

ruary 28th to about 7 degrees, Fahrenheit, below the mean. During the regime of the high pressures over North America and northern Europe, the barometer reached 30.91 at Burlington, Vermont, on the 6th and 31.00 at Moscow on the 21st. These maximum readings in connection with the low one (28.48) recorded at Mullaghmore on the 10th give us the large barometric range of 2.52 inches for the month. Low area No. VI, already described as area No. IX in February REVIEW, moved rapidly eastward during the 25th and at the end of the month was central in mid-ocean.

Mr. C. Meldrum furnishes the following notes on cyclones occurring in the neighborhood of Mauritius during the month of December, 1880, and January, 1881. No cyclones were reported during November, the month in which these storms may be first looked for in this region: "From the 15th to the 20th of December, 1880, a cyclone passed north and northwest of Mauritius at a distance of 150 to 200 miles, causing some damage to vessels that put to sea from Reunion. On the 2nd and 3rd of January a hurricane was encountered by the *Berar* in 14° S. and 85° E. From the 10th to the 14th of January a hurricane took place in about 15° S. and 72° E. The *Mairi Bahn* and other vessels were dismantled. A cyclone passed NNW. and west of Mauritius from the 18th to the 21st of January, doing much damage at Reunion on the 21st. Another cyclone passed east and southeast of Mauritius from the 6th to the 13th of February. Information regarding these cyclones is being collected."

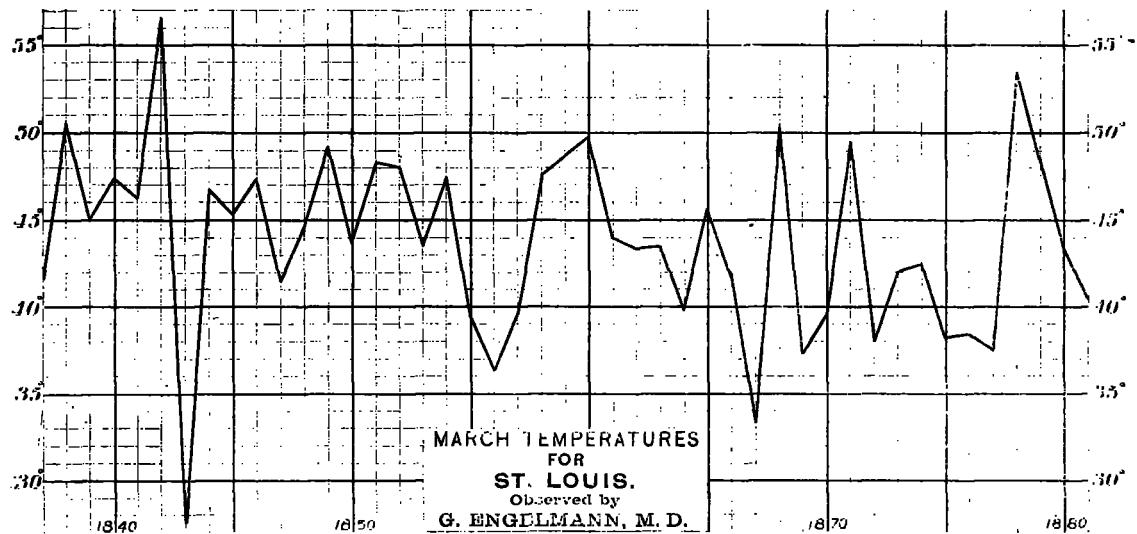
*Chart No. V* shows the mean pressure, temperature and wind force and the prevailing direction of the wind at 7.35 a. m. Washington, or 0.43 p. m. Greenwich, mean time, for the month of April, 1877, over the northern, and at certain isolated stations in the southern, hemisphere. The area of lowest pressure is still found central over the Atlantic Ocean, but with a decided translation to the southward, and, so far as observations at stations along the seaboard indicate, with a continued increase in pressure. While we found the lowest mean barometer for January to be 29.17 at Stykkisholm, and at Tromso for February and March 29.44 and 29.59, respectively, we now find the lowest means for April, to be 29.64 at Valencia and 29.65 at Brest. The highest monthly mean (30.14) is that of Portland, Oregon, while next in order of pressure comes York Factory (30.12). These give a total monthly range in the mean pressures for the northern hemisphere during April of only 0.5 inch, while those of January, February and March were, respectively, 1.28, 0.94 and 0.65. The changes found by comparing the mean pressures of April with those of March show a very marked and interesting homogeneity, there being only one line of no change. This zero-line, if we trace it eastward, enters the United States in northern California, runs northeastwardly to Manitoba and thence southeasterly throughout the region of the great lakes and Middle Atlantic States to about the same parallel it had on the Pacific coast; its course then changes toward the northeast, running along the coast of the New England States, through New Brunswick, and apparently leaving the American continent near the Straits of Belle Isle; it reappears upon the European coast in the north of Ireland. After running southeasterly to the Straits of Dover it follows the 50th parallel to central Russia and thence curves northeastwardly to the Obi valley. North of this line the comparisons show a gradual increase in the pressure of April over that of March, the excess at the most northerly stations being, as follows: Esquimalt, +0.15; York Factory, +0.17; Godthaab, +0.32; Stykkisholm, +0.31; Thorshavn, +0.33; Brono, +0.37; Tromso, +0.33, and Archangel, +0.27 inch. Everywhere to the south of this line, except at certain isolated stations near the equator and in the southern hemisphere, there is a decided decrease, which gradually increases to 0.16 inch in the Lower Mississippi valley, to 0.15 at St. John's Newfoundland, to 0.21 at the Azores, to 0.10 at Lisbon and Algiers, to 0.12 at Beirut and Fao, to 0.22 at Nukuss and Yenisseisk, to 0.20 at Pekin and to 0.17 at Shanghai.

