Table of Maximum and Minimum Temperatures for September, 1881.

State or Territory.	Signal Service.			U. S. Army Post Surgeons or Voluntary Observers.		
	Station.	Max.	Min.	Station.	Max.	Min.
Alabama	Montgomery	96°	57°	Green Springs	98°	56°
Do	Mobile	96°				
Arizona	Yuma	107°		Texas Hill	118°	
Do	Prescott		34°			
Arkansas	Little Rock	97°	47°	Mt. Ida	98°	34°
California	Los Angeles	102°		Colton	112°	
Do	Campo		33°	Boca		24°
Colorado	Denver	88°	37°			
Do				Ft. Lewis		25°
Connecticut	New Haven	100°	47°			
Dakota	Yankton	100°		Ft. Randall	102°	
Do	Ft. Sully		21°			
Delaware	Breakwater	93°	63°			
Dist. Columbia	Washington	104°	60°			
Florida	Cedar Keys			Ft. Brooke Tampa	98°	
Do	Jacksonville			Ft. Barrancas		55°
Do	& Key West	94°				
Do	Pensacola		62°			
Georgia	Augusta	97°		Forsyth	100°	
Do	Atlanta		60°	McPherson Barracks		58°
Idaho	Ft. Lapwai	90°				
Do	Eagle Rock		17°			
Illinois	Cairo	97		Anna and		
Do	Springfield		47°	Charleston	102°	
Do				Riley		42°
Indiana	Indianapolis	95°	48°	Laconia	101°	
Do				Logansport		44°
Indian Ty	Fort Gibson	105°	32°			
Iowa	Keokuk	97°		Muscatine	103°	
Do	Des Moines		40	Nora Springs		37°
Kansas	Dodge City	99°	39°	Clay Center	109°	
Do				Ft. Wallace		29°
Kentucky	Louisville	99°	54°			
Louisiana	Shreveport	101°	47°			
Maine	Portland	95°		Orono		33°
Do	Eastport		41°			
Maryland	Baltimore	101°	59°	Fallston	102°	
Do				Cumberland		54°
Massachusetts	Boston	102°		Williamstown		43°
Do	Springfield		46°			
Michigan	Port Huron	97°		Thornville	100°	
Do	Marquette		42°	Ft. Brady		40°
Minnesota	St. Paul	91°				
Do	St. Vincent		24°			
Mississippi	Vicksburg	98°	51°	Fayette		48°

State or Territory.	Signal Service.			U. S. Army Post Surgeons or Voluntary Observers.		
	Station.	Max.	Min.	Station.	Max.	Min.
Missouri	St. Louis	102°	49°	Pierce City		34°
Montana	Ft. Benton	95°				
Do	Ft. Missoula		23°			
Nebraska	North Platte	101°	30°	Clear Creek &		
Do				Genoa	103°	
Nevada	Winnemucca	90°	22°	Hot Springs	98°	
Do				Auburn and		
New Hampshire	Mt. Washington	64°	28°	Contoocookville	95°	
Do				Atco and		
New Jersey	Sandy Hook	101°		Vineland	104°	
Do	Atlantic City &			Freehold		46°
Do	Cape May		55°	Fort Union		25°
New Mexico	La Messilla	98°	43°	Pen Yan	102°	
New York	N. York City	106°		Madison Barracks		39°
Do	Buffalo		45°	Weldon	97°	
North Carolina	Charlotte and			Franklin and		
Do	Kittyhawk	92°		Murphy		55°
Do	Smithville		60°	College Hill	102°	
Ohio	Cleveland and			Westerville		43°
Do	Columbus	98°	50°			
Oregon	Umatilla	91°	35°			
Do	Roseburg		35°			
Pennsylvania	Philadelphia	102°		Milton	105°	
Do	Pittsburg	102°	51°	Franklin		38°
Rhode Island	Newport	88°	51°	Fort Adams	86°	
South Carolina	Charleston	93°	68°	Aiken	95°	65°
Do				Columbia	95°	
Tennessee	Memphis	98°		Ashwood	100°	
Do	Nashville	98°	50°			
Texas	Eagle Pass	104°				
Do	Grierson Springs		42°			
Utah	Salt Lake City	87°	36°	Ft. Douglass		34°
Vermont	Burlington	90°	41°	Charlotte	92°	
Do				Lunenburg &		
Do				Windsor		39°
Virginia	Fort Myer	102°	53°	Accotink	104°	
Do				Snowville &		
Do				Wytheville		48°
Washington Ty	Dayton	91°				
Do	Colfax		27°			
West Virginia	Morgantown	91°	50°	Flemington	99°	44°
Do				Helvetia		44°
Wisconsin	Madison and			Edgerton	98°	
Do	Milwaukee	92°	46°	Neillsville		34°
Do	LaCrosse		46°			
Wyoming	Cheyenne	86°	32°	Ft. Bridger		15°

