years, will enable the contractors not only to estimate more closely on the job, but the successful bidder will be able to plan to utilize the unfavorable season for the assembling of material and the favorable season for pushing the work of actual construction.

Freshets at The Dalles, Oreg.

The annual freshet which occurs about April 15 and ends about the middle of August will cause a suspension of active work for a period of about 4 months, though some of the work on the higher levels can probably be carried on during a portion of the freshet season.

During the winter months occasional freshets occur, due to the fall rains, which might interfere with the work on the lower levels. Ice gorges occur, rarely, in January and February.

The summer and winter freshets, and snow and ice, cover a period of a little over 4 months. The remainder of the year is generally favorable for construction work.

The U. S. Weather Bureau records at The Dalles, covering a period of 34 years to January, 1909, show that on an average the thermometer reaches or falls below 32° on 74 days of each year, and that the average temperatures for the months of January, February, and December are 32.4°, 34.0°, and 36.1°, respectively. The mean annual precipitation for 34 years is 14.17 inches. In the last 13 years running ice has occurred 6 times in January and 3 times in February.

CAPACITY OF SPILLWAYS.

Messrs. Whistler & Stubblefield, hydraulic engineers, of Portland, Oreg., in referring to some recent very high waters in the Columbia Valley, state they illustrate the necessity of providing ample spillway capacity in the construction of dams, on which subject they further remark as follows:

It is unsafe to provide only for the largest flood known, even though observations on the behavior of the river cover a long period. To provide capacity for double the largest flood known within the last 20 or 30 years is, in some cases, entirely too small. The flood in the Deschutes River at Bend, Oreg., in November, for example, reached a height that gave twice as large a discharge as any previous flood so far as can be determined from the records, or from information furnished by the early settlers.

Another instance of a flood that could not have been foreseen from records, or from information obtained from early settlers, is the one that occurred in 1907 down Cold Spring Canyon, which canyon is now known as Cold Spring Reservoir on the Government Irrigation Project in Umatilla County, Oreg. A flood of more than 5,000 cubic feet per second washed out three-quarters of a mile of the Oregon Railroad and Navigation Company's track at Cold Spring siding that year. No flow from this canyon had reached the track since the construction of the railroad about 25 years before, and no opening whatever had been provided. The only way in which such a flood could have been foreseen would be to take into consideration the area drained, and allow for extremely unusual weather conditions.

HYDROGRAPHY OF THE SOUTH PALOUSE RIVER, WASH.

By HANS MUNN, jr., Civil Engineer.

THE VALUE OF HYDROGRAPHY.

One of the greatest resources of the United States lies in the running water. The first in time, if not in importance, of the objects of hydrography is undoubtedly that pertaining to navigation. This part of hydrography may almost be considered at an end, requiring for the most part merely the continual revision necessitated by some changing conditions due to erosive or artificial clearing of some of the important streams.

Next we have the demands for information concerning the water that, through its velocity and change from higher to lower levels, furnishes power for so much of our machinery. If the streams continued to flow unvaryingly through the different seasons of the year it would be a very easy matter to ascertain the power that would be relied upon but, with their constant fluctuations day by day, it becomes a problem taking years of measuring to determine the power available through all the seasons of the year. At certain seasons the amount of water may be greatly in excess of any possible utilization, and then again there comes a season during which the quantity drops below that required for the water wheel, and the storage of flood waters must be resorted to.

In the United States there has arisen a third demand for knowledge of the water resources, which in political and social importance ranks even above the needs of navigation and manufacturing. This is through the extension and higher development of agriculture by the artificial application of water. One-third of the total area of the nation is still at the disposal of Congress, and this one-third includes some of the most fertile areas of the Continent. It is, however, practically unavailable to the settler, usually a man of small means, because of the fact that the climate prevailing through the vast extent of this public land is too arid to allow the growth of ordinary farm crops. Irrigation must be practised and where it has been employed so far it has been very notably successful; but the supply of water is scanty and in many cases before an acre of the best land can be cultivated an enormous expenditure must be made in the construction of reservoirs, canals, and ditches. Lately the Government has undertaken the work to build large reservoirs, construct canals and ditches, and thus in every way make possible the utilization of the vast extent of arid land. Before plans involving the utilization of these lands can be made it is necessary, however, to obtain accurate knowledge as to the available water supply both above and below the ground, and of the possibilities concerning floods and of raising water by machinery from lower to higher levels. With the fluctuations which take place from year to year, it is obvious that such investigations must be continued for periods sufficiently long to show the ordinary range of conditions.

There is yet another series of investigations which, though individually of local concern, are found where civilization progresses. These pertain to the supply of water for domestic and municipal use. The quantity is almost insignificant in comparison with those required for navigation, water power, or irrigation. But while the quantities are small the quality is of great importance, for upon it depends the life and health of the masses of the people in the cities. As a rule each city or town makes its own investigations regarding the source of supply and the amounts obtainable from watersheds. The time is approaching when vigorous steps must be taken to prevent stream pollution, and in the mean time a thorough knowledge must be obtained of all possible sources of supply.

THE GEOLOGY AND TOPOGRAPHY OF THE DRAINAGE BASIN.

The drainage area of the South Palouse River, from Pullman to its head, lies almost wholly in the Palouse wheat raising section. About nine-tenths of the area is under cultivation of which about one-half is summer fallowed each year, the other half is covered with a rich growth of grain during the summer months. The whole area is treeless with the exception of a few willows along the creeks and about 12 square miles of timber in the extreme northeastern part, lying along the Thatuna Hills.

The whole area is a rolling basaltic plateau, bordered on the northeast and the southeast by a low range of foot hills, the area has a general slope toward the southwest, the South Palouse flows very nearly through the center of it. The principal branch of the South Palouse, Paradise Creek, which flows nearly parallel to it, drains the northern portion and joins it near Pullman. The stream heads in the Thatuna Hills and flows southwestward in shallow channels at first, which increase progressively in depth until at Pullman they are nearly 200 feet in depth.

The deep, rich soil covering the area is a residual soil formed by the disintegration and decay of the underlying lavas. The only basalt seen are the outcroppings along the channels of the streams, and in the stream bottoms. At a depth usually of 5 to 8 feet below the surface the dark color of the upper soil fades

away and the subsoil, equally fine and homogeneous and having the same mineral composition but of a light and usually a yellowish color, is revealed. The subsoil varies in depth with the relief of the surface and with the topography of the underlying hard rock surface, but is nearly always deep. Chemical analyses of a large number of soils from various localities in Washington and Idaho, including samples from the basaltic plateau have been made by the chemists of agricultural experiment stations at Pullman and Moscow. These analyses show that the chemical composition of the soil on the basaltic plateau is such as might be expected to result from the weathering of the solid rock beneath.

One feature of the hills which especially attracts attention is that they are usually steep on the northwest side and slope gently toward the southwest. The steeper sides frequently have a slope of 20° and more, and in many instances are slightly concave when seen in profile, while the more gentle sloping sides descend at angles measuring 5° to 8° and are frequently convex.

EXPLANATION OF TABLES.

The gaging and ratings of the South Palouse River were taken at the foot-bridge on Pine street, Pullman, Wash.

Gagings were made daily with a rod measuring to tenths. On account of floods occurring it was thought impracticable to put in a stationary gaging rod, and so a bench-mark was determined at the floor beam of the foot-bridge from which distances were measured down to the water. Table 2.

To make the ratings a Price current meter was used. This gives the revolutions by clickings caused by the making and breaking of an electric current furnished by a cell.

Readings were taken for a minute's time at each of the 2-foot sections across the stream. At most of the sections readings were taken a number of times and the average therefrom obtained. The revolutions thus secured were reduced to feet per second from a table rated for that particular meter. Table 1.

A cross-section (see fig. 1) was made of the stream parallel to the foot-bridge, which is at an angle of nearly 33° with the

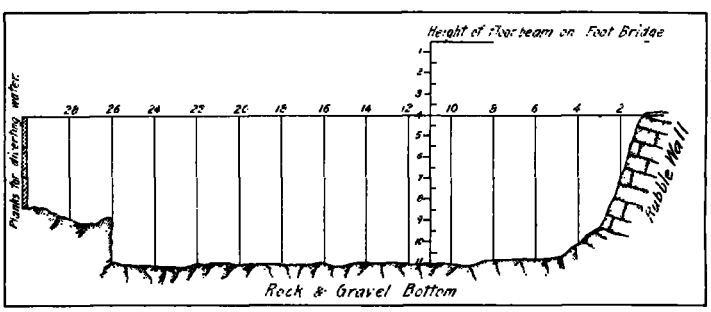

FIG. 1.—Cross-section of the South Palouse River at the Pine street gaging station, Pullman, Wash.

flow of the stream, so that in order to have the right cross-section each area was multiplied by cos 32° 52′, which is 0.84.

TABLE 1.—*Current meter readings from which the discharge curve was computed, as measured in 14 sections between banks at 5 gage heights.*

Section.	1	2	3	4	5
2	130	84	170	.....	.....
4	138	88	188	38	7
6	142	96	206	43	15
8	148	126	220	44	18
10	160	126	248	43	30
12	116	116	250	49	39
14	150	102	280	46	36
16	144	90	280	38	34
18	134	78	276	34	22
20	121	70	250	32	16
22	108	56	212	27	11
24	94	38	208	19	9
26	71	20	168	.....	.....
28	60	12	108	.....	.....

In Table 1 are recorded the revolutions of the current meter per minute's time for each section of the stream.

Having thus the velocity and the area of the cross-section the quantity can be found by using the formula $Q=AV$. The quantities thus obtained from the gage heights rated were plotted on cross-section paper, to form a rating curve, as shown on fig. 2, the gage heights reading from bench-mark on foot

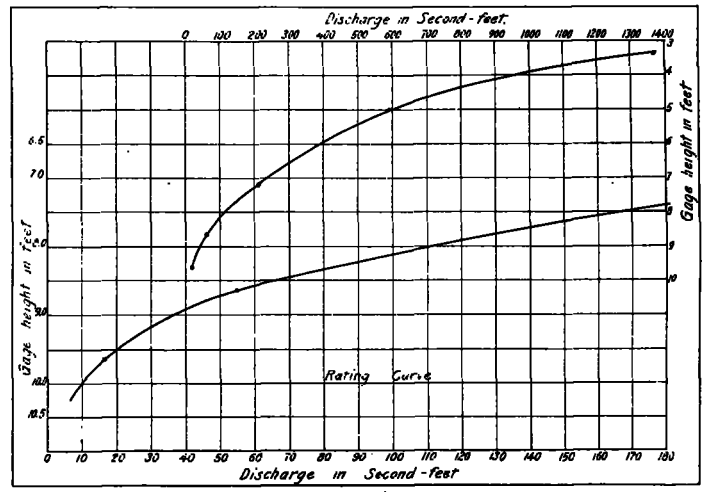

FIG. 2.—Rating curves for the Pine street gage, Pullman, Wash.

bridge down to water surface, and the discharge reading in cubic feet per second. Gaging is plotted as ordinates and discharge as abscissas.

Table 2 gives the run-off each day at different gage heights as read from the rating curve.

TABLE 2.—*Gage heights and run-offs.*

	January.		February.		March.		April.		May.		June.	
	Gage.	Amt.	Gage.	Amt.	Gage.	Amt.	Gage.	Amt.	Gage.	Amt.	Gage.	Amt.
	Feet.	*Sec-ft.*	*Feet.*	*Sec-ft.*	*Feet.*	*Sec-ft.*	*Feet.*	*Sec-ft.*	*Feet.*	*Sec-ft.*	*Feet.*	*Sec-ft.*
1	9.5	.....	9.3	26	6.9	254	8.7	52	9.3	26	10.0	10
2	.....	.....	9.3	26	7.2	212	8.7	52	9.4	23	10.0	10
3	.....	.....	9.3	26	7.2	212	8.8	46	9.5	20	9.9	11
4	.....	.....	9.4	23	7.2	212	9.0	37	9.6	17	9.9	11
5	.....	.....	9.5	20	7.2	212	8.9	42	9.7	15	10.0	10
6	.....	.....	9.6	17	7.2	212	8.8	46	9.7	15	10.0	10
7	9.5	20	9.6	17	7.3	200	8.9	42	9.8	13	10.0	10
8	9.5	20	9.7	15	7.4	189	9.0	37	9.7	15	10.0	10
9	9.5	20	9.7	15	7.6	164	9.0	37	9.4	23	10.0	10
10	9.4	23	9.8	13	7.8	140	9.1	33	9.4	23	10.0	10
11	9.4	23	9.9	11	8.2	92	9.2	29	9.5	20	10.0	10
12	8.0	110	9.8	13	8.2	92	9.2	29	9.5	20	10.0	10
13	5.0	591	9.7	15	8.3	83	9.3	26	9.7	15	9.9	11
14	5.4	503	9.6	72	8.4	74	9.4	23	9.8	13	10.0	10
15	7.2	212	9.0	37	8.4	74	9.4	23	9.9	11	10.0	10
16	7.6	164	3.4	1,366	8.5	66	9.4	23	9.7	15	.....	.....
17	8.1	100	6.8	265	8.6	58	9.4	23	9.7	15	.....	.....
18	8.5	66	7.8	140	8.6	58	9.4	23	9.6	17	.....	.....
19	8.6	58	8.5	66	8.7	52	9.3	26	9.5	20	.....	.....
20	8.7	52	6.9	254	8.8	46	9.3	26	9.6	17	.....	.....
21	8.8	46	7.8	140	8.7	52	9.3	26	9.7	15	.....	.....
22	8.7	52	8.2	92	8.4	74	9.4	23	9.7	15	.....	.....
23	8.5	66	7.6	164	8.8	46	9.4	23	9.8	13	.....	.....
24	8.7	52	7.4	189	8.8	46	9.4	23	9.8	13	.....	.....
25	8.8	46	7.1	224	8.8	46	9.5	20	9.8	13	.....	.....
26	8.9	42	6.5	307	8.9	42	9.6	17	9.9	11	.....	.....
27	8.9	42	8.6	265	8.9	42	9.6	17	9.9	11	.....	.....
28	8.9	42	6.9	254	8.9	42	9.6	17	10.0	10	.....	.....
29	9.1	33	.....	.....	9.0	37	9.7	15	10.0	10	.....	.....
30	9.3	26	.....	.....	9.0	37	9.6	17	10.0	10	.....	.....
31	9.2	21	.....	.....	8.9	42	.....	.....	10.0	10	.....	.....

Part of the drainage area was secured by observing where the watershed crossed the section lines and partly from government and county maps. The area was secured by using cross-section paper and checking with a planimeter.

In Table 3 the maximum, minimum, and mean quantity in the stream each month is given in second-feet and the total discharge in acre-feet. To obtain this total for the month in acre-feet the usual practise is to multiply the mean daily dis-

TABLE 3.—*Discharge of South Palouse River at Pullman, Wash. Drainage area, 120 square miles.*

Month.	Maximum.	Minimum.	Mean.	Total for month.	Run-off.	
					Depth.	Per square mile.
1901.	*Sec.-ft.*	*Sec.-ft.*	*Sec.-ft.*	*Acre-ft.*	*Inches.*	*Sec.-ft.*
January 7 to 31.	591	20	97	3,811	.59	.80
February	1,366	11	143	7,936	1.24	1.19
March	254	37	103	6,334	.99	.85
April	53	15	29	1,725	.27	.24
May	26	10	16	984	.15	.13
June 1 to 15	11	10	10	297	.05	.08
For period	1,366	10	66	21,087	3.29	.65

charge for all months, except February, April, June, September, and November, by 55.5, these having 31 days, and for the remaining months by 59.5.[1] This involves a small area, but far within the range of accuracy of the original observations. These factors are the number of seconds in a month divided by the number of square feet in an acre, 43,560 square feet.

For example:

Number of days in May = 31, therefore our factor would be,

$$\frac{31 \times 24 \times 60 \times 60}{43560} = 61.5$$

In fig. 3 is plotted the depth of rainfall and run-off for each month and during the period. It will be seen by the curve

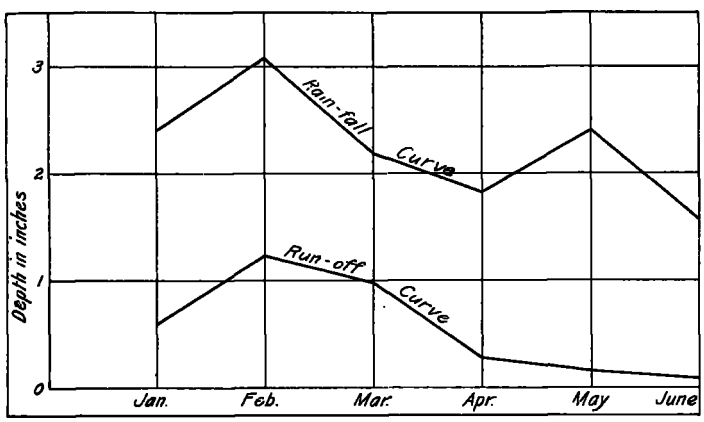

FIG. 3.—Curves showing the relation between rainfall and run-off.

that the difference between the rainfall and the run-off is less in the winter months, when the ground is frozen and the temperature low, than in the summer months when more of the moisture soaks into the ground and the evaporation is greater. It will be especially noticed that the difference between the run-off and the rainfall in February and March is less than in any other month. During these months the ground was frozen part of the time and the heaviest rainstorms occurred. On February 16 we had the greatest flood. It began to rain on the 14th and continued for nearly 2 days. On the night of the 15th the river rose rapidly and reached its highest at noon on the 16th. The flood lasted only about 24 hours, and during the night of the 16th it fell 3 feet and continued falling gradually. In May the curve of rainfall increases, but the curve of run-off falls off by nearly its former amount. This is probably accounted for by the fact that the ground in May was in a condition to absorb much of the rainfall and also the evaporation carried off a greater amount than in previous months.