## TEMPERATURE OF THE AIR.

The mean temperature of the air for March, 1881, is shown by the isothermal lines (in red) on chart No. II. The table of mean and comparative temperatures, in the right-hand corner of the chart, shows in the first column the average for the month throughout the various districts as deduced principally from observations taken at Signal Service stations. In the two remaining columns are shown the means for the present month and the departures of such means from the average for many years. Throughout a majority of the various districts of the country the temperature is below the normal, while in the Upper and Lower Lake regions no change occurs. The departures of excess, ranging from +0.4 in the Southern Plateau to +8.5 in the Northern Rocky Mountain slope, are confined, with a single exception, to the northern sections of the country, or above parallel 40°; those of deficiency, ranging from -0.4 in the Middle Atlantic States to -4.8 in the South Atlantic States, embracing the southern districts, are most marked in the Gulf and South Atlantic States.

*Deviations from Mean Temperatures.*—Under this heading, departures exhibited by the reports from the regular Signal Service stations are shown in the table of comparative temperatures, on the right-hand side of chart No. II. The following items of importance, in connection with this

subject, were reported by voluntary observers: *Florida*: Month coldest ever experienced. *Illinois*: Riley, mean temperature  $3^{\circ}.3$  below the mean of March for the past 20 years; coldest March months occurred in 1866, 1867, 1869, 1872, 1875 and 1877. Morrison, month characterized by a very uniform temperature. Belvidere, mean temperature  $3^{\circ}.16$  below mean of past 15 years; coldest March in that period occurred in 1877, mean  $23^{\circ}.11$ ; warmest, in 1878, mean  $43^{\circ}.09$ ; lowest minimum,  $-20^{\circ}$  in 1877; highest maximum,  $+75^{\circ}$  in 1875. *Indiana*: Logansport, month very unpleasant, the first and last weeks being especially cold and stormy; temperature considerably below the normal. *Iowa*: Guttenburg, hardest month of March ever experienced in this section of the State. Clinton, month unusually cold and stormy. Marshall, most backward March ever known here. Muscatine, month unusually blustering and cold. *Kansas*: Lawrence, mean temperature  $4^{\circ}.34$  below the mean of March for the past 13 years. Holton, coldest March ever experienced here, remarkable continuance of severe northwest winds. Clay Centre, very severe month, storms, gales and unusually cold weather. *Maine*: Gardiner, month very warm, mean temperature  $3^{\circ}.87$  above the mean of March for the past 45 years; minimum temperature for the present month,  $20^{\circ}$ , is the highest ever recorded; mean of the four winter months for the past 45 years  $23^{\circ}.08$ ; this winter (1880-'81)  $19^{\circ}.79$  or  $3^{\circ}.29$  below. Cornish, month cold and disagreeable. *Maryland*: Fallston, mean temperature  $1^{\circ}.6$  below the mean of the past 10 years; minimum temperature for the month  $24^{\circ}$ , lowest ever recorded for March in the past 11 years, except 1871. *Massachusetts*: South Lee, very cold rough weather throughout the month. *Michigan*: Northport, no signs of spring, very cold and stormy throughout the month. *Missouri*: Frankford, most backward spring ever experienced here, everything retains the appearance of



