U. S. DEPARTMENT OF AGRICULTURE
WEATHER BUREAU

CLIMATOLOGICAL SERVICE

District No. 10, GREAT BASIN

ALFRED H. THIESSEN
DISTRICT EDITOR

REPORT FOR JULY, 1912

Prepared under direction of WILLIS L. MOORE, Chief U. S. Weather Bureau

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ALFRED H. THIESSEN, District Editor.

GENERAL SUMMARY.

July was a remarkably cool month in all parts of the district. Frosts occurred in the mountain districts of Utah, doing some damage to crops. In the Utah area the temperature for the month averaged lower than that of any previous July of record, except 1902. The precipitation averaged above normal. There was an unusual number of heavy thunderstorms, which caused some loss of life and property damage.

The average number of rainy days was 6, clear days 14, partly cloudy days 9, and cloudy days 8.

TEMPERATURE.

The temperature for the month averaged 67.6° for the district as a whole, or 3.8° below normal. The highest local means occurred at the lower stations west of the Wasatch Mountains, and the lowest in the Wyoming area and at the elevated stations in the Utah and California areas.

The local mean temperatures ranged from 80.2° at Lemay, Utah, to 54.1° at Truckee, Cal. Of those stations having records of 10 years or more, only three reported monthly mean temperatures above normal; the remainder were below normal. The greatest minus departure was 12.6° at Beowawe, Nev.

The month began moderately cool, and the lowest temperatures were generally recorded from the 1st to the 5th. After the 5th warmer weather set in, but at no time during the month were the afternoon temperatures unusually high. The highest temperatures occurred about the 17th as a rule.

The following were the highest temperatures that occurred in the various areas of the several States of this district: 88° at Cokeville, Wyo., on the 25th and at Border, Wyo., on the 24th and other dates; 93° at Weston, Idaho, on the 28th; 104° at Low, Utah, on the 17th; 95° at Silver Lake, Oreg., on the 16th; 92° at Truckee, Cal., on the 16th; and 106° at Carlin, Nev., on the 11th and other dates.

Freezing temperatures occurred in nearly every State having areas in this district. The lowest temperature for the district was 25° at Geyser, Nev., on the 4th. In the other States the following low temperatures were registered: 31° at Cokeville, Wyo., on the 5th; 34° at Paris, Idaho, on the 11th; 30° at Pinto, Utah, on the 4th and 5th and at Woodruff, Utah, on the 16th and 24th; 28° at Cliff, Oreg., on the 3d; and 26° at both Truckee and Tahoe, Cal., on the 1st.

PRECIPITATION.

The precipitation for the district averaged 0.98 inch, which is 0.55 inch above the normal. As is usual in summer, the distribution of moisture was quite uneven, although good amounts fell in most places. The largest amounts, as a rule, fell in the northeastern portion of the district, while at Truckee, Cal., no rain fell. The largest amount recorded was 3.53 inches at Randolph, Utah, concerning which the observer at that place wrote:

> The greatest rainfall ever recorded at Randolph fell during the storm of July 31 and August 1, when over 3 inches was measured, 2.26 inches of which fell on the last day of July. I have never seen its equal and I have been in the mountains for 40 years. The storm did a great deal of damage to crops, roads, and ditches. The thunder and lightning were very heavy, burning out telephones and damaging the lines.

Of those stations having records of more than 10 years, most of them reported amounts above the normal. The month was remarkable not only for the excessive amounts recorded, breaking all previous records, but the rates of rainfall exceeded that of most former years in many places.

Precipitation was well distributed throughout the month. In all States having areas in this district, except Oregon and California, the rain fell in four quite distinct periods: 1st–4th, 11th–14th, 17th–21st, and 25th–31st. The heaviest rains fell during the last two periods, and were so very unusual that short accounts are given below.

STORM OF JULY 19, 1912, SALT LAKE CITY, UTAH.

The heaviest July rain on record at Salt Lake City fell on July 19, when a total of 1.10 inches was measured, which is not only the largest 24-hour amount, but is also larger than any monthly amount for July on record since 1874 with the exception of four years.

This storm, like most summer showers, was local in its intensity, heavy rain having been reported not farther than 20 miles away from the city. The weather chart of the morning of the 19th showed a storm area lying over the northern Rocky Mountain region, but exhibiting no particular intensity. The barometer began to rise quite suddenly at 10 a. m., when the storm broke, but the rise was less than one-tenth inch. The temperature fell from 72° to about 60° during the same time.

This storm caused no serious damage, although the street-car traffic was discontinued for a few hours on one line owing to the large quantity of sand washed on the track. Damage was done to lawns by the flood water washing sand and débris over them in some parts of the city, and a few cellars were flooded.

STORM AT MAZUMA, NEV.

By H. F. ALPS, Section Director.

One of the most disastrous floods ever known in Nevada occurred in the Seven Troughs and Mazuma mining districts about 5 p. m., July 18, washing away all the frail buildings at Mazuma and killing nine persons, as well as seriously injuring several others. Water to a depth of 15 to 20 feet rushed down the canyon upon the mining camp at Mazuma without warning, and carried the wreckage of frame buildings to the flat below, a distance of over a mile.

The canyon is wide at Seven Troughs, and damage there was confined to the loss of a few buildings in the business portion. The water struck the cyanide plant of the Coalition Mining Co. and destroyed the building, taking the large concrete vault down the canyon and breaking it into fragments.

Mazuma is about 2 miles below Seven Troughs in a narrow canyon with precipitous sides. Here the flood waters left only a hotel and a store.

The flood came without warning, as it was not raining at the camps at the time, although a light sprinkle had fallen a few minutes before. The basin in the mountains where the heavy precipitation occurred covers an area of about 4 square miles. The heavy downpour was seen by two mining engineers who were observing the thunderstorm from the Coalition office at Seven Troughs. When the danger of the flood was realized, they endeavored to notify Mazuma, but the wires had been put out of service by lightning. Had it been possible to give warning of the flood a few minutes before it reached Mazuma there would have been no loss of life, as a climb of a few rods up the sides of the canyon would have been sufficient to place the people above the crest of the water. Three small canyons unite with the Seven Troughs canyon, and when heavy thunderstorms occur in the catch-basins of these canyons, the conditions are very favorable for floods at Mazuma where the canyon is narrow.

RECENT STORMS AT MURRAY, UTAH.

By R. C. TOWLER.

The rains at Murray, Utah, during the latter part of July were unusually heavy for this month. Early in July but little rain fell, but from July 18 until the close of the month storms were frequent and heavy.

Rain on July 19 was especially heavy between the hours of 10 a. m. and noon, followed by a more steady fall until 3 p. m., amounting to something over 1 inch.

On July 28 another heavy storm occurred between 4 and 6 p. m., and still another on the evening of July 31, accompanied by considerable thunder and lightning.

The effect of the storms in general was good for beets, corn, tomatoes, alfalfa, potatoes, and orchards. Some damage was done, however, in the lower bottoms, to grain fields, many of which, ready for harvest, were laid flat. The rains in the nearby canyons was heavy and the flow of the streams from them was thereby strengthened, so that the farmers in this vicinity are fearing no shortage of water for irrigation during the rest of the season.

THE RELATION BETWEEN LIGHT PRECIPITATION AND "ALKALI."

By R. A. HART, United States Drainage Engineer.

The baneful effects of so-called "alkali" upon agriculture and horticulture in the arid section of the United States have become so widespread and intense as to present a serious problem in the future development of the West. Confined at first to recognized deserts, or to minor spots which occasioned indifferent wonder, rather than real interest, accumulation of alkaline salts are now becoming so general throughout the irrigated valleys as to cause alarm which is, indeed, well founded.

