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Finley, John P.

The tornadoes of Iowa for 51 years,
1837-1887. Washington, 1888.

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IOWA * TORNADOES *

— FOR —

51 Years, 1837-1887.

FINLEY.



— THE —
TORNADOES of IOWA

— FOR —
51 Years, 1837-1887.

— BY —
JOHN P. FINLEY,
Lieutenant, Signal Corps.

WASHINGTON:
J. H. SOULÉ.

1888.

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PREFACE.

The purpose of this pocket manual, which is one of a series, illustrating cartographically and statistically for each State and Territory the occurrence of tornadoes for a long period of time, it is to place before the general public, and especially the people of the State of Iowa, important and useful information regarding one of the most interesting manifestations of nature's forces, and withal, the most terribly destructive to life and property.

It is idle prattle to talk about the ultimate disappearance of the tornado with the rapid development of the country. The building of railroads, the planting of forests and the cultivation of the land are all evidences of material prosperity, but have no particular relation to tornado development, except, perhaps, to provide greater opportunities for exhibitions of its violence.

From a practical standpoint, and as affecting the question of life and property, the tornado must be considered as one of nature's agencies for destruction which must forever be fortified against.

Like fire and flood, and yet more dreadful, protection against such forces must be accomplished by organized capital, where the safety of one is assured by the legitimate and successful co-operation of many.

Where practicable, life should have the additional protection afforded by underground retreats.

It cannot be assumed that the accompanying tables contain the record of every tornado that has actually

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occurred in the State of Iowa during the past 51 years, but it may be said that all available sources of information have been exhausted.

A comparison of earlier records with those of recent years might easily lead one to suppose that the occurrence of tornadoes was increasing, but the facts in the case will not permit such a conclusion. In recent years better means of observation and record, and greater facilities for the collection of reports have existed. With the rapid growth of the country more destruction to life and property has been occasioned, and a greater zeal of the Press has brought to light many occurrences which under other circumstances would have been unobserved or disregarded.

A careful study of tornado development and distribution shows that there are as many considerations to justify the belief that tornadoes were quite as frequent a hundred years ago as now, and that this degree or frequency will not be diminished for a hundred years to come.

The information presented in this manual is the result of many years of labor, collated under the supervision of the Government and published with the permission of the Chief Signal Officer of the Army.

THE AUTHOR.

Table No. I.
TORNADOES IN IOWA.

Period of observation.....	1887 to 1887
Total number of storms.....	120
Month of greatest frequency.....	June
Year of greatest frequency.....	1896, 26 storms
Hour of greatest frequency.....	4 to 5 p m
The four months having the greatest number of storms.....	{ April, May, June and July
Months having no storms.....	January and December
County having the largest number of storms.....	Crawford, 7 storms
Prevailing direction of storm movement.....	Northeasterly

Table No. II.

LIST OF TORNADES BY COUNTIES, INCLUDING ALL STORMS CONFINED TO, OR CROSSING THE COUNTY LINES.

This method of enumeration will cause the counting of the same storm several times where the track passes from one County to another.