The maximum discharge from the catchment basin tributary to a reservoir is a factor of great importance in designing its dam or wasteway. Several formulas for ascertaining the maximum discharge from a given catchment basin have been obtained both empirically from known measurements and by theoretic processes. Mr. J. T. Fanning found by plotting a curve derived from the flood discharges of some American streams that the resulting equation for flood flow became $D = 200\ (M)\ 5/6$, in which M is area of catchment in square miles, and D the volume of discharge of the whole area in second-feet. Taking the same C, as used by Fanning, namely, 200, the flood discharge of 1,366 second-feet, which occurred over the catchment area of the South Palouse on February 16, 1901, and for M the area of basin, that is 120 square miles, an exponent is obtained somewhat lower than Fanning's, in the formula $D = C\ (M)^x$.

Example for obtaining exponent ^{x}.

$$D = C\ (M)^x.$$
$$1366 = 200 \times 120^x.$$
$$120^x = 6.83.$$
$$x \log 120 = \log 6.83.$$
$$x = \frac{\log 6.83}{\log 120} = \frac{0.8343}{2.0792} = 0.401$$

Exponent 5/6 of Fanning's formula reduced to a decimal in order to compare the exponents is 0.723 instead of 0.401.

TABLE 4.—*The relation between rainfall and run-off during the period of observation. Compare fig. 3.*

1901.	January 7 to 31.	February.	March.	April.	May.	June 1 to 15.
Rainfall in inches.	2.40	3.06	2.28	1.83	2.40	1.54
Run-off in inches.	0.59	1.24	0.99	0.27	0.15	0.05

TABLE 5.—*Rainfall of months preceding period of observation from July to December, 1900.*

1900.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Rainfall in inches.	0.35	0.78	0.79	3.24	2.14	5.53

TABLE 6.—*Monthly percentage of river flow to rainfall.*

1901.	Rainfall.	Run-off.	
		Actual depth.	Per cent of rainfall.
	Inches.	*Inches.*	
January	2.40	0.59	24.6
February	3.06	1.24	40.6
March	2.28	0.99	43.4
April	1.83	0.27	14.7
May	2.40	0.15	6.2
June 1 to 15	1.54	0.05	3.2

The percentage of run-off to rainfall is found by dividing the figures of column 3 by those of column 2 for each month.

[1] From "Results of Stream Measurements," by F. H. Newell.

Taking from table 3 the mean daily discharge for May as 16 second-feet we have, 16×61.5=984 total for month of May, as given in column 5 of Table 3.

The depth of run-off over the whole basin is also given for each month in inches for convenience of comparison with rainfall, and also in second-feet per square mile drained. The former is obtained by multiplying the acre-feet per month by 12, to obtain acre-inches, and dividing this by 640, the number of acres in a square mile, and this by the area of the drainage basin, which is 120 square miles. The run-off in second-feet per square mile is simply the mean monthly discharge divided by the total area of the basin from all of which the water is assumed to come.

TABLE 1.—*Climatological data for November, 1909. District No. 12, Columbia Valley.*

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Precipitation, in inches. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Sky. Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.
Montana.																				
Anaconda	Deer Lodge	5,300	8	34.2		65	3	− 5	15	34	1.41		0.55		8	10	6	14		C. D. Demond.
Bison Mountain	Powell	7,240									2.60		0.58	21.7	11	13	7	10		C. H. Anderson.
Columbia Falls	Flathead	3,100	13	34.6[d]	+ 2.0	55[d]	4†	2[d]	13	25[d]	3.27	+ 0.84	1.03	4.0	7	1	3	26	sw.	Mrs. I. M. Kennedy.
Como§	Ravalli		2	35.3		63	3	2	14	25	3.76		1.22	2.0	16	3	10	17		Hiram Platt.
Darby	do	3,825									4.54					6	20	4	sw.	W. A. Kerlee.
Dayton	Flathead	2,800																		Charles M. Lawson.
East Anaconda§	Deer Lodge	5,500	4	32.8		61	3	− 1	14	31	1.49		0.70	6.0	7	10	6	14	w.	C. D. Demond.
Fortine	Flathead	2,975	4	34.6		57	3	− 2	14†	29	2.47		0.41	2.5	20	3	6	21	e.	Mike Petery.
Hamilton	Ravalli	3,575	7	4.06		70	3†	3	15	39	1.86		0.85		8	5	13	12	s.	J. B. Currie.
Hat Creek	Powell	6,000									4.16		0.90	10.3		12	7	11	w.	M. K. Landreth.
Jocko	Missoula	3,100	1																	George W. Robbins.
Kalispell	Flathead	2,965	11	35.5	+ 3.5	58	3	6	14	21	2.99	+ 1.09	0.45	4.1	16	1	8	21	sw.	U. S. Weather Bureau.
Lost Creek	Deer Lodge	5,200																		Frank Henault.
Missoula	Missoula	3,225	26	36.8	+ 4.6	67	3	5	15	27	1.39	+ 0.21	0.30	0.7	15				sw.	U. S. Weather Bureau.
Ophir	Powell	8,800									1.29		0.30	10.0	9	8	7	15	w.	E. S. Wilton.
Ovando	do	4,207	11																	S. B. Muchmore.
Philipsburg	Granite	5,275	6	34.9		65	3	− 4	15	37	1.33		0.48	6.3	10	13	4	13	w.	Prof. G. T. Bramble.
Pipestone Pass	Jefferson	7,000									1.07		0.35	20.5	8	10	13	7	nw.	Mrs. Th. Kiermeyer.
Plains	Sanders	2,475	11	35.8	+ 3.7	53	2	5	14†	25	2.87	+ 1.54	0.60		10	4	2	24	sw.	M. H. Pierce.
Pleasant Valley	Flathead	3,500	3	34.0		56	8	−11	14	38	5.27		0.72	4.2	17					A. D. Stillman.
Polson	do	2,920	2	36.9		56	30	9	14†	31	2.24		0.50	1.5	9					F. P. Brown.
St. Ignatius	Missoula	2,700	1	37.6		61	29	0	15	29	1.25		0.25	2.0	14	4	3	23		U. S. Reclamation Service
St. Regis	do	2,650	2	36.5		55	4	5	15	28	5.34		1.07	3.6	17	4	12	14	ne.	R. D. Lee.
Saltese	do	3,600	5								12.50		2.00	3.0	17	6	0	24	w.	E. K. Tarbox.
Snowshoe	Flathead	4,500	3	30.4		47	3†	− 1	14	24	27.92		3.81	32.7	25	2	1	27	w.	J. S. Riter.
Troy	do	1,880	15	39.5	+ 3.8	65	6	5	15	30	8.39	+ 4.07	1.10	13.5	19	5	4	21		W. E. Milnor.
Upper Lake McDonald	do	3,200	3	30.0[f]		49[f]	8	0[f]	14	32[f]						1[f]	5[f]	18[f]	s.	F. F. Liebig.
Woodville	Jefferson	6,376									1.78		0.67	13.3	10	11	8	11	sw.	Anna Kinman.
Wyoming.																				
Afton	Uinta	6,200	6																	A. V. Call.
Alta	do										2.75		0.75	9.4	14	9	3	18	sw.	Mrs. Lucy Brown.
Bedford	do	5,900	10	31.4	− 0.2	64	3†	−11	28	42	2.68	+ 1.58	0.63	14.1	10	11	2	17	w.	C. G. Heiner.
Snake River	Yellowstone Park	7,000	3	28.4		55	3†	− 9	12	42	5.00		1.00	33.0	10	8	4	18	w.	U. S. Army.
Nevada.																				
San Jacinto	Elko		5	34.4		62	3	4	16	42	1.55		0.69		4	11	5	14	sw.	Moses Jones.
Idaho.																				
Albion	Cassia		9	39.6		71	3	8	16	43	3.11		1.12	4.0	11	8	2	20	w.	G. A. Asline.
Almo	do										2.78		0.86	3.0	10	10	9	11	nw.	Wm. L. Eames.
Bear Valley	Boise																			Francis Wallis.
Blackfoot	Bingham	4,503	13	36.8	+ 2.6	66	3†	10	16	40	3.00	+ 3.21	0.67		12	9	6	15	sw.	E. A. Dowd.
Blanche	Lincoln			43.6[e]		76[e]	3	18[e]	16	46[e]										Solon A. Bray.
Bogus Creek	Boise	4,200									7.16		1.58	18.5	16	5	12	13		F. P. Ingraham.
Boise	Ada	2,770	24	44.0	+ 4.4	69	4	21	15	27	3.41	+ 2.55	0.80	2.0	16	4	8	18	nw.	U. S. Weather Bureau.
Bonanza	Custer	6,600																		Mrs. Emma Walter.
Bonners Ferry	Bonner	1,850	3	35.7		56	23†	9	14†	32	5.38		1.03	5.5	18	0	6	24	sw.	W. H. Heideman.
Boulder Mine	Boise	4,800									9.87		2.03	17.3	15	9	7	14		Patrick Moriarty.
Buhl	Lincoln	3,800	4	42.3[a]		70[a]	1†	21[a]	14†	34[a]	2.72		0.60	4.0	15					Dr. D. P. Albee.
Burke	Shoshone	4,082	3	32.3		47	3†	2	15	25	13.56		2.37	19.5	21	2	5	23	ne.	W. A. Hall.
Caldwell	Canyon	2,372	5	42.4		72	2	16	15†	31	1.73		0.50	1.0	14	4	13	13	e.	W. J. Boone.
Camas	Fremont	4,815		31.4		63	3†	3	15	51	1.89		1.20	2.0	3				sw.	Ednah Faulkner.
Cambridge	Washington	2,651	14	39.3	+ 4.5	65	4	15	15†	32	2.25	− 0.05	0.82	0.5	12				nw.	C. H. Shepherd.
Chesterfield	Bannock	5,424	13																	Chas. L. West.
Clawson	Fremont										3.03		1.64	14.0	6	13	3	14		E. J. Hopkins.
Cœur d'Alene	Kootenai	2,157	17																	Jas. T. Scott.
Culdesac	Nez Perce	1,520		40.8		68	3	13	15	33	5.44		0.88		11	8	7	15		R. R. Richmond.
Dent	do	1,350	4	38.0		59	4	17	15	20	6.92		1.04	0.0	22	2	14	14		Emil Schuessler.
Driggs	Fremont	6,097	3	29.8		54	8	− 6	28	32	2.31		0.70	14.0	9	7	5	18		Walter H. Durrant.
Edie	do			29.4		54	5†	− 2	15	32	1.24		0.33	10.0	5	13	6	11	s.	Geo. B. Edie.
Emmett	Canyon	2,350	3	42.6		71	1	18	15	30	2.53		0.41	0.0	14	12	5	13	s.	E. L. Marvin.
Forney	Lemhi		13	32.9	+ 2.0	71	3	2	16†	42	2.28	+ 0.36	0.43	12.0	7	15	7	8	sw.	E. P. Treloar.
Garnet	Elmore	2,575	10	44.4	+ 0.6	64	2	20	16	28	1.22	+ 0.51	0.30	T.	8	12	2	16	e.	Mrs. Inez H. Davis.
Gilbert§	Nez Perce	3,030		39.4		60	3†	12	14†	22				3.0		2	8	20	sw.	J. B. Loomis.
Glenns Ferry	Elmore	2,569	2	42.9		73	3	18	16	45	4.32		0.95	1.5	15	12	1	17	sw.	I. E. Perkins.
Grand Forks	Shoshone	3,000		34.3		52	24	1	16	32	20.90		2.98	13.3	23	4	7	19	e.	H. F. Kottkey.
Grandview	Owyhee			44.8		70	3†	20	7	44	1.02		0.30	0.0	9					N. G. Massey.
Guffey	do	2,381		46.0		74	2	14	16	35	1.38		0.25	T.	13	18	0	12	w.	F. N. Perry.
Hailey	Blaine	5,347	7	33.8		61	3	7	16	40	2.68		0.61	4.0	11	8	10	12	se.	U. S. Forest Service.
Henry	Bannock																			N. W. Irsfield.
Hotspring	Owyhee	2,752	4	46.0		72	2†	18	16	44	1.94		0.45	0.0	11	9	7	14		J. M. Waterhouse.
Idaho City	Boise	4,000	11								8.49		1.85	12.5	12					Mrs. Emma Hammer.
Idaho Falls	Bingham	4,742	14	35.9	+ 4.3	66	4	15	16	39	1.26	+ 0.17	0.48	1.5	8	11	3	16	ne.	Dr. T. M. Bridges.
Indian Valley	Washington	2,999									2.88		0.85	0.0	12	4	10	16	s.	W. E. Henke.
Irwin	Bingham	6,500		35.7		67[a]	4	− 2	28	41	2.99		0.57		10	8	9	13		Miss Martha A. Beam.
Kellogg	Shoshone	2,330	5	38.0		58[b]	22†	9[b]	15	24[d]	7.88		1.17	1.5	21	2	2	26	sw.	W. McM. Huff.
Kooskia	Idaho	1,261		39.2		66	4	15	16	22	5.21	+ 0.41	0.68	0.1	19	7	5	18	sw.	U. S. Forest Service.
Lake	Fremont	6,700	17	30.7	+ 0.5	64	4†	0	12†	36	1.70	+ 3.15	0.40	17.0	5				sw.	J. Sherwood.
Lakeview	Bonner	2,250	12	37.6	+ 0.3	55	2†	7	14	25	7.75		1.20	6.0	18	2	2	26	sw.	E. D. Faust.
Landore	Washington	5,300	6	32.4		56	3†	6	15	27	6.37	+ 2.17	1.24	20.5	16	8	8	14		Mrs. Emma L. Brown.
Lardo	Boise	5,050	5																	E. W. York.
Lewiston	Nez Perce	757	15	44.2	+ 3.3	67	22	21	15	27	3.49		0.78	0.0	19	1	7	22	e.	U. S. Weather Bureau.
Little Camas	Elmore	5,000									8.19		1.69	13.3	15	4	12	14	w.	Solon McCoy.
Lost River	Blaine	5,700	15																	B. B. Harger.
Lowry	Owyhee		2	42.3		81	1†	9	16	60	3.64		1.18	4.0	10	6	12	12	se.	W. D. Winter.
Mackay	Custer	5,897	2	31.6		59	2†	6	15†	34	0.48		0.20	0.8	4	18	1	11	nw.	U. S. Forest Service.
Meadows	Washington	3,950	7	35.6		62	3	3	15	30	7.08		1.14	8.5	17	2	13	15		Chas. A. Hackney.
Milner	Twin Falls	4,097	6	39.0		68	2	15	16	37	3.89		1.33	0.5	11	10	10	10		R. A. Hanson.
Moscow	Latah	2,748	17	41.6	+ 3.8	62	22	11	14	36	5.77	+ 2.46	0.85	2.0	19	3	6	21	e.	University of Idaho.
Mountainhome	Elmore	3,150	4	41.2		71	3	12	15	42	3.61		0.98	4.0	12	9	5	16	ne.	Mrs. Ellen Marion.
Murtaugh	Twin Falls		3	38.6		69	3	13	16	43	2.81		0.84	2.0	9				w.	J. E. Steinour.
Nez Perce§	Nez Perce	3,182		37.6		58	2†	3	15	30				0.5						P. W. Mitchell.
Oakley	Casia	4,191	17	40.2	+ 1.4	72	3	20	14†	42	2.35	+ 1.55	0.55	1.0	9	8	10	12	s.	John Adams.
Orofino	Nez Perce	1,027	5	40.6		65	4	15	15	28	8.02		1.00	0.0	22	4	10	16		Geo. Alteneder.
Payette	Canyon	2,159	16	42.2	+ 1.5	69	2	15	16	32	1.53	+ 0.41	0.57	2.5	11	4	9	11	n.	E. F. Allen.
Pebble	Bannock	5,277		33.8		64[a]	3	1	28	41[a]	7.10		1.98	12.4	13	11	5	14	s.	Arthur P. Say.
Pierson	Custer	7,000									4.82		1.28		6	7	0	23	s.	David P. Clarke.
Pleasant Valley	Ada	3,000	2	42.0		70	2	12	15	34	2.89		0.49	3.0	14	12	2	16	se.	C. E. Friedrich.
Pocatello	Bannock	4,483	11	39.4	+ 3.1	68	4	16	17	30	2.80	+ 2.25	0.66	1.4	13	6	8	16	se.	U. S. Weather Bureau.

