TEMPERATURE OF THE AIR.

[*In degrees Fahrenheit.*]

The distribution of the monthly mean temperature of the air over the United States and Canada is shown by the dotted isotherms on Chart II; the lines are drawn over the high irregular surface of the Rocky Mountain plateau, although the temperatures have not been reduced to sea level, and the isotherms, therefore, relate to the average surface of the country occupied by our observers; such isotherms are controlled largely by the local topography, and should be drawn and studied in connection with a contour map.

The *regular diurnal period* in temperature is shown by the hourly means given in Table IV for all stations having self-registers.

The mean temperature is given for each station in Table II, but in Table I both the mean temperatures and the departures from the normal are given.

The *monthly mean temperature* published in Table I, for the regular stations of the Weather Bureau, is the simple mean of all the daily maxima and minima; for voluntary stations a variety of methods of computation is necessarily allowed, as shown by the notes appended to Table II.

As compared with the normal for February, the mean temperatures for the current month were decidedly in excess in Canada and the British Possessions generally, northern New England, the northern portion of the United States, and the whole Pacific coast as far south as San Diego. The ridge of greatest excess included the following: Minnedosa, 8.2; Walla Walla, 7.2; Spokane, 6.6; Qu'Appelle, 5.2; Edmonton, 5.0; Williston, 4.6; Father Point, 4.4

Considered by districts, the mean temperatures for the current month show departures from normal temperatures as given in Table I. The greatest positive departure was northern plateau, 5.4. The greatest negative departures were: South Atlantic, 12.7; Key West, 7.9; east Gulf, 13.3; west Gulf, 12.2; Ohio Valley and Tennessee, 12.4.

The *years of highest and lowest mean temperature* for previous years in February are shown in Table I of the REVIEW for February, 1894. The mean temperature for February, 1895, was the lowest on record at regular Weather Bureau stations throughout the Atlantic and Gulf States and Mississippi and Ohio valleys.

The *maximum and minimum temperatures* of the current month at regular stations of the Weather Bureau are given in Table I, which also gives the absolute maximum and minimum for the month during the entire period of Weather Bureau observations. As the corresponding years are also given in this table it is easy to ascertain whether any absolute maximum or minimum has occurred during the present year.

The *greatest daily range of temperature and the extreme monthly range* are given for each of the regular Weather Bureau stations in Table I, which also gives data from which may be computed the extreme monthly ranges for each station. The largest values among the greatest daily ranges were: Rapid City, 60; Havre, 56; Pueblo, 53. The smallest values were: Tatoosh Island, 11; Key West, 14. Among the extreme monthly ranges the large values were: Bismarck, 103; Huron, 101.

The *accumulated monthly departures* from normal temperatures since January 1 are given in the second column of the following table, and the average departures are given in the third column, for comparison with the departures of current conditions of vegetation from the normal conditions.

Districts.	Accumulated departures.		Districts.	Accumulated departures.	
	Total.	Average.		Total.	Average.
	°	°		°	°
Northern plateau	+ 8.7	+ 4.4	New England	— 4.2	— 2.1
North Pacific	+ 3.4	+ 1.7	Middle Atlantic	—11.5	— 5.8
Middle Pacific	+ 2.2	+ 1.1	South Atlantic	—13.8	— 6.9
Southern Pacific	+ 1.7	+ 0.8	Key West	— 9.3	— 4.6
			East Gulf	—14.6	— 7.3
			West Gulf	—11.8	— 5.9
			Ohio Valley and Tenn.	—15.6	— 7.8
			Lower Lake	—10.6	— 5.3
			Upper Lake	— 6.4	— 3.2
			North Dakota	— 1.7	— 0.8
			Upper Mississippi	—10.5	— 5.2
			Missouri Valley	— 5.6	— 2.8
			Northern slope	— 3.8	— 1.9
			Middle slope	— 5.8	— 2.9
			Southern slope (Abilene)	—13.8	— 6.9
			Southern plateau	— 1.8	— 0.9
			Middle plateau	— 3.2	— 1.6

The *limit of freezing weather* is shown on Chart VI by the isotherm of minimum 32° and the limit of frost by the isotherm of minimum 40°.

MOISTURE.

The *quantity of moisture* in the atmosphere at any time may be expressed by means of the weight contained in a cubic foot of air, or by the tension or pressure of the vapor, or by the temperature of the dew-point. The mean dew-points for each station of the Weather Bureau, as deduced from observations made at 8 a. m. and 8 p. m., daily, are given in Table I.

The *rate of evaporation* from a special surface of water on muslin at any moment determines the temperature of the wet-bulb thermometer, but a properly constructed evaporometer may be made to give the *quantity of water evaporated* from a *similar surface* during any interval of time. Such an evaporometer, therefore, would sum up or integrate the effect of those influences that determine the temperature as given by the wet bulb; from this evaporation the average humidity of the air during any given interval of time may be deduced.

It is much to be desired that one or more new series of measurements of evaporation, wind velocity, temperature, and dew-point be made at high and low stations in instrument shelters similar to those used by the Weather Bureau, in order that a general empirical formula may be devised for use with the evaporometer considered as an integrating hygrometer.

The *sensible temperature* experienced by the human body and attributed to the atmosphere depends not merely upon the temperature of the air, but equally upon the dryness and the wind. It would seem that the rapid evaporation from the body in dry, hot weather reduces the temperature of the layer of nerve cells at the surface of the skin. This reduction, or sensible coolness, is approximately proportional to the difference between the dry and wet bulb thermometers.

The resulting sensible temperatures are simply the temperatures of the wet-bulb thermometer as obtained by the whirling apparatus used in the shaded shelter, and correspond to the temperatures felt by persons standing in the shade of trees or houses, exposed to a natural breeze of at least 6 miles per hour. The temperature of the wet-bulb thermometer and