Ice.—Ft. Gibson, 16th, formed in exposed places. Clay Centre, Kan., 17th. Cheyenne, 15th, $\frac{1}{10}$ inch. Eagle Rock, 15th, $\frac{1}{8}$ inch; 21st, $\frac{1}{2}$ inch; 28th, very thin. Boise City, 26th. Winnemucca, 11th, 19th.

PRECIPITATION.

The general distribution of rain-fall for the month of September, 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. Upon examinination of the chart it is found that the monthly rain-fall is decidedly above the average throughout the central portions of the country, the regions of excess being most marked in the Upper Mississippi and Missouri valleys. With the exception of Minnesota these were the regions of considerable deficiency in August. Minnesota reports the largest excess (4.44 inches) that has occurred in that state since the establishment of Signal Service stations, and with the exception of an excess of 5.50 inches in the West Gulf States in 1875, is the largest ever reported by any district. The marked excess of 3.59 inches in the Upper Mississippi valley is by far the largest ever reported by that district, the next highest 2.35 inches occurred in September, 1876. With regard to the Missouri valley the excess there reported 3.03 is the largest since 1872, the next highest 2.10 inches occurred in 1876. Throughout the Atlantic coast states and reaching northwestward to include the Ohio valley and the Lower Lake region deficiencies ranging from 0.43 inch to 2.61 inches occur. A slight deficiency is reported from the North Pacific coast region while the South Pacific coast is normal. In the Plateau and Rocky Mountain regions the extremes are from 0.00 in Nevada to 3.80 in southeastern Arizona and southwestern New Mexico.

Deviation from Average Precipitation.—Under this heading departures exhibited by the reports from the regular S gnal Service stations are shown in the table of comparative temperatures on the left-hand side of Chart No. III. The following items of importance in connection with this subject were reported by voluntary observers:—*Connecticut:* Southington, monthly rain-fall less than for any month since 1869. *Kansas:* Lawrence, monthly rain fall nearly double the average

of the past 13 years; during this period it has been exceeded but once, viz: in September, 1874. Yates Center, monthly rain-fall, 7.80 inches above that of September, 1880; largest precipitation for several years. *Iowa:* Nora Springs, monthly rain-fall exceedingly large, being nearly four times the average of the past 6 years. *Maine:* Gardiner, monthly rain-fall 0.23 inch below the average of the past 45 years. *Maryland:* Fallston, monthly rain-fall considerably below the average; month unusually dry. Sandy Springs, month extremely dry; monthly rain-fall below the average of the past 15 years. *Massachusetts:* Springfield, there has been but three Septembers during the past 33 years in which the monthly rain-fall was below that of September, 1881, viz: in 1855, 0.74 inch; 1865, 0.65 inch; 1877, 0.78 inch. *Missouri:* St. Louis, the Missouri Weather Service reports: monthly rain-fall 0.15 inch below the mean of the past 45 years; heaviest precipitation, 10.53 inches, fell in September, 1866. *New Jersey:* Atco, monthly rain-fall considerably below the average; month exceedingly dry. *Nebraska:* Nebraska Weather Service reports: average for the entire State, 4.14 inches, against 3.35 inches in 1880, and 2.20 inches in 1879; the average for September, 1881, has been exceeded but five times in the past 30 years; the monthly rain-fall at Howard, (12.96 inches) during the present month is the largest ever recorded in September, in this State. *New York:* North Volney, monthly rain-fall 1.68 inches below the average of the past 9 years; during that period the largest precipitation (4.65 inches) occurred in 1870, and the smallest, 1.70 inches, was recorded in 1880.

