

30th, doubtful weather was indicated from Cape Negrais and the Andamans to the opposite coast of Madras; December 1st to 4th, falling pressure and cloud and rain prevailed on the Coromandel coast, and on the 5th a well-defined depression appeared, which moved northward on the 6th and 7th; very heavy rains fell during these days to the northeast of the storm-centre, the excessive amount of 21.2 inches being recorded at Vizagapatam during the 48 hours preceding 10 a. m. of the 8th; at this place the wind veered from NE. to SSE. and S. After this storm the northeast monsoon probably became fully established over the bay.

TEMPERATURE OF THE AIR.

The isothermal lines on chart No. II illustrate the general distribution of air for the month. By reference to the table on the left side of the chart it will be seen that the temperature of the present month has been very generally below that of the mean for several years past, east of the Rocky mountains, the deviation averaging from two to three degrees, except over New England and the St. Lawrence valley, where it is from four to six degrees below. Over the Western Plateau the temperature has been decidedly above the normal.

Minimum and Maximum Temperatures, respectively: Maine—Orono, -10° and 43° ; Eastport, 0° , 46° ; Portland, 6° , 45° . *New Hampshire*—Mt. Washington, -23° , 14° ; Dunbarton, -10° , 46° . *Vermont*—Burlington, -7° , 38° ; Newport, -26° , 36° . *Massachusetts*—Rowe, -6° , 36° ; Boston, 4° , 56° ; Springfield, 4° , 47° . *Rhode Island*—Newport, 10° , 48° . *Connecticut*—New London, 8° , 49° ; Colebrook, -4° , 46° ; Southington, 0° .4, 51° . *New York*—Madison Bks., -25° , 40° ; Plattsburg Bks., -16° , 35° ; Schroon Lake, -20° , 38° ; Buffalo, -2° , 43° ; New York city, 8° , 49° ; Rochester, -2° , 46° . *New Jersey*—Princeton, 1° , 55° ; Atco, 8° ; 63° . *Pennsylvania*—Tioga, -13° , 42° ; Philadelphia, 8° , 60° ; Pittsburg, 4° , 54° ; Catawissa, 1° , 46° . *De'aware*—Dover, 14° , 62° . *Maryland*—Woodstock, 7° , 55° ; New Market, 10° , 50° ; Baltimore, 12° , 58° . *District of Columbia*—Washington, 11° , 58° . *Virginia*—Wytheville, 6° , 65° ; Snowville, 10° , 48° ; Lynchburg, 17° , 57° ; Norfolk, 22° , 70° . *West Virginia*—Helvetia, -4° , 60° ; Morgantown, 12° , 60° ; Wellsburg, 2° , 48° . *North Carolina*—Highlands, 11° , 57° ; Weldon, 24° , 75° ; Wilmington, 23° , 72° . *South Carolina*—Aiken, 26° , 69° ; Charleston, 30° , 72° . *Georgia*—McPherson Bks., 14° , 71° ; Savannah, 31° , 74° ; Augusta, 27° , 74° . *Florida*—Key West, 56° , 82° ; St. Marks, 29° , 71° ; Houston, 34° , 78° . *Alabama*—Green Springs, 20° , 72° ; Mobile, 34° , 75° ; Montgomery, 28° , 73° . *Mississippi*—Brookhaven, 26° , 69° ; Vicksburg, 24° , 76° . *Louisiana*—Okalooska, 26° , 78° ; New Orleans, 38° , 75° ; Shreveport, 25° , 80° . *Texas*—Concho, 18° , 85° ; Indianola, 36° , 75° ; San Antonio, 32° , 88° ; Castroville, 32° , 91° ; Terrell, 22° , 74° . *Ohio*—Ruggles, -6° , 53° ; Columbus, 4° , 56° ; Cincinnati, 6° , 61° ; Toledo, 4° , 48° . *Kentucky*—Louisville, 6° , 65° ; Bowling Green, 5° , 66° . *Tennessee*—Nashville, 11° , 67° ; Memphis, 16° , 69° ; Chattanooga, 16° , 69° . *Arkansas*—Mt. Idu, 18° , 74° . *Michigan*—Alpena, -22° , 40° ; Marquette, -20° , 39° ; Detroit, -3° , 42° ; Northport, -10° , 38° . *Indiana*—St. Meinrad, -9° , 62° ; Indianapolis, -1° , 58° ; New Harmony, -2° , 61° . *Illinois*—Rockford, -22° , 44° ; Louisville, -4° , 60° ; Chicago, -6° , 51° ; Cairo, 8° , 67° . *Missouri*—Frankford, -8° , 62° ; Kansas City, 1° , 75° ; St. Louis, 4° , 65° . *Kansas*—Ft. Leavenworth, -3° , 71° ; Ft. Wallace, 2° , 84° ; Dodge City, 6° , 74° . *Wisconsin*—Neilsville, -36° , 38° ; Ashland, -30° , 29° ; Madison, -12° , 46° ; La Crosse, -21° , 45° . *Iowa*—Nora Springs, -20° , 43° ; Des Moines, -12° , 52° ; Vail, -16° , 57° . *Nebraska*—Norfolk, -16° , 67° ; Omaha, -9° , 60° ; North Platte, -13° , 47° ; Ft. Sidney, -13° , 69° . *Indian Territory*—Ft. Sill, 16° , 79° ; Ft. Gibson, 14° , 77° . *Minnesota*—Breckenridge, -34° , 39° ; St. Paul, -22° , 35° . *Dakota*—Pembina, -44° , 30° ; Yankton, -17° , 62° ; Bismarck, -26° , 74° . *Colorado*—Pike's Peak, -21° , 26° ; Denver, -3° , 72° ; Ft. Lyons, -10° , 83° . *New Mexico*—Santa Fe, -3° , 75° ; Ft. Union, -13° , 74° ; Ft. Craig, 14° , 82° . *Wyoming Territory*—Cheyenne, -6° , 59° ; Ft. Fred. Steele, -20° , 55° . *Montana*—Virginia City, -9° , 50° . *Utah*—Salt Lake City, 8° , 68° . *Nevada*—Winnemucca, 7° , 69° ; Pioche, 5° , 69° . *Idaho*—Boise City, -9° , 64° . *California*—Sacramento, 33° , 73° ; Visalia, 32° , 79° ; Los Angeles, 38° , 80° ; San Francisco, 43° , 70° ; Red Bluff, 31° , 76° ; San Diego, 38° , 74° .