mid-winter. St. Louis Weather Service reports the mean temperature  $4^{\circ}.4$  below the mean of March for the past 45 years; during this period colder months of March have occurred in eight separate years; lowest mean,  $27^{\circ}.5$ , occurred in 1845; highest mean,  $56^{\circ}.7$ , occurred in 1837; lowest minimum,  $0^{\circ}$ , occurred in 1848; highest maximum,  $86^{\circ}$ , occurred in 1842. The above diagram shows the curve of mean temperatures for March, as furnished by Prof. F. E. Nipher of the "Missouri Weather Service." As compared with the observations taken at the Signal Service stations in St. Louis during the past ten years, the curves appear to be reliable. *New Jersey*: Newark, mean temperature  $0^{\circ}.52$  below the mean of March for the past 37 years; warmest March occurred in 1849, mean  $46^{\circ}.17$ ; coldest in 1872, mean  $30^{\circ}.23$ ; highest maximum,  $77^{\circ}$ , occurred March 28th, 1845; lowest minimum,  $2^{\circ}$ , March 19th, 1868. *New Hampshire*: Con-tocookville, mean temperature  $4^{\circ}.6$  above the mean of March for the past 10 years. *New York*: North Volney, mean temperature  $2^{\circ}.06$  above the mean of March for the past 13 years. Palermo, mean temperature  $2^{\circ}.1$  below the mean of March for the past 28 years. *Texas*: Clarksville, month unusually cold and disagreeable, vegetation very backward. Melissa, month very cold, no signs of spring. *Virginia*: Wytheville, mean temperature,  $6^{\circ}$  below the mean of March for the past 16 years. *Wisconsin*: Embarrass, month very cold and stormy, everything retains the appearance of mid-winter: such a month of March never before experienced.

Table of Maximum and Minimum Temperatures for March, 1881.

