-0.61	1.14	0	6	19	4	7	ne.	Geo. Phillips
Fairfield	Jefferson	780	40	59.4	-6.2	86	21	28	30	39	2.75	-0.88	0.67	0	8	17	6	7	s.	Prof. R. M. McKenzie
Glenwood	Mills	1,100	26	61.3	-5.4	82	7†	32	30	35	2.94	+0.26	1.78	0	7	15	12	3	se.	Dr. Geo. Mogridge
Indianola	Warren	972	33	59.8	-5.8	81	7†	33	30	32	2.99	-0.74	1.64	0	8	16	9	5	se.	Seth F. Shenton
Keokuk	Lee	614	53	61.4	-6.1	84	20	36	30	33	1.70	-2.16	0.48	0	7	13	7	10	e.	U. S. Weather Bureau
Keosauqua	Van Buren	644	32	60.3	-5.5	84	4†	28	30	38	2.27	-1.93	0.88	0	8	14	9	7	se.	J. H. Landes
Knoxville	Marion	920	29	60.3	-5.5	82	4†	30	30	37	5.13	+0.99	1.12	0	10	17	3	10	se.	W. J. Casey
Lacona	Warren		25								3.95	-0.41	1.33	0	10	9	15	6	.....	J. B. Alter
Lamoni	Decatur	1,123	17	61.8	-2.9	87	11	31	30	39	3.86	-0.15	2.15	0	9	12	5	13	se.	Roy L. Roberts
Lenox	Union	1,250	29	60.4	-5.3	87	7	33	28†	36	3.65	-0.56	1.38	0	7	16	5	9	nw.	J. L. Hurley
Mt. Ayr	Ringgold	1,245	31	60.6	-4.8	84	7	35	28†	34	2.93	-1.02	1.75	0	7	12	9	9	se.	Alex Maxwell
Mt. Pleasant	Ringgold	729	43	60.4	-5.7	85	21	32	30	33	2.15	-1.38	0.70	0	8	10	14	6	se.	J. H. Jericho
Oakland	Pottawattamie	1,105	5	60.6	-4.5	82	20†	30	29†	40	4.55	.....	2.87	0	5	21	3	6	s.	M. E. Gray
Oskaloosa	Mahaska	835	48	59.3	-5.6	80	4†	30	30	30	3.52	+0.12	1.00	0	11	14	8	8	se.	Roy R. Robinson
Ottumwa	Wapello	649	29	61.4	.....	89	26	30	30	35	2.78	-1.07	1.10	0	11	20	4	6	se.	C. L. Mikesh
Pella	Marion	877	31	59.7	-5.5	83	4†	27	30	37	3.58	-0.59	1.15	0	8	18	2	10	s.	J. H. Ver Steeg
Sigourney	Keokuk	790	28	59.2	-5.9	82	21	30	30	34	3.19	-0.50	1.25	0	8	18	5	7	se.	W. E. Utterback
Stockport	Van Buren	745	22	59.6	-5.4	84	21	28	30	36	2.32	-1.77	0.96	0	7	18	4	8	se.	C. L. Beswick
Thurman	Fremont	975	27	61.4	-4.3	84	4†	30	28†	35	1.72	-2.54	0.78	0	6	9	19	2	nw.	C. R. Paul
Tingley	Ringgold	1,275	.....	60.1	.....	86	7	34	29†	33	3.65	.....	1.66	0	5	16	7	7	se.	James A. Verploegh
Washington	Washington	769	42	60.9	-4.3	89	4	33	30	37	3.27	-0.11	1.04	0	7	23	1	6	nw.	D. D. Sherman
Wescott (near)	Lee	2	.....	61.9	.....	85	21	31	30	39	2.85	.....	0.90	0	6	18	4	8	se.	Lester J. Larson
Winterset	Madison	1,129	33	59.8	-5.7	85	7	31	30	32	4.18	+0.43	1.55	0	8	19	8	3	se.	H. S. Ely
Omaha, Nebraska		1,103	53	62.2	-4.6	81	7	40	29	31	4.56	-1.53	2.26	0	5	14	7	9	se.	U. S. Weather Bureau
Means and extremes				60.4	-5.2	89	4	26	30	49	3.14	-0.71	2.87	0	8	16	7	7	se.	
State means and extremes				59.1	-5.2	91	21	25	30	49	3.13	-0.53	3.00	0	8	16	7	7	se.	

The departures from normal temperature and precipitation are computed only for such stations as have ten or more years of record, but all complete records are used in determining means. Reference letters a, b, c, etc., appearing in the table indicate the number of days missing; for example, b represents two days, etc. †Also other dates. ††Received too late to be included in means and summaries. T. Precipitation is less than 0.01 inch rain or melted snow.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE.

Stations	Barometric Pressure, Inches (Sea level)				Relative Humidity (%)				Wind				Sunshine				
	Mean	Highest	Date	Lowest	Date	Mean		Date	Total movement	Average hourly velocity		Miles		From	Date		
						7 a. m.	12 Noon†			7 p. m.	Lowest		Per cent of possible			Departure from normal	
Charles City	30.06	30.39	29	29.49	21	88	57	72	32	22	4,292	6.0	32	sw.	21	59	-3
Davenport	30.07	30.33	29	29.67	11	56	56	66	36	17	4,815	6.7	35	w.	21	60	-4
Des Moines	30.04	30.39	29	29.55	21	87	58	64	26	32	4,944	6.2	33	sw.	21	60	-3
Dubuque	30.05	30.35	29	29.56	21	86	58	69	37	5	4,170	5.2	27	sw.	21	56	-2
Keokuk	30.06	30.35	28	29.66	11	84	60	70	31	23	4,915	6.3	36	w.	21	62	-4
Sioux City	30.04	30.45	29	29.50	21	84	54	60	35	4	8,264	11.5	48	w.	21	64	-1
Omaha, Neb.	30.03	30.44	29	29.55	21	82	60	65	39	5	5,531	7.4	31	nw.	21	72	-7
Means and extremes	30.05	30.45	29	29.49	21	85	58	67	.....	.....	7.3	.....	.....	.....	.....	62	-1
Normals and records	30.02	.....	26th	.....	30th	83	.....	.....	.....	.....	7.2	.....	.....	7th	63	.....	.....
		*30.65	1908	29.27	1878	.....	.....	.....	.....	.....	.....	.....	.....	||72	w.	1872	.....

*Dubuque. §Omaha. ||Davenport. †Local mean time. †And other dates.

MISCELLANEOUS PHENOMENA

Aurora: 23d, 24th.
Fog: 2d, 3d, 10th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22d, 23d, 30th.
Frost: Light, 5th, 9th, 17th, 23d, 30th; heavy, 28th, 29th, 30th; killing, 28th, 29th, 30th.
Hail: 7th, 8th, 11th.
Parhelia: 9th.
Rainbow Lunar: 12th.
Thunderstorms: 1st, 7th, 8th, 10th, 11th, 12th, 15th, 16th, 20th, 21st, 26th, 27th.
Tornado: 11th.

Daily Precipitation for September, 1924.

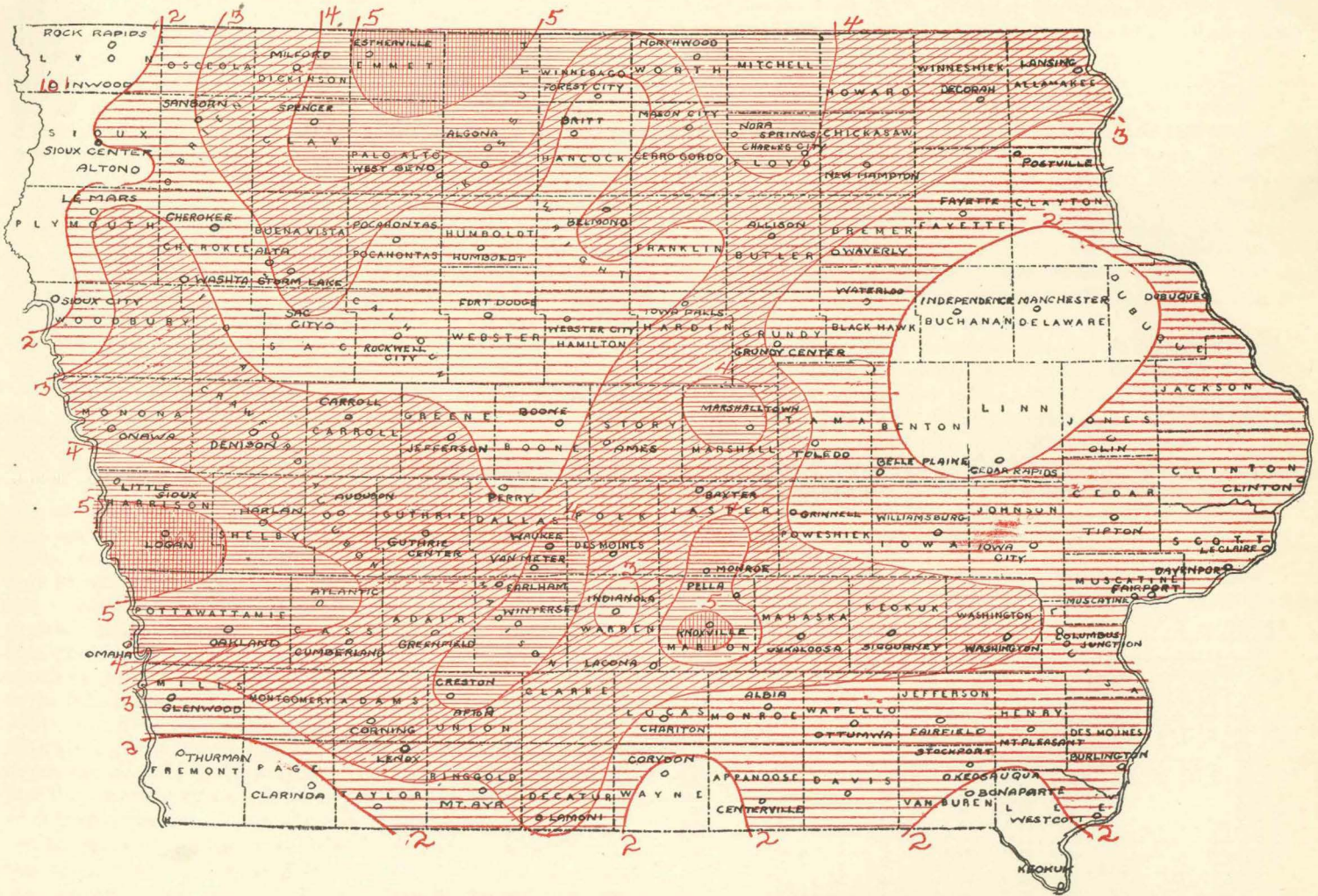
Stations	Drainage Basins	Day of Month																															Totals					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						
<i>Northern Division</i>																																						
Algona	Des Moines	1.10									.50	.55																								4.93		
Alison (near)	Cedar	.22					.07	T.	.46		.09	.12	1.08								T.		.58				2.20								1.33	3.46		
Alta	Raccoon	.90	.06					.02			.13		.70									.02	.05	T.											1.06	2.94		
Alton	Floyd	.04					.03	T.			.08	.68	.03									.01	.72					.17						T.	1.76			
Belmond	Iowa	.23					.02	.04			.22	.58	T.								T.	T.	.28											1.90	3.27			
Britt	Iowa	.58					T.	T.			.22	.64	.04									.04	.01												2.83			
Charles City**	Cedar	.18					.03	.22	.03		.13	1.19	.03								.04	.18					.44	1.53							4.00			
Cherokee	Little Sioux	.53					.04		T.		.43	T.			.03						T.	.02	1.38				.03								2.46			
Decorah	Mississippi	T.	.34					.25	.43		.08		.85									.04	.28	.06					.66	.17					3.16			
Dubuque**	Mississippi	.14					.01	.03	1.00		.08	.52	.03								.38	.01	.01						.23						2.44			
Estherville	Des Moines		.10				T.	.05			.35	.05	.40									.02	3.00	.05										1.27	5.27			
Fayette	Mississippi	.30							.42		.15	.31	.16								.03	.05	.12												1.69	2.23		
Forest City	Cedar	.16	.22					.04	.02		.02	.26	.82									.02	.03	T.											1.33	2.92		
Hampton	Cedar	.24					.04	.04			.14	.92									.04														1.10	2.52		
Humboldt	Des Moines	.31					T.				.47	.65										.04	.22												1.21	2.90		
Independence	Wapsipicon	.26							.24		.12	.04	.21								.03	T.													.41	1.31		
Inwood	Big Sioux	.01	.07				.01				.10	.01	.20										.32	.23											.06	1.01		
Le Mars	Floyd	.13					.04	T.			.13	.64										1.87													.15	3.13		
Mason City	Cedar	.36					.08	.04			.60											.89	T.												1.69	3.66		
Milford (near)	Little Sioux	.01					T.	T.			.68	.30	.02								T.		1.95												.47	3.43		
New Hampton	Wapsipicon	.18					T.	T.	.36		.16	.17	.48								.03	.02	.27												1.40	3.07		
Nora Springs	Cedar	.44					.14	.19			.13	1.16									.09	.08	.65				.50	1.23							.03	4.61		
Northwood	Cedar	.35					.15	.10	.05		.15	1.00	.15								T.	T.	.50												1.60	4.05		
Oelwein	Wapsipicon	.40							.40			.25	.20										.30												.65	2.20		
Pocahontas	Des Moines	.48									.50	.52											.04												T. 1.17	2.71		
Postville	Mississippi	.28					T.	.07	.35		.11	.23	.43									.03	.66											.63	2.79			
Rock Rapids	Big Sioux	.06					.01				.20	.22	.03										.55												T.	1.07		
Sanborn	Floyd	.09					T.				.86	.07											2.50												.20	3.75		
Sioux Center	Floyd	.08					.02	T.			.17	.51	T.									T.	1.32	.04											.05	2.19		
Spencer	Little Sioux	.10									.34	.40	.05										2.20												.90	4.72		
Storm Lake	Raccoon	.78					.03					.91	.02										.04												.01	2.38		
Washita	Little Sioux	.97					.10	T.			.12	.38										1.36													T.	3.04		
Waterloo	Cedar	.32	.13					.03	.18			.12	.28									.03		.26											.78	2.28		
Waverly	Cedar	.31					.02				.19	.40	.40										.14												1.34	2.80		
West Bend	Des Moines	.57					T.		T.		.60	.57	.03									.02	.70												T. 1.30	3.79		
<i>Central Division</i>																																						
Ames	Skunk	.95					T.	T.			.33	1.15	.14									.17	T.												1.07	3.81		
Audubon	Nishnabotna	.98					.06				.04	.27											.10													T. 1.02	3.42	
Baxter	Skunk	1.00					T.	.05			.20	.70										T.	.20													1.32	3.47	
Belle Plaine	Iowa																																					
Boone	Des Moines	.68	.21				T.	.05	.04		.37	.02	.74										.10												.73	.04	2.98	
Carroll	Raccoon	1.24	.34				T.	.05			.17	T.	.28									.04		.02											T. .97	3.21		
Cedar Rapids	Cedar	T.	.47					.01	.11	.01		.12	.36										.45	.01											.23	.14	1.91	
Clinton	Mississippi	.08						.10			.20	.09										.49	1.13	.15											.41	2.65		
Davenport**	Mississippi	.36					T.	.36	.13		.02	.04	.04									.97													.31	2.23		
Davenport (No. 2)	Mississippi	.35					T.	.22	.38		.05	.01	.13									.52	.54												.30	.10	2.60	
Denison	Missouri	1.86									.04	.52																								1.14	3.67	
Des Moines**	Des Moines	1.08					.02	.01	T.		.18	.42										.22						.27							.89	3.47		
Fairport	Mississippi	.62					T.	.10	.66		.03		.47									.50	.26												.17	.05	2.86	
Fort Dodge	Des Moines	.26	.21					.02			.37	.10	.38										.06	.38												1.14	2.92	
Grinnell	Iowa	.75					.05	.01	T.		.18	.18	.26								T.		.07	.18	.06										.86	2.60		
Grundy Center	Cedar	.50					.08		.30		.10	.15	.40									.18	.20												1.03	2.94		
Guthrie Center	Raccoon	1.10					.07				.04	.32										.05														1.11	3.50	
Harlan	Nishnabotna	1.55																																		.88	**	
Iowa City	Iowa	.09	.32					.04	.14	.02		.06	1.09									.68		.02											.01	.13	2.60	
Iowa Falls	Iowa	.05	.26					.03	.15			.14	1.05									.05	T.													1.37	3.10	
Jefferson	Raccoon	1.05					T.				.32	.28										.06	T.												T. 2.00	3.71		
Le Claire	Mississippi		.52					.06	.36	.02		.05	.01									1.52	T.	.03											.45	3.02		
Little Sioux	Little Sioux	2.01					.13				T.	.58	.02									.77		.09				**	.70						.70	4.30		
Logan	Missouri	1.80					.10				.40											.67	.73												1.30	.68	5.68	
Marshalltown	Iowa	.61	.19					.04	1.48		.01	.13	.45										.05		T.											1.26	.05	4.27
Monroe	Des Moines	1.47					.18				.21	T.	.58									.26		.06	.26	.05										1.28	4.35	
Muscatine	Mississippi	T.	.18					.05	.48																													

Daily Maximum and Minimum Temperature for the Month of September, 1924.

Table with columns for Stations, days 1-30, and Mean. Rows are categorized by Northern, Central, and Southern Divisions, listing various Iowa cities and their daily temperature ranges.

a, b, c, etc., indicate 1, 2, 3, etc., days missing from the record.

TOTAL PRECIPITATION, SEPTEMBER, 1924



SCALE OF SHADES IN INCHES.



CLIMATOLOGICAL DATA.

IOWA SECTION

In cooperation with

CHARLES D. REED, Meteorologist

VOL. XXXV DES MOINES, IOWA, OCTOBER, 1924 No. 10

GENERAL SUMMARY

October weather was an ideal example of what is popularly known as "Indian summer." The month was characterized by a number of unusual features, the principal one being the high mean temperature. Only in 1900 has a higher mean been recorded in October, and except a few days during the first and fourth weeks the temperature was continuously above normal. At a number of stations the temperature did not reach the freezing point during the entire month, and at a few stations in the western portion of the State a killing frost has not occurred. There were more clear days than in any other October of record, a number of stations reported the highest per cent of sunshine of record for October, and the relative humidity was much lower than the normal. These conditions, with an occasional windy day, were ideal for drying corn. At the beginning of the month all corn contained an excess of moisture and the prospects were that there would be a great deal of sour and moldy ears. However, the absence of heavy rains permitted the corn to dry steadily and at the end of the month the crop was in a favorable condition relative to moisture, though there is a large amount of chaffy corn that has a greatly reduced feeding value. There was more hogging down than usual, but there had been very little husking started at the end of the month. The high temperatures that prevailed until the beginning of the fourth week caused truck crops, that had not been killed in September, to make unusual growth, and tomatoes were plentiful over much of the southern and eastern portions of the State. One canning factory that was forced to suspend operations in September was able to resume operations and add materially to the pack.

There was a decided deficiency in precipitation, with only two stations reporting excesses. The average was the least for any month of the current year, and only twice in October has the average been lower. The absence of rain over a large portion of the State made the soil too dry to plow and considerable winter wheat sown during the month failed to germinate for lack of moisture. Also stock water was getting low and some wells in the extreme northwest portion had begun to fail.

High winds were experienced on several days, but as a rule they produced more good than harm, as they were beneficial in drying corn, and, while there was considerable blown down, there was very little damaged owing to the prevailing dry conditions. An energetic storm on the 30th was attended by high winds over the entire State, causing only minor damage, but a tornado developed in Black Hawk county. The path of the storm was almost directly through the center of the city of Waterloo from the southwest to northeast, the path with the greatest destruction averaging about 300 feet wide. Property damage estimated at about \$75,000 was reported, consisting of many broken plate-glass windows, merchandise damaged by the accompanying dashing rain, unroofed buildings, broken poles, and trees and wire systems badly demoralized. Severe damage also occurred in Fayette county as a result of straight blows. Many farm buildings were wrecked and the roofs of some buildings were blown several hundred feet. Some live stock were killed in collapsed buildings, and considerable hay was blown away.

Conditions were favorable for all outdoor occupations. Construction of every nature was carried on with practically no interruption. Sugar beets were harvested under favorable conditions; potatoes were generally dug, with the yield mostly good, and some reports of more than 300 bushels to the acre; apples were generally plentiful and the crop was nearly all gathered. Roads were good during nearly the entire month, though some with heavy traffic were somewhat rough from wear.

F. L. D.

TEMPERATURE

The mean temperature for the State, as shown by the records of 97 stations, was 58.1°, or 6.2° higher than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 56.4°, or 6.1° higher than the normal; Central, 58.3°, or 6.2° higher than the normal; Southern, 59.5°, or 6.1 higher than the normal. The highest monthly mean was 61.4°, at Keokuk, and the lowest was 53.6°, at Estherville. The highest temperature reported was 89°, at Audubon, on the 11th, and the lowest was 21°, at Fayette, on the 22d. The temperature range for the State was 68°.

PRECIPITATION

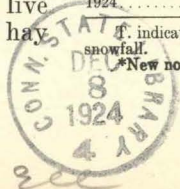
The average precipitation for the State, as shown by the records of 104 stations, was 0.87 inch, or 1.55 inches less than the normal. By divisions, the averages were as follows: Northern, 0.78 inch, or 1.54 inches less than the normal; Central, 0.76 inch, or 1.72 inches less than the normal; Southern, 1.06 inches, or 1.40 inches less than the normal. The greatest amount, 2.58 inches, occurred at Mt. Pleasant, and the least, 0.03 inch, occurred at Rockwell City. The greatest amount in any 24 consecutive hours, 1.55 inches, occurred at Rock Rapids on the 8th.

COMPARATIVE DATA FOR THE STATE—OCTOBER

Year	Temperature				Precipitation				Number of Days				
	Mean	Departure*	Highest	Lowest	Total	Departure*	Greatest	Least	Snowfall	With pre-.01 in. or more	Clear	Partly cloudy	Cloudy
1890.....	49.2	-2.7	86	16	3.48	+1.06	6.82	1.59	.....	7	11	11	9
1891.....	50.0	-1.9	92	19	2.77	+0.35	6.53	0.85	.....	6	18	7	6
1892.....	54.5	+2.6	96	14	1.55	-0.87	2.58	0.00	0.0	4	21	6	4
1893.....	52.4	+0.5	94	10	1.28	-1.14	4.56	0.02	0.0	4	16	9	6
1894.....	51.7	-0.2	90	20	2.67	+0.25	5.25	0.03	0.2	8	14	8	9
1895.....	46.0	-5.9	88	4	0.47	-1.95	1.38	0.00	T	2	19	8	4
1896.....	47.9	-4.0	88	12	3.13	+0.71	5.05	1.51	T	5	18	6	7
1897.....	56.8	+4.9	97	12	1.14	-1.28	3.30	0.03	0.0	4	17	8	6
1898.....	47.5	-4.4	88	17	3.56	+1.14	5.75	1.27	3.6	8	7	9	15
1899.....	56.7	+4.8	95	17	1.73	-0.69	4.64	1.15	0.0	5	17	8	6
1900.....	59.3	+7.4	90	21	3.91	+1.49	8.00	1.20	0.0	7	16	7	8
1901.....	54.2	+2.3	88	20	1.98	-0.44	4.23	0.45	T	6	17	7	7
1902.....	53.5	+1.6	83	20	2.54	+0.12	6.66	0.28	T	5	16	8	7
1903.....	52.2	-0.3	90	16	1.95	-0.47	4.50	0.32	0.0	5	19	6	6
1904.....	53.1	+1.2	96	16	1.67	-0.75	4.43	0.14	T	6	15	8	8
1905.....	49.2	-2.7	95	16	3.40	+0.98	5.36	1.20	1.6	8	16	6	9
1906.....	50.5	-1.4	87	7	1.96	-0.46	4.25	0.50	0.1	6	14	7	10
1907.....	50.4	-1.5	85	10	1.50	-0.92	3.71	0.30	0.0	5	20	5	6
1908.....	51.1	-0.8	89	17	3.38	+0.96	8.83	0.58	2.6	8	16	6	9
1909.....	49.7	-2.2	97	10	2.22	-0.20	4.70	0.48	T	6	16	6	9
1910.....	55.2	+3.3	93	10	0.77	-1.65	1.73	T	0.1	4	21	4	6
1911.....	48.7	-3.2	87	14	3.34	+0.92	7.03	0.73	0.6	10	12	8	11
1912.....	52.2	+0.3	92	16	2.98	-0.56	5.77	1.03	T	6	21	3	7
1913.....	49.2	-2.7	89	-2	3.03	-0.61	7.29	0.35	1.2	9	15	8	8
1914.....	55.9	+4.0	88	14	3.23	+0.81	6.64	0.74	T	9	16	6	9
1915.....	54.4	+2.5	86	19	1.31	-1.11	3.25	T	0.0	5	19	6	6
1916.....	50.9	-1.0	92	6	2.00	-0.42	4.33	0.20	2.0	8	15	7	8
1917.....	42.9	-9.0	85	0	1.41	-1.01	4.00	0.15	2.2	6	10	11	10
1918.....	55.1	+3.2	93	21	3.64	+1.22	7.56	1.36	0.8	7	13	7	11
1919.....	50.7	-1.2	89	8	3.02	-0.60	8.65	0.45	T	10	11	8	12
1920.....	57.7	+5.8	90	11	2.13	-0.29	4.64	0.48	T	6	19	6	6
1921.....	54.6	+2.7	90	21	1.96	-0.46	3.61	0.21	T	6	17	8	6
1922.....	56.1	+4.2	96	14	1.81	-0.61	3.93	0.06	T	5	21	4	6
1923.....	48.5	-3.4	81	10	1.22	-1.20	3.67	0.29	1.7	6	18	6	7
1924.....	58.1	+6.2	89	21	0.87	-1.55	2.58	0.03	0.0	4	22	5	4

T. indicates an amount too small to measure, or less than .005 inch rainfall and less than .05 inch snowfall.

*New normals effective June 1, 1924



Climatological Data for October, 1924.