TABLE 1.—*Climatological data for November, 1909. District No. 12*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Precipitation, in inches. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Sky. Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.
Idaho—Cont'd.																				
Pocatello Nursery	Bannock	5,396	3	33.3		67	3	0	29	46	4.65		1.10	2.0	9	6	3	21	sw.	Peter F. Wrensted.
Poplar	Bingham			34.3		66	5	5	28	40	2.48		0.51	7.7	10	7	9	14	sw.	Stuart Lee.
Poplars§	Canyon	2,425	10																	N. S. Dils.
Porthill	Bonner	1,665	17	33.8	+ 0.5	47	2	11	14†	21	4.73	+ 1.42	0.80	10.0	16	5	5	20	sw.	H. A. French.
Pyle Creek	Boise	3,100									9.63		2.26	6.9	14	4	6	20		Walter L. Cole.
Rupert	Lincoln	4,204	3	39.1		70	3	11	16	41	3.83		1.56	1.5	16	9	1	20	w.	Will Parry.
St. Maries	Kootenai	2,263	13																	J. S. Turnbull.
Salem	Fremont	5,000	5								2.34		0.72		11				nw.	Geo. H. A. Harris.
Salmon	Lemhi	4,040	4	36.2		72	3	3	15	44	1.48		0.52	6.8	11	13	7	10	w.	E. K. Abbott.
Salmon River Dam	Twin Falls		2	39.9		71	3	14	14	35	1.80		0.59	4.2	13	7	6	17	s.	Arch M. Gilbert.
Sheep Hill	Boise	5,000									9.02		2.96	12.0	11					Clifford M. Gardner.
Shoshone	Owyhee	6,200	3	38.7		65	3	14	16	33	4.62		1.19	4.5	11	9	13	8	w.	O. A. Petitt.
Silver City	Lincoln	3,968									4.72		1.04	17.4	14					A. O. Treeman.
Soldier	Blaine	5,140	13	31.5	0.0	55	1	− 1	16	40	5.71	+ 3.71	1.00	16.5	13	11	11	8		W. W. Leek.
Standrod	Cassia		5	36.4		63	3†	11	27	29	2.61		0.75	10.1	13	10	3	17	sw.	T. B. Jones.
Sugar	Fremont		2	33.6		63	3	9	28	37	2.39		0.98	6.5	8	5	11	14	sw.	Geo. F. Webb.
Sunnyside	Elmore			40.4		71	3	10	16	38	3.93		1.03	2.0	13				se.	E. A. Wilmot.
Tilden	Bingham	4,420		36.7		68	3†	6	16	48	3.14		0.83	10.5	10	10	5	15		Mrs. W. A. Edwards.
Twin Falls	Twin Falls	3,825	4	40.8		72	3	15	16	43	3.95		1.19	T.	12	3	18	9	w.	Clyde C. Anderson.
Vernon	Fremont		12	33.9	0.0	61	3†	5	28	32	3.41	+ 2.24	0.73	12.0	11	7	5	18	sw.	A. M. Slatery.
Wallace	Shoshone	2,728	2	37.2		54	23	9	15	23	15.77		2.29		25				e.	U. S. Weather Bureau.
Warfield	Blaine	6,386																		Wm. H. Warfield.
Wendell	Lincoln	3,400		42.0		72	3	16	16	43	4.94		1.45	1.5	11	12	1	17		Chas. L. Dingler.
Washington.																				
Aberdeen	Chehalis	162	18	44.7	− 0.9	58	2	24	15†	21	26.76	+11.71	3.23	0.0	25	0	22	8	w.	C. Weatherwax.
Anacortes	Skagit	60	15	45.2		63	5†	23	15	21	8.43	+ 3.82	1.51	T.	22	3	20	7		Douglass Allmond.
Baker	do	200	3	41.9		55	5†	23	15	23	19.10		2.96	0.0	22	6	0	24		Robt. M. White.
Bellingham	Whatcom	60	14	47.0	+ 2.1	73	18	24	15	28	7.61	+ 2.80	1.25	0.0	20	8	11	11		Sanford B. Mayhew.
Blaine	do	53	12	43.0	+ 2.4	57	18	20	15	21	10.88	+ 4.03	2.60	0.0	22	4	4	22	se.	G. A. Ruring.
Bremerton	Kitsap										13.64			0.0	20					U. S. Navy Yard.
Cedar River	King		2								16.75		2.00	T.	24	3	4	23		Geo. Landsburg.
Centralia	Lewis	212	16	44.6	− 0.4	60	2†	19	15†	28	14.86	+ 5.75	2.20	0.0	26	3	6	21	s.	I. S. Turner.
Cheney	Spokane	2,351	10	38.6		74	24	8	15	51	2.59	− 0.09	0.41	0.0	10	0	15	15	sw.	G. A. Fellows.
Chopaka	Okanogan	1,200	1	36.3		55	30	12	15	30	1.73		0.46	0.7	18	4	6	20	sw.	Mrs. J. S. Myers.
Clealum	Kittitas	1,930	10	34.6	− 2.7	50	3	10	15	23	8.62	+ 3.85	1.70	10.0	21	7	3	20	nw.	J. A. Balmer.
Clearbrook	Whatcom	140	6	41.4		57	18	17	15	21	14.89		2.42	0.0	20	3	4	23	ne.	Geo. Gibbs.
Clearwater	Jefferson	135	13	42.4	− 2.3	54	1†	26	14†	14	25.87	+ 5.24	4.65		24	7	9	14		Alfred Ritchie.
Colfax	Whitman	2,300	20	40.8	+ 1.9	64	22	12	15	30	3.79	+ 0.38	0.87	0.0	18					W. H. James.
Colville	Stevens	1,635	9	36.6	+ 3.6	60	3	10	15	24	3.19	+ 0.96	0.76	3.5	12	8	4	18	sw.	W. L. Sax.
Conconully	Okanogan	2,300	9	34.4	+ 0.1	55	3†	10	14	25	3.20	+ 1.16	0.74	6.8	11	9	7	14		Wm. Baines.
Coupeville	Island	150	13																	W. T. Howard.
Crescent	Lincoln	2,250	9	36.8	+ 0.5	55	3†	11	13	28	3.22	+ 0.68	0.45	4.0	12	6	10	14	sw.	Otto Wollweber.
Davenport	do	2,450		37.4		55	23	11	15	22	2.54		0.51	T.	14	8	4	18	se.	W. H. Reed.
Dayton	Columbia	1,700	23	43.5	+ 3.6	66	8	11	15	28	5.20	+ 2.56	0.97	1.0	18	1	9	20		W. W. Hendron.
Detroit	Mason	31	1	45.2		57	2†	24	15	21	21.80		3.44	0.0	24	4	2	24	s.	Walter O. Eckert.
Dixie	Walla Walla	5,000									14.03		2.00	20.0	20	2	1	27	s.	T. Z. Andrews.
Duckabush	Jefferson	380	1	39.8[d]		55[d]	3	21[d]	15	20[d]	33.86			1.0	21	2	7	21	sw.	Emery J. Finch.
East Sound	San Juan	500	14																	Benj. E. Harrison.
Ellensburg	Kittitas	1,571	21	34.9	− 1.3	56	29	10	15	23	2.71	+ 1.00	0.71	1.0	14	5	9	16		R. Lee Barnes.
Ephrata	Grant	1,265	6																	D. Chaffee.
Forks	Clallam	480																		C. W. Palmer.
Fort Simcoe	Yakima	1,427	15	40.4	0.0	63	2	15	15	28	5.71	+ 3.35	2.00	2.0	13	1	13	16		Dr. G. A. Landes.
Goat Lake	Snohomish	2,900									40.59		5.42	36.0	24					C. M. Mackintosh.
Gold Creek	Yakima	2,600									3.96			3.0	16	4	5	21	w.	John W. Anderson.
Goldendale	Klickitat	1,600	3	40.0		58	22	14	15	22	5.03		1.00		19	4	6	20	w.	Klickitat Abstract Co.
Granite Falls	Snohomish	397	6								8.74	+ 0.73	1.43	0.0	24	3	7	20	sw.	C. H. Cleaver.
Hatton	Adams	1,100	4	41.5		68	3	13	15†	26	2.15		0.46	T.	12	5	2	23	s.	Dr. A. V. Marion.
Huntsville	Columbia	1,400	1								3.96		0.64	3.0	17	7	5	18	sw.	Dr. B. Hill.
Irene Mount	Okanogan	3,015									0.90		0.20	4.5	13	6	8	16	n.	Mrs. E. W. Wheeler.
Kennewick	Benton	367	14	46.0	+ 4.3	67	3	14	16	27	2.01	+ 1.04	0.62	T.	11					L. W. Soth.
Kettle Falls	Stevens	1,265		38.4		58	3	13	15	25	3.67		0.57		14	8	11	11		Dr. A. E. Baldwin.
Kiona	Benton	430	4	44.4		66	29	12	16	27	1.72		0.63	T.	9	5	5	20	sw.	Dr. F. S. Hedger.
Kosmos	Lewis	775	3	41.2		59	29	18	15	23	17.80		2.33	T.	27	2	10	18	ne.	Hon. J. A. Ulsh.
La Center	Clarke	250	12	43.9	+ 0.7	59	22	19	15	30	14.00	+ 4.14	1.70	0.0	24	2	6	22	sw.	Joseph Brothers.
La Crosse	Whitman	1,400		42.2		62	22	8	15	27	4.36		0.63	2.0	18	7	3	20	sw.	M. E. Schreck.
Lake Clealum	Kittitas	2,171									12.42		2.03	15.5	24	0	3	27	nw.	U. S. Reclamation Service
Lake Kachess	do	2,235		35.2		51	22†	11	16	20	19.99		3.09	21.0	21	4	4	22	e.	Do.
Lake Keechelus	do	2,479	1								21.17		3.90	16.0	19	2	2	26		Do.
Lakeside	Chelan	1,116	18	38.6	+ 0.8	58	3	19	15	21	3.64	+ 1.67	1.00	5.0	18	3	13	14	e.	W. H. Van Meter.
Laurel	Klickitat	1,900									13.73		2.01	6.8	22	5	16	9	w.	L. S. Strout.
Lester	King	1,614	5	39.2		56	22†	20	16	23	14.50		3.50	5.0	20	3	3	24	e.	W. W. Clabaugh.
Lone Tree	Chealis	9		46.6		56	23	32	15	21	22.44		4.02	0.0	26	4	5	21	sw.	U. S. A. Engineers Corps.
Longmire Spring	Pierce	2,800									12.02		1.10	21.1	27	1	0	29	w.	U. S. Forest Service.
Lost Creek	Okanogan	3,125									2.32		0.50	1.0	11	7	4	19	sw.	P. H. Leese.
Lucerne	Chelan	1,100	2																	Barbara Schearer.
Lyle (Pine Hill)	Klickitat	600	16	35.8	− 5.9	57	23	10	14	26	11.59	+ 6.86	2.15	4.6	21	3	0	27	w.	Thomas J. Whitcomb.
McCumber's Ranch	Yakima	2,182																		Mrs. Mary McCumber.
Mottinger	Benton	307	9	44.5	+ 0.7	74	3	13	15†	27	1.48	+ 0.33	0.71	T.	7	9	7	14	w.	G. H. Mottinger.
Mount Pleasant	Skamania	650	9	45.2	− 0.4	61	3†	26	15	21	15.71	+ 7.03	2.35	0.0	27	3	4	23	w.	F. M. Grout.
Moxie	Yakima	1,000	17	40.6	+ 1.6	63	2	10	15	29	1.85	+ 0.59	0.73		16	3	11	16	s.	H. B. Scudder.
North Head	Pacific	211	7	46.6	− 1.1	55	22	33	15	12	13.97	+ 7.64	1.80	0.0	26	3	3	24	se.	U. S. Weather Bureau.
Northport	Stevens	1,950	10	32.6	− 2.8	55	2	7	15	30	2.91	+ 0.41	0.41	8.6	15	7	12	11		A. L. Hager.
North Yakima	Yakima	1,076		40.0		62	23	13	15	24	1.76		0.70	0.0	15	4	10	16	nw.	Albert Bender.
Nutland	Klickitat			43.2		65	3	13	15	36	3.78		1.56		18					J. R. Shepard.
Odessa	Lincoln	1,540	6	39.7		59	23	11	15	28	2.29		0.60	T.	12	6	5	19	sw.	Wm. U. Neeley.
Olga	San Juan	50	19	44.2	0.0	58	18	28	15†	18	9.45	+ 4.44	1.79	0.0	18	4	10	16	se.	Cecil S. Willis.
Olympia	Thurston	200	31	45.0	+ 0.9	58	22	20	15†	22	19.94	+10.99	3.30	0.0	27	1	4	25	sw.	M. O'Conner.
Omak	Okanogan										1.68		0.60		8	8	7	15	s.	Wm. G. Tait.
Oroville	do	922		39.8		60	23	15	15	29	1.04		0.25	0.1	9	8	4	18	s.	A. M. Dufield.
Peola	Garfield	5,000									6.69		1.16	8.1	21	4	9	17	sw.	Samuel Gruell, sr.
Pomeroy	do	1,500	17																	Peter McClung.
Port Crescent	Challam	259	14	41.6	− 0.7	58	22	23	15	19	15.37	+ 7.92	4.11	T.	23	3	8	19	s.	U. S. Weather Bureau.
Port Townsend	Jefferson	80	19	44.6	− 0.3	57	2	28	15	13	3.90	+ 1.10	0.89	0.0	20	5	1	24	se.	Frank Plummer.
Pullman	Whitman	2,550	17	36.9[e]	− 1.3	55[a]	2†	13[f]	15	17[f]	5.67	+ 2.15	1.16	2.2	18	4	9	17	sw.	State Agricultural Col.
Quiniault	Chehalis	300	2	42.5		57	2	25	15†	20	42.29		6.33	0.1	26	5	9	16	sw.	A. V. Higley.
Republic	Ferry	2,628	9	33.7	+ 0.6	53	23	6	15	24	2.13	+ 0.06	0.34	5.7	16	8	2	20	nw.	Geo. B. Stocking.
Rex Creek	Chelan	1,135	2																	James W. Nicol.