County.	No. of Storms.	County.	No. of Storms.
Adair.....	1	Jefferson.....	1
Adams.....	1	Johnson.....	3
Allamakee.....	2	Jones.....	5
Appanoose.....	1	Keokuk.....	2
Audubon.....	4	Kossuth.....	none
Benton.....	2	Lee.....	2
Black Hawk.....	none	Linn.....	1
Boone.....	2	Louisa.....	2
Bremer.....	none	Lucas.....	none
Buchanan.....	3	Lyon.....	none
Buena Vista.....	4	Madison.....	1
Butler.....	none	Mahaska.....	2
Calhoun.....	3	Marion.....	2
Carroll.....	2	Marshall.....	none
Cass.....	6	Mills.....	1
Cedar.....	1	Mitchell.....	1
Cerro Gordo.....	1	Monona.....	2
Cherokee.....	4	Monroe.....	2
Chickasaw.....	none	Montgomery.....	1
Clarke.....	none	Muscatine.....	1
Clay.....	3	O'Brien.....	none
Clayton.....	none	Osceola.....	none
Clinton.....	3	Page.....	3
Crawford.....	7	Palo Alto.....	none
Dallas.....	2	Plymouth.....	5
Davis.....	3	Pocahontas.....	2
Decatur.....	none	Polk.....	2
Delaware.....	none	Pottawattamie.....	6
Des Moines.....	none	Poweshiek.....	2
Dickinson.....	1	Ringgold.....	none
Dubuque.....	none	Sac.....	4
Emmett.....	none	Scott.....	3
Fayette.....	none	Shelby.....	1
Floyd.....	1	Sioux.....	2
Franklin.....	none	Story.....	3
Fremont.....	2	Tama.....	2
Greene.....	3	Taylor.....	5
Grundy.....	none	Union.....	1
Guthrie.....	1	Van Buren.....	5
Hamilton.....	1	Wapello.....	1
Hancock.....	2	Warren.....	3
Hardin.....	3	Washington.....	1
Harrison.....	1	Wayne.....	none
Henry.....	2	Webster.....	1
Howard.....	none	Winnebago.....	none
Humboldt.....	2	Winneshiek.....	none
Ida.....	2	Woodbury.....	4
Iowa.....	2	Worth.....	none
Jackson.....	none	Wright.....	none
Jasper.....	3		

Table No. III.

A CHRONOLOGICAL TABLE SHOWING THE LOCATION, DATE AND TIME OF OCCURRENCE, AND GENERAL CHARACTER OF FORMATION AND MOVEMENT OF TORNADES IN THE STATE OF IOWA FOR A PERIOD OF 51 YEARS, FROM 1837 to 1887.

County.	Month and Day.	Year.	Time.	Direction.	Form of Cloud.	Width of path, in feet.
Henry	June 1	1837	10 p. m.	E.	Funnel.	1,000
Johnson and Cedar	June 7	1843	5 p. m.	E. 20° N.	Funnel.	460
Cedar and Clinton	June 5	1844	9 p. m.	S. E.	Funnel.	1,330
Van Buren	June 5	1844	9 p. m.	S. E.	Funnel.	1,330
Muscataine	June 5	1845	5 p. m.	E.	Funnel.	100
Keokuk	July 8	1845	4 p. m.	E. 15° N.	Funnel.	225
Henry	May 31	1861	4 p. m.	N. E.	Funnel.	800
Johnson	July 18	1864	Afternoon.	N. E.	Funnel.	800
Scott	Aug. 18	1868	Afternoon.	N. E.	Funnel.	800
Clinton	June 3	1860	5 p. m.	N. E.	Funnel.	800
Page	June 14	1866	4 p. m.	N. E.	Funnel.	800
Dickinson	June	1872	12 m.	S. E.	Funnel.	800
Keokuk and Washington	May 22	1873	2.15 p. m.	E.	Funnel.	800
Clayton	May 30	1874	2.15 p. m.	E.	Funnel.	800
Buchanan	July 26	1874	1 p. m.	N.	Funnel.	100
Van Buren	Feb. —	1876	1.30 p. m.	N.	Funnel.	800
Van Buren	Feb. 27	1876	1.30 p. m.	N.	Funnel.	800
Union	April 11	1876	Afternoon.	N. E.	Inverted Funnel.	800
Dubuque	May 18	1876	Afternoon.	N. E.	Inverted Funnel.	800
Harrison	July 4	1876	Afternoon.	N. E.	Inverted Funnel.	800
Lee	July 4	1876	Afternoon.	N. E.	Inverted Funnel.	800
Shelby	May 18	1877	7 p. m.	N. E.	Inverted Funnel.	800
Woodbury	May 30	1877	7 p. m.	N. E.	Inverted Funnel.	800
Appanoose	May 30	1877	7 p. m.	N. E.	Inverted Funnel.	800
Pottawattamie	June 25	1877	7 p. m.	N. E.	Inverted Funnel.	800
Crawford and Sac	Aug 6	1877	2.30 a. m.	S. E.	Funnel.	800
Cass	March —	1878	Evening.	N. E.	Funnel.	800
April 18	1878	Evening.	N. E.	Funnel.	800	
Wapello and Jefferson	April 21	1878	3 p. m.	E.	Funnel.	1,380 to 2,640
Monona and Buena Vista.	April 21	1878	4 p. m.	N. E.	Funnel.	600