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit							Precipitation, in Inches				Number of Days			Prevailing direction of wind	Observers	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear	Partly cloudy			Cloudy
<i>Northern Division</i>																				
Algona	Kossuth	1,213	51	56.4	+5.9	80	18	34	22†	36	0.27	-2.00	0.11	0	3	28	1	2	se.	W. E. Lard
Allison (near)	Butler	1,044	12	57.1	+6.4	84	18	27	22	34	1.48	-1.02	0.74	0	5	23	4	4	sw.	J. A. Bell
Alta	Buena Vista	1,513	33	56.6	+6.5	80	17†	33	23	31	0.25	-1.98	0.13	0	2	21	7	3	s.	D. E. Hadden
Alton	Sioux	1,305	19	56.3	+6.5	80	18	30	22†	35	1.63	-1.13	0.04	0	2	21	7	3	se.	W. S. Slagle
Belmond	Wright	1,205	14	56.7	+6.1	82	18	29	22	36	1.23	-1.49	0.38	0	6	15	12	4	s.	Geo. P. Hardwick
Britt	Hancock	1,236	37	57.2 ^b	+7.5	82 ^d	18	29	22	38 ^b	0.37	-2.03	0.17	0	3	28	1	2	se.	Jas. S. Ross
Charles City	Floyd	1,015	33	56.2	+6.8	83	18	28	22	33	1.24	-1.19	0.86	0	7	20	8	3	se.	U. S. Weather Bureau
Cherokee	Cherokee	1,196	2	56.3 ^a	+6.0	81 ^a	18	30 ^a	22†	38 ^a	0.70	-0.55	0.55	0	2	20	9	2	s.	J. E. Wirth
Decorah	Winnesiek	875	31	54.0	+4.9	78	18	22	22	36	0.56	-2.26	0.27	0	4	28	1	2	se.	M. D. Whitney
Dubuque	Dubuque	698	51	57.5	+5.6	83	18	28	22	34	0.43	-2.15	0.24	0	5	17	7	7	s.	U. S. Weather Bureau
Estherville	Emmet	1,298	29	53.6	+4.5	80	11†	25	22	40	0.22	-1.69	0.20	0	2	19	10	2	s.	A. O. Peterson
Fayette	Fayette	1,003	34	55.8	+6.2	82	18	21	22	40	0.63	-1.90	0.49	0	3	26	4	1	se.	R. Z. Latimer
Forest City	Plymouth	1,226	30	56.4	+7.3	82	18	29	22†	37	0.64	-1.79	0.35	0	4	21	7	3	se.	Dr. M. C. Woolley
Hampton	Franklin	1,145	36	56.8	+4.9	82	18	25	22	37	0.78	-1.77	0.46	0	6	24	4	3	se.	H. H. Davis
Humboldt	Humboldt	1,095	36	57.6	+6.3	84	18	29	23	41	0.42	-1.80	0.20	0	4	18	8	5	s.	L. H. C. Snitkey
Independence	Buchanan	921	60	58.0	+5.9	81	18	28	22†	38	0.60	-1.95	0.31	0	3	20	3	8	se.	Dr. Geo. Boody
Lyons	Lyon	1,474	20	57.0	+7.2	82	17	33	6	35	0.90	-1.01	0.50	0	3	26	4	1	s.	F. B. Hanson
Le Mars	Plymouth	1,224	28	56.8	+5.7	83	18	31	6†	39	1.48	-0.58	1.26	0	2	25	4	2	sw.	Mrs. M. C. Woolley
Mason City	Cerro Gordo	1,148	27	56.0	+6.4	83	18	25	22	36	0.66	-1.54	0.28	0	4	19	8	4	sw.	Northern Sugar Corp.
Milford (near)	Dickinson	1,430	4	55.6	+6.0	80	18	28	23	34	0.25	-0.13	0.13	0	3	14	15	2	sw.	Dr. F. J. Smith
New Hampton	Chickasaw	1,169	27	56.0	+5.8	80	11†	28	24	33	0.92	-1.65	0.48	0	4	21	6	4	s.	A. F. Kemman
Nora Springs	Floyd	1,064	12	57.5	+5.6	82	11†	26	22	40	1.56	-0.94	0.70	0	7	21	9	1	s.	Arthur Betts
Northwood	Worth	1,222	28	54.2 ^a	+6.0	78	11†	27 ^b	22	33 ^b	1.03	-1.61	0.40	0	5	22	2	7	sw.	Chas. Dwelle
Oelwein	Fayette	1,036	1	57.4	+6.3	83	19	26	22	38	0.75	-0.40	0.40	0	3	19	10	2	sw.	John T. Ridler
Pocahontas	Pocahontas	1,248	20	56.2	+5.5	83	18	24	22	40	0.09	-2.64	0.06	0	2	25	2	4	s.	F. E. Hronek
Postville	Clayton	1,180	25	55.2	+5.9	79	18	28	22	35	0.67	-2.01	0.43	0	4	25	4	2	sw.	F. L. Williams
Rock Rapids	Lyon	1,358	25	55.8	+6.9	79	17	27	22	39	1.85	+0.06	1.55	0	3	27	2	2	se.	J. K. Medberry
Sanborn	O'Brien	1,553	10	55.8	+6.4	81	17	30	21	35	0.76	-1.09	0.55	0	3	26	4	1	se.	J. W. Dow
Sioux Center	Sioux	1,426	25	56.1	+6.3	81	18	32	6	31	1.28	-0.56	1.26	0	2	24	1	6	s.	J. de Ruyter
Spencer	Clay	1,319	10	56.3	+6.1	84	18	28	22	41	0.28	-1.64	0.17	0	3	25	5	1	sw.	E. W. Little
Storm Lake	Buena Vista	1,440	35	57.8	+6.6	80	18	36	6†	34	0.55	-1.49	0.50	0	2	25	3	3	s.	Geo. H. Fracker
Washita	Cherokee	1,157	26	56.4	+5.9	83	18	24	23	43	0.87	-1.24	0.53	0	2	27	2	2	s.	H. L. Felter
Waterloo	Blackhawk	854	41	57.8	+5.9	85	18	24	22	40	0.77	-1.67	0.35	0	4	25	3	3	se.	R. B. Shippy
Waverly	Bremer	936	28	56.7	+5.6	83	18	26	22	37	0.62	-1.98	0.30	0	5	27	3	1	se.	D. H. Murphy
West Bend	Palo Alto	1,197	31	57.8	+7.2	82	18	30	22	38	0.69	-1.34	0.40	0	4	21	8	2	s.	Jos. Dorweiler
Means and extremes				56.4	+6.1	85	18	21	22	43	0.78	-1.54	1.55	0	4	23	5	3	s.	
<i>Central Division</i>																				
Ames	Story	926	47	57.6	+5.9	84	18	26	23	37	0.61	-2.00	0.20	0	4	19	7	5	se.	Iowa State College
Audubon	Audubon	1,297	29	58.0	+7.2	89	11	30	22	40	0.06	-2.25	0.06	0	1	22	7	2	se.	Geo. Kibby
Baxter	Jasper	998	24	57.7	+5.3	83	19	27	23	36	1.25	-1.17	0.60	0	5	21	7	3	s.	Henry Geise
Belle Plaine††	Benton	866	34	59.6	+7.7	85	11†	25	23	43	0.81	-1.68	0.39	0	4	16	12	3	s.	O. C. Burrows
Boone	Boone	1,134	19																	C. F. Henning
Carroll	Carroll	1,265	34	58.8	+7.2	85	18	28	22	37	0.20	-2.38	0.13	0	2	26	3	2	sw.	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	737	42	57.4	+3.8	84	18†	22	22†	48	1.08	-1.37	0.52	0	4	21	4	6	se.	J. T. Wurster
Clinton	Clinton	595	51	58.8	+5.8	85	11	28	23	41	1.01	-1.55	0.40	0	4	27	2	2	s.	Dr. A. P. Bryant
Davenport	Scott	580	53	60.0	+6.3	83	11	31	23	33	0.86	-1.44	0.42	0	8	25	2	4	s.	U. S. Weather Bureau
Davenport (No. 2)	Scott	690		59.2		85	11	25	23	43	1.04	-1.17	0.45	0	6					Rex Shriver
Denison	Crawford	1,171	30	58.2	+6.5	82	18	30	22	37	0.63	-1.60	0.41	0	3	22	6	3	s.	V. L. Byers
Des Moines	Polk	861	46	59.6	+6.2	83	19	33	23	32	0.77	-1.79	0.40	0	6	16	7	8	sw.	U. S. Weather Bureau
Fairport	Muscatine	567	3	59.8		83	18	29	22	37	1.41		0.41	0	6	19	5	7	sw.	Bureau of Fisheries
Fort Dodge	Webster	1,114	24	57.6	+6.3	86	18	25	22	41	0.26	-2.78	0.14	0	3	25	3	3	se.	Samuel Sampson
Grinnell	Poweshiek	1,031	30	59.6	+6.6	84	17	31	22	36	0.96	-1.55	0.38	0	5	22	7	2	se.	Paul P. Meyers
Grundy Center	Grundy	976	33			82	19	26	23	37	1.28	-1.51	0.50	0	4	23	4	4	sw.	M. G. Heiberger
Guthrie Center	Guthrie	1,077	29	59.6	+7.1	85	19	27	22	38	0.18	-2.48	0.10	0	2	26	2	3	s.	E. L. Nesselroad
Harlan	Shelby	1,192	25	56.8	+5.6	82	18	27	23	36	0.46	-2.19	0.24	0	3	27	1	3	s.	W. K. Colburn
Iowa City	Johnson	733	64	58.1	+5.7	83	11†	25	22†	42	1.64	-1.10	0.68	0	5	22	4	5	s.	Prof. J. F. Reilly
Iowa Falls	Hardin	1,107	31	56.4	+5.7	83	18	26	22†	36	0.80	-1.66	0.51	0	6	20	6	5	s.	J. B. Parmelee
Jefferson	Greene	1,052	25	56.8	+5.4	82	18	26	22	38	0.24	-2.30	0.15	0	3	22	3	6	sw.	W. I. Lyon
Little Sioux	Harrison	1,040	19	60.6	+8.4	85	18	31	6	41	0.95	-1.10	0.95	0	1	20	8	3	se.	H. W. Kerr
Logan	Harrison	1,035	57	59.0	+5.8	85	3	29	23	39	0.66	-1.72	0.34	0	2	24	4	3	sw.	Mary Jean Stern
Marshalltown	Marshall	947	32	58.8	+5.8	83	12	29	22	33	1.09	-1.67	0.43	0	6	25	2	4	s.	C. C. Pigman
Monroe	Jasper	922	12	59.2	+5.2	84	13†	30	23	35	1.02	-1.48	0.56	0	4	22	2	7	s.	J. A. Dibel
Olin	Jones	760	25	56.4	+5.4	83	18	23	22†	44	1.17	-1.32	0.60	0	3	23	6	2	se.	Mrs. L. Stingley
Onawa	Monona	1,051	23	57.7	+5.9	80	18	32	22†	33	1.12	-1.06	1.00	0	2	22	3	6	s.	Mrs. H. E. Colby
Perry	Dallas	975	23	56.9 ^a	+4.7	82 ^a	18†	26 ^a	23	38 ^a	0.27	-2.45	0.17	0	3					F. N. Bartlett
Rockwell City	Calhoun	1,13																		

Climatological Data for October, 1924—Concluded.

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit							Precipitation, in Inches				Number of Days			Prevailing direction of wind	Observers	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear	Partly cloudy			Cloudy
<i>Southern Division</i>																				
Afton	Union	1,212	30	59.3	+6.0	85	19	29	22	37	0.32	-2.26	0.10	0	6	23	5	3	sw.	S. R. Brown
Albia	Monroe	950	26	60.3	+6.8	85	19	30	22†	36	1.14	-1.14	0.53	0	6	22	1	8	sw.	O. E. McBride
Atlantic	Cass	1,164	33	59.0	+6.8	87	4	26	23	45	0.35	-2.25	0.18	0	4	23	4	4	s.	Mrs. Minnie Cunningham
Bonaparte	Van Buren	563	33	59.4	+5.7	85	18†	25	23	40	1.43	-0.45	0.43	0	5	26	0	5	s.	B. R. Vale
Burlington	Des Moines	544	28	59.8	+4.9	82	11†	33	22†	38	1.80	-0.48	0.58	0	6	24	1	6	sw.	John W. Donnelly
Centerville	Appanoose	1,013	19	59.8	+5.8	82	17†	27	23†	44	0.98	-1.23	0.30	0	6	23	6	2	sw.	Thomas Wood
Chariton	Lucas	1,042	29	60.3	+6.8	81	12	28	22†	37	1.60	-0.72	0.72	0	5	23	4	4	sw.	C. C. Barr
Clarinda	Page	1,009	34	58.6	+4.6	86	18†	26	23	45	0.12	-2.52	0.12	0	1	23	6	2	s.	Dr. H. C. Hawley
Columbus Junction††	Louisa	595	23	59.5	+5.5	85	19	23	22	43	1.50	-1.05	0.50	0	4	23	5	3	nw.	Geo. Phillips
Corning	Adams	1,117	32	58.9	+6.5	85	18†	27 ^a	23	47	0.43	-2.23	0.22	0	2	23	4	4	s.	Jerome Smith
Corydon	Wayne	1,101	31	59.9	+6.1	82	17†	31	22	32	0.75	-1.84	0.23	0	5	11	18	2	sw.	Mrs. May Miller King
Creston	Union	1,312	19	58.4	+5.9	79	19	33	24	31	0.45	-2.33	0.23	0	2	20	6	3	sw.	Mrs. S. O. Stanley
Cumberland (near)	Cass	1,225	25	59.0	+5.9	84	19	31	22†	38	0.62	-1.10	0.32	0	4	19	11	1	s.	Carl E. Pollock
Earlham	Madison	1,126	22	59.1	+7.1	84	19	23	22	43	0.54	-1.90	0.40	0	2	23	4	4	sw.	Geo. Phillips
Fairfield	Jefferson	780	40	59.0	+5.7	84 ^b	11	23 ^a	23	46 ^b	1.78	-0.98	0.72	0	6	27	0	4	s.	Prof. R. M. McKenzie
Glenwood	Mills	1,100	26	60.5	+6.9	84	17†	27	23	40	0.82	-1.86	0.28	0	6	18	8	5	sw.	Dr. Geo. Mozridge
Indianola	Warren	972	33	59.1	+5.9	83	19	29	22	34	1.26	-1.10	0.58	0	5	22	6	3	sw.	Seth F. Shenton
Keokuk	Lee	614	53	61.4	+6.0	85	18	33	23	35	1.66	-0.73	0.67	0	5	21	3	7	s.	U. S. Weather Bureau
Keosauqua	Van Buren	644	32	58.9	+5.7	85	11	22	23	47	1.30	-0.69	0.41	0	6	21	6	4	sw.	J. H. Landes
Knoxville	Marion	920	29	59.4	+5.7	84	19	26	22	38	1.06	-1.25	0.42	0	6	23	2	6	sw.	W. J. Casey
Lacona	Warren	25	25	59.0	+5.9	84	19	31	22†	39	0.77	-1.94	0.35	0	7	11	14	6	sw.	J. B. Alter
Lamoni	Decatur	1,123	17	60.2	+6.7	84	11†	31	22†	39	1.03	-1.90	0.56	0	4	24	2	5	sw.	Roy L. Roberts
Lenox	Taylor	1,250	29	59.6	+6.4	86	19	31	22†	38	0.62	-1.10	0.32	0	4	19	11	1	s.	J. L. Hurley
Mt. Ayr	Ringgold	1,245	31	59.7	+6.1	85	19	31	22†	33	0.77	-1.75	0.55	0	6	23	2	6	s.	Alex Maxwell
Mt. Pleasant	Henry	729	43	59.7	+5.7	85	11	29	23	36	2.58	+0.18	1.16	0	5	21	8	2	sw.	J. H. Jericho
Oakland	Pottawattamie	1,105	5	59.0	+5.9	84	19	29	22†	37	0.97	-1.28	0.43	0	5	20	5	6	sw.	M. E. Gray
Oskaloosa	Mahaska	835	48	58.4	+5.6	82	19	29	22†	37	0.97	-1.28	0.43	0	5	20	5	6	sw.	Roy R. Robinson
Ottumwa	Wapello	649	29	59.8	+5.8	85	18†	28	23†	45	1.86	-0.52	1.29	0	5	23	3	5	sw.	C. L. Mikesh
Pella	Marion	877	31	59.0	+5.9	85	19	23	22†	45	0.50	-1.95	0.21	0	4	27	1	3	s.	J. H. Ver Steeg
Red Oak (near)	Montgomery	1,030	29	59.0	+5.9	84	19	23	22†	45	0.50	-1.95	0.21	0	4	27	1	3	s.	B. R. Bridge
Sigourney	Keokuk	790	28	58.6	+5.6	83	19	26	23	34	2.00	-0.25	1.40	0	4	25	4	2	sw.	W. E. Utterback
Stockport	Van Buren	745	22	58.2	+5.8	87	15	25	24	44	1.46	-0.60	0.52	0	6	24	2	5	s.	C. L. Beswick
Thurman	Fremont	975	27	59.0	+6.2	83	17†	24	23	42	0.54	-2.40	0.38	0	2	10	17	4	sw.	C. R. Paul
Tingley	Ringgold	1,275	31	59.0	+5.9	83	19	31	22	34	1.18	-0.69	0.41	0	5	22	5	4	s.	James A. Verploegh
Washington	Washington	760	42	59.0	+5.9	84	19	28	23	46	1.38	-0.82	0.63	0	4	24	3	4	sw.	D. D. Sherman
Wescott (near)	Lee	2	2	59.0	+5.9	85	18	24	22	52	2.20	-0.80	0.80	0	4	27	1	3	sw.	Lester J. Larson
Winterset	Madison	1,129	33	59.9	+6.3	84	19	28	22	42	0.51	-1.86	0.25	0	3	26	4	1	sw.	H. S. Ely
Omaha, Nebraska	Madison	1,103	53	61.4	+7.1	84	17	30	23	34	0.51	-1.84	0.35	0	5	13	12	6	s.	U. S. Weather Bureau
Means and extremes				59.5	+6.1	88	16	22	23	52	1.06	-1.40	1.40	0	5	22	5	4	s.	
State means and extremes				58.1	+6.2	89	11	21	22	52	0.87	-1.55	1.55	0	4	22	5	4	s.	

The departures from normal temperature and precipitation are computed only for such stations as have ten or more years of record, but all complete records are used in determining means. Reference letters a, b, c, etc., appearing in the table indicate the number of days missing; for example b represents two days, etc. †Also other dates. ††Received too late to be included in means and summaries. T. Precipitation is less than 0.01 inch rain or melted snow.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE.

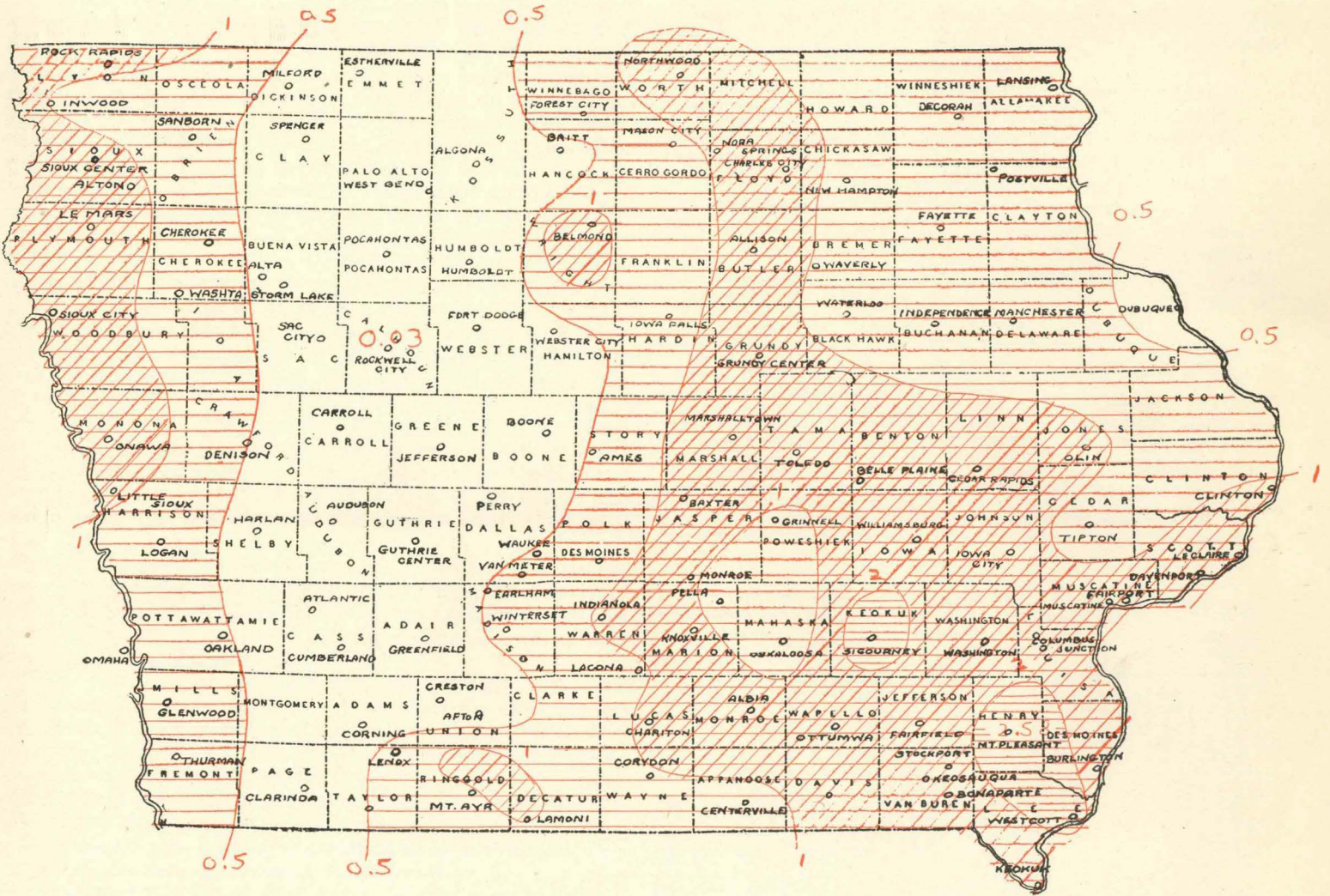
Stations	Barometric Pressure, Inches (Sea level)				Relative Humidity (%)				Wind					Sunshine			
	Mean	Highest	Date	Lowest	Mean				Total movement	Average hourly velocity	Maximum			Per cent of possible	Departure from normal		
					7 a. m.	12 Noon†	7 p. m.	Lowest			Date	Miles	From			Date	
Charles City	30.12	30.55	23	29.48	30	84	45	66	26	25	4,794	6.4	30	sw.	30	78	+20
Davenport	30.16	30.60	24	29.66	30	82	46	58	22	13	4,449	6.0	30	w.	30	79	+19
Des Moines	30.10	30.58	23	29.47	30	80	49	57	26	25	5,191	7.0	40	sw.	30	78	+15
Dubuque	30.13	30.58	24	29.59	30	83	46	57	19	13	3,801	5.1	24	se.	30	74	+19
Keokuk	30.15	30.62	24	29.70	30	79	45	56	20	26	4,572	6.1	35	s.	30	79	+18
Sioux City	30.05	30.53	22	29.29	30	73	48	55	28	12	8,935	12.0	45	w.	4	78	+16
Omaha, Neb.	30.06	30.53	23	29.35	30	71	45	49	20	12	4,494	6.0	30	nw.	4	76	+14
Means and extremes	30.11	30.62	24	29.29	30	79	46	57	19	13	6.9	45	w.	4	77	+17	
Normals and records	30.03	31st	20th	81	62	25th	8.1	16th	60		*60	sw.	1880				

*Davenport §Omaha ¶Sioux City †Local mean time. †And other dates.

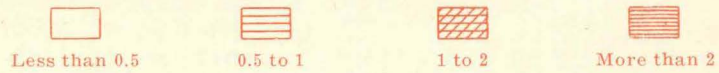
Daily Maximum and Minimum Temperature for the Month of October, 1924.

Stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Mean
<i>Northern Division</i>																																
Algona.....	Maximum... 72	75	69	72	65	60	65	61	67	67	78	73	72	74	74	71	79	80	73	68	61	56	60	60	65	68	66	61	69	77	73	68.7
	Minimum... 44	44	53	45	38	44	45	45	57	38	49	56	43	41	54	42	50	58	53	40	38	34	34	35	40	45	38	44	42	39	41	44.2
Alta.....	Maximum... 73	75	63	70	56	62	66	62	65	68	77	68	72	74	72	74	80	80	76	69	59	59	60	65	68	67	63	70	76	63	68.1	
	Minimum... 47	53	49	42	37	36	47	58	50	44	58	50	43	46	54	48	52	57	54	45	37	34	33	36	42	41	41	40	45	38	45.1	
Alton.....	Maximum... 76	72	65	72	70	64	65	63	65	67	78	71	70	75	73	72	79	80	75	70	58	58	58	60	64	67	66	63	71	74	63	68.5
	Minimum... 45	45	52	46	44	31	39	58	50	48	61	56	38	40	55	40	49	57	52	45	42	30	30	38	41	36	38	41	39	45	36	44.1
Belmond.....	Maximum... 73	77	63	73	68	66	61	61	70	67	81	73	79	73	76	73	78	82	80	72	57	58	61	60	62	71	67	62	72	77	66	69.6
	Minimum... 42	50	52	44	37	37	47	53	50	39	56	57	43	40	53	42	50	53	52	42	36	29	32	31	41	35	34	46	44	51	40	43.8
Charles City.....	Maximum... 71	77	68	74	58	65	66	58	73	67	79	78	73	73	74	71	76	83	74	68	54	56	59	61	65	68	67	66	68	79	65	68.8
	Minimum... 41	52	55	49	39	38	45	52	48	39	56	54	43	41	51	42	49	54	50	42	34	28	31	32	37	37	34	45	48	48	42	43.7
Decorah.....	Maximum... 68	74	74	71	64	58	65	62	70	64	77	77	70	70	71	69	73	78	74	63	51	54	57	58	63	66	64	67	65	77	62	67.0
	Minimum... 36	51	53	50	39	40	35	46	51	35	45	52	39	35	45	39	41	55	54	37	32	22	24	27	44	38	28	37	46	52	41	40.9
Dubuque.....	Maximum... 71	77	72	74	68	59	64	59	69	70	80	79	77	74	70	72	74	83	79	63	51	55	60	60	65	68	67	67	79	66	69.0	
	Minimum... 39	55	56	54	46	42	52	55	49	52	55	51	43	49	48	45	55	58	42	35	28	29	33	41	41	33	38	50	55	46	46.0	
Forest City.....	Maximum... 73	77	70	73	66	62	68	60	70	67	81	72	76	74	74	79	82	76	69	58	60	69	60	68	70	68	63	66	78	67	69.7	
	Minimum... 42	48	53	42	34	35	40	50	53	47	54	56	39	40	52	44	48	55	50	42	32	29	29	30	40	35	40	40	41	55	37	43.0
Independence.....	Maximum... 72	76	75	75	71	65	65	61	71	74	79	78	77	73	70	71	76	81	72	74	71	66	66	61	65	68	67	68	70	80	78	71.5
	Minimum... 39	51	52	47	40	37	49	51	54	43	53	58	45	42	49	47	45	51	50	46	34	28	28	31	34	28	34	40	55	55	47	44.6
Inwood.....	Maximum... 79	80	68	72	61	59	65	63	67	65	79	73	73	75	75	74	82	81	77	70	61	59	62	71	69	62	65	66	70	69	62	69.5
	Minimum... 44	45	48	48	38	33	42	59	42	43	59	57	40	41	54	52	54	57	52	45	42	34	36	43	38	40	38	39	43	35	44.4	
Mason City.....	Maximum... 71	77	68	74	65	61	66	60	73	66	80	72	73	72	74	71	78	83	75	68	54	55	62	61	68	71	67	65	66	78	65	69.0
	Minimum... 39	49	53	46	38	36	40	50	55	35	52	56	42	36	52	41	44	59	53	41	32	25	28	30	33	39	32	43	42	58	40	42.9
Milford (near).....	Maximum... 72	75	62	67	63	59	68	60	65	65	78	68	76	75	68	79	80	70	67	59	59	59	60	66	60	66	60	62	67	67	67	67.8
	Minimum... 43	45	50	45	39	35	40	55	53	40	58	54	43	41	51	40	48	57	55	45	39	32	28	31	41	37	35	40	40	47	37	43.4
New Hampton.....	Maximum... 72	77	68	75	63	60	69	59	72	67	80	78	76	74	72	71	75	80	75	66	57	56	60	61	65	68	66	67	67	78	71	69.2
	Minimum... 38	49	50	48	37	35	43	49	54	42	50	51	44	47	50	44	45	52	50	45	33	29	29	28	34	35	35	42	46	55	39	42.8
Northwood.....	Maximum... 69	74	65	70	55	58	67	60	70	64	78	72	71	71	73	69	75	78	71	66	60	54	57	58	64	66	65	63	64	76	62	66.6
	Minimum... 39	48	51	40	39	40	49	49	49	37	52	53	41	41	52	44	46	50	51	46	32	27	32	29	39	35	32	37	41	50	39	41.0
Pocahontas.....	Maximum... 75	78	65	73	64	65	65	61	67	68	80	71	76	77	76	76	82	83	72	70	59	60	61	61	67	70	68	64	70	78	68	70.0
	Minimum... 44	50	52	41	35	33	49	56	52	35	59	53	41	37	54	39	50	58	48	40	34	24	29	30	41	38	33	40	40	39	42.4	
Postville.....	Maximum... 67	73	68	69	65	56	64	56	68	62	77	76	71	70	67	69	72	79	74	63	50	53	58	60	62	66	68	67	66	78	72	66.6
	Minimum... 39	52	54	49	39	37	42	47	54	41	49	52	47	45	48	47	43	59	55	44	32	28	31	34	38	35	33	41	47	56	41	43.8
<i>Central Division</i>																																
Belle Plaine.....	Maximum... 77	82	75	79	72	79	65	60	73	75	85	83	81	80	75	78	83	84	85	71	59	58	63	66	69	72	73	68	73	82	78	74.3
	Minimum... 39	50	55	48	40	36	53	64	53	58	57	53	54	40	50	44	46	50	49	46	36	26	25	30	35	35	33	43	49	59	45	44.9
Boone.....	Maximum... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Minimum... ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Carroll.....	Maximum... 74	79	67	75	66	65	71	65	70	73	81	73	80	77	76	79	82	85	82	75	61	61	61	61	68	71	70	66	74	78	70	72.1
	Minimum... 47	56	55	47	36	34	49	57	55	41	56	57	43	40	55	46	46	58	58	46	36	28	31	32	42	41	36	49	40	53	39	45.5
Davenport.....	Maximum... 73	78	75	76	70	66	62	60	70	76	83	80	79	75	76	79	83	81	66	54	55	59	63	67	68	70	70	71	81	69	71.4	
	Minimum... 43	54	55	52	51	44	53	54	57	55	55	55	49	49	57	49	57	56	45	38	33	31	39	43	43	37	45	51	54	46	48.6	
Des Moines.....	Maximum... 74	79	64	75	64	60	68	66	73	73	82	80	78	75	72	77	82	82	83	70	58	56	59	63	67	69	69	67	74	79	69	71.2
	Minimum... 46	57	53	48	42	40	53	59	53	49	59	59	49	46	54	52	57	55	49	41	35	33	35	39	41	37	50	47	48	44	47.9	
Fort Dodge.....	Maximum... 75	78	71	76	67	65	66	61	71	70	82	75	78	77	80	78	83	86	80	73	60	60	62	63	69	71	69	65	70	79	69	71.9
	Minimum... 43	50	54	41	35	32	48	53	57	38	56	59	39	36	56	38	49	55	50	41												

TOTAL PRECIPITATION, OCTOBER, 1924



SCALE OF SHADES IN INCHES.



CLIMATOLOGICAL DATA.

IOWA SECTION
In cooperation with
CHARLES D. REED, Meteorologist

VOL. XXXV DES MOINES, IOWA, NOVEMBER, 1924 No.11

GENERAL SUMMARY.

November, 1924, was very similar to November, 1923, both being considerably warmer than the average November, and the average precipitation was the same, being only slightly more than a third of the normal.

The month was free from severe weather and what few cold periods occurred were of short duration. At a few stations in the western and southern portions of the State killing frosts were delayed till the first week of the month, making the growing season at stations as far north as Sioux City, 194 days. Temperature fluctuations were more frequent than usual, with the warm periods the most protracted and the individual warm days showed a greater departure from the normal than the cool days which is the reverse of the usual conditions. Zero weather was reported from only two stations.

The weather was favorable for all outdoor occupations, and corn gathering progressed with practically no interruption so that at the end of the month husking was completed in sections of the State, and what remained in the fields can easily be taken care of with subsequent normal weather conditions. Deficient rainfall, unusually low humidity, a wind movement considerably above the average, and sunshine in excess of the normal were ideal for drying corn, and while there is a large per cent of low grade chaffy ears there is very little that is damp or moldy and unfit to crib. In many corn fields in the south-central, north-central, north-east, and some other localities, the corn was of such inferior quality that it was not worth gathering and was grazed down by hogs and cattle. Plowing was hindered by dry soil but not much by freezing. All sections of the State were in need of moisture at the close of the month. The lack of rain was becoming serious in some of the drier sections. Wells that had never before failed were dry, stock ponds were lower than they had ever been, and some ponds where ice is harvested for local use are so low that they will freeze solid. Pastures generally were showing the effects of the dry weather that has prevailed for the past two months, and are mostly grazed bare. Winter wheat showed all stages of development. Some early sown fields were so rank that they were being grazed down; others were all the way down the scale to where they were just showing green, and many late sown fields in the drier sections had not started to germinate. Some seeding was done in the first week of November. The harvest of sugar beets was completed, the yield being good with a high sugar content.

No damaging storms occurred, and while the wind movement was much above the average for November, there was no damage worth mentioning. Rail traffic was not interfered with at any time during the month, and highways were in unusually good condition, though the dirt roads were slippery for short periods after the heaviest rains. Building operations progressed with no interruption.

An unusual feature in connection with the precipitation was the occurrence of hail on several dates at a large number of stations. A severe hail storm occurred at Alta on the 11th; later in the day severe hail occurred at Mt. Pleasant and Keokuk, that would have been destructive to crops in the growing

season. Stones three-fourth inch in diameter fell at Mt. Pleasant, and as large as walnuts at Keokuk. The damage was mostly to green-houses and a few window lights. F. L. D.

TEMPERATURE.

The mean temperature for the State, as shown by the records of 100 stations, was 38.9°, or 2.3° higher than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 36.1°, or 1.7° higher than the normal; Central, 39.2°, or 2.5° higher than the normal; Southern, 41.5°, or 2.8° higher than the normal. The highest monthly mean was 43.4°, at Keokuk, and the lowest was 33.5°, at Northwood. The highest temperature reported was 82°, at Belle Plaine, on the 1st, and the lowest was zero at Cedar Rapids and Inwood on the 29th. The temperature range for the State was 82°.

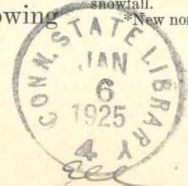
PRECIPITATION.

The average precipitation for the State, as shown by the records of 105 stations, was 0.58 inch, or 0.98 inch less than the normal. By divisions, the averages were as follows: Northern, 0.56 inch, or 0.96 inch less than the normal; Central, 0.53 inch, or 1.05 inches less than the normal; Southern, 0.66 inch, or 0.91 inch less than the normal. The greatest amount, 1.55 inches, occurred at Washington, and the least, a trace, occurred at Harlan, Little Sioux, Logan and Rockwell City. The greatest amount in any 24 consecutive hours, 1.04 inches, occurred at Washington on the 6th.

COMPARATIVE DATA FOR THE STATE—NOVEMBER

Year	Temperature				Precipitation					Number of Days			
	Mean	Departure*	Highest	Lowest	Total	Departure*	Greatest	Least	Snowfall	With pres. 0.1 in. or more	Clear	Partly cloudy	Cloudy
1890	38.6	+2.0	78	-2	1.46	-0.10	3.55	0.71	.....	3	15	.....	7
1891	30.5	-6.1	84	-24	1.70	+0.14	3.64	0.66	.....	7	10	.....	12
1892	33.3	-3.3	70	-3	1.10	-0.46	3.16	0.05	1.8	4	11	.....	11
1893	34.0	-2.6	86	-13	1.17	-0.39	2.56	0.05	4.6	4	9	.....	6
1894	32.7	-3.9	72	-5	0.92	-0.64	2.42	T	0.4	6	9	.....	10
1895	34.3	-2.3	86	-12	1.51	-0.05	3.01	0.45	4.9	6	9	.....	13
1896	29.6	-7.0	82	-15	1.83	+0.27	4.51	0.16	2.9	6	9	.....	13
1897	34.3	-2.3	81	-19	0.66	-0.90	2.24	T	1.2	5	12	.....	10
1898	32.2	-4.4	78	-17	1.50	-0.06	3.61	0.33	8.7	6	14	.....	8
1899	43.9	+7.3	86	8	1.20	-0.36	2.97	0.13	0.5	6	12	.....	10
1900	33.5	-3.1	79	-6	1.06	-0.50	3.35	T	3.7	6	12	.....	11
1901	35.8	-0.8	77	2	0.86	-0.70	2.30	0.20	2.6	3	18	.....	6
1902	41.2	-4.6	79	4	2.13	+0.57	4.19	0.16	1.8	3	9	.....	14
1903	34.2	-2.4	76	-5	0.52	-1.04	1.74	T	1.1	5	13	.....	9
1904	41.0	+4.4	80	4	0.15	-1.41	0.50	0.00	0.5	1	20	.....	4
1905	38.4	-1.8	70	-12	2.84	+1.28	5.30	0.90	0.6	3	16	.....	7
1906	35.4	-1.2	76	-5	2.03	+0.47	3.86	0.35	4.4	4	9	.....	14
1907	36.7	+0.1	68	4	1.03	-0.53	2.27	0.05	0.9	4	17	.....	7
1908	39.3	-2.7	80	5	1.56	0.00	3.31	0.21	1.4	5	14	.....	9
1909	42.4	+5.8	84	-3	5.39	+3.83	1.48	2.07	6.8	10	10	.....	13
1910	33.4	-3.2	76	5	0.34	-1.22	1.03	T	0.7	3	13	.....	9
1911	29.9	-6.7	79	-8	1.42	-0.14	4.99	0.11	1.6	6	11	.....	8
1912	40.1	+3.5	77	6	0.98	-0.58	2.38	0.00	T	2	18	.....	4
1913	44.1	+7.5	78	10	1.18	-0.38	3.49	0.20	0.4	6	11	.....	7
1914	41.0	+4.4	80	-4	0.22	-1.34	0.95	0.00	T	2	19	.....	6
1915	40.2	+3.6	83	-5	1.94	+0.38	4.86	0.30	1.2	6	11	.....	10
1916	37.3	-0.7	80	-8	1.61	+0.05	3.65	0.05	3.6	5	16	.....	6
1917	40.7	+4.1	77	3	0.28	-1.28	1.02	T	1.4	3	14	.....	6
1918	39.9	+3.3	76	0	2.11	+0.55	5.10	0.70	4.4	7	13	.....	5
1919	33.6	-3.0	68	-12	3.40	-1.84	6.22	1.97	6.3	8	11	.....	7
1920	35.4	-1.2	71	5	2.18	+0.62	4.45	0.73	1.2	8	10	.....	5
1921	33.6	-3.0	70	-5	0.58	-0.98	1.61	T	3.4	5	10	.....	15
1922	42.2	+5.6	74	11	3.54	+1.98	5.28	1.96	0.3	9	11	.....	6
1923	40.1	+3.5	72	9	0.58	-0.98	1.84	0.00	1.2	3	16	.....	8
1924	38.9	+2.3	82	0	0.58	-0.98	1.55	T	0.4	4	15	.....	7

T. indicates an amount too small to measure, or less than .005 inch rainfall and less than .05 inch snowfall.
*New normals effective June 1, 1924.



Climatological Data for November, 1924

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit							Precipitation, in Inches				Number of Days			Prevailing direction of wind	Observers	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation .01 in. or more	Clear	Partly cloudy			Cloudy
<i>Northern Division</i>																				
Algona	Kossuth	1,213	51	36.6	+2.0	70	1	4	29	32	1.05	-0.31	0.23	.....	12	20	4	6	nw.	W. E. Laird
Allison (near)	Butler	1,044	12	36.7	-2.2	75	1	4	29	33	1.17	-0.39	0.64	2.0	5	12	8	10	nw.	J. A. Bell
Alta	Buena Vista	1,513	33	35.8	-1.9	73	1	4	29	38	0.51	-0.91	0.40	0.7	5	14	9	7	nw.	D. E. Hadden
Alton	Sioux	1,305	19	35.2	-1.6	67	1†	4	29	41	0.16	-1.21	0.08	0.5	4	14	9	7	nw.	W. S. Slagle
Belmond	Wright	1,205	14	36.0	-1.8	73	1	4	29	33	0.74	-0.91	0.33	0.5	6	7	17	6	n.	Geo. P. Hardwick
Britt	Hancock	1,236	37	35.1	+1.6	70	1†	3	29	34	0.37	-1.08	0.21	T	2	14	8	8	nw.	Jas. S. Ross
Charles City	Floyd	1,015	33	35.4	-1.8	70	1	6	29	32	0.66	-0.94	0.26	T	5	10	9	11	nw.	U. S. Weather Bureau
Cherokee	Cherokee	1,196	2	36.2	-1.1	74	1	1	29	42	0.03	.....	.....	T	1	15	11	4	s.	J. E. Wirth
Decorah	Winnesiek	875	31	34.4	-0.3	68	5	5	29	30	1.33	-0.51	0.57	T	4	11	7	12	nw.	M. D. Whitney
Dubuque	Dubuque	698	51	38.2	+1.4	74	1	9	29	31	0.56	-1.27	0.22	0.6	7	7	9	14	nw.	U. S. Weather Bureau
Estherville	Emmet	1,298	29	34.4	+0.4	66	2	4	29	44	0.40	-0.91	0.20	1.0	3	15	10	5	nw.	A. O. Peterson
Fayette	Fayette	1,003	34	35.8	+1.7	70	5	4	29	32	0.52	-1.20	0.19	1.5	4	15	6	9	nw.	R. Z. Latimer
Forest City	Winnebago	1,226	30	35.4	-1.9	72	1	3	29	38	0.91	-0.64	0.48	1.0	3	16	4	10	nw.	Mrs. M. C. Neil
Hampton	Franklin	1,145	.....	36.4	-1.0	72	1†	5	29	32	0.48	-1.12	0.24	T	4	14	6	10	nw.	L. H. Davis
Humboldt	Humboldt	1,095	36	37.1	-1.5	77	1	2	29	37	0.32	-1.35	0.18	T	2	8	11	11	nw.	H. C. Snitkey
Independence	Buchanan	921	60	39.6	+3.1	74	1	5	29	41	0.87	-0.57	0.22	2.2	4	16	3	11	nw.	Dr. Geo. Boody
Inwood	Lyon	1,474	20	34.0	-1.0	65	1	0	29	47	0.54	-0.58	0.35	4.0	6	15	8	7	nw.	F. B. Hanson
Le Mars	Plymouth	1,224	28	37.1	-2.1	74	1	3	29	44	0.07	-1.06	0.06	0.1	2	17	8	5	nw.	Mrs. M. C. Woolley
Mason City	Cerro Gordo	1,148	27	35.9	-2.4	70	5	5	29	29	0.28	-1.20	0.12	1.0	3	13	9	8	sw.	Northern Sugar Corp.
Milford (near)	Dickinson	1,430	4	35.0 ^a	.....	69 ^a	1	1 ^a	29	38 ^a	0.23	.....	0.11	1.0	3	.....	.....	.....	nw.	Dr. F. J. Smith
New Hampton	Chickasaw	1,169	27	34.9	+0.8	69	5	4	29	31	1.26	-0.43	0.60	1.0	4	13	5	12	nw.	A. F. Kemman
Nora Springs	Floyd	1,064	12	37.6	-1.4	73	1	6	29	33	0.93	-1.07	0.28	0.4	6	13	7	10	s.	Arthur Betts
Northwood	Worth	1,222	28	33.5 ^f	-1.1	66 ^g	1	5 ^f	29	30 ^h	0.90	-1.07	0.40	2.0	5	13	9	8	nw.	Chas. Dwelle
Oelwein	Fayette	1,036	1	37.2	.....	71	1	6	14†	37	0.60	.....	0.30	T	3	14	6	10	nw.	John T. Ridler
Pocahontas	Pocahontas	1,248	20	36.6	+1.9	71	1	1	29	38	0.36	-1.32	0.20	0.5	3	19	6	5	sw.	F. E. Hronek
Postville	Clayton	1,180	25	34.8	+0.8	69	5	2	29	30	0.63	-1.06	0.17	T	4	12	7	11	nw.	F. L. Williams
Rock Rapids	Lyon	1,358	25	34.4	-1.2	68	1	4	29	40	0.29	-0.90	0.23	2.5	3	19	5	6	nw.	J. K. Medberry
Sanborn	O'Brien	1,553	10	35.4	-2.9	71	1	1	29	40	0.45	-0.85	0.30	1.5	3	16	5	9	nw.	J. W. Dow
Sioux Center	Sioux	1,426	25	35.2	-1.7	73	1	5	29	40	0.31	-0.87	0.20	2.5	4	16	6	8	s.	J. de Ruyter
Spencer	Clay	1,319	10	36.2	-2.6	75	1	2	29	41	0.29	-1.01	0.19	T	2	14	9	7	nw.	E. W. Little
Storm Lake	Buena Vista	1,440	35	38.6	+3.1	75	1	5	29	34	0.48	-0.82	0.37	0.1	2	22	2	6	s.	Geo. H. Fracker
Washita	Cherokee	1,157	26	38.0	-3.0	74	1	2	29	42	0.10	-1.22	0.10	T	1	16	9	5	s.	H. L. Felter
Waterloo	Blackhawk	854	41	37.9	-1.8	75	1	3	29	33	0.61	-0.88	0.35	1.0	3	14	6	10	se.	R. B. Shippy
Waverly	Bremer	936	28	36.0 ^a	-0.4	71 ^a	1†	4 ^a	29	48 ^a	0.66	-0.99	0.23	T	4	.....	.....	.....	nw.	D. H. Murphy
West Bend	Palo Alto	1,197	31	36.8	-2.7	74	1	1	29	39	0.32	-1.17	0.15	0	4	14	10	6	nw.	Jos. Dorweiler
Means and extremes				36.1	+1.7	77	1	0	29	48	0.56	-0.96	0.64	0.8	4	14	8	8	nw.	
<i>Central Division</i>																				
Ames	Story	926	47	38.1	+2.2	76	1	6	29	43	0.46	-0.83	0.25	T	3	16	6	8	nw.	Iowa State College
Audubon	Audubon	1,297	29	38.0	-3.2	74	1	3	29	35	0.57	-0.76	0.27	3.2	3	12	14	4	nw.	Geo. Kibby
Baxter	Jasper	998	24	38.9	-1.7	73	1†	4	29	37	0.50	-0.93	0.30	T	2	15	11	4	nw.	Henry Geise
Belle Plaine	Benton	866	34	39.8	-2.8	82	1	3	29	40	0.59	-1.10	0.26	0.8	5	15	5	10	nw.	O. C. Burrows
Boone	Boone	1,134	19	38.4	-1.8	76	1	3	29	38	1.46	+0.09	0.63	T	3	11	7	12	nw.	C. F. Henning
Carroll	Carroll	1,265	34	39.1	+3.0	77	1	2	29	36	0.13	-1.19	0.13	0.5	1	14	9	7	nw.	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	737	42	38.6	-0.8	76	1	0	29	40	0.30	-1.35	0.21	0.7	4	14	1	15	nw.	J. T. Wurster
Clinton	Clinton	595	51	40.9	-3.0	75	1†	7	29	34	1.00	-0.89	0.33	T	4	11	5	14	s.	Dr. A. P. Bryant
Davenport	Scott	580	53	40.6	-1.6	76	1	6	29	33	0.60	-1.20	0.20	0.5	8	12	6	12	nw.	U. S. Weather Bureau
Davenport (No. 2)	Scott	690	.....	41.7	.....	77	1†	3	29	36	0.98	.....	0.38	0.3	7	.....	.....	.....	.....	Rex Shriver
Denison	Crawford	1,171	30	39.2	+3.6	76	1	4	29	36	0.08	-1.25	0.05	T	2	16	7	7	nw.	V. L. Byers
Des Moines	Polk	861	46	40.4	-2.0	74	1	8	29	36	0.53	-0.94	0.30	0.3	3	9	10	11	nw.	U. S. Weather Bureau
Fairport	Muscatine	567	3	42.0	.....	76	6	3	29	34	0.91	.....	0.35	0.6	7	7	6	17	nw.	Bureau of Fisheries
Fort Dodge	Webster	1,114	24	38.4	+3.1	76	1	1	29	43	0.27	-1.31	0.18	T	3	18	2	10	nw.	Samuel Sampson
Grinnell	Poweshiek	1,031	30	40.0	-2.3	76	1	4	29	33	0.63	-1.06	0.39	T	3	11	12	7	nw.	Paul P. Meyers
Grundy Center	Grundy	976	33	39.3 ^a	+3.0	74 ^a	1	5 ^a	29	38 ^a	0.86	-0.58	0.34	2.0	5	.....	.....	.....	nw.	M. G. Heiberger
Guthrie Center	Guthrie	1,077	29	40.5	-3.5	76	1	4	29	38	0.64	-0.81	0.26	T	4	16	9	5	nw.	E. L. Nesselroad
Harlan	Shelby	1,192	25	38.0 ^c	-2.2	74 ^c	1	5 ^c	29	38	.....	-1.46	T	T	0	.....	.....	.....	s.	W. K. Colburn
Iowa City	Johnson	733	64	39.6	-2.0	76	5	2	29	33	0.93	-1.24	0.61	1.5	6	11	16	3	nw.	Prof. J. F. Reilly
Iowa Falls	Hardin	1,107	31	37.5	-2.2	73	1	5	29	30	1.03	-0.57	0.58	2.0	4	14	4	12	nw.	J. B. Parnelec
Jefferson	Greene	1,052	25	38.3	+2.1	74	1	4	29	42	0.31	-1.62	0.28	T	2	13	9	8	nw.	W. I. Lyon
Little Sioux	Harrison	1,040	19	39.8	-3.3	78	1	5	29	40	T	-1.57	T	T	0	16	6	8	nw.	H. W. Kerr
Logan	Harrison	1,035	57	40.8	-3.5	72	1	9	29	36	T	-1.40	T	T	0	19	7	4	sw.	Mary Jean Stern
Marshalltown	Marshall	947	32	39.8	-2.4	74	1	6	29	39	0.57	-0.95	0.29	0.5	5	20	2	8	nw.	C. C. Pigman
Monroe	Jasper	922	12	39.8	-0.8	75	5	6	29	35	0.51	-0.99	0.33	T	2	13	4	13	nw.	J. A. Dibel
Olin	Jones	760	25	38.1 ^c	-1.8	75 ^c	1	2 ^c	29	35 ^c	0.50	-1.12	0.20	T	3	.....	.....	.....	nw.	Mrs. L. Stingley
Onawa	Monona	1,051	23	39.6	+3.9	72	1†	10	29	36	0.46	-0.92	0.46	T	1	12	5	13	nw.	Mrs. H. E. Colby
Perry	Dallas	975	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. N. Bartlett
Rockwell City	Calhoun	1,134	28	37.6	-1.9	76														

Climatological Data for November, 1924—Concluded.