| State or Territory. | Signal Service.          |      |      | U. S. Army Post Surgeons or Voluntary Observers. |      |      | State or Territory. | Signal Service.            |      |      | U. S. Army Post Surgeons or Voluntary Observers. |      |      |
|---------------------|--------------------------|------|------|--|------|------|---------------------|----------------------------|------|------|--|------|------|
|                     | Station.                 | Max. | Min. | Station.   | Max. | Min. |                     | Station.                   | Max. | Min. | Station.   | Max. | Min. |
| Alabama             | Montgomery               | 78°  | 34°  | Tuscaloosa                                       | 30°  |      | Missouri            | St. Louis                  | 69°  | 20°  | Booneville                                       | 80°  |      |
| Arizona             | Yuma                     | 97°  |      | Texas Hill                                       | 106° |      | Do                  | Rock Creek                 | 87°  |      | Corning  |      | 79°  |
| Do                  | Prescott                 |      | 0°   |  |      |      | Montana             |                            |      |      | Ft. Ellis  |      | 59°  |
| Arkansas            | Little Rock              | 78°  | 32°  | Mt. Ida  | 80°  |      | Nebraska            | North Platte               | 71°  | 3°   | Lincoln  | 84°  |      |
| Do                  |                          |      |      | Fayetteville                                     |      | 18°  | Do                  |                            |      |      | Ft. Hartsuff                                     |      | 50°  |
| California          | Red Bluff                | 85°  |      | Mammoth Tank                                     | 101° |      | Nevada              | Winnemucca                 | 78°  |      | Golconda   | 88°  | 50°  |
| Do                  | Campo                    |      | 23°  | Truckee  |      | 8°   | Do                  | Pioche                     |      | 13°  | Otego  |      | 50°  |
| Colorado            | Denver                   | 69°  |      | Ft. Lyon   | 76°  | -20° | N. Hampshire        | M. Washington              | 36°  | -8°  |  |      |      |
| Do                  | Pike's Peak              |      | -15° | Pagosa Springs                                   |      | -20° | New Jersey          | Atlantic City              | 59°  |      | Atco and Vineland                                | 62°  |      |
| Connecticut         | New Haven                | 56°  | 22°  | Mystic   | 60°  |      | Do                  | Barnegat                   |      | 21°  | Rodge Mine                                       |      | 18°  |
| Do                  |                          |      |      | Southington                                      |      | 19°  | Do                  |                            |      |      |  |      |      |
| Dakota              | Deadwood                 | 65°  |      | Ft. Lincoln                                      | 68°  |      | New Mexico          | Albuquerque                | 95°  |      | Ft. Union  |      | -20° |
| Do                  |                          |      |      | Ft. Stevenson                                    |      | -23° | Do                  | Santa Fe                   |      | 8°   |  |      |      |
| Delaware            | Breakwater               | 57°  | 27°  | Dover  | 60°  |      | New York            | New York City              | 57°  |      |  |      |      |
| Dist. Columbia      | Washington               | 65°  | 25°  |  |      |      | Do                  | Buffalo                    |      |      |  |      |      |
| Florida             | Key West                 | 87°  |      | Houston  |      | 32°  | Do                  | Rochester and Oswego       |      | 11°  | Madison Bucks                                    |      | 20°  |
| Do                  | Pensacola                |      | 36°  |  |      |      | Do                  | Wilmington                 | 78°  |      | Highlands  |      | 12°  |
| Georgia             | Augusta                  | 71°  |      | Logan and Vail                                   |      | 0°   | North Carolina      | Charlotte                  |      | 29°  | Ruggles  |      | 10°  |
| Do                  | Atlanta                  |      | 25°  |  |      |      | Ohio                | Cincinnati                 | 63°  |      |  |      |      |
| Iowa                | Keokuk                   | 56°  |      | Anna   |      | 81°  | Do                  | Cleveland                  |      | 13°  | Fallsington                                      | 62°  |      |
| Do                  | Dubuque                  |      | 5°   | Riley  |      | 20°  | Do                  | Umatilla                   | 81°  | 37°  | Franklin and Wellsboro                           |      | 10°  |
| Idaho               | Boise City               | 76°  |      | New Harmony                                      | 63°  |      | Oregon              | Pittsburg and Philadelphia | 61°  |      | Stateburg  | 77°  |      |
| Do                  | Eagle Rock               |      | 12°  | Emporia  |      | 9°   | Pennsylvania        | Erte                       |      | 18°  | Aiken  |      | 20°  |
| Illinois            | Cairo                    | 74°  |      | Bowl'g Green                                     | 71°  |      | Do                  | Newport                    | 38°  | 26°  |  |      |      |
| Do                  | Chicago and Champaign    |      | 11°  |  |      |      | Rhode Island        | Charleston                 | 75°  | 33°  |  |      |      |
| Indiana             | Indianapolis             | 62°  | 18°  |  |      |      | South Carolina      |                            |      |      |  |      |      |
| Indian Ty           | Fort Supply              | 86°  | 17°  |  |      |      | Tennessee           | Nashville and Memphis      |      | 79°  | Tusculum   |      | 20°  |
| Kansas              | Dodge City               | 82°  | 13°  |  |      |      | Do                  | Knoxville                  |      | 23°  | Ft. Elliott                                      |      | 18°  |
| Do                  | Leavenworth              |      | 13°  |  |      |      | Do                  | Tralade and Rio Grande     |      | 93°  |  |      |      |
| Kentucky            | Louisville               | 63°  | 32°  |  |      |      | Do                  | El Paso                    |      | 23°  |  |      |      |
| Louisiana           | Shreveport               | 81°  | 35°  | Fallston   | 64°  |      | Utah                | Salt Lake City             | 73°  | 25°  | Charlotte  | 53°  |      |
| Maine               | Portland                 | 53°  |      | Deer Park  |      | 13°  | Vermont             | Burlington                 | 47°  | 10°  |  |      |      |
| Do                  | Eastport                 |      | 18°  | Billerica  | 58°  |      | Virginia            | Cape Henry                 |      |      | Wytheville                                       |      | 13°  |
| Maryland            | Baltimore                | 59°  | 27°  | Williamstown                                     |      | 14°  | Do                  | Norfolk and Lynchburg      | 73°  |      |  |      |      |
| Do                  |                          |      |      |  |      |      | Do                  | Chincoteague               |      | 23°  |  |      |      |
| Massachusetts       | Boston and Springfield   | 53°  |      |  |      |      | Do                  | Olympia                    | 71°  | 29°  | Helvetia   | 69°  | 14°  |
| Do                  | Thatcher's Id.           |      | 20°  |  |      |      | Do                  | Morgantown                 | 64°  | 25°  | Embarrass  |      | 10°  |
| Michigan            | Detroit                  | 53°  |      |  |      |      | Washington Ty       | La Crosse                  | 47°  |      |  |      |      |
| Do                  | Alpena                   |      | -5°  |  |      |      | West Virginia       | Milwaukee                  |      | 3°   | Ft. Fetterman                                    | 76°  | -6°  |
| Minnesota           | Duluth                   | 51°  |      | Fayette  | 50°  | 23°  | Wisconsin           | Cheyenne                   | 63°  | 4°   |  |      |      |
| Do                  | St. Paul and St. Vincent |      | -12° |  |      |      | Do                  |                            |      |      |  |      |      |
| Mississippi         | Vicksburg                | 78°  | 36°  |  |      |      | Wyoming             |                            |      |      |  |      |      |