TABLE 1.—*Climatological data for November, 1909. District No. 12*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Precipitation, in inches. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Sky. Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.
Washington—Cont'd.																				
Ritzville	Adams	1,825	10								2.94	+ 1.61	0.46		17					Agent, No. Pac. Ry.
Rock Lake	Whitman	1,750	3	38.6		58	9†	19	14	21	4.17		0.81	0.2	13	11	6	13	sw.	P. M. Ramsey.
Rosalia	do	2,425	17	39.2	+ 1.5	56	22	17	14	22	4.55	+ 1.25	0.80	0.4	20	6	5	19	sw.	Hans Mumm.
Russell's Ranch	Yakima	2,870																		John Russell.
Seattle (1)	King	123	18	45.5	+ 1.0	59	28	29	15	16	9.11	+ 3.25	1.59	0.0	22	2	4	24	s.	U. S. Weather Bureau.
Seattle (2)	do			44.8		58	22	27	15	16	9.52		1.85	0.0	23	5	5	20	s.	Univ. of Washington.
Sedro-Wooley	Skagit	38	12	42.3	− 1.7	60	18	20	15	20	11.18	+ 3.70	1.51	0.0	26	3	7	20		H. L. Devin.
Sixprong	Klickitat	1,240	2	42.2		66	3	10	15	27	2.46		1.10	0.2	16	6	0	24	sw.	C. E. Comstock.
Skagit Power Dam	Whatcom																			Skagit Power Co.
Snohomish	Snohomish	50	15	43.6	− 0.9	59	22	20	15	23	8.87	+ 2.36	1.60	0.0	24	4	2	24	se.	Irving B. Vestal.
Snoqualmie Falls	King	667	10	43.6	− 1.5	60	29	25	15†	21	17.08	+ 8.46	2.40	0.0	26	8	0	22		O. N. Wiswell.
Snyder's Ranch	Okanogan	2,200									7.74		1.50	40.5	16	9	9	12	n.	George M. Snyder.
South Bend	Pacific	16	14																	John L. Stevens.
Spokane	Spokane	1,943	28	40.0	+ 2.7	58	3	16	15	22	2.69	+ 0.39	0.54	0.6	16	4	3	23	s.	U. S. Weather Bureau.
Stehekin	Chelan	1,100	2																	M. E. Field.
Stokes Ranch	Okanogan	2,670									6.05		1.33	52.5	15	8	8	14	se.	Amos Stokes.
Sullivan Lake	Stevens	2,700																		Mrs. Jennie D. McAbee.
Sumner	Pierce	77	1	44.8		63	28†	19	16	26	12.69		1.61	0.0	25	4	4	22	sw.	H. E. Thompson.
Sunnyside	Yakima	740	14	43.0	+ 3.2	76	25	12	15	50	1.44	+ 0.41	0.68	0.0	14	8	5	17	w.	U. S. Reclamation Service
Tacoma	Pierce	213	23	45.2	+ 1.1	60	28	25	15	21	14.73	+ 6.20	2.59	0.0	24	2	2	26	sw.	U. S. Weather Bureau.
Tatoosh Island	Clallam	86	24	45.5	− 0.4	55	3	35	25	15	16.52	+ 4.43	2.90	T.	24	3	5	22	e.	Do.
Tieton	Yakima	2,000		39.9[a]		57	29	22	14†	22	7.08		1.53	1.7	12	3[b]	7[b]	18[b]		U. S. Reclamation Service
Touchet	Walla Walla	556	2	45.2		70	3	13	15	37	1.76		0.58	T.	16	8	7	15	sw.	D. W. Dorrance.
Touchet Ridge	Columbia	2,500									11.67		3.10	14.5	11	2	10	18	sw.	R. H. King.
Trinidad	Douglas	900	5	39.1		62	23†	15	15	27						7	3	13	e.	J. C. Wheeler.
Twisp	Okanogan	1,619	6																	Wm. G. Hughes.
Tyee	Chelan	2,000									8.23		1.80	39.0	10	4	9	17	w.	Elias McCrea.
Vancouver	Clarke	100	34	45.9	+ 0.8	62	22	21	15	23	12.79	+ 7.45	1.65	0.0	27	2	5	23	se.	A. A. Quarnberg.
Vashon Island	King	110	20	45.1	+ 0.3	57	22†	26	15	16	13.34	+ 6.07	2.01	T.	26	5	2	23	s.	Miss Gertrude McClintock
Wahluke	Grant	410	5																	F. C. Koppen.
Wallace	Okanogan	4,000									4.74		0.85		11	1	15	14	s.	Geo. A. Wallace.
Walla Walla	Walla Walla	1,000	25	45.2	+ 2.3	67	2	16	16	32	3.98	+ 1.85	0.85	3.3	20	3	7	20	s.	U. S. Weather Bureau.
Waterville	Douglas	2,624	19	34.6[a]	+ 1.4	57[a]	23	9[a]	15	24[a]	2.57	+ 0.77	0.65	12.0	13	10	7	13	w.	O. R. Hopewell.
Wenatchee (near)	Chelan	1,169	10	36.6	− 0.5	57	23†	15	15	27	4.07	+ 1.67	0.99	11.7	19	4	7	19	w.	George Pitcher.
West Branch	Spokane	2,600																		Martin A. Murray.
Wilbur	Lincoln	2,203	10	37.0	+ 1.7	58	23	9	15	23	2.44	+ 0.55	0.50	1.0	11	7	3	20	s.	Rollin J. Reeves.
Yale	Cowlitz	375	2	43.6		66	23	25	14	26	31.02		4.10	0.0	24	5	5	20	sw.	L. F. Williams.
Zindel	Asotin	715	7	45.2		70	1†	22	14†	34	4.20		1.10	0.0	7	10	7	13	n.	M. W. Zindel.
Oregon.																				
Albany	Linn	214	33	46.6	+ 1.2	62	2	22	11	30	11.86	+ 6.16	2.30	2.2	25	4	6	20		F. M. French.
Ashland	Jackson	1,940	25	45.1	+ 0.2	70	2	25	14†	22	7.42	+ 5.15	1.63	4.0	21	2	4	24	se.	F. H. Carter.
Astoria	Clatsop	11	47																	C. W. Lamar.
Baker City	Baker	3,466	20	38.3	+ 1.1	66	3	7	15	26	1.90	+ 0.79	0.86	3.5	19	5	6	19	se.	U. S. Weather Bureau.
Bay City	Tillamook	14	13	48.8	− 0.5	67	18	26	15	32	19.54	+ 3.38	2.65	0.0	26	3	2	25	se.	J. O. Bozarth.
Birch Creek	Wheeler	2,900		41.5		70	3	9	15	26	3.40		0.90	1.5	9	4	14	12	sw.	F. S. Matteson.
Black Butte	Lane	1,200	8	43.9		59	2	26	15	23	13.30		2.35	0.0	22	4	8	18	sw.	James A. Putman.
Blalock	Gilliam	237	10	44.8		68	3	17	14†	25	3.48		1.48	0.0	15	6	3	21	w.	Geo. W. Long.
Buckhorn Farm	Josephine	1,300	10	45.7	− 0.1	68	2	24	16	27	21.60	+11.73	5.43	0.0	16	3	6	21	s.	E. F. Meisser.
Cascade Locks	Hood River	100	18	44.1	− 1.3	62	3†	22	15	22	26.10	+14.77	4.23	0.0	27	3	1	26	w.	Val W. Tomkins.
Cazadero	Clackamas	514		45.8	+ 0.4	63	29	25	16	20	19.72	+ 8.39	2.99	1.0	26	3	2	25	e.	A. Drill.
Condon	Gilliam	2,884	1																	C. H. Williams.
Corvallis	Benton	600	7	44.7	− 1.1	65	23	24	13	27	11.53	+ 4.96	1.88	0.0	20	5	4	21	s.	Oregon Agric. College.
Dayville	Grant	1,500	14	44.0	+ 1.6	77	2	9	15	31	1.08	− 0.13	0.40	1.8	11	5	10	15	sw.	Dr. J. Campbell-Martin
Doraville	Columbia	600	7	42.7		59	22	21	15	19	16.93		2.05	T.	27	2	2	26	se.	Jos. Hackenberg.
Drain	Douglas	300	6	47.9		70	2	25	15	28	12.98		4.03	0.0	24	2	1	27	sw.	Ira Wimberly.
Echo	Umatilla	625	5	43.3		70	3†	2	15	26	2.46		1.00	8.5	10	6	3	21	w.	R. B. Stanfield.
Ella	Morrow	830	10	42.8		69	3	0	15	32	2.88	+ 1.54	0.85	6.0	14	9	4	17	sw.	C. F. Troedson.
Eugene	Lane	449	18	46.9	+ 0.3	67	3	25	15	24	8.51	+ 3.50	1.91	0.0	21	3	6	21	sw.	A. W. Jackson.
Fairview	Coos	142	11	44.4	− 5.3	60	22	30	15	22	22.31	+11.80	5.65	0.0	23	3	1	26	sw.	Wm. Bettys.
Fall City	Polk	355	11																	Chas. F. Vick.
Forest Grove	Washington	220	19	44.3	− 0.1	62	22	20	15	22	14.53	+ 5.63	2.20	0.0	25	0	8	22	s.	Pacific University.
Gardiner	Douglas	72	19	46.8	− 3.1	66	22	30	14†	16	19.04	+ 8.66	2.83	0.0	26	1	8	21		Hon. J. S. Gray.
Glendale	do	1,441	5	46.1		68	3	29	16	26	7.80		1.40	0.0	11	6	8	16	sw.	B. J. Simpson.
Glenora	Tillamook	575	17	42.2	− 1.5	57	17†	20	15	24	67.00	+32.17	6.80	1.5	23	4	2	24	sw.	Mrs. Jennie Recher.
Gold Beach	Curry	40	6	50.4		65	2	29	15	25	25.46		5.04	0.0	24	7	0	23	s.	C. Dewey.
Granite	Grant	4,680	4	34.6		65	3	− 8	15	48	3.93		1.10	10.0	12	0	10	20	se.	L. M. Ford.
Grants Pass	Josephine	956	20	46.3	+ 1.7	70	2	22	15†	28	9.19	+ 4.84	1.81	0.0	22	3	8	19	sw.	John B. Paddock.
Grass Valley	Sherman	2,381	7	43.0		65	3	21	17	32	3.34		1.18	2.0	13	3	10	17	sw.	Agent, O. Ry. & N. Co.
Greenleaf	Lane	250	9	44.6		60	3†	25	15†	24	29.17		6.82	0.0	26	4	0	26	sw.	Wm. Wheeler.
Headworks	Clackamas	719	10	43.0		59	3	24	15	17	21.60	+11.02	2.40	0.5	27	3	4	23	ne.	Portland Water Works.
Heppner	Morrow	1,950	20	46.0	+ 2.4	78	3	5	13	40	1.91	+ 0.61	0.54	5.1	10	12	2	13	w.	Geo. Whiteis.
Hermiston	Umatilla	450	4	42.2		69	29	6	15†	31	2.95		0.64	3.0	16	7	12	11		C. W. Kellogg.
Hood River	Hood River	243	18	41.2	− 1.0	65	22	15	15	27	11.75	+ 6.09	2.00	1.5	23	6	4	20	w.	H. L. Hasbrouck.
Huntington	Baker	2,110	7	41.2		64	7	21	29	27	1.92		0.50	0.2	6	3	10	17		J. M. Day.
Jacksonville	Jackson	1,640	20	43.3	− 0.7	67	2	23	15	23	9.69	+ 6.18	2.12	T.	19	2	4	24		E. Britt.
La Grande	Union	2,784	21	40.4	− 0.4	68	3	4	15	29	4.24	+ 2.21	1.03	5.0	15	4	6	20	w.	W. A. Worstell.
McKenzie Bridge	Lane	1,400	7	41.2		66	4	16	15	33	21.14		5.40	0.0	25	1	1	28	sw.	Geo. Frissell.
McMinnville	Yamhill	180	21	45.4	+ 0.3	62	22	24	16	19	14.38	+ 6.19	2.42	0.0	24	3	8	19	sw.	C. J. McKee.
Madras	Crook	2,150		39.2		71	4	− 4	14	40	2.17		0.60	0.5	8	0	0	30	sw.	D. P. Rea.
Marshfield	Coos	12	7	49.4		66	2	29	15	29					26				sw.	Dr. E. Mingus.
Mikkalo	Gilliam	1,600	5	41.5		63	2	7	31	28	3.40		1.07	3.0	15	9	4	17	w.	J. T. Chandler.
Miramonte Farm	Clackamas	195	19	45.4	+ 1.9	62	22	23	15	20	12.85	+ 5.27	1.84	0.0	24	3	7	20	s.	G. M. Muecke.
Monroe	Benton	350	12	46.2	− 0.3	65	3	25	15	22	15.45	+ 6.37	2.70	0.0	25	3	1	26	sw.	John H. Starr.
Mount Angel	Marion	485	23	46.3[j]	+ 0.9	64	3	25[e]	15	17[e]	16.54	+ 9.61	2.00	0.0	27	4	6	20	sw.	Dr. U. F. Fisher.
Mountain Park	Hood River	1,550	4	39.1		60	3	12	16	22	22.83		3.26	7.7	25	3	1	26	w.	Raymond Markley
Newport	Lincoln	69	19	47.4	− 1.7	59	29	29	14	25	18.01	+ 6.88	2.68	0.0	27	3	6	21	sw.	Wm. Matthews.
Pendleton	Umatilla	1,272	19	44.2	+ 1.2	70	3	− 1	16	32	3.58	+ 2.13	0.68	5.0	18	1	18	11	sw.	H. F. Johnson.
Pilot Rock	do	1,872		44.4		69	3	7	15	33	2.27		0.57	4.0	20	4	20	6	sw.	John P. McManus.
Pompeii	Clackamas	3,580	14	34.6	− 2.4	52	3	12	15	30	24.75	+11.47	5.44	34.0	26	3	3	24	sw.	O. C. Yocum.
Portland	Multnomah	57	40	47.2	+ 1.1	63	22	28	15	19	12.49	+ 5.88	2.33	0.0	24	2	6	22	s.	U. S. Weather Bureau
Port Orford	Curry	300	4																	Willis T. White.
Prineville	Crook	3,000	12	40.7[b]	− 1.1	65[e]	3	5	15	35[e]	2.25	+ 1.29	0.85	T.	6	7[f]	0[f]	17[f]		C. I. Winnek.
Prospect	Jackson	2,750	4	40.3		69	3	15	15	36	19.33		3.50	8.5	24	3	6	21	s.	E. F. Graham.
Range	Grant		4	32.0		67	3	0	14	37	5.55		1.40	13.0	8	2	4	24		Craig Thom.
Riverside	Malheur	3,000	12	37.4[e]	+ 1.1	65[e]	3†	9	16	39[j]	2.18	+ 1.46	0.35	1.5	11	7	8	15	sw.	Mrs. Leah Fairman.
Roseburg	Douglas	523	32	47.5	+ 1.1	71	2	27	16	23	8.70	+ 4.37	3.13	0.0	24	1	5	24	s.	U. S. Weather Bureau.
Salem	Marion	120	18	46.6	− 0.4	61	2	26	15	14	10.56	+ 3.98	1.64	0.0	27	3	1	26	s.	M. P. Baldwin.

TABLE 1.—*Climatological data for November, 1909. District No. 12*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit. Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Precipitation, in inches. Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Sky. Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.
Oregon—Cont'd.																				
Siskiyou	Jackson	4,115	1	38.2	.....	63	3	17	14	22	9.56	.....	1.46	12.3	24	5	8	17	sw.	Louise F. Bates.
Stafford	Clackamas	400	13	46.2	+ 1.0	64	7	23	15	30	15.95	+ 6.40	2.46	0.0	26	.....	.....	.....	s.	J. P. Gage.
The Dalles	Wasco	112	34	43.0	+ 0.8	66	23	17	15	25	4.55	+ 2.42	1.81	T.	19	8	0	22	w.	S. L. Brooks.
Toledo	Lincoln	50	19	47.1	− 1.2	62	4†	27	16	27	22.51	+10.66	2.25	0.0	25	5	7	18	s.	C. B. Crosno.
Umatilla	Umatilla	340	19	44.0	+ 0.9	69	3	10	15	27	1.77	+ 0.63	0.44	T.	9	8	3	19	w.	Mrs. H. T. Duncan.
Vale	Malheur	2,450	17	40.8	+ 3.9	70	2	10	16	39	1.21	+ 0.24	0.62	0.0	8	12	14	4	ne.	H. P. Osburn.
Wallace Orchard	Polk	170	....	46.0	.....	61	2†	23	15	22	12.31	.....	1.91	0.0	27	1	2	27	.....	Chas. A. Park.
Wallowa	Wallowa	2,935	6	38.3	.....	69	3	12	16	27	5.02	.....	0.94	5.0	18	2	1	27	sw.	L. J. Coverstone.
Warmspring	Crook	1,600	7	42.9	.....	74	3	9	15	35	2.96	.....	1.31	0.8	9	7	12	11	nw.	Claude C. Covey.
Weston	Umatilla	1,800	19	40.2	− 0.6	67	3	5	15	38	3.92	+ 0.71	0.65	6.0	18	0	2	28	ne.	M. A. Baker.
Williams	Josephine	1,368	17	46.8	+ 1.9	73	1	23	15	28	17.05	+11.61	3.10	T.	17	2	4	24	sw.	J. M. John.

* Precipitation included in that of the next measurement.
** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.
† Also on other dates.
‡ Separate dates of falls not recorded.
§ Data are from standard instruments not supplied by the U. S. Weather Bureau.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.
‖ Estimated by observer.
‖‖ Precipitation for the 24 hours ending on the morning when it is measured.
T. Precipitation is less than 0.01 inch rain or melted snow.
[a], [b], [c], etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for November, 1909. District No. 12, Columbia Valley.*