Stations	Counties	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit							Precipitation, in Inches				Number of Days				Observers	
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear	Partly cloudy	Cloudy		Prevailing direction of wind
<i>Southern Division</i>																				
Afton	Union	1,212	30	40.6	+2.1	77	5	6	29	39	0.35	-1.08	0.35	0	1	17	10	3	nw.	S. R. Brown
Albia	Monroe	959	26	41.3	-3.1	76	5	5	29	37	0.62	-0.94	0.37	T	4	13	8	9	nw.	O. E. McBride
Atlantic	Cass	1,164	33	40.4	-2.9	76	1	9	29	34	0.29	-1.01	0.29	T	1	15	6	9	nw.	Mrs. Minnie Cunningham
Bonaparte	Van Buren	563	33	42.4	+2.8	78	6	7	29	41	0.78	-1.02	0.28	T	4	14	5	11	w.	B. R. Vale
Burlington	Des Moines	544	28	43.2	-2.1	76	5†	10	29	35	0.40	-1.46	0.18	T	8	14	7	9	nw.	John W. Donnelly
Centerville	Appanoose	1,013	19	42.0	+2.5	77	3	5	29	38	0.91	-0.53	0.55	T	3	14	10	6	nw.	Thomas Wood
Chariton	Lucas	1,042	29	42.0	-3.3	72	5	5	29	34	0.72	-0.80	0.30	1.0	5	22	8	0	nw.	C. C. Burr
Clarinda	Page	1,009	34	42.0	-2.3	78	5	8	29	50	0.72	-0.80	0.30	1.0	5	22	8	0	nw.	Dr. H. C. Hawley
Columbus Jet.	Louisa	595	23	40.8	+3.4	76	3†	5	29	43	0.51	-0.96	0.47	0	2	21	6	3	nw.	Gale Gentzler
Corning	Adams	1,117	32	40.8	+3.4	76	3†	5	29	43	0.51	-0.96	0.47	0	2	21	6	3	nw.	Jerome Smith
Corydon	Wayne	1,101	31	41.2	+2.4	76	5	6	29	35	0.49	-1.01	0.25	0.1	5	9	14	7	sw.	Mrs. May Miller King
Creston	Union	1,312	19	40.1	+1.9	73	5	8	29	32	0.20	-1.52	0.20	T	1	17	10	3	n.	Mrs. S. O. Stanley
Cumberland (near)	Cass	1,225	25	42.0	-2.3	72	5	8	29	30	0.29	-0.80	0.27	T	2	14	8	8	nw.	Carl E. Pollock
Earlham	Madison	1,126	22	40.8	+3.6	75	1†	2	29	42	0.55	-1.11	0.22	0.5	5	21	4	5	sw.	Geo. Phillips
Fairfield	Jefferson	780	40	40.8	-2.3	76	5	7	29	37	1.37	-0.79	0.88	0.2	8	17	4	9	nw.	Prof. R. M. McKenzie
Glenwood	Mills	1,100	26	42.2	+3.6	76	5	9	29	38	0.42	-0.73	0.35	0.8	2	13	11	6	nw.	Dr. George Mogridge
Indianola	Warren	972	33	40.9	-2.6	75	5	6	29	39	0.57	-1.00	0.35	T	3	16	10	4	nw.	Seth F. Shenton
Keokuk	Lee	614	53	43.4	-2.3	79	5	10	29	39	0.50	-1.42	0.19	T	5	9	10	11	nw.	U. S. Weather Bureau
Keosauqua	Van Buren	644	32	41.7	-2.7	78	5	7	29	41	1.39	-0.22	0.70	T	6	15	9	6	nw.	J. H. Landes
Knoxville	Marion	920	29	40.8	-2.0	76	5	5	29	33	0.72	-0.84	0.34	T	4	13	7	10	nw.	W. J. Casey
Lacona	Warren	25	25	41.4	-2.7	77	5	6	29	38	0.56	-0.88	0.27	T	3	18	2	10	sw.	J. B. Alter
Lamoni	Decatur	1,123	17	40.4	-2.2	76	5	5	29	36	0.45	-1.02	0.28	T	2	17	7	6	nw.	Roy L. Roberts
Lenox	Taylor	1,250	29	40.4	-2.2	76	5	5	29	36	0.45	-1.02	0.28	T	2	17	7	6	nw.	J. L. Hurley
Mt. Ayr	Ringgold	1,245	31	41.2	-2.4	75	3	5	29	37	0.65	-0.89	0.38	T	3	15	6	9	nw.	Alex Maxwell
Mt. Pleasant	Henry	729	43	42.8	+3.1	78	5	8	29	39	1.19	-0.62	0.57	0	6	13	10	7	nw.	J. H. Jericho
Oakland	Pottawattamie	1,105	5	41.2	+3.0	75	1†	6a	29	39 ¹	0.32	.....	0.32	T	1	17	1	12	n.	M. E. Gray
Oskaloosa	Mahaska	835	48	40.4	+1.9	75	5	4	29	37	0.49	-1.11	0.25	T	5	11	9	10	nw.	Roy R. Robinson
Ottumwa	Wapello	649	29	42.8	.....	77	1	8	29	38	0.80	-0.58	0.52	T	5	16	5	9	nw.	C. L. Mikesk
Pella	Marion	877	31	41.2a	+2.4	74a	1	4a	29	38a	0.62	-0.94	0.42	T	3	18	2	10	s.	J. H. Ver Steeg
Red Oak (near)	Montgomery	1,030	0	.....	.....	.....	.....	.....	.....	.....	0.28	.....	0.24	T	2	20	4	6	nw.	B. R. Bridge
Sigourney	Keokuk	790	28	41.2	+3.0	75	1†	7	29	40	0.75	-0.90	0.58	T	3	19	2	9	nw.	W. E. Utterback
Stockport	Van Buren	745	22	41.7	-3.3	77	3†	7	29	43	0.87	-0.77	0.61	T	4	14	9	7	nw.	C. L. Beswick
Thurman	Fremont	975	27	42.1	-4.7	76	1†	11	29	47	0.40	-1.45	0.38	0.5	2	9	18	3	nw.	C. R. Paul
Tingley	Ringgold	1,275	42	40.8	.....	75	5	6	29	38	0.73	.....	0.48	T	4	17	9	4	s.	James A. Verploegh
Washington	Washington	769	42	.....	.....	.....	.....	.....	.....	1.55	-0.12	1.04	T	5	17	2	11	nw.	D. D. Sherman	
Wescott (near)	Lee	2	2	.....	.....	76	9	9	29	44	0.80	.....	0.50	0	2	23	3	4	nw.	Lester J. Larson
Winterset	Madison	1,129	33	40.6	-2.2	75	1	5	29	35	0.53	-0.94	0.28	T	2	24	5	1	nw.	H. S. Ely
Omaha, Nebraska	.....	1,103	53	42.0	-3.5	78	1	14	29	35	0.36	-0.70	0.29	0.2	5	12	11	7	nw.	U. S. Weather Bureau
Means and extremes	.....	.....	.....	41.5	+2.8	79	5	2	29	50	0.66	-0.91	1.04	0.1	4	15	7	7	nw.	.....
State means and extremes	.....	.....	.....	38.9	+2.3	82	1	0	29	50	0.58	-0.98	1.04	0.4	4	15	7	8	nw.	.....

The departure from normal temperature and precipitation are computed only for such stations as have ten or more years of record, but all complete records are used in determining means. Reference letters a, b, c, etc., appearing in the table indicate the number of days missing; for example b represents two days, etc.
 †Also other dates.
 ††Received too late to be included in means and summaries.
 T. Precipitation is less than 0.01 inch rain or melted snow.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE.

Stations	Barometric Pressure, Inches (Sea level)				Relative Humidity (%)				Wind						Sunshine		
	Mean	Highest	Date	Lowest	Mean				Total movement	Average hourly velocity	Maximum			Per cent of possible	Departure from normal		
					7 a. m.	12 Noon†	7 p. m.	Lowest			Date	Miles	From			Date	
Charles City	30.02	30.59	2	29.45	11	82	61	68	32	20	5,563	7.7	23	nw.	21	48	+1
Davenport	30.05	30.54	2	29.52	5	77	60	65	34	1	5,729	8.0	25	s.	11	54	+4
Des Moines	30.05	30.58	2	29.44	11	78	61	61	28	1	5,949	8.3	27	sw.	10	57	+1
Dubuque	30.01	30.54	2	29.46	11	76	61	67	30	1	5,368	7.5	27	sw.	5	47	+1
Keokuk	30.08	30.55	2	29.54	5	75	52	59	27	1	6,929	9.6	34	nw.	21	55	0
Sioux City	30.07	30.62	2	29.37	10	73	49	52	28	10	9,182	12.8	46	nw.	20	61	+8
Omaha, Neb.	30.08	30.60	2	29.42	10	70	47	51	19	1	6,520	9.1	44	nw.	23	63	+7
Means and extremes	30.05	30.62	2	29.37	10	76	56	60	.....	.....	9.0	.....	.....	.....	20	55	+3
Normals and records	30.07	.....	2d	.....	28th	81	.....	70	.....	.....	6th	8.2	.....	10th	52	.....	.....
	.....	*30.96	1896	*29.03	1918	.....	.....	.....	.....	.....	16	1916	.....	.....	.....	.....	.....

*Sioux City †Davenport *Omaha †Keokuk †Local mean time

MISCELLANEOUS PHENOMENA.

Aurora: 13th, 14th, 18th.
 Fog: 6th, 10th.
 Hail: 6th, 7th, 11th, 23d.
 Halos (lunar and solar): 3d, 4th, 7th, 12th, 13th, 14th.
 Sleet: 6th, 11th, 23d, 27th, 29th, 30th.
 Thunderstorms: 4th, 6th, 7th, 10th, 11th, 13th, 21st.
 Winds (strong): 10th, 11th, 21st.

RIVERS.

Low and nearly stationary stages prevailed on the Mississippi River with the extreme less than half a foot along almost the entire border of the State. The river remained open throughout the month though running ice appeared in the upper reaches on the last of the month. Low and nearly stationary stages also prevailed on all interior rivers, though there was a general slight falling tendency, with the extremes for the month amounting to but a few tenths of a foot. Falling stages were general on the Missouri River with the extremes amounting to about three feet at Sioux City and two feet at Omaha.

Daily Precipitation for November, 1924—Continued.

Stations	Drainage Basins	Day of Month																													Totals
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		30
<i>Southern Division</i>																															
Afton	Grand										T.			.35																	
Albia	Des Moines													.23																	
Atlantic	Nishnabotna						.37							.29								.01									
Bonaparte	Des Moines									.23	.21	.28		.06																	
Burlington	Mississippi						.07				.18	.03		.03									.03		.03						
Centerville	Chariton						.55							.33																	
Chariton	Chariton						T.							.30																	
Clarinda	Nodaway						.27				.01			.47																	
Columbus Jct.	Iowa						.68			.15	.15			.30											.06						
Corning	Nodaway						.04							.47																	
Corydon	Chariton						.18							.25									.01		.02						
Creston	Missouri						.20				T.			.27																	
Cumberland (near)	Nodaway						.02							.27																	
Earlham	Des Moines						.19				T.	.05		.22											.06						
Fairfield	Skunk						.88	T.			.27	.02		.02								.01	T.		.06			.08	.03		
Glenwood	Missouri													.35																	
Indianola	Des Moines						.35							.19											.03						
Keokuk***	Mississippi						.09				.17	.10		.10																	
Keosauqua	Des Moines						.40				.18	.70		.05																	
Knoxville	Des Moines						.34							.20																	
Lacona	Des Moines						.40							.28																	
Lamoni	Grand						.27							.23																	
Lenox	Missouri						.17				T.			.28																	
Mt. Ayr	Grand						.38				.02			.25																	
Mt. Pleasant	Skunk						.21				.57	.22		.10									.07				.02				
Oakland	Nishnabotna													.32																	
Oskaloosa	Des Moines										T.	T.	.32	.19																	
Ottumwa	Des Moines						.52							.17																	
Pella	Skunk						.42							.17																	
Red Oak (near)	Missouri						.04							.24																	
Sigourney	Skunk						.58				T.			.13																	
Stockport	Skunk										.22	.39		.19																	
Thurman	Missouri						T.							.38																	
Tingley	Platt						.48				.03			.21																	
Washington	Skunk						1.04				.38	.08		T.																	
Westcott (near)	Mississippi										.50	.30																			
Winterset	Des Moines						.28							.25																	
Omaha, Nebr.***	Missouri						T.				T.	.01	.07	.22																	

Except as otherwise indicated, observations are generally made late in the afternoon, near sunset, and precipitation recorded is for 24 hours ending at the time of observation.
 |||||Precipitation measured in the morning; amount then recorded is for the preceding 24 hours.
 ***Regular Weather Bureau Station: precipitation is for 24-hour period, midnight to midnight.
 *Incomplete.
 *Precipitation included in the next following measurement.
 T. Precipitation is less than .01 inch rain or melted snow.

SNOWFALL.

The average snowfall for the State was 0.4 inch, or 2.1 inches less than the normal. The heaviest amounts occurred in the northwestern corner, and only four stations outside the northern division reported more than an inch. The ground was snow covered not more than two days at a time at any station and at the end of the month there was no snow anywhere in the State. More than half the State had only traces of snow and a few stations reported none whatever.

ERRATA.

Owing to the fact that the data for Omaha, Neb., were not used in computing the precipitation normals for the southern divisions, the following corrections are necessary: June report, page 41, comparative data, precipitation departure should be +3.57 inches instead of +3.58 inches; page 43, mean departure for the southern division should be +5.20

inches instead of +5.22 inches; departure for the State should be +3.57 inches instead of +3.58 inches. July report, page 49, comparative data, precipitation departure should be -0.18 instead of -0.17 inch; page 51, mean precipitation departure for the southern division should be +0.08 inch instead of +0.09 inch; departure for the State should be -0.18 inch instead of -0.17 inch. September report, page 65, comparative data, precipitation departure should be -0.52 inch instead of -0.53 inch; page 67, mean precipitation departure for the southern division should be -0.69 inch instead of -0.71 inch; departure for the State should be -0.52 inch instead of -0.53 inch. In the July report, page 55, the following figures should be substituted for those appearing at the bottom of the table headed "Southern Division."

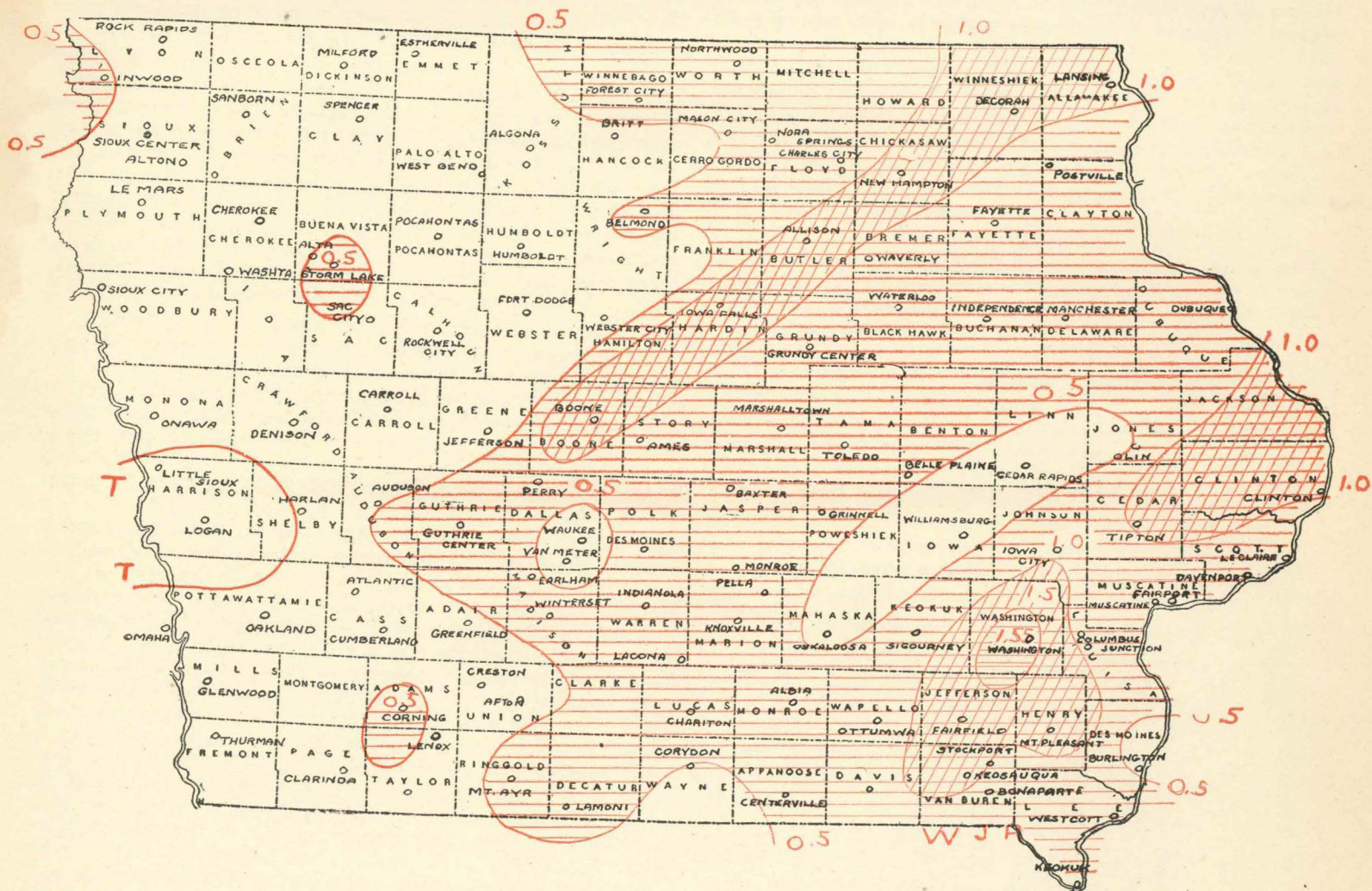
Mean.....	Jan. 1.17	Feb. 1.29	Mar. 1.88	Apr. 3.18	May 4.62	June 4.51	July 3.90	Aug. 3.49	Sept. 3.83	Oct. 2.46	Nov. 1.57	Dec. 1.22	Annual 33.12
State mean..	1.08	1.20	1.75	2.99	4.61	4.53	3.85	3.44	3.65	2.42	1.56	1.14	32.22

Daily Maximum and Minimum Temperature for the Month of November, 1924

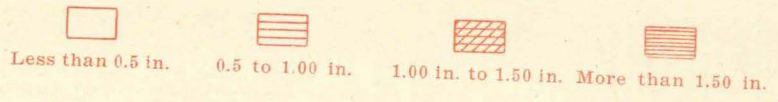
Table with columns for Stations, days 1-30, and Mean. Rows are categorized by Northern, Central, and Southern Divisions, listing various Iowa cities and their daily temperature ranges.

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

TOTAL PRECIPITATION, NOVEMBER, 1924



SCALE OF SHADES IN INCHES.



U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.
CHARLES F. MARVIN, Chief.

CLIMATOLOGICAL DATA.

IOWA SECTION

In co-operation with
IOWA WEATHER AND CROP SERVICE
CHARLES D. REED, Meteorologist

VOL. XXXV DES MOINES, IOWA, DECEMBER, 1924 No. 12

GENERAL SUMMARY

December was decidedly cold and wet in marked contrast to the two previous months, which were warm and dry, and also in decided contrast to the weather of December, 1923, which was the warmest December in the history of the State's weather, while this month ranks among the coldest Decembers of record, being within less than one degree of the record. There were frequent alternations above and below normal during the first half of the month, with the warm periods the most pronounced, making the mean for this period from one and a half to two degrees warmer than the normal. But a protracted cold spell set in about the 16th and during the rest of the month the temperature was continuously below the normal and did not go as high as the freezing point throughout the State, except at a few stations in the extreme southern portion on single days. This cold spell culminated in extremely low temperatures on the 28th, breaking the record for December at many stations in the southern half of the State.

The precipitation was much above normal and since 1890 there have been but four Decembers with more precipitation. Most of the precipitation occurred during a storm that passed northeastward across the State on the 4th and amounts exceeding an inch occurred at about half the stations in the State in a 24-hour period. Over the northwestern portion of the State the precipitation during this storm was all snow and over about all the State south of a line from Mills to the southern portion of Dubuque county it was practically all rain, but over a wide strip from Mills and Monona northeastward to the northern portions of Dubuque and Winnebago counties there was a mixture of snow, sleet and rain. This condition produced one of the most destructive winter storms ever experienced in the State, and caused great damage to overhead wires and trees of all kinds. The greatest damage occurred in a strip about two counties wide running from Pottawattamie and Harrison counties northeastward to Delaware and Fayette counties. The rain occurred with the temperature considerably below freezing, and it froze as soon as it struck the ground or exposed objects. Small branches of trees and wires were reported to have been coated with as much as two inches of ice in some townships, and as a result of the added weight there were an unprecedented number of telephone poles broken off and severe damage to fruit and shade trees which amounted to the total destruction of many trees. From as complete a survey as it was possible to make, it is estimated that about 27,000 telephone poles were ruined, over 200,000 miles of single telephone wires were put out of service, and the damage to fruit trees ranged from slight to as high as 42 per cent. It was necessary to place over 1,000 men to the task of repairing damaged telephone systems, and the money loss was over \$750,000. Many rural telephone lines were still badly crippled at the end of the month. In Black Hawk county alone over

5,000 poles were down and several counties reported more than 2,000. The zones of damage are shown on the maps on page 96. Sleet or glaze also occurred at other times later in the month, but in each case it appears that the deposit was too light to cause material damage.

There were no severe wind storms during the month, and as a result there was little drifting of the snow, though some highways were temporarily blocked and trains delayed in the northwest portion, following the snows that occurred on the 4th of the month. Trains were late during the cold spell that prevailed during the last two weeks. The light wind movement tempered the severe cold weather somewhat, but in all the large centers charitable organizations received an unusual number of requests for aid. Outside work was generally suspended and only such work as was necessary was performed on farms, and there was still some corn outstanding. Winter wheat was protected during the most severe weather, but there were reports that stock was not in the best condition though there was a heavy consumption of feed. Ice formed rapidly and the harvest was begun as early as the 20th, and at many places the harvest was complete at the end of the month, the thickness of the ice running from 12 to 16 inches of excellent quality. Roads were fair to good most of the month, though somewhat icy over the north half of the State, and froze up rough over most of the southern half during the first two weeks.

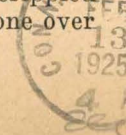
Unusually high barometric readings occurred on the 20th. At Des Moines and Keokuk the sea level reading was the highest ever recorded.

F. L. D.

COMPARATIVE DATA FOR THE STATE—DECEMBER

YEAR	Temperature				Precipitation				Number of Days				
	Mean	Departure*	Highest	Lowest	Total	Departure*	Greatest	Least	Snowfall	With pre. .01 in. or more	Clear	Partly cloudy	Cloudy
1890.....	29.1	+5.0	72	-13	0.45	-0.69	1.40	0.00	-----	3	17	7	7
1891.....	32.3	+8.2	72	-14	2.41	+1.27	4.50	1.21	-----	8	14	9	8
1892.....	18.9	-5.2	68	-29	1.65	+0.51	3.04	0.20	10.9	8	9	8	14
1893.....	22.0	-2.1	70	-21	1.31	+0.17	2.80	0.46	7.6	7	10	9	12
1894.....	30.1	+6.0	73	-17	0.95	-0.19	1.75	0.25	1.3	3	15	6	10
1895.....	25.4	+1.3	63	-16	1.63	+0.49	5.74	0.00	4.1	5	11	9	11
1896.....	30.8	+6.7	70	-10	0.65	-0.49	1.79	T.	1.6	4	10	8	13
1897.....	18.0	-6.1	60	-25	1.65	+0.51	3.22	0.61	15.9	6	11	7	13
1898.....	18.1	-6.0	60	-25	0.48	-0.66	1.70	T.	3.9	3	15	8	8
1899.....	22.6	-1.5	75	-19	1.61	+0.47	4.28	0.10	4.3	5	12	9	10
1900.....	26.9	+2.3	63	-10	0.45	-0.69	2.70	T.	2.4	4	13	6	12
1901.....	20.5	-3.6	64	-31	0.93	-0.21	2.75	0.05	5.4	6	10	9	12
1902.....	20.1	-4.0	59	-20	2.23	+1.09	5.51	0.67	12.9	8	9	6	16
1903.....	19.6	-4.5	58	-27	0.41	-0.73	1.96	T.	3.7	4	11	9	11
1904.....	23.4	-0.7	67	-19	1.44	+0.30	3.68	0.06	12.3	5	12	7	12
1905.....	27.0	+2.9	62	-11	0.52	-0.62	1.69	T.	4.2	3	19	6	6
1906.....	25.7	+1.6	65	-9	1.43	+0.29	2.81	0.37	1.4	6	11	7	13
1907.....	28.8	+4.7	62	-9	1.00	-0.14	2.28	0.05	4.7	5	10	7	14
1908.....	27.2	+3.1	67	-17	0.57	-0.57	2.07	0.05	3.8	3	15	8	8
1909.....	15.1	-9.0	60	-26	2.18	+1.04	6.10	0.89	13.7	11	10	5	16
1910.....	23.4	-0.7	57	-14	0.37	-0.77	1.89	0.01	3.0	3	15	7	9
1911.....	27.9	+3.8	60	-24	2.57	+1.43	4.43	0.62	12.6	7	13	6	12
1912.....	29.2	+5.1	64	-13	0.74	-0.40	1.75	0.10	1.1	3	18	7	6
1913.....	32.0	+7.9	65	-13	1.02	-0.12	4.73	0.00	1.3	4	15	5	11
1914.....	15.7	-8.4	63	-31	1.30	+0.16	2.24	0.57	11.1	9	10	6	15
1915.....	25.0	+0.9	56	-10	0.69	-0.45	1.70	T.	4.6	5	11	8	12
1916.....	18.7	-5.4	67	-25	1.04	-0.12	2.00	0.35	6.7	6	15	8	8
1917.....	14.5	-9.6	62	-40	0.56	-0.58	1.70	0.14	6.7	6	10	9	12
1918.....	32.7	+8.6	68	-7	1.30	+0.16	3.30	0.37	5.1	8	9	8	14
1919.....	15.0	-9.1	52	-36	0.54	-0.60	1.55	0.08	5.8	4	11	7	13
1920.....	26.4	+2.3	65	-26	1.16	+0.02	2.64	0.26	7.4	5	10	8	13
1921.....	28.2	+4.1	69	-22	1.02	-0.12	3.72	T.	2.9	4	14	9	8
1922.....	24.0	-0.1	65	-25	0.37	-0.77	0.97	T.	2.2	3	16	7	8
1923.....	33.5	+9.4	68	-21	0.76	-0.38	2.22	T.	4.4	4	14	6	11
1924.....	15.4	-8.7	62	-33	1.79	+0.65	2.93	0.90	8.1	8	12	6	13

T. indicates an amount too small to measure, or less than .005 inch rainfall and less than .05 inch snowfall.
*New normals effective June 1, 1924.



Climatological Data for December, 1924.