Special Heavy Rains.—1st, Leavenworth, 2.60 inches. 2nd, Toledo, 1.82 in 1 hour and 10 minutes. 4th, Moorehead, Minn., 2.57. 5th, Fort Union, N. M., 2.44; Fort Fetterman, Wyo., 2.60. 5th and 6th, Fort Wallace, Kan., 2.50. 6th, Yankton, 3.45; Smithville, Dak., 4.08. 6th and 7th, Fort Supply, Ind. Ty., 3.18. 9th, Smithville, N. C., 2.41. 9th and 10th, Neillsville, Wis., 4.30; Genoa, Nebr., 2.70 in 10 hours and 30 minutes. 11th, San Antonio, 3.09; Eagle Pass, 2.87. 13th, Charleston, 2.46; Decatur, 2.27; Fort Griffin, Tex., 2.76. 13th and 14th, Ashwood, Tenn., 3.90. 14th, Fort Macon, N. C., 2.68; Shreveport. 4.06; Ellsworth, N. C., 6.00 in 11 hours. 14th and 15th, Vicksburg, 3.85; Pensacola, 5.62; Montgomery, 2.75; Mobile, 4.30; Fort Barrancas, Fla., 4.72; Fayette, Miss., 3.20; Auburn, Ala., 3.78. 15th, Nashville, 4.21; Grand Haven, 2.70; Memphis, 2.51. 15th and 16th, Niles, Mich., 2.43; Wytheville, Va., 3.11; Independence, Ia., 2.15 in 7 hours; Highlands, N. C., 3.75. 15th to 17th, Ellsworth, N. C., 13.00 in 44 hours. 16th, Cedar Keys, 4.49; Aiken, S. C., 2.60. 16th and 17th, Augusta, Ga., 6.12. 17th, Marrietta, O., 2.35. 17th and 18th, Wytheville, Va., 2.20; Highlands, N. C., 4.05. 23rd, Smithville, 2.24. 24th, Alpena, 2.50. 25th and 26th, Mobile, 6.01. 26th, Dubuque, 4.01; Port Eads, La., 4.19. 26th and 27th, Elsworth, N. C., 4.00; Fort Brady, Mich., 2.83. 27th, Coldwater, Mich., 2.27. 27th and 28th, Highlands, N. C., 3.25; Pierce City, Mo., 4.20. 28th, Vevay, Ind., 2.40; Litchfield, Mich., 3.00; Fort Scott, Kan., 2.79; Fort Smith, Ark., 2.72. 28th and 29th, Manhattan, Kan., 3. 27; Fort Snelling, Minn., 3.04; Howard, Nebr., 5.80 in 26 hours. 29th, Northfield, Minn., 2.43; Logan, Ia., 2.40; Omaha, 3.67; Neillsville, Wis., 3.70; St. Paul, 2.68; Duluth, 2.88; Nora Springs, Ia., 4.00; Marquette, 4.44. 30th, Dubuque, 2.27; Fort Scott, Kan., 5.18 in 9 hours; Decatur, Tex., 4.44; Mason, 3.21; Springfield, Ill., 2.74; Jacksboro, 3.27; Brackettville, 2.52; Nelson, Tex., 4.00 in 1 hour and 30 minutes; Fort Gibson, 2.50; Brunswick, Mo., 2.50; Boonville, Mo., 3.18.

Largest Monthly Rainfalls.—Elsworth, N. C., 26.50 inches; Neillsville, Wis., 14.01; Highlands, N. C., 13.40; Nora Springs, Ia., 13.05; Marquette, Mich., 12.71; Howard, Neb., 12.36; Caldwell, Kan., 12.15; Mobile, 11.71; Embarrass, Wis., 11.60; Duluth, 11.52; Franklin, N. C., 11.35; Wellington, Kan., 11.19; La Crosse, 10.87; Key West, 10.71; Ft. Snelling, Minn., 10.54; Northfield, Minn., 10.27; Dubuque, 10.26; Independence, Ia., 10.20; Monticello, Ia., 10.15; Cresco, Ia., 10.03; St. Paul, 9.95; Belle Plain, Kan., and Minneapolis, Minn., 9.90; Escanaba, 9.48; Ft. Scott, Kan., 9.41; Independence, Kan., 9.11; Big Creek, Neb., 9.01; Chamois, Mo., 8.93; Milan, Kan., 8.90; Ft. Barrancas, Fla., 8.82; Yankton, Dak., 8.61; Ft. Brady, Mich., 8.53; Pensacola, Fla., 8.47; Omaha, 8.36; Yates Centre, Kan., 8.31; Smithville, N. C., 8.24; Madison, Wis., 8.17; Manitowoc, Wis., 7.85; Ames, Ia., 7.63; Guttenburg, Ia., 7.50; Sedalia, Mo., 7.42; Cedar Keys, Fla., 7.41; Niles, Mich., 7.36; Evansville, Ind., 7.30; Port Eads, La., 7.24; Punta Rassa, Fla., 7.20; Argyle, Kan., 7.10; Auburn, N. H., 7.02; Augusta, Ga., 7.01; Leavenworth, 6.89; South Haven, Kan., 6.85; Corning, Mo., 6.73; Grand Haven, 6.71; Muscatine, Ia., 6.59; Indianola, 6.51; Nashville, 6.49; Lexington, Mo., and Springfield, Ill., 6.43; Kansas City, Mo., 6.20; Alpena, 6.16; Mt. Washington, 6.13; Vicksburg, 6.11; Winfield, Kan., 6.10.