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Montana.																																	
Anaconda	Missoula		T.				.06			.10	T.			.19					T.	.15	T.	T.	T.	.55	.21	*	.15				T.		1.41
Bison Mountain	do	.27	.18				.06				.37			.02						.16	.58		.06	.44	.40	T.	.06						2.60
Columbia Falls	Flathead				1.03		.51			.11		.15					.58	.15					.74										3.27
Como	Bitter Root	.35	.10		.01					.03	.02			.01				.07	.22	.75	.01	.02	1.22	.78	.10	.05			.02				3.76
Darby	do	.29	.69				.07			.04	.01	.04							*	*	*	*	*	*	*	*	*	3.40	T.				4.54
Dayton	Flathead																																
East Anaconda	Missoula	.04	T.				.05			T.	T.			.15					T.	T.	.36	T.	T.	.70	T.	.18	.01				T.		1.49
Fortine	Flathead	.10	.22	.06	.16	.08	.11	.02		.18	.02		.10					.06	.40	.41		.03	.20	.15	.06	T.	T.	T.	.02	.05	.04		2.47
Hamilton	Bitter Root	.05	.21	.03																.30			.40	.72	.13	.02	T.						1.86
Hat Creek	Missoula	.30				.10	*	.16		*	.90	*	.50	.20						*	.90		.40	.50	.10		.06				.04		4.16
Jocko	Flathead																																
Kalispell	do	.01	.37	.43	.39	.02	.07			.08		T.	.22					.06	.21	.38	.01		.28	.28	.15	T.			T.	.03			2.99
Lost Creek	Missoula																																
Missoula	do		.01	T.	.01		.08			.08	.19	T.		.04					.05	.01	.14		.30	.11	.18	.04	.01			T.	.14		1.39
Ophir	do	.10	.18				.10				.26										.30		.20	.10	.02					.03			1.29
Ovando	do																																
Philipsburg	do	.15	T.				.12			.05	.12			.03						T.	.08	T.	.05	.48	.15	T.	.10						1.33
Pipestone Pass	do	.18								T.	.35			.11						.08				.05	.02	.21	.07				T.		1.07
Plains	Columbia		.01	.01	.30	.12				.20			T.						.45	.37	T.		.60	.57	.24								2.87
Pleasant Valley	Kootenai	.70	.07	.40	.40	.07				.04			.30	.10				.02	.50	.72	.07		.62	.40	.50					.08	.28		5.27
Polson	Flathead	.30	.50		.30					.18	.25			.11					.11	.14				.35									2.24
St. Ignatius	do	T.	.02	.14	.22	.10	.25		.02	.08	.22	.02		.02						T.	.01		T.	.03	.09					T.	.03		1.25
St. Regis	Missoula		.97	1.07	.22	.10	.16				.14	.02	.03	.01					.73	.67	.09		.51	.33	.17					.08	.04		5.34
Saltese	do	.80	1.20	1.95	.30	.30	.20			.50	.15			.20					2.00	.90	.20	.30		1.90	.50				.30	.80			12.50
Snowshoe	Kootenai	.25	3.69	2.72	.84	1.09	.08	.02	.09	.34	.23	T.	.14	.13				.11	3.81	3.15	.09	.13	2.05	2.11	2.45		.08	.10	.75	.85	2.02		27.92
Troy	do	.40	.80	.35	.10	.70			.25	.35		.10	.19					.15	.30	1.10	.70	.65	.50	.20				.35	.40	.80			8.39
Upper Lake McDonald	Flathead																																
Woodville	Missoula	.21								.04	.16	.02		.06							.26			.67	.02	.16	.18						1.78
Wyoming.																																	
Afton	Snake																																
Alta	do	.03					.07			.07	.37	.16								.03	.02	.35	.30	.01	.07	.50	.75				.02		2.75
Bedford	do									T.	.38	.09								.08	.63	.20	.30	.22	.26	.08	.44				T.		2.68
Snake River	do	.20									.50	.10								.50	.70	.30	.90	.20		.60	1.00						5.00
Nevada.																																	
San Jacinto	Snake						T.		T.	.42			T.	T.						T.	.69	T.	.13			.31	T.						1.55
Idaho.																																	
Albion	Snake						T.			.30	*	.19		*	.10					.10	1.12	.33	.07	T.	.09	.37	.22				.22		3.11
Almo	do									.41		T.	.20							.10	.86	.23	.20	.12	.22	.42					.02		2.78
Blackfoot	do	.03								.67	.08	.03	T.	T.	T.	T.			T.	.35	.30	.10	T.	.32	.45	.50	.16						3.00
Blanche	do																																
Bogus Creek	Payette	.28					.31			.24	.18	.48	.22	.14	.18					1.22	.52	.06	1.58	.84	.14	.45					.32		7.16
Boise	Boise	.22				.08	.04			.08	.29	.03	T.	.30	.04				T.	.71	.05	.15	.67	.16	.10	.31	T.			T.	.18		3.41
Bonanza	Salmon																																
Bonners Ferry	Columbia	.34	.72	.24	.77	.12		.05	.07	.10								.26	1.03	.18	T.	.09	.52	.04	.06	T.		T.	.35	.42	.02		5.38
Boulder Mine	Boise	.60	.23			.25	.28			.23	.35	.54		.45	.40					1.60	1.39	.04	2.03	1.24	.25	.64	.03	.37					10.92
Buhl	Snake	.09								.22	.08	.24	.20	.09	.02					.06	.07	.60	.19	.24	.54		T.		.06	.02			2.72
Burke	Columbia	.39	1.32	2.37	.86	.45	.25		.03	.42	.44	T.	.27	T.					.89	1.72	.11	.89	.65	.64	.65		T.	.06	.32	.15	.68		13.56
Caldwell	Boise	.22	.02				.08			.03	.03	.08		.24						.17	.02	.03	.50	T.	.03	.15					.13		1.73
Calls Ranch																																	
Camas	Lost River Region								.57					.12					T.	T.			T.			1.20							1.89
Cambridge	Snake	.05	.04				.31			.11	.12	.23			.07				T.	.38	.02		.82	.05							.05		2.25
Chesterfield	do																																
Clawson	do	T.					T.			.31	.05										.45	.08	T.	T.	.50	1.64							3.02
Coeur d' Alene	Columbia																																
Culdesac	Clearwater	.40	.44		.17	.62				.75				.17					.59	.70			.88	.32						.40			5.44
Dent	do	.20	.65	.07		.50	.33	.01		.70	.12	.09	.06	.12				.04	.72	.73	.46		1.04	.22	.31			.01	.28	.04	.22		6.92
Driggs	Snake						.05	.10	T.			.10								.29	.20	.17	.25	T.			.45	.70			T.		2.31
Edie	Lost River Region									.33				.20												.26	.27	.18					1.24
Emmett	Payette	.20	.15				.11			.06	.09	.18		.03	.34					.30	.09		.40			.41	.04				.12		2.52
Forney	Salmon	.20																		.35	.33		.20	.37	.43	.40							2.28
Gilbert	Clearwater																																
Glenns Ferry	Snake	.12								.09	.08	.16		.29	.01					.78	.95	.30	.88	.30	.05	.20	.05				.06		4.32
Grand Forks	Columbia	.42	2.86	2.98	.36	.58	.35		.14	.36	.34	.12	.12	.08				1.98		2.08	2.05	.05	2.22	.93	.65	.07		.74	.79		1.03		20.90
Grandview	Snake																																
Grimes Pass	Boise	.41					.25			.20	.54		.05	.20					.92	1.40	.16	.90	1.20	.35	.77	.19				.16	.23		8.02
Guffey	Snake	.22					.08			T.	.04	.05		.19	.05					.04	.01	.15	.25	T.	.01	.23					.06		1.38
Hailey	Wood-Malad	.30								.13	.03				.08					.16	.30		.61	.40	.30	.31	.06						2.68
Henry	Snake																																
Hotspring	do	.04									.18	.19		.20						.22	.15	.45	.14			.24	.05				.08		1.94
Idaho City	Boise	.35				.21				.12	.32	.50		.60						1.38	.97		1.85	1.00	.68	.51							8.49
Idaho Falls	Snake	.02								.48	.06								T.	.06	T.	.05			.04	.35	.20	T.					1.26
Indian Valley	do	.18				.21	.19			.21			.10	.31					.31	.19		.85	.11		.12						.10		2.88
Irwin	do						.04				.52	.02									.18	.30	.40		.43	.49	.57	.04					2.99
Kellogg	Columbia	.15	.55	1.17	1.05	.30	.39	.02	.03	.18	.34	.03	.04	.15					.63	.58	.69		.26	.18	.33					.30	.51		7.88
Kooskia	Clearwater	.22	.26			.65	.68			.52	.44	.07	T.	.05				.01	.12	.14	.41		.62	.40	.14		.20	T.	.10	.07	.11		5.21
Lake	Snake									.40												.40	.10	.40		.40							1.70
Lakeview	Columbia	.10	1.10	.40	.40	.60	.10	.10			.30	.20	.10						1.20	1.05			.50	.15	.55				.25	.05	.60		7.75
Landore	Snake	.50	.39			.04	.70			.48	.10	.29		.16						.84	.45		1.24	.55	.15	.10			.15		.23		6.37
Lardo	Payette																																
Lewiston	Clearwater	.08	.14		.02	.68	.05	T.	T.	.32	.14	T.	.17	.11				.14	.15	.37	T.	.06	.72	.13	T.		.01	.02	.16	.02			3.49
Little Camas	Boise	.82				T.			.21		.02	*	*	*	.71					.85	1.57	.33	1.60	1.22	.20	.45					.12		8.19
Lost River	Lost River Region																																
Lowry	Owyhee	.08					.10			.10		.20		T.	T.					.89	.26	.26	1.18	T.		.47	.10			T.	T.		3.64
Mackay	Lost River Region									.14				.05									T.		.20	.09							0.48
Meadows	Salmon	.44	.24			.03	.50	.01		.13	.15	.23		.80						.96	.29		1.14	.45	.70	.90	T.		.03	.08			7.08
Milner	Snake	.01								.50	.02	.02								.50	1.33	.50	.50	T.	T.	.25	.25				.01		3.89
Moscow	Columbia	.45	.65	.10	.05	.20	.25	T.		.30	.30	.15	T.	.25					.20	.30	.85		.38	.55	.22		T.		.12	.05	.40		5.77
Mountainhome	Snake	.17								T.	.14	.19		.26	.06					.48	.64	.28	.98	.08	.04	.28							3.61
Murtaugh	do	T.	T.				T.				.05	.20	T.	.02	T.					T.	.84	.82	.37	.10		.18	.23				T.		2.81
Nez Perce	Clearwater					.43	.13	.51					.73										.70	.51	.12	.05							3.18
Oakley	Snake									.55											.50	.45	.10		.15	.30	.20	.05			.05		2.35
Orofino	Clearwater	.20	.45		.04	.72	.20	.03		.55	.22	.65	.45						.70	.35	.10	.15	.70	1.00	.80	.04		.04	.20	.11	.32		8.02
Payette	Payette	.08	.04				.15		T.	.07	T.	T.		.23	.02				T.	.15		.57		T.	.01	.16					.05		1.53
Pebble	Snake									.28	.20	.10		T.	.86					.09	1.98	.41	.91	.81	.31	.41	.70				.04		7.10
Pierson	Salmon		.05						T.				T.						1.00	.40			1.28	1.19			.90						3.82
Pleasant Valley	Boise	.32					.06			.09	.04	.05		.40	.02					.49	.15	*	.75	*	*	.35					.17		2.89
Pocatello	Snake	T.					T.			.47	.01	.02		T.	.05	T.				.36	.37	.29	.02	.23	.11	.53	.33	T.			.01		2.80
Pocatello Nursery	do										.75					.09				.28	1.10	.90	.45	.15	.40	.53							4.65
Poplar	do	.07								.43	.05	.03		T.	T.	T.				.25	T.	.32	.29			.43	.10				.51		2.48
Poplars	Boise																																
Porthill	Columbia	.18	.55	.12	.08	.80			.12	.10								.45	.35	.25		.07	.54	.11					.55	.36	.10		4.73
Pyle Creek	Payette	.83	.19		.18					.18	.19	.28		.22						1.95	.94		2.26	1.18	.23	.70					.30		9.63
Rupert	Snake	.02					T.			.41	.07	.08	T.	.06	.05	T.		T.	T.	.20	1.56	.35	.33	.05	.06	.34	.21	.01	T.	T.	.03		3.83
St. Maries	Columbia																																