Stations	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precipitation, in inches				Number of Days			Prevailing direction of wind	Observers		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear			Partly cloudy	Cloudy
<i>Northern Division</i>																				
Algona	Kossuth	1,213	51	11.6	-9.9	45	2	-25	28	39	1.20	+0.25	0.40	15.0	4	13	5	13	nw.	W. E. Laird
Allison (near)	Butler	1,044	12	13.7	-7.7	45	2	-22	28	39	1.73	+0.53	1.08	6.5	6	13	6	12	sw.	J. A. Bell
Alta	Buena Vista	1,513	33	10.3	-11.1	45	2	-25	28	32	2.26	+1.35	1.17	21.0	7	7	11	13	sw.	D. E. Hadden
Alton	Sioux	1,305	19	10.8	-10.0	47	2	-28	28	42	1.55	+0.75	0.60	15.5	10	8	10	13	nw.	W. S. Slagle
Belmond	Wright	1,205	14	11.8	-9.1	47	2	-24	28	38	1.98	+0.65	0.57	9.9	17	7	11	13	w.	Geo. P. Hardwick
Britt	Hancock	1,236	37	11.3	-9.2	46	2	-25	28	36	1.12	+0.32	0.56	8.0	4	13	3	15	nw.	Jas. S. Ross
Charles City	Floyd	1,015	33	11.6	-8.9	46	2	-21	28	32	2.06	+0.81	1.04	10.4	12	11	3	17	w.	U. S. Weather Bureau
Cherokee	Cherokee	1,196	2	10.5	-	47	2	-27	28	40	1.29	-	0.40	15.5	7	8	10	13	ne.	J. E. Wirth
Decorah	Winneshiok	875	31	11.2	-11.0	41	2	-25	28	44	1.35	+0.07	0.52	5.5	6	12	3	16	nw.	M. D. Whitney
Dubuque	Dubuque	698	51	16.4	-8.3	41	12	-19	28	33	1.31	-0.20	0.86	3.5	12	10	4	17	nw.	U. S. Weather Bureau
Estherville	Emmet	1,298	29	-	-	-	-	-25	28	-	1.10	+0.39	0.40	11.0	6	8	19	4	nw.	A. O. Peterson
Fayette	Fayette	1,003	34	13.0 ^c	-8.4	42 ^h	2	-21 ^d	28	40	1.29	-0.12	0.98	1.7	6	-	-	-	nw.	R. Z. Latimer
Forest City	Winnebago	1,226	30	10.2	-11.1	47	2	-25	28	40	1.40	+0.52	0.40	14.0	9	10	3	18	nw.	Dr. M. B. Neil
Hampton	Franklin	1,145	-	10.8	-12.1	48	3	-21	28	39	1.51	+0.26	1.09	7.3	4	10	4	17	nw.	L. H. Davis
Humboldt	Humboldt	1,065	36	12.1	-10.5	50	2	-26	28	37	1.73	+0.87	1.27	7.0	4	7	8	16	sw.	H. C. Snitkey
Independence	Buchanan	921	60	15.4	-8.2	44	12 [†]	-20	28	40	1.13	-0.18	0.37	5.9	9	17	1	13	nw.	Dr. Geo. Boody
Inwood	Lyon	1,474	20	8.9	-10.5	45	12	-29	28	45	1.93	+1.27	0.80	19.3	12	14	5	12	nw.	F. B. Hanson
Le Mars	Plymouth	1,224	28	11.2	-11.2	48	2	-25	28	43	1.73	+0.86	1.05	18.8	6	15	5	11	sw.	Mrs. M. C. Woolley
Mason City	Cerro Gordo	1,148	27	12.0	-8.9	47	2	-19	27 [†]	38	1.51	+0.63	0.86	9.0	6	9	6	16	nw.	Northern Sugar Corp.
Milford (near)	Dickinson	1,430	4	10.2	-	47	2	-29	28	41	1.51	-	0.40	13.0	9	10	8	13	nw.	Dr. F. J. Smith
New Hampton	Chickasaw	1,169	27	11.6	-9.2	39	2	-23	28	39	1.85	+0.76	0.75	9.0	8	15	2	14	w.	A. F. Kemman
Nora Springs	Floyd	1,064	12	13.7	-9.4	50	2	-22	28	41	2.35	+1.15	0.98	7.3	12	11	4	16	s.	Arthur Betts
Northwood	Worth	1,222	28	10.8 ^b	-8.9	45 ^b	2	-20 ^b	28	41	1.20	-0.03	0.30	9.0	7	9	4	18	nw.	Chas. Dwelle
Oelwein	Fayette	1,036	1	15.2	-	42	2	-19	28	32	-	-	-	-	12	10	9	nw.	John T. Ridler	
Pocahontas	Pocahontas	1,248	20	11.2	-10.5	43	12	-29	28	41	1.22	+0.30	0.55	13.0	7	13	3	15	sw.	F. E. Hronek
Postville	Clayton	1,180	25	11.8	-9.1	42	2	-24	28	40	1.66	+0.30	0.63	7.5	10	13	3	15	nw.	F. L. Williams
Rock Rapids	Lyon	1,358	25	9.9	-9.8	47	2	-27	28	37	1.89	+1.26	0.58	18.9	9	14	8	9	nw.	J. K. Medberry
Sanborn	O'Brien	1,563	10	-	-	47	3	-27	28	-	1.50	+0.65	0.60	15.0	5	12	10	9	w.	J. W. Dow
Sioux Center	Sioux	1,426	25	9.8	-11.0	50	2	-23	28	37	1.75	+0.87	0.70	17.5	8	15	0	16	sw.	J. de Ruyter
Spencer	Clay	1,319	10	9.6	-11.1	45	2 [†]	-26	28	39	1.50	+0.65	0.50	16.0	5	9	10	12	nw.	E. W. Little
Storm Lake	Buena Vista	1,440	35	12.4	-10.1	45	2 [†]	-22	28	42	1.74	+0.92	0.72	16.3	7	14	2	15	nw.	Geo. H. Fracker
Washita	Cherokee	1,157	26	13.2	-8.9	49	12	-33	28	43	1.70	+0.87	0.60	17.0	7	14	3	14	nw.	H. L. Felter
Waterloo	Black Hawk	854	41	15.2	-8.3	45	2	-22	28	37	1.50	+0.30	1.05	4.5	8	15	0	16	se.	R. B. Slippy
Waverly	Bremer	936	28	13.7	-9.5	47	2	-22	28	42	1.89	+0.71	0.60	8.6	7	21	1	9	nw.	D. H. Murphy
West Bend	Palo Alto	1,197	31	10.6	-10.5	48	2	-29	28	40	1.10	-0.06	0.57	8.5	5	12	7	12	sw.	Jos. Dorweiler
Means and extremes				11.9	-9.6	50	2	-33	28	45	1.57	+0.54	1.17	11.4	8	12	6	13	nw.	
<i>Central Division</i>																				
Ames	Story	926	47	15.0	-8.8	47 ^c	12	-21	28	40 ^c	1.45	+0.39	0.59	4.6	10	15	5	11	nw.	Iowa State College
Audubon	Audubon	1,297	29	13.8	-9.0	45	2	-25	28	36	1.77	+0.78	1.45	-	8	-	-	-	sw.	Geo. Kibby
Baxter	Jasper	998	24	15.7	-8.7	50	12	-24	28	37	1.30	+0.35	0.60	4.5	6	11	8	12	n.	Henry Geise
Belle Plaine	Benton	866	34	17.0	-7.2	48	12	-25	28	36	2.11	+0.76	1.08	6.2	10	10	3	18	nw.	O. C. Burrows
Boone	Boone	1,134	19	15.2	-8.8	49	2	-25	28	36	1.62	+0.73	1.07	4.5	8	10	7	14	nw.	C. F. Henning
Carroll	Carroll	1,265	34	14.0	-9.8	49	2	-23	28	36	1.52	+0.54	1.17	6.5	5	17	0	14	nw.	Mrs. Jos. J. Wolfe
Cedar Rapids	Linn	737	42	16.2	-9.7	48	13	-28	28	46	1.45	+0.14	0.93	9.2	7	13	3	15	sw.	J. T. Wurster
Clinton	Clinton	595	51	18.4	-7.9	43	6 [†]	-25	28	34	1.90	+0.12	1.04	3.9	9	11	7	13	w.	Dr. A. P. Bryant
Davenport	Scott	580	53	19.6	-7.5	48	12	-20	28	32	2.36	+0.85	1.32	5.6	13	12	4	15	w.	U. S. Weather Bureau
Davenport (No. 2)	Scott	690	-	19.7	-	48	13	-21	28	34	2.37	-	1.31	3.8	11	-	-	-	-	Rex Shriver
Denison	Crawford	1,171	30	13.2	-10.6	49	2	-25	28	38	1.70	+0.83	1.06	9.0	8	11	4	16	nw.	V. L. Byers
Des Moines	Polk	861	46	17.7	-8.3	55	12	-21	28	30	1.62	+0.41	1.07	4.3	11	10	5	16	w.	U. S. Weather Bureau
Fairport	Muscatine	557	3	20.0	-	49	15	-24	28	30	2.83	-	1.14	4.5	11	11	3	17	nw.	Bureau of Fisheries
Fort Dodge	Webster	1,114	24	12.6	-9.7	48	2	-27	28	39	1.76	+0.93	0.78	9.6	7	14	3	14	nw.	Samuel Sampson
Grinnell	Poweshiek	1,031	30	17.2	-8.0	50	12	-24	28	36	1.70	+0.53	0.83	3.2	10	11	7	13	sw.	Paul P. Meyers
Grundy Center	Grundy	976	33	15.9	-8.0	45	2 [†]	-23	28	36	1.55	+0.39	0.65	9.0	6	12	3	16	nw.	M. G. Heiberger
Guthrie Center	Guthrie	1,077	29	16.0	-8.5	51	12	-24	28	34	1.76	+0.65	1.06	6.0	8	15	3	13	sw.	E. L. Nesselroad
Harlan	Shelby	1,192	25	14.4	-9.2	49	2	-22	28	37	-	-	-	-	14	4	13	n.	W. K. Colburn	
Iowa City	Johnson	733	64	16.8	-9.0	48	12	-27	28	35	1.75	+0.14	1.05	5.5	7	12	5	14	nw.	Prof. J. F. Reilly
Iowa Falls	Hardin	1,107	31	13.6	-8.9	46	2	-23	28	36	1.93	+0.63	0.91	7.2	9	13	2	16	nw.	J. B. Parmelee
Jefferson	Greene	1,052	25	14.6	-9.0	48	2	-24	28	37	1.64	+0.57	0.97	5.0	6	11	6	14	sw.	W. I. Lyon
Little Sioux	Harrison	1,040	19	14.6	-9.4	53	2	-26	28	41	1.00	+0.12	0.73	9.7	3	14	6	11	nw.	H. W. Kerr
Logan	Harrison	1,035	57	15.2	-10.2	50	2	-22	28	47	1.86	+0.73	1.25	10.0	5	11	5	15	nw.	Mary Jean Stern
Marshalltown	Marshall	947	32	16.4	-8.7	46	12	-20	28	38	1.84	+0.57	1.01	5.3	11	16	2	13	nw.	C. O. Pigman
Monroe	Jasper	922	12	17.0	-8.9	54	12	-25	28	30	1.78	+0.72	0.98	6.5	6	12	5	14	sw.	J. A. Dibel
Olin	Jones	760	25	16.1	-8.8	42	2	-26	28	36	1.95	+0.60	1.15	4.0	6	11	6	14	sw.	Mrs. L. Stingley
Onawa	Monona	1,051	23	14.2	-9.7	52	12	-24	28	39	2.20	+1.10	1.05	18.0	6	15	1	15	nw.	Mrs. H. E. Colby
Perry	Dallas	975	23	16.2																

Climatological Data for December, 1924—Continued.

Stations	COUNTIES	Elevation, feet	Length of record, years	Temperature, in Degrees Fahrenheit						Precipitation, in inches				Number of Days			Prevailing direction of wind	Observers		
				Mean	Departure from normal	Highest	Date	Lowest	Date	Greatest daily range	Total	Departure from normal	Greatest in 24 hours	Total snowfall (unmelted)	Precipitation, .01 in. or more	Clear			Partly cloudy	Cloudy
<i>Southern Division</i>																				
Afton	Union	1,212	30	17.8	- 8.4	53	12	-27	28	30	2.30	+1.11	1.23	8.0	7	14	6	11	sw.	S. R. Brown
Albia	Monroe	959	26	18.8	- 7.4	58	12	-25	28	32	1.60	+0.53	1.03	5.5	9	8	4	19	ne.	O. E. McBride
Atlantic	Cass	1,164	33	16.8	- 8.9	51	12	-25	28	43	1.82	+0.70	0.95	3.5	9	17	1	13	n.	Mrs. Minnie Cunningham
Bonaparte	Van Buren	563	33	20.6	- 7.2	61	12	-24	28	31	1.89	+0.63	1.30	3.7	5	14	2	15	sw.	B. R. Vale
Burlington	Des Moines	544	28	22.0	- 7.4	52	12	-19	28	34	2.78	+1.18	1.29	5.7	8	15	4	12	sw.	John W. Donnelly
Centerville	Appanoose	1,013	19	19.8	- 7.9	56	12	-28	28	40	1.89	+0.79	1.25	4.1	9	9	12	10	nw.	Thomas Wood
Chariton	Lucas	1,042	29	19.0	- 7.4	57	12	-27	28	37	1.20	+0.04	0.82	4.0	3	12	7	12	nw.	C. C. Burr
Clarinda	Page	1,009	34	18.4	- 8.5	54	12	-27	28	35	2.90	+1.80	1.80	10.0	5	15	10	6	s.	Dr. H. C. Hawley
Columbus Jct.	Louisa	595	23						28											Gale Gentzler
Corning	Adams	1,117	32	18.8	- 6.4	53	6†	-32	28	34	2.89	+1.65	1.53	8.0	4	18	3	10	w.	Jerome Smith
Corydon	Wayne	1,101	31	18.2	- 8.6	54	12	-24	28	32	2.32	+1.03	1.58	5.3	7	6	14	11	ne.	Mrs. May Miller King
Creston	Union	1,312	19																	
Cumberland (near)	Cass	1,225	25								1.28	+0.35	0.80	5.0	5	12	5	14	nw.	Carl E. Pollock
Earlham	Madison	1,126	22	17.0	- 7.5	53	12	-31	28	32	1.66	+0.47	0.73	5.5	6	16	1	14	sw.	Geo. Phillips
Fairfield	Jefferson	780	40	19.6	- 6.8	58	12	-26	28	36	2.71	+1.09	1.62	6.7	10	16	2	13	n.	Prof. R. M. McKenzie
Glenwood	Mills	1,100	26	17.9	- 8.9	50	12	-25	28	34	1.86	+1.19	0.95	8.2	5	8	11	12	sw.	Dr. Geo. Mogridge
Indianola	Warren	972	33	17.6	- 8.0	55	12	-26	28	33	1.44	+0.12	0.80	3.5	7	11	7	13	nw.	Seth F. Shenton
Keokuk	Lee	614	53	23.0	- 6.6	60	12	-19	28	35	2.19	+0.60	1.18	7.8	10	6	10	15	w.	U. S. Weather Bureau
Keosauqua	Van Buren	644	32	20.0	- 7.7	62	12	-30	28	33	2.44	+1.06	1.78	6.3	10	14	5	12	se.	J. H. Landes
Knoxville	Marion	920	29	17.9	- 8.0	57	12	-26	28	29	1.62	+0.30	0.96	4.8	8	12	5	14	sw.	W. J. Casey
Lacona	Warren		25								1.72	+0.10	1.10	6.0	10	7	15	9		J. B. Alter
Lamoni	Decatur	1,123	17	19.0	- 7.0	55	15	-27	28	39	1.92	+0.74	1.11	5.1	7	14	5	12	nw.	Roy L. Roberts
Lenox	Taylor	1,250	29	18.0	- 7.6	54	12	-25	28	37	2.86	+1.88	1.26	8.5	10	14	6	11	nw.	J. L. Hurley
Mt. Ayr	Ringgold	1,245	31	18.8	- 7.7	54	12	-27	28	39	2.51	+1.28	1.27	5.1	9	12	5	14	sw.	Alex Maxwell
Mt. Pleasant	Henry	729	43	20.6	- 7.5	54	12†	-20	28	32	2.14	+0.77	1.43	3.6	8	11	4	16	nw.	J. H. Jericho
Oakland	Pottawattamie	1,105	5	16.0	- 9.2	50	2	-28	28	32	1.67		0.92	7.5	5	9	3	19	n.	M. E. Gray
Oskaloosa	Mahaska	835	48	18.0	- 8.0	57	12	-30	28	32	2.07	+0.90	1.14	7.9	12	8	7	16	nw.	Roy R. Robinson
Ottumwa	Wapello	649	29	20.3		61	12	-32	28	36	2.23	+0.97	1.30	4.7	9	11	4	16	nw.	C. L. Mikesh
Pella	Marion	877	31	18.0	- 8.1	57	12	-30	28	43	1.48	+0.51	1.08	5.0	4	13	2	16	nw.	J. H. Ver Steeg
Red Oak (near)††	Montgomery	1,030									1.98		1.25		5	8	9	14	e.	B. R. Bridge
Sigourney	Keokuk	790	28	18.0	- 6.9	52	12	-30	28	36	2.06	+0.83	1.32	5.2	8	11	3	17	w.	W. E. Utterback
Stockport	Van Buren	745	22	19.8	- 7.0	59	12	-29	28	32	2.61	+1.34	1.67	6.3	9	12	3	16	w.	C. L. Beswick
Thurman	Fremont	975	27	17.6	- 7.7	51	12	-32	28	38	2.05	+0.74	1.12	7.5	4	7	11	13	nw.	C. R. Paul
Tingley	Ringgold	1,275	0	18.0		53	12	-23	28	34	2.30		1.16	7.5	7	16	3	12	nw.	James A. Verploegh
Washington	Washington	769	42	18.6	- 8.0	53	12	-25	28	29	1.91	+0.59	1.28	6.5	6				nw.	D. D. Sherman
Wescott (near)	Lee		2	19.6		50	7	-20	28	30	2.93		2.00	6.3	10	7	13	11	n.	Lester J. Larson
Winterset	Madison	1,129	33	18.0	- 7.8	54	12	-22	28	32	1.66	+0.47	0.73	5.5	6	16	1	14	sw.	H. S. Ely
Omaha, Nebr.		1,103	53	17.4	- 9.0	51	2	-14	27	27	1.88	+0.47	0.67	6.0	12	7	10	14	nw.	U. S. Weather Bureau
Means and extremes				18.8	- 7.7	62	12	-32	29	43	2.08	+0.86	2.00	5.9	8	12	6	13	nw.	
State means and extremes				15.4	- 8.7	62	12	-33	28	47	1.79	+0.65	2.00	8.1	8	12	6	13	nw.	

The departure from normal temperature and precipitation are computed only for such stations as have ten or more years of record, but all complete records are used in determining means. Reference letters a, b, c, etc., appearing in the table indicate the number of days missing; for example b represents two days, etc. †Also other dates. ††Received too late to be included in means and summaries. T. Precipitation is less than 0.01 inch rain or melted snow.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea Level)					Relative Humidity, %				Wind				Sunshine			
	Mean	Highest	Date	Lowest	Date	Mean		Lowest	Date	Lowest movement	Average hourly velocity	Maximum		Per cent of possible	Departure from normal		
						7 a. m.	12 Noon					7 p. m.	Miles			From	Date
Charles City	30.22	30.99	20	29.41	12	89	73	83	48	1	5,619	7.6	24	ne.	4	42	-2
Davenport	30.22	31.02	20	29.40	12	85	72	77	44	2	6,212	8.3	29	e.	4	41	-2
Des Moines	30.22	31.05	20	29.47	5	90	72	80	47	20	6,254	8.4	25	sw.	19	51	-1
Dubuque	30.21	30.98	20	29.36	12	83	72	76	43	1	5,398	7.3	27	nw.	13	42	-0
Keokuk	30.24	31.06	20	29.51	12	79	65	68	27	13	6,593	8.9	36	sw.	8	42	-5
Sioux City	30.26	31.04	20	29.51	12	79	64	75	42	25	9,513	12.8	42	nw.	8	50	+1
Omaha, Neb.	30.24	31.05	20	29.60	5	84	66	77	38	†13	6,990	9.4	33	n.	26	43	-9
Means and extremes	30.23					84	69	76				9.0				44	-3
Normals and records		31.06	20	29.36	12				27	13			42	nw.	8		
	30.12		29th		13th	84		77				8.1			24th		47
	*31.09	1917	§29.00	1920		†18		1922				*58		nw.	1907		

*Sioux City. §Dubuque. †Keokuk. ‡Local mean time. †And other Dates.

TEMPERATURE

The mean temperature for the State, as shown by the records of 102 stations, was 15.4°, or 8.7° lower than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 11.9°, or 9.6° lower than the normal; Central, 15.6°, or 8.7° lower than the normal; Southern, 18.8°, or 7.7° lower than the normal. The highest monthly mean was 23.0°, at Keokuk, and the lowest was 8.9°, at Inwood. The highest temperature recorded was 62°, at Keosauqua, on the 12th, and the lowest was -33°, at Washta on the 28th. The monthly range for the State was 95°.

PRECIPITATION

The average precipitation for the State, as shown by the records of 104 stations, was 1.79 inches, or 0.65 inch more than the normal. By divisions, the averages were as follows: Northern, 1.57 inches, or 0.54 inch more than the normal; Central, 1.73 inches, or 0.56 inch more than the normal; Southern, 2.08 inches, or 0.86 inch more than the

Daily Precipitation for December, 1924.

Stations	Drainage Basin	Day of Month																															Totals	
		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		
<i>Northern Division</i>																																		
Algona	Des Moines			.32			.36	.40						.12																				1.20
Allison (near)	Cedar		1.08	T.	.05	.25	.10			T.				.15					T.	.10			T.										1.73	
Alta	Raccoon		1.17			.45	.15							.14				T.	.14			T.	.06	T.								.15	2.26	
Alton	Floyd		.20	.20		.60	.10							.20	T.	T.		T.	.05	.05		.10	.08									.02	1.55	
Belmond	Iowa		.57	.35	.20	.20	.10	.01	.04			T.		.14	.03	.02		T.	.05	.13		.04	.05	.02	.02		.01						1.98	
Britt	Iowa		.16	.56		.24	T.			T.				.16				T.				T.	T.	T.									1.12	
Charles City***	Cedar		.77	.27	.02	.45	.20			.06		.07		.06		T.	T.	.09	.02		.04	T.	T.	T.	.01	T.			T.		T.		2.06	
Cherokee	Little Sioux		.40	.16		.40	.15							.13	T.		T.	.02		.03		T.									T.	T.	1.29	
Decorah	Mississippi		* .52	T.	*	.20			.01		.37							.05	.20														1.35	
Dubuque***	Mississippi		.64	.25	T.	.07	.02		.04		.01			T.		T.	.01	.14	.02		.05	.01	.05						T.				1.31	
Estherville	Des Moines			.40		.30	.20							.10							.05	.05											1.10	
Fayette	Mississippi		.16	.98	.03	.08	.02											T.	T.	.10	T.	.02	T.		.05								1.29	
Forest City	Cedar		.15	.25	.20	.40				.10		T.		.10					.10		T.	.05			.05								1.40	
Hampton	Cedar		T.	1.09	T.	T.	.27			T.				.07				T.	.08		T.	T.	T.	T.									1.51	
Humboldt	Des Moines		.83	.44	T.	.24	.12							.10		T.					T.	T.	T.	T.								T.	1.73	
Independence	Wapsipinicon		.37	.10		.07	T.	T.	.11					.16			T.	.07	.07			.14	.04										1.13	
Inwood	Big Sioux		.80	.20		.35	.35							.10		T.		.02	.01		T.	.03	.02					.01		.01	.03		1.93	
Le Mars	Floyd		.14	.15		1.05	.24							.07						T.		.08	T.										1.73	
Mason City	Cedar		T.	.86		.28	.16	.08		.09			.04		T.	T.	T.	T.	T.		.03	.06	.40	.02					T.				1.51	
Milford (near)	Little Sioux		.28	.20		.17	.21					T.		.14		T.	T.	T.	T.		.03	.06	.40	.02									1.51	
New Hampton	Wapsipinicon		.10	.75	T.	.20	.10		T.			.30	.20					T.	.10			.05	.05										1.85	
Nora Springs	Cedar		.98		.04	.36	.37		.11		.08	.15	.15	.03	.02	.15					.03	.03								T.			2.35	
Northwood	Cedar		.10	.30	T.	.20	.20		T.		.20			.10								.10									T.		1.20	
Oelwein	Wapsipinicon		.30			.10																											**	
Pocahontas	Des Moines		.55	.23		.20	.11							.10		T.		T.				.02	.01								T.		1.22	
Postville	Mississippi		.05	.63	.10	.10	.20		.10		.28							.05	.10			.05											1.66	
Rock Rapids	Big Sioux		.58	.36		.23	.47							.15								.02	.03								.02	.03	1.89	
Sanborn	Floyd		* .40			.60	.20							.20				T.	.10														1.50	
Sioux Center	Floyd		.30	.20		.70	.10							.20					.10			.10										.05	1.75	
Spencer	Little Sioux		.30			.40	.50							.20							.10												1.50	
Storm Lake	Raccoon		.72	.40		.30	.11	T.						.11				T.	.05		T.	.05	T.	.05	T.							1.74		
Washta	Little Sioux		.60	.20		.40	.30							.05					T.	.10		T.	.05	T.								T.	1.70	
Waterloo	Cedar		.75	.30		.15	.08		T.					.12					.05			.03	.02										1.50	
Waverly	Cedar		.60	.54	.10	.15	.15							.20						.15													1.89	
West Bend	Des Moines		.47	.10		.30	.10							.13																			1.10	
<i>Central Division</i>																																		
Ames	Skunk			.59	.36	.03	.19	.06	T.	T.				.10		T.	T.	.02	.02		T.	.07	.01										1.45	
Audubon	Nishnabotna		1.45				.06							.05		.05		.04				.10	.02										1.77	
Baxter	Skunk		.60	.40		.10								.05					.10			.05											1.30	
Belle Plaine	Iowa		1.06	.18		.20	.25	T.	.01					.12		T.	T.	.08	.01		T.	.07	.13						T.			2.11		
Boone	Des Moines		.55	.52	.05	.22	.08	T.	T.			T.		.05		T.		T.	.10			.05	T.										1.62	
Carroll	Raccoon		1.17				.19							.05				.06				.05											1.52	
Cedar Rapids	Cedar		.93	.12		T.	T.		T.					.10				.06	.03		T.	.10	.11										1.45	
Clinton	Mississippi		.22	1.04		.07			T.					.01		.05	.10	.29	.03		.09												1.90	
Davenport***	Mississippi		.20	1.32	.08	.02	.01		T.		T.			.04		.04	.03	.22	.03		.04	.06	.27	T.								T.	2.36	
Davenport (No. 2)	Mississippi		1.31	.27		.03	.02	T.			T.	T.	.06		T.	.07	.23	.03		.06	.20	.05										T.	2.37	
Denison	Missouri		1.06	.10		.23	.07							.08		T.		.05	.04			.07											1.70	
Des Moines***	Des Moines		1.00	.07		.13	.02	T.	T.					.07		.04	.04	.09	T.		.04	.01	.11					T.	T.			T.	1.62	
Fairport	Mississippi		1.14	.69		.02	.03							.08	.04		.08	.27	.22		.06	.18											2.83	
Fort Dodge	Des Moines		.78	.44		.14	.10							.12		T.		.12	.12		T.	.06	.06	.12									1.76	
Grinnell	Iowa		.83	.30	T.	.13	.04	T.	T.					.10		T.	.02	.03	.06			.07	.12										1.70	
Grundy Center	Cedar		.65	.30	T.	.20	T.		.10					.20		T.	T.	T.	T.	T.		.10	.10										1.55	
Guthrie Center	Raccoon		1.06	.08	.08	.14	.08							.08						.16			.08											1.76
Harlan	Nishnabotna		.75																															**
Iowa City	Iowa		T.	1.05	.16		T.	T.						.08		T.	T.	.18	.03		.09	.16	T.	T.									1.75	
Iowa Falls	Iowa		.91	.30	.10	.15	.05	T.	T.			T.		.15		T.	T.	.02	.20			.05	T.	T.									1.93	
Jefferson	Raccoon		.97	.22	T.		.15		T.					T.		T.	T.	.10	.15		T.	.05											1.64	
Le Claire||	Mississippi																																	T.
Little Sioux	Little Sioux		.73			.20	T.												T.	.07		T.	T.	.08									1.00	
Logan	Missouri		1.25			.35	.10													.08														1.86
Marshalltown	Iowa		1.01	.27	T.	.10	.04	T.	.02			T.		.14		T.	T.	.04	.03		.01	.08	.10	T.									1.84	
Monroe	Des Moines		.98	.29	T.	.06	T.	T.				T.		T.	T.	T.	T.	.20	.07				.18						T.				T.	1.78
Muscatine|||	Mississippi																																	
Olin	Wapsipinicon		1.15	.40					T.					.10					.10				.10	.10										1.95
Onawa	Missouri		1.05	.24		.35	.24												.16				.16	.10										2.20
Perry	Raccoon		.68	.14	.01	.14	.10							T.</																				

Daily Precipitation for December, 1924—Continued.