Smallest Monthly Rainfalls.—Anaheim, Brentwood, Brighton, Byron, Colton, Ft. Yuma, San Gorgonio, Turlock, Stockton, Tracy, Summit, Martinez, Woodland, Menlo Park, Monterey, Modesto, Kingsburg, Tulare, Sumner, Mojave, Ravenna, Newhall, San Fernando, Spadra, White Water, Indio and Mammoth Tank, Cal.; Pioche, Reno, Wadsworth, Beowawee, Elko, Halleck, Wells, Toano, and Tecoma, Nev.; Kelton, Promontory and Terrace, Utah; Eagle Rock, Idaho; Terry's Landing, Mont., and Casa Grande, Ariz., none; Los Angeles, Livermore, Boca and Antioch, Cal. and Ft. McDermit, Nev., trace; Campo, Delano and San José, Cal., 0.02 inch; Poway and Goshen, Cal., 0.03; San Diego and Solidad, Cal., and Browns, Nev., 0.04; Borden, Truckee and Tuohey's Ranche, Cal., Yuma, Ariz. and Ft. Washakee, Wyo., 0.05; Miles and Tennant,

Cal., and Hot Springs, Nev., 0.08; Pt. San Jose and Visalia, Cal. and Eugene City, Or., 0.09; Salinas City, San Buenventura, Oakland and Ione Cal., Carlin and Golconda, Nev., 0.10; Otego, Nev., and Texas Hill, Ariz., 0.12; Caliente, Napa and Pleasanton, Cal., and Palisade, Nev., 0.13; Merced, Cal., 0.14; Humboldt, Nev., 0.15; Battle Mountain and Winnemucca, Nev., and San Mateo, Cal., 0.16; Farmington and Presidio, Cal., 0.17; Lathrop, Cal. and Ft. Bridger, Wyo., 0.18; Lemoore and Rio Vista, Cal., 0.20; Davis, Cal., 0.23; Bidwell, Galt and Hollister, Cal., and Brookhaven, N. Y., 0.24; San Francisco and Alcatraz Island, Cal., and Boise City, Idaho, 0.25; Blue Creek Utah, 0.29; Ft. Gaston, Petaluma, Rocklin, Sacramento and South Valejo, Cal., and Linden and Somerville, N. J., 0.30; Pajaro and Suisun, Cal., and Carson City, Idaho, 0.31; Tehachapi, Cal., 0.32; Gilroy, Cal., 0.34; Milton, Port Angeles and Tehama, Cal., and Ft. Keogh, Mont., 0.35; Corinne, Utah and Williams, Cal., 0.37; Southington, Conn., 0.38; Santa Cruz, Cal., 0.39; Knight's Landing, Cal., 0.42; Salt Lake City, 0.43; Angel Island and Willows, Cal., 0.44; Belvidere, Ill., Catawissa, Pa., and Mt. Ida, Ark., 0.45; Fresno, Cal., 0.46; Calistoga, Cal., 0.48; Maricopa, Ariz., White Plains, Cal., Delaware Breakwater, Del. New Brunswick, N. J., and Ft. Douglass, Utah, 0.50

Rainy Days.—The number varied in New England from 7 to 16; Middle Atlantic states, 4 to 13; South Atlantic states, 4 to 18; Florida Peninsula, 18 to 22; East Gulf states, 7 to 13; West Gulf states, 6 to 17; Rio Grande valley, 5 to 11; Ohio valley and Tennessee, 9 to 13; Lower Lake region, 9 to 16; Upper Lake region, 13 to 20; extreme Northwest, 5 to 15; Upper Mississippi valley, 7 to 21; Missouri valley, 12 to 17; Northern slope, 6 to 10; Middle slope, 3 to 7; Southern slope, 4 to 8; Southern Plateau, 2 to 7; Middle Plateau, 0 to 3; Northern Plateau. 0 to 13; North Pacific region, 7 to 12; Middle Pacific region, 1 to 3; South Pacific region 0 to 1,

