

**19th.**—A barn was struck by lightning and stock killed during a thunderstorm at Cumberland, Wis.

**20th.**—A rain, hail, and thunder storm occurred at Clayton, N. Y., about 7.15 p. m., causing considerable damage to property. Eight miles north of Augusta, Ga., a hailstorm of short duration damaged young corn.

**21st.**—During a thunderstorm at North Hammond, N. Y., considerable damage was done by lightning. At Binola, Ohio, a barn was struck by lightning.

**23d.**—A heavy thunder, rain, and hail storm prevailed at Shreveport, La., in the afternoon; crops were damaged. At Burkeville, Tex., a storm, with a funnel-shaped cloud, thunder, and lightning, moved east, damaging property to the amount of \$2,000.

**24th.**—Heavy thunder and hail storms occurred in Louisiana. At Lawrence, La., a wind, rain, and hail storm began at 8.30 p. m., destroying garden truck. At New Orleans, La., a thunderstorm, with exceptionally heavy rain, began at 7.50 and continued until 9.35 p. m.; 2.18 inches of rain fell in 55 minutes; a man was killed by lightning. At Pointe a la Hache, La., a heavy rain and hail storm moved in a path about 1 mile wide at 9 p. m.; crops were destroyed. A thunder and hail storm passed over Shreveport, La., between 5.50 and 7 a. m., during which the wind reached an extreme velocity of 60 miles per hour; hothouses were demolished and crops badly damaged. The storm swept over the adjoining parish of Bossier, ruining corn and cotton. At Williams, in Red River Parish, the storm was reported one of the most destructive that has visited that locality. A heavy thunderstorm at Luling, Tex., destroyed crops.

**25th.**—In the early morning a heavy rain and hail storm at Garden City, Kans., was very destructive to grain. During a strong gust of wind at Seattle, Wash., at 9.55 p. m., the wind vane and anemometer support at the Weather Bureau Office were blown down and broken. A thunderstorm passed 4 miles west of Olympia, Wash., in the evening; 2 barns were struck by lightning.

**27th.**—During a thunderstorm at Chicago, Ill., in the evening, 2 persons were killed by lightning.

**28th.**—In the southern part of Cumberland County, N. J., 3 persons were stunned and several houses were struck by lightning. A severe local storm moved southeast over Mansfield, Ohio, about 5.30 p. m.; the damage to property was placed at \$5,000. Glass was broken by heavy hail at Lansing,

Mich. An unusually heavy rain and thunderstorm occurred at Winnview, Okla.; stock was killed by lightning. Damage was done by a hail and wind storm at Whiteside, Mo. Hailstorms of marked severity prevailed throughout Iowa. At Cherokee, Iowa, the damage by hail was estimated at \$10,000. At Keosauqua, Iowa, 2.43 inches of rain, with heavy hail, fell in about one hour; bridges were washed away and the hail destroyed gardens and glass. At Fayette, Iowa, hail and wind damaged buildings and stock. During a thunderstorm at Nora Springs, Iowa, a boy was killed by lightning. Heavy hail damaged glass at Hartington, Nebr. A windstorm at Beaver City, Nebr., damaged small grain. At Fort Berthold, N. Dak., a heavy wind and thunder storm occurred at night; some damage resulted from the high wind. Considerable damage was done by a heavy windstorm at Wallet, Colo.

**29th.**—At Tyler, Tex., a heavy rain and wind storm, lasting about 40 minutes, did considerable damage to property. At Brunswick, Mo., a windstorm, at 2.40 p. m., caused damage of a minor character. In Calloway County, Mo., some damage was done by high wind. During a thunderstorm about midnight at Steffenville, Mo., stock was killed by lightning. A destructive storm moved northeast in a path about 200 feet wide, near Ellsworth, Iowa; 2 persons were killed. At Forest City and Ottumwa, Iowa, windstorms damaged buildings and trees.