TABLE 2.—*Daily precipitation for November, 1909. District No. 12*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Idaho—Cont'd.																																	
Salem	Snake				.03			.01		.37	.17	.05	.01	.07								.30	.27			.72	.34						2.34
Salmon	Salmon	.07								.08	.03	T.	T.	.02					T.	.01	.29		.20	.22	.03	.52	.01				T.		1.48
Salmon River Dam	Snake	.01					.01			.37	T.	.03	T.	.08	T.					.06	.20	.59	.14	.01		.15	.11	T.			.04		1.80
Sheep Hill	Boise		.48				.08						.50		.58					1.42	1.02		2.96	1.31	.20	.28					.19		9.02
Silver City	Owyhee	.48					.09			.11	.54	.24	.25							1.04	.98	.25	.08	.32		.27	.03				.04		4.72
Soldier	Wood-Malad										.15	.10		.23		.50	.23	T.	T.	.15	.05		.75	.94	.81	.75	1.00	T.			.05		5.71
Standrod	Snake	T.					.15			.33	.08			.04	.08					.02	.75	.29	.04	.03	T.	.20	.53				.03		2.61
Sugar	do	.04								.47	.24	.05		T.						T.	.25	.31				.98		.05			T.		2.39
Sunnyside	do	.30				T.	T.			.40	.20	T.	.10	.34					.21	1.03	.20	.73	.18	.02	.11	.11					T.		3.93
Tilden	do	T.									.59			.03	.05						.83	.33	.02	.03	.25	.61	.40				T.		3.14
Twin Falls	do									.26	.09	.19		.03						.41	1.19	.50	.37	.13		.54	.11				.13		3.95
Vernon	do	T.					.04			.50	.30	.06	T.	.08			.03			T.		.33	.47			.82	.73	.05			T.		3.41
Wallace	Columbia	.41	2.02	2.29	.92	.51	.23	.04	.02	.31	.33	.01	.14	.10				T.	1.86	1.77	.07	.12	1.42	.75	.79		.03	.01	.34	.28	1.00		15.77
Warfield	Wood-Malad																																
Wendell	Snake									.16	.06	.16			T.	T.				.80	1.45	.50	.83	.15		.40	.40				.03		4.94
Washington.																																	
Aberdeen	Coast	1.01	1.69	1.40	.71	.26	02	1.08	.01	1.08	.74		.11					1.36	2.19	1.56	.24	.48	1.58	.61	.25	.67	.26	2.98	3.23	3.12	.12		26.76
Anacortes	Puget Sound	.29	1.06	.18				.02	.07	.03	.13		.24					.15	.33	.21	.10	.13	1.20	.49	.49	.24	.12	.28	1.51	1.11	.05		8.43
Baker	do	1.10	1.71	.91	.31			.34	.57	.24	.13	T.	.49					.64	1.54	.86	.31	.44	1.44	.93	1.07	.11	.06	.62	2.96	2.32			19.10
Bellingham	do	.20	.60	.50	.03			.05	.13	.03	.04		.26				.30	.35	.25	T.	T.	.15	.54	1.10		.21	T.	.50	1.25	.75	.37		7.61
Blaine	do	.27	.61	.10	.01	T.		.08	.20	.18	.19		.05					.68	.85	.09	.02	.15	.75	1.15	.15	.21		.52	2.60	2.00	.02		10.88
Bremerton	do	.96	1.05	.79	.02	.02	.08		.94	.28	.24	.05						.46	1.63	.64			.77	.22	.17		.18	.29	*	4.60	.25		13.64
Cedar River	do	1.98	1.00	.15	.40			.44	.31	.33	.69	.04	.29	.68				.57	1.72	2.00	.12	.33	.89	.68	1.41	.18		.34	1.09	1.10	.01		16.75
Centralia	Coast	.38	2.20	.50	.37	.30	.05	.32	.48	.30	.47	.02	.06					.66	1.57	1.40	.07	.10	1.40	.83	.33	.18	.05	.40	.71	1.63	.08		14.86
Cheney	Spokane	.27	.13	.37	.21				T.				.20				.37			.41			.29	.07					.23				2.59
Chopaka	Okanogan	.02	.23	.01	T.	.02		.14	.21	.21	.01		.04					.01	.03	.08			.46	.06	.01				.03	.13	.03		1.73
Clealum	Yakima	.29	1.70	.45	.02	.15	.03	.17	.09	.18	.06			.20					.75	.90	.12		1.31	.47	.34		.05	*	.82	.45	.07		8.62
Clearbrook	Puget Sound	.01	2.42			.03	.06	.01	.30	.18	.26	T.	.39					1.01	.72	.64		.24	1.10	2.13		.11	.22	2.42	.30	2.34			14.89
Clearwater	Coast	1.88	1.67	.30		.04	.25	.80	.06	1.90	.95		.10					1.60	3.00	.65	.03	.02	1.55	.95	.40	.92	.15	1.65	4.65	2.95	.30		25.87
Colfax	Palouse	.11	.87	.29	.23	.27	.01	.02		.24	.08	.04	.03	.18					.27	.81	.03		.54		.26				.14	T.			3.79
Colville	Volumbia	.14		.11	.30	.22		.09	.34									.35	.76				.12	.16					.13	.47			3.19
Conconully	Okanogan	.13	.41				.40	.47	.43		.05		.08						.05				.74			T.		T.	.32	.12			3.20
Coupeville	Puget Sound																																
Crescent	Spokane	.21	.44		.02	.42		.29		.26	T.		.26					.12	.34	.09			.45						.32				3.22
Davenport	Columbia	.14	.39	.01	.05	.51			.01	.03				T.				.15	.47	.06			.47			T.			.12	.06	.07		2.54
Dayton	do	.17	.42		.21	.31	.07	.02		.15	.20		.13	.43					.31	.15	.39		.87	.20	.19	T.		.01			.97		5.20
Detroit	Puget Sound	1.05	2.40	.60		.65		.38	.83	.42	.23	.20	.02	.08				.91	2.66	1.36	T.	.01	1.75	.67	.44	.23	.02	.66	2.76	3.44	.03		21.80
Dixie	Columbia	1.00	2.00			.70	.32	T.		.33	.15	.33	.10	.30				.05	.57	.47	1.57		1.68	.78	1.08	.10	.50		.50		1.50		14.03
Duckabush	Puget Sound	2.28	1.62	.17	.12	T.	T.	2.80	2.00	1.04	.71	.17						1.70	3.27	.42	.05		1.77	1.52		.95	*	*	*	*	*a*		33.86
East Sound	do																																
Ellensburg	Yakima	.23	.47	.12		.07	T.	.09	.07	.14	T.			.11				T.	.20	.14			.71	.18	.06		T.	T.	.12		T.		2.71
Ephrata	Columbia																																
Forks	Coast																																
Fort Simcoe	Yakima	.25	.50		.20	.10	.41			.20				.20				.15		.85			2.00	.20	.45					.20			5.71
Goat Lake	Puget Sound	.50	4.06	3.63	.16	.23		.75	.90	.18	.24	.12	.07	.71					5.42	4.11	.71	.20	2.70	2.93	2.12		.60	.75	2.60	4.20	2.70		40.59
Gold Creek	Yakima	*	*	.24	*	.19	.04	*	.40				*	.15				*	*	2.30		.10				.20		.34					3.96
Goldendale	Columbia	.25	.03	.02	.15		.18		.04	.18								.25	.50		.44	.55	1.00	.04	.55	.02	.01	.04	.04	.74			5.03
Granite Falls	Puget Sound	.10	.50	.30		.60	.10	.02	.10	.46	.40	.04	.43	.07				.26	.63	.47	.04	.05	.68	.12		.64		.43	.54	1.43	.33		8.74
Hatton	Columbia	.35	.18	.13	.46	T.		.05					.11	T.					.25	.03			.45	.02					.09	.03			2.15
Huntsville	do	.08	.50		.10	.44	.02			.10	.10			.53				.10	.22	.05	.10		.64	.13	.10			.15			.60		3.96
Irene Mountain	do	.03	.09			.14		.04	.13	.08	.01		.01					.02	.08	T.			.20			.01				.06			0.90
Kennewick	do	.13		T.	.05	.53		.05	T.					T.	.22			.05	T.	.20	.12		.62	.01						.03			2.01
Kettle Falls	do	.57	.07		.04	.17		.11	.29	.07								.42	.39				.39		.06		.17		.37	.55			3.67
Kiona	Yakima	.17	.06	.23		.30			.02					T.				.13	.06				.63	.12									1.72
Kosmos	Columbia	1.42	2.27	1.50	.09	.30	.31	.03	.20	.13	.40	.03	.16	.22				.46	.63	1.79	.26	.06	2.33	1.15	.84	.16	.07	.30	1.10	1.53	.06		17.80
La Center	do	1.00	1.70	1.07	.27	.47	T.	.60	.98	.32	.32	T.	.34	.12				.70	.60	1.13	.08	.20	1.51	.90	.02	.03	.04	.65	.23	.72			14.00
La Crosse	Palouse	.23	.45	.17	.22	.63	T.	.08	T.	.03	.05	.02	T.	.35				.12	.33	.04	.04		.75	T.	.17		T.		.26	T.	.42		4.36
Lake Clealum	Yakima	.45	2.03	1.14	.03	.02	T.	.21	.08	.23	.12	.02	.03	.14				.34	.16	.43	.06		1.40	1.70	.65	.08	.12	1.15	.63	1.20	T.		12.42
Lake Kachess	do	.76	3.09	1.65		.20		.13	.15	T.	.24		.10	.10				.58	1.62	2.42	.25	T.	2.36	.58	1.20	.24		.20	1.87	2.06	.19		19.99
Lake Keechelus	do	.60	3.90		.90				.50	.05	.42	.45						1.00	1.90	2.00	.50	.20	2.75	1.50	.50	.30	.40		1.50	1.80			21.17
Lakeside	Columbia	.25	.63	.04	T.	.08		.23	.14	.10	.02			T.				.11	.13	.03	T.	T.	1.00	.15	.14	.01		.19	.20	.19			3.64
Laurel	do	1.17	2.01	.22	.12	.18		.42	.57	.30	.30			.10				.35	1.54	1.30			2.00	.29	.83	.05	.12	.15	1.03	.61	.07		13.73
Lester	Puget Sound	.90	3.50	1.55		.35		.10	.10		.40		.15	.35			.45	.30	.85	.10	.75		1.80	.80	1.10	.10		.05		.80			14.50
Lone Tree	Coast	1.48	1.46	.49	.06	.24	.04	.73	.66	.72	.60		.05	.10				1.11	2.26	.75	.08	.05	1.27	.29	.12	.90	.30	1.77	4.02	2.75	.14		22.44
Longmires Springs	Puget Sound		.80	.70	.25	.50	.41	.30	.10	.15	.20	.08	.20	.11	.18	.70	.40	.20		.25	.90	.17	.56	.40	.14		.25	1.10	.90	1.06	1.01		12.02
Lost Creek	Columbia	.09	.24	T.	.08			.30	.50	.12	.10	T.	T.				T.	.09	.20	T.			.25					T.		.35			2.32
Lucerne	do																																
Lyle, (Pine Hill)	do	.53	1.04	.09	.05	.05		.10	.29	.15	.19			.10				.30	1.43	2.00			2.15	.75	.68	.10	T.	.26	.69	.50	.14		11.59
McCumbers Ranch	do																																
Mottingers	do				.02									T.																			1.48
Mount Pleasant	do	.75	2.25	1.10	.55	.30	.10	.40	.60	.40	.27	.03	.10	.48				.50	.85	1.30	.43	.06	2.35	.35	.55	.10	.25	.35	.35	.63	.31		15.71
Moxee	Yakima	.08	.15	.02	.09	.11		.09	.07	.14	.01							.09	.12	.03			.73	.06	.05			.01					1.85
North Head	Coast	1.12	.73	.29		.55	.10	1.68	.12	.76	.18		.38	.03			.03	.67	.73	.57	.27	.65	.58	.35	.21	.39	.33	1.10	.95	1.07	.13		13.97
Northport	Columbia	.05	T.	.29	.30	.22	.04	T.	.30	.06	.30	T.						.41	.20	.15		.30	.05			.10			.14				2.91
North Yakima	Yakima	.11	.14	.02	.07	.13		.08	.09	.10				T.				.08	.09	.01			.70	.08	.05			.01	T.				1.76
Nutland	Columbia	.07	.04	.18	.07			.04	.09	.10	.02			.16				.17	.18	.17	.09	1.56	.45						.36	.02	.01		3.78
Odessa	do	.22	.30	.05	.03	.37		T.	.09	.02	T.			T.	T.			T.	.32	.18			.60	.02				T.	T.	.09			2.29
Olga	Puget Sound	.81	.37	.22					.17	.11	.18		.31					.48	.38		.09		.42	.71	.83	.21	.10		1.40	1.79	.87		9.45
Olympia	do	.48	2.26	1.01	.02	.12	.12	.38	.62	.25	.40	.15	.02	.07				.58	2.67	1.64	.09	.21	1.50	.50	.64	.41	.08	.17	2.00	3.30	.25		19.94
Omak	Okanogan	.29	T.					.15	.20	.26	T.		.02							.11			.60							.05			1.68
Oroville	do		.25		.01	.01		.01	.20	.20			.01							.10									.25				1.04
Peola	Snake	.23	.57	T.	.03	.17	.23			.15	.08	.10	.02	.27				.02	.52	1.00	.48		1.16	.71	.81	.01	.01	T.	T.	.09	.03		6.69
Pomeroy	do																																
Port Crescent	Coast	.95	.67	.02		.17		.13	.04	.10	.53		.20					.64	1.09	.22	.03	.03	1.17	.74	.22	.50	.06	1.28	3.37	3.10	.11		15.37
Port Townsend	Puget Sound	.32	.15	.01				.08	.07	.02	.08	.13	.17	.26				T.	.03	.10		.28	.38	.40		.03		.33	.02	.89	.15		3.90
Pullman	Palouse	.21	.88	.07	.13	.40	T.	.18	.04	.06	.20	.08	.09					.12	.12	.92			1.16	.16	.24				.61				5.67
Quinlault	Coast	2.30	3.00	.72	.01	.25		1.18	1.20	1.14	.72	.01	.01	.01				1.90	5.50	2.00	.61	.15	3.74	3.05	.49	1.02	.35	2.00	6.33	4.10	.41		42.29
Republic	Columbia	.18	.16	T.	.04	.15	.02	.07	.24	.12	.06	.10	T.					.15	.12				.34			.11		T.	.09	.18			2.13
Rex Creek	do																																
Ritzville	do	.46	.08	.10	.26	.25		.01		.06			.15					.32	.14	.11		.36	.29	.09				.10		.06	.10		2.94
Rock Lake	Palouse	.64		.20		.22	.81		.08			.06		T.			*	.79		.09			.77		.08				.35	.08			4.17
Rosalia	do	.35	.80	.33	.34	.43	T.	.04	.02	.10	.04	.02	.01	.05				.24	.35	.16			.55		.16				.15	.25	.16		4.55
Russells Ranch	Yakima																																
Seattle (1)	Puget Sound	.88	.44	.02	.11	.21	T.	.30	.35	.12	.27	.01	.09	T.				.94	1.17	.23		.09	.31	.48	T.	.12	T.	.80	.94	1.21	.02		9.11
Seattle (2	do	.13	.68	.54	.01	.18	.07	.15	.38	.34	.18	.08		.12				.25	1.60	.44			.37	.09	.37	.15		.05	1.35	1.85	.14		9.52
Sedro-Woolley	do	.28	1.51	.33	.01	.41	.20	.03	.05	.17	.14	.04	.80					.40	.32	.30	.07	.10	1.35	.55	.66	.88	.09	.32	1.01	1.11	.05		11.18
Sixprong	Columbia	.08	.04		.05	.20	T.		.04	.06				.12				.16	.09	.06	.03		1.10	.20	.15					.04	.04		2.46
Skagit Power Dam	Puget Sound																																
Snohomish	do	.10	.38	.33	.03	.30	.67	.09	.24	.28	.21	.05	.11	.18				.30	.60	.58	.03	T.	.46	.37		.27		.15	1.12	1.60	.42		8.87
Snoqualmie	do	.50	1.90	.95	.08	.48	.04	.07	.31	.03	.51	.07	.30	.24	T.			.60	2.40	1.47	.03	.28	1.20	1.13	.59	.22	.02	.13	1.33	2.20			17.08
Snyders Ranch	Columbia	.18	1.50	.30	T.			.44	.40	.24	T.		.12					.24	.30	.57			1.20	.63	.11			.25	.50	.76			7.74
South Bend	Coast																																
Spokane	Spokane	.29	.13	.03	.29	.33	T.	.04	T.	.04	T.		.08	T.				.44	.08	.09		T.	.43	T.	.07	T.		.12	.15	.08			2.69
Stehekin	Columbia																																

a signifies 13.27 inches.

TABLE 2.—*Daily precipitation for November, 1909. District No. 12*—Continued.