Ranges of Temperature.—The monthly ranges will appear from an examination of the minima and maxima just given. Greatest daily ranges vary in New England from 27° at New London and 32° at Eastport to 34° at Boston; Middle States, 17° at Cape May and 27° at Albany to 33° at Cape Henry; South Atlantic States, 23° at Savannah, Smithville, Cape Lookout and Cape Hatteras to 37° at Augusta; Gulf States, 14° at Key West and 18° at Galveston to 33° at Montgomery and Corsicana; Ohio valley and Tennessee, 25° at Indianapolis to 41° at Cincinnati and 35° at Morgantown; Upper Lake region, 27° at Chicago and Grand Haven to 36° at Marquette and Escanaba; Lower Lake region, 23° at Sandusky to 35° at Rochester; the Northwest, 26° at Davenport to 47° at Yankton and 45° at Pembina; Eastern Slope, 39° at Fort Gibson to 41° at North Platte; Rocky Mountains, 22° on Pike's Peak to 44° at Denver and 43° at Santa Fé; Western Plateau, 27° at Salt Lake City to 35° at Winnemucca; California, 20° at San Francisco to 30° at Los Angeles and Visalia and 28° at Red Bluff and Sacramento.

Frost—has occurred quite frequently over the northern sections of the country; in the interior of the Southern States and Texas from the 1st to 4th, 6th to 10th, 13th to 24th, 27th, 28th; along the immediate Gulf coast on the 3rd, 4th, 8th, 9th, 14th, 19th, 20th, 21st, 27th, 28th; and on the Pacific coast, 1st, 2nd, 3rd, 5th, 6th.

