

Light, 24; Fort Canby, 25; Astoria and Portland, Oreg., 27; Key West, 28; Tatoosh Island, 29.

The accumulated monthly departures from normal temperatures from January 1 to the end of the current month 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.
New England .....	+ 4.6	+ 0.4	Middle Atlantic .....	- 7.3	- 0.6
Upper Lake .....	+ 0.2	0.0	South Atlantic .....	-17.7	- 1.5
North Dakota .....	+ 3.7	+ 0.8	Florida Peninsula .....	-16.6	- 1.4
Missouri Valley .....	+ 2.4	+ 0.2	East Gulf .....	-20.6	- 1.7
Northern Plateau .....	+ 0.8	+ 0.1	West Gulf .....	-20.6	- 1.7
			Ohio Valley and Tenn. ....	-13.1	- 1.1
			Lower Lake .....	- 6.9	- 0.6
			Upper Mississippi .....	- 1.9	- 0.2
			Northern Slope .....	-11.9	- 1.0
			Middle Slope .....	- 6.3	- 0.5
			Abilene (southern Slope) ..	-23.1	- 1.9
			Southern Plateau .....	-12.4	- 1.0
			Middle Plateau .....	-17.1	- 1.4
			North Pacific .....	- 4.0	- 0.3
			Middle Pacific .....	- 9.5	- 1.8
			South Pacific .....	-10.0	- 0.8

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 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 quantity the average humidity of the air during any given interval of time may be deduced.

Sensible temperatures.—The sensation of temperature experienced by the human body and ordinarily attributed to the condition of the atmosphere depends not merely on the temperature of the air, but also on its dryness, on the velocity of the wind, and on the suddenness of atmospheric changes, all combined with the physiological condition of the observer. The condition of the atmosphere as to moisture is so important that it has, by exaggeration, been sometimes considered as a controlling feature and the temperature of the wet-bulb thermometer, when whirled in the shade, has been called the sensible temperature, although this is often but a partial index of the sensation of temperature. In order to present a monthly summary of the atmospheric conditions on which hygienic and physiological phenomena depend, the moisture must be fully considered, and therefore Table VIII has been prepared, showing the maximum, minimum, and mean readings of the wet-bulb thermometer at 8 a. m. and 8 p. m., seventy-fifth meridian time. A complete expression for the relation between atmospheric conditions and nervous sensations is under consideration, but has not yet been obtained.

PRECIPITATION.

[In inches and hundredths.]

The distribution of precipitation for the current month, as de-

termined by reports from about 2,500 stations, is exhibited on Chart III. The numerical details are given in Tables I, II, and III. The total precipitation for the current month was heaviest, 20.00 to 25.00, on the immediate coasts of Oregon and Washington. A region of heavy precipitation, 10.00 to 12.00, extends from central Oklahoma, northeast to central Missouri. This latter feature in the distribution of rain and snow is due to the fact that the heaviest precipitation in this region occurred in belts extending northeast and southwest between a system of warm southeast winds and cold north winds on December 18th, 19th, and 20th.

The diurnal variation is shown by Table XII, which gives the total precipitation for each hour of seventy-fifth meridian time, as deduced from self-registering gauges kept at about 43 regular stations of the Weather Bureau; of these 37 are float gauges and 6 are weighing gauges.

The normal precipitation for each month is shown in the Atlas of Bulletin C, entitled "Rainfall and Snow of the United States, compiled to the end of 1891, with annual, seasonal, monthly, and other charts."

The current departures from the normal precipitation are given in Table I, which shows that there was an excess in northern Texas and thence northeastward over the Lake Region, also in western Oregon and Washington. There was a deficiency throughout the Atlantic and Gulf coasts, California and the Rocky Mountain Plateau.

Large excesses were: Neah Bay, 9.4; Tatoosh Island, 8.7; Springfield, Mo., 8.6; Astoria, 6.5; Columbia, Mo., 6.8; Springfield, Ill., 5.6; Chicago, 4.4; Jupiter, 4.3. The large deficits were: San Francisco, 3.8; Los Angeles, 3.7; Point Reyes Light, 3.6; Shreveport, 3.1.

The average departure for each district is also given in Table I. By dividing these by the respective normals the following corresponding percentages are obtained (precipitation is in excess when the percentages of the normals exceed 100):

Above the normal: Florida Peninsula, 128; Ohio Valley and Tennessee, 111; lower Lake, 155; upper Lake, 144; upper Mississippi, 149; Missouri, Valley, 281; Abilene, (southern Slope), 211; north Pacific, 146.

Normal: Middle Slope, 100.

Below the normal: New England, 86; Middle Atlantic, 91; South Atlantic, 66; east Gulf, 85; west Gulf, 83; North Dakota, 60; northern Slope, 65; southern Plateau, 56; middle Plateau, 57; northern Plateau, 86; middle Pacific, 55; southern Pacific 22.

The total accumulated monthly departures from normal precipitation, from January 1 to the end of the current month, are given in the second column of the following table; the third column gives the ratio of the current accumulated precipitation to its normal value.

Districts.	Accumulated departures.	Accumulated precipitation.	Districts.	Accumulated departures.	Accumulated precipitation.
Florida Peninsula .....	+ 0.70	101	New England .....	- 5.30	88
Abilene (southern Slope) ..	+ 7.30	126	Middle Atlantic .....	- 9.10	80
Southern Plateau .....	+ 0.40	104	South Atlantic .....	- 6.30	51
			East Gulf .....	- 8.60	85
			West Gulf .....	- 6.70	87
			Ohio Valley and Tenn. ....	-11.00	76
			Lower Lakes .....	- 5.80	88
			Upper Lakes .....	- 7.00	79
			North Dakota .....	- 1.10	94
			Upper Mississippi .....	- 7.80	78
			Missouri Valley .....	- 2.90	91
			Northern Slope .....	- 0.40	97
			Middle Slope .....	- 1.60	98
			Middle Plateau .....	- 2.60	80
			Northern Plateau .....	- 4.50	73
			North Pacific .....	- 4.10	93
			Middle Pacific .....	- 5.60	81
			South Pacific .....	- 5.40	68

The years of greatest and least precipitation for December are