**30th.**—About 4.10 p. m., a severe storm, with a funnel-shaped cloud, moved northeastward in the vicinity of Texarkana, Ark.; 2 persons were killed, and property was destroyed to the estimated value of \$10,000. A heavy wind and rain storm occurred at Bee Branch, Ark., about 9 p. m.; a house was moved from its foundation. Tehuacana, Tex., was visited by a heavy rain and thunder storm, which moved northeast about 2.45 p. m., causing damage to the extent of \$5,000. Destructive thunder and wind storms occurred in Illinois. At Astoria, Ill., the damage to property was \$500. At Rushville, Ill., the storm was attended by thunder, lightning, and hail, doing damage to barns, etc. Three miles east of Bushnell, Ill., considerable damage was done by heavy hail. At Rockford, Ill., rain flooded lowlands and hail damaged fruit. A violent storm, with hail, struck Tower Hill, Ill., about 3.30 p. m.; glass was broken and fruit damaged. During a thunderstorm at Keokuk, Iowa, a house was struck by lightning. Some damage was done by hail at Clinton, Iowa.

## ATMOSPHERIC ELECTRICITY.

### GENERAL STATISTICS.

The table on page 169 shows in detail for April, 1894, the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month.

### THUNDERSTORMS.

A mention of the more severe thunderstorms reported during the month is given under "Local storms." The dates on which reports of thunderstorms were most numerous were the 17th, 196; 18th, 194; 21st, 175; 27th, 164; 28th, 221; 29th, 214; 30th, 155.

The States from which the reports of thunderstorms were most numerous were: Missouri, 197; Ohio, 171; Minnesota, 153; Iowa, 148; Louisiana, 108; Wisconsin, 104.

### AURORAS.

The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four days preceding and following the date of full moon, viz, from the 15th to the 23d, inclusive. On the remaining twenty-one days of the month 175 reports were received, or an average of 8 per day. The dates on which the reported number especially exceeded this average were the 12th (67), 17th (19), 30th (19).

### LIGHTNING.

The voluntary observer, Mr. John J. Cass, of Allison, De-catur Co., Kans., under date of April 2, reports, as follows:

Remarkable electric display here this date. Threatening clouds, followed by a gale and dust storm at 7 p. m. Bluish electric lights on terminal tree buds and on the harness, etc., of teams traveling. Shocks reported from touching fence wires. These conditions existing 10 miles north and south of this station.

Thunderstorms and auroras, April, 1894.