Stations.	River basins.	Day of month. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total.
Washington—Cont'd.																																	
Stokes Ranch	...do	.31	.83	.39		.03		.32	.40	.17			.20					.15	.22	.27			1.33	.13					1.10	.20			6.05
Sullivan Lake	Pend Oreille																																
Sumner	Puget Sound	.58	1.59	.70	.02	.30	.18	.07	.29	.28	.62	.10	.04	.26				.54	1.61	1.11	.18	.13	.85	.44	.55	.15		.28	.80	1.02			12.69
Sunnyside	Yakima	.06	.04	T.	.11	.14		.03	.09	T.			.02					.09	.01	.03			.68	.03	.10			.01					1.44
Tacoma	Puget Sound	1.77	.93	.30	.14	.19		.33	.25	.12	.55	.04	.17				T.	1.82	1.52	1.01	.24	.34	.83	.88	.10	.30	T.	.80	.79	1.19	.12		14.73
Tatoosh Island	Coast	1.55	.29	.03		.46	.10	.54	.63	.14	.15						.16	1.22	1.27	.17	.08	.55	1.46	.27	.32	.85	.48	2.00	1.53	1.50	.77		16.52
Tieton	Yakima	*	1.53	T.	T.	T.	.23	.30		.08				T.				T.	.49	.53	T.		1.53	.49	.77		T.	T.	.49	.62	.02		7.08
Touchet	Columbia	.04	.01		.01	.10	.02	T.	T.	.04	T.		T.	.53				T.	.05	.10	.15	.03	.58	.03				T.	.03	.02	.02		1.76
Touchet Ridge	...do		1.80			1.70	.02		.30			.20			1.20					2.15				3.10			.25	.05		.90		11.67
Trinidad	...do																																
Twisp	...do																																
Tyee	...do		1.54			.85			.68		.04		.07					.73		1.43				1.80		.02			1.07				8.23
Vancouver	...do	.85	1.65	.75	.39	.12	.08	.69	.72	.48	.32	.02	.18	.35				.68	.43	.97	.21	.32	1.41	.60	.22	.05	.03	.40	.18	.68	.01		12.79
Vashon Island	Puget Sound	.60	2.01	.18	.01	T.	.22	.17	.40	.25	.33	.15	T.	.01			.01	.48	1.85	.80	.03	.08	.89	.43	.41	.18	.04	.43	1.35	1.98	.05		13.34
Wahluke	Columbia																																
Wallace	Okanogan	.34	.28			T.		.28	.33	.31	T.		.12				T.	.13					.65			.85			.60	.85			4.74
Walla Walla	Columbia	.19	.72	T.	.03	.25	.03	.01		.13	.04		.18	.46				.02	.04	.38	.02	.11	.65	.15	.02			.18	T.	.37			3.98
Waterville	...do	.30	.26	.02	T.	.11		.12	.18	.06	T.		T.	.07				.05	T.		T.		.65	.21		T.		.30		.24			2.57
Wenatchee (near)	...do	.20	.82	.09	.03	.09		.22	.10	.12	.04	.04	T.	.12				T.	.31	.11			.99	.25	.03	T.		.25	.15	.11			4.07
West Branch	Spokane																																
Wilbur	Columbia	.40	.35		T.	.22		.12	.03	.06			.08					.02	.36				.50						T.	.30			2.44
Yale	...do	2.10	4.10	1.75	.30	.35	.34	.38	1.05	.70	1.20		.50					1.40	2.00	2.50	.18	.26	3.30	1.65	.70	.45	.29	.70	1.92	2.90			31.02
Zindel	Snake				.12	.64					.12								1.01	.17	1.10	1.04											4.20
Oregon.																																	
Albee	John Day																																
Albany	Willamette	.16	1.46	.80	.40	.30	.10	.20	.86	.30	.42	.22		.12				.08	.30	.28	.84		2.30	.40	1.02	.02	.12	.06	.42	.06	.62		11.86
Ashland	Rogue	.06				.41	.01	.02	T.	.08	.28	.02		.37	.03				.07	.68	1.50	.76	1.63	.65	.23	T.	.01	.11	.02	.05	.43		7.42
Astoria	Columbia																																
Baker City	Snake	.05				.05	.01		.03	.01	T.	.12	.01	.08	.02				.04	.19	.10	.27	.59	.19	.02			.05	.01		.06		1.90
Bay City	Coast.	1.42	1.25	.78	.05	.18	.24	.92	1.01	1.20	.80		.18	.46				.46	.90	.90	.52	.36	1.60	.46	.20	.16	.28	.24	2.20	2.65	.12		19.54
Bear Creek	Deschutes	.10				.31				.04				.20						.07	.27		.75	.70									2.44
Beaver Creek	...do																																
Bellfountain	Willamette	.25	1.71	.29	.63	.28	.01	.76	1.17	.74	1.09	.12	.01	.22				.22	.61	1.06	.38	.32	3.03	.92	1.06	.23	.20	.30	.20	1.00	.19		17.00
Bend	Deschutes					.04				.02	T.			.50					.20		.38		2.00	1.03	.50			T.					4.67
Big Basin	John Day					.04				.10		.35									.20	T.	1.20	.30				.20					2.39
Birch Creek	...do	T.				.14				.40	.20			.90					T.	T.	.70	T.	.36	.10	.50		T.	T.	.10	T.			3.40
Black Butte	Willamette	.20				.35		.20	.80	.30	1.35	.30	.65					.10	.55	.65	.45	1.00	2.35	1.50	1.10	.05	.10	.30	.05	.25	.70		13.30
Blalock	Columbia	T.	.10		T.	.19		.03	T.	.22	.04			.45				.32	.07	.07	.06	T.	1.48	.16	.20				.05	T.	.04		3.48
Blue Mount Sawmill	Umatilla	.42	.75			.38	.27	T.	T.	.24	.28	.20	.10	.85	.05				.66	.19	1.10		1.60	.71	.37	.05	.05		.37	.04	.72		9.40
Buckhorn Farm	Rogue River	.21				.40		1.45	1.81	.98	1.05			.17					.89	1.95	2.00	1.02	5.43	2.71	.73	.02				.78			21.60
Butte Falls	...do	.23			T.	.70	.07	.01	.10	.22	.65	.30		.21	.03			.02	.33	1.95	3.85	1.19	3.10	2.65	1.00	.06	.13	.23	.22	.08	1.26		18.56
Cableville	Snake																																
California Gulch	Umatilla	.65	.15				.66			.02	.16			1.20	.04					.43		.50		.40	.08		.02		.18		.32		4.81
Canyon City	John Day	.04				.16	.02	T.		.06	.24	.01		.12	.02				T.	.02	.12	T.	.79	.08	.01		T.		.04		.08		1.75
Cascade Locks	Columbia	1.10	3.00	1.03	.43	.12	.40	.34	.84	.45	1.00	.05	.08	.24				1.00	1.47	2.26	.56	.18	4.23	1.35	.67	.27	.35	.51	2.08	1.55	.45		26.10
Cascadia	Willamette	.05	.35		.11	.39	.11	.36	.52	.49	1.10	.21	.06	.82				.46	.40	.82	1.55	.29	2.89	1.77	.86	.20	.12	.22	.38	.32	.78		15.63
Casadero	...do	.71	2.76	.85	.58	.44	.43	.30	.67	.47	.66	T.	.03	.92				.42	.51	1.52	.77	.22	2.99	.50	1.61	1.17	.24	.10	.27	1.17	.41		19.73
Columbia Mine	Snake	.25	.09			.16	.13			.35	.55	.06	.90						.10	.42		T.	2.70	.77	.10				.25				6.83
Condon	John Day																																
Coquille River L. H.	Coast	.17	.08	.09	.35	.46		1.34	1.38	.45	.40	.09		.48				.10	1.16	.61	.34	.52	4.02	1.42	.84	.29	.54	.15		.85	.31		16.44
Cornucopia	Snake																																
Corvallis	Willamette	.16	1.88	.22	.52	.34			1.37	.45	.06	.38	.04						.78	.45	.67	.92	1.44	.40	1.00	1.06	.05	.34					11.53
Cracker Creek	Snake	.03	T.	T.	T.	T.		T.		.04	.43			.38					T.	.05	.07	T.	1.60	.06	.01		T.		.30	T.			2.97
Crescent	Deschutes																																
Dayville	John Day					.12				.09	.06	T.		.10						.09		.08	.40	.12	.02		T.	.02	.04				1.08
Doraville	Columbia	.77	1.97	1.17	.09	.26	.12	.70	.71	.33	.49	.03	.15	.17				.32	.83	1.76	.16	.09	2.05	.59	.67	.32	.10	.36	.87	1.72	.13	*	16.93
Drain	Umpqua	.05			.12	.50	.03	.25	.61	.73	1.30	.15	.02	.20					.07	.73	.31	.15	4.03	1.52	.80	.18	.11	.15	.13	.60	.24		12.98
Duncan	Umatilla		.30			.50	.80				.30	.20						1.00			1.25		1.70	1.00	.55						.60		8.20
Echo	...do	T.	.04			.21		T.			.04			1.00				T.	T.	.08	.16		.63	.20	.03				.07				2.46
Elkhorn Ranch	Coast	.51	1.00	.16	.20	.48		1.38	1.40	1.50	.23	.50		.80				1.11	1.28	1.60	1.40	.41	6.46	3.96	2.11	.60	.45	.28	.25	1.80	.51		29.28
Ella	Columbia	.05	.10		.60				.05	.05				.65				.07	.07	.10		.05	.85	.15	.06	.03							2.88
Embody	Deschutes	.02	.04				.01	.02	.01	.01						T.	.16		.15	.20	.20	.20	.30	.11									1.43
Eugene	Willamette	T.	.15	T.	.09	.39	.05	.03	.38	.37	.83	.34		.35				.32	.06	.21	.23		1.91	1.08	1.03		.11		.12	.01	.55		8.51
Eugene (River sta'n)	...do	T.	.24	T.	.10	.40	T.	.54	.40	.94	.32		.32	.34		.38		.24	.06	.24	.30		1.80	1.34	.75	.06	.24	T.	.14	.04	.60		9.79
Fairview (1)	Coast	T.	.31	.78	.56	.63	1.50	.68	.32	1.80	.83	.08	.86					.12	.35	1.57	.23	.50	5.65	1.94	1.21	T.	.23	.43	.16	1.57	T.		22.31
Fairview (2)	Snake		.10	.02		T.				T.		.30	T.	.50						T.	.04		1.00	.20	.30								2.46
Falls City	Willamette																																
Fir Glen	Coast																																
Florence	...do	.75	2.08	.21	.55	.36	.04	.95	.45	.54	.60	.11		.69				.36	1.35	.65	.32	.39	3.63	1.60	1.05	.32	.60	.42	.29	1.13	.19		21.63
Forest Grove	Willamette	.70	.42	.89	.22	.15	.09	1.11	.91	.80	.27		.12	.10				.58	1.08	1.10		.23	2.20	.50	.32	.13	.15	.56	.62	1.25	.03		14.53
Galice	Rogue	.15	.10			.44		1.30	1.26	.98	1.21	.09		.27	.02				.60	1.47	1.57	.67	2.41	2.02	.47	.07	.08	.12	.03	.52	.27		16.12
Gardiner	Umpqua	.48	1.22	.10	.42	.38	.08	1.22	2.22	.78	1.00	.32		.63				.19	1.22	.45	.34	.44	2.83	.99	.85	.52	.43	.27	.20	1.12	.34		19.04
Glendale	...do	T.			T.		.70	1.30	.90	.25	T.	.20	T.						T.	.25	1.20	T.	1.30	1.40	.10			T.	.20		T.		7.80
Glenora	Coast	4.00	4.33	4.67	2.00	1.50	.30	.42	.30	.48							2.00	2.00	2.00	4.00	4.00	4.00	6.80		1.70	1.00	2.18	3.14	.75	1.75	3.68		57.00
Gold Beach	Rogue	.15	.07		.48	.76	.73	1.84	2.33	1.02	1.05	.05	.33						1.67	1.03	2.12	.51	5.04	2.80	.87	.30	.78	.20	.11	.92	.84		25.46
Granite	John Day	.25			T.	.18	T.	T.		.20	.05	T.	T.	.35	T.				.05	.10	1.00	T.	1.10	.35	.08		T.		T.		.22		3.93
Grants Pass	Rogue	.05				.32		.55	.65	.44	.44	.04		.20				.03	.26	.61	1.29	.45	1.81	.97	.45	.08	.06	.08	.03	.04	.34		9.19
Grass Valley	John Day	.06	.08			.16			.12		.08			.21					.18	.22	.15		1.18	.38	.46						.06		3.34
Greenleaf	Coast	.55	2.78	.25	.84	.20		1.09	1.50	1.25	1.42	.07		.47				.32	1.17	1.16	.88	.31	6.82	2.85	1.48	.42	.62	.25	.51	1.71	.25		29.17
Happy Home	Umpqua	1.14	.94	.38	.60	.52	.47	2.04	1.60	1.10	1.14	.94	.52					.34	1.72	1.60	2.18	.44	6.84	4.38	1.64	.40	.52		.42	1.18	1.42		34.85
Hazeldell	Willamette	.15			.35	.28	.12			.90	.50		.58				.11	.18	.50	1.02	2.70	2.60	.70	.30		.15		.35	.15	.70			12.34
Headworks	...do	.82	2.28	1.05	.60	.52	.31	.40	.65	.58	.80	.03	.11	.82				.98	.66	1.86	.57	.20	2.40	1.52	1.43	.33	.25	.22	.49	1.10	.62		21.60
Heppner	Columbia	.02	.18			.23		.08		T.	.15	.02		.34						.15		.54		.20	T.								1.91
Hermiston	Umatilla	.01	.02	.02		.31		.03	T.		.05	T.		.30				.03	.07	.02	.21	T.	.64	.15	T.			.02	.05	T.	1.02		2.95
Hilgard	Grande Ronde	T.			.10	.30						.05	.25	.10					.20			.20	.70							T.	.50		2.40
Hood River	Columbia	.65	1.20	.05	.05	.05	.30	.05	.05	.25	.30		T.	T.				.60	.80	1.80	.20	.30	2.00	1.10	.15	.10	.05	.10	.60	1.00	T.		11.75
Howardville Station	Grande Ronde	.40	.19		.06	.29	.11			.46	.19	.08		.27					.20	.56	.56		1.67	.65	.11		.02		.43	.02	.37		6.64
Huntington	Snake					.25			.15					.25	.02					.50		.75											1.92
Ibex Mine	John Day	.18	.02			.20	.04	T.	T.	.23	.22	.06	.10	.55	.04				.02	.23	.52		1.61	.38	.07		T.	.02	.26		.08		4.83
Ironside	Snake					.05					.09	.18	.30	.20							.04	T.	.50	T.	T.			T.	.20				1.56
Jacksonville	Rogue	.14						.02	.14	.34	.44	.04		.14				.02	.22	.77	2.12	1.12	1.60	1.41	.38	.07		.10		.11	.51		9.69
Joseph	Grande Ronde				.20							.40		.10	.20				.30	.32	.80	.40	.30	.70	.10								3.82
Kamela	...do	.45	.05			.35				.05	.25	.40	.40	.20		.05		.10	.25			2.00	1.90	.15	.10			.10	.60				7.40
Keeps Mill	Deschutes																																
La Grande	Grande Ronde	.26	.04			.22	.06			.12	.23	.35		.33	.05				.04		.43		1.00	.78	.04		T.				.26		4.24
Lilygien	Rogue	.11				.43			.10	.10	.30	.25	.37	T.					.21	1.19	2.47	1.07	2.25	1.09	.50	T.	.18	.18	T.	.18	.50		11.48
Long Creek	John Day					.20			.30	.40		.20		.20							.45	.25	.30						.30	.15			2.75
Madras	Deschutes		T.	.20	.10			T.		.02						.05			.50	T.	T.	.60	.40	.30	T.	T.							2.17
Maury	...do	.21	.99	.02		.41	.11	.19	.35	.44	.91	.48		.60				.27	.80	1.93	1.44	.35	5.40	2.83	.82	.14	.20	.28	.78	.38	.74		21.14
McKinzie Bridge	Willamette	.29				.21	.08		.10		.11	.14	T-	.25		.20	.05	.10	.25	.04	.60	.44	.07		T.	T.					.05		2.98
McKay	Umatilla																																
McMinnville	Willamette	.74	1.53	.74	.38	.16	T.	.55	.97	.83	.25		.14	T.				.50	.51	1.18	.05	.47	2.42	.76	.29	.16	.14	.42	.16	1.02	.01		14.38
Meacham	Umatilla		.62				.32				.36		.42	.33							.70		1.10	.78			.65	.69					5.97
Mikkalo	John Day	.05	.17			.45		T.	.02	.01	.09	.01		.61				T.	.15	.20	.08		1.07	.36	.10				.03				3.40

TABLE 2.—*Daily precipitation for November, 1909. District No. 12*—Continued.

Stations.	River basins.	Day of month.																															Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oregon—Cont'd.																																	
Miramonte Farm	Willamette	.49	1.84	.04	.42	.23	.01	1.15		.44	.34		.04				.34	.37	.36	1.11	.20	.56	1.54	.81	.60	.13	.06	.04	.09	.74	T.		12.85
Monroe	do	.33	1.98	.21	.40	.25		.90	1.16	.58	.74	.18	.01					.38	.51	.45	.28	.22	2.70	1.25	.92	.20	.25	.24	.23	.98	.10		15.45
Mountain Home	Columbia	.90	2.62	1.19	.07	.34	.08	.74	.62	.64	.48	.02	.15	.20				.58	1.48	2.30	.35	.08	3.00	.83	.75	.49	.07	.40	1.26	2.22	.10		22.02
Mount Angel	Willamette	.18	2.00	1.60	.80	.52	.24	.48	.73	.13	1.06	.35	.25	.37				.47	.65	.50	1.25	.10	2.00	.78	.55	.12	.20	.12	.22	.80	.07		16.54
Mount Hood	Columbia	1.01	.34	.02	.22	.03	.18	.10	.11	.21			.37				.95	1.11	1.40		1.22	2.98	1.52		.03	.12	.40	.05		1.08			14.55
Mountain Park	do	.91	2.70	.60	.39	T.	.25	.27	.52	.19	.80	T.	.04	.29				1.00	1.38	2.25	.41	.13	3.26	1.25	1.58	.20	T.	.24	1.70	1.80	.42		22.83
Mountain Ranch	Rogue				.60			.43	.55	.67	.83	.07		1.19	T.				.44	.96	2.44	1.08	2.20	1.82	.87	.06		.03		.08	.94		14.26
Musick	Umpqua	.42	.52	.02		.80		.20	.40	.80	1.60	.10	.50					1.00	2.20	2.30	.52	1.90	.52	.40	.42	.50	.20		.10				15.42
Newport	Coast	.53	2.54	1.02	.30	.48	.05	.65	1.54	.52	.25	.02	.05	.30				.30	1.09	1.22	.05	.76	2.68	.75	.19	.41	.52	.31	.26	1.20	.02		18.01
Nigger Flat	Malheur																																
Ochoco	Deschutes						.23	T.		T.	.29		.37		T.			.15	.25	T.	.70	3.15	1.35	T.	.17	T.	T.	.15					6.81
Ochoco Creek	do					.31	.80			.60	.19	.03		.53					.13		.47		1.74	.65	.90					T.	.15		4.43
Owyhee	Owyhee	.38					.05		.03					.11						.06	.03		.50	T.		.50					.13		1.79
Pendleton	Umatilla	.07	.05			.31	.07	.01		.12	.05		T.	.61	T.			.07	.02	.01	.23		.68	.34	.03			.12	.53		.26		3.58
Persist	Rogue	.12				.59	.16	.08	.40	.50	.62	.23		.31					.60	1.44	2.16	.86	3.05	2.50	.90	.09		.37		.50	.77		16.25
Pilot Rock	Umatilla	.04	.09			.23	.12	T.		.03	.01	T.		.57	.01			.02	.04	.01	.34	.01	.34	.24	.04	.03	T.	.01	.05		.04		2.27
Pompeii	Willamette	.74	1.77	.90	.40	.21	.25		.56	.29	.90	.10	.11	.54				.53	1.17	2.50	1.00	.11	5.44	2.09	1.91	.30	.15	.25	.92	.96	.65		24.75
Portland	do	1.24	1.27	.63	.40	.06	.07	.73	.60	.56	.17		.10	.27				.46	.70	1.12	.12	.86	.93	1.04	.01	T.	.03	.31	.03	.83			12.49
Port Orford	Coast																																
Post	Deschutes	.02				.20	.04		.08		.09	.11		.22					.04	.07	.25	.04	.52	.47	.04		T.	T.	.04		.04		2.27
Power House	Walla Walla	.17	.32		.03	.28				.27	.09	.04	.09	.90				T.	.20	.17	.52		.40	.46			.16		.22	T.	.37		4.69
Prineville	Deschutes					.38				.14			T.	.18								.85	.45	.25									2.25
Prospect	Rogue	.23				.78	.17	.05	.15	.50	.65	.25		.25	.05			.12	.40	1.90	2.91	1.05	3.50	2.87	.89	.05	.05	.20	.51	.10	.75		19.33
Range	John Day	.10			.40	.25			.25	.30	.20	.60	T.			T.	T.		T.	1.40	.05	1.15	.65	T.					.20				5.55
Ray Creek	Columbia		.11			.22								.70				.04		.33			.52	.47	.05					.07			2.61
Reston	Umpqua	.11	.03			.31	.01	.64	.65	1.00	1.25	.08		.27	T.			.06	.58	.77	1.28	.20	6.43	2.58	.71	.05	.15	.23	.22	.40	.28		18.31
Richland	Snake	.03					.16			.15		.17		.08						.02	.06		.57	.02		.03			.10		.14		1.53
Riverdale Ranch	Deschutes										.10			T.		T.			.20			.85	.89	.80	T.								2.84
Riverside	Malheur	.12	.05			.30				.35				.15					T.	.22	.16	.25	.30	.22	.12	.05							2.18
Rock Creek	Willamette	2.00	1.81	.47	.76	.23		.86	2.11	.88	.96		.04	T.				.59	1.13	1.89		.86	5.46	2.11	.82	.88	.42		.32	.50	.46		25.56
Roseburg	Umpqua	.04		T.	.35	.12		.13	.36	.72	.42	.02	.04	.21			.01	.11	.18	.50	.17	.78	3.01	.44	.20	.02	.02	.26		.55	.04		8.70
Rosland	Deschutes	.08	.01			.41	.05		.02	T.		.05		.50	.40				.10	.48	.74	.06	3.16	1.62	.28					.17			7.93
Salem	Willamette	.20	1.64	.40	.60	.20	.06	.44	.76	.44	.46	.02	.06	.28				.40	.32	.46	.38	.20	1.12	.48	.58	.12	.20	.22	.04	.40	.08		10.56
Seneca	Interior	.16				.33			T.	.10	.15		.06						T.	.16	.26	.08	.70	.62	.02		T.		.13		.02		2.73
Siskiyou	Rogue	.73				.27	.02	.01	.23	.32	.39	.10		.54	.15			.01	.16	.99	1.30	.71	1.46	1.33	.13	.05	.11	.20	.01	.01	.33		9.56
Sisters	Deschutes				.29			.02	.12	.06			.38						.02	.15	.44	.80	3.05	1.02	.43					.17	.06		7.01
Skyland	Willamette																																
Sparta	Snake																																
Stafford	Willamette	.63	2.11	.93	.39	.21	.01	.56	.81	.54	.46		.18	.20				.53	.88	1.51	.26	.21	2.46	.69	.43	.15	.25	.27	.17	1.05	.06		15.95
Starkey	Grande Ronde					.05			.05	.10	.15		.55						.40	T.			.80					T.	T.	.20			2.30
Summit	Willamette	.48	2.60	.75	.81	.21	.07	.61	1.62	.64	.59	.15	.06	.37				.31	.68	2.00	.70	.43	4.50	1.05	.83	.36	.56	.38	.29	1.45	.04		23.14
Summit Prairie	Deschutes					.12				.13	.18			.23					.12	.15		.31	2.05	.60	.14			.10	.13				4.26
Susanville	John Day	.68			.01	.32	.06			.11	.11	.15		.40	.02				T.	.02	.34	.03	1.40	.16	.05		.02	T.	.23		.13		3.64
Telocaset	Snake																				.62			.05	.04				.01				0.12
The Dalles	Columbia	.11	.18		.07	.10	.10	.05	.20	.03	.01			.25				.18	.28	.35	.11		1.81	.17	.38	T.		T.	.15	.02	T.		4.55
Tin Roof Cabin	Umatilla	.18	.03			.40	.24			.09	.30	.15	.07	.85							.42		1.33	.52			.05		.45		.72		5.80
Toledo	Coast	1.20	1.70	1.05	.50	.20		1.10	2.05	1.05	.55		.10	.75				.55	1.00	1.86	.55	.45	2.25	1.40	.80	.50	.50	.50	.20	1.60	.10		22.51
Trask	do	2.65	3.80	1.90	.35	1.00			1.79	1.10	.50	.40	.19				1.90	2.10	3.00	2.28	2.40	3.60	3.65	3.00	1.46			1.32	1.50	4.55	1.72		46.16
Umatilla	Columbia	.02			.44		T.	T.			T.		.14	T.		T.		.05	.09	.27			.67	.02				.07					1.77
Unity	Snake	.12	T.									.29		.10	T.				T.	.23	.38	T.	.84	.52	.04				T.		.10		2.71
Vale	Malheur	.11					.07			.06										.10			.62		.02	.13					.10		1.21
Van	do	1.00					.04		.28		T.	T.		.30						.10			.98		T.		T.						2.70
Wallace Orchard	Willamette	.32	1.91	.60	.67	.13	.04	.38	.86	.55	.59	.01	.05	.25				.38	.48	.83	.20	.26	1.35	.55	.45	.19	.09	.20	.03	.93	.01		12.31
Wallowa	Grande Ronde	.44	.07			.32	.04	.02		.45	.12	.09	.20						.18	.05	.69		.91	.94	.09	T.	T.		.22	.02	.17		5.02
Walloupa	do	.43	.12	.02	.02	.30	.10	T.		.35	.16	.02		.12					.43	.66	.69		1.59	.88	.30				.07	.02	.26		6.52
Wamic	Deschutes	.80	.50		.40			.12	.14	.80				.25				.80	.25	.25	.20		2.51	.50	.44					.24	T.		7.90
Warmsprings	do				.15	.20			.05									.03			.50		1.31	.46	.21		.05						2.96
Wasco	Columbia	.10	.28	.02		.14	.04	.07	.08		.12			.15				.10	.17	.16	.10	.50	1.08	.30	.43			.16	.03	.10			4.13
Welches	Umatilla	1.80	3.05	1.08	.70	.40	.43	.20	.33	.40	.80	.18	.02	.60				.98	1.20	2.00	1.03	1.33	4.03	1.10	1.15	.30	.23	.10	1.47	1.50	.53		26.94
Wenaha Springs	do																																
Weston	Walla Walla	.35	.20	T.	.05	.35	.12	T.		.20	.08	.10	.02	.60				.05	.10	.10	.45			.65	.15	T.	T.	T.	T.	.05	.30		3.92
Willamina	Willamette																																
Williams	Rogue					.23		.12	.61	.52	.34			.52					2.10	1.56	1.61	2.21	3.06	3.10	.41	.04		.01		.26	.35		17.05