Ice formed in the Gulf, South Atlantic and Pacific States as follows: Charlotte, N. C., 17th; Charleston, 2nd, 3rd; Augusta, 21st, 22nd, 27th, 28th; Denison, Tex., 6th, 7th; Gatesville, Tex., 3rd, 6th, (8th, "intensely cold, ice all about,") 13th, 14th, 18th; Melissa, Tex., 3rd, 15th, 25th, $\frac{1}{4}$ inch; Wilmington, N. C. 21st; Brookhaven, Miss., 2nd, 3rd, 8th, 9th, 14th, 15th, 19th, 20th, 27th, 28th; Fayettee, Miss., 3rd, 19th, 27th; Gainesville, Ga., 17th, $\frac{1}{2}$ in.; Sacramento, Cal., 5th, 6th.

Ground frozen.—Green Springs, Ala., 14th, 27th, 28th; Brookhaven, Miss., 14th, 15th, 27th; Eagle Pass, Tex., 7th.

PRECIPITATION.

On chart No. III is illustrated the general distribution of precipitation for the month. On the left side is a table showing a comparison of the present month with several previous Februarys, from which it will be seen that there has been a general deficiency, except in the Upper Lake region and Minnesota and on the Pacific coast; at Portland, Or., and Olympia, Wash. Ty., the excess has been nearly equal to the average February rainfall.

Special Heavy Rains.—3d and 4th, Wickenburg, Arizona, 2.14 inches. 11th, Smithville, N. C., 2.63; Fayetteville, N. C., 4.25 in. 16th and 17th, Chattanooga, 2.54; Fayetteville, N. C., 16th to 18th, 4.00 in. 22d, Okalooska, La., 2.40 in. 22d and 23d, Vicksburg, 2.15.

Largest Monthly Rainfalls.—Olympia, Wash. Ty., 15.59 inches; Portland, Or., 13.22; Fayetteville, N. C., 10.13; Mt. Washington, 7.01; White Plains, N. Y., 6.47; Gainesville, Ga., 6.18; Chattanooga, Tenn., 5.85; Vicksburg, 5.63; Knoxville, 5.61; Cape Hatteras, N. C., 5.09; San Francisco, 4.90; Smithville, N. C., 4.76; Cape Lookout, N. C., 4.68; Charleston, 4.56.

Smallest Monthly Rainfalls.—Jacksboro, Tex., none; Ft. Lyon, Col., 0.04 inches; Pilot, Tex., 0.05; Coucho, Tex., 0.06; Dodge City, Kan., 0.08; Camp Verde and Florence, Arizona, 0.14; Vail, Ia., 0.15; Pioche, Nev., 0.17; Stockton, Tex., 0.18; Cheyenne and Ft. Hays, Kan., 0.20; Winnemucca, Nev., and Fort Sill, Ind. Ty., 0.21; Santa Fe, N. M., 0.23; Fort Snelling, Min., 0.24; Fort McPherson, Neb., 0.26; Castroville, Tex., 0.29; Visalia, Cal., Ft. Craig, N. M., Morristoryn, Dak., and Ft. Union, N. M., 0.30; Phoenix, Arizona, 0.34; Graham, Tex., 0.35; Ft. Fred Steele, Wy. Ty., and Yankton, Dak., 0.36; Denver, 0.39; Warrensburg, Mo., 0.13; Macon, Mo., 0.25; Phelps City, Mo., 0.22; Grand City, Mo., 0.20; and northwestern portion of Iowa generally less than 0.50.

Drought.—Uvalde, Tex., 26th—Sheep owners report this month the most severe known, many sheep and goats have died from cold and starvation; vegetation is backward and nearly all springs are dry.