| States.              | No. of 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. | Total. |      |       |    |
|----------------------|------------------|-------|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|------|-------|----|
| Alabama              | 53               | T.    | 5  |    | 3  | 4  |    |    |    | 2   | 6   | 2   |     |     | 1   |     |     | 6   |     | 2   | 2   |     |     | 2   | 1   |     |     | 2   | 2   |     |     |     | 40     | T.   |       |    |
| Arizona              | 50               | A.    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        | 0    | A.    |    |
| Arkansas             | 49               | T.    | 1  |    | 9  | 1  |    |    | 2  | 1   | 12  |     |     |     | 1   | 8   |     |     | 8   | 8   |     |     |     | 3   | 5   | 6   |     |     |     |     | 6   | 13  |        | 85   | T.    |    |
| Colorado             | 77               | A.    |    |    |    |    | 1  |    |    |     |     |     |     | 1   | 1   | 3   | 2   | 1   | 3   |     |     |     | 2   |     | 1   |     |     |     |     |     | 2   | 3   |        | 20   | A.    |    |
| California           | 316              | T.    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     | 1   |     |     | 6   | 2   |     |     |     |     |     |        | 0    | T.    |    |
| Connecticut          | 23               | A.    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     | 7   | 6   | 1   |     |     |     |     |     |     |     |        | 16   | A.    |    |
| Delaware             | 5                | T.    |    |    |    |    |    | 2  |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        | 3    | T.    |    |
| District of Columbia | 4                | A.    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |      | 1     | A. |
| Florida              | 35               | T.    |    |    | 2  | 6  | 5  |    |    |     |     |     | 3   |     |     | 1   | 3   | 3   | 2   |     |     |     |     |     | 6   | 6   | 7   | 1   |     |     |     | 2   |        | 50   | T.    |    |
| Georgia              | 51               | A.    |    |    | 1  | 6  |    |    |    |     |     |     | 2   | 1   |     |     | 2   | 1   |     | 1   | 8   | 4   |     |     |     | 6   | 6   | 7   | 1   |     |     | 6   |        | 37   | A.    |    |
| Idaho                | 25               | T.    | 1  |    |    |    |    |    |    |     |     | 2   |     |     |     |     |     |     |     |     |     |     | 1   | 3   |     |     |     |     |     |     |     |     |        | 10   | T.    |    |
| Illinois             | 57               | A.    | 1  |    | 2  |    | 1  |    | 3  | 2   | 5   |     |     |     |     |     |     |     | 14  | 22  | 2   | 2   |     |     |     |     |     |     | 8   | 8   | 5   | 14  |        | 89   | T.    |    |
| Indiana              | 46               | T.    |    |    |    |    |    |    |    |     |     |     | 3   |     |     |     |     |     |     | 12  | 4   | 1   |     |     |     |     |     | 1   | 3   | 4   | 3   | 6   |        | 37   | T.    |    |
| Indian Territory     | 8                | A.    |    |    |    |    |    |    |    | 2   | 1   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        | 8    | A.    |    |
| Iowa                 | 79               | T.    |    | 1  | 3  |    |    |    |    | 16  | 2   |     |     |     | 1   |     | 5   | 26  | 17  |     |     |     |     |     |     |     | 1   | 1   | 8   | 21  | 27  | 18  |        | 148  | T.    |    |
| Kansas               | 78               | A.    |    | 1  |    |    | 1  | 7  | 5  | 12  | 2   | 1   | 1   | 6   | 4   | 9   | 5   | 1   |     | 8   | 1   |     |     | 1   | 7   | 6   | 2   | 2   | 3   | 9   | 5   |     | 11     | 92   | T.    |    |
| Kentucky             | 40               | T.    | 1  |    | 1  |    |    |    |    |     | 4   | 1   |     |     |     |     |     |     | 3   | 7   | 1   |     |     |     |     |     |     | 1   | 2   |     | 8   | 2   |        | 31   | T.    |    |
| Louisiana            | 52               | A.    | 4  | 1  | 3  | 13 | 4  |    |    | 2   | 10  | 3   |     | 1   |     | 11  |     |     | 5   | 4   | 9   | 1   |     | 4   | 5   | 16  | 5   |     |     |     |     |     | 108    | T.   |       |    |
| Maine                | 19               | T.    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        | 0    | T.    |    |
| Maryland             | 26               | A.    |    | 1  |    |    |    | 1  | 1  |     |     |     |     |     |     |     |     |     | 3   | 1   | 4   | 9   | 2   |     |     |     |     |     | 5   | 12  | 1   |     | 1      | 29   | T.    |    |
| Massachusetts        | 85               | T.    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 5   | 1   | 12  |     |     | 4   | 2   |     |     |        | 24   | T.    |    |
| Michigan             | 91               | A.    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     | 5   | 1   | 7   | 3   | 1   |     |     | 2   | 1   | 2   | 8   | 15  | 1   | 10  |        | 46   | T.    |    |
| Minnesota            | 79               | T.    |    |    |    |    |    |    | 5  | 4   |     |     |     | 14  |     |     |     |     |     |     | 7   | 39  | 28  |     |     | 2   | 7   | 17  | 6   | 24  | 15  |     | 153    | T.   |       |    |