It is a fact that wherever irrigation has been practiced for any considerable length of time, lands formerly highly productive are now showing injury to a greater or less extent. In some instances there is merely a decrease in the general crop returns, or yields are spotted, with portions of a given tract producing as well as ever, while other portions are practically barren; but in many instances whole farms and series of farms have become unproductive and have been abandoned. Broadly speaking, there is not a valley in the West in which the injury has not been felt, and in some of these a large portion of the lands formerly cultivated are now idle or used only for wild pasture. In nearly every case, the accumulation of an excess of alkaline salts in the surface soil played an important part in the destruction. The fact that such salts were responsible for the injury wrought has nearly always been recognized by agriculturists, but they have rarely stopped to consider why this should be so, or what means might be taken to prevent injury, or to reclaim injured lands. As a result abandonment took place and new tracts were put under cultivation. This method served while there was an abundance of raw land to be had, although the cost of taking up new land was often higher than the reclamation of the old would have been, but these new lands were, in turn, subject to the same difficulty, so that now, with the opportunity for expansion practically gone, it is necessary that the second reclamation of the desert be effected, and such work in that direction is now being prosecuted. Were such reclamation not possible, permanent agriculture in a major portion of the irrigated region would be out of the question, so that this work becomes an important factor in the advancement of that region.

Water plays an important rôle in the transformation which has been noted, and it is interesting to make a study of its connection, both as rainfall and as irrigation water. It seems to be the popular notion that the alkaline salts are inherently associated only with arid soils, but this is a misconception. As a matter of fact alkaline salts are products of rock materials which, in the early stages of the earth's history, were rather uniformly distributed throughout the crust. The disassociation of the rock material was brought about by the action of heat, cold, ice, water, air, wind, vegetation, and numerous gases and solutions, and the alkaline salts were liberated. Being soluble in water they were readily transported about by its movement with the result that, as time wore on, soils in regions of heavy rainfall were washed almost free by a leaching action, and the salts found their way to the sea, rendering it saline. In the arid section, on the other hand, although the elements were active in disassociating the rock material, there was so little rainfall that the transportation was extremely limited and as a result the salts were deposited in the soils of the valleys, or in extreme cases in basins or lakes having no outlet. Thus the valley soils came to have an excess of alkaline salts so that only the hardier plants may live, while the basins and sinks become depositories for large accumulations of salts and the lakes become very saline, indeed. The Great Salt Lake, whose waters are seven times as salty as the sea, is a good example of this fact.

The precipitation, while insufficient to sweeten the valley soils, is generally copious enough to leach out the salts in the immediate surface and carry them downward by percolation to such a depth that sagebrush, wild grasses, etc., may thrive to a limited extent. Evaporation in the arid section is so high, however, that there is very little percolation, with the result that the ground-water table was usually found at a great depth when examinations were first made. The downward movement of the percolating water is very slow, since the soils have poor natural drainage and, owing to the lack of vegetation, few noncapillary spaces have been formed. Then, too, the presence of more pervious strata causes the lateral movement of water.

The chief element lacking, in the successful cultivation of the soils of the arid regions, is water, and this may usually be supplied artificially by irrigation. Most of the plant foods are formed from salts having many characteristics in common with the harmful salts and are released from the rock material and transported in much the same way, so that the arid soils are inherently rich in such foods, and there is besides a continual supply which almost makes up for that used in plant production, and which renders such soils almost permanently fertile.

It is practically impossible to supply just the right amount of water in irrigating, so it is both necessary and advisable to use a slight excess. The natural tendency, born of a fear of drought and the human desire to take all that may be had, leads, however, to the use of a great excess which not only has the direct result of decreasing the yield, but as we shall see, has the indirect result of actually eliminating production altogether and rendering the land useless.

A portion of the excess water is lost by evaporation and, unless irrigation is carefully practiced, by actual surface waste. The remainder of the excess moves downward through the soil by percolation, and it is this movement which leaches out the alkaline salts from the root zone of the soil and makes agriculture possible. But it is this percolating excess which, if allowed to go on, will eventually result in destruction. This is occasioned by an actual filling up of the ground water reservoir and a consequent rise of the water table.

It is a well-known fact that soils are saturated several feet above the free water level, due to the action of capillary attraction, and it is found that the alkaline solution is concentrated near the upper limit of saturation, so that in the upward movement of the water table, the concentrated alkaline solution precedes it by a few feet. It has also been observed that pervious strata usually hold considerable amounts of salts, and these accumulations are assimilated during the upward movement. It can be readily seen, therefore, that when the ground-water table reaches a plane within the capillary distance of the ground surface, evaporation of the concentrated solution will deposit the salts at and near the surface, resulting in the death of plants.

The application of irrigation water will not now carry down the salts as in the first instance, as there is no escape for the percolating water. The result of such a treatment is merely to redissolve the salts, which are then drawn back into the soil to reappear by subsequent evaporation.

The proximity of the ground-water table is, in itself, disastrous and it is often difficult to say whether plants are killed by one or both agents, but it is known that an excess of salts is injurious and it is that phase of the question which is now under consideration.

As was pointed out in the first paragraphs, it is imperative that something be done to remedy the existing evil and to prevent future injury. It is fortunate that the remedy is simple and may be readily, and in most cases, economically applied. It is especially fortunate that both the water and the alkali injury may be cured and prevented by the same treatment. Indeed, when the water question is solved, the alkali question is solved as a matter of course.

It is necessary only to lower the ground-water table to such a depth that capillary attraction can not raise water and alkali salts near enough the surface to do damage, and to repeat the original process of leaching out the alkaline salts by the use of an excess of irrigation water, after which it is advisable to use a sane amount of irrigation water, not that there is any further fear of injury, but that there is need for the water, so worse than wasted, on other lands for the production of more crops.

Good underdrainage is the only cure for the difficulty, and its effectiveness is best demonstrated by the vast operations now being conducted. The second reclamation of the desert is now at hand, and a few years will undoubtedly see the broad expanses of overirrigated and alkaline lands transformed again into gardens and fields.