Stations	Drainage Basin	Day of Month																															Totals		
		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			
<i>Southern Division</i>																																			
Afton	Grand			T. 1.23	.26	.20		.08							T.			.08					.03	.47										2.30	
Albia	Des Moines			T. 1.03	.19			T. T.							.01		T.	.06	.10	.01			.03	.14	.03									1.60	
Atlantic	Nishnabotna			.95	.39	.05	.09	.08											.01	.07			.05	.18										1.82	
Bonaparte	Des Moines			.05	1.30	.16		T. T.							.07		T.	T.	.31				T.											1.89	
Burlington	Mississippi			1.29	.18			.10							.12		T.	.28	.37	.04				.40										2.78	
Centerville	Chariton			.07	1.25	.07		T. T.							T.		.06	.06	.11	.01				.22	.04								T.	1.89	
Chariton	Chariton				.82			T.							T. T.		.12							.26									T.	1.20	
Clarinda	Nodaway				1.80	.22		.08															*	.80										2.90	
Columbus Jct.	Iowa																																		
Corning	Nodaway				1.53	.79		.12											T. T.	.45			T.												2.89
Corydon	Chariton			.08	1.58	.27		T. T.							T.		T.	.05	.05				.05	.24	T.									2.82	
Creston	Missouri																																		
Cumberland (near)	Nodaway				.80	.17	.04	.08	T.						T.		T.	T.	T.	T.	T.		T.	.19										1.28	
Earlham	Des Moines				.73	.26		.12	T.						T.		T.	T.	T.	T.			.05	.40	.10				T.					1.66	
Fairfield	Skunk			.16	1.62	.12		.03	T.						.10		.04	.05	.25				.04	.30					T.					2.71	
Glenwood	Missouri				.95	.40		.09	T.								T.		.02				T.	.40										1.86	
Indianola	Des Moines				.80	.14		.14	T.	T.					.01		T.	T.	.10	T.			.05	.20										1.44	
Keokuk**	Mississippi			T.	.01	1.17	.04	T.	T.	T.					.04		.12	.20	.25			.01	T.	.34	.01				T.				T.	2.19	
Keosauqua	Des Moines				.03	1.65	.13		T. T.						.03		T.	.10	.10	.05			.05	.25	.05									2.44	
Knoxville	Des Moines				.96	.11	T.	T.	.08	T.					T.		T.	T.	.05	.10			.07	.20	.05				T.					1.62	
Lacona	Des Moines				.98	.12		.10	.02						.05		.05	.05					.10	.20					.05					1.72	
Lamoni	Grand			.08	1.11	.34			.06									.06					T.	.23	.04										1.92
Lenox	Missouri			.10	1.26	.65		.10	.03								T.	.03	.03	.02			.04	.60										2.86	
Mt. Ayr	Grand			.03	1.27	.53		.19	T.								T.	.04	.03	T.			.03	.35	.04									2.51	
Mt. Pleasant	Skunk				1.43	.16		T.							T.		T.	.03	.07	.17			.03	.19	.06									2.14	
Oakland	Nishnabotna				.92	.20		T.	.10								T.		.05				T.	.40										1.67	
Oskaloosa	Des Moines				1.14	.28		.02	.01	.01					.02		T.	.07	.04	.11			.04	.31	.02									T.	2.07
Ottumwa	Des Moines			.03	1.30	.31		T.	T.	T.					.02		T.	T.	.22	.06			.04	.22	.03										2.23
Pella	Skunk				1.08	.10		T.	T.	T.					T.		T.	T.	T.	.14			.16												1.48
Red Oak (near)	Missouri				1.25	.61		.04											.04					.04											1.98
Sigourney	Skunk			T.	1.32	.27		T.	T.		T.				.06		T.	.02	.06	.03			.05	.25											2.06
Stockport	Skunk			T.	1.67	.26		.05	T.						.05			.05	.08	.10			.05	.30											2.61
Thurman	Missouri				1.12	.38		T.	T.								T.	T.	T.					.50	.05				T.						2.05
Tingley	Platt				1.16	.57		.20									.01		.01				.02	.33											2.30
Washington	Skunk			T.	1.28	T.		T.	T.	T.					.10		T.	.02	.03				.10	.40											1.93
Wescott (near)	Mississippi				2.00			.05							.02	.02		.25	.02			.01	.28	.04	.24									2.93	
Winterset	Des Moines					.28									T.			T.					T.	.25											**
Omaha, Neb.***	Missouri			.19	.51	.03		.17	.03								.02	.02	.16				.01	.06	.13								.05		1.88

Except as otherwise indicated, observations are generally made late in the afternoon, near sunset, and precipitation recorded is for 24 hours ending at the time of observation.

|||Precipitation measured in the morning; amount then recorded is for the preceding 24 hours.

***Regular Weather Bureau Station: precipitation is for 24-hour period, midnight to midnight.

**Incomplete.

*Precipitation included in the next following measurement.

T. Precipitation is less than .01 inch rain or melted snow.

(Continued from Page 91)

normal. The greatest amount, 2.93 inches, occurred at Wescott, and the least, 0.90 inch, occurred at Rockwell City. The greatest amount in 24 consecutive hours, 2.00 inches, occurred at Wescott on the 4th.

MISCELLANEOUS PHENOMENA

Aurora: 22d.

Fog: 5th, 6th, 7th, 8th, 15th, 16th, 22d, 27th, 29th, 30th.

Glaze: 4th, 5th, 16th, 17th 18th.

Hail: 4th.

Halos (lunar and solar): 2d, 6th, 11th, 15th, 17th, 19th, 25th, 27th, 29th, 31st.

Parhelia: 19th.

Sleet: 3d, 4th, 5th, 6th, 7th, 12th, 13th, 14th, 16th, 17th, 18th, 19th.

Thunderstorms: 4th, 7th.

SNOWFALL

The average snowfall for the State was 8.1 inches, or 1.9 inches greater than the normal. The greatest amount, 21.0

inches, occurred at Alta, and the least, 1.7 inches, occurred at Fayette. The snowfall was unusually heavy in the northwestern portion, where 12 stations reported more than 15.0 inches. Amounts exceeding 15 inches occurred also in the west-central portion and several stations in the north-central portion reported amounts exceeding 10 inches. The snow remained on the ground over most of the northern portion from the 4th till the end of the month and over the rest of the state the cover obtained from 15 to 25 days, the entire State being covered at the end of the month.

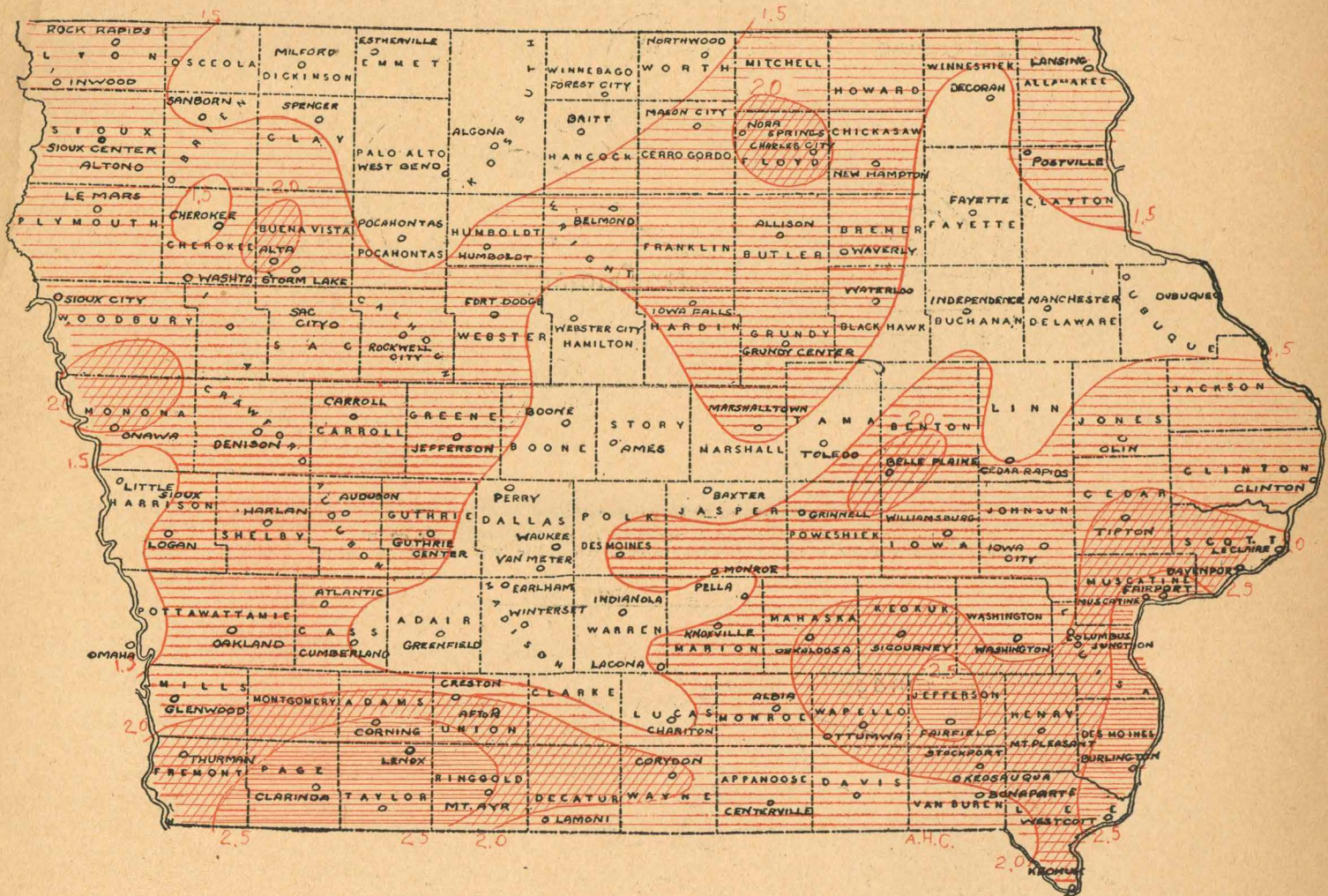
RIVERS

Generally low stages prevailed on the interior rivers with very little fluctuation. Some of the streams were frozen the entire month but over portions of the eastern and southern sections a general freeze up did not occur until the 9th. On the Mississippi River mostly low stages prevailed with only slight changes, though there were some sharp changes due to ice gorges. The river was frozen most of the month. Moderate stages prevailed on the Missouri and the only fluctuations of consequence were due to ice gorges.

Daily Maximum and Minimum Temperature for the Month of December, 1924.

Table with columns for Stations, days 1-31, and Mean. Rows are categorized into Northern Division, Central Division, and Southern Division, listing various Iowa cities and their daily temperature ranges.

TOTAL PRECIPITATION, DECEMBER, 1924



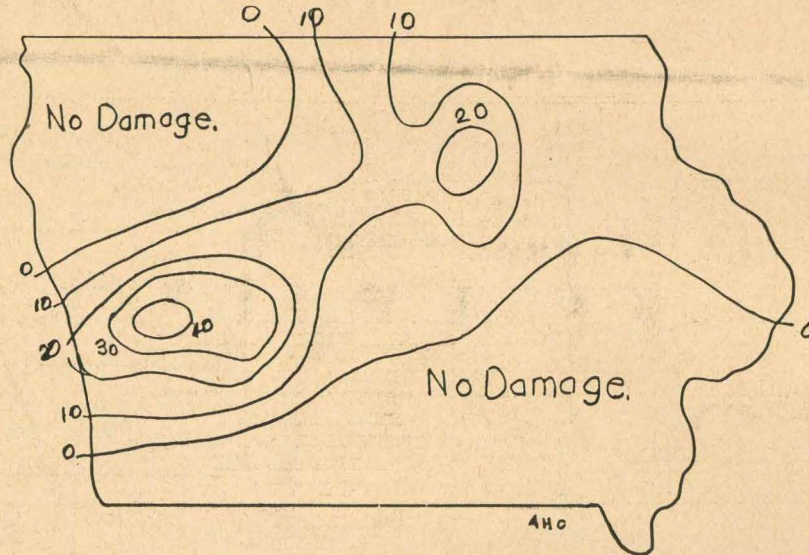
SCALE OF SHADES—IN INCHES



DAMAGE BY GLAZE STORM OF DECEMBER 3-5, 1924

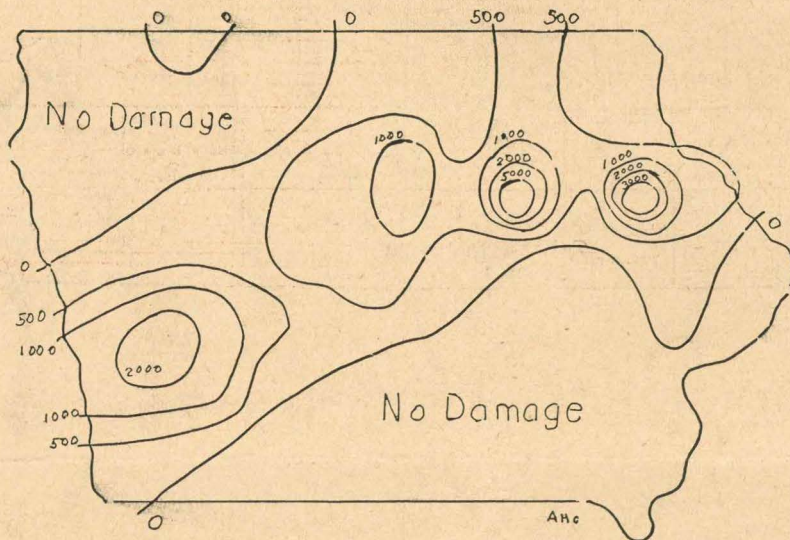
Damage to Fruit Trees

The lines show the per cent of fruit trees seriously injured by being broken down by loads of ice deposited on the branches.



Damage to Telephone Poles

The lines show roughly the number of telephone poles per county broken down by the heavy deposit of ice on the wires and poles.



U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

CHARLES F. MARVIN, Chief.

CLIMATOLOGICAL DATA.

IOWA SECTION

In co-operation with
IOWA WEATHER AND CROP SERVICE

CHARLES D. REED, Meteorologist

VOL. XXXV DES MOINES, IOWA, ANNUAL, 1924 No. 13

GENERAL SUMMARY

The year, 1924, with a mean temperature of 46.4° was 1.6° below normal. January, May, September, and December were notably cold, while October was unusually warm. New records for cold were established at many stations on December 28. Precipitation averaged 31.39 inches, which is 0.83 inch below normal. Snow, 37.2 inches, is 6.5 inches above normal. There were many damaging wind squalls, hailstorms, and glaze storms.

The dry, cool spring, the rainy June and cool summer, with frost a week earlier than usual, gave Iowa the poorest corn crop since 1901, averaging only 28 bushels per acre, of unusually poor quality. Only one-third of the crop matured without frost damage. Small grain was excellent in yield and quality at harvest time, but was seriously damaged by wind and rain in shock. Hay turned out much better than expected. Potatoes and sugar beets were excellent. The honey yield was good.

SYNOPSIS BY MONTHS

Wintry weather prevailed in January, 1924, with the lowest temperatures on the 5th that have been experienced in the last 12 years. Barometer readings were unusually high on that date. Streams that had remained open generally through December froze over early in January. The ice was thick enough to cut by the end of the first week. Most of the precipitation fell on the 9th-10th, as moderately heavy rain in the central and eastern sections of the State, and as heavy, drifted snow in the northern division where traffic was delayed. Winter wheat and grasses were generally protected by snow cover during the periods of severe temperature.

February was warm but generally disagreeable. Precipitation was above normal. A glaze storm 3d-4th greatly damaged poles and wires, and another on the 16th, though less destructive to poles and wires, caused much damage to automobiles by skidding and much injury to falling pedestrians. Frost began leaving the ground toward the close of the month, making dirt roads nearly impassable.

Precipitation was frequent and generally above normal in March, cloudiness was excessive, and temperatures averaged below normal. In a storm on the 28th-30th barometer readings were unusually low, rain turned to ice and then to snow, and wires and trees were damaged. During this storm there was a copious deposit of brown dust evidently transported from some distant region. Practically no field work was accomplished. The weather was too cold for young pigs and lambs. Roads were in the worst condition in years.

April began with zero temperature, the lowest of record in the northwest part of the State, but warmer weather followed. The monthly range of temperature was 98°. Precipitation was less than half the normal. Conditions were favorable for out door work, except a heavy snow on the 11th in a belt from east to west north of the center of the

State. Lack of moisture delayed germination of oats, and the starting of grass and winter wheat. Roads improved. Fruit bloomed earlier than usual.

May was dry and cold, except high temperatures on the 5th exceeding 90° at many stations. Frosts occurred in every week in nearly all portions of the State. The greatest damage occurred on the 11th and 24th. The two months of deficient rainfall became serious. This with the low temperatures delayed germination of corn, which came up very unevenly, and much was replanted. The condition June 1 was nearly the worst of record. Oats, spring wheat, barley, alfalfa, grasses, and truck crops made little progress.

June continued generally cool, except a warm period 11th-19th. Frequent copious rains relieved the drouth, but made corn cultivation nearly impossible. Many fields were overtaken by weeds, and thousands of acres washed or drowned out. Small grains and grasses improved greatly. Destructive floods occurred in the west-central portion of the State, 23d-24th, and in the east-central portion on the 28th. Unusually destructive wind squalls were frequent, the most widespread being on the 14th and 28th. On the latter date most of the State was covered and the damage in Des Moines was \$1,000,000.

July also was cool with only an occasional day above normal. Only two Julys have been cooler. Though the rainfall averaged nearly normal it was poorly distributed as to time and area, resulting in both flood and drouth. At Washington, Iowa, 5.80 inches of rain fell in 7 hours on the 24th, damaging crops, livestock, railroads, and highways. There was much damage from wind squalls and hail. Conditions were unfavorable for harvesting small grains and hay. Corn improved considerably, particularly in the southern portion of the State where it had been in the poorest condition.

August averaged just normal in temperature. Rains were frequent and heavy, and caused many local floods, the worst being at Cedar Rapids. Railroads were seriously damaged and thousands of acres of corn and small grain in shock were ruined. Numerous damaging wind squalls and hail occurred. Tornadoes occurred near Granger and Colfax. Corn made rather good progress during the month, but was still in need of a month of favorable weather to mature.

September was unusually and persistently cool with some frost on the 9th, and killing frosts 28th-30th, though corn escaped on the highlands. About one-third of the corn was in the milk or dough stage, and the bulk of the crop was seriously damaged. Winter wheat seeding was generally delayed in awaiting the Hessian fly free date.

October was an ideal example of an "Indian summer." It was next to the warmest October of record, with abundant sunshine and low relative humidity. Corn dried rapidly so that instead of the sour soft corn expected, it shriveled up on the cob. That on the highlands made a wonderful improvement and advancement toward maturity. Deficient precipitation interfered with plowing and seeding winter wheat, and caused a shortage in the water supply in some sections. A tornado occurred at Waterloo on the 30th. Sugar beets were harvested under favorable conditions, and an excellent potato crop was dug. A good crop of apples was picked.

November was generally dry and moderately warm, which helped to dry and save the unusually poor corn crop. Much

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of the crop was hogged or grazed down. The water shortage became serious over much of the State. Winter wheat showed all stages, from just seeded the first week in November, to rank growth.

December was cold with more than the usual amount of rain, sleet, and snow. Toward the close of the month the weather was the coldest, culminating in the lowest December temperatures of record at several stations on the 28th. A temperature of -32° occurred at Ottumwa. One of the most damaging glaze storms extended from southwest to northeast over the State, 3d-5th. Trees, poles, and wires were borne down by the thousands by the load of ice. Poles and wires alone were damaged \$750,000. Not much outdoor work was possible. Some corn was still in the fields.

SUPPLEMENTAL PRECIPITATION TABLE, YEAR 1924.

	January	February	March	April	May	June	July	August	September	October	November	December	Annual
<i>Northern Division</i>													
Britt.....		0.33					3.66	5.98	2.83	0.37	0.37	1.12	
Hampton.....					2.16	6.52	5.47	7.35	2.52	0.78	0.48	1.51	
Lansing.....			3.63	1.65	2.88	9.00	3.05	8.37	2.63	0.64	0.83		
Oelwein.....	1.12	0.80	3.23	1.05	1.07	5.15	4.88	5.40	2.20	0.75	0.60		
Sioux Center.....	0.70	0.97	2.85	1.47	1.32	5.43		7.36	2.19	1.28	0.31	1.75	
<i>Central Division</i>													
Cedar Rapids.....				1.17	1.26	10.18	4.99	8.84	1.91	1.08	0.30	1.45	
Harlan.....	0.67	1.02		0.38	1.01	11.35	4.83	5.82		0.46	T.		
Le Claire.....			2.95	1.36	1.80	7.83	5.60	8.79	3.02	1.22	1.13		
Little Sioux.....	0.16	0.89	1.98	0.83	1.84		2.56	5.64	4.30	0.95	T.	1.00	
Logan.....	0.50	0.93		0.66	0.85	10.49	2.11	5.14	5.68	0.66	T.	1.86	
Muscatine.....	3.23	1.68	2.49	1.89	1.30	10.18	3.86	6.48	2.43	1.13	0.86	1.88	37.41
Olin.....	0.40		2.30	1.40	0.93	9.90	8.90	7.91	2.27	1.17	0.50	1.95	
Perry.....	0.61	0.79	2.66	0.79	1.11	5.53	1.50	4.71	2.97	0.27		1.15	
Rockwell City.....	1.10			0.65	2.16		3.71			0.03	T.	0.90	
Tipton.....	0.72	1.13		1.16	1.20	12.33	6.17	9.12	2.57	0.81	1.00	2.12	
Van Meter.....					1.98	12.06	1.56	4.87	3.58	0.88	0.47	1.49	
Webster City.....		0.69	2.92	1.82	1.30	5.20	5.73	5.13	2.97	0.22	0.43	1.32	
<i>Southern Division</i>													
Chariton.....	1.12	0.76	1.40	1.52	1.54	3.19	2.35	4.88	2.55	1.60		1.20	
Columbus Jct.....	1.69	1.65	2.92	1.30	1.30	11.94	7.80	3.33	2.29	1.50			
Creston.....		1.78	2.61	0.83	1.97	9.46	2.77	5.41	4.81	0.45	0.20		
Greenfield.....	0.53	0.85	2.40	2.14	1.34								
Oakland.....	1.00	0.80	2.39	1.31	1.51	10.26	2.04	3.76	4.55		0.32	1.67	
Red Oak.....										0.29	0.28	1.98	
Tingley.....				0.86	1.56	3.95	3.08	5.49	3.65	1.18	0.73	2.30	
Winterset.....	0.48	1.70	2.97	1.04	1.20	10.20	2.02	4.88	4.18	0.51	0.53		

COMPARATIVE DATA FOR THE STATE—Annual.