Ranges of Temperature at Signal Service Stations.—Monthly ranges in general varied from 30° to 50° over the country east of the Rocky Mountains, and from 40° to 60° to the westward of that region. Ranges less than 40° occurred in the following regions: throughout the Middle Atlantic States and New England, in the Lower Lake region, along the North Carolina and Gulf coasts, at scattering stations in the Ohio valley and along the California coast. The *smallest ranges* were: Woods Holl, 23°; New Shoreham, 24°; Port Huron, 25°; Galveston, 26°; Cape May, New London and Newport, 28°; Indianola, Boston and Eastport, 29°; Portland, Me., Thatcher's Island, Delaware Breakwater, Springfield, Mass, and Milwaukee, 30°. The *largest* were: Fort Verde, 79°; Prescott, 78°; Rock Creek, Dak., 77°; Fort Craig, N. M., 74°; Silver City, 70°; Dodge City and Fort Supply, 69°. The *daily ranges* varied in the different districts as follows: New England, from 15° at New Shoreham to 26° at New Haven and 25° at Springfield; Middle States, 18° at Cape May to 32° at Lynchburg; South Atlantic States, 23° at Portsmouth to 32° at Augusta and Kittyhawk; Eastern Gulf States, 18° at Key West to 35° at Montgomery; Western Gulf States, 18° at Galveston to 31° at Shreveport and Vicksburg and 38° at Little Rock; Ohio valley and Tennessee, 24° at Columbus to 36° at Knoxville; Lower Lake region, 19° at Detroit to 26° at Oswego; Upper Lake region, 17° at Chicago to 35° at Duluth; Upper Mississippi valley, 25° at Keokuk to 34° at St. Louis and 36° at Dubuque; Missouri valley, 26° at Omaha to 34° at Fort Buford and 38° at Leavenworth; Red River of the North valley, 39° at St. Vincent to 43° at Moorehead; Texas, 29° at Brownsville to 51° at Brackettsville and 53° at El Paso; Eastern Rocky Mountain Slope, 36° at Deadwood to 45° at Dodge City and 58° at Fort Supply; Rocky Mountains, 33° at Denver to 36° at Eagle Rock and 38° at Santa Fe; Southern Plateau, 20° at Shakespear to 53° at Prescott and 57° at Fort Craig; Middle Plateau, 28° at Salt Lake City to 34° at Pioche and Boise City and 41° at Winnemucca; northern Plateau, 30° at Helena to 57° at Missoula and Fort Shaw and 58° at Rock Creek; Southern Pacific Coast region, 24° at San Diego to 52° at Campo; Middle Pacific Coast region, 21° at San Francisco to 32° at Red Bluff; Northern Pacific Coast region, 28° at Portland to 34° at Roseburg.