TABLE 1.—*Climatological data for July, 1912. District No. 10, Great Basin.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	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, 0.01 inch or more.	Sky. Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.
Wyoming.																				
Border	Uinta	6,085	10	61.2	− 0.7	86	24†	33	5	46	0.98	+ 0.58	0.50	0	2	14	9	8	w.	S. W. Condron.
Cokeville	do	6,204	2	57.1		88	25†	31	5	52	1.58		0.69	0	8	26	1	4	w.	E. J. Tuckett.
Evanston	do	6,860	16	60.1	− 1.6	86	17	32	5	41	1.63	+ 0.82	0.98	0	10	17	11	3	w.	Frank Tucker.
Idaho.																				
Geneva	Bear Lake	6,171	4								2.20		0.93	0	6	25	5	1		F. W. Boehme.
Grace	Bannock	5,400	5	66.4		92	17	39	9	49	1.05		0.35	0	4	11	8	12	n.	Donald R. Shirk.
Paris	Bear Lake	5,946	17	60.6	− 2.6	87	18†	34	11	44	2.00	+ 1.27	0.50	0	12				w.	John Norton.
Weston	Oneida	4,460	14	65.5	− 2.3	93	28	36	9	47	1.00	+ 0.39	0.50	0	4	17	3	11	s.	Wm. T. Chatterton.
Utah.																				
Alpine	Utah	4,900	13								0.92	+ 0.27	0.42	0	3	16	10	5		T. F. Carlisle.
Beaver	Beaver	6,000	8	67.1		94	18	40	3†	47	2.00		1.02	0	3	5	19	7	s.	E. D. Bacon.
Black Rock	Millard	4,872	8	69.4		102	16	34	5	55	0.14		0.14	0	1	14	11	6		W. D. Livingston.
Burrville	Sevier		1	60.2		84	17	31	5	44	1.12		0.30	0	6					F. R. Curtis.
Castle Rock	Summit	6,244	7								1.87		0.77	0	12	13	13	5	w.	David Moore.
Cedar City	Iron	5,750	7	69.7[c]		92	17	46	4	33	0.99		0.38	0	10	11	6	14	sw.	Parley Dalley.
Center	Tooele			69.0		95	17	39	2	51	0.59		0.27	0	4	16	12	3	s.	L. C. Peterson.
Clarkston	Cache										1.85		0.70	0	5	18	4	9		W. J. Griffiths.
Corinne	Boxelder	4,240	42	70.6	− 8.3	95	17†	44	5	46	0.93	+ 0.47	0.53	0	3	15	5	11		A. C. Murphy.
Deseret	Millard	4,541	17	71.4	− 1.0	96	17	43	5	44	0.57	+ 0.33	0.40	0	4	8	5	18	s.	S. W. Western.
Erekson	Tooele										0.98		0.39	0	7					N. W. Erekson.
Enterprise	Washington	4,270	6								2.47		0.90	0	5	9	1	21		John Day.
Fairfield	Utah	4,866	1																	W. Harden Ashby.
Farmington	Davis	4,267	11	71.2	− 1.3	96	21	45	5	43	1.52	+ 1.02	1.13	0	4	19	10	2	s.	Charles Boylin.
Fillmore	Millard	5,100	20	73.8	− 1.6	103	17	45	4	44	0.70	± 0.00	0.28	0	8					J. J. Starley.
Frisco	Beaver	7,318	16																	Essen Nordberg.
Garrison	Millard		9																	E. M. Smith.
Government Creek	Tooele	5,277	11	69.8	− 3.4	96	17	42	4	42	1.34	+ 0.79	0.75	0	5	10	10	11	s.	Walter James.
Granger	Salt Lake			70.2[b]		93	17	47	2	38	1.96		1.38	0	6					Geo. E. Greene.
Grantsville	Tooele		1								0.49		0.15	0	5	18	7	6		J. C. Woodmansee.
Grouse Creek	Boxelder		4								0.47		0.16	0	5	11	13	7	sw.	Philip Paskett.
Heber	Wasatch	5,593	19	63.6	− 2.5	92	18†	33	5	54	0.58	− 0.24	0.20	0	5	11	8	12	s.	John Crook.
Henefer	Summit	5,301	12	63.9	− 1.1	92	17	35	5	52	1.75	+ 0.95	0.52	0	10	11	10	10	sw.	William Brewer.
Hooper	Weber	4,436	1								0.97		0.95	0	2					T. M. Jones, jr.
Ibapah (near)	Tooele	7,500	8																	J. S. Lawton.
Ibex	Millard		1																	John J. Watson.
International	Tooele	5,370	1																	I. S. R. Co.
Iosepa	do		1	74.0		99	17	45	2	44	0.78		0.59	0	3	11	5	15	s.	Geo. K. Hubbell.
Joy	Juab			70.5		99	17†	44	3	43	0.74		0.40	0						A. M. Laird.
Junction	Piute										0.50		0.35	0	3	16	9	6	s.	Joseph Jensen.
Kanosh	Millard	5,250	4								0.40		0.12	0	7					Geo. Crane.
Kelton	Boxelder	4,230	32	68.4	− 8.6	94	28	40	2†	43	0.50	+ 0.14	0.32	0	3	2	19	10	sw.	F. W. Klock.
Lemay	do		1	80.2		98	17	57	1	25	0.42		0.30	0	4	13	11	7	s.	Agent S. P. Co.
Levan	Juab	5,010	22	69.6	− 2.0	94	17	40	5	42	0.39	− 0.22	0.16	0	9	13	11	7	sw.	William Brown.
Logan	Cache	4,507	21	68.2	− 3.5	90	17†	43	4	33	1.98	+ 1.49	0.94	0	6					Utah Exp. Station.
Low	Tooele			76.6		104	17	53	2†	42	1.30		0.80	0	2	16	13	2	n.	Agent W. P. Ry. Co.
Lucin	Boxelder	4,504	5	73.8		99	29	40	7	41	0.70		0.70	0	1	28	2	1		R. G. Crocker.
Lund	Iron	5,086	3																	Job. F. Hall.
Manti	Sanpete	5,575	17	65.4	− 4.6	86	10†	37	5	43	2.04	+ 1.45	0.56	0	9	6	4	21		J. M. Anderson.
Maple Creek	Utah										1.21		0.38	0	6	15	8	8		Lewis W. Gillilan.
Marion	Summit	6,750	7								1.32		0.27	0	11	4	7	20	s.	Jas. Woolstenhulme.
Marysvale	Piute	6,076	12	65.4	− 0.4	92	17	34	5	47	0.45	− 0.53	0.16	0	10	6	12	13	s.	John W. Henry.
Meadowville	Rich	6,200	11	62.8	− 1.6	87	25†	36	15	45	1.98	+ 1.49	0.75	0	5	19	2	10		J. S. Moffat.
Midlake	Boxelder		1	73.7		85	18	58	4	16	0.80		0.50	0	4	15	5	11	e.	Agent S. P. Co.
Midvale	Salt Lake			71.8		98	17	43	5†	47	1.76		0.86	0	7	13	11	7	s.	M. J. Joy.
Milford	Beaver	4,962	4	77.2		98	14†	48	5†	35	T.		T.	0	0	25	0	6		Agent Salt Lake Route.
Mills	Juab										0.79		0.30	0	8					Geo. McCune.
Millville	Cache	4,848	17								1.24	+ 0.80	0.72	0	6	4	27	0	n.	Fred Yeates.
Minersville	Beaver	5,070	8																	Geo. Roberts, sr.
Modena	Iron	5,479	11	67.0	− 2.7	91	16	42	5	40	1.28	+ 0.02	0.53	0	4	7	10	14	w.	U. S. Weather Bureau.
Morgan	Morgan	5,068	7	67.0		93	17	38	5	49	1.40		0.45	0	5					E. O. Kingston.
Moroni	Sanpete	5,519	4	67.2		87	10†	43	5	33	1.50		0.46	0	6	6	10	15	sw.	B. F. Eliason.
Mosida	Utah			72.4		96	10†	45	5	42	1.04		0.30	0	8	19	10	2		R. P. Curtis.
Mount Nebo	do	4,650	9	73.7		96	10†	46	5	40	0.65		0.30	0	5	17	9	5	s.	D. C. Walkey.
Nephi (near)	Juab		7																	S. Boswell.
Newcastle	Iron		1																	T. W. Jones.
Oak City	Millard	4,900	5																	Peter Nielson.
Ogden	Weber	4,310	41	69.1	− 4.8	90	11†	47	28	35	2.90	+ 2.64	2.19	0	6	15	13	3	sw.	A. Van DeGraff.
Panguitch	Garfield			60.6		85	11†	32	5	44	1.97		0.72	0	9	9	7	15		John N. Henrie.
Park City	Summit	7,800	7	59.3		89	6†	31	8	52	0.33		0.09	0	6	18	7	6		Gertrude Evans.
Park Valley	Boxelder		1								1.47		0.73	0	7	14	10	7	sw.	A. O. Evans.
Parowan	Iron	5,970	21	67.0	− 4.0	91	16	42	5	38	1.46	+ 0.43	0.35	0	10	9	4	18		Alex. Matheson.
Payson	Utah	4,637	8								0.69		0.19	0	8	9	16	6	nw.	D. L. Coombs.
Pelican Point	do	4,600	1								0.98		0.54	0	5	20	10	1		B. M. Mendenhall.
Pine Cliff Ranch	Summit		1	59.3		83	17	32	4	36	0.80		0.35	0	4					L. E. Leavitt.
Pinto	Washington	5,907	14	62.6[g]	− 4.0	90	16	30	4†	48	2.21	+ 1.09	0.47	0	8	10[a]	6[a]	14[a]	s.	J. H. Harrison.
Plentiful	Tooele										0.62		0.49	0	2					C. L. Drumm.
Promontory	Boxelder	4,913	33								1.00	+ 0.79	1.00	0	1					F. C. Houghton.
Provo	Utah	4,532	23	69.8	− 3.5	98	17	39	5	53	0.75	+ 0.47	0.50	0	4	7	24	0	s.	James A. Oliver.
Randolph	Rich	6,442	10								3.53		2.26	0	6	19	0	12	sw.	Wm. Rex.
Revier	Salt Lake		1								0.66		0.21	0	6					E. L. Terry.
Richfield	Sevier	5,350	18	69.2	− 1.3	94	10†	40	6	52	1.06	+ 0.48	0.50	0	6	12	5	14		Joseph J. Jensen.
Richmond	Cache										1.71		0.79	0	9	7	17	7	s.	J. R. Thompson.
Saltair	Salt Lake	4,220	8	73.4		90	21	55	5	26	0.74		0.16	0	10					E. J. Bench.
Salt Lake City	do	4,360	38	73.6	− 2.6	94	17	53	5	31	1.51	+ 0.97	1.11	0	7	12	11	8	se.	U. S. Weather Bureau.
Scipio	Millard	5,260	17	68.7	− 1.2	95	17	56	5	49	1.21	+ 0.52	0.26	0	8	11	5	15	sw.	Thos. Memmott.
Showell	Boxelder			65.8		95	28	35	2†	54	1.19		0.57	0	3	17	13	1		Richard Ilgner.
Silver City	Juab	6,127	2								0.91		0.33	0	5	14	16	1	sw.	J. L. Stark.
Spanish Fork	Utah	4,585	2	72.2		97	17	45	5	41	0.81		0.26	0	6	10	19	2		U. S. Reclamation Service.
Strawberry Tunnel, W.	do	7,650	6	60.6[a]		89	10†	33	5	46	2.20		0.38	0	10	10[a]	11[a]	9[a]		Do.
Thistle	do	5,075	18	66.7	− 3.8	97	21	32	5	51	1.35	+ 0.76	0.40	0	5	5	17	9	s.	John Thorgierson.
Tooele	Tooele	4,900	16	70.4	− 3.0	91	28	50	2†	36	0.46	− 0.15	0.21	0	4	2	8	21	s.	E. A. Bonelli.
Utah Lake Pumping Sta	Utah	4,500	7																	W. A. Knight.
Vernon	Tooele										0.39		0.23	0	5	7	20	4	sw.	Glynn Bennion.