Crawford.....	April 31	1873	5.30 a. m.	S. E.	Funnel.	600
Crawford and Po-ahontas...	April 31	1873	4.30 p. m.	N. E.	Funnel.	900
Crawford.....	April 28	1873	Afternoon.			
Jones.....	May 23	1873	3.30 p. m.	N. E.	Funnel.	
Adair.....	June 1	1873				
Marion.....	June 16	1873				
Crawford and Sac.....	Oct. —	1873				
Tama.....	Oct. 8	1873	5 p. m.	N. E.	Funnel.	1,330
Jones.....	O. t. 8	1873	5.30 p. m.	N. E.	800 to 1,500	
Crawford, Carroll and Sac.....	Oct. 15	1873	Afternoon.		Inverted Cone.	
Page.....	May 30	1879	2 p. m.	N. E.	Funnel.	100 to 3,000
Plymouth.....	July 2	1879	6.30 p. m.	S. E.	Hour Glass.	
Davis.....	April 18	1880	Afternoon.	N. E.	Funnel.	150 to 900
Warren.....	May —	1880				
Buchanan.....	May 25	1880	4.30 p. m.	N. E.	Funnel.	
Pottawattamie.....	June 9	1880	Afternoon.	N. E.		
Cass.....	June 9	1880				
Pottawattamie.....	June 10	1880	Afternoon.	N. E.	Funnel.	1,500 to 2,000
Cass.....	June 29	1880	6 p. m.	N. E.	Funnel.	
Polk.....	Oct. 15	1880	4 p. m.	N. E.	Funnel.	
Benton.....	May 13	1881				
Pottawattamie.....	June 9	1881				
Jasper and Madison.....	June 11	1881	4.15 p. m.	E. N. E.	Funnel.	300 to 2,640
Hancock.....	June 11	1881	4 p. m.	N. E.		150 to 600
Henry.....	June 12	1881				50 to 100
Warren.....	June 12	1881	4 p. m.	N. E.	Funnel.	
Cherokee.....	June 23	1881	4 p. m.	N. E.	Funnel.	
Calhoun.....	June 30	1881	5 p. m.	N. E.	Funnel.	
Dallas.....	July 7	1881	Afternoon.	N. E.		
Clay.....	Aug. 5	1831	4 p. m.	N. E.		1,300 to 1,500
Allamakee.....	Sep. 26	1881				2,640
Hardin.....	Sep. 29	1881	4.35 p. m.	N. E.		300 to 1,380
Van Buren.....	April 6	1882	1.30 a. m.	N. E.		300
Story.....	April 8	1882				450 to 600
Poweshiek.....	June 17	1882	8.45 p. m.	E. 30° S.	Funnel.	1,050
Boone.....	June 17	1882	7 p. m.	N. E.	Funnel.	2,640
Clay.....	June 21	1882	6.30 a. m.	S. E.		5,380
Buchanan.....	June 23	1883	5.57 p. m.	N. E.		

Table No. III.—Continued.

A CHRONOLOGICAL TABLE SHOWING THE LOCATION, DATE AND TIME OF OCCURRENCE, AND GENERAL CHARACTER OF FORMATION AND MOVEMENT OF TORNADES IN THE STATE OF KANSAS FOR A PERIOD OF 51 YEARS, FROM 1837 TO 1887.