Year	Temperature				Precipitation in Inches				
	Mean annual	Highest	Date	Lowest	Date	Annual	Greatest annual	Least annual	Average snowfall
1890	48.0	110	July 13.....	-27	January 22.....	31.30	45.74	16.00	
1891	47.3	106	August 9.....	-31	February 4.....	32.90	49.05	23.48	
1892	46.6	104	July 11.....	-38	January 19.....	36.53	48.77	24.78	34.2
1893	45.7	102	July* 13.....	-36	January 14.....	27.59	33.27	19.19	37.2
1894	49.7	109	July 26.....	-37	January 25.....	21.94	29.81	15.65	19.2
1895	47.2	104	May 28.....	-33	February 1.....	26.77	35.25	18.57	26.0
1896	48.6	104	July 3.....	-20	January 4.....	37.23	51.60	28.68	22.6
1897	47.8	106	July* 23.....	-30	January 25.....	26.98	36.18	20.21	38.8
1898	47.7	103	August 20.....	-25	December 31.....	31.34	55.47	19.51	40.3
1899	47.3	104	September 6.....	-40	February 11.....	28.63	42.06	21.79	23.4
1900	49.3	103	August 3.....	-27	February 15.....	35.05	47.33	25.05	25.8
1901	49.0	113	July 22.....	-31	December 15.....	24.41	37.69	16.35	38.5
1902	47.7	98	July 30.....	-31	January 27.....	43.82	58.80	20.14	28.0
1903	47.2	101	August 24.....	-27	December 13.....	35.39	50.53	26.41	19.4
1904	46.3	100	July 17.....	-32	January 27.....	28.51	38.93	19.34	29.2
1905	47.2	104	August 11.....	-41	February* 2.....	36.56	52.26	24.66	33.3
1906	48.4	102	July 21.....	-32	February 10.....	31.60	44.34	20.63	32.9
1907	47.4	102	July 5.....	-31	February 5.....	31.61	43.90	19.93	24.0
1908	49.5	101	August 3.....	-18	January 29.....	35.26	49.98	24.11	22.7
1909	47.4	103	August* 15.....	-26	February* 15.....	40.01	53.48	27.20	49.0
1910	48.6	108	July 16.....	-35	January 7.....	19.87	27.99	12.11	23.4
1911	49.5	111	July* 3.....	-35	January 3.....	31.37	46.77	19.74	35.3
1912	46.4	104	September 8.....	-47	January 12.....	28.89	33.13	15.25	39.5
1913	49.7	108	July* 16.....	-25	January 8.....	29.95	45.18	20.31	25.4
1914	49.1	109	July 12.....	-31	December 26.....	31.93	44.11	23.30	27.5
1915	47.8	99	May 14.....	-32	January 23.....	39.53	51.15	27.29	31.3
1916	47.2	106	August 4.....	-34	January 13.....	28.90	46.34	22.48	29.5
1917	44.8	106	July 30.....	-40	December 29.....	27.31	36.00	20.78	32.4
1918	49.2	113	August 4.....	-36	February 4.....	32.78	47.53	25.03	33.4
1919	48.6	104	July* 30.....	-36	December 10.....	36.76	48.16	26.88	26.6
1920	48.2	102	July 23.....	-26	January* 4.....	31.75	44.00	20.95	21.7
1921	52.2	104	July* 11.....	-22	December 25.....	32.03	46.47	20.44	30.7
1922	50.2	104	June 23.....	-29	January 6.....	29.98	44.20	19.08	13.5
1923	49.0	102	July* 22.....	-23	February* 3.....	29.50	37.47	21.36	36.3
1924	46.4	100	August* 21.....	-36	January 5.....	31.39	43.85	19.41	37.2

*And other dates.

CLIMATOLOGICAL DATA FOR THE YEAR, 1924.

STATIONS	COUNTIES	Elevation, feet	Temperature, in Degrees Fahrenheit					Precipitation, in Inches					Number of Days				Prevailing direction of wind			
			Length of record, years	Mean	Highest	Date	Lowest	Date	Length of record, years	Total	Greatest monthly	Month	Least monthly	Month	Total snowfall (unmelted)	Precipitation 0.01 inch or more		Clear	Partly cloudy	Cloudy
<i>Northern Division</i>																				
Algona	Kossuth	1,213	51	44.6	94	Aug. 3	-29	Jan. 5	51	26.81	5.25	Aug.	0.27	Oct.	31.0	65	240	54	17	se.
Allison	Butler	1,044	12	44.4	93	Aug. 3	-30	Jan. 5	12	33.90	6.46	July	0.67	Jan.	43.0	98				nw.
Alta	Buena Vista	1,513	33	44.1	92	May 5†	-31	Jan. 5	33	27.58	6.89	Aug.	0.25	Oct.	54.2	91	153	137	76	s.
Alton	Sioux	1,305	19	44.2	94	July 27	-30	Jan. 5	19	20.62	5.22	Aug.	0.16	Nov.	46.2	80	141	143	82	nw.
Belmond	Wright	1,205	14	44.4	95	Aug. 3†	-29	Jan. 5	14	33.80	6.67	Aug.	0.72	Jan.	44.1	125	84	196	86	nw.
Britt	Hancock	1,236	37						37											
Charles City	Floyd	1,015	33	43.4	93	Aug. 3	-28	Jan. 5	33	31.73	7.59	Aug.	0.66	Nov.	52.4	121	131	123	112	se.
Cherokee	Cherokee	1,196	2	43.8	92	Aug. 26	-32	Jan. 5	2	23.70	6.12	Aug.	0.03	Nov.	38.1	83				ne.
Decorah	Winneshek	875	31	42.2	90	Aug. 3	-29	Jan. 17	31	31.51	7.24	Aug.	0.56	Oct.	51.5	104	189	88	89	nw.
Dubuque	Dubuque	698	51	45.9	92	Aug. 3	-24	Jan. 5	51	28.77	7.05	Aug.	0.43	Oct.	27.9	123	103	98	165	nw.
Estherville	Emmet	1,298	29		92	July 28	-30	Jan. 5	29	25.28	5.27	Sept.	0.22	Oct.	47.2	85	161	158	47	nw.
Fayette	Fayette	1,003	34	43.4	92†	Aug. 3	-27	Jan. 5	34	29.79	5.97	July	0.52	Nov.	91	91				nw.
Forest City	Winnebago	1,226	30	43.5	92	Aug. 26	-31	Jan. 5	30	29.52	5.85	Aug.	0.64	Oct.	50.3	98	156	86	124	se.
Hampton	Franklin	1,145			94	Aug. 3					7.35	Aug.	0.48	Nov.						nw.
Humboldt	Humboldt	1,005	36	45.0	96	Aug. 3	-29	Jan. 5	36	30.82	6.99	June	0.32	Nov.	39.8	77	130	119	117	s.
Independence	Buchanan	921	60	45.8	92	Aug. 3	-27	Jan. 5	60	31.96	8.13	Aug.	0.51	Jan.	31.5	97	213	30	123	se.
Inwood	Lyon	1,474	20	43.8	100	Aug. 26	-34 ^c	Jan. 5	20	19.41	4.33	June	0.45	Jan.	53.3	117	228	65	73	nw.
Le Mars	Plymouth	1,224	28	44.8	93	July 27†	-30	Jan. 4	28	26.37	6.02	Aug.	0.07	Nov.	35.6	83	227	65	74	sw.
Mason City	Cerro Gordo	1,148	27	43.3	94	Aug. 3	-31	Jan. 5	27	29.43	5.97	June	0.28	Nov.	47.6	83	130	139	97	nw.
Milford (near)	Dickinson	1,430	4	42.9	90	May 5	-30	Jan. 5	4	21.17	6.22	Aug.	0.23	Jan.*	42.6	88				nw.
New Hampton	Chickasaw	1,169	27	43.4	94	Aug. 3	-30	Jan. 5	27	35.04	10.45	Aug.	0.64	Jan.	56.0	94	173	83	110	nw.
Nora Springs	Floyd	1,064	12	45.0	95	July 28	-28	Jan. 5	12	35.93	6.33	Aug.	0.93	Nov.	35.7	127	174	108	84	s.
Northwood	Worth	1,222	28		89 ^b	Aug. 3†	-30 ^b	Jan. 5	28	30.37	7.39	June	0.40	Jan.	48.0	95				nw.
Oelwein	Fayette	1,036	1	44.9	93	Aug. 3	-25	Jan. 5	1		5.40	Aug.				184	95	87	88	s.
Pocahontas	Pocahontas	1,248	20	44.3	96	Aug. 3	-33	Jan. 5	20	27.23	6.56	Aug.	0.09	Oct.	50.9	85	196	82	87	sw.
Postville	Clayton	1,180	25	42.3	88	Aug. 3	-31	Jan. 5	25	31.87	6.06	Aug.	0.50	Jan.	40.5	98	144	128	94	nw.
Rock Rapids	Lyon	1,358	25	43.8	94	Aug. 26	-32	Jan. 5	25	21.30	4.81	June	0.29	Nov.	54.9	88	235	71	60	nw.
Sanborn	O'Brien	1,553	10		95	July 27†	-32	Jan. 4	10	22.04	4.00	June	0.10	Jan.	45.0	81	191	92	83	nw.
Sioux Center	Sioux	1,426	25		95	Aug. 26	-30	Jan. 5	25		5.40	Aug.			58.5					s.
Spencer	Clay	1,319	10	44.2	96	Aug. 26	-32	Jan. 5	10	23.86	5.49	Aug.	0.28	Oct.	47.4	77	156	120	90	nw.
Storm Lake	Buena Vista	1,440	35	45.3	92	Aug. 3	-31	Jan. 5	35	25.46	5.67	Aug.	0.06	Jan.	39.7	78				s.
Washta	Cherokee	1,157	26	44.8	93	May 5	-36	Jan. 5	26	27.88	7.37	Aug.	0.10	Jan.†	37.0	78	210	77	79	s.
Waterloo	Black Hawk	854	41	46.1	96	Aug. 26	-26	Jan. 5	41	36.01	7.69	July	0.61	Nov.	30.4	103	204	64	98	se.
Waverly	Bremer	936	28	44.5	92	Aug. 30	-23	Jan. 5	28	35.34	7.18	June	0.62	Oct.	42.6	103				nw.
West Bend	Palo Alto	1,197	31	44.6	94	Aug. 3	-33	Jan. 5	31	25.08	5.84	Aug.	0.32	Nov.	34.5	86	166	133	67	nw.
<i>Central Division</i>																				
Ames	Story	926	45	46.4	99	Aug. 3	-26	Jan. 5	45	27.36	6.19	June	0.46	Nov.	30.9	87	176	96	94	s.
Audubon	Audubon	1,297	30	45.3	95	Aug. 30	-29	Jan. 5	30	37.34	12.59	June	0.06	Oct.	85					sw.
Baxter	Jasper	998	24	46.7	93†	Aug. 3	-26	Jan. 5	24	30.96	9.53	June	0.50	Nov.	43.5	82				s.
Belle Plaine	Benton	886	34	47.3	97	Aug. 3	-26	Jan. 5	34	35.22	11.87	June	0.59	Nov.	41.0	116	141	120	105	nw.
Boone	Boone	1,134	19	45.7	96	Aug. 3	-28	Jan. 5	19	28.16	6.36	June	0.38	Oct.	37.0	99				s.
Carroll	Carroll	1,265	34	46.2	95	Aug. 30	-29	Jan. 5	34	32.30	9.13	June	0.13	Nov.	35.5	80	234	41	91	nw.
Cedar Rapids	Linn	737	43		97	Aug. 3			43											
Clinton	Clinton	593	51	47.7	99	July 21	-25	Dec. 28	51	37.00	9.25	Aug.	1.00	Nov.	31.8	104	196	75	95	s.
Davenport	Scott	580	53	48.3	93	July 21†	-21	Jan. 5	53	34.33	9.01	June	0.60	Nov.	33.5	129	138	91	137	nw.
Davenport No. 2	Scott	690	1	48.4	96	July 21†	-23	Jan. 5	2	37.81	9.80	June	0.92	April	28.5	129				
Denison	Crawford	1,171	30	45.9	92	Aug. 3†	-30	Jan. 5	30	28.45	9.25	June	0.08	Nov.	44.5	85	186	96	84	nw.
Des Moines	Polk	861	46	48.2	97	Aug. 3	-22	Jan. 5	46	28.96	9.30	June	0.53	Nov.	35.7	110	130	110	136	nw.
Fairport	Muscatine	567	3	48.7	93	Aug. 3	-24	Dec. 28	3	40.56	10.96	June	0.91	Nov.	30.8	126	152	74	140	nw.
Fort Dodge	Webster	1,114	24	44.8	96	Aug. 3	-32	Jan. 5	24	26.58	5.46	June	0.26	Oct.	49.6	98	231	81	104	nw.
Grinnell	Poweshiek	1,031	30	47.7	96	Aug. 3	-25	Jan. 5	30	41.15	14.17	June	0.63	Nov.	28.3	103	153	143	70	nw.
Grundy Center	Grundy	976	33		94	Aug. 3	-27	Jan. 5	33	36.78	8.87	Aug.	0.86	Nov.	57.0	96				nw.
Guthrie Center	Guthrie	1,077	29	47.0	96	Aug. 3	-27	Jan. 5	29	34.05	11.01	June	0.18	Oct.	48.5	82	199	88	79	sw.
Harlan	Shelby	1,192	25		93†	Aug. 30	-28	Jan. 5	25		11.35	June								s.
Iowa City	Johnson	733	64	47.1	94	July 21	-27	Dec. 28	64	32.03	8.71	June	0.83	Feb.	27.0	113	147	112	107	nw.
Iowa Falls	Hardin	1,107	31	44.7	92	Aug. 3	-27	Jan. 5	31	43.36	12.38	Aug.	0.80	Oct.	51.8	107	180	77	109	nw.
Jefferson	Greene	1,052	25	45.4	92	Aug. 3	-28	Jan. 5	25	28.55	6.71	June	0.24	Oct.	36.5	82				sw.
Little Sioux	Harrison	1,040	19		95	Aug. 3†	-35	Jan. 5	19			T.	Nov.	27.4					nw.	
Logan	Harrison	1,035	57		95	July 28†	-30	Jan. 5	57		10.49	June		Nov.	37.0		197	93	76	sw.
Marshalltown	Marshall	947	32	47.2	98	Aug. 3	-24	Jan. 5	32	38.85	12.48	June	0.57	Nov.	43.2	118	225	45	96	nw.
Monroe	Jasper	922	12		100	Aug. 3	-26	Jan. 5	12	28.85	7.52	June	0.51	Nov.	41.4	76				s.
Muscatine		554	64							37.41	10.18	June	0.86	Nov.	43.5					s.
Olin	Jones	760	25	45.9	93	Aug. 26	-26	Dec. 28	25		9.90	June								se.
Onawa	Monona	1,051	23	46.0	93	July 23†	-31	Jan. 5	23	31.86	9.36	June	0.16	Jan.	51.0	65				s.
Perry	Dallas	975	23		97†	Aug. 3	-26	Jan. 5	23		5.58	June								nw.
Rockwell City	Calhoun	1,134	28				-30	Jan. 5	28					T.	Nov.					
Sac City	Sac	1,278	48	45.2																

CLIMATOLOGICAL DATA FOR THE YEAR, 1924—Continued

STATIONS	COUNTIES	Elevation, feet	Temperature, in Degrees Fahrenheit						Precipitation, in Inches						Number of Days				Prevailing direction of wind	
			Length of record, years	Mean	Highest	Date	Lowest	Date	Length of record, years	Total	Greatest monthly	Month	Least monthly	Month	Total snowfall (unmelted)	Precipitation 0.01 inch or more	Clear	Partly cloudy		Cloudy
<i>Southern Division</i>																				
Afton	Union	1,212	30	48.6	97	Aug. 3	-27	Dec. 28	30	33.62	11.23	June	0.32	Oct.	21.1	89	190	103	73	sw.
Albia	Monroe	950	26	48.8	97	Aug. 3	-25	Dec. 28	26	29.65	8.40	June	0.62	Nov.	36.2	110	180	52	134	nw.
Atlantic	Cass	1,164	33	47.7	96	Aug. 30	-25	Jan. 5†	33	31.21	12.43	June	0.20	Jan.	19.0	100	162	106	98	sw.
Bonaparte	Van Buren	563	33	48.8	94	Aug. 3†	-24	Dec. 28	33	34.38	10.04	June	0.78	Nov.	13.9	87	199	68	99	e.
Burlington	Des Moines	544	28	50.1	97	Aug. 4	-20	Jan. 5	28	43.85	13.91	June	0.40	Nov.	40.7	115	188	71	107	nw.
Centerville	Appanoose	1,013	19	49.5	95	July 16†	-28	Dec. 28	19	30.35	8.51	June	0.66	Jan.	23.6	96	152	120	94	nw.
Chariton	Lucas	1,042	29	49.4	94	Aug. 3	-27	Dec. 28	29	30.43	9.16	June	0.49	Jan.	15.0	170	112	84	84	nw.
Clarinda	Page	1,009	34	49.3	98	Aug. 26	-27	Dec. 28	34	24.87	7.20	June	0.12	Oct.	22.2	90	215	95	56	s.
Columbus Jct.	Louisa	595	23	48.8	100	Aug. 21†	-27	Dec. 28	23	30.66	9.26	June	0.43	Oct.	15.9	60	152	120	94	nw.
Corning	Adams	1,117	32	48.8	96	Aug. 4	-32	Dec. 28	32	30.66	9.26	June	0.43	Oct.	15.9	60	152	120	94	nw.
Corydon	Wayne	1,101	31	49.1	96	July 16†	-24	Dec. 28	31	25.65	7.37	June	0.49	Nov.	26.7	104	139	132	95	nw.
Creston	Union	1,312	19	49.2	92	Aug. 2	-24	Dec. 28	19	30.35	8.51	June	0.49	Nov.	26.7	104	139	132	95	nw.
Cumberland	Cass	1,225	25	49.1	96	Aug. 3	-27	Dec. 28	25	30.35	14.92	June	0.29	Nov.	14.0	73	153	110	163	nw.
Earlham	Madison	1,126	22	46.3	96	Aug. 3	-31	Dec. 28	22	31.18	11.03	June	0.54	Oct.	34.1	80	170	112	84	sw.
Fairfield	Jefferson	730	40	48.4	97 ^a	Aug. 3	-26	Dec. 28	40	39.13	9.83	June	1.14	Jan.	44.8	119	170	112	84	s.
Glenwood	Mills	1,100	26	48.9	100	Aug. 30	-25	Jan. 5†	26	28.17	9.55	June	0.42	Nov.	26.6	83	156	144	66	se.
Greenfield	Adair	1,368	32	48.9	97	Aug. 3	-26	Dec. 28	32	29.53	10.04	June	0.55	Jan.	39.1	88	178	107	81	nw.
Indianola	Warren	972	33	48.0	97	Aug. 3	-26	Dec. 28	33	29.53	10.04	June	0.55	Jan.	39.1	88	178	107	81	nw.
Keokuk	Lee	614	53	50.6	97	Aug. 5	-19	Jan. 5†	53	31.10	5.94	June	0.50	Nov.	35.9	103	124	94	148	w.
Keosauqua	Van Buren	644	32	48.8	97	Aug. 3	-30	Dec. 28	32	38.24	8.81	June	1.29	Jan.	35.7	108	150	107	109	se.
Knoxville	Marion	920	29	48.3	97	Aug. 3	-26	Dec. 28	29	33.62	9.53	June	0.72	Nov.	38.5	91	158	104	104	nw.
Laona	Warren	25	25	48.3	97	Aug. 3	-26	Dec. 28	25	37.52	11.50	June	0.75	Nov.	46.5	112	178	107	81	nw.
Lamoni	Decatur	1,123	17	49.1	97	Aug. 20	-27	Dec. 28	17	30.43	8.44	June	0.49	Jan.	28.3	97	183	68	115	se.
Lenox	Taylor	1,259	29	48.4	96	July 16	-25	Jan. 5†	29	30.96	8.58	June	0.45	Nov.	23.1	94	183	106	77	nw.
Mount Ayr	Ringold	1,245	31	48.4	93	Aug. 3	-27	Dec. 28	31	29.24	9.24	June	0.65	Nov.	16.3	97	177	70	119	nw.
Mount Pleasant	Henry	729	43	49.2	95	Aug. 3	-20	Jan. 5†	43	35.72	10.33	June	0.73	Jan.	25.9	96	131	125	110	nw.
Oakland	Pottawattamie	1,105	5	49.2	96 ^m	Aug. 3	-28	Dec. 28	5	10.26	10.26	June	0.49	Nov.	50.4	108	129	104	133	nw.
Oskaloosa	Mahaska	835	48	47.6	96	Aug. 3	-30	Dec. 28	48	32.53	8.97	June	0.49	Nov.	50.4	108	129	104	133	nw.
Ottumwa	Wapello	649	29	49.7	98	July 22	-32	Dec. 28	29	35.90	11.00	June	0.80	Nov.	29.2	108	196	58	112	nw.
Pella	Marion	877	31	49.7	95 ^a	Aug. 3	-30	Dec. 28	31	30.43	8.16	June	0.50	Oct.	37.5	86	178	107	81	nw.
Sigourney	Keokuk	790	28	48.8	96	Aug. 3	-30	Dec. 28	28	33.13	7.23	June	0.75	Nov.	39.1	95	192	53	121	nw.
Stockport	Van Buren	745	22	48.1	95	Aug. 3	-29	Dec. 28	22	38.71	9.13	June	0.87	Nov.	33.8	112	177	75	114	nw.
Thurman	Fremont	975	27	48.8	98	Aug. 30	-32	Dec. 28	27	27.24	8.98	June	0.40	Nov.	24.7	76	81	221	64	nw.
Tingley	Ringold	1,275	42	48.8	95	Aug. 3	-25	Dec. 28	42	40.14	11.66	June	1.18	Jan.	34.4	92	178	107	81	sw.
Washington	Washington	769	42	48.8	94 ^a	July 21	-25	Dec. 28	42	40.14	11.66	June	1.18	Jan.	34.4	92	178	107	81	sw.
Wescott (near)	Lee	2	2	48.8	97	Aug. 4	-20	Dec. 28	2	39.29	9.88	June	0.80	Nov.	35.3	88	178	96	92	nw.
Winterset	Madison	1,129	33	48.4	97	Aug. 3	-26	Jan. 5	33	26.83	10.20	June	0.48	Jan.	31.8	112	241	73	52	sw.
Omaha, Neb.	Madison	1,103	53	49.3	99	Aug. 3	-20	Jan. 5	53	26.83	9.08	June	0.36	Nov.	31.8	112	130	133	103	nw.

MONTHLY STATE DATA FOR 1924

MONTH	Barometric Pressure Inches (Sea level)				Temperature Degrees, F.				Relative Humidity, Per Cent				Precipitation, Inches				Number of Days				Sunshine		Wind					
	Mean	Highest	Date	Lowest	Date	Mean	Departure from normal	Highest	Lowest	7 a. m.*	12 noon§	7 p. m.*	Departure from Normal†	Lowest	Average	Departure from normal	Greatest	Least	Snowfall	With .01 inch or more precipitation	Clear	Partly cloudy	Cloudy	Per cent of the possible amount	Departure from normal	Average hourly velocity	Departure from normal	Prevailing direction
January	30.21	31.05	5	29.47	10	13.9	-4.6	59	-36	83	70	76	-2	32	0.89	-0.19	2.47	0.06	5.5	5	17	7	7	60	+10	8.1	-0.6	nw.
February	30.18	30.66	8	29.30	3	25.3	+3.2	70	-15	85	70	74	0	29	1.27	+0.07	4.00	0.30	11.2	7	15	5	9	53	-2	8.6	-0.7	nw.
March	30.00	30.45	8	28.79	29	31.9	-2.3	72	3	84	66	69	+3	19	2.65	+0.90	4.76	1.26	10.5	8	8	8	15	32	-19	8.2	-1.4	nw.
April	29.91	30.38	1	29.21	15	50.5	+1.6	90	-8	75	50	52	-3	18	1.38	-1.61	4.53	0.38	1.4	7	16	8	6	68	+10	9.4	-0.5	nw.
May	29.88	30.32	30	29.34	23	54.1	-6.1	94	26	73	49	51	-5	18	1.71	-2.90	3.28	0.73	0.1	9	13	9	9	56	-5	7.9	-0.3	nw.
June	29.90	30.37	30	29.28	19	66.8	-2.5	96	35	83	64	64	+4	23	8.10	+3.57	14.92	4.00	0	14	11	14	5	59	-9	7.2	-0.4	se.
July	30.00	30.37	2	29.62	11	70.2	-3.6	99	41	77	55	57	-1	30	3.67	-0.18	8.90	0.57	0	9	16	11	4	72	-2	6.0	-0.7	sw.
August	29.93	30.22	13	29.57	3	71.7	0.0	100	40	83	61	67	+4	23	5.35	+1.91	12.38	1.90	0	10	16	10	5	70	0	6.7	+0.4	se.
September	30.05	30.45	29	29.49	21	59.1	-5.2	91	25	85	58	67	+2	26	3.13	-0.52	5.68	1.01	0	8	16	7	7	62	-1	7.3	+0.1	se.
October	30.11	30.62	24	29.29	30	58.1	+6.2	89	21	79	46	57	-4	19	0.87	-1.55	2.58	0.03	0	4	22	5	4	77	+17	6.9	-1.2	s.
November	30.05	30.62	2	29.37	10	38.9	+2.3	82	0	76	56	60	-5	19	0.58	-0.98	1.55	T.	0.4	4	15	7	8	55	+3	9.1	+0.9	nw.
December	30.23	31.06	20	29.36	12	15.4	-8.7	62	-33	84	69	76	0	27	1.79	+0.65	2.93	0.90	8.1	8	12	6	13	44	-3	9.0	+0.9	nw.
Means and extremes	30.04	31.06	Dec. 20	28.79	Mch. 29	46.4	-1.6	100	-36	81	60	64	-1	18	31.39	-0.83	14.92	T.	37.2	93	177	97	92	59	0	7.9	-0.3	nw.
Normals and records	30.02	31.09	Jan. 25 1905	28.69	Feb. 25 1902	48.0	-----	-----	-----	81	-----	66	-----	5	32.22	-----	19.88	0.00	-----	85	166	102	98	59	-----	8.2	-----	nw.

§ Local mean time.

* Normal central time.

† 7 a. m. and 7 p. m. observations only.

MEAN MONTHLY AND ANNUAL TEMPERATURES, WITH DEPARTURES FROM THE NORMAL, FOR 1924

Table with columns for STATIONS, months (January-December), and Annual. Each month has two sub-columns: Temperature and Departure. Rows are grouped into Northern, Central, and Southern Divisions.

Reference letters a, b, c, etc., appearing in the table indicate the number of days missing; for example, b represents two days, etc.