TABLE 1.—*Climatological data for July, 1912. District No. 10*—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	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, 0.01 inch or more.	Sky. Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.
Utah—Continued.																				
Wendover	Tooele	......	1	73.3	......	100	17	49	2	45	0.53	......	0.50	0	3	11	17	3	se.	J. S. Cooper.
Whisky Creek	Millard	......	1	......		......	......	......	......	......	0.60	......	0.40	0	2	......	......	......	......	Geo. Stevens.
Woodruff	Rich	6,500	10	56.2	− 4.6	86	25	30	16†	54	3.13	+ 2.69	1.43	0	8	11	14	6	......	A. L. Eastman.
Oregon.																				
Burns	Harney	4,157	20	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	J. C. Welcome, jr.
Cliff	Lake	4,300	4	58.5	......	94	16†	28	3	57	0.59	......	0.33	0	4	17	6	8	nw.	John C. Green.
Paisley	....do	4,500	8	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	E. C. Woodward.
Silver Lake	....do	4,700	14	61.6	− 3.0	95	16	31	1	54	0.76	+ 0.26	0.21	0	6	18	10	3	n.	L. W. Charles.
California.																				
Tahoe	Placer	6,240	2	56.6	......	86	16	26	1	47	1.30	......	0.80	0	2	19	11	1	w.	R. M. Watson.
Truckee	Nevada	5,819	41	54.1	−11.3	92	16	26	1	50	0.00	− 0.16	0.00	0	0	29	0	2	sw.	Southern Pacific Co.
Nevada.																				
Battle Mountain	Lander	4,843	41	68.5	− 6.7	102	18†	38	2†	58	0.15	+ 0.03	0.15	0	1	20	6	5	w.	Southern Pacific Co.
Beowawe	....do	4,905	41	64.6	−12.6	102	16	31	8†	60	......	......	......	0	......	19	1	11	w.	Do.
Carlin	Elko	5,232	41	72.0[c]	+ 1.4	106[c]	11†	30[c]	7	63[c]	......	......	......	0	......	......	......	......	......	Do.
Carson Dam	Churchill	4,032	5	70.8	......	95	16	42	4	39	0.27	......	0.27	0	1	17	7	7	w.	U. S. Reclamation Service.
Cherry Creek	White Pine	6,450	4	67.1	......	91	10†	36	4	42	1.16	......	0.52	0	9	13	14	4	w.	J. H. Leishman.
Clover Valley	Elko	6,000	11	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	I. F. Wiseman.
Columbia	Esmeralda	5,750	5	69.8	......	96	16	40	4	40	0.39	......	0.19	0	6	18	8	5	se.	A. Booth.
Dry Farm	Elko	5,600	0	66.4	......	92	16	38	1†	51	1.39	......	1.20	0	3	......	......	......	......	Walfrid Sohlman.
Elko	....do	5,432	41	64.9	− 6.0	95	28	35	4	51	1.25	+ 0.99	0.41	0	10	15	4	12	w.	E. J. Clark.
Ely	White Pine	6,421	21	66.6	− 0.4	90	10	37	4†	43	0.72	+ 0.19	0.20	0	8	......	......	......	s.	R. E. Middagh.
Eureka	Eureka	6,500	9	66.0	......	90	9†	34	1†	48	3.38	......	0.81	0	9	14	4	13	s.	Clay Simms.
Fallon	Churchill	3,965	7	69.9	......	100	16	38	1	46	0.13	......	0.08	0	4	23	3	5	w.	U. S. Experiment Station.
Fernley	Lyon	4,200	39	72.0	− 5.9	100	16	35	1	48	0.81	+ 0.59	0.33	0	5	18	11	2	w.	Mrs. G. A. Steele.
Gardnerville	Douglas	4,830	12	61.1[h]	− 7.0	87[e]	27	32[j]	1	41[j]	0.38	+ 0.27	0.22	0	3	......	......	......	w.	W. M. Maule.
Geyser	Lincoln	......	8	59.3	......	98	28	25	4	69	0.21	......	......	0	5	5	22	4	s.	Mrs. J. F. Wambolt.
Golconda	Humboldt	4,697	33	70.2	− 6.1	95	17†	39	1	44	0.08	+ 0.02	0.08	0	1	12	11	8	w.	Southern Pacific Co.
Halleck	Elko	5,631	19	64.2	− 5.5	98	17	30	3	59	1.10	+ 0.89	1.00	0	2	23	4	4	......	Do.
Hawthorne	Mineral	4,569	18	72.9	− 1.7	98	16	44	1†	41	0.23	+ 0.08	0.14	0	3	18	11	2	sw.	G. B. Stannard.
Jean	Clark	2,074	4	76.2	......	105	10	46	6	53	0.46	......	0.15	0	4	22	7	2	nw.	Salt Lake Route.
Lahontan	Churchill	......	0	75.5	......	100	16	48	2†	36	0.27	......	0.20	0	4	18	12	1	w.	U. S. Reclamation Service.
Lewers Ranch	Washoe	5,500	24	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	Ross Lewers.
Lovelocks	Humboldt	3,977	18	68.9	− 7.6	100	16	36	1†	49	0.36	+ 0.26	0.23	0	3	16	9	6	s.	A. P. Tilford.
McDermit	....do	4,700	23	67.5	− 6.2	95	28	34	1	41	0.15	− 0.09	0.07	0	3	15	8	8	w.	Scott Sterling.
Millett	Nye	......	4	67.0[d]	......	93[d]	16	40[d]	5†	49[d]	0.88	......	0.37	0	3	......	......	......	s.	Fred J. Jones.
Mina	Mineral	4,600	5	74.1	......	103	16	44	4	46	T.	......	T.	0	0	23	0	8	......	Southern Pacific Co.
Potts	Nye	6,990	19	62.4	− 8.2	93	27	31	3	52	0.85	+ 0.26	0.30	0	5	10	2	19	s.	Miss Mamie Potts.
Quinn River Ranch	Humboldt	4,850	10	67.4[d]	− 1.6	100[d]	28	31[d]	4	60[d]	0.05	− 0.13	0.05	0	1	......	......	......	n.	F. M. Payne.
Rebel Creek	....do	......	0	67.3	......	99	28	32	1	54	0.54	......	0.30	0	3	16	7	8	sw.	E. J. Hyatt.
Reno	Washoe	4,532	41	67.8	+ 0.3	97	16	35	1	42	0.58	+ 0.44	0.48	0	4	20	8	3	w.	U. S. Weather Bureau.
Soda Lake	Churchill	4,534	5	71.8	......	98	28	39	1	40	0.25	......	0.19	0	2	17	8	6	w.	U. S. Reclamation Service.
Tecoma	Elko	4,812	34	65.4	− 8.8	103	29	28	2†	63	0.25	+ 0.07	0.25	0	3	10	10	11	se.	Southern Pacific Co.
Tonopah	Nye	6,090	7	69.2	......	91	16	41	3	30	1.34	......	0.81	0	5	14	10	7	w.	U. S. Weather Bureau.
Wells	Elko	5,631	40	69.4	− 1.7	97	17	30	16	65	1.26	+ 0.88	0.90	0	2	......	......	......	......	Southern Pacific Co.
Winnemucca	Humboldt	4,432	33	69.0	− 2.6	97	28	37	4	50	0.52	+ 0.35	0.35	0	4	19	4	8	sw.	U. S. Wather Bureau.