County.	Month and Day.	Year.	Time.	Direction.	Form of Cloud.	Width of path, in feet.
Sioux.....	June 24	1882	6 a. m.	E.	.....	.....
Dallas.....	June 34	1882	About 5 a. m.	.....	.....	.....
Floyd and Mitchell.....	July 17	1882	5.30 p. m.	N. E.	Funnel.	1,230
Scott.....	Oct. 30	1882	3.30 p. m.	N. E.	.....	.....
Greene.....	Nov. 10	1882	Evening.	N. E.	.....	.....
Woodbury.....	April 21	1883	6.30 p. m.	N.	Funnel.	.....
Woodbury.....	April 21	1883	6.30 p. m.	N.	Funnel.	.....
Webster.....	April 26	1884	8 p. m.	N. E.	Inverted Cone.	.....
Scott.....	May 5	1884	5 p. m.	.....	Inverted Cone.	300
Humboldt.....	June 18	1884	1.15 p. m.	N. E.	.....	.....
Hardin.....	July 4	1884	6 p. m.	E.	Funnel.	70
Crawford.....	July 4	1884	7 p. m.	S. E.	.....	.....
Sioux, Plymouth and Cherokee.....	July 4	1884	5 p. m.	S. E.	.....	.....
Hardin, Benton and Linn.....	July 4	1884	6 p. m.	S. E.	Funnel.	.....
Woodbury.....	July 4	1884	4.40 p. m.	E. 10° S.	Funnel.	.....
Poweshiek and Iowa.....	July 23	1884	9 p. m.	E. 10° S.	Funnel.	.....
Mahaska.....	July 23	1884	5 p. m.	.....	Funnel.	600 to 1,640
Woodbury.....	Sep. 9	1884	10.50 p. m.	N. N. E.	Funnel.	.....
Ida.....	Jan. 6 13	1885	5.30 p. m.	E.	Funnel.	900
Davis.....	June 12	1885	3 p. m.	.....	.....	.....
Jasper.....	June 12	1885	.....	E.	Funnel.	.....
Cass.....	June 12	1885	6.48 p. m.	.....	.....	.....
Woodbury.....	June 12	1885	Evening.	.....	.....	.....
Woodbury.....	June 12	1885	6.30 p. m.	N. E.	.....	300 to 300
Cherokee.....	June 14	1885	11.30 p. m.	N. E.	.....	.....
Cherokee.....	June 14	1885	Night.	N. E.	Funnel.	.....
Cherokee.....	July 30	1885	5.50 p. m.	.....	Funnel.	.....
Louisa.....	Nov. 6	1885	.....	E. N. E.	.....	.....
Carroll.....	April 14	1886	5.05 p. m.	N. N. E.	Funnel.	165

Cass and Audubon.....	April 14	1886	4 p. m.	N. N. E.	Funnel.	1,280
Taylor.....	April 14	1886	8.30 p. m.	N. N. E.	Funnel.	150
Fremont.....	April 14	1886	4 p. m.	N. E.	Funnel.	2,640
Story.....	April 14	1886	5.10 p. m.	N. 30° E.	Funnel.	About 60
Taylor.....	April 14	1886	Afternoon.	N. E.	Funnel.	300 to 500
Taylor.....	April 14	1886	8 p. m.	N. E.	Funnel.	390
Mills.....	April 14	1886	5 p. m.	N. E.	Funnel.	150 to 300
Calhoun.....	April 14	1886	3.35 p. m.	N. E.	Funnel.	20 to 75
Audubon.....	April 14	1886	4.30 p. m.	N. 45° E.	Funnel.	60 to 230
Audubon.....	April 14	1886	4.30 p. m.	N. 10° E.	Funnel.	80 to 1,650
Cass.....	April 14	1886	4 p. m.	N. E.	Funnel.	100 to 350
Taylor.....	April 14	1886	8.30 p. m.	N. 40° E.	Funnel.	1,380
Carroll.....	April 14	1886	5 p. m.	N. E.	Funnel.	300
Pottawattamie.....	April 14	1886	5 p. m.	N. E.	Funnel.	40 to 600
Guthrie.....	April 14	1886	4.40 p. m.	N. 30° E.	Funnel.	300
Fremont.....	April 14	1886	6 p. m.	N. E.	Funnel.	1,380
Adams.....	April 14	1886	8.30 p. m.	N. 35° E.	Funnel.	.....
Montgomery.....	April 14	1886	3 p. m.	N. E.	Funnel.	.....
Jones.....	May 8	1886	10 p. m.	E. N. E.	Funnel.	.....
Jones.....	May 8	1886	11.30 p. m.	N. E.	Funnel.	.....
Jones.....	May 8	1886	10 p. m.	N. E.	Funnel.	.....
Malaska.....	May 9	1886	1 p. m.	N. E.	Funnel.	.....
Monroe.....	May 9	1886	1 p. m.	N. E.	Funnel.	.....
Keokuk.....	May 9	1886	3.15 p. m.	Easterly.	Funnel.	.....
Audubon.....	May 14	1886	Afternoon.	N. E.	Funnel.	150 to 450
Humboldt.....	Aug. 8	1887	7 p. m.	N. E.	Funnel.	Narrow.
Green.....	Aug. 10	1887	Evening.	N. E.	Funnel.	Narrow.