Frost—was reported very frequently during the month from stations north of the 38th parallel and east of the 114th meridian. Beyond these boundaries, to the south and west, it occurred in the various States on the following dates: central and southeastern Virginia, 6th to 8th, 15th, 21st, 22nd, 24th, 29th; eastern and southern North Carolina, 1st, 2nd, 4th to 11th, 21st, 23rd, 24th,

27th, 28th, 31st; South Carolina, 7th, 21st, 23rd, 27th, 28th; Georgia, 1st, 2nd, 4th to 10th, 20th to 24th, 27th to 31st; northern Florida, 6th, 7th, 22nd, 23rd, 27th; Alabama, 1st, 4th, 6th, 10th, 22nd, 23rd, 27th, 30th, 31st; Mississippi, 1st, 5th, 6th, 9th, 10th, 20th to 24th, 27th, 29th, 30th, 31st; Louisiana, none reported; Arkansas, 1st, 6th, 9th, 10th, 20th, 22nd, 23rd, 27th; Texas, 3rd, 4th, 5th, 8th, 16th, 19th to 23rd, 27th, 30th, 31st; Indian Territory, 8th, 9th, 20th, 22nd, 23rd, 26th, 30th; southern New Mexico, 3rd, 4th, 6th, 7th, 11th to 22nd; southern Arizona, 4th, 8th, 11th to 14th, 18th to 27th; southern California, 1st, 4th, 5th, 6th, 11th, 12th, 15th, 16th, 17th, 19th, 21st, 26th, 27th; at Visalia very heavy frost occurred on the night of the 11th, causing considerable injury to peaches, almonds and figs; at the foot-hills and on the plains nearly all apricots were killed; northern California, 10th, 11th, 12th, 13th, 14th, 16th, 17th; at Red Bluff, on the 13th, 14th and 16th, very heavy frosts occurred, seriously injuring all kinds of fruit in the low-lands and slightly those on the up-lands; Oregon, 2nd, 5th, 6th, 9th, 10th to 17th, 23rd; Washington Territory, 3rd, 6th, 10th, 14th, 15th, 16th.

*Ice*—in the northern and central sections of the country is fully considered elsewhere in the REVIEW under the head of "*Ice in Rivers and Harbors.*" Its occasional formation in some of the Southern States and along the southern Pacific Coast is reported as follows: Vicksburg, 23rd; Fayette, Miss., 22nd, 23rd; Campo, 11th; Los Angeles, 17th; Benecia Barracks, Cal., 14th; Princeton, Cal., 14th, 16th; Magnolia, Miss., 31st.