[a], [b], [c], etc., indicate respectively 1, 2, 3, etc., days missing from the record.
** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.
† Also on other dates.
T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for July, 1912. District No. 10, Great Basin.*

Stations.	Watershed.	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.
Wyoming.																																	
Border	Bear				T.									T.							.48										.50	T.	0.98
Cokeville	do	.04		.08	.02		T.			T.									.14	.35	.12	.14								T.	T.	.69	1.58
Evanston	do			.13	.03								.03	.02						.98	.08									.05	.06	.19	1.63
Idaho.																																	
Geneva	Bear													.02					.42	.58										.10	.15	.93	2.20
Grace	do				.10														.30	.35												.30	1.05
Paris	do																	.50	.18	.12	.15				.20	.16	.11	.15	.14	.10	.12	.07	2.00
Weston	do																			.50	.10	.20										.20	1.00
Utah.																																	
Alpine	G. S. Lake			.22																										.42		.28	0.92
Beaver	Sevier Lake				T.						T.	T.	T.	T.			T.		T.		T.			T.					T.	.83	1.02	.15	2.00
Black Rock	do																		T.											T.		.14	0.14
Burrville	do																		.30		.07					.20		.10	.25	.20			1.12
Castle Rock	G. S. Lake	.02	.03	.14	.05							.03		.02					.35	.77	.10	.05									.06	.25	1.87
Cedar City	Desert											.01		.05	.01			.10	.28							.02	.06			.38	.03	.05	0.99
Center	do			T.	.26							.02	T.	.04													T.		T.	T.	T.	.27	0.59
Clarkston	G. S. Lake				.15															.70	.55	.10										.35	1.85
Corinne	do				T.															.20											.20	.53	0.93
Deseret	Sevier Lake													.08				T.												.40	.05	.04	0.57
Erekson	Desert				.35								.08	.04	.02					.04										.06	*	.39	0.98
Enterprise	G. S. Lake													T.					.70								.40	.25		.90	T.	.22	2.47
Fairfield	do																																
Farmington	do			T.	T.									T.						T.	.07	.20									1.13	.12	1.52
Fillmore	Sevier Lake			T.	T.							.05	.02					T.		.01	.02								.13	.02	.28	.17	0.70
Frisco	Desert																																
Garrison	do																																
Government Creek	do			.13				T.					.12	T.													.26		T.	.08	T.	.75	1.34
Granger	do			T.	.05															1.38	.25								.09	.10	.09		1.96
Grantsville	G. S. Lake				.08															.09	.02										.15	.15	0.49
Grouse Creek	Desert		T.	.10															.04	.07								T.			.10	.16	0.47
Heber	G. S. Lake				*	.05	T.						*	.05			T.	*	.18	.10								T.			*	.20	0.58
Henefer	do			.10	.08			T.					.02	.02					.25	.26	.10						T.	T.	T.	.52	.10	.30	1.75
Hooper	do																							.02								.95	0.97
Ibapah (near)	Desert																																
Ibex	do																																
International	G. S. Lake																																
Iosepa	Desert			T.									T.	T.					.59										T.		.09	.10	0.78
Joy	do																																‡0.74
Junction	Sevier Lake											T.	T.	T.	T.								T.				.06	.09	T.	.35			0.50
Kanosh	do				.03								.12	.04													.01		.03	.05		.12	0.40
Kelton	G. S. Lake																				.32						T.			.10	.08	T.	0.50
Lemay	Desert						.02													.05	.05											.30	0.42
Levan	Sevier Lake				.16							T.	.02	.03	.01				.05			T.					.01		T.	.02	.05	.04	0.39
Logan	G. S. Lake			.11					T.				.19						.26	.45											.03	.94	1.98
Low	do																														.50	.80	1.30
Lucin	Desert						T.																									.70	0.70
Lund	do																																
Manti	Sevier Lake				.11							T.	.10	.21	.18			T.	.22			.19					T.		.28		.19	.56	2.04
Maple Creek	G. S. Lake	T.	T.	.18	T.							T.	.19	T.					.12	.06		T.								T.	.38	.28	1.21
Marion	do			.18	.25							T.	.08	.15	.02				.07	.19	.06								.03	.02		.27	1.32
Marysville	Sevier Lake		T.	.01	.02							T.	T.	.06	.02			T.	T.							.05	.05		.04	.16	.01	.03	0.45
Meadowville	G. S. Lake			.45	T.									T.					T.	.65										.08	.05	.75	1.98
Midlake	do													T.					.10		.50									.10	T.	.10	0.80
Midvale	do			.30									.01						.04	.86										.09	.08	.38	1.76
Milford	Sevier Lake											T.																					T.
Millville	G. S. Lake			.03	.10		T.								T.				.03	.30	.06											.72	1.24
Mills					.17							T.	T.	T.	.07			T.	.01	T.	.01	T.					.03			.18	.02	.30	0.79
Minersville	Sevier Lake																																
Modena	Desert			T.	T.							T.	T.	.23	T.				.53								T.	T.	T.	.30	T.	.22	1.28
Morgan	G. S. Lake				.38														.32	.45	.15											.10	1.40
Moroni	Sevier Lake	T.	T.	T.	T.								T.	.41	.16				.12	T.	T.	T.					T.			.21	.14	.46	1.50
Mosida	G. S. Lake				.03							.10		07							.04								.04	.30	.18	.28	1.04
Mount Nebo	do				.05							T.								T.									.05	.30	.03	.22	0.65
Nephi (near)	do																																
Newcastle	Desert																																
Oak City	Sevier Lake																																
Ogden	G. S. Lake							.17											.08	2.11	.04								.19			.31	2.93
Panguitch	Desert				.15								.36	.23	.18				.72	.06							.12	.09	.06				1.90
Park City	G. S. Lake												.04	.01									.08	.04						.09	.07		0.37
Park Valley	Desert				.09		.05							.03							.27	.05									.25	.73	1.47
Parowan	do				.03								.35	.10				.17	.18		T.					T.	.02	.05	.21	.27	.08		1.46
Payson	G. S. Lake			.01	.17								.01	.10						.07									.19	.01		.13	0.69
Pelican Point	do				.05								.03							.31										.54		.05	0.98
Pine Cliff Ranch	do													.25						.35					.06							.14	0.80
Pinto	Desert													.05	.45				.47							T.	.15	.35	.31	T.	.03	.40	2.21
Plentiful	G. S. Lake																													.13		.49	0.62
Promontory	do																															1.00	1.00
Provo	do			T.									.08	T.	.12				T.										T.	.05	T.	.50	0.75
Randolph	do			.37	.15														.34	.36	T.	.05										2.26	3.53
Revier	do			.05	.12									T.					.21	.06									T.	.15	.07		0.66
Richfield	Sevier Lake			T.								T.	.50		T.				.10		.10						.12		T.	.14		.10	1.06
Richmond	G. S. Lake			.12	.01		.03		T.				T.	.04					.10	.79	.13										.12	.37	1.71
Saltair	do			.01	.13									.02					.13	.05		.04							.02	.04	.14	.16	0.74
Salt Lake City	do	T.		T.	.05									T.					.02	1.10	.01								T.	.06	.08	.19	1.51
Scipio	Desert				.11								.20			.04			T.			.13				T.	T.	T.	.18	.18	.11	.26	1.21
Showell	do													.22																	.40	.57	1.19
Silver City	do				.09																.10					.15					.24	.33	0.91
Spanish Fork	G. S. Lake			.01	.26									T.					.02	.15		T.								T.	.24	.13	0.81
Strawberry tunnel (West).	do			.17	.18								.18	.38	T.				.35								.24		.16	.38	.05	.11	2.20
Thistle	do			T.	T.									T.	.30				.40	.20	T.						T.			.15	T.	.30	1.35
Tooele	do				.21								T.	T.						.04	T.									.07		.14	0.46
Utak Lake Pumping Station.	do																																
Vernon	Desert			T.	.23							T.	.06	.02	T.			T.	T.	T.							T.		T.	T.	.05	.03	0.39
Wendover	do																				.03											.50	0.53
Whisky Creek	do																										.20				.40		0.60
Winder	Sevier Lake																																
Woodruff	G. S. Lake			.10	.15														.30	.35	.25	.45								.10	1.43		3.13