* Waterspout.

Table No. IV.

RELATIVE FREQUENCY OF TORNADOES BY MONTHS AND DAYS.

The index figures to the right and above the dates show how many times Tornadoes occurred on that day of the month.

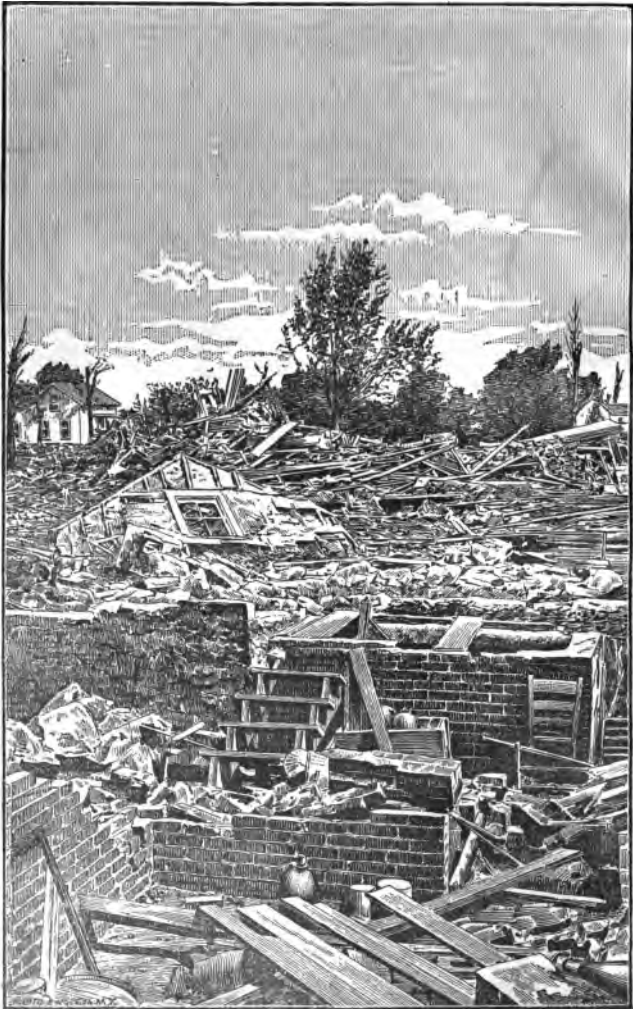
Month.	Day of Month.	No. of days.	Total No. of Tornadoes per month.
February	27, and (-)	2	2
March	(-)	1	1
April	6, 8, 11, (14), ¹⁰ (18), ¹² (21), ¹⁶ and 29,	7	31
May	5, (8), ³ (9), ³ 13, 14, (18), ¹² 22, 23, 25, (30), ¹³ and 31	11	38
June	(1), ² 3, (5), ³ 7, (9), ³ 10, (11), ² (12), ² 14, ¹³ 15, (17), ² 18, 21, 22, (24), ² 25, 28, 29, 30, and (-)	20	37
July	2, (4), ² 7, 8, 17, 18, 23, 26 and 30.	9	15
August	5, 6, 8, 10, and 18.	5	5
September	9, 26, and 29.	3	3
October	(8), ² (15), ² 30, and (-)	4	6
November	6, and 10.	2	2
Total		64	130

Note:—The blank (-) signifies date missing.



VIEW OF DEACON FORD'S RESIDENCE

**TORNADO AT GRINNELL, IOWA, JUNE 17, 1882. 130 PEOPLE KILLED,
300 WOUNDED; 200 BUILDINGS DESTROYED; LOSS \$1,000,000.**



(RUINS OF MRS. CLEMMENS' RESIDENCE.)

**TORNADO AT GRINNELL, IOWA, JUNE 17, 1882; 130 PEOPLE KILLED;
300 WOUNDED; 200 BUILDINGS DESTROYED; LOSS \$1,000,000.**





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