TABLE 3.—*Maximum and minimum temperatures at selected stations for November, 1909. District No. 12, Columbia Valley.*

Date.	Montana.						Idaho.																					
	Kalispell.		Missoula.		Afton, Wyo.		Boise.		Bonners Ferry.		Hotspring.		Lewiston.		Mackay.		Meadows.		Pocatello.		Salmon.		Shoshone.		Vernon.		Wallace.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	47	35	47	36	.....	.....	58	44	41	30	60	43	55	43	50	24	42	32	51	38	46	39	55	36	43	34	45	35
2...	54	38	56	41	.....	.....	68	55	54	35	72	44	56	49	59	33	58	40	64	41	69	48	63	37	60	39	53	38
3...	58	44	67	46	.....	.....	68	43	50	40	72	36	64	50	58	30	62	36	68	38	72	44	65	33	61	31	51	41
4...	44	41	63	41	.....	.....	69	42	46	39	70	30	60	50	59	29	60	31	68	38	58	26	63	30	61	29	50	44
5...	46	40	54	31	.....	.....	64	42	55	39	68	32	55	44	59	25	53	28	65	36	61	21	62	30	56	28	46	39
6...	46	32	50	38	.....	.....	51	38	46	28	70	30	53	38	53	31	53	32	53	33	56	35	49	37	41	29	48	34
7...	43	26	46	23	.....	.....	60	42	46	28	72	28	49	35	47	17	51	21	53	28	50	16	54	25	55	24	50	27
8...	51	33	53	26	.....	.....	62	44	45	25	70	30	52	36	52	23	54	26	60	37	57	20	58	37	55	30	50	33
9...	42	37	45	34	.....	.....	49	40	44	30	68	32	50	40	43	28	49	38	60	35	56	25	49	39	46	31	43	38
10...	41	32	42	32	.....	.....	45	36	46	29	70	34	50	40	40	17	41	30	41	32	47	27	41	31	39	30	40	33
11...	42	31	38	29	.....	.....	43	33	44	30	44	33	48	39	42	15	39	31	42	26	43	27	40	29	36	21	41	33
12...	37	25	40	30	.....	.....	40	28	38	25	46	28	46	36	38	15	34	18	35	22	42	26	31	24	38	12	38	30
13...	24	12	27	17	.....	.....	35	32	32	15	44	31	43	30	35	17	33	20	37	28	34	23	34	26	30	21	32	22
14...	23	6	24	10	.....	.....	36	24	38	9	42	30	36	22	25	10	31	18	29	22	28	12	33	25	26	15	24	15
15...	26	7	26	5	.....	.....	38	21	34	9	40	21	35	20	22	6	31	3	27	22	27	3	31	18	26	10	29	9
16...	30	16	35	10	.....	.....	40	22	36	19	42	18	39	23	32	6	35	8	40	19	34	4	35	14	29	19	31	11
17...	30	24	42	24	.....	.....	43	27	35	22	46	28	49	36	22	6	35	18	42	16	41	19	40	21	36	12	41	28
18...	46	30	49	33	.....	.....	57	31	47	30	54	36	56	41	31	10	35	30	50	28	49	25	47	29	41	20	46	34
19...	50	35	55	43	.....	.....	54	45	54	22	55	45	56	44	40	12	41	33	52	37	50	35	44	37	40	31	48	40
20...	42	28	45	32	.....	.....	56	43	45	28	58	46	54	36	40	20	45	35	52	40	46	35	49	41	48	37	48	31
21...	39	27	39	28	.....	.....	47	42	38	25	52	45	47	34	34	22	39	26	44	32	36	21	44	35	41	31	35	28
22...	41	30	47	30	.....	.....	57	44	36	30	61	41	67	40	43	20	43	32	56	38	36	26	49	38	46	31	52	31
23...	53	40	51	42	.....	.....	63	51	56	32	69	55	65	49	39	32	52	42	58	46	59	34	53	45	56	43	54	46
24...	48	32	45	38	.....	.....	55	45	56	38	67	51	54	38	40	32	49	43	54	43	54	33	55	42	51	41	52	32
25...	35	29	35	28	.....	.....	46	40	41	26	64	42	45	36	50	32	43	35	45	36	40	32	46	39	45	32	37	28
26...	39	25	35	26	.....	.....	41	32	38	23	48	37	48	32	42	26	37	29	36	29	40	30	40	30	38	31	34	26
27...	39	22	39	22	.....	.....	41	27	37	23	44	24	46	28	44	18	33	15	35	20	35	18	36	22	31	11	37	28
28...	38	29	44	22	.....	.....	47	34	44	29	46	26	49	37	45	15	37	26	37	18	44	19	38	23	32	5	44	29
29...	52	37	45	21	.....	.....	45	32	47	40	51	30	56	40	49	20	43	32	41	21	40	23	45	25	39	9	52	38
30...	51	30	50	36	.....	.....	50	34	44	30	53	38	52	30	50	18	42	30	39	30	48	30	43	31	34	15	45	33
31...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mns	41.9	29.1	44.5	29.1	.....	.....	50.9	37.1	43.8	27.6	57.3	34.8	51.2	37.2	42.8	20.3	43.3	27.9	47.8	31.0	46.6	25.9	46.4	31.0	42.7	25.1	43.2	31.1

Date.	Washington.																											
	Aberdeen.		Blaine.		Colville.		Kosmos.		Lakeside.		North Head.		North Yakima.		Odessa		Port Crescent.		Seattle.		Sixprong.		Spokane		Tacoma.		Tatoosh Island.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	55	42	50	44	42	29	45	36	44	35	55	49	44	34	44	31	49	38	56	44	50	38	51	36	52	43	55	45
2...	58	45	52	43	55	38	50	42	48	37	54	53	61	40	54	34	52	46	57	53	56	43	56	50	57	52	54	41
3...	56	46	55	47	60	48	54	47	58	41	53	49	59	46	57	45	53	38	54	49	66	49	58	49	55	49	55	45
3...	51	44	49	36	53	38	49	44	50	43	49	46	52	45	54	45	47	36	49	45	60	47	51	45	49	44	49	44
5...	48	39	51	35	48	40	44	40	52	40	47	44	51	44	47	41	47	31	51	43	57	44	48	40	52	42	48	42
6...	53	37	51	40	42	36	44	36	50	33	52	42	54	31	51	31	49	31	54	43	53	40	46	34	55	42	49	41
7...	54	43	54	42	37	26	50	38	42	37	52	44	47	34	44	30	50	38	53	45	56	35	42	34	54	43	51	42
8...	54	44	53	43	44	34	50	43	45	38	54	46	48	39	52	40	51	40	55	45	49	39	48	36	57	45	53	45
9...	53	43	51	43	42	34	52	39	48	42	52	45	52	37	50	38	49	38	50	45	54	37	48	40	52	43	49	45
10...	48	41	47	43	42	36	47	37	45	37	49	43	47	30	49	30	47	39	46	42	47	34	47	38	47	42	50	45
11...	54	40	46	37	44	33	49	37	48	38	50	40	51	36	52	32	49	32	48	42	47	34	45	32	49	39	51	44
12...	48	39	44	40	33	22	40	37	42	32	48	41	42	31	42	26	48	35	46	39	45	32	33	29	47	39	48	43
13...	48	29	40	30	35	23	41	31	35	30	45	36	36	33	34	24	41	33	42	34	40	30	31	23	42	38	45	39
14...	45	26	41	23	33	13	33	23	34	24	44	33	38	22	35	20	39	25	41	32	35	24	29	18	42	30	41	37
15...	44	24	41	20	33	10	41	18	32	19	45	33	35	13	35	11	40	23	42	29	29	10	30	16	43	25	43	37
16...	45	24	40	25	31	15	36	19	33	25	46	37	31	14	35	14	40	27	41	29	28	12	35	20	39	26	42	39
17...	53	35	44	35	30	21	41	32	32	27	52	40	31	26	35	25	46	36	49	39	40	24	40	31	48	35	53	38
18...	57	51	57	40	47	30	50	40	36	30	54	51	44	29	47	30	54	43	58	49	43	23	52	36	59	50	54	48
19...	52	41	49	44	47	34	50	39	46	34	52	44	47	29	46	31	50	37	52	43	54	34	49	37	52	42	48	42
20...	46	42	48	37	44	22	42	36	48	30	51	43	51	27	50	30	46	37	48	42	50	38	45	34	48	42	48	41
21...	48	38	46	37	44	23	44	39	40	30	50	42	47	28	45	29	44	37	46	42	49	34	43	32	47	41	45	40
22...	57	43	54	38	46	22	56	40	43	32	55	50	56	36	55	37	58	39	58	43	60	39	57	35	59	43	53	42
23...	55	45	55	46	57	35	56	48	57	36	52	45	62	48	59	45	53	42	56	45	62	49	57	49	57	47	52	42
24...	47	39	46	39	58	37	51	38	51	39	50	42	57	36	53	35	45	34	47	39	59	36	49	38	47	39	46	39
25...	44	34	43	38	47	26	40	34	40	28	45	39	46	25	57	32	40	32	42	37	54	37	45	31	42	35	42	35
26...	43	32	43	35	40	22	37	32	38	27	47	36	41	22	56	32	44	31	44	36	49	30	40	30	44	32	46	36
27...	54	42	46	38	39	27	39	31	38	33	50	42	35	24	57	34	47	35	45	40	43	29	42	32	46	40	52	42
28...	50	38	54	40	54	32	47	37	41	32	52	50	52	33	55	31	58	46	59	43	55	34	49	35	60	44	52	49
29...	55	38	51	43	53	32	59	42	51	36	53	41	61	50	37	30	49	36	57	43	62	35	53	45	60	39	49	43
30...	48	34	44	36	52	29	47	34	51	35	48	40	51	34	55	27	46	33	45	39	56	36	45	32	45	37	46	38
31...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mns	50.8	38.6	48.2	37.9	44.4	28.9	46.1	36.3	43.9	33.3	50.2	42.9	47.6	32.5	48.1	31.3	47.7	35.6	49.7	41.3	50.3	34.2	45.5	34.6	50.2	40.3	49.0	42.0

TABLE 3.—*Maximum and minimum temperatures at selected stations for November, 1909. District No. 12*—Continued.

Date.	Walla Walla, Wash.		Oregon.																					
			Ashland.		Baker City.		Eugene.		Gold Beach.		Hermiston.		Marshfield.		Portland.		Prineville.		Roseburg.		The Dalles.		Vale.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	66	43	60	47	50	36	55	45	60	51	59	43	60	48	60	46	58	35	61	48	49	44	51	39
2	67	54	70	50	60	50	61	43	65	54	63	44	66	58	62	57	64	55	71	50	62	45	70	41
3	67	54	58	45	66	42	67	52	61	50	72	48	65	56	60	50	65	39	69	46	62	53	67	33
4	54	48	59	43	64	38	66	48	58	48	57	50	54	50	51	46	60	32	59	47	58	50	62	30
5	51	43	53	40	54	38	51	42	55	44	50	41	48	43	53	45	45	34	51	41	55	46	55	29
6	54	40	53	29	48	32	48	36	56	37	59	36	58	35	55	41	56	21	57	36	54	34	56	33
7	58	30	54	46	52	31	57	39	58	48	53	30	57	45	55	44	56	34	57	41	50	39	61	22
8	56	39	53	43	52	40	56	44	60	47	50	37	51	49	54	47	50	42	56	45	48	42	54	25
9	54	45	52	38	48	37	50	44	52	46	58	39	51	43	51	43	50	35	49	40	52	43	54	41
10	51	42	46	33	41	32	50	41	53	43	52	36	52	42	51	41	47	30	49	40	49	36	48	33
11	44	36	46	35	40	29	50	38	54	37	49	36	52	38	46	37	40	29	48	32	52	33	46	26
12	45	38	41	26	39	23	47	33	54	36	47	28	47	31	43	38	39	21	43	32	47	31	47	20
13	38	28	41	32	34	24	43	35	52	42	35	30	50	42	44	38	38	26	46	37	44	34	41	32
14	28	20	44	25	26	15	46	26	55	30	33	19	52	35	42	32	26	18	43	29	38	26	39	30
15	32	17	45	26	31	7	44	25	52	29	31	6	58	29	45	28	35	5	49	29	34	17	38	11
16	30	16	47	25	35	11	50	28	57	35	29	8	55	30	41	30	38	11	44	27	33	18	39	10
17	32	25	53	34	39	27	45	31	60	50	33	9	59	42	50	35	51	27	62	39	36	29	41	16
18	63	31	60	41	45	35	58	42	61	52	55	25	58	54	60	47	58	47	60	46	41	33	42	26
19	59	45	54	46	48	40	57	52	60	54	62	30	56	54	54	45	.....	42	57	49	52	37	52	34
20	53	41	53	48	46	33	57	39	60	51	55	41	52	48	53	43	.....	40	55	46	53	41	57	45
21	49	39	50	41	42	30	52	46	58	49	53	31	54	46	48	41	.....	45	59	46	46	30	49	32
22	66	49	67	49	53	35	61	45	60	54	67	35	60	52	63	47	.....	43	61	56	65	40	63	42
23	64	52	64	52	58	47	61	56	62	55	65	41	58	57	62	52	.....	40	62	51	66	49	65	49
24	56	42	60	42	50	36	60	44	50	46	54	41	54	48	52	41	.....	32	52	39	59	43	58	43
25	50	37	45	35	40	32	51	36	58	39	55	32	48	39	47	38	.....	22	47	35	46	30	51	38
26	46	34	41	31	38	26	45	35	52	34	47	23	47	36	44	38	.....	23	47	32	40	27	45	28
27	50	34	41	27	37	21	46	35	50	36	47	23	47	33	52	39	.....	23	47	30	38	27	41	18
28	60	50	53	33	42	31	51	37	61	46	59	28	60	47	60	52	.....	38	59	46	45	35	48	31
29	66	45	54	36	44	35	59	49	58	55	69	38	59	52	62	43	.....	45	61	46	56	42	44	24
30	46	37	48	42	39	27	62	38	60	42	52	36	53	44	50	38	.....	48	48	41	57	39	52	34
31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mean	51.8	38.5	52.2	38.0	45.4	31.3	53.5	40.3	57.0	44.7	52.3	32.1	54.7	44.2	52.3	42.1	48.7[1]	32.7	54.3	40.7	49.6	36.4	51.2	30.5