TABLE 2.—*Daily precipitation for July, 1912. District No. 10*—Continued.

Stations.	Watershed.	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.
Oregon.																																	
Ana River	SE. drainage		.06																.07	.09			.04							T.			0.26
Bear Valley	do.		.14	.18																	T.												0.32
Burns	do.																																
Burns Mill	do.													.27							T.												0.27
Christmas Lake	do.		.21															T.	.88	.06	.04									T.	T.	.03	1.22
Cliff	do.	.08																		.33											.05	.13	0.59
Diamond	do.																																
Embody	do.		.35																.07	.20	.50										.30		1.42
Fort Rock	do.	.30																T.	T.	.12	T.	.18								T.	.03	T.	0.63
Paisley	do.																																
Seneca	do.	T.																			.30		.40									.09	0.79
Silver Lake	do.		.21																.21	.08		.11	.05									.10	0.76
Valley Falls	do.	.15																T.	.10	.28			.29								.01	.09	0.92
California.																																	
Bijou	Truckee																																
Boca	do.			T.													T.	T.															T.
Bridgeport	East Walker													.05				.55	.23														0.83
Deer Park	Truckee																																
Glen Alpine	do.			.02									.07	.38			*	*	.95														1.42
Hobart Mills	do.			.18									.10		.13				T.														0.41
Lundy	East Walker			T.														.60											T.				0.60
McKinney	Trukee																																
Markleeville	East Carson			.45									.13	.04	T.		.27	.30							T.								1.19
Shields Ranch	East Walker			.19									T.	.21	T.		T.	.19	.02														0.61
Silver Creek	East Carson			.20												.10	.20	.30	.50												.02	.03	1.35
Tahoe	Truckee																.50															.80	1.30
Tallac	do.			.12									.50	.12			T.	.50	.12	T.													1.36
Truckee	do.																																0.00
Woodfords	West Carson																																
Nevada.																																	
Arthur	Humboldt			T.															.40	1.00										.10	.70	.40	2.60
Battle Mountain	do.																		.15		T.											T.	0.15
Beowawe	do.																																
Bishop	do.																	.34														.30	0.64
Carlin	do.																																
Carson Dam	Carson													T.				T.	.27														0.27
Cherry Creek	Humboldt											T.	.01	T.	T.			.01	.52	.14	.07								.03	.08	.02	.28	1.16
Clover Valley	do.																																
Columbia	Desert													T.				.04	.19	.03										.10	.02	.01	0.39
Dry Farm	Humboldt			.05															1.20	.14													1.39
Elko	do.			.29							T.		*	.17				T.	.02	.01	.15								.02	.02	.41	.16	1.25
Ely	do.													*	.03			.15	.20										.10	.02	.17	.05	0.72
Eureka	do.			.04										.19	.10			.12	.62	.40										.75	.35	.81	3.38
Fallon	Carson			.01										.01				T.	.03	.08										T.		T.	0.13
Fernley	Truckee			T.										.05	.05			.10	.33	.28													0.81
Gardnerville	Carson			.22									T.	.11				.05	T.														0.38
Gerlach	Humboldt			.01														.25	.12														0.38
Geyser	do.																										*	*	*	*	.21		0.21
Golconda	do.			.08																													0.08
Halleck	do.																			1.00		.10											1.10
Hawthorne	Desert			.05														.14	.04														0.23
Jean	do.										T.		.15					.06	.15											.10			0.46
Lahontan	Carson													.01				.04	.20											T.	T.	.02	0.27
Lewers Ranch	Truckee																																
Lovelocks	Humboldt			.08														.23		.05													0.36
McDermit	do.			T.																	.03										.05	.07	0.15
Massacre Lakes	Desert		.03															T.	T.	T.											.07	.08	0.18
Mill City	Humboldt																														.25		0.25
Millett	Reese													T.				T.	.37		.20											.31	0.88
Mina	Desert																		T.														T.
North Fork	Humboldt																	T.	T.		.32									T.	T.	.25	0.57
Potts	Reese																		.25		.05									.15	.10	.30	0.85
Quinn River Ranch	Humboldt																		.05														0.05
Rebel Creek	do.			.15														T.	T.	.30	T.									T.	.09	T.	0.54
Reno	Truckee			.01									T.	.01				.08	.48											T.	T.	T.	0.58
Skelton	Humboldt			.31															.94	.27											.05		1.57
Smith	West Walker			.30									.04	.08				.19	.04											.07	T.	.05	0.77
Soda Lake	Carson													.06				T.	.19	T.													0.25
Spooners Ranch	Truckee											.12		T.		T.		T.						T.				T.					0.12
Sweetwater	East Walker																																
Tecoma	Humboldt			.02															.01	T.	.22												0.25
Tonopah	Desert			T.										T.				.02	.80	.08	T.									T.	.06	.38	1.34
Wells	Humboldt																		T.	.36												.90	1.26
Willow Point	Lt. Humb't.		*	.04																											.20		0.24
Winnemucca	Humboldt			.11									T.	T.				T.	.01	T.											.05	.35	0.52