Cloudy Days.—The number varied in New England from 2 to 13; Middle Atlantic states, 1 to 10; South Atlantic states, 1 to 9; Florida Peninsula, 3 to 10; East Gulf states, 3 to 6; West Gulf states, 2 to 9; Rio Grande valley, 2 to 10; Ohio valley and Tennessee, 3 to 8; Lower Lake region, 2 to 11; Upper Lake region, 5 to 15; extreme Northwest, 5 to 10; Upper Mississippi valley, 6 to 11; Lower Missouri valley, 4 to 9; Northern slope, 3 to 10; Middle slope, 3 to 4; Southern slope, 4 to 8; Southern Plateau, 1 to 5; Middle Plateau, 0 to 2; Northern Plateau, 2 to 8; North Pacific region, 4 to 8; Middle Pacific region, 0 to 1; South Pacific region, 0 to 4.

Snow.—Pagosa Springs, Colo., 6th, on mountains; Fort Shaw, Mont., 28th; Fort Assinnaboine, 27th; Ft. Bridger, W.T., 6th, 27th, 28th, 29th; Ft. Washakee, W. T., 5th, 6th, 29th; Genoa, Nebr., 16th, slight fall; Missoula, Mont., 19th, on surrounding mountains; Eagle Rock, Idaho, 2nd, 3rd, 25th, 29th; Dayton, Wash. Ty., 28th; Pomeroy, Wash. Ty., 27th; Winnemucca, 23rd, on mountains; Salt Lake City, 23rd, on mountains; Deadwood, 5th, 6th, 29th, 30th; Fort Meade, Dak., 6th; Cheyenne, 6th, 26th, 27th, 29th; Fort Custer, Mont., 30; Deer Lodge, Mont., 24th, 29th; Fort Shaw, Mont., 28th; Helena, Mont., 29th; Fort Ellis, Mont., 24th to 26th, 29th, 30th; Superior City, Mont., 25th; Missoula Ferry, Mont., 10th to 16th; Fort Assinnaboine, Mont., 5th, 6th, 30th; Denver, 8th, on mountains; St. Vincent and Moorehead, Minn., 4th; Omaha, 16th; Des Moines, 16th, between this city and Atlantic, several inches; Carson City, Nev., 22nd, on mountains west of station; McGregor, Iowa, 16th, snow fell all day in the northwestern portion of the State, the storm moving from NW. to SE., and reaching eastward to Algona, Kossuth Co., where it fell to the depth of four inches; Creston, Iowa, 16th, quite heavy; a general snow storm was reported from southern Minnesota; Stuart, Iowa, 16th, between this point and Avoca on the Rock Island Railroad, four to six inches reported.

Snow from a Cloudless Sky.—Cheyenne, Wyo., 29th, 3.55 p. m., lasting 15 minutes.

Hail storms of unusual violence were reported as follows: Mankato, Minn., 2d, most violent ever known in this section; hailstones 15 inches in circumference were picked up after the storm had passed; several persons were seriously injured by the falling hail. There was considerable wind and a perfect deluge of rain after the hail. Owantonna, Minn., 2d, wind shifted from northwest to south as the storm advanced, the hail breaking all windows on the south and west exposures. Lawrence, Kan., 29th, hailstones two inches in diameter fell in large quantities; every window on the north side of Massachusetts avenue broken; a heavy wind accompanied the hail, uprooting trees and unroofing some buildings. Moorehead, Minn., 4th, hailstones one inch in diameter, breaking all windows having western exposure. Morgantown, 1st, hailstones one-fourth inch in diameter.

RELATIVE HUMIDITY.

The percentage of mean relative humidity for the month ranges as follows: New England, from 74 to 89; Middle Atlantic states, 64 to 87; South Atlantic states, 68 to 82; East Gulf states, 67 to 78; West Gulf states, 52 to 77; Rio Grande valley, 68 to 80; Ohio valley and Tennessee, 65 to 73; Lower Lake region, 67 to 72; Upper Lake region, 70 to 82; extreme Northwest 66 to 79; Upper Mississippi valley, 62 to 80; Missouri valley, 66 to 78; Northern Slope, 46 to 66; Middle Slope, 45 to 61; Southern Slope, 53 to 71; Southern Plateau, 47 to 60; Middle Plateau, 25 to 34; Northern Plateau, 37 to 67; North Pacific region, 69 to 81; Middle Pacific region, 40 to 77; South Pacific region, 49 to 73.