MONTHLY AND ANNUAL PRECIPITATION, WITH DEPARTURE FROM THE NORMAL FOR 1924

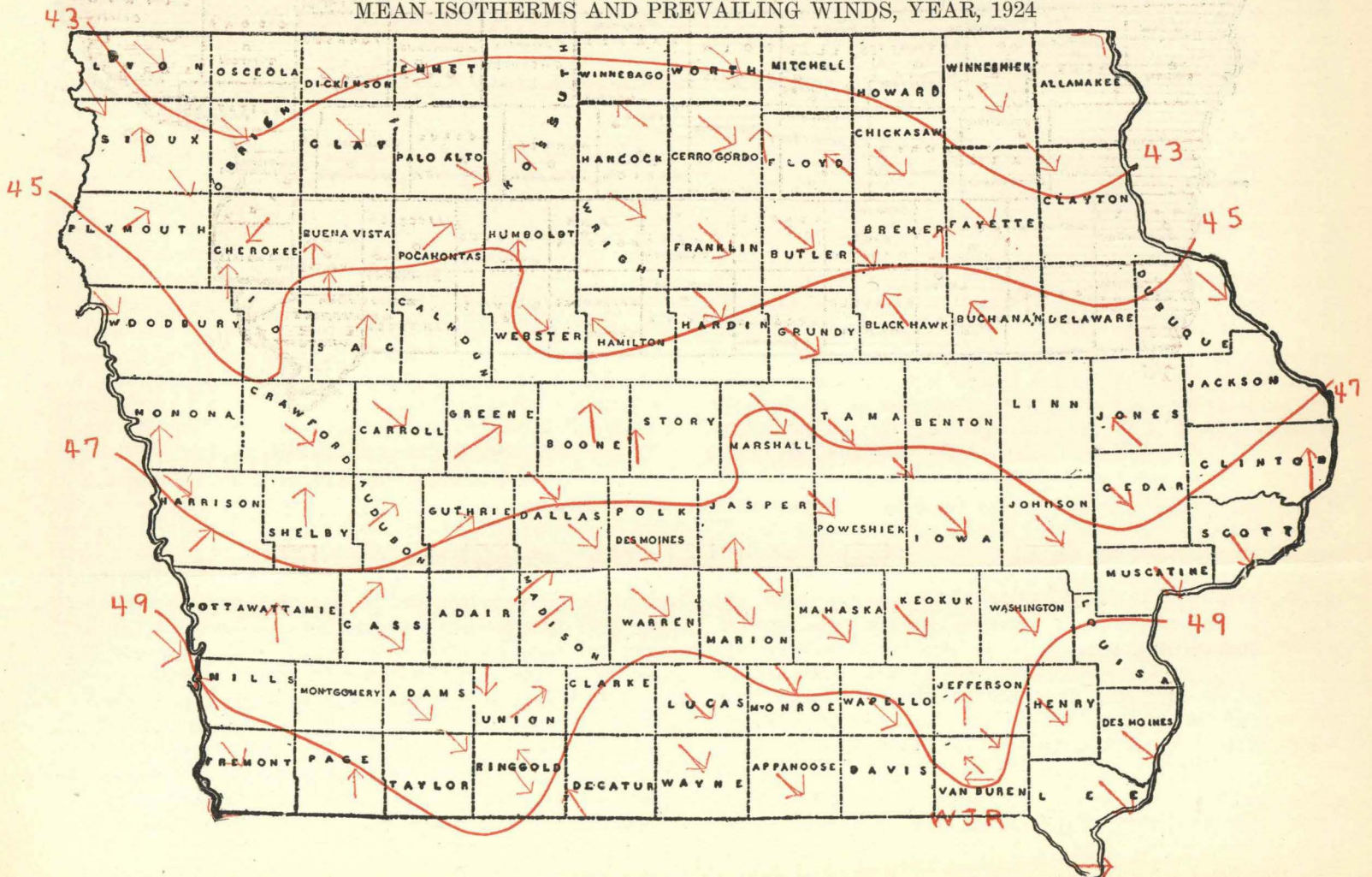
STATIONS	January		February		March		April		May		June		July		August		September		October		November		December		Annual		
	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	Precipitation	Departure	
<i>Northern Division</i>																											
Algona	1.24	+ 0.42	0.30	- 0.79	2.97	+ 1.55	0.65	- 1.97	1.80	- 2.48	4.68	+ 0.17	2.47	- 0.59	5.25	+ 1.70	4.93	+ 1.61	0.27	- 2.00	1.05	- 0.81	1.20	+ 0.25	26.81	- 2.44	
Allison	0.67	- 0.53	1.10	- 0.34	3.57	+ 1.77	0.97	- 2.07	2.84	- 2.25	4.98	+ 0.03	6.46	+ 2.71	5.47	+ 2.07	3.46	- 0.04	1.48	- 1.02	1.17	- 0.39	1.73	+ 0.05	33.90	+ 0.47	
Alta	0.28	- 0.48	1.09	+ 0.07	3.19	+ 1.64	0.78	- 2.31	2.06	- 2.85	6.03	+ 0.87	3.30	- 2.95	6.89	+ 3.31	2.94	- 0.34	0.25	- 1.98	0.51	- 0.91	2.26	+ 1.35	27.58	- 4.53	
Alton	0.30	- 0.46	0.90	- 0.06	2.06	+ 0.96	1.29	- 1.20	0.78	- 4.04	4.08	+ 0.12	0.89	- 2.65	5.22	+ 2.12	1.76	- 1.20	1.63	- 0.13	0.16	- 1.21	1.55	+ 0.75	20.62	- 7.00	
Belmond	0.72	- 0.54	1.03	- 0.08	2.74	+ 1.41	4.53	+ 1.27	2.19	- 3.02	5.61	+ 0.75	3.19	- 0.43	6.67	+ 3.59	3.27	- 0.93	1.23	- 1.49	0.74	- 0.91	1.98	+ 0.65	33.80	+ 0.27	
Charles City	1.18	+ 0.15	1.14	0.00	3.27	+ 1.43	2.20	- 1.36	2.21	- 2.16	4.04	- 0.64	3.19	- 0.65	7.59	+ 4.16	4.00	+ 0.48	1.24	- 1.19	0.66	- 0.94	2.06	+ 0.81	31.78	+ 0.09	
Cherokee	0.23	- 0.91	0.91	0.00	1.37	0.00	1.15	0.00	1.88	0.00	5.95	0.00	1.61	0.00	6.12	0.00	2.46	0.00	0.70	0.00	0.03	0.00	1.29	0.00	23.70	0.00	
Decorah	1.20	- 0.04	0.90	- 0.15	2.83	+ 1.08	1.48	- 1.07	2.79	- 1.87	5.68	+ 1.16	2.94	- 1.11	7.24	+ 3.94	3.16	- 0.95	0.56	- 2.26	1.33	- 0.51	1.85	+ 0.07	31.51	- 1.71	
Dubuque	0.63	- 0.93	0.74	- 0.76	2.85	+ 0.66	1.12	- 1.56	2.16	- 1.86	5.37	+ 1.02	4.11	+ 0.24	7.05	+ 3.72	2.44	- 1.43	0.43	- 2.15	0.56	- 1.27	1.31	+ 0.20	28.77	- 4.52	
Estherville	0.30	- 0.28	0.85	+ 0.01	2.57	+ 1.30	1.23	- 1.40	1.74	- 2.73	5.08	+ 0.74	1.77	- 2.39	4.75	+ 1.53	5.27	+ 1.94	0.22	- 1.69	0.40	- 0.91	1.10	+ 0.39	25.28	- 3.46	
Fayette	0.60	- 0.65	1.12	- 0.16	4.76	+ 2.65	1.14	- 1.96	2.37	- 2.49	4.90	+ 0.06	0.97	- 2.14	4.26	+ 0.72	2.23	- 1.44	0.63	- 1.90	0.57	- 1.20	1.29	+ 0.12	29.79	- 4.35	
Forest City	0.68	- 0.20	1.13	+ 0.19	2.85	+ 0.92	1.89	- 0.59	2.85	- 1.79	5.61	+ 1.06	3.29	- 0.28	5.85	+ 2.48	2.92	- 0.41	0.64	- 1.79	0.91	- 0.64	1.40	+ 0.52	29.52	- 0.53	
Humboldt	1.99	+ 1.18	2.25	+ 1.33	3.24	+ 0.90	1.87	- 0.81	2.08	- 2.24	6.99	+ 2.61	3.48	- 0.26	4.45	+ 1.15	2.90	- 0.37	0.42	- 1.80	0.32	- 1.35	1.73	+ 0.87	30.82	+ 1.21	
Independence	0.51	- 0.66	0.86	- 0.19	2.45	+ 0.73	0.87	- 1.64	2.81	- 1.46	6.09	+ 1.46	6.29	+ 2.15	8.18	+ 4.97	1.31	- 2.64	0.60	- 1.95	0.87	- 0.57	1.13	+ 0.18	31.96	+ 0.02	
Inwood	0.45	- 0.20	0.85	- 0.02	3.06	+ 1.86	1.46	- 1.07	1.13	- 3.07	4.33	+ 0.98	1.04	- 2.33	2.71	+ 0.12	1.01	- 1.78	0.90	- 1.01	0.54	- 0.58	1.93	+ 1.27	19.41	- 7.79	
Le Mars	1.89	+ 0.82	0.59	- 0.21	1.43	+ 0.18	1.49	- 1.73	1.41	- 3.12	5.34	+ 0.96	2.69	- 1.39	6.02	+ 3.34	3.13	- 1.70	1.48	- 0.58	0.07	- 1.06	1.73	+ 0.86	26.37	- 2.03	
Mason City	1.13	+ 0.16	1.23	+ 0.28	2.67	+ 1.30	2.14	- 0.41	2.37	- 2.32	5.97	+ 0.83	2.13	- 1.39	5.63	+ 1.94	3.66	+ 0.85	0.66	- 1.54	0.28	- 1.20	1.51	+ 0.63	29.43	- 0.87	
Milford (near)	0.23	- 0.91	0.91	0.00	1.54	0.00	0.76	0.00	1.42	0.00	4.10	0.00	0.57	0.00	6.22	0.00	3.43	0.00	0.25	0.00	0.23	0.00	1.51	0.00	21.17	0.00	
New Hampton	0.64	- 0.34	1.70	+ 0.65	2.74	+ 0.82	1.62	- 0.98	2.54	- 2.29	4.60	+ 0.07	3.75	- 0.02	10.45	+ 6.95	3.07	- 0.52	0.92	- 1.65	1.26	- 0.43	1.85	+ 0.76	35.04	+ 2.88	
Nora Springs	1.26	+ 0.16	1.86	+ 0.61	3.63	+ 1.78	2.24	- 0.76	3.28	- 1.82	4.91	- 0.18	2.97	- 0.83	6.33	+ 2.56	4.61	+ 1.01	1.56	- 0.94	0.93	- 1.07	2.35	+ 1.20	35.93	+ 1.67	
Northwood	0.40	- 0.74	0.80	- 0.58	2.60	+ 0.75	2.60	- 0.14	1.95	- 3.14	7.39	+ 2.53	2.97	- 1.46	5.08	+ 1.12	4.05	+ 0.52	1.03	- 1.61	0.90	- 1.07	1.20	+ 0.03	30.37	- 3.85	
Pocahontas	0.50	- 0.28	0.68	- 0.44	2.96	+ 1.59	1.48	- 1.24	1.93	- 2.50	5.78	+ 1.14	2.36	- 0.49	6.56	+ 3.19	2.71	- 0.88	0.09	- 2.64	0.36	- 1.32	1.22	+ 0.30	27.23	- 3.57	
Postville	0.50	- 0.73	1.00	- 0.14	3.59	+ 1.67	2.89	- 0.12	2.95	- 2.11	5.17	+ 0.51	3.96	- 0.43	6.06	+ 2.61	2.79	- 1.05	0.67	- 2.01	0.63	- 1.06	1.66	+ 0.30	31.87	- 2.56	
Rock Rapids	0.62	- 0.07	0.75	+ 0.07	2.76	+ 1.44	1.38	- 1.42	1.61	- 1.94	4.81	+ 0.19	1.68	- 1.69	2.59	+ 0.24	1.07	- 1.52	1.85	+ 0.06	0.29	- 0.90	1.89	+ 1.26	21.30	- 4.28	
Sanborn	0.10	- 0.60	1.15	+ 0.15	1.68	+ 0.28	1.05	- 1.95	1.19	- 3.60	4.00	- 0.73	2.51	- 0.99	3.90	+ 0.69	3.75	+ 0.55	0.76	- 1.09	0.45	- 0.85	1.50	+ 0.65	22.04	- 7.49	
Spencer	0.40	- 0.30	0.90	- 0.01	2.45	+ 1.13	0.93	- 1.97	1.46	- 2.74	4.75	+ 0.55	0.60	- 2.81	5.49	+ 2.09	4.72	+ 1.40	0.28	- 1.64	0.29	- 1.01	1.50	+ 0.65	23.86	- 4.66	
Storm Lake	0.06	- 0.64	0.74	- 0.25	2.49	+ 1.19	1.05	- 1.88	1.83	- 2.66	5.55	+ 0.55	1.13	- 2.94	5.67	+ 2.53	4.17	+ 0.92	0.55	- 1.49	0.48	- 0.82	1.74	+ 0.92	25.46	- 4.57	
Washta	0.10	- 0.51	0.91	- 0.08	1.92	+ 0.91	1.01	- 1.61	2.03	- 2.59	6.17	+ 1.59	2.66	- 1.57	7.37	+ 4.43	3.04	- 0.85	0.87	- 1.24	1.10	- 1.22	1.70	+ 0.27	27.88	- 1.32	
Waterloo	0.81	- 0.31	1.10	- 0.08	4.18	+ 2.51	1.34	- 1.19	2.81	- 1.28	6.11	+ 1.98	7.69	+ 3.71	6.81	+ 3.50	2.28	- 1.76	0.77	- 1.67	0.61	- 0.88	1.50	+ 0.30	36.01	+ 4.83	
Waverly	2.57	+ 1.46	0.84	- 0.37	3.65	+ 1.87	1.22	- 1.78	2.56	- 1.88	7.18	+ 2.91	5.79	+ 2.04	5.56	+ 2.32	2.80	- 0.70	0.62	- 1.98	0.66	- 0.90	1.89	+ 0.71	35.34	+ 3.61	
West Bend	0.41	- 0.54	0.39	- 0.59	1.97	+ 0.41	1.24	- 1.63	1.69	- 2.50	4.83	+ 0.54	2.81	- 0.66	5.84	+ 2.15	3.79	+ 0.65	0.69	- 1.34	0.32	- 1.17	1.10	- 0.06	25.08	- 4.74	
<i>Central Division</i>																											
Ames	1.02	+ 0.12	0.97	+ 0.03	3.09	+ 1.67	1.89	- 1.09	1.72	- 2.79	6.19	+ 1.82	1.56	- 2.30	4.59	+ 1.15	3.81	+ 0.14	0.61	- 2.00	0.46	- 0.83	1.45	+ 0.39	27.36	- 3.69	
Audubon	0.98	+ 0.15	2.10	+ 1.07	3.19	+ 1.74	0.64	- 2.48	0.97	- 3.41	12.59	+ 8.57	5.21	+ 1.54	5.84	+ 2.21	3.42	+ 0.34	0.06	- 2.25	0.57	- 0.76	1.77	+ 0.78	37.34	+ 6.82	
Baxter	1.12	+ 0.22	1.08	+ 0.06	2.89	+ 1.05	2.66	- 0.40	1.16	- 4.20	9.53	+ 4.94	3.21	- 0.68	2.79	- 0.44	3.47	- 0.50	1.25	- 1.17	0.50	- 0.93	1.80	+ 0.35	30.96	- 1.70	
Belle Plaine	1.11	- 0.45	1.26	- 0.34	2.85	+ 0.57	0.89	- 2.52	1.41	- 3.40	11.87	+ 7.52	5.53	+ 1.58	4.52	+ 1.29	2.27	- 1.30	0.81	- 1.68	0.59	- 1.10	2.11	+ 0.76	35.22	+ 0.93	
Boone	0.80	- 0.04	1.28	+ 0.28	3.27	+ 1.83	1.15	- 1.73	1.53	- 3.50	6.36	+ 1.83	2.23	- 1.49	5.10	+ 1.54	2.98	- 1.07	0.38	- 2.41	1.46	+ 0.09	1.62	+ 0.73	28.16	- 3.94	
Carroll	0.69	- 0.09	0.75	- 0.31	2.85	+ 1.16	1.88	- 1.57	2.24	- 2.32	9.13	+ 4.85	3.86	+ 0.28	6.34	+ 2.49	3.21	- 0.26	2.20	- 2.38	0.13	- 1.19	1.52	+ 0.54	32.30	+ 0.70	
Clinton	1.41	- 0.41	1.13	- 0.83	3.13	+ 0.31	1.26	- 1.78	1.74	- 2.86	8.75	+ 4.36	3.77	- 0.12	9.25	+ 5.62	2.65	- 0.84	1.01	- 1.55	1.00	- 0.89	1.90	+ 0.12	37.00	+ 1.13	
Davenport	1.27	- 0.28	1.46	- 0.04	2.71	+ 0.40	1.11	- 1.68	0.93	- 3.17	9.01	+ 5.01	3.76	+ 0.27	8.03	+ 4.62	2.23	- 1.22	0.86	- 1.44	0.60	- 1.20	2.36	+ 0.85	34.33	+ 2.12	
Davenport No. 2	1.60	- 0.37	1.37	- 0.20	2.60	0.00	0.92	0.00	1.25	0.00	9.80	0.00	4.14	0.00	9.14	0.00	2.60	0.00	1.04	0.00	0.98	0.00	2.37	0.00	37.81	0.00	
Denison	0.32	- 0.34	0.34	- 0.60	2.02	+ 0.49	0.50	- 2.33	1.81	- 2.47	9.25	+ 5.16	3.57	- 0.18	4.56	+ 0.75	3.67	+ 0.55									

DATES OF KILLING FROSTS, 1924

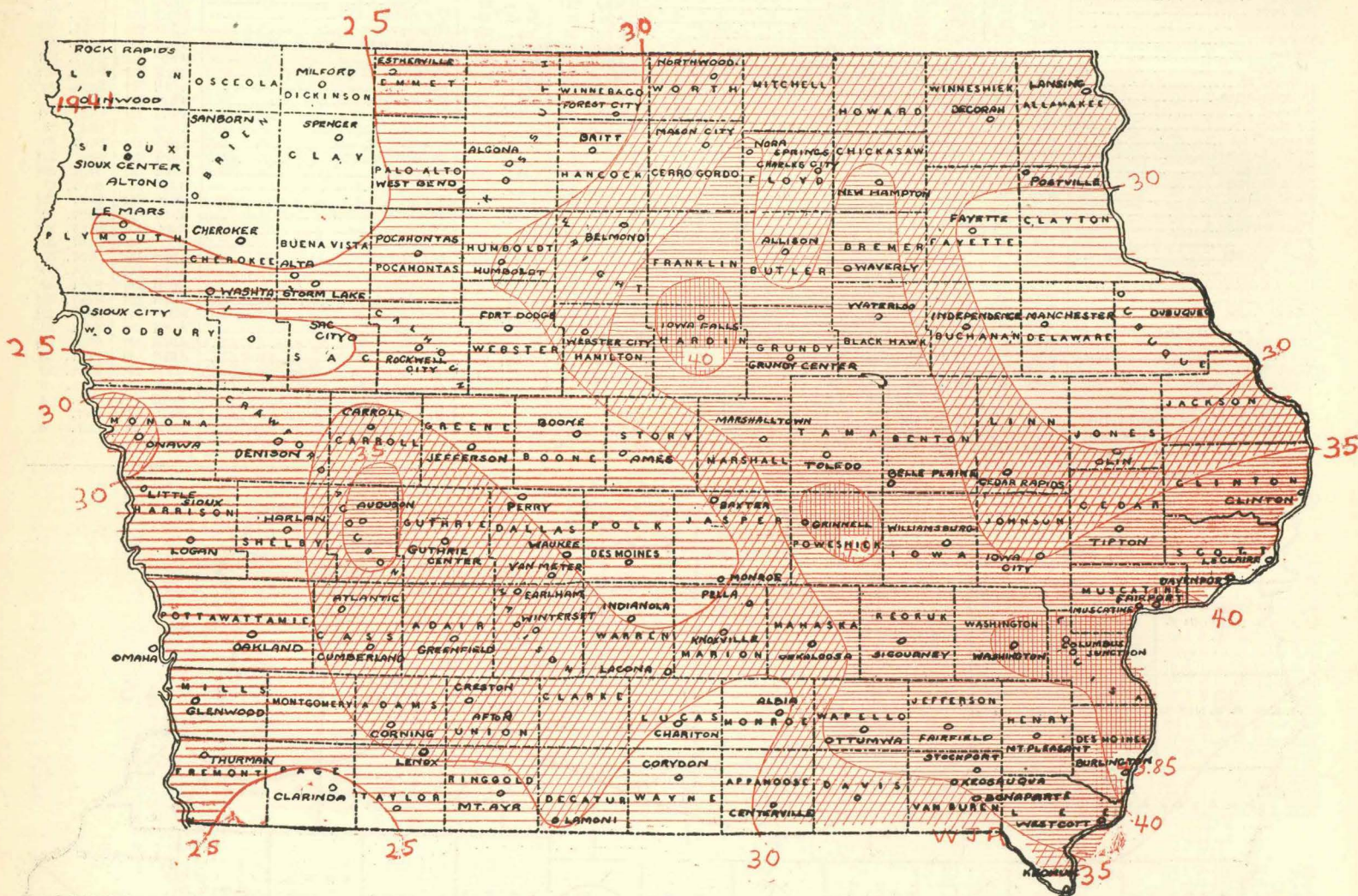
STATIONS	Killing frosts		STATIONS	Killing frosts		STATIONS	Killing frosts	
	Last in Spring	First in Autumn		Last in Spring	First in Autumn		Last in Spring	First in Autumn
<i>Northern Division</i>			<i>Central Division</i>			<i>Southern Division</i>		
Algona	May 24†	Nov. 2†	Ames	April 22†	Sept. 30†	Afton	April 22†	Sept. 28
Alhson	April 22†	Sept. 30	Audubon	May 24†	Sept. 23†	Albia	April 22†	Sept. 30
Alta	May 24	Nov. 2	Baxter	May 24†	Sept. 30	Atlantic	May 12†	Sept. 28
Alton	May 24	Sept. 28	Belle Plaine	May 11†	Sept. 30	Bonaparte	April 22†	Sept. 30
Belmond	May 24†	Sept. 30	Boone	May 12†	Sept. 28	Burlington	April 2†	Nov. 8†
Britt		Sept. 30	Carroll	May 24†	Sept. 28†	Centerville	May 1†	Sept. 30
Charles City	April 22	Sept. 30	Cedar Rapids	May 20†	Sept. 30†	Chariton	April 22†	Sept. 30
Cherokee	May 24†	Sept. 28†	Clinton	April 12	Sept. 30	Clarinda	May 11†	Sept. 29
Decorah	April 29†	Sept. 30	Davenport	April 2	Oct. 22	Columbus Jet	April 11	Sept. 29
Dubuque	April 12	Oct. 22	Denison	May 22†	Sept. 28	Corning	May 24†	Sept. 28
Estherville	May 24	Oct. 22	Des Moines	April 22†	Sept. 30	Corydon	April 22†	Sept. 30
Fayette	May 20†	Sept. 30	Fairport	April 12	Oct. 22†	Creston	April 22†	Sept. 29†
Forest City	May 24†	Sept. 30	Fort Dodge	May 24†	Sept. 30	Cumberland	April 22	Sept. 28
Hampton	April 22†	Sept. 30	Grinnell	April 28†	Sept. 30†	Earlham	May 24†	Sept. 28†
Humboldt	May 24†	Sept. 30	Grundy Center	May 20†	Sept. 30†	Fairfield	April 22†	Sept. 30†
Independence	May 24†	Sept. 30†	Guthrie Center	May 24†	Sept. 30	Glenwood	April 22†	Sept. 30
Inwood	May 24	Sept. 28	Harlan	May 24†	Sept. 28†	Greenfield	May 24†	Sept. 30
Le Mars	May 24	Sept. 28†	Iowa City	April 12†	Sept. 30†	Indianola	April 22†	Oct. 22†
Mason City	May 24†	Sept. 30	Iowa Falls	April 22†	Sept. 30†	Keokuk	April 2†	Oct. 23
Milford (near)	May 24†	Oct. 22†	Jefferson	April 22†	Sept. 30	Keosauqua	April 11	Sept. 30
New Hampton	May 24†	Sept. 30†	Little Sioux	May 24†	Sept. 28†	Knoxville	April 22†	Sept. 30†
Nora Springs	April 22	Sept. 30	Logan	April 22†	Oct. 22†	Lamoni	April 22†	Sept. 30†
Northwood	May 25†	Sept. 30	Marshalltown	April 22†	Sept. 30†	Lenox	May 24	Sept. 28
Oelwein	May 20†	Sept. 30†	Monroe	April 22†	Sept. 30†	Mount Ayr	May 24†	Oct. 22†
Pocahontas	May 25†	Sept. 28	Olin	May 25†	Sept. 30†	Mount Pleasant	April 2†	Sept. 30
Postville	April 22†	Sept. 30	Onawa	May 24†	Oct. 22†	Oakland	May 24†	Sept. 29†
Rock Rapids	May 24	Sept. 28	Perry	May 11†	Sept. 30	Oskaloosa	May 24	Sept. 30
Sanborn	May 24	Sept. 28	Rockwell City	May 24†	Oct. 22†	Ottumwa	April 10†	Sept. 30
Sioux Center	May 24	Sept. 28†	Sac City	May 24†	Sept. 28	Pella	April 20†	Sept. 30
Spencer	May 24	Sept. 28†	Sioux City	April 22	Nov. 2	Sigourney	April 22†	Sept. 30
Storm Lake	May 24†	Nov. 6†	Tipton	April 19†	Sept. 30	Stockport	April 22†	Sept. 30†
Washta	May 24†	Sept. 28	Toledo	May 20	Sept. 30†	Thurman	May 11†	Sept. 28†
Waterloo	May 20†	Sept. 30†	Waukee	April 28	Sept. 30	Tingley	April 22†	Sept. 29
Waverly	May 20†	Sept. 30	Webster City	May 24†	Sept. 30	Washington	April 12†	Oct. 22†
West Bend	May 24†	Sept. 28†	Williamsburg	May 20†	Sept. 30	Wescott (near)	April 1†	Sept. 30
Average date, 1924	May 17	Oct. 4	Average date, 1924	May 8	Oct. 4	Wintersef	May 24	Sept. 30
					Omaha, Neb.	April 1	Nov. 6	
					Average date, 1924	April 27	Oct. 4	
					State average, 1924	May 7	Oct. 4	
					State average, all years	May 2	Oct. 6	

†Date of last temperature of 32° or lower in the spring, or first temperature of 32° or lower in the autumn (as the case may be) when frost was not reported.

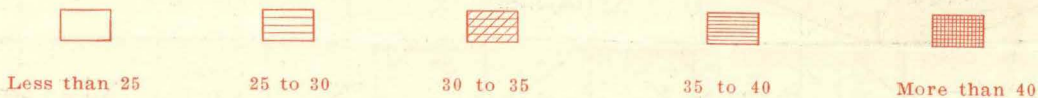
MEAN ISOTHERMS AND PREVAILING WINDS, YEAR, 1924



TOTAL PRECIPITATION, YEAR, 1924



SCALE OF SHADES—IN INCHES



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