* Precipitation included in that of the next measurement.
‡ Separate dates of falls not recorded.
‖ 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.

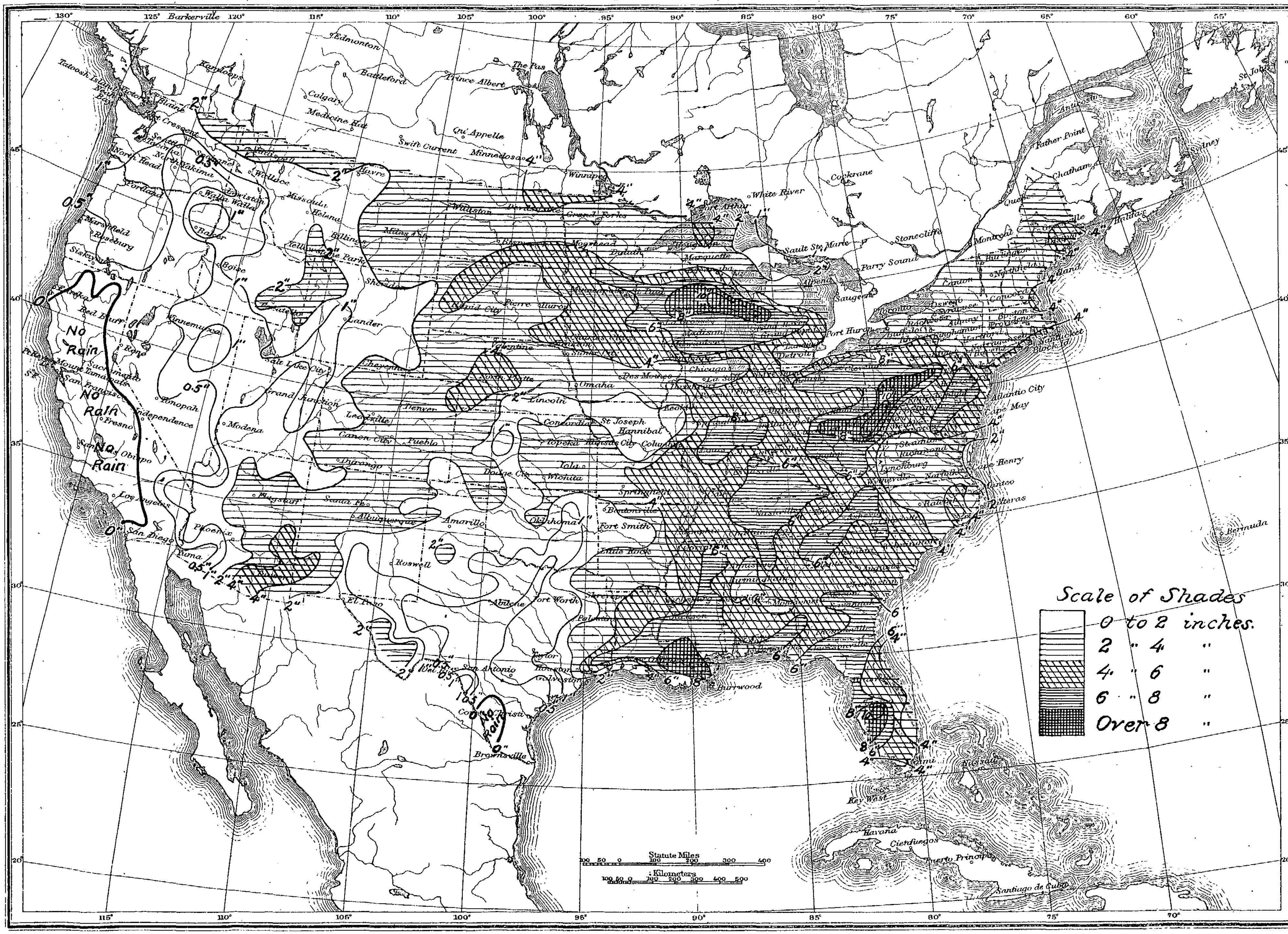
TABLE 3.—*Maximum and minimum temperatures for July, 1912. District No. 10, Great Basin.*

Date.	Wyoming.				Idaho.		Utah.																			
	Border.		Evanston.		Weston, Idaho.		Corinne.		Government Creek.		Joy.		Marysvale.		Meadowville.		Modena.		Ogden.		Parowan.		Provo.		Salt Lake City.	
	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	74	37	72	44	76	44	82	53	76	54	70	56	80	41	77	43	77	44	84	53	79	48	86	49	77	58
2	72	38	70	37	74	38	79	48	75	43	64	49	75	44	72	40	71	51	83	56	75	53	82	42	78	54
3	66	46	64	45	72	49	75	56	71	48	53	44	64	47	67	45	64	48	84	56	67	48	77	54	74	58
4	60	40	61	35	71	50	70	55	71	42	56	49	64	41	66	43	72	43	86	57	69	46	72	42	72	53
5	74	33	69	32	80	45	82	44	83	48	70	50	81	34	75	41	82	42	84	54	80	42	86	39	84	53
6	82	35	75	35	85	38	90	50	88	57	77	48	86	41	82	40	83	47	80	53	85	48	90	44	87	62
7	77	42	74	40	81	45	84	55	88	51	93	50	88	52	78	45	84	50	80	52	86	50	93	46	84	60
8	71	40	72	35	77	44	88	55	84	45	90	49	85	50	77	41	84	53	82	53	85	53	91	47	78	58
9	81	36	74	44	80	36	83	48	87	45	87	46	83	46	78	40	88	52	85	56	86	49	87	47	82	60
10	81	36	78	41	88	41	86	52	92	50	90	50	90	47	83	41	86	51	87	59	85	56	96	43	88	61
11	79	44	77	58	82	53	89	56	89	61	93	51	87	54	85	51	89	56	90	58	88	57	96	56	88	69
12	78	50	79	52	84	55	90	53	88	58	92	64	86	48	82	59	85	53	90	60	80	54	86	57	87	68
13	79	40	75	46	80	48	85	55	77	58	80	74	76	58	78	45	77	55	87	58	74	56	77	53	75	65
14	79	44	75	45	82	56	88	55	83	60	86	54	78	48	76	54	83	56	88	58	82	54	86	56	82	66
15	80	34	76	35	84	40	85	48	86	59	93	56	84	44	81	36	87	57	83	54	89	52	89	46	84	59
18	83	38	80	39	86	45	90	56	92	51	96	56	85	48	83	42	91	53	87	55	91	57	94	45	90	59
17	88	40	86	45	91	47	90	49	96	57	99	56	92	48	84	46	90	62	84	55	89	59	98	47	94	66
18	78	48	81	53	83	57	93	64	85	53	98	52	83	57	80	52	73	58	80	53	75	56	90	58	88	67
19	78	47	78	53	70	59	80	62	80	59	91	54	84	53	71	55	84	56	77	51	82	53	80	60	78	60
20	79	47	75	47	80	50	85	54	90	60	91	52	86	51	78	47	87	58	79	52	86	56	91	55	85	62
21	82	46	79	46	87	52	90	59	93	60	93	62	87	51	85	51	86	56	84	56	87	57	97	54	92	67
22	82	52	77	58	86	57	92	59	91	59	95	64	87	53	84	55	84	54	83	56	84	57	96	56	90	68
23	83	40	76	40	82	44	86	53	86	44	96	54	87	48	79	41	82	44	81	55	83	54	92	45	87	59
24	86	40	77	42	86	45	90	50	89	54	99	62	86	45	84	42	82	47	80	57	84	50	93	46	91	66
25	81	42	75	47	87	47	92	59	90	62	95	60	79	51	87	46	78	53	84	52	77	56	93	49	90	70
26	85	68	80	42	88	50	93	55	87	60	94	62	81	59	80	44	85	56	87	53	80	58	91	51	90	65
27	85	45	83	43	89	50	92	55	86	57	92	54	79	48	83	50	84	55	86	53	81	53	93	51	87	65
28	86	43	84	45	93	50	95	56	90	58	89	52	84	50	87	43	82	55	76	47	74	54	93	50	90	69
29	81	48	77	46	84	58	85	64	81	64	90	56	84	55	78	53	72	58	81	49	73	56	90	55	82	66
30	80	51	79	52	84	60	87	62	86	61	87	50	73	48	81	52	76	53	85	53	78	51	93	57	88	64
31	82	52	72	54	76	59	81	62	76	58	86	50	82	52	77	55	73	54	89	54	79	52	85	59	81	63
Means	79.1	43.3	75.8	44.4	82.2	48.8	86.4	54.9	85.0	54.7	86.6	54.4	82.1	48.8	79.3	46.4	81.3	52.6	83.7	54.5	81.0	53.1	89.1	50.5	84.6	62.6

