For the sake of certain studies in hygiene the mean temperature of the wet-bulb thermometer has been given each month. The thermometer from which this temperature is read is whirled at the rate of about 10 feet per second within the light wooden shelter that protects from direct radiation. The average wet bulb for the year can be easily inferred from the mean temperature and dew-point of Table I as the wet-bulb reading is approximately midway between these two.

The total quantity of moisture in the air for the current year can be found by the table given on pages 539–540 of the Annual Summary for 1894, and does not differ to any important extent from the figures there given for that year.

### FREQUENCY OF THUNDERSTORMS.

The successive MONTHLY WEATHER REVIEWS have given for each day and each State the number of thunderstorms reported by both regular and voluntary observers. Tables VI and VII give a summary of these monthly tables. In order to ascertain the relative frequency of thunderstorms, as explained in the Summary for 1884, it is proper to divide the number of storms reported by the number of stations in order to deduce the average number per station. The results of this division are given in the eighth column of the following table, which shows that the greatest frequencies per station per year are: Florida, 36.5; Louisiana, 20.7; Minnesota, 18.1; Missouri, 17.4. The smallest frequencies are: Oregon, 2.5; Washington, 2.2. The product of the observed number of thunderstorms by the reduction factors given in column five of the following table would give the approximate total number of thunderstorms for the respective States, which total number, of course, depends largely on the area of the State, and is omitted from this table, as it has no meteorological significance as compared with the frequency per station.

### FREQUENCY OF AURORAS.

Tables VIII and IX give a summary of the detailed tables of auroral frequency in the respective MONTHLY WEATHER REVIEWS. In the absence of more precise knowledge, it is assumed that the number of observers reporting all auroras is the same as those reporting all thunderstorms; the total number of either class of observers is decidedly less than the total number of those who report rainfall and temperature. The total number of auroras reported divided by the number of observing stations for any State gives the relative frequency per station, and this number relates to a physical phenomenon and is comparable with similar ratios for other parts of the world, provided the aurora is so low as not to be obscured by a cloudy sky. On the other hand, if the auroral light emanate from a region far above the cloud, then a further correction for cloudiness is needed, but this has not been applied in the present case, as the Editor believes that we have no certain proof as to the extreme altitude of the auroras, and that, on the other hand, there are many reasons to believe that it emanates from the cloud region itself and stands in intimate connection with the condensation of moisture by passing through a critical condition of molecular instability that apparently attends the formation of rain and snow.

*Frequency of thunderstorms and auroras during* 1895.