## PRECIPITATION.

The general distribution of rain-fall (including melted snow) for March, 1881, is shown on chart No. III, from the reports of over 500 stations. From the table in the left-hand corner of the chart is obtained a monthly average for each of the various districts, determined from the records (covering a period of many years) of Signal Service stations, and also a comparison of the present month with such averages. The regions of heaviest precipitation are to be found along the immediate coast of Washington Territory, throughout Alabama and Georgia, in western North Carolina, and from northern New Jersey eastward along the coast of Connecticut and Rhode Island, and thence northward on the Massachusetts coast to Maine. The regions of least precipitation occupy western Montana, southwestern Wyoming, northwestern Utah, northern Nevada, central New Mexico and southwestern Arizona. As compared with the mean of past years, the rain-fall for the present month is in general below the average, only five districts out of a total of seventeen reporting an excess. Departures of excess range from +0.15 in the Eastern Gulf States to +1.67 in New England; those of deficiency, from -0.1 in the Upper Mississippi valley to -4.94 in the Northern Pacific Coast region. The rain-fall of the Rocky Mountain and Plateau districts is quite uniform in the various sections, but the range for the whole territory (from 0.00 to 4.95 inches,) though considerable, is not unusual.

In connection herewith the following notes from voluntary observers may be of interest: Riley, Ill., monthly rain fall 4 inches above the average for March during the past 20 years; largest, 6.5 inches, March, 1877. Belvidere, Ill., monthly rain-fall 1.9 below the average for past 13 years; largest, 6.13 in 1876; smallest, 0.79 in 1873. Lawrence, Kan., monthly rain-fall 0.57 below the average for past 13 years. Gardiner, Me., monthly rain-fall 1.41 above the average of the past 45 years. St. Louis, the Missouri Weather Service reports the monthly rain-fall at the central station as 0.27 below the average for the past 45 years; largest amount, 8.61 in 1865; smallest, 0.79 in 1853. The Nebraska Weather Service reports the monthly rain-fall as about normal in the eastern part of the State, but considerably above in the western part. Newark, N. J., monthly rain-fall 3.02 below the average for the past 37 years; largest amount, 10.00 in 1876; smallest, 0.98 in 1854. Patterson, N. J., monthly rain-fall 16.11; heaviest since 1836. Waterburg, N. Y., monthly rain-fall 0.07 above the average for the past 9 years. North Volney, N. Y., monthly rain-fall 0.65 below the average for the past 8 years. Palermo, N. Y., monthly rain-fall 0.3 below the average for the past 28 years. Wytheville, Va., monthly rain-fall 1.6 below the average for the past 16 years.

*Special Heavy Rains.*—8th and 9th, Woodstock, Md., 3.25; Sandy Springs, Md., 2.55. 9th, Wilmington, N. C., 2.79; Baltimore, 3.51; Ft. Myer, Va., 2.58. 9th and 10th, New London, 3.69; Fallston, Md., 3.20; New Haven, 3.22; Mystic, Conn., 3.00. 11th and 12th, Mobile, 4.11. 15th, Auburn, Ala., 2.49. 15th and 16th, Tuscaloosa, Ala., 5.08. 16th and 17th, Forsythe, Ga., 5.35; Augusta, Ga., 3.88; Atlanta, Ga., 5.35; McPherson Barracks, 5.15; Aiken, S. C., 3.20. 18th, Tuscaloosa, Ala., 3.90; McPherson Barracks, 3.15; Fayette, Miss., 3.00. 19th, Paterson, N. J., 5.23 in 10 hours. 19th and 20th, Flushing, N. Y., 2.40; New Haven, 3.16; Somerville, N. J., 2.87; Ft. Columbus, N. Y., 2.64. 20th, Thatcher's Island, 2.61. 30th, Newport, R. I., 2.92.

*Largest Monthly Rain-falls.*—Patterson, N. J., 16.11 inches; Neah Bay, Wash. Ty., 12.05; Tuscaloosa, Ala., 11.74; Atlanta, Ga., 10.98; New Haven, 10.42; Mobile, 10.41; Forsyth, Ga., 10.00; Thatcher's Island, 9.96; Boston, 9.86; McPherson Barracks, Ga., 9.04; Mt. Washington, 8.51; Newport, R. I., 8.24; Ft. Stevens, Or., 8.18; Somerville, N. J., 8.12; White Plains, N. Y., 8.10; South Lee, Mass., 8.07; Elsworth, N. C., 7.88; Lawrence, Mass., 7.78; Baltimore, 7.59; Ft. Canby, Wash. Ty., 7.58; Auburn, Ala., 7.57.