Date.	Oregon		Nevada.																								
	Burns, Oreg.		Cherry Creek.		Elko.		Eureka.		Fallon.		Jean.		Lovelocks.		Millett.		Mina.		Quinn River Ranch.		Reno.		Tecoma.		Tonopah.		Winnemucca.	
	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	......	......	74	42	69	38	71	34	73	38	93	53	72	36	......	......	76	50	72	40	74	35	88	45	69	42	69	38
2	......	......	70	39	67	37	68	41	75	49	92	50	76	46	......	......	77	49	70	45	74	47	80	28	64	51	70	41
3	......	......	70	38	68	42	68	37	68	47	90	51	69	44	......	......	76	47	79	43	67	47	78	32	58	41	66	43
4	......	......	73	36	76	35	75	34	81	39	96	47	85	36	......	......	82	44	82	31	80	43	79	33	73	43	80	37
5	......	......	82	40	83	36	84	44	91	47	98	50	89	41	86	40	91	45	87	49	81	51	82	28	83	55	86	49
6	......	......	84	47	83	44	85	51	90	47	99	46	89	45	88	42	88	50	85	44	80	48	80	32	86	60	84	48
7	......	......	82	46	83	42	85	45	91	45	98	47	89	46	86	43	80	52	85	40	83	46	93	35	85	58	86	50
8	......	......	83	49	80	41	84	42	85	47	100	49	87	52	85	42	90	58	81	50	87	48	90	33	85	57	81	50
9	......	......	87	47	86	38	90	42	90	47	101	50	90	55	90	45	96	60	87	35	89	50	89	32	88	62	88	48
10	......	......	91	49	90	40	89	51	93	53	105	61	94	52	91	48	95	63	89	43	89	54	100	38	87	65	91	51
11	......	......	87	54	85	53	87	53	90	59	103	67	89	61	88	56	93	64	84	54	86	60	100	50	85	65	88	63
12	......	......	84	57	90	39	88	52	92	52	98	49	94	54	90	49	94	60	93	59	91	53	90	45	84	64	92	59
13	......	......	77	58	86	51	80	54	90	56	100	50	93	54	81	55	91	56	92	55	84	54	100	44	80	62	91	60
14	......	......	85	57	86	51	84	53	91	53	99	52	92	52	86	42	91	50	91	58	89	54	94	44	83	60	90	60
15	......	......	86	53	90	41	87	47	94	52	100	53	95	51	89	45	94	59	95	35	92	55	95	40	88	66	92	52
16	......	......	89	53	93	43	90	51	100	55	104	66	100	55	93	47	103	86	99	45	97	57	95	33	91	70	97	53
17	......	......	91	55	93	46	89	60	85	71	100	66	84	64	84	55	94	67	96	44	78	60	95	44	78	59	93	56
18	......	......	74	57	90	58	77	52	88	61	90	60	87	53	76	46	87	61	87	59	82	58	96	54	74	55	87	61
19	......	......	79	56	84	55	80	51	90	53	95	56	80	51	85	50	90	58	87	51	85	55	93	47	79	56	86	57
20	......	......	82	53	83	55	84	52	91	56	100	62	89	54	87	50	94	62	88	53	83	53	90	36	84	62	89	54
21	......	......	87	55	87	47	86	53	88	49	98	60	88	45	88	48	92	60	83	40	77	51	92	31	84	62	86	52
22	......	......	80	53	84	53	83	45	84	42	95	58	83	41	83	47	100	54	80	41	75	50	95	30	78	55	81	52
23	......	......	83	45	87	36	83	45	88	44	93	57	86	43	84	44	91	55	......	......	81	44	90	30	79	56	85	46
24	......	......	85	51	89	39	85	53	89	46	98	59	86	45	85	47	94	56	......	......	81	48	97	35	80	59	88	45
25	......	......	86	53	90	39	86	60	89	49	97	53	89	48	85	47	94	59	......	......	84	47	100	35	82	60	89	55
26	......	......	91	59	90	40	88	50	92	50	98	52	92	47	89	40	96	61	......	......	89	48	102	40	84	61	91	47
27	......	......	88	55	92	44	90	50	96	50	99	62	96	47	90	43	96	65	95	47	94	52	101	40	86	64	96	46
28	......	......	88	59	95	50	89	61	96	52	90	61	96	51	88	61	86	71	100	60	95	56	100	42	82	65	97	51
29	......	......	75	56	89	50	82	57	85	70	85	60	92	65	82	67	86	67	97	61	82	64	103	40	74	61	93	62
30	......	......	76	58	85	58	74	57	89	61	87	62	85	60	77	56	86	59	87	50	88	57	85	52	75	57	81	58
31	......	......	74	57	71	59	71	54	89	57	90	62	91	54	76	48	85	60	85	52	85	56	83	50	75	50	86	53
Mns.	......	......	83.0	51.2	84.6	45.2	82.6	49.4	88.2	51.6	96.5	55.8	88.0	49.8	85.6[d]	48.3[d]	89.9	58.3	87.3[d]	47.6[d]	83.9	51.6	92.1	38.6	80.2	58.2	86.4	51.5

[a], [b], [c], etc., indicate respectively 1, 2, 3, etc., days missing from the record.
§§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

Total Precipitation, July, 1912.



Departure of the Mean Temperature from the Normal, July, 1912.