| State. | Areas in units of 10,000 sq. miles. | Number of stations. | | Reduction factor. | Total for 1895. | | Frequency per station. | |
|---|---|---|---|---|---|---|---|---|
| | | Needed. | Reporting. | | Thunder-storms. | Auroras. | Thunder-storms. | Auroras. |
| Alabama | 5.1 | 128 | 45 | 2.8 | 382 | 0 | 8.5 | 0.00 |
| Arizona | 11.4 | 385 | 30 | 12.8 | 190 | 0 | 6.3 | 0.00 |
| Arkansas | 5.2 | 130 | 40 | 3.2 | 393 | 0 | 9.8 | 0.00 |
| California | 15.8 | 395 | 115 | 3.4 | 157 | 3 | 1.4 | 0.03 |
| Colorado | 10.4 | 260 | 75 | 3.4 | 765 | 37 | 10.2 | 0.49 |
| Connecticut | 0.5 | 12 | 20 | 0.6 | 286 | 29 | 14.3 | 1.45 |
| Delaware | 0.2 | 5 | 6 | 0.8 | 85 | 26 | 14.2 | 4.36 |
| District of Columbia | 0.01 | 0.2 | 2 | 0.5 | 32 | 0 | 16.0 | 0.00 |
| Florida | 5.9 | 148 | 30 | 4.9 | 1,094 | 0 | 36.5 | 0.00 |
| Georgia | 5.8 | 145 | 45 | 3.2 | 371 | 0 | 8.2 | 0.00 |
| Idaho | 8.6 | 215 | 26 | 8.3 | 168 | 37 | 6.5 | 1.42 |
| Illinois | 5.5 | 138 | 75 | 1.8 | 955 | 90 | 12.7 | 1.20 |
| Indiana | 3.4 | 85 | 35 | 2.4 | 339 | 20 | 9.7 | 0.57 |
| Indian Territory | 6.9 | 172 | 5 | 34.4 | 42 | 0 | 8.4 | 0.00 |
| Iowa | 5.5 | 138 | 80 | 1.7 | 861 | 128 | 1.8 | 1.60 |
| Kansas | 8.1 | 202 | 65 | 3.1 | 519 | 32 | 8.0 | 0.49 |
| Kentucky | 3.8 | 95 | 35 | 2.7 | 212 | 4 | 6.1 | 0.11 |
| Louisiana | 4.1 | 102 | 45 | 2.3 | 933 | 0 | 20.7 | 0.00 |
| Maine | 3.5 | 88 | 15 | 5.9 | 134 | 111 | 8.8 | 7.40 |
| Maryland | 1.1 | 28 | 30 | 0.9 | 434 | 18 | 14.4 | 0.60 |
| Massachusetts | 0.8 | 20 | 65 | 0.3 | 640 | 127 | 9.7 | 1.95 |
| Michigan | 5.6 | 140 | 60 | 2.3 | 405 | 106 | 6.8 | 1.77 |
| Minnesota | 8.4 | 210 | 60 | 3.5 | 1,086 | 372 | 18.1 | 6.20 |
| Mississippi | 4.7 | 118 | 40 | 3.0 | 578 | 0 | 14.4 | 0.00 |
| Missouri | 6.5 | 162 | 80 | 2.0 | 1,391 | 17 | 17.4 | 0.21 |
| Montana | 14.4 | 360 | 25 | 1.4 | 132 | 111 | 5.3 | 4.44 |
| Nebraska | 7.6 | 190 | 80 | 2.4 | 557 | 79 | 7.0 | 0.99 |
| Nevada | 11.2 | 280 | 35 | 8.0 | 188 | 24 | 5.4 | 0.69 |
| New Hampshire | 0.9 | 22 | 20 | 1.1 | 174 | 137 | 8.7 | 6.85 |
| New Jersey | 0.8 | 20 | 45 | 0.4 | 595 | 46 | 13.2 | 1.02 |
| New Mexico | 12.1 | 302 | 25 | 12.1 | 148 | 0 | 5.9 | 0.00 |
| New York | 4.7 | 118 | 60 | 2.0 | 564 | 129 | 9.4 | 2.10 |
| North Carolina | 5.1 | 128 | 50 | 2.6 | 715 | 3 | 14.3 | 0.06 |
| North Dakota | 7.5 | 185 | 30 | 6.2 | 188 | 288 | 9.6 | 9.60 |
| Ohio | 4.0 | 100 | 125 | 0.8 | 1,360 | 126 | 10.9 | 1.01 |
| Oklahoma | ..... | ..... | 15 | ..... | 106 | 0 | 7.1 | 0.00 |
| Oregon | 9.5 | 238 | 45 | 5.3 | 111 | 2 | 2.5 | 0.04 |
| Pennsylvania | 4.6 | 115 | 70 | 1.6 | 752 | 27 | 10.7 | 0.39 |
| Rhode Island | 0.1 | 2 | 6 | 0.3 | 64 | 11 | 10.7 | 1.83 |
| South Carolina | 3.4 | 85 | 35 | 2.4 | 588 | 1 | 16.8 | 0.03 |
| South Dakota | 7.6 | 190 | 40 | 4.8 | 289 | 99 | 7.2 | 2.48 |
| Tennessee | 4.6 | 115 | 35 | 3.3 | 598 | 1 | 16.9 | 0.03 |
| Texas | 27.4 | 686 | 75 | 9.1 | 604 | 0 | 8.1 | 0.00 |
| Utah | 8.4 | 210 | 25 | 8.4 | 148 | 0 | 5.9 | 0.00 |
| Vermont | 1.0 | 25 | 12 | 2.1 | 151 | 60 | 12.6 | 5.00 |
| Virginia | 6.1 | 152 | 35 | 4.3 | 292 | 5 | 8.3 | 0.14 |
| Washington | 7.0 | 175 | 45 | 3.9 | 97 | 55 | 2.2 | 1.22 |
| West Virginia | 2.3 | 58 | 30 | 1.9 | 270 | 1 | 9.0 | 0.03 |
| Wisconsin | 5.3 | 132 | 55 | 2.2 | 720 | 277 | 5.0 | 5.04 |
| Wyoming | 9.8 | 245 | 10 | 24.5 | 34 | 8 | 3.4 | 0.80 |

## THE ANNUAL SNOWFALL.

By the EDITOR.

The successive MONTHLY WEATHER REVIEWS give tables and charts showing the total snowfall during the month; the annual summaries may be made by presenting these monthly sums, either by calendar years, or by totals for the respective winters. Each method has its advantage in connection with some special study, but, both from an agricultural point of view and from the point of view of the geologist who is studying the phenomena of the Glacial epochs and that of the student of river flow, it is especially desirable to study the snowfall of the entire winter as a whole, avoiding the break at the 1st of January that is introduced by the tabulation according to calendar years. The Editor has therefore prepared from data furnished by Mr. A. J. Henry for the United States, and by Prof. R. F. Stupart for the Dominion of Canada the accompanying tables, X and XI, respectively. These tables show the total snowfall received during the twelve months beginning July 1 and ending June 30 of the following calendar year. The tables begin with the year 1884, when the observers of the United States were generally requested to measure and record snowfall in a uniform manner, but many individual records could be compiled for earlier years. It may be possible, by charting the individual snowfalls, to insert approximate interpolated values for occasional missing years, and thus obtain a set of normals that shall be uniformly intercomparable, but this desirable step is deferred until the end of the lustrum 1896–1900, as adopted by the International Meteorological Congress.

The depth of snowfall is given as measured in inches when