Hail.—Ft. Fred. Steele, Wy. Ty., 15th; Morristoryn, Dak., 28th; New Bedford, Mass., 26th; Freehold, N. J., 25th, 26th; Flushing and Cape Vincent, N. Y., 26th; Wilmington, N. C., 8th, 18th; North Lewisburg, Ohio, 22d, 28th; Woodstock, Vt., 26th; Helvetia, W. Va., 11th; Boise City, Idaho, 14th; Ft. Sill, Ind. Ty., 14th; San Antonio, Tex., 23d; Castroville, Tex., 22d; Fredericksburg, Tex., 1st; Graham, Tex., 16th; Shreveport, La., 25th; Dubuque, Iowa, 24th; Logansport, Ind., 25th; Little Egg Harbor, N. J., 27th.

Rainy Days.—The number of days on which rain or snow has fallen varies as follows: New England, 13 to 17; Middle States, 7 to 16; South Carolina States, 9 to 13; Gulf States, 2 to 12; Ohio valley and Tennessee, 10 to 20; Lower Lake region, 15 to 23; Upper Lake region, 14 to 18; Upper Mississippi valley, 12 to 15; Lower Missouri valley, 4 to 11; Eastern Slope, 0 to 13; Rocky Mountains, 2 to 11; Western Plateau, 1 to 14; Pacific coast, 6 to 11.

Cloudy days.—For New England the number varies from 9 to 18; Middle States, 7 to 14; South Atlantic States, 7 to 13; Gulf States, 2 to 12; Ohio valley and Tennessee, 8 to 18; Lower Lake region, 13 to 21; Upper Lake region 9 to 17; Upper Mississippi valley, 8 to 13; Lower Missouri valley, 9 to 11; Eastern Slope, 5 to 14; Rocky Mountains, 2 to 10; Western Plateau, 1 to 17; Pacific coast, 4 to 11.

Snow.—The precipitation in the northern sections occurred generally as snow. On the Pacific coast and in the South Atlantic States and Texas it occurred as follows: in *British Columbia*, on the 7th, 8th, (10th, 11th, "heaviest storm since 1861-2, and came according to cloud movement, from the SW; at Victoria the snow was four to five feet deep.") *California*, on the Coast Range mountains, 19th; on Sierra Nevada's, during the entire month; *Texas*, 1st, 2d, 14th; *North Carolina*, 1st, 8th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 20th; *Georgia*, 14th, 16th.

Depth of Snow on Ground at end of Month.—It varied in the different sections as follows: *New England*, trace to 38 inches, and 48 inches on Mount Washington. *Middle States*, 0 to $\frac{1}{2}$ inch along the coast to 36 inches in the interior. *Ohio*, trace to 18 inches. *Lower Lakes*, 0 to 18 inches. *Upper Lakes*, 2 $\frac{1}{2}$ to 30 inches. *Upper Mississippi Valley*, trace to 25 inches. *Indiana*, 0 to 10 inches. *Red River of the North Valley*, 4 $\frac{1}{2}$ to 8 inches. *Missouri Valley*, 0 to 6 inches. *Rocky Mountains*, Cheyenne, Virginia City and Pike's Peak, 3 inches.

RELATIVE HUMIDITY.

The average percentage of relative humidity for the month ranges as follows: New England, 59 to 78; Middle States, 58 to 79; South Atlantic States, 57 to 78; East Gulf States, 69 to 76; West Gulf States, 56 to 77; Lower Lakes, 71 to 82; Upper Lakes, 70 to 78; Ohio valley and Tennessee, 59 to 73; Upper Mississippi valley, 66 to 74; Lower Missouri valley, 64 to 69; Red River of the North valley, 84; to 92; Eastern Slope, 50 to 91; Western Plateau, 48 to 67; California, 69 to 87. *High stations* report the following, not corrected for altitude: Mt. Washington, 85; Pike's Peak, 51; Santa Fe, 50; Cheyenne, 52; Denver, 57.

WINDS.

The prevailing winds at the Signal Service stations are shown by arrows on chart No. II, from an examination of which it will be seen that over the eastern section of the country they have been from northerly to westerly except where influenced by local causes; of which marked cases are seen in the NE. wind along