| Mississippi          | 48               | A.    | 8  |    | 4  | 9  | 1  | 2  | 2  | 1   | 9   | 2   |     | 3   | 2   | 7   |     | 1   | 6   | 3   | 13  |     |     | 1   | 4   | 8   | 1   | 2   |     |     |     |     | 22     | 74   | T.    |    |
| Missouri             | 96               | T.    |    |    | 6  |    | 6  | 16 | 25 | 13  |     |     |     |     | 1   | 6   |     | 11  | 21  | 24  | 2   |     |     |     |     |     |     | 17  | 1   | 7   | 18  | 23  |        | 197  | T.    |    |
| Montana              | 26               | A.    |    | 1  |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 9   | 3   | 1   |     |     | 17     | T.   |       |    |
| Nebraska             | 70               | T.    |    | 1  |    |    |    |    |    | 9   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 4   | 1   | 7   | 4   | 4      | 58   | T.    |    |
| Nevada               | 48               | A.    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        | 1    | T.    |    |
| New Hampshire        | 28               | T.    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     | 5   |     |     |     |     |     |     |     |     |     |     |     |        | 11   | T.    |    |
| New Jersey           | 58               | A.    |    |    |    | 9  | 2  | 3  | 1  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        | 12   | T.    |    |
| New Mexico           | 26               | T.    |    |    | 1  |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        | 4    | T.    |    |
| New York             | 81               | A.    |    |    |    | 5  |    |    |    |     |     |     |     |     |     |     |     |     |     |     | 4   | 26  | 7   | 1   |     |     |     |     | 1   | 1   |     |     |        | 43   | T.    |    |
| North Carolina       | 56               | T.    | 2  |    |    | 4  |    |    |    |     |     |     | 5   |     |     |     |     |     |     |     | 4   | 2   | 3   | 8   | 14  | 4   |     | 2   | 1   | 5   | 4   | 3   | 2      | 7    | 60    | T. |
| North Dakota         | 37               | A.    | 1  |    |    |    |    |    |    | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 4   | 4   |     |     |        | 30   | T.    |    |
| Ohio                 | 139              | T.    |    |    | 1  |    |    | 2  |    | 18  |     |     |     | 2   |     |     |     |     |     | 1   | 9   | 36  | 14  | 1   | 1   |     | 1   |     | 20  | 46  | 22  |     |        | 15   | 171   | T. |
| Oklahoma             | 19               | A.    |    |    | 2  |    |    |    |    | 1   |     |     |     | 13  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |      | 20    | T. |
| Oregon               | 73               | T.    |    | 2  |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |      | 15    | T. |
| Pennsylvania         | 85               | A.    |    |    |    | 8  | 1  |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |      | 76    | T. |
| Rhode Island         | 8                | T.    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |      | 2     | T. |
| South Carolina       | 43               | A.    |    |    |    | 7  |    |    |    | 2   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |      | 63    | T. |
| South Dakota         | 45               | T.    |    |    |    |    | 1  |    |    | 1   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 1   |     | 3   | 3   | 5   | 6   | 3   |        | 47   | T.    |    |
| Tennessee            | 41               | A.    | 9  |    | 4  | 6  |    |    | 3  |     | 8   | 1   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 5   | 2   | 2   | 8   |     |        | 70   | T.    |    |
| Texas                | 72               | T.    |    |    | 3  | 3  | 2  | 4  | 4  | 3   | 6   |     |     | 3   | 8   | 4   |     | 3   | 5   | 5   | 1   | 1   |     |     |     | 2   |     | 3   | 2   |     | 12  | 11  |        | 86   | T.    |    |
| Utah                 | 37               | A.    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |      | 0     | T. |
| Vermont              | 15               | T.    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |      | 16    | T. |
| Virginia             | 40               | A.    | 2  |    |    | 1  |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 1   | 14  | 13  | 5   |        | 59   | T.    |    |
| Washington           | 47               | T.    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |      | 1     | T. |
| West Virginia        | 37               | A.    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |      | 7     | T. |
| Wisconsin            | 63               | T.    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |      | 104   | T. |
| Wyoming              | 15               | A.    |    |    |    |    | 2  | 3  |    |     |     |     |     | 19  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |        |      | 30    | T. |
| Sums                 | 2,603            | T. A. | 34 | 8  | 42 | 78 | 16 | 20 | 35 | 104 | 83  | 24  | 2   | 13  | 27  | 48  | 8   | 50  | 196 | 194 | 152 | 175 | 55  | 34  | 42  | 76  | 49  | 66  | 164 | 221 | 214 | 155 | 19     | 2367 | T. A. |    |
|                      |                  |       | 1  | 0  | 3  | 0  | 2  | 16 | 15 | 0   | 1   | 0   | 0   | 67  | 3   | 1   | 2   | 1   | 19  | 2   | 0   | 0   | 1   | 1   | 5   | 7   | 13  | 5   | 10  | 7   | 5   |     | 207    | A.   |       |    |